

Uninterruptible Power Supply (UPS)

S8BA

Backup Power for 24-VDC Devices in Control Panels for
Instantaneous Voltage Drops or Power Interruptions



- Smallest DIN rail-mounted UPS in its class
- The S8BA solves problems with power supply
- DC-DC UPS for efficient backup

New Value For Control Panels

Control Panels: The Heart of Manufacturing Sites.

Evolution in control panels results in large evolution in production facilities.

And if control panel design, control panel manufacturing processes, and human interaction with them are innovated, control panel manufacturing becomes simpler and takes a leap forward.

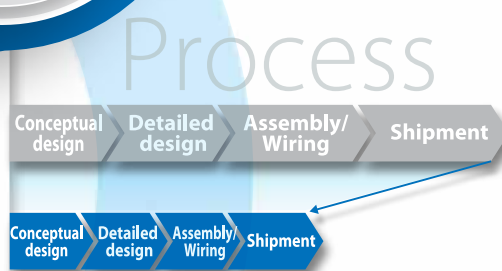
OMRON will continue to achieve a control panel evolution and process innovation through many undertakings starting with the shared Value Design for Panel *1 concept for the specifications of products used in control panels.

*1 Value Design for Panel



Our shared Value Design for Panel (herein after referred to as "Value Design") concept for the specifications of products used in control panels will create new value to our customer's control panels.

Combining multiple products that share the Value Design concept will further increase the value provided to control panels.



Panels

People



Backup Power for 24-VDC Devices in Control Panels for Instantaneous Voltage Drops or Power Interruptions

Smallest^{*1} DIN Rail-mounted UPS in Its Class

Impressive Space Saving. Downsize Panels Even Further by Also Using Slim Power Supplies.

Easy installation and wiring let you reduce assembly work.

Smallest in its class^{*1}

Uninterruptible Power Supply (UPS)
S8BA-24D24D120LF
(120 W)

Lightweight at Only 800 g^{*2}
Light enough to mount dependably to DIN Rail.

UL CERTIFIED CE LR
Support Exporting Overseas.

Lithium-ion Batteries^{*3}
Life Expectancy: 10 yrs.
(replaceable battery)

Switch Mode Power Supply
S8VK-S (120 W)



Life Size



100 mm

Plug-in Terminal Block
Just press bar terminals in for easy wiring

*1. In comparison of S8BA to products of the same class from other companies. According to OMRON investigation in April 2016.
*2. For the S8BA-24D24D120LF (120 W).
*3. Replacement Battery Pack sold separately.
*4. Refer to page 6.

Connections through USB, RS-232C, and I/O ports enable interlock shutdown with an industrial PC (IPC) or controller.
Use any of 3 connection methods.^{*4}

The S8BA Solves Problems with Power Supply

Power Supply Problems Are All Too Familiar

Instantaneous Voltage Drops or Power Interruptions Caused by Lightning Strikes

Lightning strikes occur more frequently than you might imagine.

Yearly Average Number of Days with Lightning Strikes Over the Past 10 Years Source: Japan Meteorological Agency

| Region | Hokkaido | Tohoku | Hokuriku | Koshin'etsu | Kanto | Tokai | Kinki | Chugoku | Shikoku | Kyushu and Okinawa |
|--------|----------|--------|----------|-------------|-------|-------|-------|---------|---------|--------------------|
| Days | 11.5 | 19.0 | 46.3 | 23.4 | 20.6 | 18.6 | 19.4 | 22.9 | 16.5 | 24.8 |

Momentary Power Interruptions or Power Interruptions Due to Natural Disasters or Local Conditions

Power interruptions can be caused by wind, rain, ice, snow, problems with power lines, accidents in factories, etc.

Voltage drops in factories can be caused by deterioration of facilities, high-volume motor operations in factories with expanded lines, etc.

Customer Problem

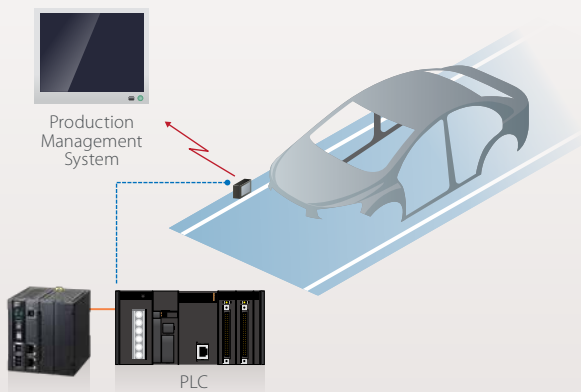
Line Stop Due to Lost Process Data

Problems with power lines caused instantaneous voltage drops in a factory, which reset the power supply to the Wireless Communications Unit that connects the PLC with the production management system and interrupted communications. This in turn caused the production management system to miss data, which resulted in line stops until the data could be recovered.

Solution

Interruptions in Communications Prevented with the S8BA

The S8BA was used to back up the power supply to the Wireless Communications Unit and PLC. This let process data be reliably communicated to the production management system, and lowered the risk of line stops.



Example of S8BA Application

Location: Automobile factory
 Equipment: Production management system
 Connected devices: Wireless Communications Unit and PLC

Customer Problem

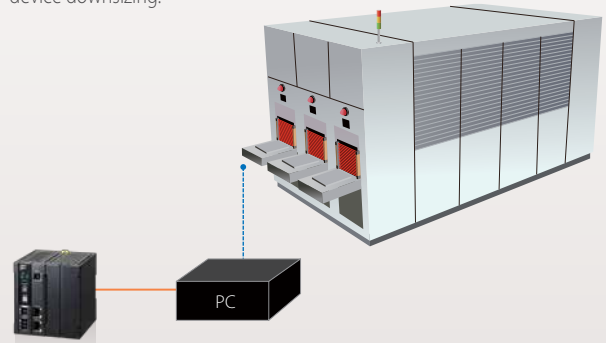
Loss of PC Data Due to Operating Errors

Maintenance technicians in a semiconductor manufacturing plant made procedural errors when stopping a device during equipment maintenance, causing the main power supply to suddenly turn OFF. The power supply to the PC used for SECS communications was turned OFF without shutting down the PC normally. This caused important data to be lost, and the factory suffered a long production stop.

Solution

S8BA Used to Enable Normal PC Shutdown

The S8BA was used to back up the power supply to the PC used for communications, and then the Simple Shutdown Software was installed on that PC. This prevented data losses during unexpected power interruptions by enabling the PC to shut down normally when power is lost. Also, the combination of a compact embedded PC with a compact UPS promoted device downsizing.



Example of S8BA Application

Location: Semiconductor manufacturing plant (post-process)
 Equipment: Semiconductor manufacturing device
 Connected device: PC

Problems with power supplies can also cause customers to lose confidence in you.

- System stoppages
- Damage to devices
- Data corruption

A UPS increases equipment stability and system reliability.



Customer Problem

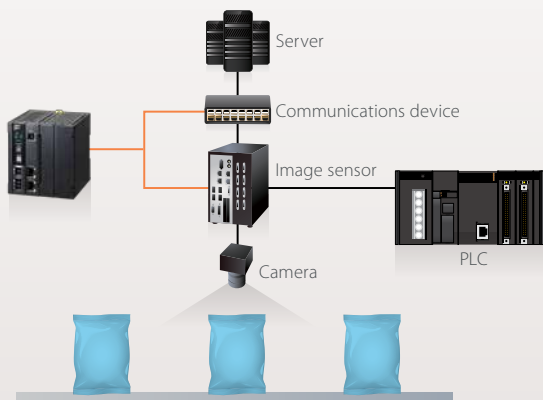
Image Data Lost Due to Momentary Power Interruptions

Image data is saved through a network to a host system to ensure traceability during printing inspection processes in a food factory, but an momentary power interruption due to a lightning strike reset the power supply to the image sensor and communications device, which prevented the image data from being saved to the host system.

Solution

Traceability Ensured with the S8BA

The S8BA was used to back up the power supplies to the image sensor and communications device. This allowed the system to continue to operate until the data is saved in the host system, which provided more-reliable traceability.



Example of S8BA Application

Location: Food factory
 Equipment: Image inspection devices
 Connected devices: Image sensor and communications device

Customer Problem

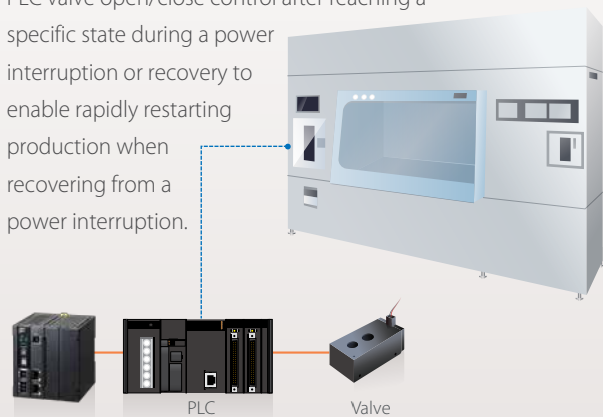
Loss of Valve Control Due to Power Interruption Caused by Lightning Strike

A lightning strike during a summer storm caused a power interruption at a factory. Due to the power interruption, it became impossible to control the valve that maintains sterile conditions in pharmaceutical manufacturing equipment that requires maintenance of sterile conditions. During recovery from the power interruption, the valve opened before the clean fans started normal operation. Sterile conditions were lost, and production stopped for a long time until the sterile conditions could be restored.

Solution

Control Continued before and after a Power Interruption with the S8BA

The S8BA was used to back up the power supply to the valve. An I/O signal from the S8BA was used to communicate with the PLC valve open/close control after reaching a specific state during a power interruption or recovery to enable rapidly restarting production when recovering from a power interruption.



Example of S8BA Application

Location: Pharmaceuticals factory
 Equipment: Pharmaceutical manufacturing devices
 Connected devices: PLC and valve

DC-DC UPS for Efficient Backup

Three Features of the S8BA

Device Safety

Using a DC control section and building in the power section improves equipment safety.

Cost Reductions and Control Panel Downsizing

The use of a compact UPS allows you to downsize and build in the power section, which eliminates the need for a separate panel or wiring rack.

Reduced Work in Design and Management

All models are for 24 VDC to facilitate design, management, and maintenance.

Flexibly design your control panels and equipment.
Select the UPS with the optimum output capacity.

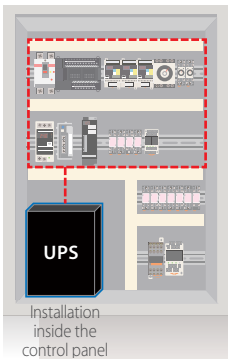
Greater Design Flexibility/Select the Optimum Output Capacity

AC-AC UPS

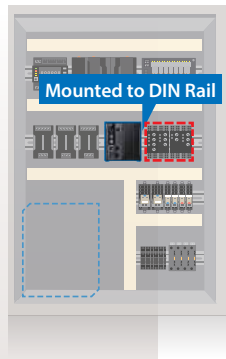
- This type of UPS is large, so it must be installed outside the control panel or it requires excessive space inside the control panel.
- All of the equipment connected to the Switch Mode Power Supply must be backed up, so you must install a UPS with a large output capacity.



Installation outside the control panel



Installation inside the control panel



Mounted to DIN Rail

DC-DC UPS

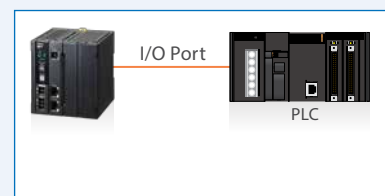
- The compact body mounts to DIN Rail to save space. This increases design flexibility.
- With a DC-DC UPS, efficiency is increased because you can back up only the required equipment. You can select the UPS with the optimum output capacity.

Use Any of Three Connection Methods

USB/RS-232C



I/O Port



| | |
|--|---|
| Automatic shutdown software for UPS: Simple Shutdown Software | Install the Simple Shutdown Software on a PC (Windows, Linux, or other OS) that is connected to the UPS with a USB or RS-232C connection to automatically and safely shut down the PC when normal power is interrupted. |
| UPS Setting Utility Software | The UPS Setting Utility is a software application used to set up the UPS. You can use this software to easily change UPS settings. |

Ordering Information

Uninterruptible Power Supplies (UPSs)

| Input voltage | Output voltage | Output current / Power rating | Model |
|---------------|----------------|-------------------------------|------------------|
| 24 VDC | 24 V | 5 A/120 W | S8BA-24D24D120LF |
| | | 10 A/240 W | S8BA-24D24D240LF |
| | | 15 A/360 W | S8BA-24D24D360LF |
| | | 20 A/480 W* | S8BA-24D24D480LF |

* The values are 16.7 A/400 W for use under UL standards.

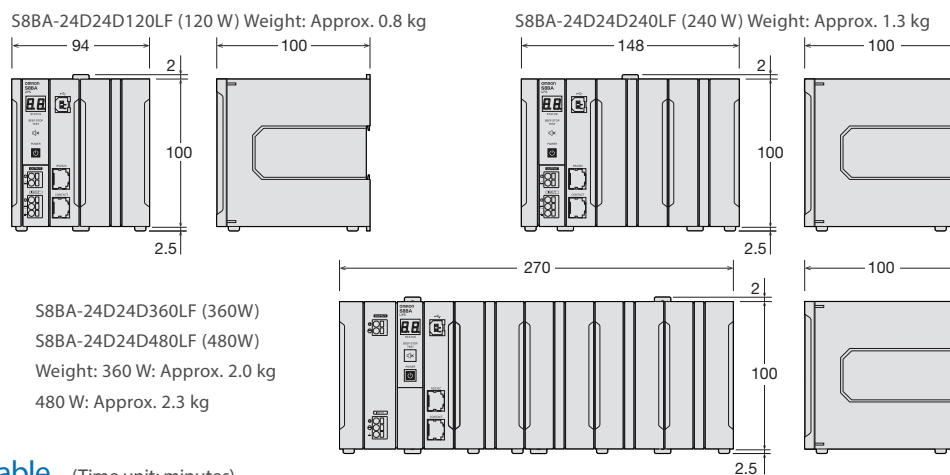
Connection Cable

| Specifications | Type | Length | Model |
|------------------|--------------------|--------|----------|
| For RS-232C port | RJ45/D-sub 9-pin | 2 m | S8BW-C01 |
| For CONTACT port | RJ45/Discrete wire | | S8BW-C02 |

Replacement battery pack

| Rated voltage | Rated capacity | Weight | Model |
|---------------|----------------|--------|------------|
| 14.4 VDC | 1600 mAh | 0.3 kg | S8BA-B120L |

Dimensions (Unit: mm)



Backup time table (Time unit: minutes)

| | Capacity (W) | | | | | | | | | |
|------------------|--------------|----|----|-----|-----|-----|-----|-----|-----|-----|
| | 30 | 60 | 90 | 120 | 180 | 240 | 300 | 360 | 420 | 480 |
| S8BA-24D24D120LF | 29 | 14 | 9 | 6 | – | – | – | – | – | – |
| S8BA-24D24D240LF | 58 | 29 | 19 | 15 | 9 | 6 | – | – | – | – |
| S8BA-24D24D360LF | 87 | 43 | 28 | 22 | 14 | 10 | 8 | 6 | – | – |
| S8BA-24D24D480LF | 119 | 59 | 39 | 29 | 19 | 15 | 11 | 9 | 8 | 6 |

Note: The above backup times are for reference only. They may change depending on the battery life and external environment (such as temperature).

I/O signal functions

Type of output signals

| Signal | Description |
|--|---|
| Backup signal output (BU) | Stays ON during backup operation at a power failure. |
| Battery LOW signal output (BL) | Goes ON when the battery becomes weak during backup operation at a power failure. |
| Trouble signal output (TR) | Goes ON when an internal failure of the UPS occurs or when the battery life counter expires. |
| Battery replacement signal output (WB) | Goes ON when the test determines that battery replacement is necessary due to deterioration or when the battery life counter reaches the replacement period. (The life counter operates while input power is being supplied.) |

Type of input signals

| Signal | Description |
|-------------------------------|---|
| Backup stop signal input (BS) | When the BS signal is ON (High), the output of the UPS is stopped after the time period specified in advance has elapsed. * |
| Remote ON/OFF signal | Remote ON/OFF signals can be used to start and stop the UPS, by using either an externally connected contact or the ON/OFF status of the open collector circuit. When signal is OFF, the UPS will be turned on. When signal is ON, the UPS will be turned off. In the factory settings, the UPS stops operation when this is short-circuited. In addition, it is necessary to turn on the "Power" switch of UPS to use this function. |

* BS signal delay time: It is possible to set the period of time from when a BS signal is received until the output of the UPS is stopped. The output of the UPS can be stopped by inputting the voltage signal (High).

I/O signal port (RJ45 connector)

| Outlook of the connector | Pin number | Item | Pin number | Item |
|--------------------------|------------|----------------------------|------------|--|
| | 1 | Backup signal output (BU) | 5 | Battery LOW signal output (BL) |
| | 2 | Remote ON/OFF input (-) | 6 | Backup stop signal input (BS) |
| | 3 | Trouble signal output (TR) | 7 | Battery replacement signal output (WB) |
| | 4 | COMMON (COM) | 8 | Remote ON/OFF input (+) |

Products That Create New Value in Control Panels



Switch Mode Power Supplies S8VK-S



Uninterruptible Power Supply (UPS) S8BA



Power Monitors KM-N2



Digital Temperature Controllers E5CC-B/E5EC-B



Measuring and Monitoring Relays K8DT



Solid-state Timers H3DT



Solid-state Timers H3Y-□-B/H3YN-B



Solid-state Timers H3RN-□-B



Liquid Leakage Sensor Amplifiers K7L-□□B



Sockets for MY series, H3Y-□-B and H3YN-B PYF-PU-□



Sockets for G2R-S, H3RN-□-B and K7L-□□B P2RF-PU



Slim I/O Relays G2RV-SR



Slim I/O Relays G3RV-SR



I/O Relay Terminals G70V



Solid State Relays for Heaters G3PJ



DIN Track Terminal Blocks XW5T

Panel Assist Web

www.ia.omron.com/solution/panel/



Proposal for Innovation of Control Panel Building
Cat. No. Y218

Refer to the S8BA Uninterruptible Power Supply (UPS) Datasheet (Cat. No. U701) for details.

Before you place an order, please read and understand "Agreement for Using the Product" available on Omron's latest "Best control devices Omron", "General Brochure" or Omron's website.

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