

型号 S8T-DCBU-02

缓冲模块

使用说明书

感谢您购买S8T-DCBU-02。该使用说明书介绍了S8T-DCBU-02的功能、性能、使用方法等内容。

OMRON Corporation All Rights Reserved

1174817-6D

警告标志的含义

注意 错误使用时,有发生轻伤、中等程度伤害或财产损害的危险。

警告标志

注意

- 【设置环境】一根线时以1.08~1.13N·m的扭矩;2根线时以1.08N·m的扭矩拧紧端子螺丝使其不至松动...

安全要点

- (1) 设置·连接电源的选择 1. 不要使用下列电源之外的电源。指定的电源: S8TS系列、S8VS系列、S8J系列、S8PS系列...

安全要点

- 5. 紧固端子时不要对端子施加大于100N的力。6. 确保在打开电源前移开本产品的护罩并确认散热无阻碍。

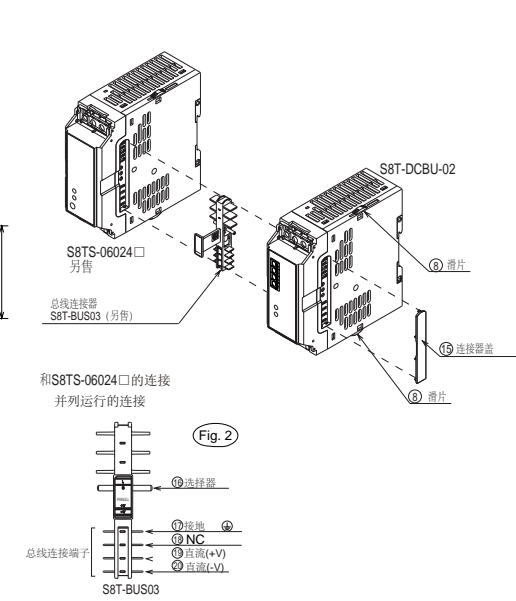
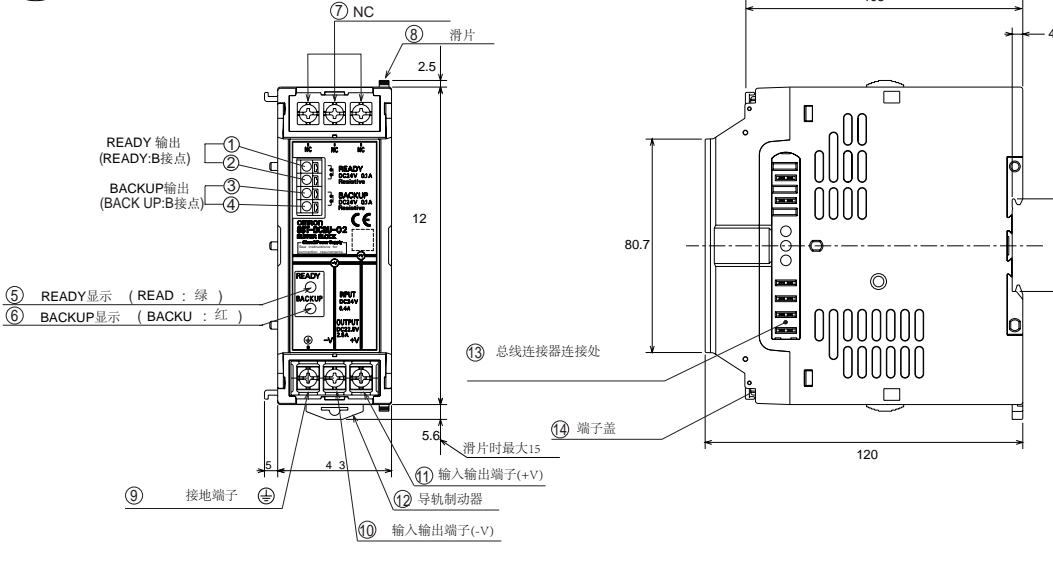
Table with columns: 周围环境温度, 带有单元安装, 连接到S8TS, 连接到S8J. Rows show maintenance intervals for different temperatures.

使用时的承诺事项 用于以下用途时,在咨询本公司营业人员并确认规格书的同时,需采用以下安全对策...

UL508的要求 为满足UL508 (Class2: per UL1310), 需满足以下所有条件...

关于EU指令 关于适用于EMC指令的使用条件,请参考目录和这份使用说明书。

Fig.1 各部分的名称和尺寸



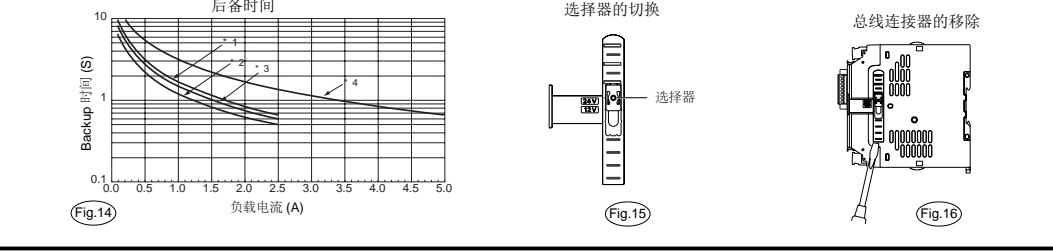
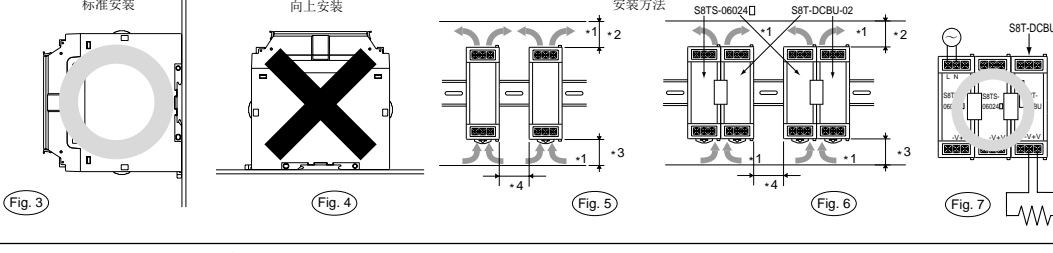
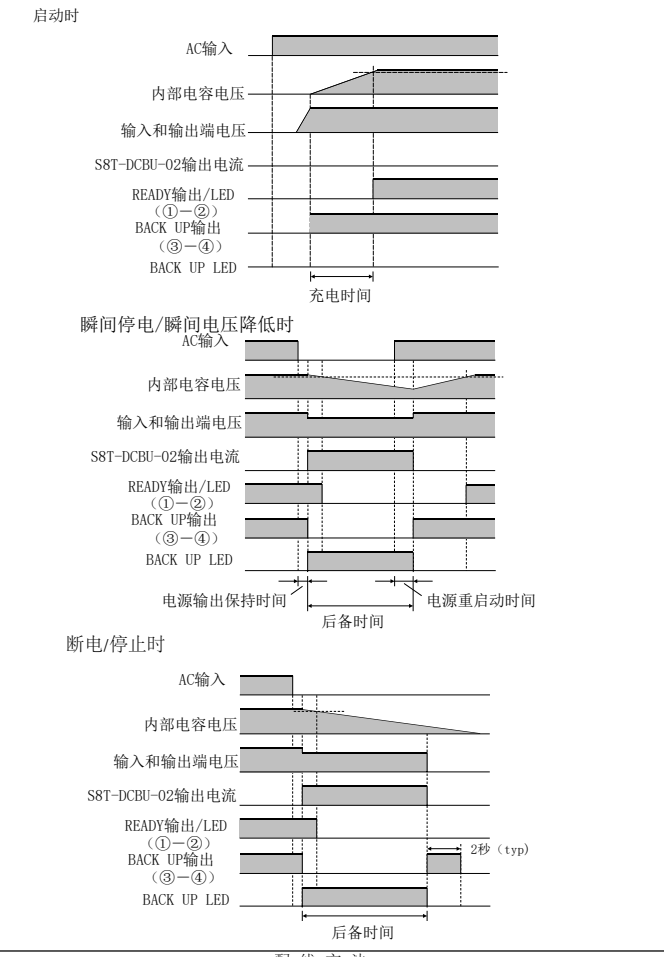
安全规格

- 1. 直流总线连接器的端子(19、20)与输入/输出端子(10、11)间不绝缘。2. 过电压等级II...

使用注意

连接的电源 S8T-DCBU-02的消耗功率约为10W,请确保电源的输出容量充足。安装 标准安装,向上安装,其他安装方式。动作确认·定期点检方法 连接模块后,根据以下步骤检查缓冲模块以确认其在AC输入上发生瞬间电源故障时运作正确...

Fig.19 时序图



Contact address 制造商 欧姆龙(上海)有限公司. 技术咨询 欧姆龙自动化(中国)有限公司. 地址: 中国(上海)自由贸易试验区金吉路789号.

MODEL **S8T-DCBU-02**

**BUFFER BLOCK**

**EN INSTRUCTION MANUAL**

Thank you for purchasing this S8T-DCBU-02. This INSTRUCTION MANUAL describes the information such as function, performance, and how to use the product required for using the S8T-DCBU-02.

- Please operate the S8T-DCBU-02 by the qualified specialist having the electrical know how.
- Read this instruction manual with enough, and use the product with enough understanding.
- Keep this instruction manual close at hand and use it for reference during operation.

OMRON Corporation  
©All Rights Reserved

1174817-6D

**Key to Warning Symbols**

**CAUTION** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.

**Warning Symbols**

**CAUTION**

**[Installation and Environment]**

- Minor fires may occasionally occur or wires may become detached causing the backup operation to fail if screws are not tightened properly. Torque ratings for field wiring terminals: 9.6 to 10 in-lb (1.08 to 1.13 N·m) single wire only; 9.6 in-lb (1.08 N·m) for two wires. Tighten terminal screws to the specified torque so that they do not become loose.
- Minor electric shock may occasionally occur. Warning: Not to leave an open bus connector installed in the end module.
- Minor electric shock may occasionally occur and the backup operation will fail if the connector becomes disconnected. Be sure to lock the slider and track stopper securely when connecting the Basic Block and the S8T-DCBU-02 to prevent the connector from being disconnected due to vibration.
- Internal parts may occasionally deteriorate or be damaged and the backup operation may not be sufficient. Do not use the S8T-DCBU-02 for applications that subject the load to frequent inrush currents or overload currents.
- The S8T-DCBU-02 may occasionally be damaged. Do not allow any clippings or cuttings to enter the S8T-DCBU-02 during mounting.

**[Operation]**

- Minor burns may occasionally occur. Do not touch the terminals or bus connectors of the S8T-DCBU-02 or primary power supplies unless the S8T-DCBU-02 is fully discharged.
- Minor electric shock may occasionally occur. Do not add or remove the S8T-DCBU-02 while power is being supplied.

**[Maintenance]**

- Minor electric shock may occasionally occur. Do not disassemble the S8T-DCBU-02 or touch the interior of the S8T-DCBU-02.
- Working voltage can be 220V max. inside. This voltage can be also available 30s after the switch off.

**Precautions for Safe Use**

- (1) **Setting and Selecting Power Supply to be Connected**
  - Do not connect a power supply other than the ones specified below. Specified Power Supply: S8TS Series, S8VS Series, S8X Series, (Only single SELV Power Supply) S8J Series, S8PS Series. Only power supplies with an output voltage of 24V and an output capacity of 25W minimum, 600W maximum can be connected.
  - When selecting the power supply to be connected, take both the operation current and power of S8T-DCBU-02 into consideration, allowing sufficient margin. The load shall not exceed the lowest temperature ratings of both the connected power supply minus the rated charging current of the S8T-DCBU-02.
  - Do not connect both the S8T-DCBU-02 and the S8T-DCBU-01 to the same power supply and loads.
- (2) **Mounting/Storage Environment**
  - Store the S8T-DCBU-02 at an ambient temperature of -25 to +65°C, and a relative humidity of 25% to 90%.
  - For UL508 Listing, Surrounding Air Temperature 25°C
  - Use the S8T-DCBU-02 at a relative humidity of 25% to 85%.
  - Do not use the S8T-DCBU-02 where it would be subjected to direct sunlight.
  - Do not use the S8T-DCBU-02 where it would be subjected to penetration of liquid, foreign substance, or corrosive gas.
  - Do not install the S8T-DCBU-02 in places subjected to shock or vibration. A device such as a conductor contact breaker may be a vibration source. Install the S8T-DCBU-02 as far as possible from possible sources of shock or vibration. Additionally, install a PFP-M End Plate on each end of the Product.
  - If the S8T-DCBU-02 is used in an area with excessive high-frequency noise, be sure to separate the S8T-DCBU-02 as far as possible from the noise sources.
- (3) **Installation/Wiring**
  - Minor electric shock or malfunction may possibly occur. Connect the ground wire completely.
  - Minor fires may possibly occur. Check the terminals to be sure they are wired correctly.
  - Close the terminal cover to help prevent short-circuiting terminals with foreign objects.
  - Use the wiring material specified in the following table to protect wires from smoking during due to load abnormalities. Also, the backup operation may not be sufficient due to voltage drop if thin wiring materials are used.

**Precautions for Safe Use**

I/O Terminals: Connect maximum two wires, AWG14 to 20, same size and type only to each field wiring terminal.

Load current	Number of connected S8T-DCBU-02	Recommended wire diameter
Up to 2.5A	1	AWG14 to 20 (Cross-sectional area: 0.517 to 2.081 mm <sup>2</sup> )
Up to 5.0A	2	AWG14 to 18 (Cross-sectional area: 0.823 to 2.081 mm <sup>2</sup> )
Up to 7.5A	3	AWG14 to 16 (Cross-sectional area: 1.309 to 2.081 mm <sup>2</sup> )
Up to 10A	4	AWG14 (Cross-sectional area: 2.081 mm <sup>2</sup> )

- Signal output terminals:**  
Solid wire AWG16 to 26 (Cross-sectional area: 0.129 to 1.309 mm<sup>2</sup>)  
Stranded wire AWG16 to 24 (Cross-sectional area: 0.205 to 1.309 mm<sup>2</sup>)  
(wires to be stripped: 11 mm)
- Do not apply a force greater than 100 N to the terminal block when tightening the terminals.
  - Be sure to remove the sheets covering the S8T-DCBU-02 before turning ON the power supply and confirm that nothing is interfering with heat dissipation.
- (4) **Setting/Mounting**
- The internal parts may occasionally deteriorate or be broken due to adverse heat radiation. Operate the S8T-DCBU-02 only under the specified conditions.
  - Ensure sufficient heat dissipation when installing the Product to increase its long-term reliability.
  - Install the Product so that a natural airflow occurs around it.
- (5) **Precautions in Using**
- After connecting the devices to the S8T-DCBU-02, check whether sufficient backup is performed correctly by operating the S8T-DCBU-02.
  - Check the load current using the actual system in advance to confirm that there is sufficient leeway in the backup time.
  - Check to confirm that the READY indicator and the output function correctly. The backup operation may not be sufficient if the READY indicator and output do not function correctly.
  - The S8T-DCBU-02 will perform the backup operation not only for instantaneous power interruptions or voltage drops, but also when the power supply is OFF. The backup time is particularly long for light loads. Check the devices connected to the S8T-DCBU-02 to be sure it has stopped operation correctly.
  - Periodic Inspection and Periodic Replacement**  
The S8T-DCBU-02 contains built-in electrolytic capacitors, which has a limited life. Perform periodic inspection and replacement. The performance of the electrolytic capacitor will deteriorate as the total operating time increases, eventually leading to insufficient performance. Refer to the following guidelines for periodic replacement.

Ambient temperature	Guideline of replacement	
	With Spacer (Fig.5)	Connected to S8TS (Fig.8)
Up to 30°C	15 years	15 years
40°C	12 years	8.5 years
50°C	6 years	5.5 years (See note.)
60°C	3 years	—

Note: The load ratio of the S8TS is limited to 60%.

- (7) **Handling the Bus Line Connector**
- Do not drop the Bus Line Connector or subject it to strong shock.
  - Do not connect and disconnect the Bus Line Connector more than 20 times. Also, do not touch the terminals on the Bus Line Connector. Connection failure may cause deterioration of electric performance.
  - The temperature shall not exceed the lowest temperature ratings of both the connected power supply and the S8T-DCBU-02.
  - See product catalogue for details.

**Suitability for Use**

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of the products in the customer's application or use of the product.

Take all necessary steps to determine the suitability of the product for the systems, machines, and equipment with which it will be used.

Know and observe all prohibitions of use applicable to this product.

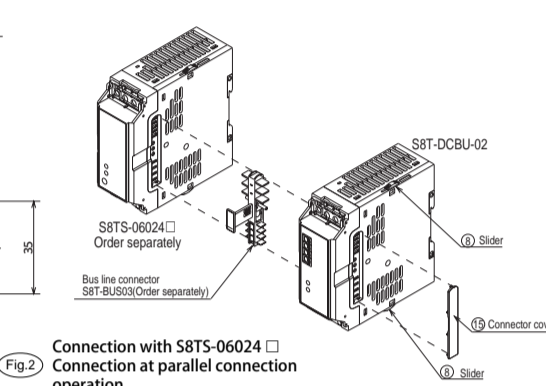
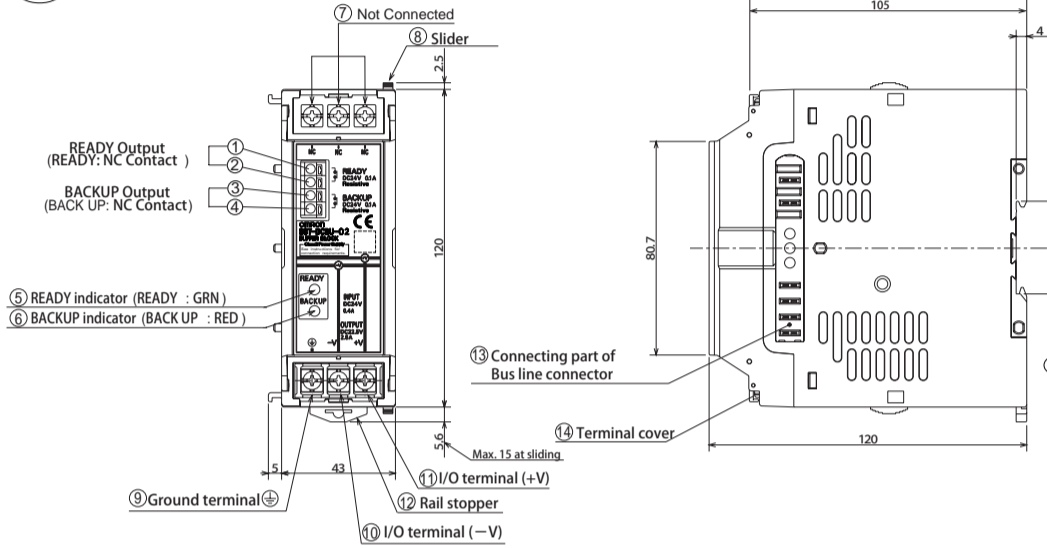
NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

See also Product catalog for Warranty and Limitation of Liability.

**Conformance to EU Directives**

Refer to the catalogue and this instruction manual for details on the operating condition for EMC-compliance.

(Fig.1) Nomenclature and dimensions



Safety Standards	According to UL508
<ol style="list-style-type: none"> <li>The DC Bus line connector terminals (⑨, ⑩), I/O terminal (⑪, ⑫) are not insulated.</li> <li>Overvoltage category II.</li> <li>This equipment is for protection class III.</li> <li>Climatic class: 3K3 According to EN62477-1.</li> <li>Warning not to leave an open bus connector installed in the end module. Prenez soin de ne pas laisser un connecteur de bus ouvert installé dans le module d'extrémité.</li> </ol>	<p>To comply with UL508 (Class2: per UL1310), Meet all of following conditions.</p> <ul style="list-style-type: none"> <li>• Class 2 output rating - 24 VDC, 2.5 A</li> <li>• Connection to a single S8TS-06024 □</li> <li>• Connection of single S8T-DCBU-02</li> </ul>

**Precautions for Correct Use**

**Power Supply to be Connected**  
The power consumption of the S8T-DCBU-02 is approximately 10W, so make sure that the output capacity of the power supply is sufficient.

**Serial Connection**  
Two Blocks cannot be connected in series to increase the output voltage to 48V or to create positive and negative outputs.

**Parallel Operation Connection**  
The output current and backup time for the backup operation can be increased by connecting Blocks in parallel.

**Mounting**  
Standard mounting direction: Yes/No

**Input Voltage**  
The input voltage to the S8T-DCBU-02 should not be reduced to 23VDC or below by adjustment or overloading the power supply because this would cause current to be sourced from both the power supply and the backup unit at the same time and the signal output relays will switch rapidly.

**Output Voltage**  
The output voltage for the backup operation is automatically adjusted internally by detecting the input voltage.

**Backup Time**  
The backup time may be reduced if a fixed power load (such as a DC-DC converter) is connected.

**Mounting**  
Standard mounting direction: Yes/No

**Using the Bus Line Connector**  
When connecting to the S8TS-06024 □, always use the S8T-BUS03 Bus Line Connector.

**Relation between the Momentary Power Failure Time and the Backup Time**  
The relation between the momentary power failure time and the backup time required to compensate the failure is differed as shown in the following figure.

**Overload Protection**  
The load and the power supply are automatically protected from overcurrent damage by this function.

**Overvoltage Protection**  
If a voltage that is higher than the specified input voltage is input or the output voltage exceeds the specified voltage, the overvoltage protection circuit will operate at between 31 and 36V to shut OFF the output voltage of the S8T-DCBU-02 and protect the load from damage due to overvoltages.

**Turn ON the AC power supply that has been connected.**  
Check the Ready indicator on the S8T-DCBU-02 to confirm that it is lit.

**LED (5) READY: green/ON**  
Relay(READY (1)-(2): open)  
(Up to 60 seconds is required to charge the internal capacitor before the indicator lights.)

**LED (6) BACKUP: red/ON**  
Relay(BACKUP (3)-(4): closed)

**Insulation Resistance Test**  
When testing the insulation resistance of the power supply, use a DC ohmmeter at 500VDC.

**Reverse Connection Protection**  
The S8T-DCBU-02 will be protected even if the positive and negative I/O terminals are connected in reverse.

**Overload Protection**  
The load and the power supply are automatically protected from overcurrent damage by this function.

**Overvoltage Protection**  
If a voltage that is higher than the specified input voltage is input or the output voltage exceeds the specified voltage, the overvoltage protection circuit will operate at between 31 and 36V to shut OFF the output voltage of the S8T-DCBU-02 and protect the load from damage due to overvoltages.

**Notes:**

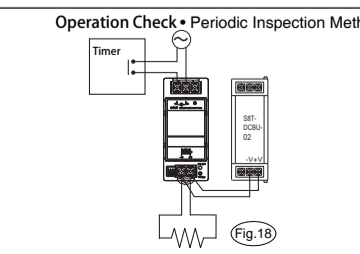
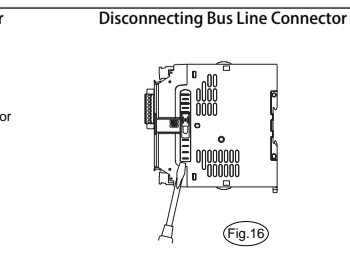
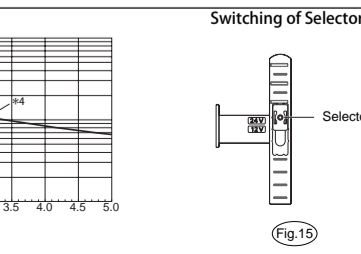
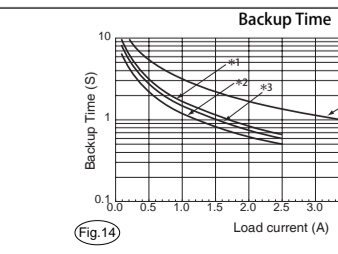
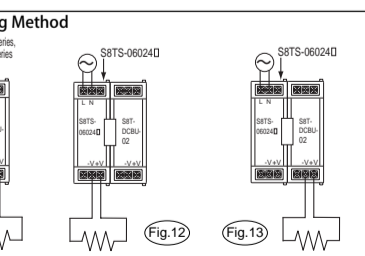
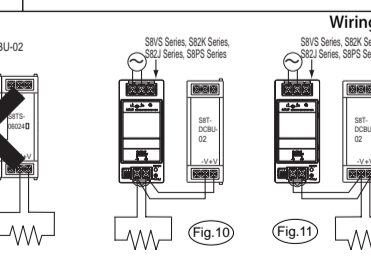
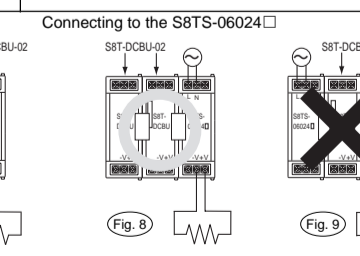
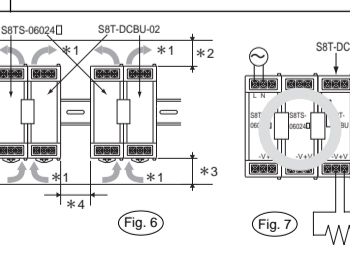
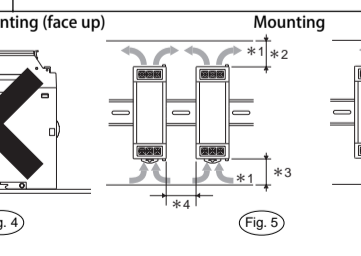
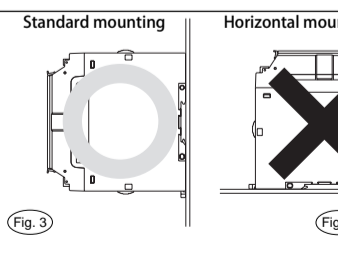
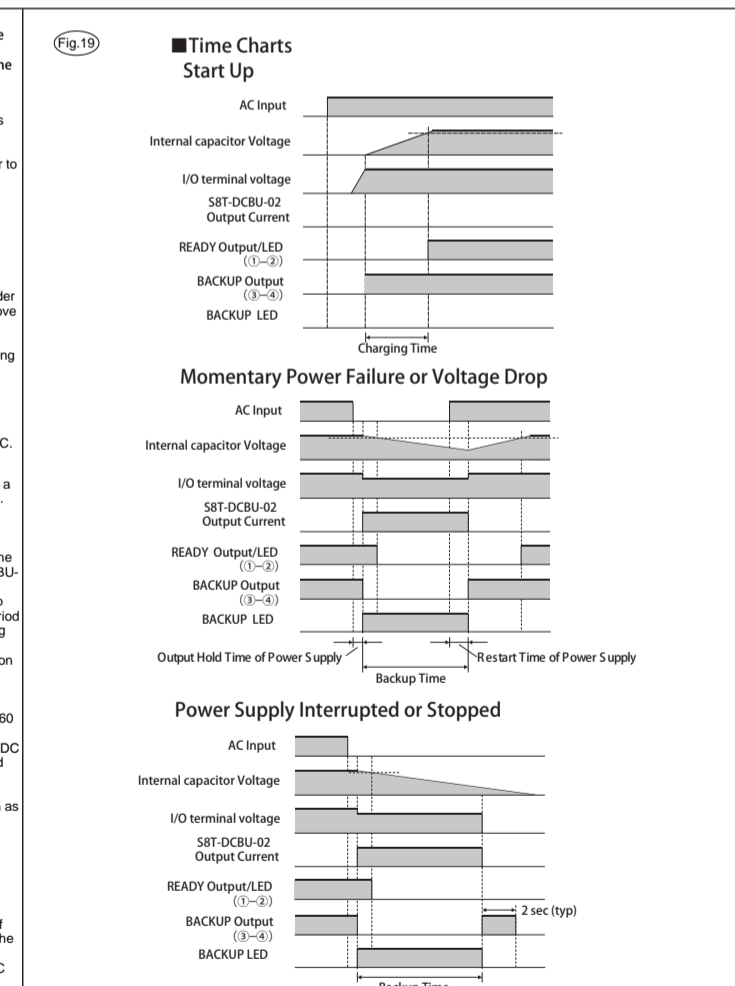
- Remove the cause of the overvoltage before turn the input power supply back ON.
- The backup operation will not be performed when the overvoltage circuit operates to shut OFF the output.

**Backup Operation (Indication+Output)**  
The S8T-DCBU-02 will switch to the backup operation if a voltage drop is detected on the connected power supply.

**LED (5) READY: green/ON**  
**LED (6) BACKUP: red/ON**  
**Relay(BACKUP (3)-(4): Closed)**

**Notes:**

- The contact capacity of the output relay is 0.1A at 24VDC.
- The backup operation may be repeatedly performed if the connected power supply is overloaded. Remove the cause of the overload immediately.
- The backup operation does not detect drops in the AC input.



**Contact address**

OMRON Corporation Shiojiri Horikawa, Shimogyo-ku, Kyoto, 600-8530 Japan Phone: 1-847-843-7900	Europe/Middle East Asia/Africa/Russia OMRON EUROPE B.V. Wegalaan 67-69, 2132 JD Hoofddorp, The Netherlands Phone: +31-23-56-81-300 Fax: +31-23-56-81-388 Web site: www.eu.omron.com	中国 欧姆龙自动化(中国)有限公司 电话: (86) 21-6023-0333 香港 欧姆龙(香港)自动化有限公司 电话: 852-2375-3827
OMRON ELECTRONICS LLC Phone: 1-847-843-7900	GERMANY OMRON ELECTRONICS G.m.b.H. Phone: 49-2173-6800-0	台湾 欧姆龙股份有限公司 电话: 886-2-2715-3331
OMRON CANADA INC. Phone: 1-416-286-6465	FRANCE OMRON ELECTRONICS S.A.S. Phone: 0-825-825-679	韩国 OMRON Electronics Korea Co., Ltd. 电话: 82-2-519-3988
UNITED KINGDOM OMRON ELECTRONICS LTD. Phone: 44-1908-258-258	ITALY OMRON ELECTRONICS S.P.A. Phone: 39-02-32681	AUSTRALIA OMRON ELECTRONICS PTY.LTD. Phone: 61-2-9878-6377
	SINGAPORE OMRON ELECTRONICS IBERIA S.A.U. Phone: 34-913-777-900	新加坡 OMRON ELECTRONICS PTE.LTD. 电话: 65-6-547-6789