

Uninterruptible Power Supply (UPS)

S8BA

Backup power for 24VDC Devices in Control Panels, which experience instantaneous voltage drops or power interruptions



- Small UPS mounted on DIN rail
- S8BA provides backup power during momentary power losses and power failures

New Value For Control Panels

Control Panels: The Heart of Manufacturing Sites.

Recent evolutions in control panel design and manufacturing are benefiting panel builders as well as end users and machine builders, resulting in an evolution within production facilities that reduces total cost of ownership. With the goal of making panel manufacturing simpler and more efficient, we have developed new techniques and technologies for panel design, panel manufacturing and wiring. Our Value Design for Panel concept guides the development of control panel products that reduce time and labor costs, power consumption, and control cabinet size.

*1 Value Design for Panel Concept Advantages



Specifications for Value Design products focus on uniform mounting height and depth, reduced overall volume and side-by-side mounting to make room for more components. Wiring capabilities without tools using front access Push-In Plus wiring terminals decreases installation time.

A panel built around Value Design Concept products provides competitive advantages for panel builders, machine builders and end users. Combining multiple products that share the Value Design Concept increases the value to all stakeholders involved with control panel design and use.

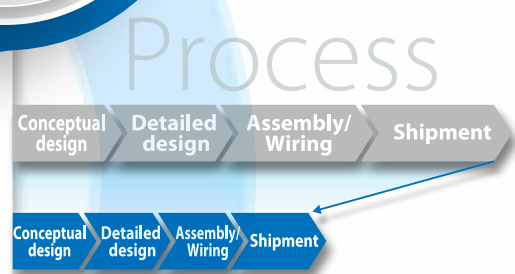


Innovation for panel building Process

Further Evolution for Panels

New Value For Control Panels

Simple & Easy for People



Panels

People



Backup power for 24VDC Devices in Control Panels, which experience instantaneous voltage drops or power interruptions

Small UPS mounted on a DIN rail

Impressive space saving design. Downsize panels by using S8BA with S8VK-S slim power supplies. Easy installation with Push-In Plus technology, which reduces panel wiring time..

Smallest in its class*1

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

Small and light UPS weighs only 800 grams*2
Light enough to mount reliably to DIN rail..

UL CERTIFIED CE LR
Support Exporting Overseas.

Lithium-ion Batteries*4
Life Expectancy: 10 yrs.*5
(replaceable battery)

Switch Mode Power Supply S8VK-S (120 W)



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

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.*6

*1. In comparison of S8BA to products of the same class from other companies. According to OMRON investigation in March 2018.
*2. For the S8BA-24D24D120LF (120 W).
*3. Battery-integrated type only.

*4. Replacement Battery Pack sold separately.
*5. Ambient temperature 25°C. Expected life under standard usage conditions; not a guaranteed value.
*6. Refer to page 6.
Note: If a switching power supply will be installed in front of the UPS, take the connection load capacity and internal power consumption of the UPS into consideration when selecting the UPS.

Capacity ↑	960W (40A)		<p>S8BA-24D24D960SBF + S8BA-S960L</p>
	480W (20A)	<p>S8BA-24D24D480LF</p>	<p>S8BA-24D24D480SBF + S8BA-S480L</p>
	360W (15A)	<p>S8BA-24D24D360LF</p>	
	240W (10A)	<p>S8BA-24D24D240LF</p>	
	120W (5A)	<p>S8BA-24D24D120LF</p>	
		DC/DC UPS Battery-integrated type	DC/DC UPS Battery-separated type

A lineup of integrated and separated battery types lets you select the optimum power backup time.

The S8BA provides backup power during momentary power losses and power failures

Power Supply Problems Are All Too Familiar

Look how often lightning strikes! Lightning increases the risk of momentary power losses and power failures. 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 facility deterioration, high-volume motor operation, expanded production lines, etc.

Example of S8BA Application

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

Customer Problem

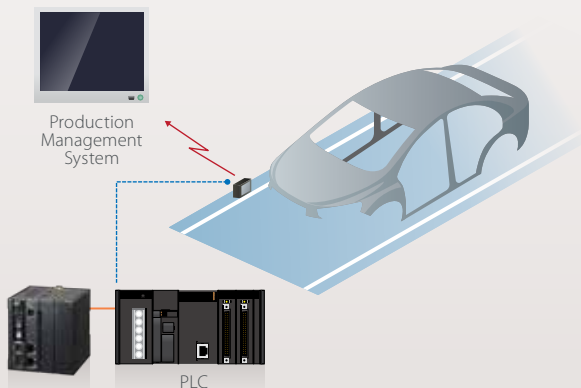
Line Stop Due to Lost Process Data

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

Customer Problem

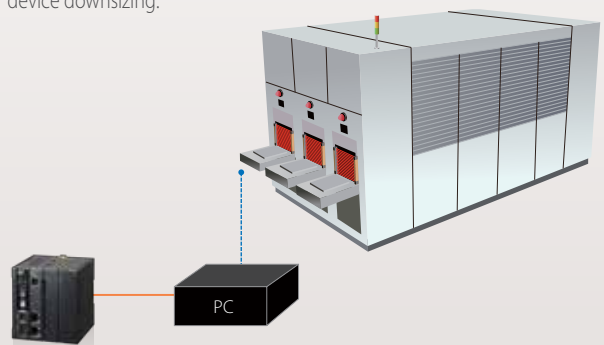
Loss of PC Data Due to Operating Errors

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.



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.



Example of S8BA Application

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

Customer Problem

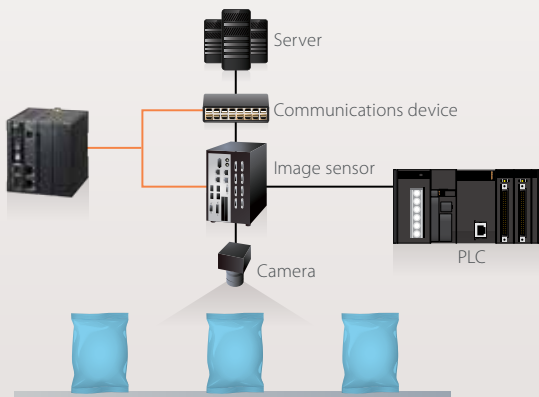
Image Data Lost Due to Momentary Power Interruptions

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

Customer Problem

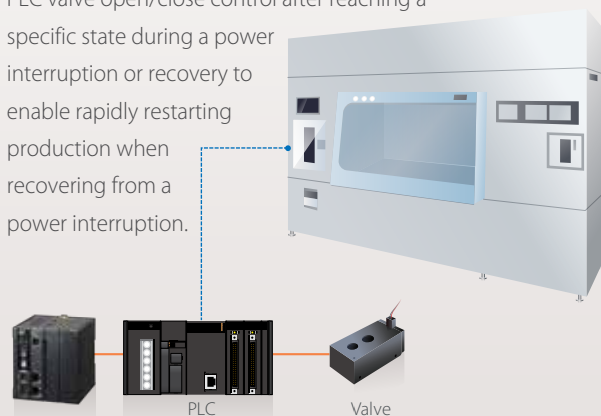
Loss of Valve Control Due to Power Interruption Caused by Lightning Strike

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.



DC-DC UPS for Efficient Backup

Three Features of the S8BA

Device Safety

Protects DC equipment issues due to momentary power loss or power failure.

Cost Reductions and Control Panel Downsizing

Compact UPS allows you to downsize the power section of your panel, eliminating 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.

Increases design freedom for the control panel and devices with the optimum output capacity.

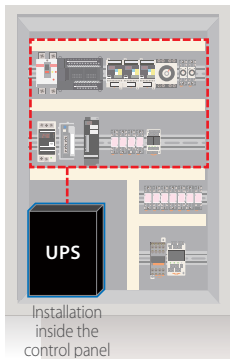
Greater Design Flexibility/Select the Optimum Output Capacity

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

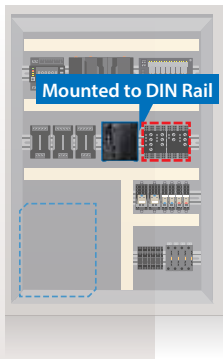


Installation inside the control panel



DC-DC UPS

- The compact body mounts to DIN rail to save space and increase 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.



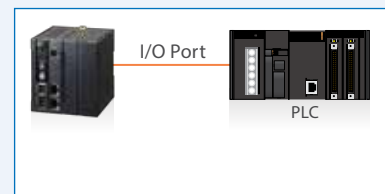
Mounted to DIN Rail

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.

· Windows is a registered trademark or trademark of the Microsoft Corporation in the U.S.A., Japan, and other countries.
 · Linux is a trademark or registered trademark of Linus Torvalds in the USA and other countries.

Ordering Information

Main body

Uninterruptible Power Supply (UPS) / Battery-integrated type

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

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

Uninterruptible Power Supply (UPS) / Battery-separated type

• Control Unit Part

Input voltage	Output voltage	Output current / Power rating	Model
24 VDC	24 VDC	20A/480W	S8BA-24D24D480SBF
		40A/960W	S8BA-24D24D960SBF

• Battery unit part

Rated voltage	Rated capacity	Weight	Model
25.2 VDC	3900mAh	Approx. 1.5kg	S8BA-S480L
25.2 VDC	7800mAh	Approx. 2.5kg	S8BA-S960L

Note: The control unit (S8BA-24-D24D960SBF) and battery unit (S8BA-S480L) cannot be connected.

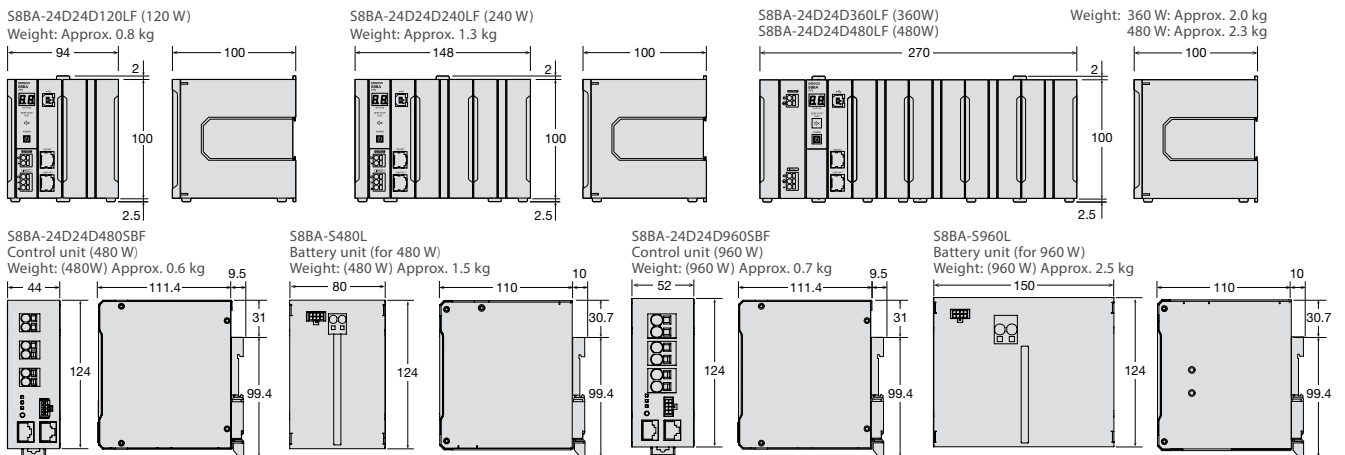
Connection Cable

Specifications	Type	Length	Model
For RS-232C port	RJ45/Dsub9Pin	2m	S8BW-C01
For CONTACT port	RJ45/Discrete wire		S8BW-C02

Replacement battery pack

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

Dimensions (Unit: mm)



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 goes off-scale.

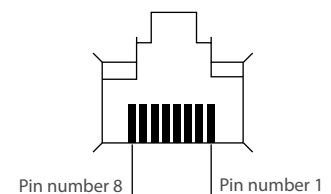
Type of input signals

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	Cable color	Item
	1	White/orange	Backup signal output (BU)
	2	Orange	Remote ON/OFF input (-)
	3	White/green	Trouble signal output (TR)
	4	Blue	COMMON (COM)
	5	White/blue	Battery LOW signal output (BL)
	6	Green	Backup stop signal input (BS)
	7	White/brown	Battery replacement signal output (WB)
	8	Brown	Remote ON/OFF input (+)



Backup time table (Time unit: minutes)

	Capacity (W)																	
	30	60	90	120	180	240	300	360	420	480	540	600	660	720	780	840	900	960
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	-	-	-	-	-	-	-	-
S8BA-24D24D480SBF + S8BA-S480L	134	63	41	29	19	15	11	9	8	6	-	-	-	-	-	-	-	-
S8BA-24D24D480SBF + S8BA-S960L	290	138	94	66	43	30	24	20	16	14	-	-	-	-	-	-	-	-
S8BA-24D24D960SBF + S8BA-S960L	290	138	94	66	43	30	24	20	16	14	13	12	11	10	9	8	7	6

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

Products That Create New Value in Control Panels

Switch Mode Power Supplies
S8VK-S

Uninterruptible Power Supply (UPS)
S8BA

Power Monitors
KM-N2/KM-N3

Machine Automation Controllers
NX Series
NX1P

Measuring and Monitoring Relays
K8DT

Solid-state Timers
H3DT

Solid-state Timers
H3Y(N)-B

Solid-state Timers
H3RN-B

Liquid Leakage Sensor Amplifiers
K7L-B

EtherCAT Slave Terminals
NX Series
NX-IO

Sockets for Relays with Forcibly Guided Contacts (for G7SA)
P7SA-PU

Common Sockets (for MY/H3Y(N)-B)
PYF-PU(L)

Common Sockets (for G2R-S/H3RN-B/K7L-B)
P2RF-PU

Slim I/O Relays
G2RV-SR

Slim I/O Relays
G3RV-SR

I/O Relay Terminals
G70V

DIN Track Terminal Blocks
XW5T

Pushbutton Switches
A22N-P/A30N-P/M22N-P

Emergency Stop Switches
A22NE-P

Solid State Relays for Heaters
G3PJ

Digital Temperature Controllers
E5CC-B/E5EC-B

Digital Temperature Controllers
E5CD-B/E5ED-B

Panel Assist Web

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

OMRON AUTOMATION AMERICAS HEADQUARTERS • Chicago, IL USA • 847.843.7900 • 800.556.6766 • www.omron247.com

OMRON CANADA, INC. • HEAD OFFICE
Toronto, ON, Canada • 416.286.6465 • 866.986.6766 • www.omron247.com

OMRON ELECTRONICS DE MEXICO • HEAD OFFICE
México DF • 52.55.59.01.43.00 • 01-800-226-6766 • mela@omron.com

OMRON ELECTRONICS DE MEXICO • SALES OFFICE
Apodaca, N.L. • 52.81.11.56.99.20 • 01-800-226-6766 • mela@omron.com

OMRON ELETRÔNICA DO BRASIL LTDA • HEAD OFFICE
São Paulo, SP, Brasil • 55.11.2101.6300 • www.omron.com.br

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