

**OMRON**

# **Robot Vision Manager**

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**User's Manual**

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# Introduction

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This manual is OMRON's original instructions describing the use of V+ Keywords. The following manual additionally provides Robot Vision Manager Properties, Robot Vision Manager Framework Properties, and Robot Vision Manager Tool Properties.

These properties can only be used when the ACE server is running or a connection to ACE is present.

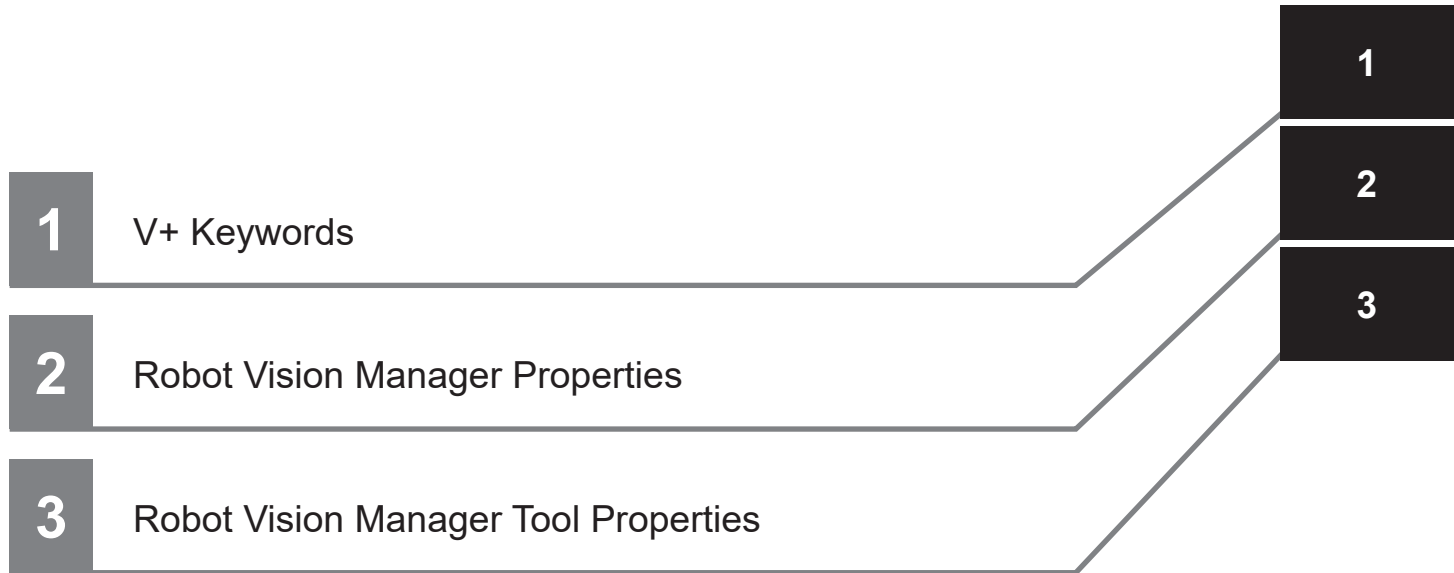
Please read this manual and make sure you understand the functionality and performance of the system before attempting to use these modules.

Keep this manual in a safe place where it will be available for reference during programming and configuration.



# Sections in this Manual

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### Errors and Omissions

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# V+ Keywords

This section describes keywords that are required for programming Robot Vision Manager applications in V+.

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# 1-1 VLOCATION Transformation Function

Transformation function that returns a cartesian transformation result of the execution of the specified vision sequence. The returned value is a transform result as x, y, z, yaw, pitch, and roll.

## Syntax

VLOCATION (\$ip, sequence\_id, tool\_id, instance\_id, result\_id, index\_id, frame\_id)

## Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance in the specified result frame. If no result frame is specified, it is the index for all instances returned by the tool.
result_id	Identifier (ID) of the result. Refer to the <i>2-1 Quick Reference</i> on page 2-11 tables to find the ID for the required result. Typically this value = 1311. For gripper offset location, this value can be set to 1400 and incremented by 1 for each additional gripper offset. The maximum value is 1499. See Example 2.
index_id	Reserved for internal use. Value is always 1.
frame_id	Index of the frame for which you want to retrieve the result contained in the specified instance.

## Details

For V+ systems, the vision server is the PC on which the Robot Vision Manager vision software is running.

The following parameters are optional. These parameters are 1-based. If no value is provided for these parameters, they default to 1.

- sequence\_id
- tool\_id
- instance\_id
- index\_id
- frame\_id

Use the following sequence\_id parameter settings to retrieve specific values.

Parameter Setting	Value to Retrieve
sequence_id = -1, tool_id = -1	Global

Parameter Setting	Value to Retrieve
sequence_id = -1, tool_id = cameraIndex	Camera
sequence_id = -1, tool_id = cameraIndex, index_id = robotIndex	Camera (relative to robot)
sequence_id = sequenceIndex, tool_id = -1	Sequence

Use the following parameter settings to retrieve Belt Calibration related values (read only)

Property	sequence_id	tool_id	instance_id	result_id	index_id	frame_id
Frame	-1	cameraIndex	n/a	10000	robotIndex	n/a
UpstreamLimit	-1	cameraIndex	n/a	10001	robotIndex	n/a
DownstreamLimit	-1	cameraIndex	n/a	10002	robotIndex	n/a
NearsideLimit	-1	cameraIndex	n/a	10003	robotIndex	n/a
VisionOrigin	-1	cameraIndex	n/a	10050	robotIndex	n/a

To retrieve Belt Latch Calibration offsets (read only)

Property	sequence_id	tool_id	instance_id	result_id	index_id	frame_id
Latch CalibrationOffset	-1	Reference number, as defined in Keyword Mapping parameter of Robot Vision Manager Latch Calibration (in ACE workspace).	n/a	10010	robotIndex	n/a

## Examples

Examples are provided below.

### ● Example 1

In this example, the 1311 result ID indicates using the first gripper offset. This is equivalent to using the 1400 result ID.

```
; Retrieve the location of a found instance
; instance location = 1311
SET location = VLOCATION($ip, 1, 2, 1, 1311)
```

### ● Example 2

Example 2

```
; set 1st gripper offset location
; 1st gripper offset location = 1400
SET location = VLOCATION ($ip, 1, 2, 1, 1400)
; set 2nd gripper offset location
SET location = VLOCATION ($ip, 1, 2, 1, 1401)
...
```

```
; set 6th gripper offset location  
SET location = VLOCATION ($ip, 1, 2, 1, 1405)
```

### ● Example 3

#### Example 3

```
; Retrieve the location of the Belt frame  
; BeltCalibrationFrame index is 10000  
VLOCATION ($ip, -1, cameraIndex, , 10000, robotIndex)  
; Retrieve the location of the Vision origin  
; VisionOrigin index is 10050  
VLOCATION ($ip, -1, cameraIndex, , 10050, robotIndex)
```

## 1-2 VPARAMETER Program Instruction

Transformation function that returns the current value of a vision tool parameter.

### Syntax

`VPARAMETER (sequence_id, tool_id, parameter_id, index_id, object_id) $ip = value`

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
parameter_id	Identifier (ID) of the parameter. Refer to the <i>2-1 Quick Reference</i> on page 2-11 tables to find the ID for the required parameter.
index_id	Reserved for internal use. Value is always 1.
object_id	Some parameters require an object index to access specific values in an array. Please refer to the details for the individual parameter to understand the meaning and possible usage.
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

### Details

For V+ systems, the vision server is the PC on which the Robot Vision Manager vision software is running.

The following parameters are optional. These parameters are 1-based. If no value is provided for optional parameters, they default to 1.

- sequence\_id
- tool\_id
- instance\_id
- index\_id
- frame\_id

### Example

The example is provided below.

#### ● Example 1

In this example, the following will retrieve the scale value for the belt calibration.

```
; Set a Locator to find  
; a maximum of 4 object instances.  
; MaximumInstanceCount = 519  
VPARAMETER(1, 2, 519) $ip = 4
```



# 1-3 VPARAMETER Real-valued Function

Gets the current value of a vision tool parameter.

## Syntax

```
value = VPARAMETER ($ip, sequence_id, tool_id, parameter_id, index_id, object_id)
```

## Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
parameter_id	Identifier (ID) of the parameter. Refer to the <i>2-1 Quick Reference</i> on page 2-11 tables to find the ID for the required parameter.
index_id	Reserved for internal use. Value is always 1.
object_id	Some parameters require an object index to access specific values in an array. Please refer to the details for the individual parameter to understand the meaning and possible usage.

## Details

For V+ systems, the vision server is the PC on which the Robot Vision Manager vision software is running.

The following parameters are optional. These parameters are 1-based. If no value is provided for these parameters, they default to 1.

- sequence\_id
- tool\_id
- parameter\_id
- index\_id
- object\_id

Use the following sequence\_id parameter settings to retrieve specific values.

Parameter Settings	Value to Retrieve
sequence_id = -1, tool_id = -1	Global
sequence_id = -1, tool_id = cameraIndex	Camera
sequence_id = sequenceIndex, tool_id = -1	Sequence

Use the following sequence\_id parameter settings to retrieve Belt-Calibration-related values ( read on-ly ).

Parameter Settings	Belt-Calibration-related values (read only)
sequence_id = -1, tool_id = cameraIndex, index_id = robotIndex, object_id = n/a	Scale (10004)

Use the following sequence\_id parameter settings to retrieve sequence-related values.

Parameter Settings	Sequence-related values
sequence_id = sequenceIndex, tool_id = -1, index_id = n/a, object_id = n/a	Mode (10200)

## Example

The example is provided below.

### ● Example 1

In this example, the following will retrieve the scale value for the Belt Calibration.

```
scalevalue = VPARAMETER ($ip, -1, cameraIndex, 10004, robotIndex)
```

## 1-4 VRESULT Real-valued Function

Real-valued function that returns a specified result of a vision tool, or returns the status of a specified tool.

### Syntax

```
value = VRESULT ($ip, sequence_id, tool_id, instance_id, result_id, index_id, frame_id)
```

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance in the specified result frame. If no result frame is specified, it is the index for all instances returned by the tool.
result_id	Identifier (ID) of the result. Refer to the 2-1 <i>Quick Reference</i> on page 2-11 tables to find the ID for the required result.
index_id	Reserved for internal use. Value is always 1.
frame_id	Index of the frame for which you want to retrieve the result contained in the specified instance.

### Details

For V+ systems, the vision server is the PC on which the Robot Vision Manager vision software is running.

The following parameters are optional. These parameters are 1-based. If no value is provided for these parameters, they default to 1.

- sequence\_id,
- tool\_id, instance
- index\_id
- frame\_id

When a VRESULT is issued for a specific tool, it checks to see if that tool supports the VRESULT code. If the specified tool does not support the code, VRESULT moves to the parent tool to see if it supports the code. It continues up the chain until it finds a tool that supports the code. If no valid tool is found, an invalid vision result error is generated.

For example, suppose an Arc Finder tool is placed relative to a Blob Analyzer tool. In the application, the Blob Analyzer tool locates many blobs and adds an Arc Finder tool at each instance. If you ask for the blob area associated with an arc finder instance, VRESULT will recognize that the Arc Finder tool does not support that code, so it moves to the parent tool (the Blob Analyzer tool) and finds the blob

instance associated with the specified arc result. It validates that the blob result supports the VRE-SULT code, and so it returns the data.

Some vision tools are considered **Frame Sources**. The Blob Analyzer and Locator tool are the most commonly used Frame Sources. When these tools execute, it will mark each results as a separate frame or grouping. Any vision tools relative to a Frame Source will associate each of it's results with the frame it is relative to. In this case, you may want to use the *frame\_id* parameter to extract the results.

For example, going back to the Arc Finder tool relative to the Blob Analyzer tool. If the Blob Analyzer locates 5 different results, then the Arc Finder tool will execute 5 different Arc Finder operations, one relative to each result returned by the Blob Analyzer. The Arc Finder will associate each result with a frame number that correlates with the index of the result returned by the Blob Analyzer. So, if you want to get an Arc Fider result associated with the 4th result of the Blob Analyzer, you would reference *index\_id=1* in *frame\_id = 4*. You are requesting the first instance in result frame 4. In this situation, you can still access all the Arc Finder results using *frame\_id = -1*. But note, some child vision tools may have multiple results within each frame and sometimes might have no results within a frame.

## Example

The example is provided below.

### ● Example 1

Use this example to retrieve a specific tool result.

```
; Get the number of instances found by a Locator.
; instance count = 1310
instance_count = VRESULT($ip, 1, 2, 1, 1310)
```

## 1-5 VRUN Program Instruction

Real-valued function that initiates the execution of a vision sequence.

### Syntax

```
VRUN$ip, sequence_id
```

### Parameters

Parameters	Description
\$ip	IP IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.

### Details

For V+ systems, the vision server is the PC on which the Robot Vision Manager vision software is running.

The sequence\_id parameter is optional. This parameter is 1-based. If no value is provided for this parameter, it defaults to 1.

### Example

The example is provided below.

#### ● Example 1

The following example executes the first sequence.

```
VRUN $ip, 1
```

## 1-6 VSTATE Real-valued Function

Real-valued function that returns the state of the execution of a sequence.

### Syntax

VSTATE (\$ip, sequence\_id)

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.

### Details

In V+ the vision server is the PC on which the Robot Vision Manager vision software is running. The sequence\_id parameter is optional. This parameter is 1-based. If no value is provided, it defaults to 1.

#### ● Return

Details for the values returned are provided below.

Value	Description
0	Idle
1	Running
2	Paused
3	Done
4	Error
5	Starting

### Example

The example is provided below.

#### ● Example 1

```
; Wait until the sequence has completed
DO
    WAIT
UNTIL VSTATE($ip, 1) == 3
```

## 1-7 VTIMEOUT System Parameter

---

Sets a timeout value so that an error message is returned if no response is received following a vision command. The timeout value is expressed in seconds (for example, the value 0.15 = 150 ms). For the V+ system, the default value is 5 (seconds).

### Syntax

---

```
PARAMETER VTIMEOUT = value
```

### Details

---

For the V+ system, VTIMEOUT = 0 sets the timeout value to 16 ms (which is the minimum timeout that will be used).

### Example

---

The example is provided below.

- **Example 1**

In this example, the VTIMEOUT value is set to 0.20 ms. If there is no response after 200 ms, an error message will occur.

```
PARAMETER VTIMEOUT = 0.20
```

## 1-8 VWAITI Program Instruction

Waits until the specified vision sequence reaches the state specified by the type parameter. Use a VWAITI call after VRUN. In a V+ conveyor-tracking application, the absence of a specific VWAITI instruction can interfere with the Virtual Camera tool and the Communication tool, and cause a delay in the execution of the application.



### Additional Information

VWAITI can block other tasks executing other V+ Robot Vision Manager keywords. Consider using VSTATE if your application has multiple V+ tasks interacting with Robot Vision Manager sequences.

### Syntax

VWAITI (sequence\_id) \$ip, type

### Parameters

Parameters	Description
sequence_id	Optional index of the vision sequence. The first sequence is 1.
\$ip	IP address of the vision server. The vision server is the PC on which the Robot Vision Manager is running and uses a standard IP address format (192.168.1.120 for example).
type	Optional vision sequence state to reach before completing as described below. <ul style="list-style-type: none"> <li>• 0: Wait for full completion (default).</li> <li>• 1: Wait until image acquisition has completed.</li> </ul>

### Details

In V+, the vision server is the PC on which the Robot Vision Manager vision software is running. The following parameters are optional: sequence\_id and type. The sequence\_id parameter is 1-based. If no value is provided for the *sequence\_id* parameter, it defaults to 1. If no value is provided for the *type* parameter, it defaults to 0.

### Examples

The example is provided below.

#### ● Example 1

The following example will execute the first sequence and wait for full completion.

```
VRUN $ip, 1
VWAITI (1) $ip, 0
```



# 2

## Robot Vision Manager Properties

This section describes details on all Robot Vision Manager properties and their use in V+.

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VideoExposure	VPARAMETER	5502	page 2-412
VideoGain	VPARAMETER	5503	page 2-413
VisionOriginBelt	VLOCATION	10052	page 2-414
VisionOriginRobot	VLOCATION	10050	page 2-415
VisionRotation	VPARAMETER	10403	page 2-416
VisionXPosition	VPARAMETER	10401	page 2-418
VisionYPosition	VPARAMETER	10402	page 2-419

## 2-2 Abort

---

Property that stops the execution of the specified Virtual Camera tool. This property is write-only.

### Syntax

---

VPARAMETER (sequence\_id, tool\_id, 5501, index\_id, object\_id) \$ip = value

### Type

---

Boolean

### Parameters

---

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5501: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-3 ActiveCalibration

Property that reads and writes the index of the active calibration relative to a camera.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5504, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5504, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 0

Maximum: The number of calibrations associated with the tool.

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5504: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-4 ActiveSettings

Property that reads and writes the index of the active settings relative to a camera.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5505, index\_id, object\_id) \$ip = value

VPARAMETER (sequence\_id, tool\_id, 5505, index\_id, object\_id) \$ip = value

### Type

Real variable.

### Range

Minimum: 0

Maximum: The number of calibrations associated with the tool.

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5505: the value used to reference this property.
index_id	Robot number to select.
object_id	Index of the tool tip to access.
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-5 AnyFeederVRunCommand

Property that identifies the command that is run when a VRUN is issued to the AnyFeeder.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 6000, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 6000, index\_id, object\_id)

### Type

Real variable.

### Range

A valid AnyFeeder command or sequence index. The valid AnyFeeder commands are:

AnyFeeder Command	Range
Feed Forward	1
Feed Backward	2
Feed Flip Forward	3
Feed Flip Backward	4
Flip	5
Dispense	6
Purge	7
Heavy Dispense	8
Stop	15
Init	16
Error Reset	30
Firmware Restart	31
Backlight On	100
Backlight Off	101

### Parameters

Parameter	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	6000: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-6 AnyFeederDispenseIterations

The number of iterations used in the dispense operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 6012, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 6012, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 1

Maximum: 63

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	6012: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.



## 2-7 AnyFeederDispenseSpeed

The speed used for the dispense operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 6002, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 6002, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 0  
 Maximum: 10

### Parameters

Parameters	Descriptions
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	6002: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-8 AnyFeederFeedBackwardIterations

The number of iteration for the feed backwards operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 6015, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 6015, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 1

Maximum: 63

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	6015: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-9 AnyFeederFeedBackwardSpeed

The speed used for the feed backwards operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 6005, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 6005, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 0  
Maximum: 10

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	6005: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-10 AnyFeederFeedFlipBackwardIterations

The number of iterations used for the feed flip backwards operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 6015, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 6015, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 1

Maximum: 63

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	6015: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-11 AnyFeederFeedFlipBackwardSpeed

The speed used for the feed flip backwards operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 6008, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 6008, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 0  
Maximum: 10

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	6008: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-12 AnyFeederFeedFlipForwardIterations

The number of iterations used for the feed flip forward operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 6017, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 6017, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 1

Maximum: 63

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	6017: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-13 AnyFeederFeedFlipForwardSpeed

The speed used for the feed flip forward operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 6007, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 6007, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 0  
Maximum: 10

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	6007: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-14 AnyFeederFeedForwardIterations

The number of iterations used for the feed forward operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 6011, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 6011, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 1

Maximum: 63

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	6011: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.



## 2-15 AnyFeederFeedForwardSpeed

The speed used for the feed forward operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 6001, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 6001, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 0  
Maximum: 10

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	6001: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-16 AnyFeederFlipIterations

The number of iterations used for the flip operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 6013, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, 6013, 6000, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 1

Maximum: 63

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	6013: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-17 AnyFeederFlipSpeed

The speed used for the flip operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 6003, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 6003, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 0  
Maximum: 10

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	6003: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-18 AnyFeederHeavyDispenseIterations

The number of iterations used for the heavy dispense operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 6016, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 6016, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 1

Maximum: 63

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	6016: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-19 AnyFeederHeavyDispenseSpeed

The speed used for the heavy dispense operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 6006, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 6006, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 0  
Maximum: 10

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	6006: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-20 AnyFeeder Purgeliterations

The speed used for the heavy dispense operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 6006, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 6006, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 0

Maximum: 10

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	6006: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-21 AnyFeederPurgeSpeed

The speed used for the purge operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 6004, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 6004, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 0  
 Maximum: 10

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	6004: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-22 ArcMustBeTotallyEnclosed

When set to True, the start and end points of the arc must be located on the radial bounding sides of the Search Area.

When set to False, the found arc can enter and/or exit the Search Area at the inner or outer annular bounds of the Search Area.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 5141, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 5141, index_id, object_id)
```

### Type

Boolean

### Range

Value	Description
1	Start and end points of the arc must be located on the sides of the bounding area.
0	Start and end points of the arc can be anywhere inside or outside of the bounding area

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5141: the value used to reference this property.
index_id	N/A
object_id	N/A



## 2-23 ArithmeticClippingMode

Clipping mode applied by an arithmetic operation.



### Additional Information

hsClippingNormal mode forces the destination pixel value to a value from 0 to 255 for unsigned 8-bit images, to a value from -327678 to 32767 for signed 16 bits images and so on. Values that are less than the specified minimum value are set to the minimum value. Values greater than the specified maximum value are set to the maximum value.

hsClippingAbsolute mode takes the absolute value of the result and clips it using the same algorithm as for the hsClippingNormal mode.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5360, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5360, index\_id, object\_id)

### Type

Long

### Range

Value	Image Processing Clipping Mode	Description
0	hsClippingNormal	Normal clipping method is used.
1	hsClippingAbsolute	Absolute clipping method is used.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5360: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-24 ArithmeticConstant

Constant applied by an arithmetic operation when no valid operand image is specified.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5361, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5361, index\_id, object\_id)

### Type

Long

### Range

Minimum: 1

Maximum: 256

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5361: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-25 ArithmeticScale

Scaling factor applied by an arithmetic operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5362, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5362, index\_id, object\_id)

### Type

Double

### Range

Unlimited

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5362: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-26 AssignmentConstant

Constant applied by an assignment operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5365, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5365, index\_id, object\_id)

### Type

Long

### Range

Unlimited

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5365: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-27 AssignmentHeight

Constant value that defines the height of the output image. This property is read-only.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5366, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5366, index\_id, object\_id)

### Type

Long

### Range

Minimum: 1  
 Maximum: 2048

### Parameter

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5366: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-28 AssignmentWidth

Constant value that defines the width of the output image. This property is read-only.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5367, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5367, index\_id, object\_id)

### Type

Long

### Range

Minimum: 1

Maximum: 2048

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5367: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-29 AutoCoarsenessSelectionEnabled

When is set to True, the value of 2-334 *SearchCoarseness* on page 2-367 is automatically determined by the Pattern Locator process when the pattern is learned.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5421, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5421, index\_id, object\_id)

### Type

Long

### Range

Value	Description
1	The Coarseness levels are automatically determined and set by the tool.
0	The Coarseness levels are set by the user.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5421: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-30 AutomaticCandidateCountEnabled

When set to True, the number of candidate measurement points is automatically determined according to the dimension of the tool region of interest.

When set to False, the number of candidate measurement points is set manually through the *2-91 CandidatePointsCount* on page 2-110 property.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 5301, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 5301, index_id, object_id)
```

### Type

Long

### Range

Value	Description
1	The number of candidate measurement points is set automatically.
0	The number of candidate measurement points is set manually.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5301: the value used to reference this property.
index_id	N/A
object_id	N/A



## 2-31 AverageContrast

Average contrast, expressed in greylevel values, between light and dark pixels on either side of the found entity (point, line, or arc). This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1801, index\_id, frame\_id)

### Type

Double

### Range

Minimum: Greater than 0.

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1801: the value used to reference this property.
index_id	N/A
frame_id	Frame that contains the entity for which you want the result.

## 2-32 BeltCalibrationDownstreamLimit

The downstream limit of the belt, which is defined during the Belt Calibration. Expressed as a transform. This property is read-only.

### Syntax

value = VLOCATION (\$ip, sequence\_id, tool\_id, instance\_id, 10002, index\_id, frame\_id)

### Type

Location

### Parameters

Parameters	Descriptions
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	N/A
instance_id	Index of the instance for which you want the transform. 1-based.
ID	10002: the value used to reference this property.
index_id	Reserved for internal use. Value is always 1.
frame_id	Index of the frame that contains the specified instance.

## 2-33 BeltCalibrationFrame

The belt frame of reference, which is defined during the Belt Calibration. Expressed as a transform. This property is read-only.

### Syntax

value = VLOCATION (\$ip, sequence\_id, tool\_id, instance\_id, 10000, index\_id, frame\_id)

### Type

Location

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the transform. 1-based.
ID	10000: the value used to reference this property.
index_id	Reserved for internal use. Value is always 1.
frame_id	Index of the frame that contains the specified instance.

## 2-34 BeltCalibrationNearSideLimit

The nearside limit of the belt, which is defined during the Belt Calibration. Expressed as a transform. This property is read-only.

### Syntax

value = VLOCATION (\$ip, sequence\_id, tool\_id, instance\_id, 10003, index\_id, frame\_id)

### Type

Location

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	N/A
instance_id	Index of the instance for which you want the transform. 1-based.
ID	10003: the value used to reference this property.
index_id	Reserved for internal use. Value is always 1.
frame_id	Index of the frame that contains the specified instance.

## 2-35 BeltCalibrationScale

The scale factor between encoder counts and millimeters, which is defined during the Belt Calibration. This is the number of millimeters that the belt advances for each encoder count. This property is read-only.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 10004, index\_id, object\_id)

### Type

Double

### Parameters

Parameters	Description
sequence_id	Must be set to -1.
tool_id	The camera number referenced in the keyword mapping of the camera calibration object.
ID	10004: the value used to reference this property.
index_id	N/A
object_id	The robot number associated with the calibration.
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-36 BeltCalibrationUpstreamLimit

The upstream limit of the belt, which is defined during the Belt Calibration. Expressed as a transform. This property is read-only.

### Syntax

value = VLOCATION (\$ip, sequence\_id, tool\_id, instance\_id, 10001, index\_id, frame\_id)

### Type

Location

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	N/A
instance_id	Index of the instance for which you want the transform. 1-based.
ID	10001: the value used to reference this property.
index	Reserved for internal use. Value is always 1.
frame_id	Index of the frame that contains the specified instance.

## 2-37 BeltLatchCalibrationOffset

The robot-to-latch calibration offset, which is defined during the Latch Calibration. Expressed as a transform. This property is read-only.

### Syntax

value = VLOCATION (\$ip, sequence\_id, tool\_id, instance\_id, 10010, index\_id, frame\_id)

### Type

Location

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the transform. 1-based.
ID	10010: the value used to reference this property.
index_id	Reserved for internal use. Value is always 1.
frame_id	Index of the frame that contains the specified instance.

## 2-38 BilinearInterpolationEnabled

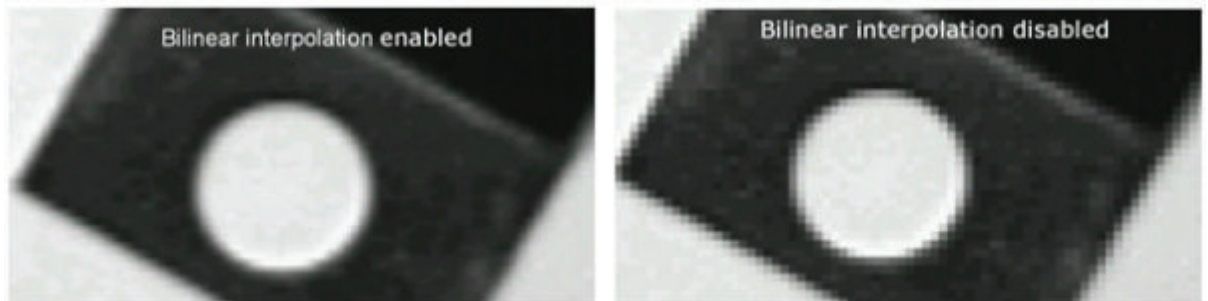
Specifies if bilinear interpolation is used to sample the input image. By default, bilinear interpolation is enabled because it ensures subpixel accuracy.



### Additional Information

Bilinear interpolation is crucial for obtaining accurate results with inspection tools. When a tool is positioned in frame-based mode, the tool region of interest is rarely aligned with the pixel grid, which results in jagged edges on edges of objects. The bilinear interpolation function smooths out the jaggedness within the sampled image by attributing to each pixel a value interpolated from values of neighboring pixels, which provides a more true-to-life representation of contours, as illustrated in the following figure.

Uninterpolated sampling may provide a small increase in speed but will provide less accurate results.



### Syntax

VPARAMETER (sequence\_id, tool\_id, 120, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 120, index\_id, object\_id)

### Type

Boolean

### Range

Value	Description
1	Bilinear interpolation is enabled. Recommended default setting.
0	Bilinear interpolation is disabled.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.



Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	120: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-39 BlobArea

Area of the selected blob. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1611, index\_id, frame\_id)

### Type

Double

### Range

Minimum: 2-261 *MinimumBlobArea* on page 2-290

Maximum: 2-251 *MaximumBlobArea* on page 2-280

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1611: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-40 BlobBoundingBoxBottom

The bottommost coordinate of the bounding box aligned with respect to the X-axis of the Tool coordinate system. This value is returned with respect to the selected coordinate system. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1648, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1648: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-41 BlobBoundingBoxCenterX

X-coordinate of the center of the bounding box aligned with the Tool coordinate system. This value is returned with respect to the selected coordinate system. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1624, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1624: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-42 BlobBoundingBoxCenterY

Y-coordinate of the center of the bounding box aligned with the Tool coordinate system. This value is returned with respect to the selected coordinate system. This property is read-only.

### Syntax

```
value = VRESULT ($ip, sequence_id, tool_id, instance_id, 1625, index_id, frame_id)
```

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1625: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-43 BlobBoundingBoxHeight

Height of the bounding box with respect to the Y-axis of the Tool coordinate system. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1626, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1626: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-44 BlobBoundingBoxLeft

The leftmost coordinate of the bounding box aligned with respect to the X-axis of the Tool coordinate system. This value is returned with respect to the selected coordinate system. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1645, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1645: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-45 BlobBoundingBoxRight

The rightmost coordinate of the bounding box aligned with respect to the X-axis of the Tool coordinate system. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1646, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1646: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.



## 2-46 BlobBoundingBoxRotation

Rotation of the bounding box with respect to the X-axis of the selected coordinate system. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1649, index\_id, frame\_id)

### Type

Double

### Range

Minimum: 0

Maximum: 360

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1649: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-47 BlobBoundingBoxTop

The topmost coordinate of the bounding box aligned with respect to the X-axis of the Tool coordinate system. This value is returned with respect to the selected coordinate system. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1647, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1647: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-48 BlobBoundingBoxWidth

Width of the bounding box with respect to the X-axis of the Tool coordinate system. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1627, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1627: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-49 BlobChainCode

Direction, in Tool coordinates, of a given boundary element in the chain code. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1656, index\_id, frame\_id)

### Type

Long

### Range

Value	Name	Description
0	hsDirectionRight	Right direction
1	hsDirectionTop	Top direction
2	hsDirectionLeft	Left direction
3	hsDirectionBottom	Bottom direction

### Parameters

\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1656: the value used to reference this property.
index_id	Index of the selected boundary element.
frame_id	Frame containing the blob for which you want the result.

## 2-50 BlobChainCodeDeltaX

Horizontal length, in Tool coordinates, of a boundary element in the chain code. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1659, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1659: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-51 BlobChainCodeDeltaY

Vertical length, in Tool coordinates, of a boundary element in the chain code. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1660, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1660: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-52 BlobChainCodeLength

Number of boundary elements in the chain code of the blob. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1655, index\_id, frame\_id)

### Type

Long

### Range

Minimum: Greater than 4

Maximum: unlimited

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1655: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-53 BlobChainCodeStartX

X-position, in Tool coordinates, of the first pixel in the chain code. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1657, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1657: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.



## 2-54 BlobChainCodeStartY

Y-position, in Tool coordinates, of the first pixel in the chain code. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1658, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1658: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-55 BlobConvexPerimeter

Convex perimeter of the selected blob. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1614, index\_id, frame\_id)

### Type

Double

### Range

Minimum: Greater than 0.0

Maximum: unlimited

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1614: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-56 BlobCount

Number of blobs detected by the tool. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1610, index\_id, frame\_id)

### Type

Long

### Range

Minimum:

Maximum: 65534

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1610: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-57 BlobElongation

Ratio of the moment of inertia about the blob's minor axis (2-68 *BlobInertiaMaximum* on page 2-87) to the moment of inertia about the blob's major axis (2-69 *BlobInertiaMinimum* on page 2-88). This property is read-only.



### Additional Information

No units.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1616, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1616: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-58 BlobExtentBottom

Distance along the Y-axis between the blob's center of mass and the bottom side of the bounding box. This property is read-only.

### Syntax

```
value = VRESULT ($ip, sequence_id, tool_id, instance_id, 1653, index_id, frame_id)
```

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1653: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-59 BlobExtentLeft

Distance along the Y-axis between the blob's center of mass and the bottom side of the bounding box. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1650, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1650: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-60 BlobExtentRight

Distance along the X-axis between the blob's center of mass and the right side of the bounding box. This property is read-only.

### Syntax

```
value = VRESULT ($ip, sequence_id, tool_id, instance_id, 1651, index_id, frame_id)
```

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1651: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-61 BlobExtentTop

Distance along the Y-axis between the blob's center of mass and the top side of the bounding box. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1652, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1652: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.



## 2-62 BlobGreyLevelMaximum

Highest greylevel value of the selected blob. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1622, index\_id, frame\_id)

### Type

Long

### Range

Minimum: 0

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1622: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-63 BlobGreyLevelMean

Mean greylevel value in the selected blob. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1618, index\_id, frame\_id)

### Type

Double

### Range

Minimum: 0

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1618: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-64 BlobGreyLevelMinimum

Lowest greylevel value in the selected blob. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1621, index\_id, frame\_id)

### Type

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1621, index\_id, frame\_id)

### Range

Minimum: 0

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1621: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-65 BlobGreyLevelRange

Range of the greylevel values in the selected blob. The range is calculated as [2-62 *BlobGreyLevelMaximum* on page 2-81 - 2-64 *BlobGreyLevelMinimum* on page 2-83 + 1]. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1619, index\_id, frame\_id)

### Type

Long

### Range

Minimum: 0

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1619: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-66 BlobGreyLevelStdDev

Standard deviation of the greylevel values in the selected blob. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1620, index\_id, frame\_id)

### Type

Double

### Range

Minimum: 0

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1620: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-67 BlobHoleCount

The number of holes found in the selected blob. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1654, index\_id, frame\_id)

### Type

Long

### Range

Minimum: 0

Maximum: Unlimited

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1654: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-68 BlobInertiaMaximum

Moment of inertia about the minor axis, which corresponds to the highest moment of inertia. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1633, index\_id, frame\_id)

### Type

Double

### Range

Minimum: Greater than .0

Maximum: Unlimited

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1633: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-69 BlobInertiaMinimum

Moment of inertia about the major axis, which corresponds to the lowest moment of inertia. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1632, index\_id, frame\_id)

### Type

Double

### Range

Minimum: Greater than 0

Maximum: Unlimited

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1632: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.



## 2-70 BlobInertiaXAxis

Moment of inertia about the X-axis of the Tool coordinate system. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1634, index\_id, frame\_id)

### Type

Double

### Range

Minimum: Greater than 0

Maximum: Unlimited

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1634: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-71 BlobInertiaYAxis

Moment of inertia about the Y-axis of the Tool coordinate system. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1635, index\_id, frame\_id)

### Type

Double

### Range

Minimum: Greater than 0.

Maximum: Unlimited

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1635: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-72 BlobIntrinsicBoundingBoxBottom

The bottommost coordinate of the bounding box with respect to the X-axis (major axis) of the principal axes. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1639, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Description	Industry
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1639: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-73 BlobIntrinsicBoundingBoxCenterX

X-coordinate of the center of the bounding box with respect to the X-axis (major axis) of the principal axes. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1628, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1628: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-74 BlobIntrinsicBoundingBoxCenterY

Y-coordinate of the center of the bounding box with respect to the Y-axis (minor axis) of the principal axes. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1629, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1629: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-75 BlobIntrinsicBoundingBoxHeight

Height of the bounding box with respect to the Y-axis (minor axis) of the principal axes. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1630, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1630: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-76 BlobIntrinsicBoundingBoxLeft

The leftmost coordinate of the bounding box aligned with respect to the X-axis (major axis) of the principal axes. This property is read-only.

### Syntax

```
value = VRESULT ($ip, sequence_id, tool_id, instance_id, 1636, index_id, frame_id)
```

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1636: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-77 BlobIntrinsicBoundingBoxRight

The rightmost coordinate of the bounding box aligned with the X-axis (major axis) of the principal axes. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1637, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1637: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.



## 2-78 BlobIntrinsicBoundingBoxRotation

Rotation of the intrinsic bounding box with respect to the X-axis of the selected coordinate system. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1640, index\_id, frame\_id)

### Type

Double

### Range

Minimum: -180

Maximum: 180

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1640: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-79 BlobIntrinsicBoundingBoxTop

The topmost coordinate of the bounding box aligned with the Y-axis (minor axis) of the principal axes. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1638, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1638: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-80 BlobIntrinsicBoundingBoxWidth

Width of the bounding box with respect to the X-axis of the Tool coordinate system. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1631, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
ip	IP address of the vision server
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1631: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-81 BlobIntrinsicExtentBottom

Distance along the minor axis between the blob's center of mass and the bottom side of the intrinsic bounding box. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1644, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1644: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-82 BlobIntrinsicExtentLeft

Distance along the major axis between the blob's center of mass and the left side of the intrinsic bounding box. This property is read-only.

### Syntax

```
value = VRESULT ($ip, sequence_id, tool_id, instance_id, 1641, index_id, frame_id)
```

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1641: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-83 BlobIntrinsicExtentRight

Distance along the major axis between the blob's center of mass and the right side of the intrinsic bounding box. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1642, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1642: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-84 BlobIntrinsicExtentTop

Distance along the major axis between the blob's center of mass and the top side of the intrinsic bounding box. This property is read-only.

### Syntax

```
value = VRESULT ($ip, sequence_id, tool_id, instance_id, 1643, index_id, frame_id)
```

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1643: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-85 BlobPositionX

X-coordinate of the center of mass of a given blob in the currently-selected coordinate system. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1612, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1612: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.



## 2-86 BlobPositionY

Y-coordinate of the center of mass of a given blob in the currently-selected coordinate system. This property is read-only.

### Syntax

```
value = VRESULT ($ip, sequence_id, tool_id, instance_id, 1613, index_id, frame_id)
```

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1613: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-87 BlobPrincipalAxesRotation

Angle of axis of the smallest moment of inertia with respect to the X-axis of the selected coordinate system. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1617, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1617: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-88 BlobRawPerimeter

Raw perimeter of the selected blob. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1615, index\_id, frame\_id)

### Type

Double

### Range

Minimum: Greater than 0.

Maximum: Unlimited

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1615: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-89 BlobRoundness

Degree of similarity between the blob and a circle. The roundness is 1 for a perfectly-circular blob. This property is read-only.



### Additional Information

No units.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1623, index\_id, frame\_id)

### Type

Double

### Range

Minimum: Greater than 0.0

Maximum: 1.0

### Parameters

Parameter	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	1623: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the blob for which you want the result.

## 2-90 CalibratedUnitsEnabled

Returns 1 if the image the virtual camera image the tool is operating on has an active calibration applied. If no calibration is in effect, a 0 is returned. This property is read-only.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 103, index\_id, object\_id)

### Type

Boolean

### Range

Value	Description
1	Dimensions are expressed in millimeters. (Default)
0	Dimensions are expressed in pixel units.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	103: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-91 CandidatePointsCount

Sets the number of candidate locations where the tool tries to evaluate the sharpness. When the tool is executed, it scans the region of interest and identifies a number of candidate locations (equal to CandidatePointsCount) where the local standard deviation is the highest. The local sharpness is then evaluated at each candidate location that has a local standard deviation above the StandardDeviation-Threshold property.

The number of locations where the sharpness is actually measured is returned by the Measurement-PointsCount property. When the *2-30 AutomaticCandidateCountEnabled* on page 2-48 property is True, the number of candidate measurement points is automatically determined according to the size of the region of interest and CandidatePointsCount.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5300, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5300, index\_id, object\_id)

### Type

Long

### Range

Minimum: Greater than 0.

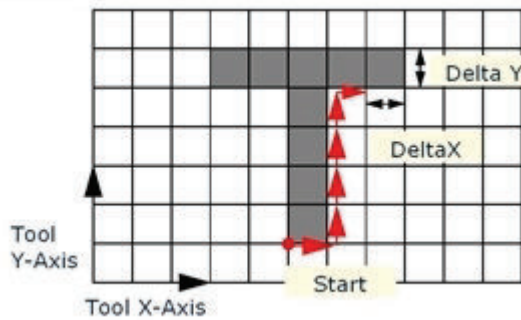
Maximum: 32767

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5300: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-92 ChainCodeResultsEnabled

Enables the computation of the blob chain code properties: BlobChainCode, BlobChainCodeDeltaX, BlobChainCodeDeltaY, BlobChainCodeLength, BlobChainCodeStartX and BlobChainCodeStartY.



### Syntax

VPARAMETER (sequence\_id, tool\_id, 1607, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 1607, index\_id, object\_id)

### Type

Boolean

### Range

Index	Description
1	Chain Code Results are output by the tool.
0	Chain Code Results are not output.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	1607: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-93 ClearanceGripperOffsetCount

Returns the number of gripper offset for the associated gripper offset table associated with the gripper clearance 3D tool.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 2903, index\_id, object\_id)

### Type

Integer

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	2900: the value used to reference this property.
index_id	N/A
object_id	N/A



## 2-94 ClearanceGroupCount

Returns the number of groups returned by the gripper clearance 3D tool.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 2900, index\_id, object\_id)

### Type

Integer

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	2900: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-95 ClearanceGroupMeasuredPoint-Clouds

Returns the number of points detected in the region represented by the specified group.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 2901, index\_id, object\_id)

### Type

Double

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	2901: the value used to reference this property.
index_id	The index of the gripper offset table offset to access.

## 2-96 ClearanceGroupPassStatus

Returns the result of the clearance check for the specified group.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 2902, index\_id, object\_id)

### Type

Boolean

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	2902: the value used to reference this property.
index_id	N/A

## 2-97 ColorFilterCount

Returns the number of filters that are defined for the Color Matching tool. This property is read-only.



### Additional Information

ColorFilterCount reports the number of filters that are defined in the tool and that appear in the Filters list in the interface. This value is not affected by the number of filter results in an image.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5700, index\_id, object\_id)

### Type

Long

### Range

Minimum: 0

Maximum: Unlimited

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5700: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-98 ColorFilterMatchPixelCount

Counts the number of pixels that match the conditions set by the filter. This result is output for each filter, starting at Filter 0. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 2502, filter\_id, frame\_id)

### Type

Long

### Range

Minimum: 0

Maximum: *2-205 ImagePixelCount* on page 2-226

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	2502: the value used to reference this property.
filter_id	Index of the filter for which you want the result. First Filter is 0.
frame_id	Frame for which you want the results.

## 2-99 ColorFilterMatchQuality

Calculates the percentage of pixels matched to the specified filter. This value is equal to the number of matched pixels (Filter (n) Match Pixel Count), divided by the total number of pixels in the region of interest (Image Pixel Count). This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 2501, filter\_id, frame\_id)

### Type

Long

### Range

**Minimum:** Greater than 0

**Maximum:** 1.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the blob for which you want the result.
ID	2501: the value used to reference this property.
filter_id	Index of the filter for which you want the result. First Filter is 0.
frame_id	Frame for which you want the results.

## 2-100 CommunicationToolResults

Returns the total number of results that have been queued by all communication tools within a given sequence. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 2600, index\_id, frame\_id)

### Type

Integer

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Should always be set to -1.
instance_id	Not used
ID	2600: the value used to reference this property.
index_id	Not used
frame_id	Not used

## 2-101 ConformityTolerance

Maximum local deviation between the expected model contours of an instance and the contours actually detected in the input image. It corresponds to the maximum distance by which a matched contour can deviate from either side of its expected position in the model. This property can only be set when *2-375 UseDefaultConformityTolerance* on page 2-410 is set to False. Otherwise, it is read-only.



### Additional Information

This property can be set to any positive value if *ConformityToleranceRangeEnabled* on page 2-120 is set to False.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 556, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 556, index\_id, object\_id)

### Type

Double

### Range

Minimum: Not applicable

Maximum: Not applicable

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	556: the value used to reference this property.
index_id	N/A
object_id	N/A

#### ● ConformityToleranceRangeEnabled

ConformityToleranceRangeEnabled is set to True, the allowable range of values for *2-101 ConformityTolerance* on page 2-120 is set positive value.



**Additional Information**

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Disabling the conformity tolerance range can be useful for finding deformable objects, which requires a high conformity tolerance value for a better match.

---

## 2-102 ConformityToleranceRangeEnabled

ConformityToleranceRangeEnabled is set to True, the allowable range of values for 2-101 *Conformity-Tolerance* on page 2-120 is set positive value.



### Additional Information

Disabling the conformity tolerance range can be useful for finding deformable objects, which requires a high conformity tolerance value for a better match.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 553, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 553, index_id, object_id)
```

### Type

Boolean

### Range

Value	Description
0	ConformityToleranceRange is enabled.
1	ConformityToleranceRange is disabled

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	553: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-103 Connectivity

Defines a minimum number of connected edges required to generate a point hypothesis from a specific found edge, which satisfies the search constraints.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 5120, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 5120, index_id, object_id)
```

### Type

Long

### Range

Minimum: 1  
Maximum: 20

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5120: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-104 Constraints

Defines the edge detection constraints of an Arc Locator tool or an Edge Locator tool. Constraints can be set for position and/or magnitude and are used to score edges.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5220, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5220, index\_id, object\_id)

### Type

Long

### Range

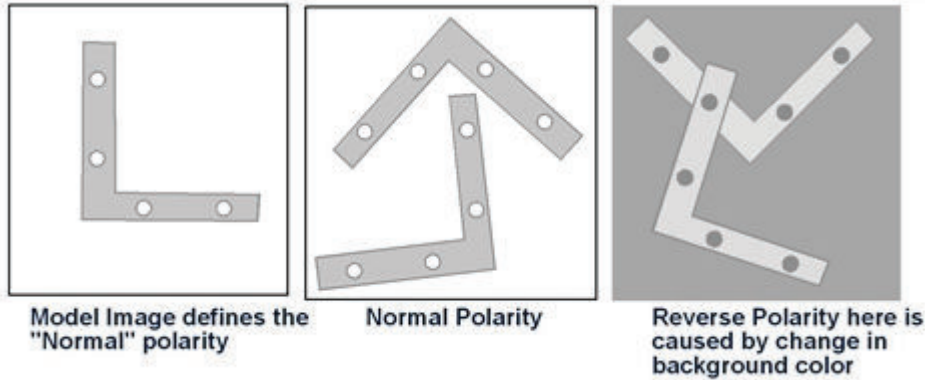
Value	Constraints Name	Description
0	hsNone	No constraint.
1	hsPosition	Position constraint.
2	hsMagnitude	Magnitude constraint.
3	hsAllConstraints	Magnitude and position

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5220: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-105 ContrastPolarity

Selects the type of polarity accepted for object recognition. Contrast polarity identifies the direction of change in greylevel values between an object and its surrounding area. Polarity is always defined with respect to the initial polarity in the image on which the model was created.



### Syntax

VPARAMETER (sequence\_id, tool\_id, 522, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 522, index\_id, object\_id)

### Type

Long

### Range

Value	hsContrastPolarity	Description
0	hsContrastPolarityNormal	The Locator accepts only instances having the same polarity as that of the model and does not recognize local changes in polarity.
1	hsContrastPolarityReverse	The Locator accepts only instances having the inverse polarity as that of the model and does not recognize local changes in polarity.
2	hsContrastPolarityNormalAndReverse	The Locator accepts only instances having a polarity that is either the same or the inverse of the model's polarity but does not recognize local changes in polarity.
3	hsContrastPolarityDontCare	Accepts any polarity for the object, INCLUDING local changes in polarity.

## Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	522: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-106 ContrastThreshold

Defines the minimum contrast needed for an edge to be detected in the input image and used for arc computation. This threshold is expressed in terms of a step in greylevel values. Except when *2-107 ContrastThresholdMode* on page 2-128 is set to `hsContrastThresholdFixedValue`, the property is read-only.



### Additional Information

By default, the tool selects a *2-107 ContrastThresholdMode* on page 2-128 based on image content to provide flexibility to variations in image lighting conditions and contrast. Adaptive threshold modes are generally recommended. A fixed-value contrast threshold should only be used when adaptive values do not provide satisfactory results.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 303, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 303, index\_id, object\_id)

### Type

Long

### Range

Minimum: 1  
Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	303: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-107 ContrastThresholdMode

Selects the method used to compute the threshold used for detecting edges in the input image.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 302, index\_id, object\_id) \$ip = value

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 302, index\_id, object\_id)

### Type

Long

### Range

The valid range for this property is as follows:

Value	Contrast Threshold Mode Name	Description
0	hsContrastThresholdAdaptive-LowSensitivity	Uses a low sensitivity adaptive threshold for detecting edges. Adaptive Low Sensitivity reduces the amount of noisy edges but may also cause significant edges to be undetected.
1	hsContrastThresholdAdaptiveNormalSensitivity	Uses a normal sensitivity adaptive threshold for detecting edges.
2	hsContrastThresholdAdaptiveHighSensitivity	Uses a high sensitivity adaptive threshold for detecting edges. Adaptive High Sensitivity can help detect weak-contrast edges but also increases the amount of noisy edges.
3	hsContrastThresholdFixedValue	Uses a fixed value threshold for detecting edges.

### Parameters



## 2-108 DefaultConformityTolerance

Default value for ConformityTolerance computed by the Locator by analyzing the calibration, the contour detection parameters, and the search parameters. This property is read-only.



### Additional Information

This default value is used for *2-101 ConformityTolerance* on page 2-120 when *2-375 UseDefaultConformityTolerance* on page 2-410 is set to True.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 552, index\_id, object\_id)

### Type

Double

### Range

Greater than 0.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	552: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-109 DetailLevel

The coarseness of the contours at the Detail level. This property can only be set when *2-303 ParametersBasedOn* on page 2-335 is set to *hsParametersCustom*. Otherwise, it is read-only.



### Additional Information

For most applications, the *2-303 ParametersBasedOn* on page 2-335 property should be set to *hsParametersAllModels*. Custom contour detection should only be used when the default values do not work correctly.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 301, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 301, index_id, object_id)
```

### Type

Long

### Range

Minimum: 1

Maximum: 16

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	301: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-110 Edge1Constraints

Defines the detection constraints for the first edge of the selected pair. Constraints can be set for position and/or magnitude and are used to score edges.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 5221, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 5221, index_id, object_id)
```

### Type

Long

### Range

Value	Constraint Name	Description
0	hsNone	No constraint
1	hsPosition	Position constraint
2	hsMagnitude	Magnitude constraint
3	hsAllConstraints	Magnitude and position constraints.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5221: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 PairCount on page 2-329 -1]
object_id	N/A

## 2-111 Edge1Magnitude

Magnitude of the first edge of the selected pair. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1940, index\_id, frame\_id)

### Type

Double

### Range

Minimum: -255

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1940: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 <i>PairCount</i> on page 2-329 -1].
frame_id	Index of the frame containing the edge pair.

## 2-112 Edge1MagnitudeConstraint

Indexed property used to set the magnitude constraint function. Two points are used: Base and Top.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5227, index\_id, constraint\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5227, index\_id, constraint\_id)

### Type

Long

### Range

Minimum: 0

Maximum: 255

### Parameters

Parameter	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5227: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 <i>PairCount</i> on page 2-329 -1].
constraint_id	One of the two points of the magnitude constraint function (hsMagnitudeConstraintIndex) 1: Base point 2: Top point

## 2-113 Edge1MagnitudeScore

Magnitude score of the first edge of the selected pair. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1942, index\_id, frame\_id)

### Type

Double

### Range

Minimum: 0.0

Maximum: 1.0

### Parameters

Parameter	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1942: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 PairCount on page 2-329 -1].
frame_id	Index of the frame containing the edge pair.

## 2-114 Edge1PolarityMode

Selection criterion for the first edge of the selected pair. The greyscale transition of the edge must respect the polarity set by this property.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5211, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5211, index\_id, object\_id)

### Type

Long

### Range

Value	Polarity Mode Name	Description
0	hsDarkToLight	The greylevel value must go from dark to light when crossing an edge.
1	hsLightToDark	The greylevel value must go from light to dark when crossing an edge.
2	hsEitherPolarity	The change in greylevel value is not a criterion for locating an edge.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5211: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 PairCount on page 2-329 -1].
object_id	N/A

## 2-115 Edge1PositionConstraint

Indexed property used to set the position constraint function of the first edge of the selected pair. Four points are used: Base Left, Top Left, Top Right, Base Right.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5224, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5224, index\_id, object\_id)

### Type

Double

### Range

Minimum: 0.0  
 Maximum: 1.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5224: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 <i>PairCount</i> on page 2-329-1].
object_id	N/A



## 2-116 Edge1PositionScore

Position score of the first edge of the selected pair. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1944, index\_id, frame\_id)

### Type

Double

### Range

Minimum: 0.0

Maximum: 1.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1944: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 <i>PairCount</i> on page 2-329 -1].
frame_id	Index of the frame containing the edge pair.

## 2-117 Edge1PositionX

X-coordinate of the center of the first edge of the selected pair in the currently-selected coordinate system. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1946, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1946: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 <i>PairCount</i> on page 2-329 -1].
frame_id	Index of the frame containing the edge pair.

## 2-118 Edge1PositionY

Y-coordinate of the center of the first edge of the selected pair in the currently-selected coordinate system. This property is read-only.

### Syntax

```
value = VRESULT ($ip, sequence_id, tool_id, instance_id, 1947, index_id, frame_id)
```

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1947: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 <i>PairCount</i> on page 2-329 -1].
frame_id	Index of the frame containing the edge pair.

## 2-119 Edge1Radius

Radius of the first edge of the selected pair. ToolPositionX and ToolPositionY are at the center of the circular arc described by the selected edge. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1954, index\_id, frame\_id)

### Type

Double

### Range

Greater than 0.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1954: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 <i>PairCount</i> on page 2-329 -1].
frame_id	Index of the frame containing the edge pair.

## 2-120 Edge1Rotation

Rotation of the first edge of the selected pair in the vision coordinate system. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1950, index\_id, frame\_id)

### Type

Double

### Range

Minimum: -180

Maximum: 180

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1950: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 <i>PairCount</i> on page 2-329 -1].
frame_id	Index of the frame containing the edge pair.

## 2-121 Edge1Score

Minimum score needed to accept an edge as the first edge of the selected pair. The score is computed according to the constraints set by the Edge1Constraints property. This property is read-only.



### Additional Information

The rotation is defined as the angle between the X-axis of the vision coordinate system and the selected edge.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1952, index\_id, frame\_id)

### Type

Double

### Range

Minimum: 0.0  
Maximum: 1.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1952: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 <i>PairCount</i> on page 2-329 -1].
frame_id	Index of the frame containing the edge pair.

## 2-122 Edge1ScoreThreshold

Minimum score needed to accept an edge as the first edge of the selected pair. The score of the first edge is returned by the Edge1Score property.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 5241, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 5241, index_id, object_id)
```

### Type

Double

### Range

Minimum: 0.0  
Maximum: 1.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5241: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 <i>PairCount</i> on page 2-329 -1].
object_id	Index of the frame containing the edge pair.

## 2-123 Edge2Constraints

Defines the detection constraints for the second edge of the selected pair. Constraints can be set for position and/or magnitude and are used to score edges.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5222, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5222, index\_id, object\_id)

### Type

Long

### Range

Value	Name	Description
0	hsNone	No constraint
1	hsPosition	Position constraint
2	hsMagnitude	Magnitude constraint
3	hsAllConstraints	Magnitude and position constraints.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5222: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 <i>PairCount</i> on page 2-329 -1].
object_id	N/A



## 2-124 Edge2Magnitude

Magnitude of the second edge of the selected pair. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1941, index\_id, frame\_id)

### Type

Double

### Range

Minimum: -255

Maximum: 255

### Parameters

Parameter	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1941: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 <i>PairCount</i> on page 2-329 -1].
frame_id	Index of the frame containing the edge pair.

## 2-125 Edge2MagnitudeConstraint

Indexed property used to set the magnitude constraint function of the second edge of the selected pair. Two points are used: Base and Top.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5228, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5228, index\_id, object\_id)

### Type

Long

### Range

Minimum: 0

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5228: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 <i>PairCount</i> on page 2-329 -1].
object_id	N/A

## 2-126 Edge2MagnitudeScore

Magnitude score of the second edge of the selected pair. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1943, index\_id, frame\_id)

### Type

Double

### Range

Minimum: 0.0

Maximum: 1.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1943: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 <i>PairCount</i> on page 2-329 -1].
frame_id	Index of the frame containing the edge pair.

## 2-127 Edge2PolarityMode

Selection criterion for the second edge of the selected pair. The greyscale transition of the edge must respect the polarity set by this property.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5212, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5212, index\_id, object\_id)

### Type

Long

### Range

Value	Name	Description
0	hsDarkToLight	The greylevel value must go from dark to light when crossing an edge.
1	hsLightToDark	The greylevel value must go from light to dark when crossing an edge.
2	hsEitherPolarity	The change in greylevel value change is not a criterion for locating an edge.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5212: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 <i>PairCount</i> on page 2-329 -1].
object_id	N/A

## 2-128 Edge2PositionConstraint

Indexed property used to set the position constraint function of the second edge of the selected pair. Four points are used: Base Left, Top Left, Top Right, Base Right.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5225, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5225, index\_id, object\_id)

### Type

Double

### Range

Minimum: 0.0  
Maximum: 1.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5225: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 <i>PairCount</i> on page 2-329 -1].
object_id	N/A

## 2-129 Edge2PositionScore

Position score of the second edge of the selected pair. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1945, index\_id, frame\_id)

### Type

Double

### Range

Minimum: 0.0

Maximum: 1.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1945: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 <i>PairCount</i> on page 2-329 -1].
frame_id	Index of the frame containing the edge pair.

## 2-130 Edge2PositionX

X-coordinate of the center of the second edge of the selected pair in the currently-selected coordinate system. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1948, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1948: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 <i>PairCount</i> on page 2-329 -1].
frame_id	Index of the frame containing the edge pair.

## 2-131 Edge2PositionY

Y-coordinate of the center of the second edge of the selected pair in the currently-selected coordinate system. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1949, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1949: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 <i>PairCount</i> on page 2-329 -1].
frame_id	Index of the frame containing the edge pair.



## 2-132 Edge2Radius

Radius of the second edge of the selected pair. ToolPositionX and ToolPositionY are at center of the circular arc described by the selected edge. This property is read-only.

### Syntax

```
value = VRESULT ($ip, sequence_id, tool_id, instance_id, 1955, index_id, frame_id)
```

### Type

Double

### Range

Greater than 0.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1955: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 <i>PairCount</i> on page 2-329 -1].
frame_id	Index of the frame containing the edge pair.

## 2-133 Edge2Rotation

Rotation of the second edge of the selected pair in the vision coordinate system. This property is read-only.



### Additional Information

The rotation is defined as the angle between the X-axis of the vision coordinate system and the selected edge.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1951, index\_id, frame\_id)

### Type

Double

### Range

Minimum: -180

Maximum: 180

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1951: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 <i>PairCount</i> on page 2-329 -1].
frame_id	Index of the frame containing the edge pair.

## 2-134 Edge2Score

Minimum score to accept an edge as the second edge of the selected pair. The score is computed according to the constraints set by the Edge2Constraints property. This property is read-only.



### Additional Information

The rotation is defined as the angle between the X-axis of the vision coordinate system and the selected edge.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1953, index\_id, frame\_id)

### Type

Double

### Range

Minimum: 0.0

Maximum: 1.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1953: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 PairCount on page 2-329 -1].
frame_id	Index of the frame containing the edge pair.

## 2-135 Edge2ScoreThreshold

Minimum score to accept an edge as the second edge of the selected pair. The score of the second edge is returned by the Edge2Score property.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5242, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5242, index\_id, object\_id)

### Type

Double

### Range

Minimum: 0.0  
Maximum: 1.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5242: the value used to reference this property.
index_id	Index of the edge pair. Range [1, 2-297 <i>PairCount</i> on page 2-329 -1].
object_id	Index of the frame containing the edge pair.

## 2-136 EdgeCount

Number of edges detected by the tool. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1900, index\_id, frame\_id)

### Type

Long

### Range

Minimum: 0

Maximum: Unlimited

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	N/A
ID	1900: the value used to reference this property.
index_id	N/A
frame_id	N/A

## 2-137 EdgeFilterHalfWidth

Half-width of the convolution filter used to compute the edge magnitude curve from which actual edges are detected. The filter approximates the first derivative of the projection curve. The half width of the filter should be set in order to match the width of the edge in the projection curve (the extent of the greyscale transition expressed in number of pixels).

### Syntax

```
VPARAMETER (sequence_id, tool_id, 5203, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 5203, index_id, object_id)
```

### Type

Long

### Range

Minimum: 1  
Maximum: 25

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5203: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-138 EdgeMagnitude

Magnitude of the selected edge. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1901, index\_id, frame\_id)

### Type

Long

### Range

Minimum: -255

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1901: the value used to reference this property.
index_id	Index of the edge.
frame_id	Index of the frame containing the edge.

## 2-139 EdgeMagnitudeScore

Magnitude score of the selected edge. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1902, index\_id, frame\_id)

### Type

Long

### Range

Minimum: 0.0

Maximum: 1.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1902: the value used to reference this property.
index_id	Index of the edge.
frame_id	Index of the frame containing the edge.



## 2-140 EdgeMagnitudeThreshold

Magnitude threshold is used to find edges on the magnitude curve. In order to locate edges, a subpixel, peak-detection algorithm is applied on the region of every minimum or maximum of the curve that exceeds this threshold.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 5201, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 5201, index_id, object_id)
```

### Type

### Range

Minimum: 0  
Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5201: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-141 EdgePolarityMode

Edge-selection criterion. The greyscale transition of the edge must respect the polarity set by this property.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5210, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5210, index\_id, object\_id)

### Type

Long

### Range

Value	Name	Description
0	hsDarkToLight	The greylevel value must go from dark to light when crossing an edge.
1	hsLightToDark	The greylevel value must go from light to dark when crossing an edge.
2	hsEitherPolarity	The change in greylevel value change is not a criterion for locating an edge.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5210: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-142 EdgePositionScore

Position score of the selected edge. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1903, index\_id, frame\_id)

### Type

Long

### Range

Minimum: 0.0

Maximum: 1.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1903: the value used to reference this property.
index_id	Index of the edge for which you want the results.
frame_id	Index of the frame that contains the selected edge.

## 2-143 EdgePositionX

X-coordinate of the center of the selected edge in the currently-selected coordinate system. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1904, index\_id, frame\_id)

### Type

Long

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1904: the value used to reference this property.
index_id	Index of the edge for which you want the results.
frame_id	Index of the frame that contains the selected edge.

## 2-144 EdgePositionY

Y-coordinate of the center of the selected edge in the currently-selected coordinate system. This property is read-only.

### Syntax

```
value = VRESULT ($ip, sequence_id, tool_id, instance_id, 1905, index_id, frame_id)
```

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1905: the value used to reference this property.
index_id	Index of the edge for which you want the results.
frame_id	Index of the frame that contains the selected edge.

## 2-145 EdgeRadius

Radius of the selected edge. ToolPositionX and ToolPositionY designate the center of the circular arc described by the selected edge. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1908, index\_id, frame\_id)

### Type

### Range

Minimum: -180

Maximum: 180

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1908: the value used to reference this property.
index_id	Index of the edge for which you want the results.
frame_id	Index of the frame that contains the selected edge.

## 2-146 EdgeRotation

Rotation of the selected edge with respect to the currently-selected coordinate system. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1906, index\_id, frame\_id)

### Type

### Range

Greater than 0.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1906: the value used to reference this property.
index_id	Index of the edge for which you want the results.
frame_id	Index of the frame that contains the selected edge.

## 2-147 EdgeScore

Score of the selected edge. The score is computed according the constraints set by the Constraints property. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1907, index\_id, frame\_id)

### Type

Double

### Range

Minimum: 0.0

Maximum: 1.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1907: the value used to reference this property.
index_id	Index of the edge for which you want the results.
frame_id	Index of the frame that contains the selected edge.



## 2-148 EdgeSortResultsEnabled

Property that specifies if edges are sorted in descending order of score values.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5243, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5243, index\_id, object\_id)

### Type

Boolean

### Range

Value	Description
0	The edges are sorted in descending order of score values.
1	The edges are not sorted.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5243: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-149 ElapsedTime

Total time elapsed (in milliseconds) during the last execution of the Locator tool. This time includes the time for the learn process, the time for the search process, and the overhead required to create and output the results structures. This property is read-only.



### Additional Information

This property returns the total elapsed time; it is not the used CPU time.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1001, index\_id, frame\_id)

### Type

Double

### Range

Minimum: 0.0

Maximum: unlimited

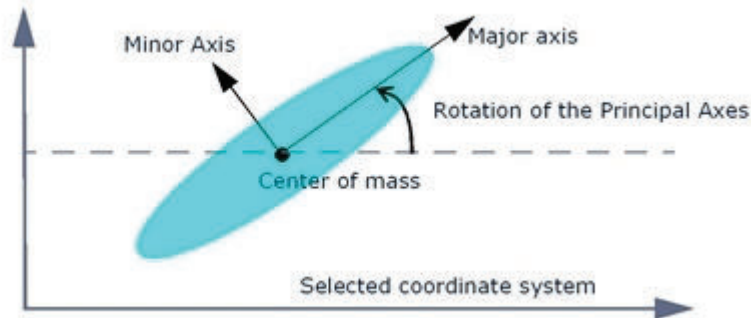
### Parameters

Parameters	Description
_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	N/A
ID	1001: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame that contains the specified instance. Range: [1, 2-326 <i>ResultCount</i> on page 2-359 -1]
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-150 ExtrinsicInertiaResultsEnabled

Enables the computation of the following blob properties.

Enables the computation of the following blob properties: 2-70 *BlobInertiaXAxis* on page 2-89, 2-71 *BlobInertiaYAxis* on page 2-90, and 2-87 *BlobPrincipalAxesRotation* on page 2-106.



### Syntax

```
VPARAMETER (sequence_id, tool_id, 1604, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 1604, index_id, object_id)
```

### Type

Boolean

### Range

Value	Description
1	The extrinsic inertia properties will be computed
0	No extrinsic inertia properties will be computed

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	1604: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-151 FeederHistogramProductDensity

Calculated product density for the Feeder Histogram tool in a given region. This is the percentage of histogram pixels and image pixels. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 2800, index\_id, frame\_id)

### Type

Double

### Range

Minimum: Greater than 0.

Maximum: 100

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	2800: the value used to reference this property.
index_id	The histogram region number to return
frame_id	Frame that contains the entity for which you want the result.

## 2-152 FilterCount

Number of filters applied by the tool. This property is read-only.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5601, index\_id, object\_id)

### Type

Long

### Range

Greater than or equal to 0.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5601: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-153 FilterHalfWidth

Half-width of the convolution filter used by the tool to compute an edge-magnitude curve from which edges are detected. This value should be set to a value approximately equivalent to the width of the edge, in pixels, as it appears in the image.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5202, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5202, index\_id, object\_id)

### Type

Long

### Range

Minimum: 1

Maximum: 25

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5202: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-154 FilterHueTolerance

For the selected filter, the value of the tolerance allowed for the Hue value defined by 2-155 *FilterHueValue* on page 2-176. The FilterHueTolerance value is distributed equally above and below the FilterHueValue. For example, if 2-160 *FilterLuminanceValue* on page 2-181= 200 and FilterHueTolerance = 20, the filter will accept pixels with a range of hue values = [190,200].



### Additional Information

When FilterHueTolerance = 1, no tolerance (variation) in luminance is accepted. The filter will only accept pixels with a luminance value equal to 2-155 *FilterHueValue* on page 2-176.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5716, filter\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5716, filter\_id, object\_id)

### Type

Long

### Range

Minimum: 1  
Maximum: 128

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5716: the value used to reference this property.
filter_id	Index of the filter to which the value applies First Filter is 0.
object_id	N/A

## 2-155 FilterHueValue

Value of the Hue component, in the HSL colorspace, for the selected filter. This value may be modified if any changes are made to the RGB values of the filter. Hue is the quality of color that is perceived as the color itself. It is commonly expressed by the color name, for example: red, green, yellow. Hue is determined by the perceived dominant wavelength, or the central tendency of combined wavelengths, within the visible spectrum.



### Additional Information

The value of a filter can be configured either by its HSL values or its RGB values. The Tolerance in a color filter can only be expressed in HSL values.

HSL values are defined by properties: *FilterHueValue*, *2-160 FilterLuminanceValue* on page 2-181, and *2-162 FilterSaturationValue* on page 2-183.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5713, filter\_id, object\_id) \$ip = value

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5713, filter\_id, object\_id)

### Type

Long

### Range

Minimum: 0

Maximum: 255

### Parameter

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5713: the value used to reference this property.
filter_id	Index of the filter to which this value applies.
object_id	N/A



## 2-156 FilteringClippingMode

Sets the clipping mode applied by a filtering operation. Typically, the hsClippingAbsolute mode is used for filter operations.



### Additional Information

**hsClippingNormal** mode forces the destination pixel value to a value from 0 to 255 for unsigned 8-bit images, to a value from -32768 to 32767 for signed 16 bits images, and so on. Values that are less than the specified minimum value are set to the minimum value. Values greater than the specified maximum value are set to the maximum value.

**hsClippingAbsolute** mode takes the absolute value of the result and clips it using the same algorithm used for hsClippingNormal mode.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5370, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5370, index\_id, object\_id)

### Range

Value	Image Processing Mode	Description
0	hsClippingNormal	Normal clipping method is used.
1	hsClippingAbsolute	Absolute clipping method is used.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5370: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-157 FilteringKernelSize

Kernel size applied by a fixed (predefined) filtering operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5371, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5371, index\_id, object\_id)

### Type

Long

### Range

Valid sizes are 3, 5, and 7.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5371: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-158 FilteringScale

Scaling factor applied by a filtering operation. After the operation has been applied, the value of each pixel is multiplied by the FilteringScale value.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 5372, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 5372, index_id, object_id)
```

### Type

Double

### Range

Minimum: 0

Maximum: Unlimited

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5372: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-159 FilterLuminanceTolerance

Value of the tolerance allowed for the Luminance value, defined by 2-160 *FilterLuminanceValue* on page 2-181, for the selected filter. The *FilterLuminanceTolerance* value is distributed equally above and below the *FilterLuminanceValue*. For example, if *FilterLuminanceValue* = 200 and *FilterLuminanceTolerance* = 20, the filter will accept pixels within a range of luminance values = [190,200].



### Additional Information

When *FilterLuminanceTolerance* = 1, no tolerance (variation) in luminance is accepted. The filter will only accept pixels with a luminance value equal to 2-160 *FilterLuminanceValue* on page 2-181.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5718, filter\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5718, filter\_id, object\_id)

### Type

Long

### Range

Minimum: 1

Maximum: 128

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5718: the value used to reference this property.
filter_id	Index of the filter to which this value applies.
object_id	N/A

## 2-160 FilterLuminanceValue

Value of the Luminance component, in the HSL colorspace, for the selected filter. This value may be modified if any changes are made to the RGB values of the filter. Luminance is perceived as the brightness of the color or the amount of white contained in the color. When FilterLuminanceValue = 0, the color is completely black (RGB= 0,0,0). When FilterLuminanceValue = 255, the color is almost completely white.



### Additional Information

The value of a filter can be configured either by its HSL values or its RGB values. The Tolerance in a color filter can only be expressed in HSL values. HSL values are defined by properties: [2-155 FilterHueValue](#) on page 2-176, [FilterLuminanceValue](#), and [2-162 FilterSaturationValue](#) on page 2-183.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 5715, filter_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 5715, filter_id, object_id)
```

### Type

Long

### Range

Minimum: 0  
Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5715: the value used to reference this property.
filter_id	Index of the filter to which this value applies.
object_id	N/A

## 2-161 FilterSaturationTolerance

Value of the tolerance allowed for the saturation value, defined by FilterSaturationValue, for the selected filter. The FilterSaturationTolerance value is distributed equally above and below the FilterSaturationValue.

For example, if FilterSaturationValue = 200 and FilterSaturationTolerance = 20, the filter will accept pixels with a range of saturation values = [190,200].

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5717, filter\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5717, filter\_id, object\_id)

### Type

Long

### Range

Minimum: 1

Maximum: 128

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5717: the value used to reference this property.
filter_id	Index of the filter to which this value applies.
object_id	N/A

## 2-162 FilterSaturationValue

Value of the Saturation component, in the HSL colorspace, for the selected filter. This value may be modified if any changes are made to the RGB values of the filter. Saturation is perceived as the amount of purity of the color or of the amount of grey in a color. When FilterSaturationValue = 0, the color appears as mid-grey (RGB = 112,126,126). When FilterSaturationValue = 255, the color is said to be saturated.



### Additional Information

The value of a filter can be configured either by its HSL values or its RGB values. The Tolerance in a color filter can only be expressed in HSL values. HSL values are defined by properties: [2-155 FilterHueValue](#) on page 2-176, [2-160 FilterLuminanceValue](#) on page 2-181, and FilterSaturationValue.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 5714, filter_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 5714, filter_id, object_id)
```

### Type

Long

### Range

Minimum: 0  
Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5714: the value used to reference this property.
filter_id	Index of the filter to which this value applies.
object_id	N/A

## 2-163 FitMode

Specifies the mode used by the tool to calculate and return values for the found arc.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5140, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5140, index\_id, object\_id)

### Type

Long

### Range

Value	hsFitMode	Description
0	hsBoth	The Arc Finder calculates and returns both the arc center and arc radius.
1	hsRadius	The arc radius is calculated, the arc center returned is the value of the tool center.
2	hsCenter	The arc center is calculated; the radius returned is the value of the tool radius

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5140: the value used to reference this property.
index_id	N/A
object_id	N/A



## 2-164 FitQuality

Normalized average error between the calculated arc or line entity and the actual edges matched to the found entity. Fit quality ranges from 0 to 1, with 1 being the best quality. A value of 1 means that the average error is 0. Conversely, a value of 0 means that the average matched error is equal to Conformity Tolerance. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1803, index\_id, frame\_id)

### Type

Double

### Range

Minimum: 0.0

Maximum: 1.0

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1803: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame that contains the specified instance. Range: [1, 2-326 ResultCount on page 2-359 -1]
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-165 FlexibowlFeederVRunCommand

Identifies the command that is run when a VRUN is issued to the Flexibowl Feeder.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 7000, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 7000, index\_id, object\_id)

### Type

Real variable.

### Range

A valid Flexibowl Feeder command or sequence index. The valid Flexibowl Feeder commands are:

Flexiblebowl Feeder Commands	Description
Blow	1
Forward	2
Shake	3
Flip 1	4
Flip 2	5
Flip Blow	6
Forward Blow	7
Forward Flip Blow	8
Light On	15
Light Off	16

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	7000: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-166 FlexibowlFeederBlowTime

The length of time (in ms) for the blow operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 7012, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 7012, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 1

Maximum: Unbounded

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	7012: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-167 FlexibowlFeederFlipCount

The number of iterations used in the flip operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 7005, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 7005, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 1

Maximum: Unbounded

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	7005: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-168 FlexibowlFeederFlipDelay

The amount of time (in ms) to delay in the flip operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 7006, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 7006, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 1

Maximum: Unbounded

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	7006: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-169 FlexibowlFeederForwardAcceleration

The acceleration for the forward operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 7001, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 7001, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 10  
 Maximum: 10000

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	7001: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-170 FlexibowlFeederForwardAngle

The angle used in the forward operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 7003, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 7003, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: -360

Maximum: 360

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	7003: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-171 FlexibowlFeederForwardDeceleration

The deceleration for the forward operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 7002, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 7002, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 10  
 Maximum: 10000

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	7002: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.



## 2-172 FlexibowlFeederForwardSpeed

The speed for the forward operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 7004, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 7004, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 1  
Maximum: 130

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	7004: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-173 FlexibowlFeederShakeAcceleration

The acceleration for the shake operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 7007, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 7007, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 10

Maximum: 10000

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	7007: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-174 FlexibowlFeederShakeAngle

The angle for the shake operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 7009, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 7009, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: -360

Maximum: 360

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	7009: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-175 FlexibowlFeederShakeCount

The number of iterations used in the shake operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 7011, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 7011, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 1

Maximum: Unbounded

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	7011: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

# 2-176 FlexibowlFeederShakeDeceleration

The deceleration for the shake operation.

## Syntax

VPARAMETER (sequence\_id, tool\_id, 7008, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 7008, index\_id, object\_id)

## Type

Real variable.

## Range

Minimum: 10  
 Maximum: 10000

## Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	7008: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-177 FlexibowlFeederShakeSpeed

The speed for the shake operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 7010, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 7010, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 1

Maximum: 130

### Parameters

Parameters	Description
sequence_id	Index associated with the feeder as defined in the feeder editor.
tool_id	N/A
ID	7010: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

# 2-178 Found

Specifies if an entity was found. If True, at least one entity (point, line or arc) was found in the current image. This property is read-only.

## Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1800, index\_id, frame\_id)

## Type

Long

## Range

Value	State	Description
0	False	No entity was found.
1	True	An entity was found.

## Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1800: the value used to reference this property.
index_id	N/A
frame_id	N/A

## 2-179 FrameCount

Uses the frame index to return the number of results relative to the specified frame. This property is read-only.



### Additional Information

This Robot Vision Manager property is interchangeable with *2-211 InstanceCount* on page 2-233.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 2410, index\_id, frame\_id)

### Type

Long

### Range

Greater than or equal to 0.

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	N/A
ID	2410: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame that contains the specified instance. Range: [1, 2-326 <i>ResultCount</i> on page 2-359 -1]
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.



## 2-180 FrameIntrinsicBoundingBox

Sets the coordinates of the intrinsic bounding box that defines a frame. The intrinsic bounding box is the smallest box that can enclose the frame. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool, instance\_id, 2420, bounding\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	2420: the value used to reference this property.
bounding_id	1 to 8: Index of the X/Y-coordinates that define corners of the intrinsic bounding box: <ol style="list-style-type: none"> <li>1. X-coordinate of the corner</li> <li>2. Y-coordinate of the corner</li> <li>3. X-coordinate of the corner</li> <li>4. Y-coordinate of the corner</li> <li>5. X-coordinate of the corner</li> <li>6. Y-coordinate of the corner</li> <li>7. X-coordinate of the corner</li> <li>8. Y-coordinate of the corner</li> </ol>
frame_id	Index of the frame for which you want to retrieve the result contained in the specified instance.
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-181 FrameRotation

Rotation of the specified output frame. It does not include a tool offset or camera calibration offset. This property is read-only.



### Additional Information

2-224 *InstanceRotation* on page 2-247 is the preferred property. Therefore, you should update your code to use that property.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 2402, index\_id, frame\_id)

### Type

Double

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	2402: the value used to reference this property.
index_id	Index of the frame for which you want to set the mode.
frame_id	N/A

## 2-182 FrameTranslationX

X-coordinate of the origin of the specified output frame. It does not include a tool offset or camera calibration offset. This property is read-only.



### Additional Information

2-229 *InstanceTranslationX* on page 2-252 is the preferred property. Therefore, you should update your code to use that property.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 2400, index\_id, frame\_id)

### Type

Double

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	2400: the value used to reference this property.
index_id	Index of the frame for which you want to set the mode.
frame_id	N/A

## 2-183 FrameTranslationY

Y-coordinate of the origin of the specified output frame. It does not include a tool offset or camera calibration offset. This property is read-only.



### Additional Information

2-230 *InstanceTranslationY* on page 2-253 is the preferred property. Therefore, you should update your code to use that property.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 2401, index\_id, frame\_id)

### Type

Double

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	2401: the value used to reference this property.
index_id	Index of the frame for which you want to set the mode.
frame_id	N/A

## 2-184 GreylevelRange

Range of greylevel values of the pixels in the tool region of interest that are included in the final histogram. Pixels removed from the histogram by tails or thresholds are not included in this calculation. The range is equal to [MaximumGreylevelValue - MinimumGreylevelValue + 1]. This property is read-only.

### Syntax

```
value = VRESULT ($ip, sequence_id, tool_id, instance_id, 1508, index_id, frame_id)
```

### Type

Long

### Range

Minimum: 0

Maximum: 256

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1508: the value used to reference this property.
index_id	The index of the frame for which you want to set the mode.
frame_id	N/A

## 2-185 GreyLevelResultsEnabled

Enables the computation of the following blob greylevel properties: 2-62 *BlobGreyLevelMaximum* on page 2-81, 2-63 *BlobGreyLevelMean* on page 2-82, 2-64 *BlobGreyLevelMinimum* on page 2-83, 2-65 *BlobGreyLevelRange* on page 2-84, and 2-66 *BlobGreyLevelStdDev* on page 2-85.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 1608, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 1608, index\_id, object\_id)

### Type

Boolean

### Range

Value	Description
1	The greylevel blob properties will be computed
0	No greylevel blob properties will be computed

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	1608: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-186 GripperInputClose

Returns the close input signal for a given tip on the gripper. This property is read-only.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5515, index\_id, object\_id)

### Type

Real variable.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Should always be set to -1.
tool_id	The tip number to access starting at 0 for the first tip.
ID	5515: the value used to reference this property.
index_id	The robot number to access starting at 0 for the first robot.
object_id	The signal number to access starting at 0 for the first robot.

## 2-187 GripperInputExtend

Returns the extend input signal for a given tip on the gripper. This property is read-only.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5518, index\_id, object\_id)

### Type

Real variable.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Should always be set to -1.
tool_id	The tip number to access starting at 0 for the first tip.
ID	5518: the value used to reference this property.
index_id	The robot number to access starting at 0 for the first robot.
object_id	The signal number to access starting at 0 for the first robot.



## 2-188 GripperInputOpen

Returns the open input signal for a given tip on the gripper. This property is read-only.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5514, index\_id, object\_id)

### Type

Real variable.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Should always be set to -1.
tool_id	The tip number to access starting at 0 for the first tip.
ID	5514: the value used to reference this property.
index_id	The robot number to access starting at 0 for the first robot.
object_id	The signal number to access starting at 0 for the first robot.

## 2-189 GripperInputRetract

Returns the retract input signal for a given tip on the gripper. This property is read-only.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5519, index\_id, object\_id)

### Type

Real variable.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Should always be set to -1.
tool_id	The tip number to access starting at 0 for the first tip.
ID	5519: the value used to reference this property.
index_id	The robot number to access starting at 0 for the first robot.
object_id	The signal number to access starting at 0 for the first robot.

## 2-190 GripperOffset

Allows an application program to extract the gripper offsets for the tips associated with a robot in the workspace. The "instance" number is used to identify the robot number to access. The result index is used to specify the tip to return.

### Syntax

VLOCATION (\$ip, sequence\_id, tool\_id, instance\_id, 10100, index\_id, frame\_id)

### Type

Location

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Should always be set to -1.
tool_id	Should always be set to -1.
instance_id	The robot number to access starting at 1 for the first robot.
ID	10100: the value used to reference this property.
index_id	The tip number to access starting at 0 for the first tip.
frame_id	N/A

## 2-191 GripperOutputClose

Returns the close output signal for a given tip on the gripper. This property is read-only.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5512, index\_id, object\_id)

### Type

Real variable.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Should always be set to -1.
tool_id	The tip number to access starting at 0 for the first tip.
ID	5512: the value used to reference this property.
index_id	The robot number to access starting at 0 for the first robot.
object_id	The signal number to access starting at 0 for the first robot.

## 2-192 GripperOutputExtend

Returns the extend output signal for a given tip on the gripper. This property is read-only.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5516, index\_id, object\_id)

### Type

Real variable.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Should always be set to -1.
tool_id	The tip number to access starting at 0 for the first tip.
ID	5516: the value used to reference this property.
index_id	The robot number to access starting at 0 for the first robot.
object_id	The signal number to access starting at 0 for the first robot.

## 2-193 GripperOutputOpen

Returns the open output signal for a given tip on the gripper. This property is read-only.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5511, index\_id, object\_id)

### Type

Real variable.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Should always be set to -1.
tool_id	The tip number to access starting at 0 for the first tip
ID	5511: the value used to reference this property.
index_id	The robot number to access starting at 0 for the first robot.
object_id	The signal number to access starting at 0 for the first robot.

## 2-194 GripperOutputRelease

Returns the release signal for a given tip on the gripper. This property is read-only.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5513, index\_id, object\_id)

### Type

Real variable.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Should always be set to -1.
tool_id	The tip number to access starting at 0 for the first tip.
ID	5513: the value used to reference this property.
index_id	The robot number to access starting at 0 for the first robot.
object_id	The signal number to access starting at 0 for the first robot.

## 2-195 GripperOutputRetract

Returns the retract output signal for a given tip on the gripper. This property is read-only.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5517, index\_id, object\_id)

### Type

Real variable.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Should always be set to -1.
tool_id	The tip number to access starting at 0 for the first tip.
ID	5517: the value used to reference this property.
index_id	The robot number to access starting at 0 for the first robot.
object_id	The signal number to access starting at 0 for the first robot.



## 2-196 GripperPayload

Allows an application program to read the payload associated with a gripper associated with a robot in the workspace. The "instance" number is used to identify the robot number to access.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5550, index\_id, object\_id)

### Type

Real variable.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Should always be set to -1.
tool_id	Should always be set to -1.
ID	5550: the value used to reference this property.
index_id	The robot number to access starting at 0 for the first robot.
object_id	Not used.

## 2-197 GripperToolTransform

Returns the tool transformation for a given tip on the gripper. This property is read-only.

### Syntax

value = VLOCATION (\$ip, sequence\_id, tool\_id, instance\_id, 11000, result\_id, frame\_id)

### Type

Transformation

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Should always be set to -1.
tool_id	Should always be set to -1. Index of the tip number to access.
instance_id	The robot number to access starting at 0 for the first robot.
ID	11000: the value used to reference this property.
result_id	The tip number to access starting at 0 for the first tip.
frame_id	Not used.

## 2-198 Histogram

Histogram of greylevel values of the pixels in the tool region of interest that are included in the final histogram. Pixels removed from the histogram by tails or thresholds are not included in this calculation.

The histogram comprises 256 bins. One histogram bin is associated with each of the 256 possible greylevel values. It contains the number of pixels with the corresponding greylevel value in the region of interest. This property is read-only.

### Syntax

```
value = VRESULT ($ip, sequence_id, tool_id, instance_id, 1511, index_id, frame_id)
```

### Type

Long

### Range

Greater than or equal to 0.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1511: the value used to reference this property.
index_id	N/A
frame_id	N/A

## 2-199 HistogramPixelCount

Total number of pixels in the histogram. The number of pixels in the histogram is equal to ImagePixelCount minus the pixels excluded from the Histogram by any threshold or tail functions set by the properties: ThresholdBlack, ThresholdWhite, TailWhite, or TailBlack. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1512, index\_id, frame\_id)

### Type

Long

### Range

Greater than or equal to 0.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1512: the value used to reference this property.
index_id	N/A
frame_id	N/A

## 2-200 HistogramThreshold

Threshold value applied by a histogram thresholding operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5385, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5385, index\_id, object\_id)

### Type

Long

### Range

Minimum: 0  
 Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5385: the value used to reference this property.
index_id	N/A
object_id	Index of the frame containing the edge pair.

## 2-201 HoleFillingEnabled

Enables the filling of the holes in each blob.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5002, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5002, index\_id, object\_id)

### Type

Boolean

### Range

Value	Description
1	All holes will be filled.
0	No hole will be filled.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5002: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-202 ImageHeight

Height, in pixels, of the tool region of interest. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1021, index\_id, frame\_id)

### Type

Long

### Range

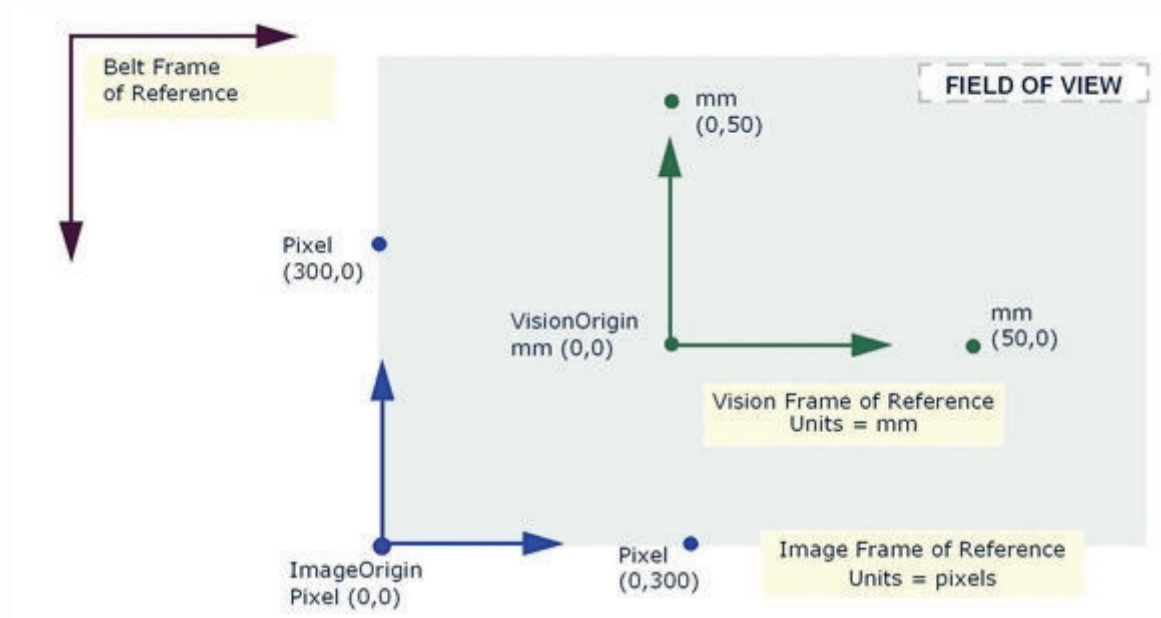
Greater than or equal to 0.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1021: the value used to reference this property.
index_id	N/A
frame_id	N/A

## 2-203 ImageOriginBelt

Origin of the image frame of reference. Expressed as a transform relative to the robot frame of reference. This property is read-only.



### Syntax

value = VLOCATION (\$ip, sequence\_id, tool\_id, instance\_id, 10053, index\_id, frame\_id)

### Type

Location

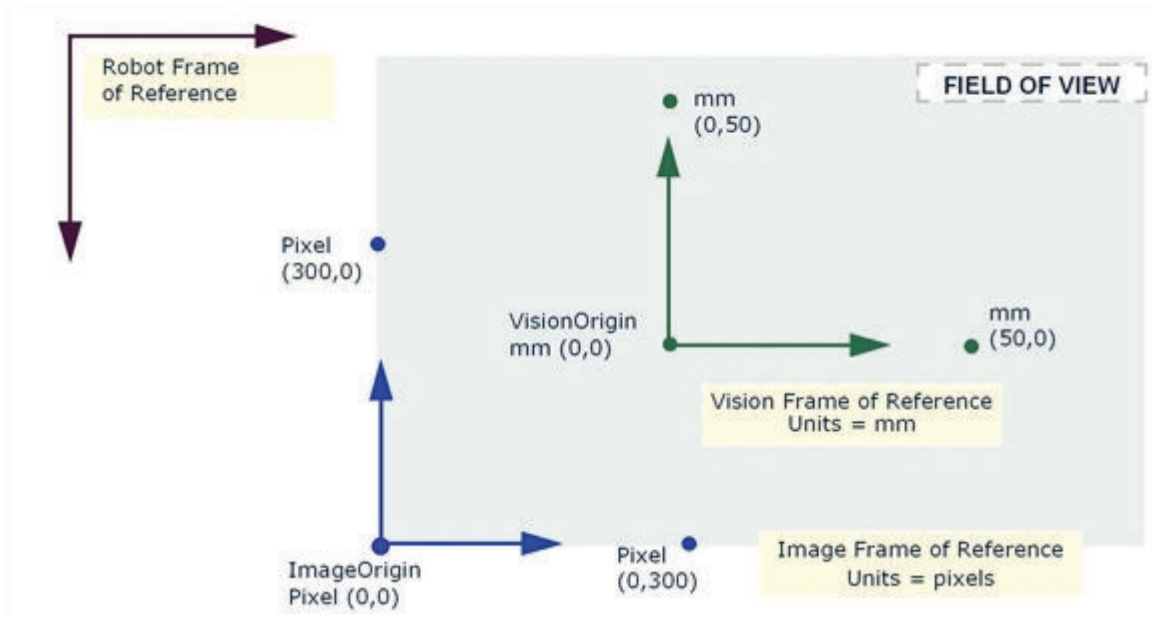
### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the transform. 1-based.
ID	10053: the value used to reference this property.
index	Reserved for internal use. Value is always 1.
frame_id	Index of the frame that contains the specified instance.



## 2-204 ImageOriginRobot

Origin of the image frame of reference. Expressed as a transform relative to the robot frame of reference. This property is read-only.



### Syntax

value = VLOCATION (\$ip, sequence\_id, tool\_id, instance\_id, 10051, index\_id, frame\_id)

### Type

Location

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the transform. 1-based.
ID	10051: the value used to reference this property.
index	Reserved for internal use. Value is always 1.
frame_id	Index of the frame that contains the specified instance.

## 2-205 ImagePixelCount

Number of pixels in the tool region of interest. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1513, index\_id, frame\_id)

### Type

Long

### Range

Greater than or equal to 0.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1513: the value used to reference this property.
index_id	N/A
frame_id	N/A

## 2-206 ImageSubsampling

Factor used to subsample the greyscale image in the tool region of interest. With a subsampling factor of 1, the greyscale image is not subsampled. With a subsampling factor of 2, the greyscale image is subsampled in tiles of 2x2 pixels. With a subsampling factor of 3 the greyscale image is subsampled in tiles of 3x3 pixels, and so on.



### Additional Information

#### Color Matching Tool

Increasing the subsampling level reduces the number of pixels and the quantity information analyzed by the tool. Increasing the Image Subsampling may reduce the execution time but affects the accuracy of color matching results.

#### Image Histogram

Using a higher subsampling factor speeds up the generation of the histogram but slightly reduces the accuracy of the statistics computed from the histogram. The pixel properties computed by the Image Histogram tool are normalized with respect to the subsampling factor (2-199 *HistogramPixelCount* on page 2-220, 2-202 *ImageHeight* on page 2-223, 2-205 *ImagePixelCount* on page 2-226 and 2-207 *ImageWidth* on page 2-229). Therefore, the total number of pixels in the histogram should remain the same at any subsampling factor.

Note that there might be slight differences in the values of these properties when either of the width or the height of the region of interest is not a multiple of the subsampling factor used.

## Syntax

VPARAMETER (sequence\_id, tool\_id, 5324, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5324, index\_id, object\_id)

## Type

Long

## Range

1 (no subsampling), 2, 3, 4, 5, 6, 7, 8

## Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5324: the value used to reference this property.
index_id	N/A

Parameters	Description
object_id	N/A

## 2-207 ImageWidth

Width, in pixels, of the tool region of interest. This property is read-only.



### Additional Information

Instance is relative for the Image Histogram tool. Note that it is:

- Not relative for the Color Matching tool
- Not implemented for virtual cameras.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1020, index\_id, frame\_id)

### Type

Long

### Range

Greater than or equal to 0.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1020: the value used to reference this property.
index_id	N/A
frame_id	N/A

## 2-208 InspectionFilterMeasuredValue

Returns the measured value of the specified filter for the instance. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 2700, index\_id)

### Type

Long

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	2700: the value used to reference this property.
index_id	Index of the filter for which you want the result.

## 2-209 InspectionFilterPassStatus

Returns the pass status of the specified filter for the instance. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 2702, index\_id, frame\_id)

### Type

Long

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	2702: the value used to reference this property.
index_id	Index of the filter for which you want the result.
frame_id	Index of the category you wish to access. Range: 1, Category Count + 1 Where Category Count + 1 = Unassigned.

## 2-210 InstanceClearQuality

Measure of the unencumbered area surrounding the specified object instance. Clear quality ranges from 0 to 1, with 1 being the best quality. A value of 1 means that the instance is completely free of obstacles. This property is read-only.



### Additional Information

In V+, the `frame_id` parameter is required.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1319, index\_id, frame\_id)

### Type

Double

### Range

Minimum: 0.0

Maximum: 1.0

### Parameters

Parameters	Description
<code>_id</code>	Index of the vision sequence. The first sequence is 1.
<code>tool_id</code>	Index of the tool in the vision sequence. The first tool is 1.
<code>instance_id</code>	Index of the instance for which you want the result.
ID	1319: the value used to reference this property.
<code>index_id</code>	N/A
<code>frame_id</code>	Index of the frame that contains the specified instance. Range: [1, 2-326 <i>ResultCount</i> on page 2-359 -1]
<code>\$ip</code>	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.



## 2-211 InstanceCount

Uses the frame index to return the number of results relative to the specified frame. This property is read-only. This Robot Vision Manager property is interchangeable with 2-179 *FrameCount* on page 2-200.



### Additional Information

In V+, the `frame_id` parameter is required.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1310, index\_id, frame\_id)

### Type

Long

### Range

Greater than or equal to 0.

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	N/A
ID	1310: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame that contains the specified instance. Range: [1, 2-326 <i>ResultCount</i> on page 2-359 -1]
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-212 InstanceFitQuality

Normalized average error between the matched model contours of the selected object instance and the actual contours detected in the input image. Fit quality ranges from 0 to 1, with 1 being the best quality. A value of 1 means that the average error is 0. Conversely, a value of 0 means that the average matched error is equal to *2-101 ConformityTolerance* on page 2-120. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1317, index\_id, frame\_id)

### Type

Double

### Range

Minimum: 0.0  
Maximum: 1.0

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1317: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame that contains the specified instance. Range: [1, 2-326 <i>ResultCount</i> on page 2-359 -1]
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-213 InstanceIntrinsicBoundingBox

Returns the coordinates of the intrinsic bounding box that defines an instance. The intrinsic bounding box is the smallest box that can enclose the instance. This property is read-only.

### Syntax

```
value = VRESULT ($ip, sequence_id, tool_id, instance_id, 1330, bounding_id, frame_id)
```

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1330: the value used to reference this property.
bounding_id	1 to 8: Index of the XY-coordinates that define corners of the intrinsic bounding box: <ol style="list-style-type: none"> <li>1. X-coordinate of the corner</li> <li>2. Y-coordinate of the corner</li> <li>3. X-coordinate of the corner</li> <li>4. Y-coordinate of the corner</li> <li>5. X-coordinate of the corner</li> <li>6. Y-coordinate of the corner</li> <li>7. X-coordinate of the corner</li> <li>8. Y-coordinate of the corner</li> </ol>
frame_id	Index of the frame that contains the specified instance. Range: [1, 2-326 ResultCount on page 2-359 -1]
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-214 InstanceLocation

Returns the location of the selected instance in the frame of reference of the specified robot. If a gripper offset has been assigned to the instance, it is automatically applied to the location. If no robot-to-vision calibration has been applied, InstanceLocation returns the location in the vision frame of reference. This property is read-only.



### Additional Information

If there is a single gripper offset, **InstanceLocation** (1311) is the same as *2-216 InstanceLocationGripperOffsetMinimum* on page 2-238 (1400). If there are multiple gripper offsets that can be applied to the instance, you should use InstanceLocationGripperOffsetMinimum = 1400 for the location with the first gripper offset, InstanceLocationGripperOffsetMinimum = 1401 for the location with the second gripper offset, and so on, for additional gripper offsets

### Syntax

value = VLOCATION (\$ip, sequence\_id, tool\_id, instance\_id, 1311, index\_id, frame\_id)

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which the location is required.
ID	1311: the value used to reference this property.
index_id	Index of the robot.
frame_id	Index of the frame in which the instance is found. Typically this is '0' (i.e. the Locator is not frame-based).

### Related Properties

*2-223 InstanceRobotLocation* on page 2-246

*2-215 InstanceLocationGripperOffsetMaximum* on page 2-237

*2-216 InstanceLocationGripperOffsetMinimum* on page 2-238

# 2-215 InstanceLocationGripperOffsetMaximum

Returns the maximum number of gripper offsets. This property is read-only.



## Additional Information

If there is a single gripper offset, 2-214 *InstanceLocation* on page 2-236 (1311) is the same as 2-216 *InstanceLocationGripperOffsetMinimum* on page 2-238 (1400). If there are multiple gripper offsets that can be applied to the instance you should use *InstanceLocationGripperOffsetMinimum* = 1400 for the location with the first gripper offset, *InstanceLocationGripperOffsetMinimum* = 1401 for the location with the second gripper offset, and so forth, for additional gripper offsets.

## Syntax

value = VLOCATION (\$ip, sequence\_id, tool\_id, instance\_id, 1499, index\_id, frame\_id)

## Type

Location

## Range

Minimum: Greater than or equal to 2-216 *InstanceLocationGripperOffsetMinimum* on page 2-238  
Maximum: 100

## Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	1499: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-216 InstanceLocationGripperOffsetMinimum

Returns the minimum number of gripper offsets. This property is read-only.



### Additional Information

If there is a single gripper offset, *2-214 InstanceLocation* on page 2-236 (1311) is the same as InstanceLocationGripperOffsetMinimum (1400). If there are multiple gripper offsets that can be applied to the instance, you should use InstanceLocationGripperOffsetMinimum = 1400 for the location with the first gripper offset, InstanceLocationGripperOffsetMinimum = 1401 for the location with the second gripper offset, and so on, for additional gripper offsets.

### Syntax

value = VLOCATION (\$ip, sequence\_id, tool\_id, instance\_id, 1400, index\_id, frame\_id)

### Type

Location

### Range

Minimum: Greater than or equal to 0

Maximum: Greater than or equal to *2-215 InstanceLocationGripperOffsetMaximum* on page 2-237

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	1400: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-217 InstanceMatchQuality

Returns a value representing the percent of matched model contours for the selected object instance. Match quality ranges from 0 to 1, with 1 being the best quality. A value of 1 means that 100% of the model contours were successfully matched to the actual contours detected in the input image. This property is read-only.



### Additional Information

In V+, the `frame_id` parameter is required.

### Syntax

```
value = VRESULT ($ip, sequence_id, tool_id, instance_id, 1318, index_id, frame_id)
```

### Type

Double

### Range

Minimum: 0.0

Maximum: 1.0

### Parameters

Parameters	Description
<code>_id</code>	Index of the vision sequence. The first sequence is 1.
<code>tool_id</code>	Index of the tool in the vision sequence. The first tool is 1.
<code>instance_id</code>	Index of the instance for which you want the result.
<code>ID</code>	1318: the value used to reference this property.
<code>index_id</code>	N/A
<code>frame_id</code>	Index of the frame that contains the specified instance. Range: [1, 2-326 <i>ResultCount</i> on page 2-359 -1]
<code>\$ip</code>	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-218 InstanceModel

Returns the index of the model associated with the selected object instance. This property is read-only.



### Additional Information

In V+, the `frame_id` parameter is required.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1312, index\_id, frame\_id)

### Type

Long

### Range

Minimum: 0

Maximum: Number of models - 1

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1312: the value used to reference this property.
index_id	N/A
frame	Index of the frame that contains the specified instance. Range: [1, 2-326 <i>ResultCount</i> on page 2-359 -1]



## 2-219 InstanceOccluded

---

Are there are 3D points between found object and scanner

### Syntax

---

VPARAMETER (sequence\_id, tool\_id, 1323, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 1323, index\_id, object\_id)

### Type

---

Boolean

### Range

---

Value	Description
1	The instance is occluded.
0	The instance is not occluded

## 2-220 InstanceOrdering

Order in which the instances are processed and output.



### Additional Information

With the `hsDistanceImage` and `hsDistanceWorld` modes, the reference coordinate used to compute the distance is set with the [2-221 InstanceOrderingReferenceX](#) on page 2-244 and [2-222 InstanceOrderingReferenceY](#) on page 2-245 properties.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 530, index\_id, object\_id) \$ip = value

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 530, index\_id, object\_id)

### Type

Long

### Range

Value	Mode Name	Description
0	<code>hsEvidence</code>	Instances are processed and output according to their hypothesis strength, beginning with the strongest hypothesis.
1	<code>hsLeftToRight</code>	Instances are processed and output in the order they appear in the search area, from left to right.
2	<code>hsRightToLeft</code>	Instances are processed and output in the order they appear in the search area, from right to left.
3	<code>hsTopToBottom</code>	Instances are processed and output in the order they appear in the search area, from top to bottom.
4	<code>hsBottomToTop</code>	Instances are processed and output in the order they appear in the search area, from bottom to top.
5	<code>hsQuality</code>	All the instances are first processed and then they are output according to their Quality, beginning with the highest quality.
6	<code>hsDistanceImage</code>	Instances are processed and output according to their distance from a reference image coordinate, beginning with the closest.

Value	Mode Name	Description
7	hsDistanceWorld	Instances are processed and output according to their distance from a reference world coordinate, beginning with the closest.
8	hsShadingConsistency	Instances are processed and output according to their shading consistency with respect to the model, beginning with the strongest hypothesis.

## Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	530: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-221 InstanceOrderingReferenceX

Reference X-coordinate used to compute the distance when the hsDistanceImage or hsDistanceWorld ordering mode is enabled through the 2-220 *InstanceOrdering* on page 2-242 property.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 531, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 531, index\_id, object\_id)

### Type

Double

### Range

Not applicable.

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	531: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-222 InstanceOrderingReferenceY

Reference Y-coordinate used to compute the distance when the hsDistanceImage or hsDistanceWorld ordering mode is enabled through the 2-220 InstanceOrdering on page 2-242 property.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 532, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 532, index\_id, object\_id)

### Type

Double

### Range

Not applicable.

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	532: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-223 InstanceRobotLocation

Returns the location of the selected instance in the frame of reference for the specified robot. No offset transformations are applied to the location. If a gripper offset has been assigned to the instance, it is ignored. If no vision-to-robot calibration has been applied, the system returns an error. This property is read-only.



### Additional Information

This differs from 2-214 *InstanceLocation* on page 2-236, which applies any calculated offset and returns the vision frame of reference coordinates if there is no robot-to-vision calibration.

### Syntax

value = VLOCATION (\$ip, sequence\_id, tool\_id, instance\_id, 1371, index\_id, frame\_id)

### Type

Location

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which the location is required.
ID	1371: the value used to reference this property.
index_id	Index of the robot.
frame_id	Index of the frame in which the instance is found. Typically this is '0' (i.e. the Locator is not frame-based).

### Related Properties

2-214 *InstanceLocation* on page 2-236

2-215 *InstanceLocationGripperOffsetMaximum* on page 2-237

2-216 *InstanceLocationGripperOffsetMinimum* on page 2-238

## 2-224 InstanceRotation

Angle of rotation of the Object coordinate system of the selected object instance. It does not include a tool offset or camera-calibration offset. This property is read-only.



### Additional Information

When the 2-274 *NominalRotation* on page 2-303 property is True, the rotation of the object instance is always equal to 2-274 *NominalRotation* on page 2-303. In V+, the `frame_id` parameter is required.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1314, index\_id, frame\_id)

### Type

Double

### Parameters

Parameters	Description
ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1314: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame that contains the specified instance. Range: [1, 2-326 <i>ResultCount</i> on page 2-359 -1]

## 2-225 InstanceScaleFactor

Scale factor of the selected object instance based on its size relative to the associated model. This property is read-only.



### Additional Information

When the *2-277 NominalScaleFactorEnabled* on page 2-306 property is True, the scale factor of the object instance is always equal to *2-276 NominalScaleFactor* on page 2-305. In V+, the `frame_id` parameter is required.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1313, index\_id, frame\_id)

### Type

Double

### Range

Minimum: *2-269 MinimumScaleFactor* on page 2-298 or *2-276 NominalScaleFactor* on page 2-305

Maximum: *2-256 MaximumScaleFactor* on page 2-285 or *2-276 NominalScaleFactor* on page 2-305

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1313: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame that contains the specified instance. Range: [1, <i>2-326 ResultCount</i> on page 2-359 -1]



## 2-226 InstanceSymmetry

Index of the object instance that is symmetrical to the selected object instance. This property is read-only.



### Additional Information

If 2-294 *OutputSymmetricInstances* on page 2-326 is set to False, InstanceSymmetry is always equal to the instance's index.

In V+, the frame\_id parameter is required.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1320, index\_id, frame\_id)

### Type

Long

### Range

Minimum: 0

Maximum: 2-211 *InstanceCount* on page 2-233 -1

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1320: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame that contains the specified instance. Range: [1, 2-326 <i>ResultCount</i> on page 2-359 -1]

## 2-227 InstanceTime

Time, in milliseconds, needed to recognize and locate the selected object instance. This property is read-only.



### Additional Information

The time needed to locate the first object instance is usually longer because it includes all low-level image preprocessing.  
In V+, the `frame_id` parameter is required.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1322, index\_id, frame\_id)

### Type

Double

### Range

Greater than 0.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1322: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame that contains the specified instance. Range: [1, 2-326 <i>ResultCount</i> on page 2-359 -1]

## 2-228 InstanceToolOffset

Returns the location of the selected instance relative to the position of the robot at the last picture position. This property is read-only.



### Additional Information

The time needed to locate the first object instance is usually longer because it includes all low-level image preprocessing.  
In V+, the `frame_id` parameter is required.

### Syntax

value = VLOCATION (\$ip, sequence\_id, tool\_id, instance\_id, 1372, index\_id, frame\_id)

### Type

Double

### Range

Greater than 0.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1372: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame that contains the specified instance. Range: [1, 2-326 ResultCount on page 2-359 -1]

## 2-229 InstanceTranslationX

X-translation of the Object coordinate system for the selected object instance. It does not include a tool offset or camera-calibration offset. This property is read-only.



### Additional Information

In V+, the `frame_id` parameter is required.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1315, index\_id, frame\_id)

### Type

Double

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1315: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame that contains the specified instance. Range: [1, 2-326 <i>ResultCount</i> on page 2-359 -1]
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-230 InstanceTranslationY

Y-translation of the Object coordinate system for the selected object instance. It does not include a tool offset or camera-calibration offset. This property is read-only.



### Additional Information

In V+, the frame\_id parameter is required.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1316, index\_id, frame\_id)

### Type

Double

### Parameters

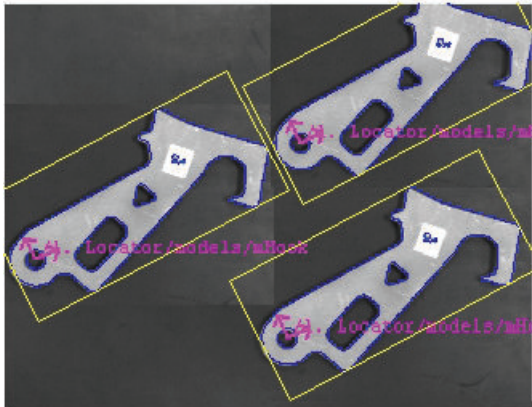
Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1316: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame that contains the specified instance. Range: [1, 2-326 ResultCount on page 2-359 -1]
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-231 InstanceVisible

Returns the percentage of the instance bounding box that was found in the image. If the entire instance bounding box is in the field of view, the percentage is 100; if it is partially outside the field of view, the percentage is less than 100. This property is read-only.



```
1 instance(s) found in 43 msec
Instance 1: Model 42 found
Time for this instance: 21.06664 msec
Scale 1.177426
Visible at 100%
Match Quality 96.42713%
Fit Quality 60.82811%
Clear Quality 99.3045%
-23.52638 30.16442 -52.54322
```



```
3 instance(s) found in 72 msec
Instance 1: Model 42 found
Time for this instance: 28.54022 msec
Scale 1.179699
Visible at 97.47465%
Match Quality 99.53899%
Fit Quality 68.23612%
Clear Quality 95.82422%
-86.33868 -20.99886 25.56581
Instance 2: Model 42 found
Time for this instance: 6.22202 msec
Scale 1.17996
Visible at 99.82626%
Match Quality 100%
Fit Quality 67.79571%
Clear Quality 92.10171%
6.954308 -49.96527 25.55495
Instance 3: Model 42 found
Time for this instance: 6.372877 msec
Scale 1.181016
Visible at 90.62641%
Match Quality 91.41359%
Fit Quality 70.21345%
Clear Quality 87.54451%
11.80856 22.03183 25.53378
```



### Additional Information

In V+, the `frame_id` parameter is required.

### Syntax

```
value = VRESULT ($ip, sequence_id, tool_id, instance_id, 1321, index_id, frame_id)
```

### Type

Double

## Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1321: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame that contains the specified instance. Range: [1, 2-326 <i>ResultCount</i> on page 2-359 -1]

## 2-232 InstanceVisionOffset

Returns the vision coordinates of a located instance. This property is read-only.

### Syntax

value = VLOCATION (\$ip, sequence\_id, tool\_id, instance\_id, 1373, index\_id, frame\_id)

### Type

Double

### Range

Greater than 0.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1373: the value used to reference this property.
index_id	Index of the robot.
frame_id	Index of the frame that contains the specified instance.



## 2-233 InterpolatePositionMode

Sets the mode used by the Point Finder tool to compute a point hypothesis

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5122, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5122, index\_id, object\_id)

### Type

Long

### Range

Value	Name	Description
0	hsCorner	The tool will compute a hypothesis that fits a corner point to interpolated lines from connected edges.
1	hsIntersection	The tool will compute a hypothesis that is an intersection between the search axis and connected edges of an interpolated line.

### Parameters

Parameters	Description
ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5122: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-234 InterpolatePositionModeEnabled

When `InterpolatePositionModeEnabled` is set to `True`, the Point Finder tool uses the value set by the [2-233 `InterpolatePositionMode`](#) on page 2-257 property to compute a point hypothesis. Otherwise, point hypothesis coordinates are taken directly from a specific found edge that satisfies search constraints.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 5123, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 5123, index_id, object_id)
```

### Type

Long

### Range

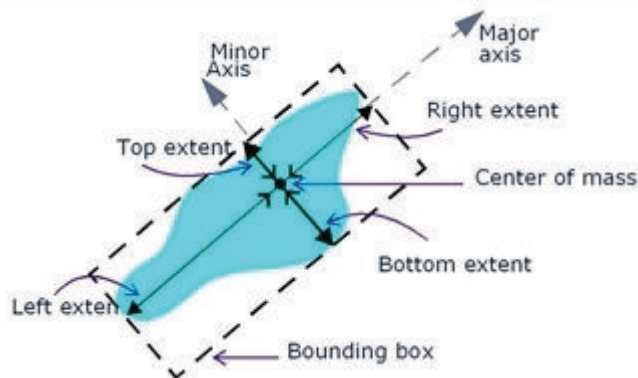
Value	Description
1	The Point Finder tool uses the value set by the <a href="#">2-233 <code>InterpolatePositionMode</code></a> on page 2-257 property to compute a point hypothesis
0	The Point Finder tool calculates point hypothesis directly from a specific found edge that satisfies search constraints

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5123: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-235 IntrinsicBoundingBoxResultsEnabled

Enables the computation of the following intrinsic bounding boxes and intrinsic extents: 2-72 *BlobIntrinsicBoundingBoxBottom* on page 2-91, 2-73 *BlobIntrinsicBoundingBoxCenterX* on page 2-92, 2-74 *BlobIntrinsicBoundingBoxCenterY* on page 2-93, 2-75 *BlobIntrinsicBoundingBoxHeight* on page 2-94, 2-76 *BlobIntrinsicBoundingBoxLeft* on page 2-95, 2-77 *BlobIntrinsicBoundingBoxRight* on page 2-96, 2-78 *BlobIntrinsicBoundingBoxRotation* on page 2-97, 2-79 *BlobIntrinsicBoundingBoxTop* on page 2-98, 2-80 *BlobIntrinsicBoundingBoxWidth* on page 2-99, 2-81 *BlobIntrinsicExtentBottom* on page 2-100, 2-82 *BlobIntrinsicExtentLeft* on page 2-101, 2-83 *BlobIntrinsicExtentRight* on page 2-102 and 2-84 *BlobIntrinsicExtentTop* on page 2-103.



### Syntax

VPARAMETER (sequence\_id, tool\_id, 1605, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 1605, index\_id, object\_id)

### Type

Boolean

### Range

Value	Description
1	The intrinsic box properties will be computed
0	No intrinsic box properties will be computed

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.

Parameters	Description
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	1605: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-236 InverseKinematics

For a robot with a tool-mounted or an arm-mounted camera, InverseKinematics retrieves the location to which to move the robot so the camera sees a specific point in the workspace (robot frame of reference) at a specific point in the image (image frame of reference). The X/Y-coordinates of the point in the workspace are defined by 2-327 *RobotXPosition* on page 2-360 and 2-328 *RobotYPosition* on page 2-361, and the X/Y-coordinates of the point in the image are defined by 2-327 *RobotXPosition* on page 2-360 and 2-328 *RobotYPosition* on page 2-361.

If the camera is arm-mounted, the configuration used in the kinematic calculation is based on the current arm configuration of the robot. If the camera is tool-mounted, there are an infinite number of solutions for positioning the robot. Therefore, using the 2-381 *VisionRotation* on page 2-416 property, you must specify the angle of rotation between the vision X-axis and the robot X-axis.

### Syntax

```
value = VPARAMETER ($ip, sequence_id, tool_id, instance_id, 10060, index_id, frame_id)
```

### Type

Location

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Should always be set to -1.
tool_id	The camera number, as defined in Keyword Mapping parameter of the Robot Vision Manager Camera Calibration (in the ACE workspace).
instance_id	Not used.
ID	10060: the value used to reference this property.
index	The robot number, as defined in Keyword Mapping parameter of the Robot Vision Manager Camera Calibration (in the ACE workspace).
frame_id	Not used.

### Example

This example illustrates the use of the following properties: InverseKinematics, 2-327 *RobotXPosition* on page 2-360, 2-328 *RobotYPosition* on page 2-361, 2-327 *RobotXPosition* on page 2-360, 2-328 *RobotYPosition* on page 2-361, and VisionRotation.

### ● Example 1

```
.PROGRAM demo()
; This program will move the robot so that a given point in the
; robot frame of reference can be seen in a given point in the vision
; Coordinate system (Calibrated)
; This defines the IP address of the PC
$ip = "192.168.0.223"
; This defines the point in the robot coordinate system that should
; be visible in the camera
robot_x = 300
robot_y = 0
; This is the point where the robot point should be seen in the
; camera coordinate system. These units are mm (Calibrated Image).
; When they are set to (0,0), it means the center of the image.
; Vision_rot only applies for a ToolMountedCamera
vision_x = 0
vision_y = 0
vision_rot = 0
; Tell Robot Vision Manager what are the chosen values
; camera coordinate system. These units are mm (Calibrated Image).
; When they are set to (0,0), it means the center of the image.
; Vision_rot only applies for a ToolMountedCamera
vision_x = 0
vision_y = 0
vision_rot = 0
; Tell Robot Vision Manager what are the chosen values
; for configuration and vision points.
VPARAMETER(-1, 1, 10401, 1) $ip = vision_x
VPARAMETER(-1, 1, 10402, 1) $ip = vision_y
VPARAMETER(-1, 1, 10403, 1) $ip = vision_rot
WHILE TRUE DO
; Tell Robot Vision Manager what are the chosen values for robot point.
VPARAMETER(-1, 1, 10404, 1) $ip = robot_x
VPARAMETER(-1, 1, 10405, 1) $ip = robot_y

; Ask Robot Vision Manager where to move the robot in order to make
; robot point seen in vision point
SET loc = VLOCATION($ip, -1, 1, , 10060, 1)

; Move to the position
MOVES loc
BREAK

END

.END
```

## Related Properties

---

2-327 *RobotXPosition* on page 2-360

2-328 *RobotYPosition* on page 2-361

2-382 *VisionXPosition* on page 2-418

2-383 *VisionYPosition* on page 2-419

2-381 *VisionRotation* on page 2-416

## 2-237 KernelSize

Sets the size of the kernel of the operator for the sharpness process. The default setting of 5 (for a 5X5 kernel) is generally sufficient for most cases. This property is read-only.

### Syntax

VRESULT (sequence\_id, tool\_id, instance\_id, 5304, index\_id, frame\_id) \$ip = value  
value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 5304, index\_id, frame\_id)

### Type

Long

### Range

Minimum: 2

Maximum: 16

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the pair for which you want the result.
ID	5304: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the pair.



## 2-238 LastOperation

Operation applied by the Image Processing tool at the last iteration. This property is read-only.

### Type

Long

### Range

Value	Name	Description
0	hsArithmeticAddition	Operand value (constant or Operand Image pixel) is added to the corresponding pixel in the input image.
1	hsArithmeticSubtraction	Operand value (constant or Operand Image pixel) is subtracted from the corresponding pixel in the input image.
2	hsArithmeticMultiplication	The input image pixel value is multiplied by the Operand value (constant or corresponding Operand Image pixel).
3	hsArithmeticDivision	The input image pixel value is divided by the Operand value (constant or corresponding Operand image pixel). The result is scaled and clipped, and finally written to the output image.
4	hsArithmeticLightest	The Operand value (constant or Operand Image pixel) and corresponding pixel in the input image are compared to find the maximal value.
5	hsArithmeticDarkest	The Operand value (constant or Operand Image pixel) and corresponding pixel in the input image are compared to find the minimal value.
6	hsAssignmentInitialization	All the pixels of the output image are set to a specific constant value. The height and width of the output image must be specified.
7	hsAssignmentCopy	Each input image pixel is copied to the corresponding output image pixel.

Value	Name	Description
8	hsAssignmentInversion	The input image pixel value is inverted and the result is copied to the corresponding output image pixel.
9	hsLogicalAnd	AND operation is applied to the Operand value (constant or Operand image pixel) and the corresponding pixel in the input image.
10	hsLogicalNAnd	NAND operation is applied to the Operand value (constant or Operand image pixel) and the corresponding pixel in the input image.
11	hsLogicalOr	OR operation is applied to the Operand value (constant or Operand image pixel) and the corresponding pixel in the input image.
12	hsLogicalXOr	XOR operation is applied to the Operand value (constant or Operand image pixel) and the corresponding pixel in the input image.
13	hsLogicalNOOr	NOR operation is applied using the Operand value (constant or Operand image pixel) and the corresponding pixel in the input image.
14	hsFilteringCustom	Applies a Custom filter.
15	hsFilteringAverage	Applies an Average filter.
16	hsFilteringLaplacian	Applies a Laplacian filter.
17	hsFilteringHorizontalSobel	Applies a Horizontal Sobel filter.
18	hsFilteringVerticalSobel	Applies a Vertical Sobel filter.
19	hsFilteringSharpen	Applies a Sharpen filter.
20	hsFilteringSharpenLow	Applies a SharpenLow filter.
21	hsFilteringHorizontalPrewitt	Applies a Horizontal Prewitt filter.
22	hsFilteringVerticalPrewitt	Applies a Vertical Prewitt filter.
23	hsFilteringGaussian	Applies Gaussian filter.
24	hsFilteringHighPass	Applies High Pass filter.
25	hsFilteringMedian	Applies a Median filter.
26	hsMorphologicalDilate	Sets each pixel in the output image as the largest luminance value of all the input image pixels in the neighborhood defined by the selected kernel size.
27	hsMorphologicalErode	Sets each pixel in the output image as the smallest luminance value of all the input image pixels in the neighborhood defined by the selected kernel size.
28	hsMorphologicalClose	Has the effect of removing small dark particles and holes within objects.

Value	Name	Description
29	hsMorphologicalOpen	Has the effect of removing peaks from an image, leaving only the image background.
30	hsHistogramEqualization	Equalization operation enhances the Input Image by flattening the histogram of the Input Image.
31	hsHistogramStretching	Stretches (increases) the contrast in an image by applying a simple piecewise linear intensity transformation based on the histogram of the Input Image.
32	hsHistogramLightThreshold	Changes each pixel value depending on whether they are less or greater than the specified threshold. If an input pixel value is less than the threshold, the corresponding output pixel is set to the minimum acceptable value. Otherwise, it is set to the maximum presentable value.
33	hsHistogramDarkThreshold	Changes each pixel value depending on whether they are less or greater than the specified threshold. If an input pixel value is less than the threshold, the corresponding output pixel is set to the maximum presentable value. Otherwise, it is set to the minimum acceptable value.
34	hsTransformFFT	Converts and outputs a frequency description of the input image by applying a Fast Fourier Transform (FFT).
35	hsTransformDCT	Converts and outputs a frequency description of the input image by applying a Discrete Cosine Transform (DCT).Parameters

## 2-239 LastOutputType

Type of the image output by the Image Processing tool at the last iteration. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 2201, index\_id, frame\_id)

### Type

Long

### Range

Value	Name	Description
1	hsType8Bits	Unsigned 8-bit image.
10	hsType16Bits	Signed 16-bit image.
7	hsType32Bits	Signed 32-bit image

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance in the specified result frame. If no result frame is specified, it is the index for all instances returned by the tool.
ID	2201: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame that contains the specified instance. Range: [1, 2-326 <i>ResultCount</i> on page 2-359 -1]

## 2-240 LogicalConstant

Constant applied by a logical operation when no valid operand image is specified.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5380, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5380, index\_id, object\_id)

### Type

Long

### Range

Minimum: -32768

Maximum: 32767

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5380: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-241 MagnitudeConstraint

Indexed property used to set the magnitude-constraint function for edge detection. Two points are used: Base and Top.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5226, index\_id, constraint\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5226, index\_id, constraint\_id)

### Type

Long

### Range

Minimum: 0

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5226: the value used to reference this property.
index_id	N/A
constraint_id	One of the two points of the magnitude constraint function (hsMagnitudeConstraintIndex) 0: Base point 1: Top point

## 2-242 MagnitudeThreshold

Magnitude threshold sets the threshold used to find edges on the magnitude curve. In order to locate edges, a subpixel, peak-detection algorithm is applied on the region of every minimum or maximum of the curve that exceeds this threshold.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 5200, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 5200, index_id, object_id)
```

### Type

Double

### Range

Minimum: 0

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5200: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-243 MatchCount

Number of matched patterns found. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 2100, index\_id, frame\_id)

### Type

Long

### Range

Minimum: 0

Maximum: Unlimited

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the pattern instance for which you want the result.
ID	2100: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame containing the pattern instance for which you want the result.



## 2-244 MatchPositionX

X-coordinate of a matched pattern in the currently-selected coordinate system. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 2102, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the pattern instance for which you want the result.
ID	2102: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame containing the pattern instance for which you want the result.

## 2-245 MatchPositionY

Y-coordinate of a matched pattern in the currently-selected coordinate system. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 2103, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the pattern instance for which you want the result.
ID	2103: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame containing the pattern instance for which you want the result.

## 2-246 MatchQuality

Percentage of edges actually matched to the found entity (point, arc, or line). MatchQuality ranges from 0 to 1, with 1 being the best quality. A value of 1 means that edges were matched for every point along the found entity. Similarly, a value of 0.2 means edges were matched to 20% of the points along the found entity. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1802, index\_id, frame\_id)

### Type

Double

### Range

Minimum: 0.0

Maximum: 1.0

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1802: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame that contains the specified instance. Range: [1, 2-326 ResultCount on page 2-359 -1]
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-247 MatchRotation

Rotation of a matched pattern in the currently-selected coordinate system. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 2104, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameter	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the pattern instance for which you want the result.
ID	2104: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame containing the pattern instance for which you want the result.

## 2-248 MatchStrength

---

Strength of the match matrix for the selected matched pattern. Match value ranges from 0 to 1, with 1 being the best quality. A value of 1 means that 100% of the reference pattern was successfully matched to the found pattern instance. This property is read-only.

### Syntax

---

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 2101, index\_id, object\_id)

### Type

---

Double

### Range

---

Minimum: 2-249 *MatchThreshold* on page 2-278

Maximum: 1.0

### Parameter

---

Strength of the match matrix for the selected matched pattern. Match value ranges from 0 to 1, with 1 being the best quality. A value of 1 means that 100% of the reference pattern was successfully matched to the found pattern instance. This property is read-only.

## 2-249 MatchThreshold

Sets the minimum match strength required for a pattern to be recognized as valid. A perfect match value is 1.

In V+, the `frame_id` parameter is required.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5420, index\_id, object\_id) \$ip = value

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5420, index\_id, object\_id)

### Type

Double

### Range

Minimum: 0.0 (weak match)

Maximum: 1.0 (strong match)

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5420: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-250 MaximumAngleDeviation

Maximum angular deviation allowed for a detected edge to be used to generate an entity hypothesis.



### Additional Information

For an arc entity, the deviation is calculated between the tangent angle of the arc at points where the edge is matched to the arc. For a line entity, the Line Finder accepts a 20 degree deviation (default). However, the tool uses the defined MaximumAngleDeviation value to test the hypothesis and refine the pose of the found line.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5102, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5102, index\_id, object\_id)

### Type

Double

### Range

Minimum: 0 degrees

Maximum: 20 degrees

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5102: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-251 MaximumBlobArea

Maximum area for a blob. This validation criterion is used to filter out unwanted blobs from the results.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5001, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5001, index\_id, object\_id)

### Type

Double

### Range

0 or greater.

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5001: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.



## 2-252 MaximumGreylevelValue

Highest greylevel value of all pixels in the tool region of interest that are included in the final histogram. Pixels removed from the histogram by tails or thresholds are not included in this calculation. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1507, index\_id, frame\_id)

### Type

Long

### Range

Minimum: 0

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1507: the value used to reference this property.
index_id	N/A
frame_id	N/A

## 2-253 MaximumInstanceCount

Maximum number of object instances that are searched for in the input greyscale Image. All of the object instances respecting the search constraints are output, up to a maximum of MaximumInstanceCount. They are ordered according to the 2-220 *InstanceOrdering* on page 2-242 property.



### Additional Information

This property is applicable only if the 2-254 *MaximumInstanceCountEnabled* on page 2-283 property is set to True.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 519, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 519, index\_id, object\_id)

### Type

Double

### Range

Minimum: 1  
Maximum: 2000

### Parameter

Description	Parameters
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	519: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-254 MaximumInstanceCountEnabled

When True, limits the search to the number of instances set by the 2-253 *MaximumInstanceCount* on page 2-282 property

### Syntax

VPARAMETER (sequence\_id, tool\_id, 518, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 518, index\_id, object\_id)

### Range

Value	Description
1	Search is limited to number of instances specified by 2-253 <i>MaximumInstanceCount</i> on page 2-282.
0	Search is not limited to a set number of instances.

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	518: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-255 MaximumRotation

Maximum angle of rotation allowed for an object instance to be recognized.



### Additional Information

This property is applicable only if the *2-275 NominalRotationEnabled* on page 2-304 property is set to False. When *2-255 MaximumRotation* on page 2-284 is lower than *2-268 MinimumRotation* on page 2-297, the search range is equivalent to *2-268 MinimumRotation* on page 2-297 to (*2-255 MaximumRotation* on page 2-284 + 360 degrees).

### Syntax

VPARAMETER (sequence\_id, tool\_id, 517, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 517, index\_id, object\_id)

### Type

Double

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	517: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-256 MaximumScaleFactor

Maximum scale factor allowed for an object instance to be recognized.



### Additional Information

This property is applicable only if the 2-274 *NominalRotation* on page 2-303 property is set to False.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 513, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 513, index\_id, object\_id)

### Type

Double

### Range

Minimum: 0.1  
Maximum: 10.0

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	513: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-257 Mean

Mean of the greylevel distribution of the pixels in the tool region of interest that are included in the final histogram. Pixels removed from the histogram by tails or thresholds are not included in this calculation. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1500, index\_id, frame\_id)

### Type

Double

### Range

Minimum: 0

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	1500: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-258 MeasurementPointsCount

The number of points where the local sharpness is evaluated. When the Image Sharpness tool is executed, it scans the region of interest and identifies a number of candidate locations (equal to 2-91 *CandidatePointsCount* on page 2-110) where the local standard deviation is the highest. The local sharpness is then evaluated at each of the candidate locations that has a local standard deviation above *StandardDeviationThreshold*. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 2002, index\_id, frame\_id)

### Type

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 2002, index\_id, frame\_id)

### Range

Minimum: 0

Maximum: 2-91 *CandidatePointsCount* on page 2-110

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	2002: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-259 Median

Median of the greylevel distribution of the pixels in the tool region of interest that are included in the final histogram. Pixels removed from the histogram by tails or thresholds are not included in this calculation. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1501, index\_id, frame\_id)

### Type

Double

### Range

Minimum: 0

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	1501: the value used to reference this property.
index_id	N/A
object_id	N/A



## 2-260 MinimumArcPercentage

Minimum percentage of arc contours that need to be matched for an arc hypothesis to be considered as valid.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5142, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5142, index\_id, object\_id)

### Type

Double

### Range

Minimum: 1  
Maximum: 100.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5142: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-261 MinimumBlobArea

Minimum area for a blob. This validation criterion is used to filter out unwanted blobs from the results.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5000, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5000, index\_id, object\_id)

### Type

Double

### Range

0 or greater.

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5000: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-262 MinimumClearPercentage

When 2-263 *MinimumClearPercentageEnabled* on page 2-292 is set to True, MinimumClearPercentage sets the minimum percentage of the model bounding-box area that must be free of obstacles to consider an object instance as valid.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 559, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 559, index\_id, object\_id)

### Type

Double

### Range

Minimum: 0.1 or greater.  
Maximum: 100.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	559: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-263 MinimumClearPercentageEnabled

When set to True, the 2-262 *MinimumClearPercentage* on page 2-291 constraint is applied to the search process.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 558, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 558, index\_id, object\_id)

### Type

Boolean

### Range

Parameters	Description
1	The 2-262 <i>MinimumClearPercentage</i> on page 2-291 constraint is enabled and applied to the Search process.
0	The 2-262 <i>MinimumClearPercentage</i> on page 2-291 constraint is not enabled.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	558: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-264 MinimumGreylevelValue

Lowest greylevel value of all pixels in the tool region of interest that are included in the final histogram. Pixels removed from the histogram by tails or thresholds are not included in this calculation. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1506, index\_id, frame\_id)

### Type

Long

### Range

Minimum: 0

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1506: the value used to reference this property.
index_id	N/A
frame_id	N/A

## 2-265 MinimumLinePercentage

Minimum percentage of line contours that need to be matched for a line hypothesis to be considered as valid.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5130, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5130, index\_id, object\_id)

### Type

Double

### Range

Minimum: 0.1  
Maximum: 100.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5130: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-266 MinimumModelPercentage

Minimum percentage of model contours that need to be matched in the input image in order to consider the object instance as valid.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 557, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 557, index\_id, object\_id)

### Type

Double

### Range

Minimum: 0.1 or greater.

Maximum: 100.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	557: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-267 MinimumRequiredFeatures

Minimum percentage of required features that must be recognized in order to consider the object instance as valid.



### Additional Information

The minimum percentage of required features is expressed in terms of the number of required features in a model without considering the amount of contour each required feature represents in the model. For example, if the model contains 3 required features and MinimumRequiredFeatures is set to 50%, an instance of the object will be considered valid as long as 2 out of 3 required features are recognized.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 560, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 560, index_id, object_id)
```

### Type

Double

### Range

Minimum: 0.1 or greater.

Maximum: 100.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	560: the value used to reference this property.
index_id	N/A
object_id	N/A



## 2-268 MinimumRotation

Minimum angle of rotation allowed for an object instance to be recognized.



### Additional Information

This property is applicable only if the 2-274 *NominalRotation* on page 2-303 property is set to False. When 2-255 *MaximumRotation* on page 2-284 is lower than MinimumRotation, the search range is equivalent to MinimumRotation to (2-255 *MaximumRotation* on page 2-284 + 360 degrees).

### Syntax

VPARAMETER (sequence\_id, tool\_id, 516, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 516, index\_id, object\_id)

### Type

Double

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	516: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-269 MinimumScaleFactor

Minimum scale factor allowed for an object instance to be recognized.



### Additional Information

This property is applicable only if the 2-276 *NominalScaleFactor* on page 2-305 property is set to False.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 512, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 512, index\_id, object\_id)

### Type

Double

### Range

Minimum: 0.1  
 Maximum: 10.0

### Parameters

Parameters	Description
ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	512: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-270 Mode

Mode of the greylevel distribution of the pixels in the tool region of interest that are included in the final histogram. Pixels removed from the histogram by tails or thresholds are not included in this calculation. The mode is the greylevel value which corresponds to the histogram bin with the highest number of pixels. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1504, index\_id, frame\_id)

### Type

Double

### Range

Minimum: 0

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	1504: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-271 ModelDisambiguationEnabled

When set to True (default), the Locator applies disambiguation to discriminate between similar models and similar hypotheses of a single object. When set to False, the Locator does not apply disambiguation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 403, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 403, index\_id, object\_id)

### Type

Boolean

### Range

Value	Description
1	Locator applies disambiguation.
0	Locator does not apply disambiguation.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	403: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-272 ModePixelCount

Number of pixels in the histogram bin which corresponds to the *2-270 Mode* on page 2-299 of the greylevel distribution of all pixels in the tool region of interest that are included in the final histogram. Pixels removed from the histogram by tails or thresholds are not included in this calculation. The mode is the greylevel value which corresponds to the histogram bin with the highest number of pixels. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1505, index\_id, frame\_id)

### Type

Double

### Range

Greater than or equal to 0.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	1505: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-273 MorphologicalNeighborhoodSize

Neighborhood size applied by a morphological operation.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5390, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5390, index\_id, object\_id)

### Type

Long

### Range

Fixed value: 3

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5390: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-274 NominalRotation

Required angle of rotation for an object instance to be recognized.



### Additional Information

This property is applicable only if the *2-275 NominalRotationEnabled* on page 2-304 property is set to True.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 515, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 515, index\_id, object\_id)

### Type

Double

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	515: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-275 NominalRotationEnabled

Specifies whether the rotation of a recognized instance must fall within the range set by 2-268 *MinimumRotation* on page 2-297 and 2-255 *MaximumRotation* on page 2-284 or be equal to the nominal value set by the 2-274 *NominalRotation* on page 2-303 property. When *NominalRotationEnabled* is set to True, the nominal value is applied. Otherwise, the range is used.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 514, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 514, index_id, object_id)
```

### Type

Boolean

### Range

Value	Description
1	Locator searches for instances that meet 2-274 <i>NominalRotation</i> on page 2-303 constraint
0	Locator searches for instances within range set by 2-268 <i>MinimumRotation</i> on page 2-297 and 2-255 <i>MaximumRotation</i> on page 2-284.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	514: the value used to reference this property.
index_id	N/A
object_id	N/A



## 2-276 NominalScaleFactor

Required scale factor for an object instance to be recognized.



### Additional Information

This property is applicable only if the *2-277 NominalScaleFactorEnabled* on page 2-306 property is set to True.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 511, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 511, index\_id, object\_id)

### Type

Long

### Range

Minimum: 0.1  
Maximum: 10.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	511: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-277 NominalScaleFactorEnabled

Specifies whether the scale factor of a recognized instance must fall within the range set by 2-269 *MinimumScaleFactor* on page 2-298 and 2-256 *MaximumScaleFactor* on page 2-285 or be equal to the nominal value set by the 2-276 *NominalScaleFactor* on page 2-305 property. When *NominalScaleFactorEnabled* is set to True, the nominal value is applied. Otherwise, the range is used.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 510, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 510, index_id, object_id)
```

### Type

Boolean

### Range

Value	Description
1	Locator searches for instances that meet 2-276 <i>NominalScaleFactor</i> on page 2-305 constraint.
0	Locator searches for instances within range set by 2-269 <i>MinimumScaleFactor</i> on page 2-298 and 2-256 <i>MaximumScaleFactor</i> on page 2-285.

### Parameters

Parameter	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	510: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-278 Operation

Operation applied by the Image Processing tool.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5355, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5355, index\_id, object\_id)

### Type

Long

### Range

Value	Name	Description
0	hsArithmeticAddition	Operand value (constant or Operand Image pixel) is added to the corresponding pixel in the input image.
1	hsArithmeticSubtraction	Operand value (constant or Operand Image pixel) is subtracted from the corresponding pixel in the input image.
2	hsArithmeticMultiplication	The input image pixel value is multiplied by the Operand value (constant or corresponding Operand Image pixel).
3	hsArithmeticDivision	The input image pixel value is divided by the Operand value (constant or corresponding Operand image pixel). The result is scaled and clipped, and finally written to the output image.
4	hsArithmeticLightest	The Operand value (constant or Operand Image pixel) and corresponding pixel in the input image are compared to find the maximal value.
5	hsArithmeticDarkest	The Operand value (constant or Operand Image pixel) and corresponding pixel in the input image are compared to find the minimal value.
6	hsAssignmentInitialization	All the pixels of the output image are set to a specific constant value. The height and width of the output image must be specified.

Value	Name	Description
7	hsAssignmentCopy	Each input image pixel is copied to the corresponding output image pixel.
8	hsAssignmentInversion	The input image pixel value is inverted and the result is copied to the corresponding output image pixel.
9	hsLogicalAnd	AND operation is applied to the Operand value (constant or Operand image pixel) and the corresponding pixel in the input image.
10	hsLogicalNAnd	NAND operation is applied to the Operand value (constant or Operand image pixel) and the corresponding pixel in the input image.
11	hsLogicalOr	OR operation is applied to the Operand value (constant or Operand image pixel) and the corresponding pixel in the input image.
12	hsLogicalXOr	XOR operation is applied to the Operand value (constant or Operand image pixel) and the corresponding pixel in the input image.
13	hsLogicalNOr	NOR operation is applied using the Operand value (constant or Operand image pixel) and the corresponding pixel in the input image.
14	hsFilteringCustom	Applies a Custom filter.
15	hsFilteringAverage	Applies an Average filter.
16	hsFilteringLaplacian	Applies a Laplacian filter.
17	hsFilteringHorizontalSobel	Applies a Horizontal Sobel filter.
18	hsFilteringVerticalSobel	Applies a Vertical Sobel filter.
19	hsFilteringSharpen	Applies a Sharpen filter.
20	hsFilteringSharpenLow	Applies a SharpenLow filter.
21	hsFilteringHorizontalPrewitt	Applies a Horizontal Prewitt filter.
22	hsFilteringVerticalPrewitt	Applies a Vertical Prewitt filter.
23	hsFilteringGaussian	Applies Gaussian filter.
24	hsFilteringHighPass	Applies High Pass filter.
25	hsFilteringMedian	Applies a Median filter.
26	hsMorphologicalDilate	Sets each pixel in the output image as the largest luminance value of all the input image pixels in the neighborhood defined by the selected kernel size.
27	hsMorphologicalErode	Sets each pixel in the output image as the smallest luminance value of all the input image pixels in the neighborhood defined by the selected kernel size.

Value	Name	Description
28	hsMorphologicalClose	Has the effect of removing small dark particles and holes within objects.
29	hsMorphologicalOpen	Has the effect of removing peaks from an image, leaving only the image background.
30	hsHistogramEqualization	Equalization operation enhances the Input Image by flattening the histogram of the Input Image
31	hsHistogramStretching	Stretches (increases) the contrast in an image by applying a simple, piecewise, linear-intensity transformation based on the histogram of the Input Image.
32	hsHistogramLightThreshold	Changes each pixel value depending on whether they are less or greater than the specified threshold. If an input pixel value is less than the threshold, the corresponding output pixel is set to the minimum acceptable value. Otherwise, it is set to the maximum presentable value.
33	hsHistogramDarkThreshold	Changes each pixel value depending on whether they are less or greater than the specified threshold. If an input pixel value is less than the threshold, the corresponding output pixel is set to the maximum-presentable value. Otherwise, it is set to the minimum-acceptable value.
34	hsTransformFFT	Converts and outputs a frequency description of the input image by applying a Fast Fourier Transform (FFT).
35	hsTransformDCT	Converts and outputs a frequency description of the input image by applying a Discrete Cosine Transform (DCT).Parameters

## Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5355: the value used to reference this property.

Parameters	Description
index_id	N/A
object_id	N/A

## 2-279 Operator

Logical operator applied by the Results Inspection tool.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5600, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5600, index\_id, object\_id)

### Type

Long

### Range

0 or 1

Value	State	Description
1	AND	AND operator is applied.
0	OR	OR operator is applied.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5600: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-280 OutlineLevel

The coarseness of the contours at the Outline level. This property can only be set when 2-303 *ParametersBasedOn* on page 2-335 is set to *hsParametersCustom*. Otherwise, it is read-only.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 300, index\_id, object\_id)

### Type

Long

### Range

Minimum: 1

Maximum: 16

### Parameter

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	300: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.



## 2-281 OutputArcAngle

Angle of the specified arc entity. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1841, index\_id, frame\_id)

### Type

Double

### Range

Minimum: -180

Maximum: 180 degrees

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1841: the value used to reference this property.
index_id	N/A
frame_id	N/A

## 2-282 OutputArcCenterPointX

X-coordinate of the center point of the specified arc entity. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1846, index\_id, frame\_id)

### Type

Double

### Range

Unbounded

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1846: the value used to reference this property.
index_id	N/A
frame_id	N/A

## 2-283 OutputArcCenterPointY

The Y-coordinate of the center point of the specified arc entity. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1847, index\_id, frame\_id)

### Type

Double

### Range

Unbounded

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1847: the value used to reference this property.
index_id	N/A
frame_id	N/A

## 2-284 OutputArcRadius

The radius of the specified arc entity. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1840, index\_id, frame\_id)

### Type

Double

### Range

Unbounded

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1840: the value used to reference this property.
index_id	N/A
frame_id	N/A

## 2-285 OutputLineAngle

Angle of the specified line entity. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1820, index\_id, frame\_id)

### Type

Double

### Range

Minimum: -180

Maximum: 180

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1820: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame that contains the specified instance. Range: [1, 2-326 <i>ResultCount</i> on page 2-359 -1]
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-286 OutputLineEndPointX

X-coordinate of the end point of the specified line entity. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1823, index\_id, frame\_id)

### Type

Double

### Range

Unbounded

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1823: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame that contains the specified instance. Range: [1, 2-326 <i>ResultCount</i> on page 2-359 -1]
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-287 OutputLineEndPointY

Y-coordinate of the end point of the specified line entity. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1824, index\_id, frame\_id)

### Type

Double

### Range

Unbounded

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1824: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame that contains the specified instance. Range: [1, 2-326 ResultCount on page 2-359 -1]
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-288 OutputLineStartPointX

X-coordinate of the start point of the specified line entity. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1821, index\_id, frame\_id)

### Type

Double

### Range

Unbounded

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1821: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame that contains the specified instance. Range: [1, 2-326 <i>ResultCount</i> on page 2-359 -1]
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.



## 2-289 OutputLineStartPointY

Y-coordinate of the start point of the specified line entity. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1822, index\_id, frame\_id)

### Type

Double

### Range

Unbounded

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1822: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame that contains the specified instance. Range: [1, 2-326 ResultCount on page 2-359 -1]
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-290 OutputLineVectorPointX

X-coordinate of the vector point of the specified line entity. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1825, index\_id, frame\_id)

### Type

Double

### Range

Unbounded

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1825: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame that contains the specified instance. Range: [1, 2-326 <i>ResultCount</i> on page 2-359 -1]
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-291 OutputLineVectorPointY

Y-coordinate of the vector point of the specified line entity. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1826, index\_id, frame\_id)

### Type

Double

### Range

Unbounded

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1826: the value used to reference this property.
index_id	N/A
frame_id	Index of the frame that contains the specified instance. Range: [1, 2-326 ResultCount on page 2-359 -1]
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-292 OutputPointX

X-coordinate of the specified point entity. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1810, index\_id, frame\_id)

### Type

Double

### Range

Unbounded

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1810: the value used to reference this property.
index_id	N/A
frame_id	N/A

## 2-293 OutputPointY

Y-coordinate of the specified point entity. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1811, index\_id, frame\_id)

### Type

Double

### Range

Unbounded

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1811: the value used to reference this property.
index_id	N/A
frame_id	N/A

## 2-294 OutputSymmetricInstances

When set to True, all the symmetric poses of the object instance are output. If False, only the single best-quality symmetric pose of the object instance is output.



### Additional Information

See also *2-226 InstanceSymmetry* on page 2-249.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 520, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 520, index\_id, object\_id)

### Type

Boolean

### Range

Value	Description
1	Locator outputs all symmetrical poses of an instance.
0	Locator outputs only single best pose of an instance.

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	520: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-295 OverrideType

Output image type when the *2-296 OverrideTypeEnabled* on page 2-328 property is set to True. By default, the Image Processing Tool outputs all resulting images as unsigned 8-bit images.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5351, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5351, index\_id, object\_id)

### Type

Long

### Range

Value	Name	Description
1	hsType8Bits	Unsigned 8-bit image.
10	hsType16Bits	Signed 16-bit image.
7	hsType32Bits	Signed 32-bit image

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5351: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-296 OverrideTypeEnabled

Enables or disables the 2-295 *OverrideType* on page 2-327 property.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5350, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5350, index\_id, object\_id)

### Type

Long

### Range

Value	State	Description
1	Enabled	The output image type is set based on the setting of 2-295 <i>OverrideType</i> on page 2-327 [5351].
0	Disabled	The output image type is automatically set to the same type as the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5350: the value used to reference this property.
index_id	N/A
object_id	N/A



## 2-297 PairCount

PairCount indicates the number of pairs that have been configured for the tool. This property is read-only.



### Additional Information

If an edge pair is not found, results for that edge pair appear as zero. However, the PairCount property is not affected. To get the number of pairs found by the tool use the 2-326 *ResultCount* on page 2-359 property.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 1920, index\_id, object\_id)

### Type

Long

### Range

Minimum: 0

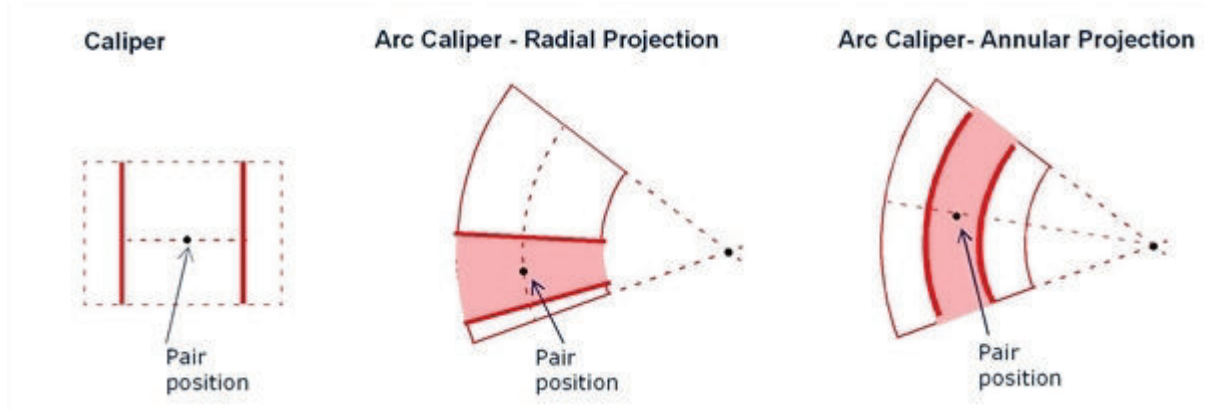
Maximum: Unlimited

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1920: the value used to reference this property.
index_id	N/A
frame_id	N/A

## 2-298 PairPositionX

X-coordinate of the center of the selected pair. The position of a pair is defined as the middle of the line segment drawn from the X/Y-coordinates of the first and second edges of the pair. This property is read-only.



### Syntax

```
value = VRESULT ($ip, sequence_id, tool_id, instance_id, 1921, index_id, frame_id)
```

### Type

Long

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the pair for which you want the result.
ID	1921: the value used to reference this property.
index_id	N/A
frame_id	N/A

## 2-299 PairPositionY

Y-coordinate of the center of the selected pair. The position of a pair is defined as the middle of the line segment drawn from the X/Y-coordinates of the first and second edges of the pair. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1922, index\_id, frame\_id)

### Type

Double

### Range

Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the pair for which you want the result.
ID	1922: the value used to reference this property.
index_id	N/A
frame_id	N/A

## 2-300 PairRotation

Angle of rotation of the selected pair in the currently-selected coordinate system. The rotation of a given pair is always the same as the rotation of its first and second edges. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1923, index\_id, frame\_id)

### Type

Long

### Range

Minimum: -180

Maximum: 180

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the pair for which you want the result.
ID	1923: the value used to reference this property.
index_id	N/A
frame_id	N/A

## 2-301 PairScore

Score of the selected pair. The score of the pair is equal to the mean score of the two edges (Edge1Score and Edge2Score) that form the pair. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1924, index\_id, frame\_id)

### Type

Double

### Range

Minimum: 0.0

Maximum: 1.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the result.
ID	1924: the value used to reference this property.
index_id	N/A
frame_id	N/A

## 2-302 PairSize

Size of the selected pair. The size of the pair is equal to the mean size of the two edges (Edge1Score and Edge2Score) that form the pair. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1925, index\_id, frame\_id)

### Type

Double

### Range

Greater than 0.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the pair for which you want the result.
ID	1925: the value used to reference this property.
index_id	N/A
frame_id	Frame containing the pair.

## 2-303 ParametersBasedOn

Sets how the contour detection parameters are configured.

- When set to `hsContourParametersAllModels`, the contour detection parameters are optimized by analyzing the parameters used to build all the models.
- When set to `hsContourParametersCustom`, the contour detection parameters are set manually.
- When set to a value greater than `hsContourParametersCustom`, the contour detection parameters of a specific model are used.

The contour detection parameters on which this property has an effect are `DetailLevel`, `OutlineLevel`, `ContrastThresholdMode`, and `ContrastThreshold`



### Additional Information

For most applications, the `ParametersBasedOn` property should be set to `hsParametersAllModels`. Custom contour detection should only be used when the default values do not work correctly.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 304, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 304, index_id, object_id)
```

### Type

Long

### Range

Value	Detection Mode	Description
-2	<code>hsContourParametersAllModels</code>	The contour detection parameters are optimized by analyzing the parameters used to build all the models.
-1	<code>hsContourParametersCustom</code>	The contour detection parameters are set manually.
Integer from 1 - 10	Integer specifying the index of a model	The contour detection parameters of the specified model are used.

### Parameters

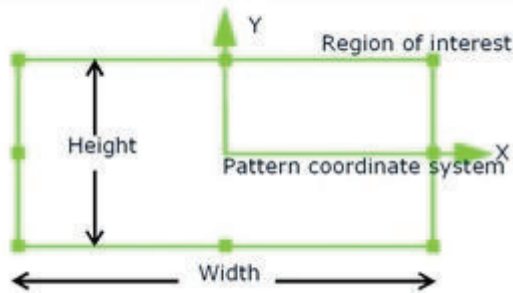
Parameters	Description
<code>sequence_id</code>	Index of the vision sequence. The first sequence is 1.
<code>tool_id</code>	Index of the tool in the vision sequence. The first tool is 1.
ID	304: the value used to reference this property.

Parameters	Description
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120



## 2-304 PatternHeight

Height of the region of interest of the Pattern. This is the sample pattern for which the Pattern Locator searches.



### Syntax

VPARAMETER (sequence\_id, tool\_id, 5403, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5403, index\_id, object\_id)

### Type

Long

### Range

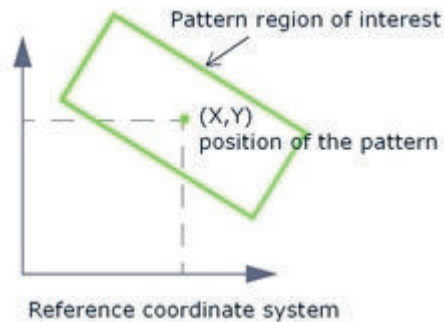
Greater than or equal to three pixels. Minimum size is 3x3 pixels.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5403: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-305 PatternPositionX

X-coordinate of the center of the pattern region of interest. This is the sample pattern for which the Pattern Locator searches.



### Syntax

```
VPARAMETER (sequence_id, tool_id, 5400, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 5400, index_id, object_id)
```

### Type

Long

### Range

Unbounded

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5400: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-306 PatternPositionY

Y-coordinate of the center of the pattern region of interest. This is the sample pattern for which the Pattern Locator searches.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 5401, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 5401, index_id, object_id)
```

### Type

Long

### Range

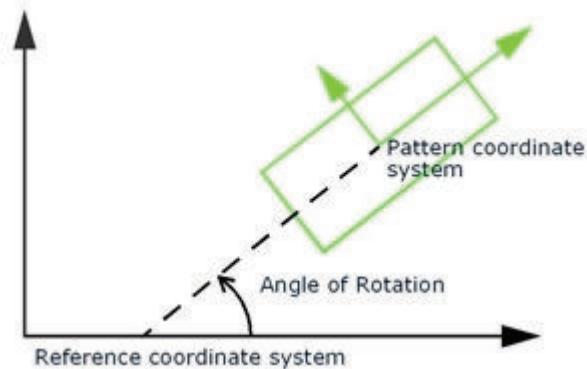
Unbounded

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5401: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-307 PatternRotation

Angle of rotation of the pattern region of interest. This is the sample pattern for which the Pattern Locator searches.



### Syntax

VPARAMETER (sequence\_id, tool\_id, 5404, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5404, index\_id, object\_id)

### Type

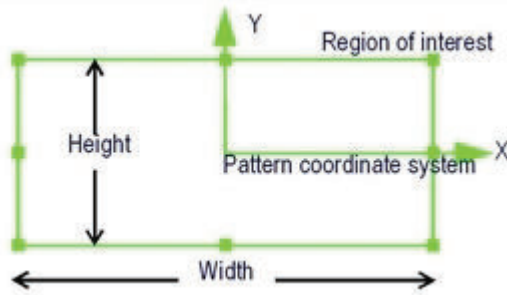
Double

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5404: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-308 PatternWidth

Width of the pattern region of interest. This is the sample pattern for which the Pattern Locator searches.



### Syntax

```
VPARAMETER (sequence_id, tool_id, 5402, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 5402, index_id, object_id)
```

### Type

Long

### Range

Greater than or equal to three pixels. Minimum size is 3x3 pixels.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5402: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-309 PerimeterResultsEnabled

Enables the computation of the following blob properties: 2-88 *BlobRawPerimeter* on page 2-107, 2-55 *BlobConvexPerimeter* on page 2-74 and 2-89 *BlobRoundness* on page 2-108.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 1602, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 1602, index\_id, object\_id)

### Type

Boolean

### Range

Value	Description
1	The perimeter properties will be computed.
0	No perimeter properties will be computed.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	1602: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-310 PolarityMode

Selects the type of polarity accepted for finding an entity. Polarity identifies the change in greylevel values from the tool center (inside) towards the outside.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 5100, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 5100, index_id, object_id)
```

### Type

Long

### Range

Value	Mode	Description
0	hsDarkToLight	The tool searches only for arc instances occurring at a dark-to-light transition in greylevel values.
1	hsLightToDark	The tool searches only for arc instances occurring at a light-to-dark transition in greylevel values.
2	hsEither	The tool searches only for arc instances occurring either at a light-to-dark or dark-to-light transition in greylevel values.
3	hsDontCare	The tool searches only for arc instances occurring at any transition in greylevel values including reversals in contrast along the arc, for example, on an unevenly colored background.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5100: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-311 PositionConstraint

Indexed property used to set the position-constraint function for edge detection. Four points are used: Base Left, Top Left, Top Right, Base Right.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5223, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5223, index\_id, object\_id)

### Type

Double

### Range

Minimum: 0.0  
Maximum: 1.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5223: the value used to reference this property.
index_id	N/A
object_id	N/A



## 2-312 PositioningLevel

Configurable effort level of the instance positioning process. The value is expressed as a percentage. The minimal allowable value is 10. Lower values will provide coarser positioning and lower execution time. Conversely, a value of 100 will provide the highest accuracy for the positioning of object instances.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 561, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 561, index\_id, object\_id)

### Type

Long

### Range

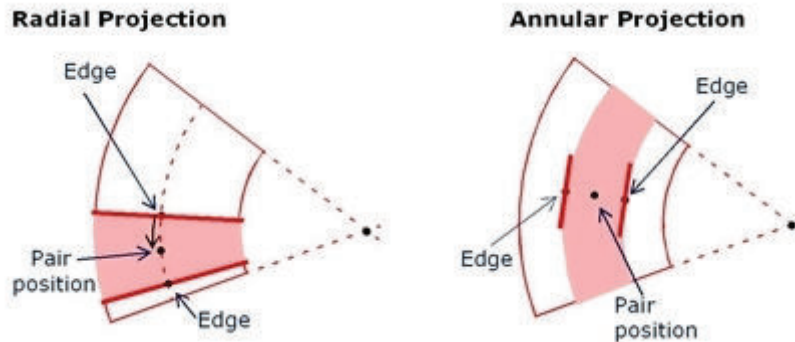
Minimum: 0  
Maximum: 10

### Parameters

Parameters	Descriptions
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	561: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-313 ProjectionMode

Projection mode used by the tool to detect edges.



### Syntax

VPARAMETER (sequence\_id, tool\_id, 140, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 140, index\_id, object\_id)

### Type

0 or 1

### Range

Value	Projection Mode	Description
0	hsProjectionAnnular	Annular projection is used to find edges that are aligned with the median annulus, such as arcs on concentric circles.
1	hsProjectionRadial	Radial projection is used to find edges aligned along radial projections, similar to the spokes of a wheel.

### Parameters

## 2-314 RobotCheckCollision

Read or write the joint position used for the virtual position checking for a Viper robot.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 10408, index\_id, frame\_id)

### Type

Long

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	-1
tool_id	0
instance_id	N/A
ID	10408: the value used to reference this property.
index_id	The robot number to access

## 2-315 RobotCollisionCheckState

Checks the status of the collision detection process. A value of 1 indicates the algorithms are running. A value of 0 indicates the algorithms have completed.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 10409, index\_id, object\_id)

### Type

Long

### Parameters

Parameters	Description
sequence_id	-1
tool_id	0
ID	10409: the value used to reference this property.
index_id	Robot number to check against
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-316 RobotCollisionDetectionEnable

Enable or disable collision checking for a Viper robot.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 10406, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 10406, index\_id, object\_id)

### Type

Long

### Parameters

Parameters	Description
sequence_id	-1
tool_id	0
ID	10406: the value used to reference this property.
index_id	Robot number to check against
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-317 RobotCollisionDetectionJoint

Read or write the joint position used for the collision detection for a Viper robot.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 10407, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 10407, index\_id, object\_id)

### Type

Long

### Parameters

Parameters	Description
sequence_id	-1
tool_id	0
ID	10407: the value used to reference this property.
index_id	Robot number to check against
object_id	The joint index to access
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-318 RecipeManagerActiveRecipe

Returns the currently selected recipe associated with the Recipe Manager.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 8001, index\_id, object\_id)

### Type

Real variable.

### Parameters

Parameter	Description
sequence_id	Index associated with the recipe manager as defined in the recipe manager editor.
tool_id	N/A
ID	8001: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-319 RecipeManagerRecipeCount

Returns the number of available recipes associated with the Recipe Manager.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 8000, index\_id, object\_id)

### Type

Real variable.

### Parameters

Parameters	Description
sequence_id	Index associated with the recipe manager as defined in the recipe manager editor.
tool_id	N/A
ID	8000: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.



## 2-320 RecipeManagerRecipeSelection

Identifies the new recipe that will be selected when a VRUN is issued against the Recipe Manager.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 8002, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 8002, index\_id, object\_id)

### Type

Real variable.

### Parameters

Parameters	Description
sequence_id	Index associated with the recipe manager as defined in the recipe manager editor.
tool_id	N/A
ID	8002: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-321 RecipeManagerRecipeDelete

Deletes a specified recipe from a recipe manager object in the workspace.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 8003, index\_id, object\_id) \$ip = value

### Type

Real variable.

### Parameters

Parameters	Description
sequence_id	Index associated with the recipe manager as defined in the recipe manager editor.
tool_id	N/A
ID	8003: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-322 RecipeManagerLoadFile

Load a recipe from a file into the specified recipe manager. When this command is invoked, the variable `$as.filename[0]` will be read to identify the file to load. A sample showing how this is used is located in the **ASIGHT.V2** module in the program **as.load.recipe**.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 8004, index\_id, object\_id) \$ip = value

### Type

Real variable.

### Parameters

Parameters	Description
sequence_id	Index associated with the recipe manager as defined in the recipe manager editor.
tool_id	N/A
ID	8004: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-323 RecipeManagerSaveFile

Saves a recipe into a file from the specified recipe manager. When this command is invoked, the variable `$as.filename[0]` will be read to identify the file to save into. A sample showing how this is used is located in the **ASIGHT.V2** module in the program **as.save.recipe**.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 8005, index\_id, object\_id) \$ip = value

### Type

Real variable.

### Range

Minimum: 0

Maximum: The number of available recipes - 1

### Parameters

Parameters	Description
sequence_id	Index associated with the recipe manager as defined in the recipe manager editor.
tool_id	N/A
ID	8004: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-324 RecognitionLevel

Configurable effort level of the search process. A value of 0 will lead to a faster search that may miss instances that are partly occluded. Conversely, a value of 10 is useful for finding partly occluded objects in cluttered or noisy images, or for models made up of small features at the Outline Level.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 550, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 550, index\_id, object\_id)

### Type

Long

### Range

Minimum: 0  
Maximum: 10

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	550: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-325 Reset

Resets the data currently stored for the tool. This property is write-only.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5500, index\_id, object\_id) \$ip = value

### Type

Long

### Range

Not applicable

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5500: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-326 ResultCount

Returns the total number of results found by the tool in all frames of reference. If you want the number of results within a specified frame of reference, see *2-179 FrameCount* on page 2-200. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1900, index\_id, frame\_id)

### Type

Long

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	N/A
ID	1900: the value used to reference this property.
index_id	N/A
frame_id	N/A

## 2-327 RobotXPosition

X-coordinate (in millimeters) of a location in the robot frame of reference, which is required for the *2-236 InverseKinematics* on page 2-261 property.

This property is Read/Write.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 10404, index\_id, object\_id) \$ip = value

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 10404, index\_id, object\_id)

### Type

Long

### Parameters

Parameter	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	10404: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

### Related Properties

*2-328 RobotYPosition* on page 2-361

*2-327 RobotXPosition* on page 2-360

*2-383 VisionYPosition* on page 2-419

*2-381 VisionRotation* on page 2-416

*2-236 InverseKinematics* on page 2-261



## 2-328 RobotYPosition

Y-coordinate (in millimeters) of a location in the robot frame of reference, which is required for the 2-236 *InverseKinematics* on page 2-261 property.

This property is Read/Write.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 10405, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 10405, index\_id, object\_id)

### Type

Long

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	10405: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

### Example

Refer to the 2-236 *InverseKinematics* on page 2-261 for an example of this property and related properties

### Related Properties

2-327 *RobotXPosition* on page 2-360  
2-382 *VisionXPosition* on page 2-418  
2-383 *VisionYPosition* on page 2-419  
2-381 *VisionRotation* on page 2-416  
2-236 *InverseKinematics* on page 2-261

## 2-329 SamplingStepCustom

When *2-330 SamplingStepCustomEnabled* on page 2-363 is set to True, this property defines the sampling step used to sample the region of interest from the input image. When *2-330 SamplingStepCustomEnabled* on page 2-363 is set to False, the default sampling step is used.



### Additional Information

A custom sampling step is usually not recommended.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 124, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 124, index\_id, object\_id)

### Type

Single

### Range

Minimum: Greater than zero.

Maximum: Boundaries of the input image.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	124: the value used to reference this property.
index_id	N/A
object_id	N/A

### Related Properties

*2-330 SamplingStepCustomEnabled* on page 2-363

## 2-330 SamplingStepCustomEnabled

When enabled, the tool uses the user-defined sampling step (2-329 *SamplingStepCustom* on page 2-362) instead of the optimal (default) sampling step to sample the region of interest from the input image.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 121, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 121, index\_id, object\_id)

### Type

Boolean

### Range

Value	Description
0	The tool uses the default sampling step.
1	The default sampling step is overridden by Sampling-StepCustom.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	121: the value used to reference this property.
index_id	N/A
object_id	N/A

### Related Properties

2-329 *SamplingStepCustom* on page 2-362

## 2-331 SaveImage

Saves the current image to file. Various file formats are available, including the Adept hig file format. The hig format saves the calibration information in the image file. Files with this format can be reused in Robot Vision Manager applications through an Emulation device. This property is write-only.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 10327, index\_id, object\_id) \$ip = value

### Type

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	10327: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-332 ScoreThreshold

Minimum score to accept an edge. The score of an edge is returned by the 2-147 *EdgeScore* on page 2-168 property.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5240, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5240, index\_id, object\_id)

### Type

Double

### Range

Minimum: 0.0  
Maximum: 1.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5240: the value used to reference this property.
index_id	N/A
object_id	Index of the frame containing the edge pair.

## 2-333 SearchBasedOnOutlineLevelOnly

When set to True, the Locator positions object instances using Outline-level models. This mode can be used to improve the speed when only a coarse positioning of object instances is required.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 521, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 521, index\_id, object\_id)

### Type

Boolean

### Range

Value	Description
1	Only Outline-level models are used to position instances
0	Both Outline- and Detail-level models are used to position instances.

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	521: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-334 SearchCoarseness

Subsampling level used to find pattern-match hypotheses. High values provide a coarser search and lower execution time than lower values. If AutoCoarsenessSelectionEnabled is set to True, this property is read-only.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5430, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5430, index\_id, object\_id)

### Type

Long

### Range

[1,2,4,8,16,32]

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5430: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-335 SearchMode

Specifies the method used by a Finder tool to select a hypothesis.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5101, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5101, index\_id, object\_id)

### Type

Long

### Range

The range depends on the type of entity. For arcs (Arc Finder Tool), the range is:

Value		Description
0	hsBestArc	Selects the best arc according to hypothesis strength.
1	hsArcClosestToGuideline	Selects the arc hypothesis closest to the Guideline.
2	hsArcClosestToInside	Selects the arc hypothesis closest to the inside of the tool Search Area. (closest to the tool center).
3	hsArcClosestToOutside	Selects the arc hypothesis closest to the outside of the tool Search Area. (furthest from the tool center)

For lines (Line Finder Tool), the range is:

Value		Description
0	hsBestLine	Selects the best line according to hypothesis strength.
1	hsLineClosestToGuideline	Selects the line hypothesis closest to the Guideline.
2	hsLineWithMaximumNegativeXOffset	Selects the line hypothesis closest to the Search Area bound that is at maximum negative X-offset.
3	hsLineWithMaximumPositiveXOffset	Selects the line hypothesis closest to the Search Area bound that is at maximum positive X-offset.

For points (Point Finder Tool), the range is:

Value		Description
1	hsPointClosestToGuideline	Selects the point hypothesis closest to the Guideline.



Value		Description
2	hsPointWithMaximumNegativeX-Offset	Selects the point hypothesis closest to the Search Area bound that is at maximum negative X-offset.
3	hsPointWithMaximumPositiveXOffset	Selects the point hypothesis closest to the Search Area bound that is at maximum positive X-offset

## Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5101: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-336 SegmentationDark

Indexed property used to access the Dark Segmentation function. Two points are available, from left to right: Top and Bottom.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5005, constraint\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5005, constraint\_id, object\_id)

### Type

Long

### Range

Minimum: 0

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5005: the value used to reference this property.
constraint_id	Point index for the Dark Segmentation function. (hsSegmentationDarkPoint) 1. DarkTop point 2. DarkBottom point
object_id	N/A

## 2-337 SegmentationDynamicDark

Indexed property used to access the Dynamic Dark Segmentation function. Two points are available, from left to right: Top and Bottom.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5009, constraint\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5009, constraint\_id, object\_id)

### Type

Long

### Range

Minimum: 0.0

Maximum: 100.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5009: the value used to reference this property.
constraint_id	Point index for the Dynamic Dark Segmentation function. (hsSegmentationDarkPoint) 1. DarkTop point 2. DarkBottom point
object_id	N/A

## 2-338 SegmentationDynamicInside

Indexed property used to access the Dynamic Inside Segmentation function. Four points are available, from left to right: Bottom Left, Top Left, Top Right and Bottom Right.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5010, constraint\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5010, constraint\_id, object\_id)

### Type

Long

### Range

Minimum: 0.0

Maximum: 100.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5010: the value used to reference this property.
constraint_id	Point index for the Dynamic Inside Segmentation. (hsSegmentationInsidePoint) 0: hsInsideBottomLeft point 1: hsInsideTopLeft point 2: hsInsideTopRight point 3: hsInsideBottomRight point
object_id	N/A

## 2-339 SegmentationDynamicLight

Indexed property used to access the Dynamic Light Segmentation function. Two points are available (from left to right): Bottom and Top.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5008, constraint\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5008, constraint\_id, object\_id)

### Type

Long

### Range

Minimum: 0.0

Maximum: 100.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5008: the value used to reference this property.
constraint_id	Point index for the Dynamic Light Segmentation function. (hsSegmentationLightPoint) 1: hsLightBottom point 2: hsLightTop point
object_id	N/A

## 2-340 SegmentationDynamicOutside

Indexed property used to access the Dynamic Outside Segmentation function. Four points are available, from left to right: Top Left, Bottom Left, Bottom Right and Top Right.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5011, constraint\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5011, constraint\_id, object\_id)

### Type

Long

### Range

Minimum: 0.0

Maximum: 100.0

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5011: the value used to reference this property.
constraint_id	Point index for the Dynamic Outside Segmentation function. (hsSegmentationOutsidePoint) 0: hsOutsideTopLeft point 1: hsOutsideBottomLeft point 2: hsOutsideBottomRight point 3: hsOutsideTopRight point
object_id	N/A

## 2-341 SegmentationInside

Indexed property used to access the Inside Segmentation function. Four points are available: from left to right, Bottom Left, Top Left, Top Right and Bottom Right.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 5006, constraint_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 5006, constraint_id, object_id)
```

### Type

Long

### Range

Minimum: 0

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5006: the value used to reference this property.
constraint_id	Point index for the Inside Segmentation. (hsSegmentationInsidePoint) 0: hsInsideBottomLeft point 1: hsInsideTopLeft point 2: hsInsideTopRight point 3: hsInsideBottomRight point
object_id	N/A

## 2-342 SegmentationLight

Indexed property used to access the Light Segmentation function. Two points are available, from left to right: Bottom and Top.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5004, constraint\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5004, constraint\_id, object\_id)

### Type

Long

### Range

Minimum: 0

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5004: the value used to reference this property.
constraint_id	Point index for the Light Segmentation function. (hsSegmentationLightPoint) 1: hsLightBottom point 2: hsLightTop point
object_id	N/A



## 2-343 SegmentationMode

Segmentation mode used by the tool to segment the input image.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5003, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5003, index\_id, object\_id)

### Type

Long

### Range

Value	Segmentation Mode
0	hsLight
1	hsDark
2	hsInside
3	hsOutside
4	hsDynamicLight
5	hsDynamicDark
6	hsDynamicInside
7	hsDynamicOutside
8	HSL Inside
9	HSL Outside

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5003: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-344 SegmentationOutside

Indexed property used to access the Outside Segmentation function. Four points are available, from left to right: Top Left, Bottom Left, Bottom Right and Top Right.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5007, constraint\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5007, constraint\_id, object\_id)

### Type

Long

### Range

Minimum: 0

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5007: the value used to reference this property.
constraint_id	Point index for the Outside Segmentation function. (hsSegmentationOutsidePoint) 0: hsOutsideTopLeft point 1: hsOutsideBottomLeft point 2: hsOutsideBottomRight point 3: hsOutsideTopRight point
object_id	N/A

## 2-345 SequenceExecutionMode

Sets the mode for execution of the sequence. When VRUN is called the sequence is run if single execution mode is selected (0) or in continuously if continuous mode is selected.

This property is Read/Write.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 10200, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 10200, index\_id, object\_id)

### Type

Long

### Range

Value	Execution Mode	Description
0	Single execution	Executes the vision sequence once.
1	Continuous mode	Executes the vision sequence continuously, until the execution is stopped by a program instruction.

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Should always be set to -1.
ID	10200: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-346 SequenceToolCount

Returns the number of tools in the specified Robot Vision Manager sequence.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 10201, index\_id, object\_id)

### Type

Long

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Should always be set to -1.
ID	10201 : the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-347 Sharpness

Average sharpness computed in the region of interest. When the Image Sharpness tool is executed, it scans the region of interest and identifies a number of candidate locations (equal to *2-91 CandidatePointsCount* on page 2-110) where the local standard deviation is the highest. The local sharpness is then evaluated at each of the candidate locations that has a local standard deviation above *2-353 StandardDeviationThreshold* on page 2-388. The tool then computes the average of all the local sharpness values, which were computed at every measurement point, and returns it through the Sharpness property. This property is read-only.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 2000, index\_id, object\_id)

### Type

Double

### Range

Minimum: 0

Maximum: 1000

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	2000: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-348 SharpnessPeak

Maximum 2-347 *Sharpness* on page 2-381 value computed by the tool. This property is read-only.

### Syntax

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 2001, index\_id, object\_id)

### Type

Double

### Range

Minimum: 0

Maximum: 1000

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	2001: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-349 ShowResultsGraphics

When enabled, vision results are displayed in the image display control. When disabled, vision results are not displayed.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 150, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 150, index\_id, object\_id)

### Type

Boolean

### Range

Value	Description
1	Enabled: Vision results are displayed in the image display control.
0	Disabled: Vision results are not displayed.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	150: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-350 SortBlobsBy

Sorting mode used by the tool to sort the found blobs.



### Additional Information

Default Value: 0:hsArea

### Syntax

VPARAMETER (sequence\_id, tool\_id, 1601, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 1601, index\_id, object\_id)

### Type

Long

### Range

Parameter	Range
Value	Sorting Mode
0	hsArea
1	hsBoundingBoxBottom
2	hsBoundingBoxCenterX
3	hsBoundingBoxCenterY
4	hsBoundingBoxHeight
5	hsBoundingBoxLeft
6	hsBoundingBoxRight
7	hsBoundingBoxRotation
8	hsBoundingBoxTop
9	hsBoundingBoxWidth
10	hsChainCodeDeltaX
11	hsChainCodeDeltaY
12	hsChainCodeLength
13	hsChainCodeStartX
14	hsChainCodeStartY
15	hsConvexPerimeter
16	hsElongation
17	hsExtentBottom
18	hsExtentLeft
19	hsExtentRight
20	hsExtentTop
21	hsGreyLevelMaximum
22	hsGreyLevelMean
23	hsGreyLevelMinimum



Parameter	Range
24	hsGreyLevelRange
25	hsGreyLevelStdDev
26	hsHoleCount
27	hsInertiaMaximum
28	hsInertiaMinimum
29	hsInertiaXAxis
30	hsInertiaYAxis
31	hsIntrinsicBoundingBoxBottom
32	hsIntrinsicBoundingBoxCenterX
33	hsIntrinsicBoundingBoxCenterY
34	hsIntrinsicBoundingBoxHeight
35	hsIntrinsicBoundingBoxLeft
36	hsIntrinsicBoundingBoxRight
37	hsIntrinsicBoundingBoxRotation
38	hsIntrinsicBoundingBoxTop
39	hsIntrinsicBoundingBoxWidth
40	hsIntrinsicExtentBottom
41	hsIntrinsicExtentLeft
42	hsIntrinsicExtentRight
43	hsIntrinsicExtentTop
44	hsPositionX
45	hsPositionY
46	hsPrincipalAxesRotation
47	hsRawPerimeter
48	hsRoundness

## Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	1601: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-351 SortResultsEnabled

Specifies if the found blobs are sorted in descending order using the sorting mode set by the 2-350 *SortBlobsBy* on page 2-384 property.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 1600, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 1600, index\_id, object\_id)

### Type

Boolean

### Range

Parameters	Description
0	Blobs are not sorted.
1	Blobs are sorted in descending order using the sorting mode set by 2-350 <i>SortBlobsBy</i> on page 2-384.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	1600: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-352 StandardDeviation

Standard deviation of the greylevel distribution of the pixels in the tool region of interest that are included in the final histogram. Pixels removed from the histogram by tails or thresholds are not included in this calculation. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1503, index\_id, frame\_id)

### Type

Double

### Range

Minimum: 0

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	1503: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-353 StandardDeviationThreshold

Threshold used to validate candidate locations before computing their local sharpness. When the tool is executed, it scans the region of interest and identifies a number of candidate locations (equal to *2-91 CandidatePointsCount* on page 2-110) where the local standard deviation is the highest. The local sharpness is then evaluated at each of the candidate location that has a local standard deviation above *StandardDeviationThreshold*.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5302, index\_id, object\_id) \$ip = value value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5302, index\_id, object\_id)

### Type

Double

### Range

Minimum: 0

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5302: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-354 SubsamplingLevel

Subsampling level used to detect edges that are used by the tool to generate hypotheses. High values provide a coarser search and lower execution time than lower values.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5110, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5110, index\_id, object\_id)

### Type

Long

### Range

Minimum: 1  
 Maximum: 8

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5110: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-355 TailBlack

Amount of pixels to ignore at the dark end of the greylevel distribution in the tool region of interest. TailBlack is expressed as a percentage of the total number of pixels in the histogram before tails are removed. After its creation, the histogram is scanned starting from bin 0. The bins at the dark end of the histogram are then cleared until the amount of pixels defined by TailBlack is reached.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 5323, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 5323, index_id, object_id)
```

### Type

Double

### Range

Minimum: 0

Maximum: 100

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5323: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-356 TailBlackGreylevelValue

Represents the darkest greylevel value that remains in the histogram after the tail is removed. Used in conjunction with 2-355 *TailBlack* on page 2-390, which is used to ignore pixels at the dark end of the greylevel distribution.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 1509, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 1509, index_id, object_id)
```

### Type

Long

### Range

Minimum: 0

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	1509: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-357 TailWhite

Amount of pixels to ignore at the bright end of the greylevel distribution in the tool region of interest. TailWhite is expressed as a percentage of the total number of pixels in the histogram before tails are removed. After its creation, the histogram is scanned starting from bin 255. The bins at the bright end of the histogram are then cleared until the amount of pixels defined by TailWhite is reached.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 5322, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 5322, index_id, object_id)
```

### Type

Double

### Range

Minimum: 0

Maximum: 100

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5322: the value used to reference this property.
index_id	N/A
object_id	N/A



## 2-358 TailWhiteGreylevelValue

Represents the brightest greylevel value that remains in the histogram after the tail is removed. Used in conjunction with 2-357 *TailWhite* on page 2-392, which is used to ignore pixels at the bright end of the greylevel distribution.

### Syntax

```
VPARAMETER (sequence_id, tool_id, 1510, index_id, object_id) $ip = value
value = VPARAMETER ($ip, sequence_id, tool_id, 1510, index_id, object_id)
```

### Type

Long

### Range

Minimum: 0

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	1510: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-359 ThresholdBlack

Darkest greylevel value to consider when building the histogram. Greylevel values below Threshold-Black are ignored during the histogram creation process. When a threshold is used and the tool is also configured to remove a percentage of pixels at the dark tail of the histogram (see the 2-355 *TailBlack* on page 2-390 property), the tail-removal process begins to scan the histogram at the bin corresponding to 2-359 *ThresholdBlack* on page 2-394 instead of starting at bin 0.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5320, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5320, index\_id, object\_id)

### Type

Long

### Range

Minimum: 0

Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5320: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-360 ThresholdWhite

Brightest greylevel value to consider when building the histogram. Greylevel values above ThresholdWhite are ignored during the histogram creation process. When a threshold is used and the tool is also configured to remove a percentage of pixels at the bright tail of the histogram (see the 2-357 *Tail-White* on page 2-392 property), the tail removal process begins to scan the histogram at the bin corresponding to 2-360 *ThresholdWhite* on page 2-395 instead of starting at bin 255.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5321, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5321, index\_id, object\_id)

### Type

Long

### Range

Minimum: 0  
Maximum: 255

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5321: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-361 Timeout

Time (in milliseconds) after which the Locator tool aborts its search process. This timeout period does not include the model-learning phase. When the timeout is reached and TimeoutEnabled is set to True, the instances recognized up to the timeout are output by the Locator and the search is aborted.



### Additional Information

Due to internal and operating system latencies, it may take the Locator a few milliseconds more than the time specified by Timeout to abort. This property is applied only when TimeoutEnabled is set to True.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 501, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 501, index\_id, object\_id)

### Type

Long

### Range

Minimum: 1 ms  
Maximum: 60,000 ms

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	501: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-362 TimeoutEnabled

Specifies if the timeout period set by the 2-361 *Timeout* on page 2-396 property will be used to limit the search time.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 500, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 500, index\_id, object\_id)

### Type

Boolean

### Range

Parameters	Description
1	Search time is limited by the 2-361 <i>Timeout</i> on page 2-396 property.
0	Search time is not limited.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	500: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-363 ToolGuidelineOffset

The radial offset of the Guideline marker from the center of the tool search area.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 130, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 130, index\_id, object\_id)

### Type

Long

### Range

Maximum:  $+0.5 \times \text{ToolThickness}$

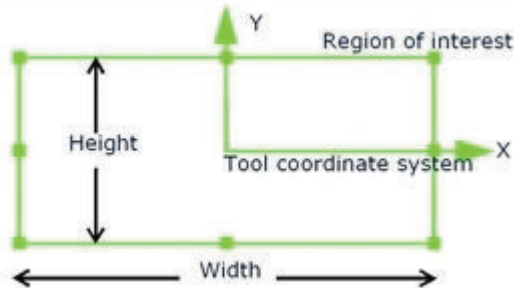
Maximum:  $-0.5 \times \text{ToolThickness}$

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	130: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-364 ToolHeight

Height of the tool region of interest.



### Syntax

VPARAMETER (sequence\_id, tool\_id, 111, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 111, index\_id, object\_id)

### Type

Double

### Range

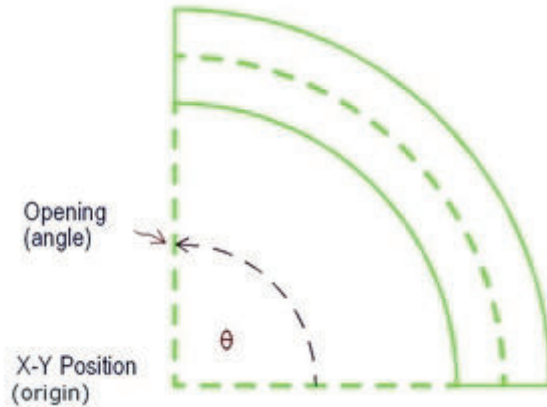
Greater than 0.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	111: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-365 ToolOpening

Angle between the two bounding radii of the tool sector.



### Syntax

VPARAMETER (sequence\_id, tool\_id, 137, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 137, index\_id, object\_id)

### Type

Long

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	137: the value used to reference this property.
index_id	N/A
object_id	N/A



# 2-366 ToolPositionX

X-coordinate of the center of the tool region of interest.

## Syntax

VPARAMETER (sequence\_id, tool\_id, 100, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 100, index\_id, object\_id)

## Type

Double

## Range

Unbounded

## Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	100: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-367 ToolPositionY

Y-coordinate of the center of the tool region of interest.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 101, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 101, index\_id, object\_id)

### Type

Double

### Range

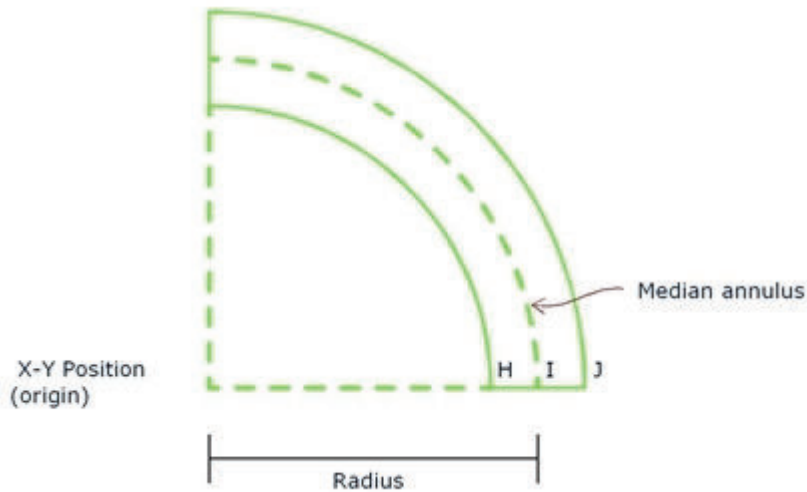
Unbounded

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision s.equence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	101: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-368 ToolRadius

The radius of the tool corresponds to the radius of the median annulus of the tool sector.



### Syntax

### Type

### Range

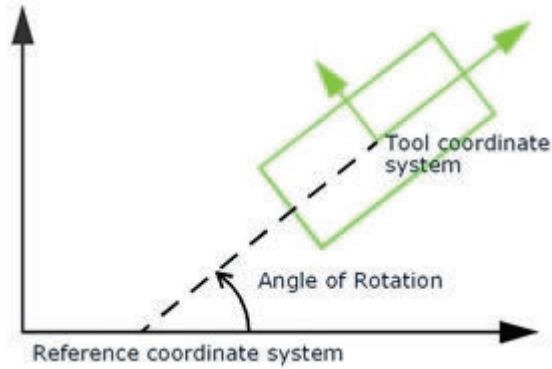
Greater than 0.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	135: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-369 ToolRotation

Angle of rotation of the tool region of interest.



### Syntax

VPARAMETER (sequence\_id, tool\_id, 112, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 112, index\_id, object\_id)

### Type

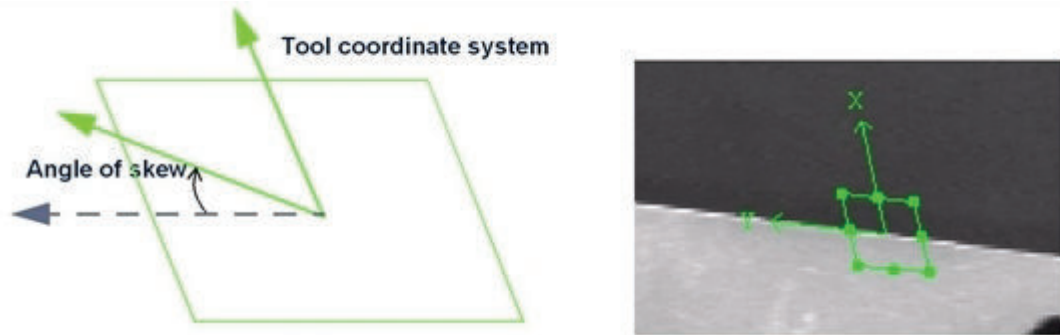
Double

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	112: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-370 ToolSkew

Skew angle of the tool region of interest. The angle of skew is defined as the angle between the Y-axis of an orthogonal Tool coordinate system and the Y-axis of the skewed Tool coordinate system. The Edge Locator tool and the Caliper tool search for edges that are parallel to the X-axis of the tool. Skewing allows positioning of the tool to match the inclination of features within an object.



### Syntax

VPARAMETER (sequence\_id, tool\_id, 113, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 113, index\_id, object\_id)

### Type

Double

### Range

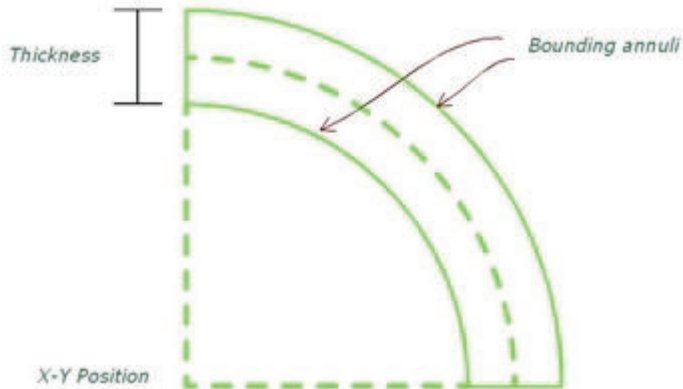
Minimum: -90 degrees.  
 Maximum: +90 degrees.

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	113: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-371 ToolThickness

Distance between the two bounding annuli of the tool region of interest.



### Syntax

VPARAMETER (sequence\_id, tool\_id, 136, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 136, index\_id, object\_id)

### Type

Long

### Range

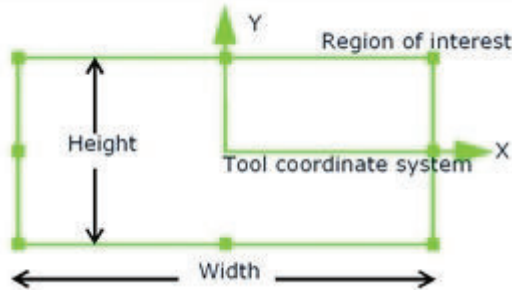
1 or greater.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	136: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-372 ToolWidth

Width of the tool region of interest.



### Syntax

VPARAMETER (sequence\_id, tool\_id, 110, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 110, index\_id, object\_id)

### Type

Double

### Range

Greater than 0.

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	110: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-373 TopologicalResultsEnabled

Enables the computation of the 2-67 *BlobHoleCount* on page 2-86 property.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 1609, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 1609, index\_id, object\_id)

### Type

Boolean

### Range

Value	Description
1	The topological properties will be computed.
0	No topological properties will be computed.

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	1609: the value used to reference this property.
index_id	N/A
object_id	N/A



## 2-374 TransformFlags

Sets the flag used by a transform operation, either FFT or DCT.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5395, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5395, index\_id, object\_id)

### Type

### Range

Value	Transform Flag Type	Description
0	TransformFlag2DLinear	Transform results output in linear 2D format
1	hsTransformFlag2DLogarithmic	Transform results in logarithmic scale
2	hsTransformFlag1DLinear	Transform results in 1D linear format
3	hsTransformFlagHistogram	Transform results as histogram

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5395: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-375 UseDefaultConformityTolerance

Specifies whether the default conformity tolerance returned by the 2-108 *DefaultConformityTolerance* on page 2-129 is used instead of the user-defined conformity tolerance set by the 2-101 *Conformity-Tolerance* on page 2-120 property. When set to True, the default conformity tolerance is used.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 551, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 551, index\_id, object\_id)

### Type

Boolean

### Range

Parameters	Description
1	DefaultConformityToleranceRange is enabled.
0	DefaultConformityToleranceRange is disabled.

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	551: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-376 Variance

Variance of the greylevel distribution of the pixels in the tool region of interest that are included in the final histogram. Pixels removed from the histogram by tails or thresholds are not included in this calculation. This property is read-only.

### Syntax

value = VRESULT (\$ip, sequence\_id, tool\_id, instance\_id, 1502, index\_id, frame\_id)

### Type

Double

### Range

Minimum: 0

Maximum: 65535

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	1502: the value used to reference this property.
index_id	N/A
object_id	N/A

## 2-377 VideoExposure

Reads and writes the exposure setting for the active settings object relative to a camera.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5502, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5502, index\_id, object\_id)

### Type

Real variable.

### Range

Minimum: 0  
Maximum: 32767

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5502: the value used to reference this property.
index_id	Robot number to select.
object_id	Index of the tool tip to access.
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-378 VideoGain

Reads and writes the gain setting for the active settings object relative to a camera.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 5503, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 5503, index\_id, object\_id)

### Type

Real variable.

### Range

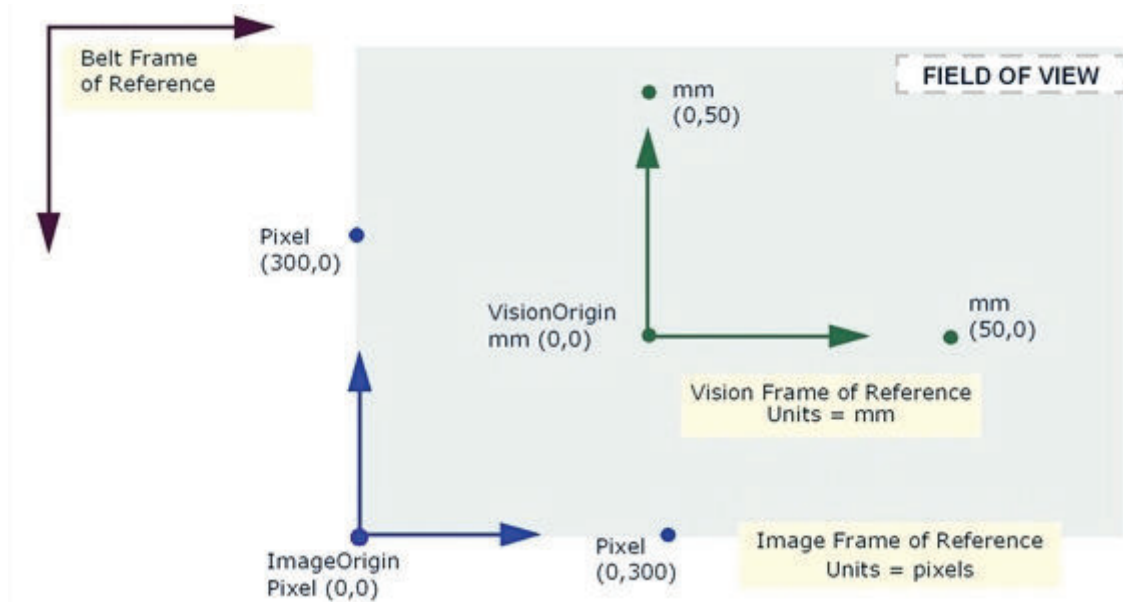
Minimum: 0  
 Maximum: 32767

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	5503: the value used to reference this property.
index_id	Robot number to select.
object_id	Index of the tool tip to access.
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

## 2-379 VisionOriginBelt

Origin of the vision frame of reference, which was defined during the calibration. It is expressed as a transform relative to the Belt frame of reference. This property is read-only.



### Syntax

value = VLOCATION (\$ip, sequence\_id, tool\_id, instance\_id, 10052, index\_id, frame\_id)

### Type

Location

### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the transform. 1-based.
ID	10052: the value used to reference this property.
index	Reserved for internal use. Value is always 1.
frame_id	Index of the frame that contains the specified instance.

## 2-380 VisionOriginRobot

Origin of the vision frame of reference, which was defined during the calibration. It is expressed as a transform relative to the robot frame of reference. This property is read-only.

### Syntax

value = VLOCATION (\$ip, sequence\_id, tool\_id, instance\_id, 10050, index\_id, frame\_id)

### Type

Location

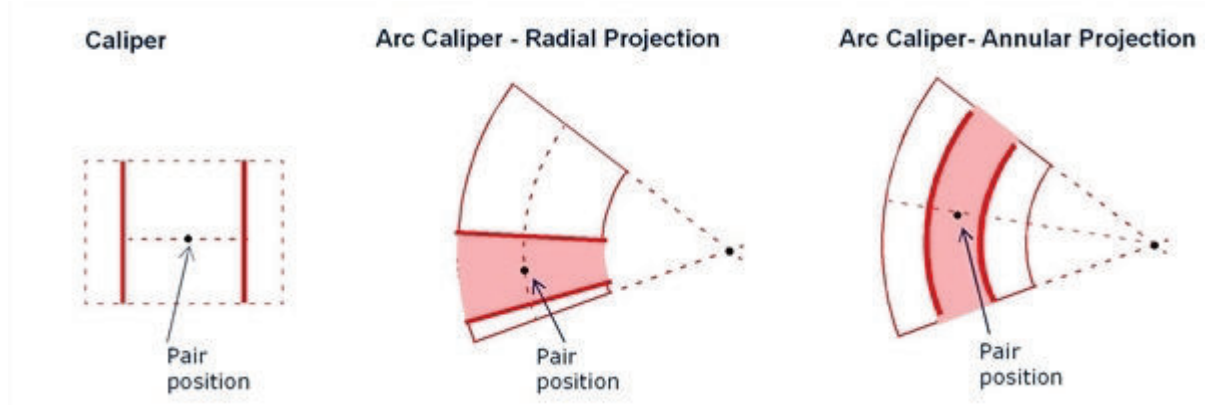
### Parameters

Parameters	Description
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
instance_id	Index of the instance for which you want the transform. 1-based.
ID	10050: the value used to reference this property.
index_id	Reserved for internal use. Value is always 1.
frame_id	Index of the frame that contains the specified instance.

## 2-381 VisionRotation

Specifies the rotation required to define the 2-236 *InverseKinematics* on page 2-261 property for a tool-mounted camera. This rotation is defined by the angle between the robot X-axis and the vision X-axis.

This property is Read/Write.



### Syntax

VPARAMETER (sequence\_id, tool\_id, 10403, index\_id, object\_id) \$ip = value  
 value = VPARAMETER (\$ip, sequence\_id, tool\_id, 10403, index\_id, object\_id)

### Type

Double

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	10403: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

### Example

Refer to the 2-236 *InverseKinematics* on page 2-261 for an example of this property and related properties.



## Related Properties

---

2-236 *InverseKinematics* on page 2-261

2-327 *RobotXPosition* on page 2-360

2-328 *RobotYPosition* on page 2-361

2-382 *VisionXPosition* on page 2-418

2-383 *VisionYPosition* on page 2-419

## 2-382 VisionXPosition

X-coordinate (in millimeters) of a position in the vision frame of reference, which is required for the *2-236 InverseKinematics* on page 2-261 property.

This property is Read/Write.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 10401, index\_id, object\_id) \$ip = value

value = VPARAMETER (\$ip, sequence\_id, tool\_id, 10401, index\_id, object\_id)

### Type

Double

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	10401: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

### Example

Refer to the *2-236 InverseKinematics* on page 2-261 for an example of this property and related properties.

### Related Properties

*2-236 InverseKinematics* on page 2-261

*2-382 VisionXPosition* on page 2-418

*2-381 VisionRotation* on page 2-416

*2-383 VisionYPosition* on page 2-419

## 2-383 VisionYPosition

Y-coordinate (in millimeters) of a position in the vision frame of reference, which is required for the 2-236 *InverseKinematics* on page 2-261 property.

This property is Read/Write.

### Syntax

VPARAMETER (sequence\_id, tool\_id, 10402, index\_id, object\_id) \$ip = value  
value = VPARAMETER (\$ip, sequence\_id, tool\_id, 10402, index\_id, object\_id)

### Type

Double

### Parameters

Parameters	Description
sequence_id	Index of the vision sequence. The first sequence is 1.
tool_id	Index of the tool in the vision sequence. The first tool is 1.
ID	10402: the value used to reference this property.
index_id	N/A
object_id	N/A
\$ip	IP address of the vision server. Applies to V+ syntax only. Uses standard IP address format, for example: 192.168.1.120.

### Example

Refer to the 2-236 *InverseKinematics* on page 2-261 for an example of this property and related properties.

### Related Properties

2-236 *InverseKinematics* on page 2-261

2-327 *RobotXPosition* on page 2-360

2-328 *RobotYPosition* on page 2-361

2-381 *VisionRotation* on page 2-416

2-382 *VisionXPosition* on page 2-418



# 3

## Robot Vision Manager Tool Properties

This section describes the properties that apply to the selected vision tool.

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## 3-1 AnyFeeder Properties

The AnyFeeder tool manages and controls the AnyFeeder hardware.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
AnyFeederV-RunCommand	VPARAMETER	6000	Read/Write	Long	page 2-23
AnyFeederDispenseIterations	VPARAMETER	6012	Read/Write	Long	page 2-24
AnyFeederDispenseSpeed	VPARAMETER	6002	Read/Write	Long	page 2-25
AnyFeeder-FeedBackwardIterations	VPARAMETER	6015	Read/Write	Long	page 2-26
AnyFeeder-FeedBackwardSpeed	VPARAMETER	6005	Read/Write	Long	page 2-29
AnyFeeder-FeedFlipBackwardIterations	VPARAMETER	6018	Read/Write	Long	page 2-28
AnyFeeder-FeedFlipBackwardSpeed	VPARAMETER	6005	Read/Write	Long	page 2-29
AnyFeeder-FeedFlipForwardIterations	VPARAMETER	6017	Read/Write	Long	page 2-30
AnyFeeder-FeedFlipForwardSpeed	VPARAMETER	6007	Read/Write	Long	page 2-31
AnyFeeder-FeedForwardIterations	VPARAMETER	6011	Read/Write	Long	page 2-32
AnyFeeder-FeedForwardSpeed	VPARAMETER	6001	Read/Write	Long	page 2-33
AnyFeederFlipIterations	VPARAMETER	6013	Read/Write	Long	page 2-34
AnyFeederFlipSpeed	VPARAMETER	6003	Read/Write	Long	page 2-35
AnyFeederHeavyDispenseIterations	VPARAMETER	6016	Read/Write	Long	page 2-36
AnyFeederHeavyDispenseSpeed	VPARAMETER	6006	Read/Write	Long	page 2-37
AnyFeederPurgeIterations	VPARAMETER	6014	Read/Write	Long	page 2-38
AnyFeederPurgeSpeed	VPARAMETER	6004	Read/Write	Long	page 2-39

## 3-2 Arc Caliper Properties

The Arc Caliper tool finds and locates one or more edge pairs on an arc-shaped or circular area and measures distances between the two edges within each pair.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
BilinearInterpolationEnabled	VPARAMETER	120	Read / Write	Boolean	page 2-56
CalibratedUnitsEnabled	VPARAMETER	103	Read only	Boolean	page 2-109
Edge1Constraints	VPARAMETER	5221	Read / Write	Long	page 2-131
Edge1Magnitude	VRESULT	1940	Read only	Double	page 2-132
Edge1MagnitudeConstraint	VPARAMETER	5227	Read/ Write	Long	page 2-133
Edge1MagnitudeScore	VRESULT	1942	Read only	Double	page 2-134
Edge1PolarityMode	VPARAMETER	5211	Read / Write	Long	page 2-135
Edge1PositionConstraint	VPARAMETER	5224	Read / Write	Double	page 2-136
Edge1PositionScore	VRESULT	1944	Read only	Double	page 2-137
Edge1PositionX	VRESULT	1946	Read only	Double	page 2-138
Edge1PositionY	VRESULT	1947	Read only	Double	page 2-139
Edge1Radius	VRESULT	1954	Read only	Double	page 2-140
Edge1Rotation	VRESULT	1950	Read only	Double	page 2-141
Edge1Score	VRESULT	1952	Read only	Double	page 2-142
Edge1ScoreThreshold	VPARAMETER	5241	Read / Write	Double	page 2-143
Edge2Constraints	VPARAMETER	5222	Read / Write	Long	page 2-144
Edge2Magnitude	VRESULT	1941	Read only	Double	page 2-145
Edge2MagnitudeConstraint	VPARAMETER	5228	Read / Write	Long	page 2-144
Edge2MagnitudeScore	VRESULT	1943	Read only	Double	page 2-147
Edge2PolarityMode	VPARAMETER	5212	Read / Write	Long	page 2-148
Edge2PositionConstraint	VPARAMETER	5225	Read / Write	Double	page 2-149
Edge2PositionScore	VRESULT	1945	Read only	Double	page 2-150
Edge2PositionX	VRESULT	1948	Read only	Double	page 2-151
Edge2PositionY	VRESULT	1949	Read only	Double	page 2-152
Edge2Radius	VRESULT	1955	Read only	Double	page 2-153
Edge2Rotation	VRESULT	1951	Read only	Double	page 2-154



Property Name	V+ Keyword	V+ ID	Access	Type	Reference
Edge2Score	VRESULT	1953	Read only	Double	page 2-155
Edge2Score-Threshold	VPARAMETER	5242	Read / Write	Double	page 2-156
EdgeFilterHalf-Width	VPARAMETER	5203	Read / Write	Long	page 2-158
EdgeMagnitu- deThreshold	VPARAMETER	5201	Read / Write	Double	page 2-161
ElapsedTime	VRESULT	1001	Read only	Double	page 2-170
FrameCount	VRESULT	2410	Read only	Long	page 2-200
FrameRotation	VRESULT	2402	Read only	Double	page 2-202
FrameTransla- tionX	VRESULT	2400	Read only	Double	page 2-203
FrameTranslati- onY	VRESULT	2401	Read only	Double	page 2-204
InstanceLoca- tion	VLOCATION	1311	Read only	Location	page 2-236
InstanceLoca- tionGripperOff- setMaximum	VLOCATION	1499	Read only	Location	page 2-237
InstanceLoca- tionGripperOff- setMinimum	VLOCATION	1400	Read only	Location	page 2-238
PairCount	VRESULT	1920	Read only	Long	page 2-329
PairPositionX	VRESULT	1921	Read only	Double	page 2-329
PairPositionY	VRESULT	1922	Read only	Double	page 2-331
PairRotation	VRESULT	1923	Read only	Double	page 2-332
PairScore	VRESULT	1924	Read only	Double	page 2-333
PairSize	VRESULT	1925	Read only	Double	page 2-334
ProjectionMode	VPARAMETER	140	Read / Write	Long	page 2-346
ResultCount	VRESULT	1010	Read only	Long	page 2-359
SamplingStep- Custom	VPARAMETER	124	Read / Write	Double	page 2-362
SamplingStep- CustomEnabled	VPARAMETER	121	Read / Write	Boolean	page 2-363
ShowResults- Graphics	VPARAMETER	150	Read / Write	Boolean	page 2-383
ToolOpening	VPARAMETER	137	Read / Write	Double	page 2-400
ToolPositionX	VPARAMETER	100	Read / Write	Double	page 2-401
ToolPositionY	VPARAMETER	101	Read / Write	Double	page 2-402
ToolRadius	VPARAMETER	135	Read / Write	Double	page 2-403
ToolRotation	VPARAMETER	112	Read / Write	Double	page 2-404
ToolThickness	VPARAMETER	136	Read / Write	Double	page 2-406

## 3-3 Arc Edge Locator Properties

The Arc Edge Locator tool finds and locates an edge or a set of edges in an arc-shaped or circular area.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
BilinearInterpolationEnabled	VPARAMETER	120	Read / Write	Boolean	page 2-56
CalibratedUnitsEnabled	VPARAMETER	103	Read only	Boolean	page 2-109
Constraints	VPARAMETER	5220	Read / Write	Long	page 2-124
EdgeCount	VRESULT	1900	Read only	Long	page 2-157
EdgeMagnitude	VRESULT	1901	Read only	Double	page 2-159
EdgeMagnitudeScore	VRESULT	1902	Read only	Double	page 2-134
EdgePolarityMode	VPARAMETER	5210	Read / Write	Long	page 2-135
EdgePositionScore	VRESULT	1903	Read only	Double	page 2-137
EdgePositionX	VRESULT	1904	Read only	Double	page 2-138
EdgePositionY	VRESULT	1905	Read only	Double	page 2-139
EdgeRadius	VRESULT	1908	Read only	Double	2-145 <i>EdgeRadius</i> on page 2-166
EdgeRotation	VRESULT	1906	Read only	Double	page 2-167
EdgeScore	VRESULT	1907	Read only	Double	page 2-168
EdgeSortResultsEnabled	VPARAMETER	5243	Read / Write	Long	page 2-169
ElapsedTime	VRESULT	1001	Read only	Double	page 2-170
FilterHalfWidth	VPARAMETER	5202	Read/ Write	Long	page 2-174
FrameCount	VRESULT	2410	Read only	Long	page 2-200
FrameRotation	VRESULT	2402	Read only	Double	page 2-202
FrameTranslationX	VRESULT	2400	Read only	Double	page 2-203
FrameTranslationY	VRESULT	2401	Read only	Double	page 2-204
InstanceLocation	VLOCATION	1311	Read only	Location	page 2-236
InstanceLocationGripperOffsetMaximum	VLOCATION	1499	Read only	Location	page 2-237
InstanceLocationGripperOffsetMinimum	VLOCATION	1400	Read only	Location	page 2-238
MagnitudeConstraint	VPARAMETER	5226	Read / Write	Long	page 2-270
MagnitudeThreshold	VPARAMETER	5200	Read / Write	Double	page 2-271

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
PositionCon- straint	VPARAMETER	5223	Read / Write	Double	page 2-344
ProjectionMode	VPARAMETER	140	Read / Write	Long	page 2-346
ResultCount	VRESULT	1010	Read only	Long	page 2-359
SamplingStep- Custom	VPARAMETER	124	Read / Write	Double	page 2-362
SamplingStep- CustomEnabled	VPARAMETER	121	Read / Write	Boolean	page 2-363
ScoreThreshold	VPARAMETER	5240	Read / Write	Double	page 2-365
ShowResults- Graphics	VPARAMETER	150	Read / Write	Boolean	page 2-383
ToolOpening	VPARAMETER	137	Read / Write	Double	page 2-400
ToolPositionX	VPARAMETER	100	Read / Write	Double	page 2-401
ToolPositionY	VPARAMETER	101	Read / Write	Double	page 2-402
ToolRadius	VPARAMETER	135	Read / Write	Double	page 2-403
ToolRotation	VPARAMETER	112	Read / Write	Double	page 2-404
ToolThickness	VPARAMETER	136	Read / Write	Double	page 2-406

## 3-4 Arc Finder Properties

The Arc Finder tool finds and locates circular features on objects and returns the coordinates of the center of the arc, the start and end angles, and the radius.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
ArcMustBeTotal-lyEnclosed	VPARAMETER	5141	Read / Write only	Boolean	page 2-40
AverageCon- trast	VRESULT	1801	Read only	Double	page 2-49
CalibratedUnit- sEnabled	VPARAMETER	103	Read only	Boolean	page 2-109
ConformityToler- ance	VPARAMETER	556	Read / Write	Double	page 2-120
ContrastThres- hold	VPARAMETER	303	Read / Write	Long	page 2-127
ContrastThre- sholdMode	VPARAMETER	302	Read / Write	Long	page 2-128
ElapsedTime	VRESULT	1001	Read only	Double	page 2-170
FitMode	VPARAMETER	5140	Read / Write	Long	page 2-184
FitQuality	VRESULT	1803	Read only	Double	page 2-185
Found	VRESULT	1800	Read only	Boolean	page 2-199
FrameCount	VRESULT	2410	Read only	Long	page 2-200
FrameRotation	VRESULT	2402	Read only	Double	page 2-202
FrameTransla- tionX	VRESULT	2400	Read only	Double	page 2-203
FrameTranslati- onY	VRESULT	2401	Read only	Double	page 2-204
InstanceLoca- tion	VLOCATION	1311	Read only	Location	page 2-236
InstanceLoca- tionGripperOff- setMaximum	VLOCATION	1499	Read only	Location	page 2-237
InstanceLoca- tionGripperOff- setMinimum	VLOCATION	1400	Read only	Location	page 2-238
MatchQuality	VRESULT	1802	Read only	Double	page 2-275
MaximumAngle- Deviation	VPARAMETER	5102	Read / Write	Double	page 2-279
MinimumArcPer- centage	VPARAMETER	5142	Read / Write	Double	page 2-289
OutputArcAngle	VRESULT	1841	Read only	Double	page 2-313
OutputArcCen- terPointX	VRESULT	1846	Read only	Double	page 2-314
OutputArcCen- terPointY	VRESULT	1847	Read only	Double	page 2-315
OutputArcRa- dius	VRESULT	1840	Read only	Double	page 2-316
PolarityMode	VPARAMETER	5100	Read / Write	Long	page 2-343

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
PositioningLevel	VPARAMETER	561	Read / Write	Long	page 2-345
ResultCount	VRESULT	1010	Read only	Long	page 2-359
SearchMode	VPARAMETER	5101	Read / Write	Long	page 2-368
ShowResults- Graphics	VPARAMETER	150	Read / Write	Boolean	page 2-383
SubsamplingLe- vel	VPARAMETER	5110	Read / Write	Long	page 2-389
ToolGuideli- neOffset	VPARAMETER	130	Read / Write	Double	page 2-398
ToolOpening	VPARAMETER	137	Read / Write	Double	page 2-40
ToolPositionX	VPARAMETER	100	Read / Write	Double	page 2-400
ToolPositionY	VPARAMETER	101	Read / Write	Double	page 2-402
ToolRadius	VPARAMETER	135	Read / Write	Double	page 2-403
ToolRotation	VPARAMETER	112	Read / Write	Double	page 2-404
ToolThickness	VPARAMETER	136	Read / Write	Double	page 2-406

## 3-5 Blob Analyzer Properties

The Blob Analyzer tool finds, labels and analyzes irregular shaped objects. This tool detects and computes intrinsic/extrinsic geometric and greylevel properties of blobs that meet user-defined criteria.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
BilinearInterpolationEnabled	VPARAMETER	120	Read / Write	Boolean	page 2-56
BlobArea	VRESULT	1611	Read only	Double	page 2-58
BlobBoundingBoxBottom	VRESULT	1648	Read only	Double	page 2-59
BlobBoundingBoxCenterX	VRESULT	1624	Read only	Double	page 2-60
BlobBoundingBoxCenterY	VRESULT	1625	Read only	Double	page 2-61
BlobBoundingBoxHeight	VRESULT	1626	Read only	Double	page 2-62
BlobBoundingBoxLeft	VRESULT	1645	Read only	Double	page 2-63
BlobBoundingBoxRight	VRESULT	1646	Read only	Double	page 2-96
BlobBoundingBoxRotation	VRESULT	1649	Read only	Double	page 2-97
BlobBoundingBoxTop	VRESULT	1647	Read only	Double	page 2-66
BlobBoundingBoxWidth	VRESULT	1627	Read only	Double	page 2-67
BlobChainCode	VRESULT	1656	Read only	Long	page 2-67
BlobChainCodeDeltaX	VRESULT	1659	Read only	Double	page 2-69
BlobChainCodeDeltaY	VRESULT	1660	Read only	Double	page 2-70
BlobChainCodeLength	VRESULT	1655	Read only	Long	page 2-71
BlobChainCodeStartX	VRESULT	1657	Read only	Double	page 2-72
BlobChainCodeStartY	VRESULT	1658	Read only	Double	page 2-73
BlobConvexPerimeter	VRESULT	1614	Read only	Double	page 2-74
BlobCount	VRESULT	1610	Read only	Long	page 2-75
BlobElongation	VRESULT	1616	Read only	Double	page 2-76
BlobExtentBottom	VRESULT	1653	Read only	Double	page 2-77
BlobExtentLeft	VRESULT	1650	Read only	Double	page 2-78
BlobExtentRight	VRESULT	1651	Read only	Double	page 2-79
BlobExtentTop	VRESULT	1652	Read only	Double	page 2-80
BlobGreyLevelMaximum	VRESULT	1622	Read only	Long	page 2-81

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
BlobGreyLevel-Mean	VRESULT	1618	Read only	Double	page 2-82
BlobGreyLevel-Minimum	VRESULT	1621	Read only	Long	page 2-83
BlobGreyLevel-Range	VRESULT	1619	Read only	Long	page 2-84
BlobGreyLevelStdDev	VRESULT	1620	Read only	Double	page 2-85
BlobHoleCount	VRESULT	1654	Read only	Long	page 2-86
BlobInertiaMaximum	VRESULT	1633	Read only	Double	page 2-87
BlobInertiaMinimum	VRESULT	1632	Read only	Double	page 2-88
BlobInertiaXAxis	VRESULT	1634	Read only	Double	page 2-89
BlobInertiaYAxis	VRESULT	1635	Read only	Double	page 2-90
BlobIntrinsic-BoundingBox-Bottom	VRESULT	1639	Read only	Double	page 2-91
BlobIntrinsic-BoundingBox-CenterX	VRESULT	1628	Read only	Double	page 2-92
BlobIntrinsic-BoundingBox-CenterY	VRESULT	1629	Read only	Double	page 2-93
BlobIntrinsic-BoundingBox-Height	VRESULT	1630	Read only	Double	page 2-94
BlobIntrinsic-BoundingBox-Left	VRESULT	1636	Read only	Double	page 2-95
BlobIntrinsic-BoundingBox-Right	VRESULT	1637	Read only	Double	page 2-96
BlobIntrinsic-BoundingBox-Rotation	VRESULT	1640	Read only	Double	page 2-97
BlobIntrinsic-BoundingBox-Top	VRESULT	1638	Read only	Double	page 2-98
BlobIntrinsic-BoundingBox-Width	VRESULT	1631	Read only	Double	page 2-99
BlobIntrinsicExtentBottom	VRESULT	1644	Read only	Double	page 2-100
BlobIntrinsicExtentLeft	VRESULT	1641	Read only	Double	page 2-101
BlobIntrinsicExtentRight	VRESULT	1642	Read only	Double	page 2-102
BlobIntrinsicExtentTop	VRESULT	1643	Read only	Double	page 2-103
BlobPositionX	VRESULT	1612	Read only	Double	page 2-104

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
BlobPositionY	VRESULT	1613	Read only	Double	page 2-105
BlobPrincipalAxesRotation	VRESULT	1617	Read only	Double	page 2-106
BlobRawPerimeter	VRESULT	1615	Read only	Double	page 2-107
BlobRoundness	VRESULT	1623	Read only	Double	page 2-108
CalibratedUnitsEnabled	VPARAMETER	103	Read only	Boolean	page 2-109
ChainCodeResultsEnabled	VPARAMETER	1607	Read / Write	Boolean	page 2-111
ElapsedTime	VRESULT	1001	Read only	Double	page 2-170
ExtrinsicInertiaResultsEnabled	VPARAMETER	1604	Read / Write	Boolean	page 2-171
FrameCount	VRESULT	2410	Read only	Long	page 2-200
FrameRotation	VRESULT	2402	Read only	Double	page 2-202
FrameTranslationX	VRESULT	2400	Read only	Double	page 2-203
FrameTranslationY	VRESULT	2401	Read only	Double	page 2-204
GreyLevelResultsEnabled	VPARAMETER	1608	Read / Write	Boolean	page 2-206
HoleFillingEnabled	VPARAMETER	5002	Read / Write	Boolean	page 2-222
InstanceLocation	VLOCATION	1311	Read Only	Location	page 2-236
InstanceLocationGripperOffsetMaximum	VLOCATION	1499	Read only	Location	page 2-237
InstanceLocationGripperOffsetMinimum	VLOCATION	1400	Read only	Location	page 2-238
IntrinsicBoxResultsEnabled	VPARAMETER	1605	Read / Write	Boolean	page 2-259
MaximumBlobArea	VPARAMETER	5001	Read / Write	Double	page 2-280
MinimumBlobArea	VPARAMETER	5000	Read / Write	Double	page 2-290
PerimeterResultsEnabled	VPARAMETER	1602	Read / Write	Boolean	page 2-342
ResultCount	VRESULT	1010	Read only	Long	page 2-359
SamplingStepCustom	VPARAMETER	124	Read / Write	Double	page 2-170
SamplingStepCustomEnabled	VPARAMETER	121	Read / Write	Boolean	page 2-363
SegmentationDark	VPARAMETER	5005	Read / Write	Long	page 2-370
SegmentationDynamicDark	VPARAMETER	5009	Read / Write	Double	page 2-371



Property Name	V+ Keyword	V+ ID	Access	Type	Reference
Segmentation-DynamicInside	VPARAMETER	5010	Read / Write	Double	page 2-372
Segmentation-DynamicLight	VPARAMETER	5008	Read / Write	Double	page 2-373
Segmentation-DynamicOutside	VPARAMETER	5011	Read / Write	Double	page 2-374
SegmentationInside	VPARAMETER	5006	Read / Write	Long	page 2-375
Segmentation-Light	VPARAMETER	5004	Read / Write	Long	page 2-376
Segmentation-Mode	VPARAMETER	5003	Read / Write	Long	page 2-377
SegmentationOutside	VPARAMETER	5007	Read / Write	Long	page 2-378
ShowResultsGraphics	VPARAMETER	150	Read / Write	Boolean	page 2-383
SortBlobsBy	VPARAMETER	1601	Read / Write	Long	page 2-384
SortResultsEnabled	VPARAMETER	1600	Read / Write	Boolean	page 2-386
ToolHeight	VPARAMETER	111	Read / Write	Double	page 2-399
ToolPositionX	VPARAMETER	100	Read / Write	Double	page 2-401
ToolPositionY	VPARAMETER	101	Read / Write	Double	page 2-402
ToolRotation	VPARAMETER	112	Read / Write	Double	page 2-404
ToolWidth	VPARAMETER	110	Read / Write	Double	page 2-407
TopologicalResultsEnabled	VPARAMETER	1609	Read / Write	Boolean	page 2-408

## 3-6 Calculated Arc Properties

The Calculated Arc tool calculates the circle enclosing an arc based on a specific calculation mode.

Possible modes are:

- Three points on the arc
- Center point and one point on the arc

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
ElapsedTime	VRESULT	1001	Read only	Double	page 2-170
FrameRotation	VRESULT	2402	Read only	Double	page 2-202
FrameTranslationX	VRESULT	2400	Read only	Double	page 2-203
FrameTranslationY	VRESULT	2401	Read only	Double	page 2-204
InstanceCount	VRESULT	1310	Read only	Long	page 2-233
InstanceLocation	VLOCATION	1311	Read only	Location	page 2-236
InstanceRobotLocation	VLOCATION	1371	Read only	Location	page 2-246
ResultCount	VRESULT	1010	Read only	Long	page 2-359
ShowResultsGraphics	VPARAMETER	150	Read / Write	Boolean	page 2-383

## 3-7 Calculated Frame Properties

The Calculated Frame tool is used to create a vision frame from other features. Frames allow you to place vision tools on objects that are not always in the same location or orientation. This tool calculates a frame based on a specific calculation mode. Possible modes are:

- Two lines (X axis line, Y axis line)
- Two points (Origin, +X point)
- A fixed frame reference
- Single point (Origin point with no rotation)
- Relative to a frame
- One point and a line (An origin point following the angle of the line)

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
ElapsedTime	VRESULT	1001	Read only	Double	page 2-233
FrameRotation	VRESULT	2402	Read only	Double	page 2-200
FrameTranslationX	VRESULT	2400	Read only	Double	page 2-203
FrameTranslationY	VRESULT	2401	Read only	Double	page 2-204
InstanceCount	VRESULT	1310	Read only	Long	page 2-233
InstanceLocation	VLOCATION	1311	Read only	Location	page 2-236
InstanceRobotLocation	VLOCATION	1371	Read only	Location	page 2-246
ResultCount	VRESULT	1010	Read only	Long	page 2-359
ShowResultsGraphics	VPARAMETER	150	Read / Write	Boolean	page 2-383

## 3-8 Calculated Line Properties

The Calculated Line tool can be created from two points, or from a point and a line. In the latter case, the calculated line will be running through the point and perpendicular to the line. This tool calculates a line based on a specific calculation mode. Possible modes are:

- Two points
- Perpendicular line

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
ElapsedTime	VRESULT	1001	Read only	Double	page 2-170
FrameRotation	VRESULT	2402	Read only	Double	page 2-202
FrameTranslationX	VRESULT	2400	Read only	Double	page 2-203
FrameTranslationY	VRESULT	2401	Read only	Double	page 2-204
InstanceCount	VRESULT	1310	Read only	Long	page 2-233
InstanceLocation	VLOCATION	1311	Read only	Location	page 2-236
InstanceRobotLocation	VLOCATION	1371	Read only	Location	page 2-246
ResultCount	VRESULT	1010	Read only	Long	page 2-359
ShowResultsGraphics	VPARAMETER	150	Read / Write	Boolean	page 2-383

## 3-9 Calculated Point Properties

The Calculated Point tool can be calculated based on the intersection two lines, a line and a circle, or midway between two points. A Calculated Point tool is also used to place a fixed point in the field of view. A fixed point could be used if you want to make all your measurements from a known reference point. This tool calculates a point based on a specific calculation mode. Possible modes are:

- Midpoint (midpoint between two points)
- Point and a line (closest point on the line to another point)
- Point and an arc (closest point on the arc to another point)
- Fixed point
- A line and an arc (Line/Arc intersection)
- Two lines (Line-line intersection)
- Two arcs (Arc-arc intersection)

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
ElapsedTime	VRESULT	1001	Read only	Double	page 2-170
FrameTranslationX	VRESULT	2400	Read only	Double	page 2-203
FrameTranslationY	VRESULT	2401	Read only	Double	page 2-204
InstanceCount	VRESULT	1310	Read only	Long	page 2-233
InstanceLocation	VLOCATION	1311	Read only	Location	page 2-236
InstanceRobotLocation	VLOCATION	1371	Read only	Location	page 2-246
ResultCount	VRESULT	1010	Read only	Long	page 2-359
ShowResultsGraphics	VPARAMETER	150	Read / Write	Boolean	page 2-383

## 3-10 Calibration Grid Locator Properties

The Calibration Grid Locator tool is used to locate a collection of dots in the field of view. It is used by the grid calibration procedure.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
CalibratedUnitsEnabled	VPARAMETER	103	Read only	Boolean	page 2-109
ContrastThreshold	VPARAMETER	303	Read / Write	Long	page 2-127
ContrastThresholdMode	VPARAMETER	302	Read / Write	Long	page 2-128
ElapsedTime	VRESULT	1001	Read only	Double	page 2-170
FrameRotation	VRESULT	2402	Read only	Double	page 2-202
FrameTranslationX	VRESULT	2400	Read only	Double	page 2-203
FrameTranslationY	VRESULT	2401	Read only	Double	page 2-204
InstanceCount	VRESULT	1310	Read only	Long	page 2-233
InstanceLocation	VLOCATION	1311	Read only	Location	page 2-236
InstanceRobotLocation	VLOCATION	1371	Read only	Location	page 2-246
OutlineLevel	VPARAMETER	300	Read / Write	Long	page 2-312
ResultCount	VRESULT	1010	Read only	Long	page 2-359
ShowResultsGraphics	VPARAMETER	150	Read / Write	Boolean	page 2-383
ToolHeight	VPARAMETER	111	Read / Write	Double	page 2-399
ToolPositionX	VPARAMETER	100	Read / Write	Double	page 2-401
ToolPositionY	VPARAMETER	101	Read / Write	Double	page 2-402
ToolRotation	VPARAMETER	112	Read / Write	Double	page 2-404
ToolWidth	VPARAMETER	110	Read / Write	Double	page 2-407

## 3-11 Caliper Properties

The Caliper tool finds and locates one or more edge pairs and measures distances between the two edges within each pair.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
BilinearInterpolationEnabled	VPARAMETER	120	Read / Write	Boolean	page 2-56
CalibratedUnitsEnabled	VPARAMETER	103	Read only	Boolean	page 2-109
Edge1Constraints	VPARAMETER	5221	Read / Write	Long	page 2-131
Edge1Magnitude	VRESULT	1940	Read only	Double	page 2-132
Edge1MagnitudeConstraint	VPARAMETER	5227	Read / Write	Long	page 2-133
Edge1MagnitudeScore	VRESULT	1942	Read only	Double	page 2-134
Edge1PolarityMode	VPARAMETER	5211	Read / Write	Long	page 2-135
Edge1PositionConstraint	VPARAMETER	5224	Read / Write	Double	page 2-136
Edge1PositionScore	VRESULT	1944	Read only	Double	page 2-137
Edge1PositionX	VRESULT	1946	Read only	Double	page 2-138
Edge1PositionY	VRESULT	1947	Read only	Double	page 2-139
Edge1Rotation	VRESULT	1950	Read only	Double	page 2-141
Edge1Score	VRESULT	1952	Read only	Double	page 2-142
Edge1ScoreThreshold	VPARAMETER	5241	Read / Write	Double	page 2-143
Edge2Constraints	VPARAMETER	5222	Read / Write	Long	page 2-144
Edge2Magnitude	VRESULT	1941	Read only	Double	page 2-145
Edge2MagnitudeConstraint	VPARAMETER	5228	Read only	Long	page 2-146
Edge2MagnitudeScore	VRESULT	1943	Read only	Double	page 2-147
Edge2PolarityMode	VPARAMETER	5212	Read only	Long	page 2-148
Edge2PositionConstraint	VPARAMETER	5225	Read only	Double	page 2-149
Edge2PositionScore	VRESULT	1945	Read only	Double	page 2-150
Edge2PositionX	VRESULT	1948	Read only	Double	page 2-151
Edge2PositionY	VRESULT	1949	Read only	Double	page 2-152
Edge2Rotation	VRESULT	1951	Read only	Double	page 2-154
Edge2Score	VRESULT	1953	Read only	Double	page 2-155

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
Edge2Score-Threshold	VPARAMETER	5242	Read / Write	Double	page 2-156
EdgeFilterHalf-Width	VPARAMETER	5203	Read / Write	Long	page 2-158
EdgeMagnitu- deThreshold	VPARAMETER	5201	Read / Write	Double	page 2-161
ElapsedTime	VRESULT	1001	Read only	Double	page 2-170
FrameCount	VRESULT	2410	Read only	Long	page 2-200
FrameRotation	VRESULT	2402	Read only	Double	page 2-202
FrameTransla- tionX	VRESULT	2400	Read only	Double	page 2-203
FrameTranslati- onY	VRESULT	2401	Read only	Double	page 2-204
InstanceLoca- tion	VLOCATION	1311	Read only	Location	page 2-236
InstanceLoca- tionGripperOff- setMaximum	VLOCATION	1499	Read only	Location	page 2-237
InstanceLoca- tionGripperOff- setMinimum	VLOCATION	1400	Read only	Location	page 2-238
PairCount	VRESULT	1920	Read only	Long	page 2-329
PairPositionX	VRESULT	1921	Read only	Double	page 2-330
PairPositionY	VRESULT	1922	Read only	Double	page 2-331
PairRotation	VRESULT	1923	Read only	Double	page 2-332
PairScore	VRESULT	1924	Read only	Double	page 2-333
PairSize	VRESULT	1925	Read only	Double	page 2-334
ResultCount	VRESULT	1010	Read only	Long	page 2-359
SamplingStep- Custom	VPARAMETER	124	Read / Write	Double	page 2-362
SamplingStep- CustomEnabled	VPARAMETER	121	Read / Write	Boolean	page 2-363
ShowResults- Graphics	VPARAMETER	150	Read / Write	Boolean	page 2-383
ToolHeight	VPARAMETER	111	Read / Write	Double	page 2-399
ToolPositionX	VPARAMETER	100	Read / Write	Double	page 2-401
ToolPositionY	VPARAMETER	101	Read / Write	Double	page 2-402
ToolRotation	VPARAMETER	112	Read / Write	Double	page 2-404
ToolSkew	VPARAMETER	113	Read / Write	Double	page 2-405
ToolWidth	VPARAMETER	110	Read / Write	Double	page 2-407



## 3-12 Collision Detection Properties

The tool for virtual position settings used for collision checking.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
RobotCollision-DetectionEnable	VPARAMETER	10406	Read / Write	Bool	page 2-349
RobotCollision-DetectionJoint	VPARAMETER	10407	Read / Write	Float	page 2-350
RobotCheckCollision	VRESULT	10408	Read only	Bool	page 2-347
RobotCollision-CheckState	VRESULT	10409	Read only	Bool	page 2-348

## 3-13 Color Matching Tool Properties

The Color Matching tool analyzes images according and outputs statistics on areas that match defined color filters.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
BilinearInterpolationEnabled	VPARAMETER	120	Read / Write	Boolean	page 2-56
CalibratedUnitsEnabled	VPARAMETER	103	Read only	Boolean	page 2-109
ColorFilterCount	VPARAMETER	5700	Read only	Long	page 2-116
ColorFilterMatchPixelCount	VRESULT	2502	Read only	Long	page 2-117
ColorFilterMatchQuality	VRESULT	2501	Read only	Double	page 2-118
ElapsedTime	VRESULT	1001	Read only	Double	page 2-170
FilterHueTolerance	VPARAMETER	5716	Read / Write	Long	page 2-175
FilterHueValue	VPARAMETER	5713	Read / Write	Long	page 2-176
FilterLuminanceTolerance	VPARAMETER	5718	Read / Write	Long	page 2-180
FilterLuminanceValue	VPARAMETER	5715	Read / Write	Long	page 2-181
FilterSaturationTolerance	VPARAMETER	5717	Read / Write	Long	page 2-182
FilterSaturationValue	VPARAMETER	5714	Read / Write	Long	page 2-183
ResultCount	VRESULT	1010	Read only	Long	page 2-359
SamplingStepCustom	VPARAMETER	124	Read / Write	Double	page 2-362
SamplingStepCustomEnabled	VPARAMETER	121	Read / Write	Boolean	page 2-363
ToolHeight	VPARAMETER	111	Read / Write	Double	page 2-399
ToolPositionX	VPARAMETER	100	Read / Write	Double	page 2-401
ToolPositionY	VPARAMETER	101	Read / Write	Double	page 2-402
ToolWidth	VPARAMETER	110	Read / Write	Double	page 2-407

## 3-14 Communication Tool Properties

The Communication tool manages and sends vision instances to a queue on the Adept Controller. The queue can be accessed using the "getinstance" program by a V+ program.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
Communication-ToolResults	VRESULT	2600	Read only	Integer	page 2-119
InstanceCount	VRESULT	1310	Read only	Long	page 2-233
Reset	VPARAMETER	5500	Write only	Long	page 2-358
ShowResults-Graphics	VPARAMETER	150	Read / Write	Boolean	page 2-383

## 3-15 Custom Vision Tool Properties

The Custom Vision tool is used to fill in the program that is called when the tool is executed. From within a Custom Vision tool, other tools can be executed, and return a set of results which are used as the output of the tool.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
ElapsedTime	VRESULT	1001	Read only	Double	page 2-170
FrameRotation	VRESULT	2402	Read only	Double	page 2-202
FrameTranslationX	VRESULT	2400	Read only	Double	page 2-203
FrameTranslationY	VRESULT	2401	Read only	Double	page 2-253
InstanceCount	VRESULT	1310	Read only	Long	page 2-233
InstanceLocation	VLOCATION	1311	Read only	Location	page 2-236
InstanceRobotLocation	VLOCATION	1371	Read only	Location	page 2-246
ResultCount	VRESULT	1010	Read only	Long	page 2-359

## 3-16 Edge Locator Properties

The Edge Locator tool finds and locates an edge or a set of edges that meet user-defined criteria.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
BilinearInterpolationEnabled	VPARAMETER	120	Read / Write	Boolean	page 2-56
CalibratedUnitsEnabled	VPARAMETER	103	Read only	Boolean	page 2-109
Constraints	VPARAMETER	5220	Read / Write	Long	page 2-124
EdgeCount	VRESULT	1900	Read only	Long	page 2-157
EdgeMagnitude	VRESULT	1901	Read only	Double	page 2-159
EdgeMagnitudeScore	VRESULT	1902	Read only	Double	page 2-160
EdgePolarityMode	VPARAMETER	5210	Read / Write	Long	page 2-162
EdgePositionScore	VRESULT	1903	Read only	Double	page 2-176
EdgePositionX	VRESULT	1904	Read only	Double	page 2-164
EdgePositionY	VRESULT	1905	Read only	Double	page 2-165
EdgeRotation	VRESULT	1906	Read only	Double	page 2-167
EdgeScore	VRESULT	1907	Read only	Double	page 2-168
EdgeSortResultsEnabled	VPARAMETER	5243	Read / Write	Long	page 2-169
ElapsedTime	VRESULT	1001	Read only	Double	page 2-170
FilterHalfWidth	VPARAMETER	5202	Read / Write	Long	page 2-174
FrameCount	VRESULT	2410	Read only	Long	page 2-200
FrameRotation	VRESULT	2402	Read only	Double	page 2-202
FrameTranslationX	VRESULT	2400	Read only	Double	page 2-203
FrameTranslationY	VRESULT	2401	Read only	Double	page 2-204
InstanceLocation	VLOCATION	1311	Read only	Location	page 2-236
InstanceLocationGripperOffsetMaximum	VLOCATION	1499	Read only	Location	page 2-237
InstanceLocationGripperOffsetMinimum	VLOCATION	1400	Read only	Location	page 2-238
MagnitudeConstraint	VPARAMETER	5226	Read / Write	Long	page 2-270
MagnitudeThreshold	VPARAMETER	5200	Read / Write	Double	page 2-271
PositionConstraint	VPARAMETER	5223	Read / Write	Double	page 2-344
ResultCount	VRESULT	1010	Read only	Long	page 2-359
SamplingStepCustom	VPARAMETER	124	Read / Write	Double	page 2-362

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
SamplingStep-CustomEnabled	VPARAMETER	121	Read / Write	Boolean	page 2-363
ScoreThreshold	VPARAMETER	5240	Read / Write	Double	page 2-365
ShowResults-Graphics	VPARAMETER	150	Read / Write	Boolean	page 2-383
ToolHeight	VPARAMETER	111	Read / Write	Double	page 2-399
ToolPositionX	VPARAMETER	100	Read / Write	Double	page 2-401
ToolPositionY	VPARAMETER	101	Read / Write	Double	page 2-402
ToolRotation	VPARAMETER	112	Read / Write	Double	page 2-404
ToolSkew	VPARAMETER	113	Read / Write	Double	page 2-405
ToolWidth	VPARAMETER	110	Read / Write	Double	page 2-407

## 3-17 Feeder Histogram Tool Properties

The Feeder Histogram tool computes product densities in three different zones within a user-defined region of interest.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
BilinearInterpolationEnabled	VPARAMETER	120	Read / Write	Boolean	page 2-56
CalibratedUnitsEnabled	VPARAMETER	103	Read only	Boolean	page 2-109
FeederHistogramProductDensity	VRESULT	2800	Read Only	Double	page 2-172
ImageSubsampling	VPARAMETER	5324	Read / Write	Long	page 2-227
SamplingStepCustom	VPARAMETER	121	Read / Write	Boolean	page 2-362
SamplingStepCustom	VPARAMETER	124	Read / Write	Double	page 2-362
ShowResultsGraphics	VPARAMETER	150	Read / Write	Boolean	page 2-383
TailBlack	VPARAMETER	5323	Read / Write	Double	page 2-390
TailWhite	VPARAMETER	5322	Read / Write	Double	page 2-392
ThresholdBlack	VPARAMETER	5320	Read / Write	Long	page 2-394
ThresholdWhite	VPARAMETER	5321	Read / Write	Long	page 2-395
ToolHeight	VPARAMETER	111	Read / Write	Double	page 2-399
ToolPositionX	VPARAMETER	100	Read / Write	Double	page 2-401
ToolPositionY	VPARAMETER	101	Read / Write	Double	page 2-402
ToolRotation	VPARAMETER	112	Read / Write	Double	page 2-404
ToolWidth	VPARAMETER	110	Read / Write	Double	page 2-407

## 3-18 Flexibowl Feeder Properties

The Flexibowl Feeder Properties tool manages and controls the Flexinowl Feeder hardware.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
FlexibowlFeederVRunCommand	VPARAMETER	7000	Read / Write	Long	page 2-186
FlexibowlFeederBlowTime	VPARAMETER	7012	Read / Write	Long	page 2-187
FlexibowlFeederFlipCount	VPARAMETER	7005	Read / Write	Long	page 2-188
FlexibowlFeederFlipDelay	VPARAMETER	7006	Read / Write	Long	page 2-189
FlexibowlFeederForwardAcceleration	VPARAMETER	7001	Read / Write	Long	page 2-190
FlexibowlFeederForwardAngle	VPARAMETER	7003	Read / Write	Long	page 2-195
FlexibowlFeederForwardDeceleration	VPARAMETER	7002	Read / Write	Long	page 2-192
FlexibowlFeederForwardSpeed	VPARAMETER	7004	Read / Write	Long	page 2-193
FlexibowlFeederShakeAcceleration	VPARAMETER	7007	Read / Write	Long	page 2-194
FlexibowlFeederShakeAngle	VPARAMETER	7009	Read / Write	Long	page 2-195
FlexibowlFeederShakeCount	VPARAMETER	7011	Read / Write	Long	page 2-196
FlexibowlFeederShakeDeceleration	VPARAMETER	7008	Read / Write	Long	page 2-197
FlexibowlFeederShakeSpeed	VPARAMETER	7010	Read / Write	Long	page 2-198



## 3-19 Gripper Clearance Tool Properties

The Gripper Clearance tool is used to check that a region around an instance is clear of any obstructions. This is done by applying a user-defined number of histogram checks to the region (typically one histogram per gripper finger) to determine whether there is another instance that would interfere with the gripper when picking up an instance.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
ElapsedTime	VRESULT	1001	Read only	Double	page 2-170
Found	VRESULT	1800	Read only	Boolean	page 2-199
FrameCount	VRESULT	2410	Read only	Long	page 2-200
FrameRotation	VRESULT	2402	Read only	Double	page 2-202
FrameTranslationX	VRESULT	2400	Read only	Double	page 2-85
FrameTranslationY	VRESULT	2401	Read only	Double	page 2-204
InstanceCount	VRESULT	1310	Read only	Long	page 2-233
InstanceLocation	VLOCATION	1311	Read only	Location	page 2-236
InstanceRobotLocation	VLOCATION	1371	Read only	Location	page 2-246
ResultCount	VRESULT	1010	Read only	Long	page 2-359
ShowResultsGraphics	VPARAMETER	150	Read / Write	Boolean	page 2-383
ToolPositionX	VPARAMETER	100	Read / Write	Double	page 2-401
ToolPositionY	VPARAMETER	101	Read / Write	Double	page 2-402
ToolRotation	VPARAMETER	112	Read / Write	Double	page 2-404

## 3-20 Gripper Clearance 3D Tool Properties

The Gripper Clearance 3D tool is used to check that a region around an instance is clear of any obstructions.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
ClearanceGripperOffsetCount	VPARAMETER	2903	Read only	Double	page 2-112
Clearance-GroupCount	VPARAMETER	2900	Read only	Double	page 2-113
Clearance-GroupPassStatus	VRESULT	2902	Read only	Double	page 2-115
Clearance-GroupMeasuredPointClouds	VRESULT	2901	Read only	Double	page 2-114
ElapsedTime	VRESULT	1001	Read only	Double	page 2-170
FrameCount	VRESULT	2410	Read only	Long	page 2-200
InstanceCount	VRESULT	1310	Read only	Long	page 2-233
InstanceLocation	VLOCATION	1311	Read only	Location	page 2-236
InstanceRobotLocation	VLOCATION	1371	Read only	Location	page 2-246
ResultCount	VRESULT	1010	Read only	Long	page 2-359
ShowResults-Graphics	VPARAMETER	150	Read / Write	Boolean	page 2-383

## 3-21 Image Histogram Tool Properties

The Image Histogram tool computes greylevel statistics within a user-defined region of interest.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
BilinearInterpolationEnabled	VPARAMETER	120	Read / Write	Boolean	page 2-56
CalibratedUnitsEnabled	VPARAMETER	103	Read only	Boolean	page 2-109
GreylevelRange	VRESULT	1508	Read only	Long	page 2-205
Histogram	VRESULT	1511	Read only	Long	page 2-219
HistogramPixelCount	VRESULT	1512	Read only	Long	page 2-220
ImageHeight	VRESULT	1021	Read only	Long	page 2-223
ImagePixelCount	VRESULT	1513	Read only	Long	page 2-226
ImageSubsampling	VPARAMETER	5324	Read / Write	Long	page 2-227
ImageWidth	VRESULT	1020	Read only	Long	page 2-229
MaximumGreylevelValue	VRESULT	1507	Read only	Long	page 2-281
Mean	VRESULT	1500	Read only	Double	page 2-286
Median	VRESULT	1501	Read only	Double	page 2-288
MinimumGreylevelValue	VRESULT	1506	Read only	Long	page 2-293
Mode	VRESULT	1504	Read only	Long	page 2-299
ModePixelCount	VRESULT	1505	Read only	Long	page 2-301
ResultCount	VRESULT	1010	Read only	Long	page 2-359
SamplingStepCustom	VPARAMETER	121	Read / Write	Boolean	page 2-362
SamplingStepCustom	VPARAMETER	124	Read / Write	Double	page 2-363
ShowResultsGraphics	VPARAMETER	150	Read / Write	Boolean	page 2-383
StandardDeviation	VRESULT	1503	Read only	Double	page 2-387
TailBlack	VPARAMETER	5323	Read / Write	Double	page 2-390
TailBlackGreylevelValue	VRESULT	1509	Read only	Long	page 2-391
TailWhite	VPARAMETER	5322	Read / Write	Double	page 2-392
TailWhiteGreylevelValue	VRESULT	1510	Read only	Long	page 2-393
ThresholdBlack	VPARAMETER	5320	Read / Write	Long	page 2-394
ThresholdWhite	VPARAMETER	5321	Read / Write	Long	page 2-395
ToolHeight	VPARAMETER	111	Read / Write	Double	page 2-399
ToolPositionX	VPARAMETER	100	Read / Write	Double	page 2-401
ToolPositionY	VPARAMETER	101	Read / Write	Double	page 2-402
ToolRotation	VPARAMETER	112	Read / Write	Double	page 2-404
ToolWidth	VPARAMETER	110	Read / Write	Double	page 2-407

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
Variance	VRESULT	1502	Read only	Double	page 2-411

## 3-22 Image Processing Tool Properties

The Image Processing tool processes grey-scale images by applying arithmetic, assignment, logical, filtering, morphological or histogram operators. Users can define custom filtering operators.

Property Name	V+ Keyword	V+ ID	Access ID	Type	Reference
ArithmeticClippingMode	VPARAMETER	5360	Read / Write	Long	page 2-41
ArithmeticConstant	VPARAMETER	5361	Read / Write	Long	page 2-42
AssignmentConstant	VPARAMETER	5365	Read / Write	Long	page 2-44
ArithmeticScale	VPARAMETER	5362	Read / Write	Double	page 2-43
AssignmentHeight	VPARAMETER	5366	Read only	Long	page 2-45
AssignmentWidth	VPARAMETER	5367	Read only	Long	page 2-46
FilteringClippingMode	VPARAMETER	5370	Read / Write	Long	page 2-177
FilteringKernelSize	VPARAMETER	5371	Read / Write	Long	page 2-178
FilteringScale	VPARAMETER	5372	Read / Write	Double	page 2-179
HistogramThreshold	VPARAMETER	5385	Read / Write	Long	page 2-221
LastOperation	VRESULT	2200	Read only	Long	page 2-265
LastOutputType	VRESULT	2201	Read only	Long	page 2-268
LogicalConstant	VPARAMETER	5380	Read / Write	Long	page 2-269
MorphologicalNeighborhoodSize	VPARAMETER	5390	Read / Write	Long	page 2-302
Operation	VPARAMETER	5355	Read / Write	Long	page 2-307
OverrideType	VPARAMETER	5351	Read / Write	Long	page 2-327
OverrideTypeEnabled	VPARAMETER	5350	Read / Write	Boolean	page 2-328
TransformFlags	VPARAMETER	5395	Read / Write	Long	page 2-409

## 3-23 Image Sampling Tool Properties

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The Image Sampling tool is used to extract an area of an image and output it as a separate Image.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
ElapsedTime	VRESULT	1001	Read Only	Double	page 2-170

## 3-24 Image Sharpness Tool Properties

The Image Sharpness tool computes the sharpness of preponderant edges in a user-defined region of interest.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
AutomaticCandidateCountEnabled	VPARAMETER	5301	Read/ Write	Long	page 2-48
BilinearInterpolationEnabled	VPARAMETER	120	Read / Write	Boolean	page 2-56
CalibratedUnitsEnabled	VPARAMETER	103	Read only	Boolean	page 2-109
CandidatePointsCount	VPARAMETER	5300	Read / Write	Long	page 2-110
ElapsedTime	VRESULT	1001	Read only	Double	page 2-170
KernelSize	VPARAMETER	5304	Read / Write	Long	page 2-264
MeasurementPointsCount	VRESULT	2002	Read Only	Long	page 2-287
ResultCount	VRESULT	1010	Read Only	Long	page 2-359
SamplingStepCustom	VPARAMETER	124	Read / Write	Double	page 2-362
SamplingStepCustomEnabled	VPARAMETER	121	Read / Write	Boolean	page 2-363
Sharpness	VRESULT	2000	Read Only	Double	page 2-381
SharpnessPeak	VRESULT	2001	Read Only	Double	page 2-382
ShowResultsGraphics	VPARAMETER	150	Read / Write	Boolean	page 2-383
StandardDeviationThreshold	VPARAMETER	5302	Read / Write	Double	page 2-388
ToolHeight	VPARAMETER	111	Read / Write	Double	page 2-399
ToolPositionX	VPARAMETER	100	Read / Write	Double	page 2-401
ToolPositionY	VPARAMETER	101	Read / Write	Double	page 2-402
ToolRotation	VPARAMETER	112	Read / Write	Double	page 2-404
ToolWidth	VPARAMETER	110	Read / Write	Double	page 2-407

## 3-25 Inspection Tool Properties

The Inspection tool analyzes the results of other tools based on a configuration of inspection filters. Logical operators AND and OR are applied to a set of conditions that apply to the results of other tools in a vision sequence.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
ElapsedTime	VRESULT	1001	Read only	Double	page 2-170
FrameRotation	VRESULT	2402	Read only	Double	page 2-202
FrameTranslationX	VRESULT	2400	Read only	Double	page 2-203
FrameTranslationY	VRESULT	2401	Read only	Double	page 2-204
InspectionFilter-MeasuredValue	VRESULT	2700	Read only	Double	page 2-230
InspectionFilter-PassStatus	VRESULT	2702	Read only	Double	page 2-231
InstanceCount	VRESULT	1310	Read only	Long	page 2-233
InstanceLocation	VLOCATION	1311	Read only	Location	page 2-236
InstanceRobot-Location	VLOCATION	1371	Read only	Location	page 2-246
ResultCount	VRESULT	1010	Read only	Long	page 2-359



## 3-26 Line Finder Properties

The Line Finder Properties tool finds and locates linear features on objects and returns the line angle and point coordinates.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
AverageContrast	VRESULT	1801	Read only	Double	page 2-49
CalibratedUnitsEnabled	VPARAMETER	103	Read only	Boolean	page 2-109
ConformityTolerance	VPARAMETER	556	Read / Write	Double	page 2-120
ContrastThreshold	VPARAMETER	303	Read / Write	Long	page 2-127
ContrastThresholdMode	VPARAMETER	302	Read / Write	Long	page 2-128
DefaultConformityTolerance	VPARAMETER	552	Read only	Double	page 2-129
ElapsedTime	VRESULT	1001	Read only	Double	page 2-170
FitQuality	VRESULT	1803	Read only	Double	page 2-185
Found	VRESULT	1800	Read only	Boolean	page 2-199
FrameCount	VRESULT	2410	Read only	Long	page 2-200
FrameRotation	VRESULT	2402	Read only	Double	page 2-202
FrameTranslationX	VRESULT	2400	Read only	Double	page 2-203
FrameTranslationY	VRESULT	2401	Read only	Double	page 2-204
InstanceLocation	VLOCATION	1311	Read only	Location	page 2-236
InstanceLocationGripperOffsetMaximum	VLOCATION	1499	Read only	Location	page 2-237
InstanceLocationGripperOffsetMinimum	VLOCATION	1400	Read only	Location	page 2-238
MatchQuality	VRESULT	1802	Read - Only	Double	page 2-275
MaximumAngleDeviation	VPARAMETER	5102	Read / Write	Double	page 2-279
MinimumLinePercentage	VPARAMETER	5130	Read / Write	Double	page 2-294
OutputLineAngle	VRESULT	1820	Read only	Double	page 2-317
OutputLineEndPointX	VRESULT	1823	Read only	Double	page 2-318
OutputLineEndPointY	VRESULT	1824	Read only	Double	page 2-319
OutputLineStartPointX	VRESULT	1821	Read only	Double	page 2-320
OutputLineStartPointY	VRESULT	1822	Read only	Double	page 2-321

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
OutputLineVec- torPointX	VRESULT	1825	Read only	Double	page 2-322
OutputLineVec- torPointY	VRESULT	1826	Read only	Double	page 2-323
PolarityMode	VPARAMETER	5100	Read / Write	Long	page 2-343
PositioningLevel	VPARAMETER	561	Read / Write	Long	page 2-345
ResultCount	VRESULT	1010	Read only	Long	page 2-359
SearchMode	VPARAMETER	5101	Read / Write	Long	page 2-368
ShowResults- Graphics	VPARAMETER	150	Read / Write	Boolean	page 2-383
SubsamplingLe- vel	VPARAMETER	5110	Read / Write	Long	page 2-389
ToolGuideli- neOffset	VPARAMETER	130	Read / Write	Double	page 2-398
ToolHeight	VPARAMETER	111	Read / Write	Double	page 2-399
ToolPositionX	VPARAMETER	100	Read / Write	Double	page 2-401
ToolPositionY	VPARAMETER	101	Read / Write	Double	page 2-402
ToolRotation	VPARAMETER	112	Read / Write	Double	page 2-404
ToolWidth	VPARAMETER	110	Read / Write	Double	page 2-170

## 3-27 Locator Tool Properties

The Locator tool finds and locates objects based on the geometry of their contours. Scale factor, orientation, and position are provided for each located instance. Models are built using the integrated Model Editor.

Property Name	V+ Keywords	V+ ID	Access	Type	Reference
CalibratedUnitsEnabled	VPARAMETER	103	Read only	Boolean	page 2-109
ConformityTolerance	VPARAMETER	556	Read / Write	Double	page 2-120
ConformityToleranceRangeEnabled	VPARAMETER	553	Read / Write	Boolean	page 2-120
ContrastPolarity	VPARAMETER	522	Read / Write	Long	page 2-125
ContrastThreshold	VPARAMETER	303	Read / Write	Long	page 2-127
ContrastThresholdMode	VPARAMETER	302	Read / Write	Long	page 2-128
DefaultConformityTolerance	VPARAMETER	552	Read only	Double	page 2-129
DetailLevel	VPARAMETER	301	Read / Write	Long	page 2-130
ElapsedTime	VRESULT	1001	Read only	Double	page 2-170
FrameCount	VRESULT	2410	Read only	Long	page 2-200
FrameRotation	VRESULT	2402	Read only	Double	page 2-202
FrameTranslationX	VRESULT	2400	Read only	Double	page 2-203
FrameTranslationY	VRESULT	2401	Read only	Double	page 2-204
InstanceClearQuality	VRESULT	1319	Read only	Double	page 2-232
InstanceCount	VRESULT	1310	Read only	Long	page 2-233
InstanceFitQuality	VRESULT	1317	Read only	Double	page 2-234
InstanceIntrinsicBoundingBox	VRESULT	1330	Read only	Double	page 2-235
InstanceLocation	VLOCATION	1311	Read only	Location	page 2-236
InstanceLocationGripperOffsetMaximum	VLOCATION	1499	Read only	Location	page 2-237
InstanceLocationGripperOffsetMinimum	VLOCATION	1400	Read only	Location	page 2-238
InstanceMatchQuality	VRESULT	1318	Read only	Double	page 2-239
InstanceModel	VRESULT	1312	Read only	Long	page 2-240
InstanceOrdering	VPARAMETER	530	Read / Write	Long	page 2-242

Property Name	V+ Keywords	V+ ID	Access	Type	Reference
InstanceOrderingReferenceX	VPARAMETER	531	Read / Write	Double	page 2-244
InstanceOrderingReferenceY	VPARAMETER	532	Read / Write	Double	page 2-245
InstanceRobotLocation	VLOCATION	1371	Read only	Location	page 2-246
InstanceRotation	VRESULT	1314	Read only	Double	page 2-247
InstanceScaleFactor	VRESULT	1313	Read only	Double	page 2-248
InstanceSymmetry	VRESULT	1320	Read only	Long	page 2-249
InstanceTime	VRESULT	1322	Read only	Double	page 2-250
InstanceTranslationX	VRESULT	1315	Read only	Double	page 2-252
InstanceTranslationY	VRESULT	1316	Read only	Double	page 2-253
InstanceVisible	VRESULT	1321	Read only	Double	page 2-254
MaximumInstanceCount	VPARAMETER	519	Read / Write	Long	page 2-282
MaximumInstanceCountEnabled	VPARAMETER	518	Read / Write	Long	page 2-283
MaximumRotation	VPARAMETER	517	Read / Write	Double	page 2-284
MaximumScaleFactor	VPARAMETER	513	Read / Write	Double	page 2-285
MinimumClearPercentage	VPARAMETER	559	Read / Write	Double	page 2-291
MinimumClearPercentageEnabled	VPARAMETER	558	Read / Write	Boolean	page 2-292
MinimumModelPercentage	VPARAMETER	557	Read / Write	Double	page 2-295
MinimumRequiredFeatures	VPARAMETER	560	Read / Write	Double	page 2-296
MinimumRotation	VPARAMETER	516	Read / Write	Double	page 2-297
MinimumScaleFactor	VPARAMETER	512	Read / Write	Double	page 2-298
ModelDisambiguationEnabled	VPARAMETER	403	Read / Write	Boolean	page 2-300
NominalRotation	VPARAMETER	515	Read / Write	Double	page 2-303
NominalRotationEnabled	VPARAMETER	514	Read / Write	Boolean	page 2-304
NominalScaleFactor	VPARAMETER	511	Read / Write	Double	page 2-305
NominalScaleFactorEnabled	VPARAMETER	510	Read / Write	Boolean	page 2-306
OutlineLevel	VPARAMETER	300	Read / Write	Long	page 2-312

Property Name	V+ Keywords	V+ ID	Access	Type	Reference
OutputSymmetricInstances	VPARAMETER	520	Read / Write	Long	page 2-326
ParametersBasedOn	VPARAMETER	304	Read / Write	Long	page 2-335
PositioningLevel	VPARAMETER	561	Read / Write	Long	page 2-345
RecognitionLevel	VPARAMETER	550	Read / Write	Long	page 2-357
ResultCount	VRESULT	1010	Read only	Long	page 2-359
SearchBasedOnOutlineLevelOnly	VPARAMETER	521	Read / Write	Long	page 2-366
ShowResultsGraphics	VPARAMETER	150	Read / Write	Boolean	page 2-383
Timeout	VPARAMETER	501	Read / Write	Long	page 2-396
TimeoutEnabled	VPARAMETER	500	Read / Write	Boolean	page 2-397
ToolHeight	VPARAMETER	111	Read / Write	Double	page 2-399
ToolPositionX	VPARAMETER	100	Read / Write	Double	page 2-401
ToolPositionY	VPARAMETER	101	Read / Write	Double	page 2-402
ToolRotation	VPARAMETER	112	Read / Write	Double	page 2-404
ToolWidth	VPARAMETER	110	Read / Write	Double	page 2-407

## 3-28 Locator 3D Tool Properties

The Locator tool finds and locates objects in a 3D virtual camera.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
CalibratedUnitsEnabled	VPARAMETER	103	Read only	Boolean	page 2-109
ElapsedTime	VRESULT	1001	Read only	Double	page 2-170
FrameCount	VRESULT	2410	Read only	Long	page 2-200
FrameRotation	VRESULT	2402	Read only	Double	page 2-202
FrameTranslationX	VRESULT	2400	Read only	Double	page 2-203
FrameTranslationY	VRESULT	2401	Read only	Double	page 2-204
InstanceCount	VRESULT	1310	Read only	Long	page 2-233
InstanceLocation	VLOCATION	1311	Read only	Location	page 2-236
InstanceLocationGripperOffsetMaximum	VLOCATION	1499	Read only	Location	page 2-237
InstanceLocationGripperOffsetMinimum	VLOCATION	1400	Read only	Location	page 2-238
InstanceMatchQuality	VRESULT	1318	Read only	Double	page 2-239
InstanceModel	VRESULT	1312	Read only	Long	page 2-240
InstanceOccluded	VERSULT	1323	Read / Write	Long	page 2-241
InstanceOrdering	VPARAMETER	530	Read / Write	Long	page 2-242
InstanceRobotLocation	VLOCATION	1371	Read only	Location	page 2-246
InstanceRotation	VRESULT	1314	Read only	Double	page 2-247
InstanceTranslationX	VRESULT	1315	Read only	Double	page 2-252
InstanceTranslationY	VRESULT	1316	Read only	Double	page 2-253
ResultCount	VRESULT	1010	Read only	Long	page 2-359

## 3-29 Overlap Tool Properties

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The purpose of the overlap tool is to filter instance found in an input image so that the robot is not instructed to pick up the same part more than once.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
Reset	VPARAMETER	5500	Write only	Long	page 2-359
ShowResults- Graphics	VPARAMETER	150	Read / Write	Boolean	page 2-383

## 3-30 Pattern Locator Properties

The Pattern Locator tool finds and locates instances of a greyscale pattern.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
AutoCoarsenessSelectionEnabled	VPARAMETER	5421	Read / Write	Long	page 2-47
BilinearInterpolationEnabled	VPARAMETER	120	Read / Write	Boolean	page 2-56
CalibratedUnitsEnabled	VPARAMETER	103	Read only	Boolean	page 2-109
ElapsedTime	VRESULT	1001	Read only	Double	page 2-170
FrameCount	VRESULT	2410	Read only	Long	page 2-200
FrameRotation	VRESULT	2402	Read only	Double	page 2-202
FrameTranslationX	VRESULT	2400	Read only	Double	page 2-203
FrameTranslationY	VRESULT	2401	Read only	Double	page 2-204
InstanceLocation	VLOCATION	1311	Read only	Location	page 2-236
InstanceLocationGripperOffsetMaximum	VLOCATION	1499	Read only	Location	page 2-237
InstanceLocationGripperOffsetMinimum	VLOCATION	1400	Read only	Location	page 2-238
MatchCount	VRESULT	2100	Read only	Long	page 2-272
MatchPositionX	VRESULT	2102	Read only	Double	page 2-273
MatchPositionY	VRESULT	2103	Read only	Double	page 2-274
MatchRotation	VRESULT	2104	Read only	Double	page 2-276
MatchStrength	VRESULT	2101	Read only	Double	page 2-277
MatchThreshold	VPARAMETER	5420	Read / Write	Double	page 2-278
MaximumInstanceCount	VPARAMETER	519	Read / Write	Long	page 2-47
MaximumInstanceCountEnabled	VPARAMETER	518	Read / Write	Long	page 2-47
PatternHeight	VPARAMETER	5403	Read / Write	Double	page 2-337
PatternPositionX	VPARAMETER	5400	Read / Write	Double	page 2-338
PatternPositionY	VPARAMETER	5401	Read / Write	Double	page 2-339
PatternRotation	VPARAMETER	5404	Read / Write	Double	page 2-340
PatternWidth	VPARAMETER	5402	Read / Write	Double	page 2-341
ResultCount	VRESULT	1010	Read only	Long	page 2-359
SamplingStepCustom	VPARAMETER	124	Read / Write	Double	page 2-362
ShowResultsGraphics	VPARAMETER	150	Read / Write	Boolean	page 2-383
ToolHeight	VPARAMETER	111	Read / Write	Double	page 2-399
ToolPositionX	VPARAMETER	100	Read / Write	Double	page 2-401



Property Name	V+ Keyword	V+ ID	Access	Type	Reference
ToolPositionY	VPARAMETER	101	Read / Write	Double	page 2-402
ToolRotation	VPARAMETER	112	Read / Write	Double	page 2-404
ToolWidth	VPARAMETER	110	Read / Write	Double	page 2-407

## 3-31 Point Finder Properties

The Point Finder tool finds and locates point features on objects and returns the angle as well as the coordinates of the found point.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
AverageContrast	VRESULT	1801	Read only	Double	page 2-49
CalibratedUnitsEnabled	VPARAMETER	103	Read only	Boolean	page 2-109
Connectivity	VPARAMETER	5120	Read / Write	Long	page 2-123
ContrastThreshold	VPARAMETER	303	Read / Write	Long	page 2-123
ContrastThresholdMode	VPARAMETER	302	Read / Write	Long	page 2-127
ElapsedTime	VRESULT	1001	Read only	Double	page 2-170
Found	VRESULT	1800	Read only	Boolean	page 2-199
FrameCount	VRESULT	2410	Read only	Long	page 2-200
FrameRotation	VRESULT	2402	Read only	Double	page 2-202
FrameTranslationX	VRESULT	2400	Read only	Double	page 2-203
FrameTranslationY	VRESULT	2401	Read only	Double	page 2-204
InstanceLocation	VLOCATION	1311	Read only	Location	page 2-236
InstanceLocationGripperOffsetMaximum	VLOCATION	1499	Read only	Location	page 2-237
InstanceLocationGripperOffsetMinimum	VLOCATION	1400	Read only	Location	page 2-238
InterpolatePositionMode	VPARAMETER	5122	Read / Write	Long	page 2-257
InterpolatePositionModeEnabled	VPARAMETER	5123	Read / Write	Boolean	page 2-258
OutputPointX	VRESULT	1810	Read only	Double	page 2-324
OutputPointY	VRESULT	1811	Read only	Double	page 2-325
PolarityMode	VPARAMETER	5100	Read / Write	Long	page 2-343
PositioningLevel	VPARAMETER	561	Read / Write	Long	page 2-345
ResultCount	VRESULT	1010	Read only	Long	page 2-359
SearchMode	VPARAMETER	5101	Read / Write	Long	page 2-368
ShowResultsGraphics	VPARAMETER	150	Read / Write	Boolean	page 2-383
SubsamplingLevel	VPARAMETER	5110	Read / Write	Long	page 2-389
ToolGuidelineOffset	VPARAMETER	130	Read / Write	Double	page 2-398
ToolHeight	VPARAMETER	111	Read / Write	Double	page 2-399

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
ToolPositionX	VPARAMETER	100	Read / Write	Double	page 2-401
ToolPositionY	VPARAMETER	101	Read / Write	Double	page 2-402
ToolRotation	VPARAMETER	112	Read / Write	Double	page 2-404
ToolWidth	VPARAMETER	110	Read / Write	Double	page 2-407

## 3-32 Recipe Manager Properties

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The recipe manager tool controls the recipe subsystem.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
RecipeManager-ActiveRecipe	VPARAMETER	8001	Read only	Long	page 2-351
RecipeManager-RecipeCount	VPARAMETER	8000	Read only	Long	page 2-352
RecipeManager-RecipeSelection	VPARAMETER	8002	Read / Write	Long	page 2-353
RecipeManager-RecipeDelete	VPARAMETER	8003	Read only	Long	page 2-354
RecipeManager-LoadFile	VPARAMETER	8004	Read only	Long	page 2-355
RecipeManager-SaveFile	VPARAMETER	8005	Read only	Long	page 2-356

## 3-33 Remote Vision Tool Properties

The Custom Vision tool allows an ACE application, such as the Pack Manager, to run a vision tool on a remote PC.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
ElapsedTime	VRESULT	1001	Read only	Double	page 2-170
FrameRotation	VRESULT	2402	Read only	Double	page 2-202
FrameTranslationX	VRESULT	2400	Read only	Double	page 2-203
FrameTranslationY	VRESULT	2401	Read only	Double	page 2-204
InstanceCount	VRESULT	1310	Read only	Long	page 2-233
InstanceLocation	VLOCATION	1311	Read only	Location	page 2-236
InstanceRobotLocation	VLOCATION	1371	Read only	Location	page 2-246
ResultCount	VRESULT	1010	Read only	Long	page 2-359

## 3-34 Shape Search 3 Tool Properties

The Shape Search 3 tool locates objects based on the geometry of their contours.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
ElapsedTime	VRESULT	1001	Read only	Double	page 2-170
FrameCount	VRESULT	2410	Read only	Long	page 2-200
FrameRotation	VRESULT	2402	Read only	Double	page 2-202
FrameTranslationX	VRESULT	2400	Read only	Double	page 2-203
FrameTranslationY	VRESULT	2401	Read only	Double	page 2-204
InstanceCount	VRESULT	1310	Read only	Long	page 2-233
InstanceLocation	VLOCATION	1311	Read only	Location	page 2-236
InstanceLocationGripperOffsetMaximum	VLOCATION	1499	Read only	Location	page 2-237
InstanceLocationGripperOffsetMinimum	VLOCATION	1400	Read only	Location	page 2-238
InstanceMatchQuality	VRESULT	1318	Read only	Double	page 2-238
InstanceRobotLocation	VLOCATION	1371	Read only	Location	page 2-246
InstanceRotation	VRESULT	1314	Read only	Double	page 2-247
InstanceTranslationX	VRESULT	1315	Read only	Double	page 2-252
InstanceTranslationY	VRESULT	1316	Read only	Double	page 2-253
ResultCount	VRESULT	1010	Read only	Long	page 2-359

## 3-35 Virtual Camera Tool Properties

The Virtual Camera tool provides input images to tools in a vision sequence. A Virtual Camera tool can acquire images from a camera, or from a database of images, through a virtual camera called an Emulation device.

Property Name	V+ Keyword	V+ ID	Access	Type	Reference
Abort	VPARAMETER	5501	Write only	Boolean	page 2-20
ActiveCalibration	VPARAMETER	5504	Read / Write	Long	page 2-21
ActiveSettings	VPARAMETER	5505	Read / Write	Long	page 2-22
VideoExposure	VPARAMETER	5502	Read / Write	Long	page 2-412
VideoGain	VPARAMETER	5503	Read / Write	Long	page 2-413







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