

S8AS

Smart Power Supply

INSTRUCTION MANUAL

Thank you for purchasing the S8AS Smart Power Supply. This Instruction Manual describes the functions, performance, and application methods required to use the S8AS.

- Make sure that a specialist with a knowledge of electrical systems operates the S8AS.
- Read and understand this Instruction Manual, and be sure you understand the S8AS sufficiently before attempting to use it.

Keep this Instruction Manual close at hand and use it for reference during operation.

OMRON Corporation

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For detailed operating instructions, refer to the *S8AS User's Manual* (Cat. No. Z269).

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.

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.

Warnings and Cautions

- Do not disassemble, modify, or repair the Product or touch the interior of the Product, otherwise electric shock, fire, or Product failure may occur.
- Do not touch the Product while power is being supplied or immediately after power is turned OFF, otherwise burns may occur.
- Do not touch the terminals while power is being supplied, otherwise injury may occur due to electrical shock. Also, be sure to close the terminal cover after wiring the terminals.
- Tighten terminal screws to the specified torque, otherwise fire may occur.
- Do not allow any pieces of metal or conductors or any clippings or cuttings resulting from installation work to enter the Product, otherwise electric shock, fire, or Product failure may occur.
- A maximum voltage of 370 V may be generated internally when power is supplied. This voltage will remain for 30s even after the power supply has been turned OFF.

Precautions for Safe Use

- Installation and Storage Environment
 - Store the Product at an ambient temperature of -25 to 65°C and relative humidity of 25% to 90%.
 - To maintain performance of the maintenance forecast monitor, make sure the following conditions are satisfied for long-term storage:
 - For storage exceeding three months, keep the Product at a temperature of -25°C to 30°C and a humidity of 25% to 70%.
 - Internal parts may occasionally be deteriorated or broken.

- Internal parts may be broken. Do not use a current that exceeds the rated total output current. If temporary peak currents occur repeatedly, design the system so that the peak currents do not exceed the rated total output current.
- The surrounding air temperature to comply with UL508 is 25°C.
- Use the Product where the relative humidity is 25% to 85%.
- Do not use the Product where it would be subjected to direct sunlight.
- Do not use the Product where it would be subjected to penetration of liquid, foreign substance, or corrosive gas.
- Do not use the Product where it would be subjected to shock or vibration. A device such as a contact breaker may be a vibration source. See the Product for as far as possible from sources of shock or vibration. Additionally, install a PFP-4M End Plate on each end of the Product.
- Use a DIN Rail made of steel. If an aluminum DIN Rail is used, vibration or shock may cause the formation of metal dust due to abrasion of the aluminum.
- Poor heat dissipation may deteriorate or damage internal parts. Do not loosen the screws on the side of the Product.
- If the Product is used in an area with excessive electronic noise, be sure to separate the Product as far as possible from the noise sources.
- Cutoff performance is guaranteed according to the ambient operating temperature. Use the Product within the design range.
- Poor heat dissipation resulting from improper installation conditions may occasionally deteriorate or damage internal parts and also cause the maintenance forecast monitor function to not operate properly. Do not use any mounting orientation other than a standard one.
- Do not connect a battery or other backup power supply to the output of the Product.
- To comply with UL standards, insert a fast-breaking, UL-approved fuse rated at 20 A into each input line.
- Although some inverters have an output frequency of 50/60 Hz, they may cause internal temperatures to rise, possibly resulting in burning, if they are connected as the power source for the S8AS. Do not use the output from an inverter as the power source for the S8AS.

- Installation and Wiring
 - Minor electric shock during operation may occasionally occur. Always attach the cover or take other precautions so that the terminals cannot be touched directly.
 - Also, connect the ground completely. The ground is a protective earth (PE) terminal specified in safety standards. If the ground is not connected completely, electric shock or malfunction may occur.
 - Minor fire may possibly occur. Ensure that input and output terminals are wired correctly.
 - Heat generated by wiring materials may cause the temperature of internal parts to increase, which may result in deterioration of or damage to the internal parts. Select the wiring materials according to the current that is being used.
- Using the wiring materials, torque, and wire stripping length in the following table is recommended to prevent smoke or fire of the wire material due to an abnormal load.

Terminals	Name	Recommended wire diameter	Wire type	Torque	Wire stripping length
AC input terminals and protective earth (PE) terminal	AWG14 to 16 (cross-sectional area of 1.309 to 2.081 mm ²)	Solid or stranded	8.6 in.lb. (1.08 N.m)	8 to 10 mm	
		Screw terminals	Branch output terminals (-), UL Standard	AWG12 to 14 (cross-sectional area of 2.081 to 3.309 mm ²)	Solid or stranded
Branch output terminals (-), CSA Standard	AWG12 to 20 (cross-sectional area of 0.517 to 3.309 mm ²)	Solid or stranded	8.6 in.lb. (1.0 N.m)	8 to 10 mm	
		Screw terminals	Branch output positive terminals, branch output negative terminals, I/O signal terminals, and communications terminals	AWG12 to 24 (cross-sectional area of 0.2 to 2.5 mm ²)	Solid or stranded

- It is conceivable that internal parts may be deteriorated or damaged. Do not repeatedly perform cutoff or recovery operations more than necessary.
 - Do not push more than 100 N of force to the terminal block when tightening screws.
 - Be sure to tighten the lock screws on the sides of the connector after connecting any output connector.
 - When removing a connector, be sure the lock screws are completely loose before pulling on the connector.
 - Be sure to remove the sheet covering the Product during installation before turning ON the power.
- Output Voltage Adjustment
 - The output voltage adjuster (V.ADJ.) may possibly become damaged. Do not apply more than the required force.
 - Do not exceed the rated output capacity and rated total output current after adjusting the output voltage.
 - Periodic Inspections

Under normal operating conditions, the Product will require several years or even more than ten years until the maintenance forecast monitor function operates. When using the Product for an extended period of time, perform the following procedure periodically to confirm that the output for the maintenance forecast monitor function (C) (LFE) is operating correctly.

 - Change to Run Mode.
 - Confirm that the (C) (LFE) output is ON (electrical continuity between (C) and (E)).
 - See product datasheet for details.

Precautions for Correct Use

- This Instruction Manual describes only the minimum setting operations required when using the S8AS for the first time. For information on detailed settings, refer to the *S8AS User's Manual* (Cat. No. Z269).
- When tripping alarm output operates, always remove the cause of the output first and then reset the alarm. When cycling the input power supply, always remove any problems first and then turn ON the input power supply.
- Mounting
 - Mount the S8AS using the standard mounting direction shown in Fig. 3.
 - Do not mount it in any other direction, such as face up, as shown in Fig. 4.
 - Mounting Space (Fig. 3)
 - The long-term reliability of the S8AS can be increased by installing it properly and sufficiently considering heat dissipation.
 - Be sure to install the S8AS so that the air flow circulates around it, because the S8AS is designed to radiate heat by means of natural air circulation.
 - Input Voltage Tolerance
 - 85 to 264 V
 - Abnormal Voltage Tripping
 - The S8AS has an abnormal voltage tripping function. All branch outputs will be cut off if the input voltage exceeds 28.8 VDC. This function, however, does not protect loads and internal parts from high voltages in all cases. Be sure the output voltage is within the rated range.
 - Outputs may be cut off by the abnormal voltage protection with loads that generate reverse peak electrostatic force.
 - Abnormal Current Tripping

The S8AS has an abnormal current tripping function. A branch output will be cut off if its current exceeds a preset value. Also, all branch outputs will be cut off if their total peak output current exceeds a specified value.

 - Continuing operation with overcurrent may occasionally result in deterioration or destruction of internal elements.
 - Do not use the S8AS for applications in which load inrush current or overload will frequently occur. Doing so may result in deterioration or damage to internal components.

- Maintenance Forecast Monitor Function

The accuracy of the maintenance forecast monitor function will be reduced in applications where the rated total output current is ON and OFF frequently.
 - Cutoff Performance

There are three methods that can be used to determine abnormal current cutoff: Standard Detection, Instantaneous Detection, and Extended Detection. The initial setting is Standard Detection (Fig. 2). Refer to the *S8AS User's Manual* (Cat. No. Z269) for details of setting.

 - When the tripping alarm output operates, always remove the cause of the output first and then reset the AC input before turning ON and OFF frequently.
 - When using a load with a fixed power operation, the S8AS may cause a cutoff when the power supply is turned OFF.
 - Tolerance of current tripping alarm threshold is 10.3A.
 - Use Extended Detection only when using OMRON Remote I/O Terminal with short-circuit detection.
 - Total Peak Output Current

The S8AS is designed to provide a temporary peak current to provide the overcurrent required to start load. The total peak output current for all branch outputs combined is given below. If the total current exceeds any of these values, all branch outputs will be cut off according to the size of the peak current or application time to ensure safety.

 - 240-V Models
 - Peak current/Peak current pulse width: 200 to 240 VAC
 - 17 A max. for 2 s max.
 - 15 A max. for 5 s max.
 - 13 A max. for 10 s max.
 - 12 A max. for 20 s max.
 - 480-V Models
 - Peak current/Peak current pulse width: 200 to 240 VAC
 - 27 A max. for 1 s max.
 - 25 A max. for 2 s max.
 - 22.5 A max. for 5 s max.
- Note: If the total output peak current exceeds even one of these conditions, all branch outputs will be shut off to ensure safety.
- Insulation Resistance Test

When testing the insulation resistance, use a DC resistance meter at 500 VDC. Note: Do not prevent damage, always short branch output terminals (-), all I/O terminals, and communications terminals before testing.
 - Output Voltage Adjustment (Fig. 5)

Default setting: Set as the rated voltage.

Adjustable range: Adjustable from -10% to +10% of the rated output voltage by using the V.ADJ. adjuster G on the front of the Power Supply. Turning the adjuster clockwise increases the output voltage, and turning it counterclockwise decreases the output voltage.

 - If the output voltage is set to less than 20 V (default setting), the undervoltage alarm may be activated.
 - Do not exceed the rated output capacity and rated total output current after adjusting the output voltage.
 - The output voltage may increase beyond the allowable voltage range rated output voltage +10% when the V.ADJ. adjuster (G) is used. When adjusting the output voltage, check the output voltage of the power supply to make sure that the load is not damaged.
 - No Output Voltage

The internal circuit's overcurrent protection or overvoltage protection may operate. Alternatively, the latch protection circuit may operate if there is a lightning surge or other large voltage applied to the input. Contact OMRON if there is still no output voltage after checking the following two points:

 - Checking Overcurrent Protection
 - Check whether the load is an inductive or short-circuited state. Remove the wires to the load before checking.
 - Checking Overvoltage Protection and Latching Protection

Turn the power supply OFF and leave it OFF for at least 3 minutes, then turn it ON again.
 - Startup Time

At startup, the S8AS checks hardware and software before starting the operation of branch outputs. A time of approximately 3 seconds is required for these self-diagnostic functions. Take this time into account when designing the system.
 - External Tripping Input

When using the external tripping input, always confirm the application methods described in the *S8AS User's Manual* (Cat. No. Z269) before designing the system.
 - Tripping Alarm Output, Undervoltage Alarm Output, Maintenance Forecast Monitor Output, and Over Temperature Output

Photocoupler outputs: 30 VDC max., 50 mA max., residual voltage when ON: 2 V max., leakage current when OFF: 0.1 mA max.

Note: All output signal circuits operate. Internal current control circuits are not provided internally for output signals.

 - Do not allow the output current to exceed 50 mA.
 - After completing wiring, confirm that the circuits operate correctly.
 - Displaying the Output Voltage

The voltage detection function displays the voltage that is monitored at the internal circuit after AC/DC conversion. The displayed voltage will be somewhat lower than the value at the output terminals of the power source due to internal voltage drop. To accurately confirm the output voltage, measure it at the branch output terminal.
 - Prohibition of Parallel Connection (Fig. 6)

Do not connect branch outputs from the S8AS in parallel. Also, do not connect the branch outputs in parallel with branch outputs of other S8AS units.
 - Conformance to EU Directives

Refer to the datasheet and instruction manual for details on the operating conditions for EMC compliance. Warning: The S8AS is a Class A product. In a residential, commercial, or light industrial environment, it may cause radio interference. The S8AS is not intended to be installed in a residential environment. In a commercial or light industrial environment with connection to a commercial power supply, the user may be required to take adequate measures to reduce interference.

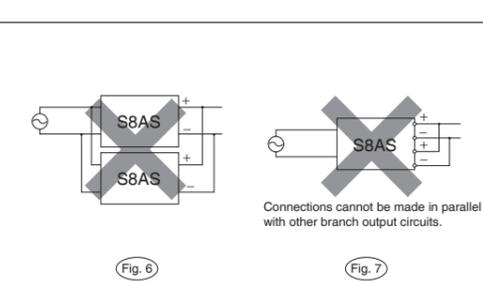
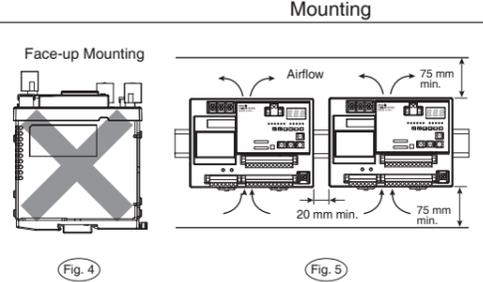
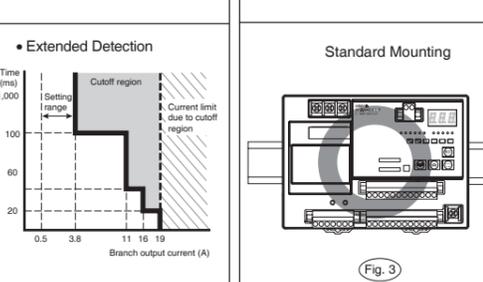
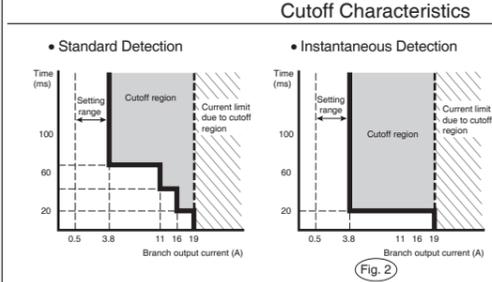
Part Names and Functions

Fig. 1 Nomenclature

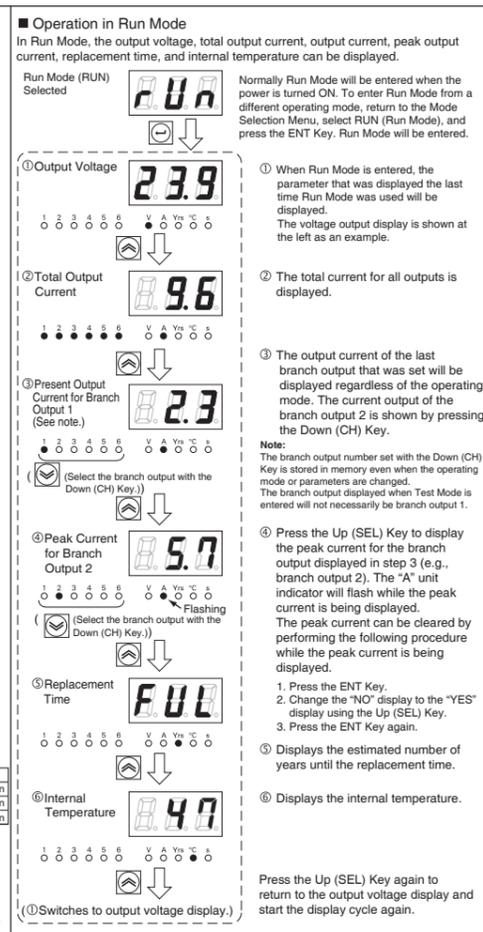
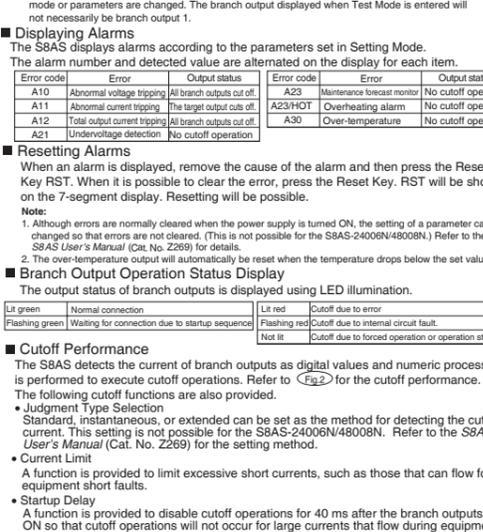
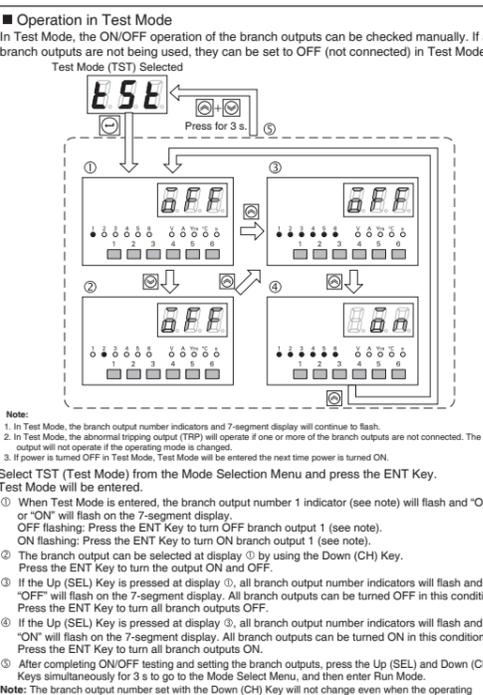
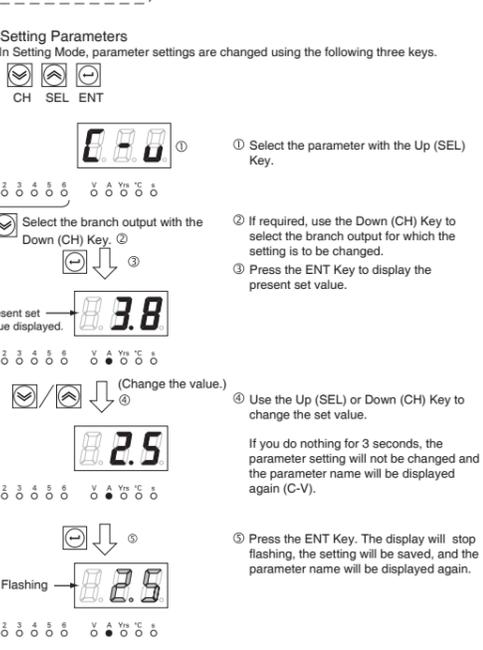
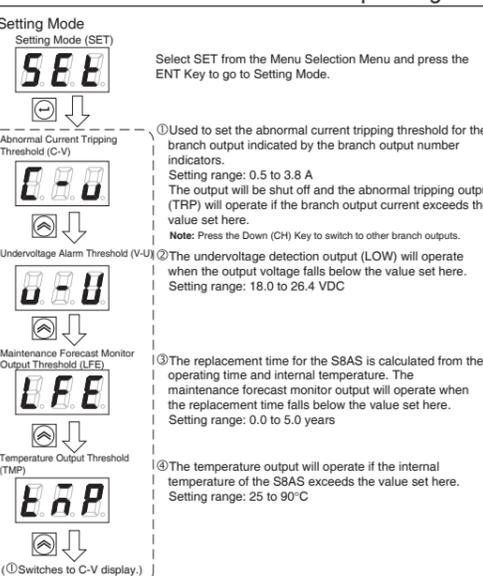
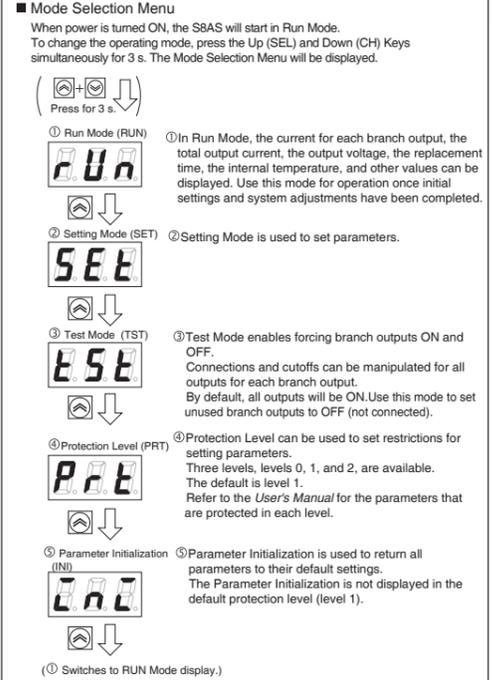
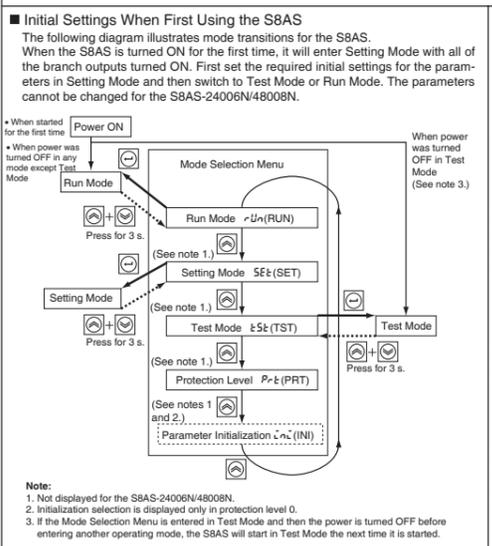
Name	Function
1. AC Input Terminals (L, N)	Connects the input power supply (100 to 240 VAC, 50/60 Hz) (commercial power supply).
2. PE (Protective Earth) Terminal	Connects to the ground wire.
3. Positive Branch Output Terminals (+V)	Screwless terminals with 2-pole terminals for each branch output.
4. Negative Branch Output Terminals (-V)	Screwless terminals with 2-pole terminals for each branch output and screw terminal shared by the negative branch output terminals.
5. I/O signal terminals	(A) Tripping Alarm Output (TRP) (See note 4). (B) Undervoltage Detection Output (LOW) (C) Maintenance Forecast Monitor Output (LFE) (D) Over-temperature Output (TMP) (E) Negative Common Terminal (COM) (F) Positive External Tripping Input (TRG+) (Can be used to send an input signal from an external device to cut off a branch output. (See note 5).) (G) Negative External Tripping Input (TRG-)
6. Output Indicator (DC ON) (Green)	Indicates whether there is output voltage supplied.
7. Output Voltage Adjuster (V. ADJ.)	Adjusts the output voltage.
8. Seven-segment Display (Red)	Displays measured values or set values.
9. Branch Output Number Indicator (Orange)	Light or flash when there is a display related to a branch output. (See note 2).
10. Unit Indicator (Orange)	Lights or flashes when there is a unit (e.g., V, A, Yr, °C, s) related to the value shown on the 7-segment display.
11. Operation Indicators (Red, Green)	Indicate the status of the branch outputs: Cutoff: red, Connected: green. (See note 3).
12. Operation Keys	Reset (RST) Key (⏏) Enter (ENT) Key (⏎) Up (SEL) Key (⬆) Down (CH) Key (⬇)
13. Communications Terminals (A (-), B (+))	Used to connect to the RS-485 communications line. (Only for Models That Support Communications)

Note:

- The noise value depends on the wiring method and other factors. Insert a clamp filter (recommended: E6ASR03) manufactured by SEIWA) on the communications wiring as a countermeasure against noise.
- The branch output number indicators are OFF when current is not used.
- Information on procedures for detailed display is given in *Branch Output Operation Status Display*.
- If one or more of the branch outputs are not connected, the abnormal tripping output (TRP) will operate only in Test Mode.
- Wire the polarity of the external tripping input correctly. After completing wiring, confirm that the input operates correctly.



Operating Procedures and Functions



Safety Standards

According to EN 50178 (i.e., VDE 0160)

- Overvoltage Category III
- Atmospheric Conditions: 3K3
- Device Protection Class 1

According to UL508

- Use in an enclosure that maintains a Pollution Degree 2 environment.
- WARNING: Risk of fire or electric shock. Do not interconnect output terminations.
- According to UL60950-1
- Overvoltage Category II

Contact address

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形 S8AS

スマートパワーサプライ

JPN 取扱説明書

このたびは、スマートパワーサプライ 形 S8AS シリーズをお買い上げいただきまして、誠にありがとうございます。

オムロン株式会社

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使用法の詳細については「スマートパワーサプライ 形 S8AS ユーザーズマニュアル」(カタログ番号:SGTC-702)をご覧ください。

ご使用に際してのご承諾事項

- 下記用途に使用される場合、当社営業担当者までご相談の上仕様などによりご確認いただくことと、安全・性能に十分注意して使用し、万が一故障が発生した場合も危険を最小にする安全回路など、定格を遵守してください。

警告表示の意味

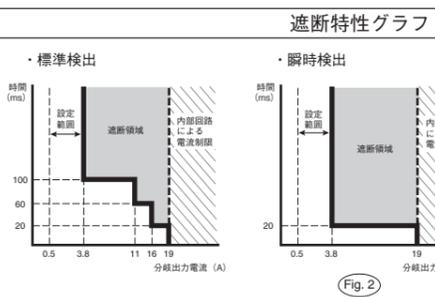
正しい取扱いをしなければ、この危険のために、時に軽傷・中程度の傷害を負ったり、あるいは物的損害を受ける恐れがあります。

警告表示

- 軽度の感電、発火、機器の故障が起きる恐れがあります。分解、改造、修理をしたり、内部に接触しないようにしてください。

安全上の要点

- 1. 設置・保管環境について
2. 交換時期お知らせ機能
3. 内部部品の劣化・破損が起きる恐れがあります。

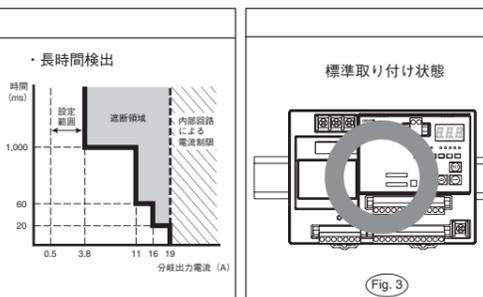


- 4. 万が一の場合、内部部品の破損が起きる恐れがあります。電源の定格トータル出力電流を超過するような電圧・電流を使用しないでください。

Table with columns: 端子 (Terminal), 名称 (Name), 推奨使用線径 (Recommended Wire Gauge), トルク (Torque), 向き (Direction). Lists terminals for AC input, PE, output, and signal.

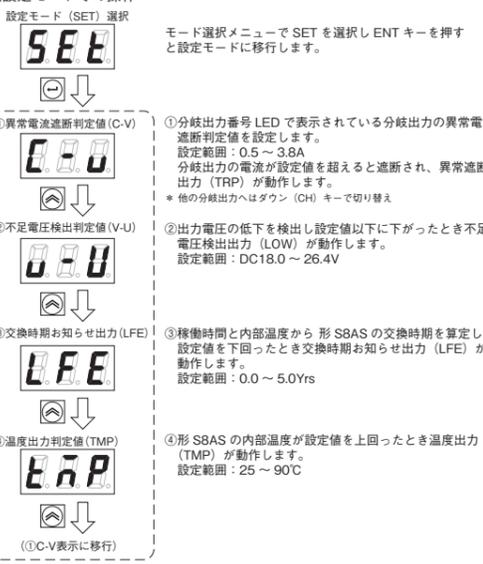
使用上の注意

- この取扱説明書に購入時の初期設定に必要な最低限の設定値のみを記載しています。製品の詳しい設定操作については、ユーザーズマニュアルを十分ご理解の上、設定を行ってください。

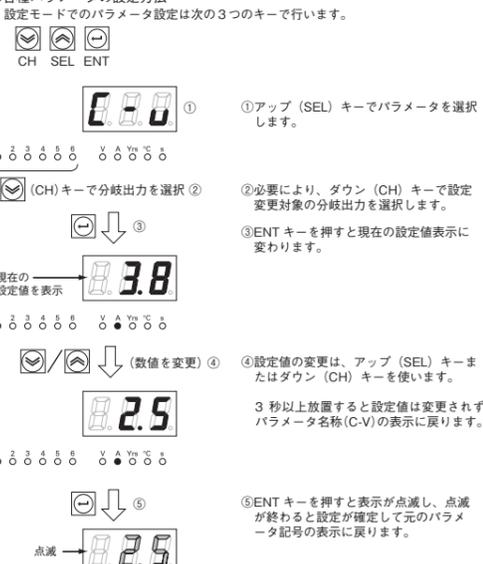


操作方法と機能

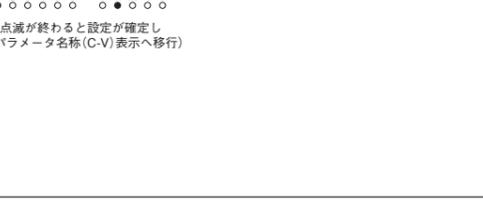
設定モードでの操作



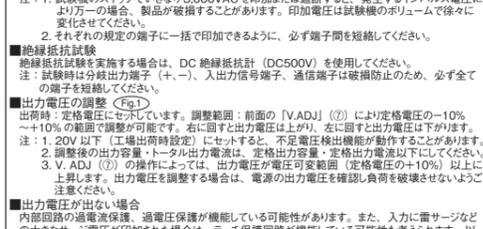
各種パラメータの設定方法



各種警告の表示



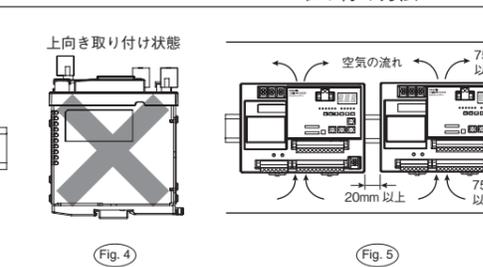
- 交換時期お知らせ機能
■断断特性
■出力電圧の調整
■出力電圧が出力しない場合
■出力電圧が出力しすぎる場合
■並列接続の禁止
■EMC指令に適合する場合



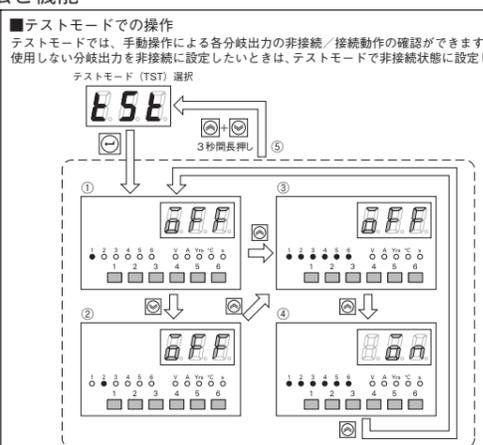
各部の名称と働き

Table with columns: 名称 (Name), 働き (Function). Lists components like input terminals, PE, output terminals, and signal terminals.

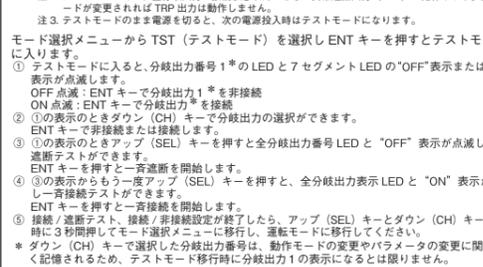
各部の名称



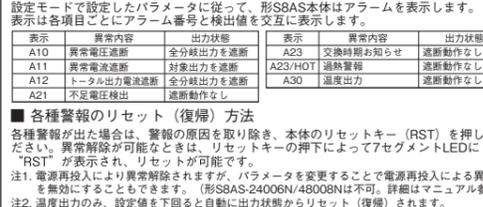
テストモードでの操作



各種警告の表示



各種警告のリセット (復帰) 方法



断断性能

形 S8AS は分岐出力の電流値をデジタル値として検出し、演算することで断断動作を実行します。断断特性については Fig.2 をご確認ください。

その他の機能

- スタートアップ機能
■安全回路
■その他の機能

各部の名称と働き

Table with columns: 名称 (Name), 働き (Function). Lists components like input terminals, PE, output terminals, and signal terminals.

安全規格

- EN50178 (VDE0160) に従います。
■過電圧カテゴリ III
■機器は保護クラス 1
■気候条件: 3K3
■CSA 規格
■UL508 に従います。

お問い合わせ先

オムロン株式会社 営業統轄事業部
東京都川崎市大宮 1-11-1 ゲートシティ大宮ウエストタワー 14F (〒141-0032)

■技術的なお問い合わせ
0120-919-066 (フリーコール)
直営の制御機器の技術窓口は 055-982-5000 です。

■営業日: 年末年始を除く
FAX によるお問い合わせは下記をご利用ください。
カスタマーサービスセンター 055-982-5051

■お問い合わせ先
HP: http://www.fa.omron.co.jp/support/
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