

Industrial Automation Guide 2016



Industrial Products & Systems

industrial.omron.eu

Targeted Technologies

Creating maximum output with minimum input

By identifying the many ways of innovation in specific industries we developed the 'targeted technologies' concept. It's a way of thinking about technology in a prioritized format. Prioritized according to our customers' most pressing needs. The result? A set of solutions that make immediate impact on the core of our customers' businesses. A set of solutions that hit the target every time. Take a look at the examples on our website.

industrial.omron.eu/technologies



PROplus Line

If you have a complex application or one where you need to address special needs, then the PROplus Line is the answer. That's because PROplus products are designed to be customisable.

The possibility to modify a PROplus product means that your application is unique. However, this does not mean that the PROplus Line is not a ready-made solution. On the contrary, it is a challenge.

For example, the PROplus 4000 series is designed to be modified to meet your needs. It can be modified to meet your needs in terms of I/O, communication, and more. This makes the PROplus 4000 series a challenge.

EE-NH temperature controller

The new EE-NH series is the most powerful and precise temperature controller. It features a 16-bit ADC and a 16-bit DAC. It also has a 16-bit timer and a 16-bit counter. It is designed to be modified to meet your needs.

The 361° Approach



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Technologies

Creating maximum output with minimum input

Whatever type of automated machinery you are specialized in, you know that there are many ways to innovate. You are already aware that there are many possible areas for improvement. But where do you start? Where do you focus your efforts? Where can you make the biggest difference with the least amount of effort?

At Omron, we asked ourselves these questions too. And by identifying the answers in specific industries we developed the 'targeted technologies' concept. It's a way of thinking about technology in a prioritized format. Prioritized according to our customers' most pressing needs. The result? A set of solutions that make immediate impact on the core of our customers' businesses. A set of solutions that hit the target every time. Take a look at the examples below.

Technologies

Sysmac: the all-in-one platform

We know that machine builders prefer different product solutions for different challenges. But this can cause hierarchy headaches and communications issues. That's why we developed Sysmac: a single unified platform that is open, scalable, flexible, and totally focused on maximising the speed and flexibility of machines. A platform that integrates robotic, motion and sequential logic control into a single multitasking system.

[Learn more](#)



361°: the perfect match

When it comes to sensors and components, we know that our customers all have different needs. That's why our product development in this area is driven by the 361° Approach. It produces product families that offer a total all-round choice. From quality products suited to standard environments to specialist devices that can handle extremes. A full circle of choice, all with an extra degree of quality and proven reliability.

[Learn more](#)



The 361° portfolio

PROplus
PROplus products are designed for specialty applications or customer demands.

[Learn more](#)



LITE

LITE sensors are the most effective without any compromise in quality.

[Learn more](#)



PRO

PRO sensors offer extra performance in your sensors and components. The Omron PRO Line is your perfect choice.

[Learn more](#)



Grinding made easy

Sysmac controller provides a flexible platform. With Sysmac, you can manage the entire grinding process. It is designed to be modified to meet your needs.

Sysmac 100
Sysmac 100 is a single unified platform that is open, scalable, flexible, and totally focused on maximising the speed and flexibility of machines.

Sensors
Sensors are the most effective without any compromise in quality.

Robotics
Robotics are the most effective without any compromise in quality.

Related product news
Related product news are the most effective without any compromise in quality.

Related product news
Related product news are the most effective without any compromise in quality.

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Welcome to our world

Our best-in-class devices for your automation system

Welcome to Omron's world of advanced industrial automation. The INDUSTRIAL AUTOMATION GUIDE is your essential tool to select best-in-class devices for your automation system. It highlights our core competences in sensing, control, visualisation, motion and panel components.

Of course, Omron offers a much larger range of products than you can find on the attached DVD. For more information on services and company competence visit our website.

Here you will find:

- Latest product news
- Technical product specifications
- 2D / 3D CAD Library
- Customer references
- Technology concepts
- Supporting product documentation
- Knowledge Base - "myOmron"
- Events Calendar
- Contact information

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“To the machine the work of the machine,
to man the thrill of further creation.”

Kazuma Tateisi, founder of Omron

Omron at a glance

200.000 products ranging
input, logic and output

Sensing, Control Systems, Visualization, Drives, Robots, Safety,
Quality Control & Inspection, Control and Switching Components

7%

Investment in Research & Development

Innovation track
record of 80 years

Top 150 global patent assignee

1.200 employees dedicated to R&D

11.000 + issued and pending patents

37.000

Employees worldwide

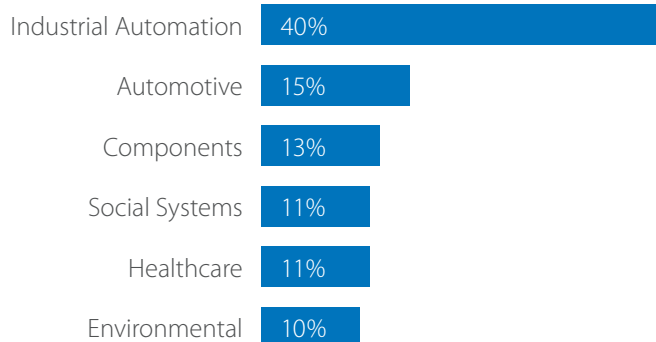
210

Locations worldwide

22

Countries in EMEA

Working for the
benefit of society



Close to your needs

Technical training & seminars, technical support, Automation Technology Centers, online community (MyOmron), online catalogues and technical documentation, customer service & sales support, inter-operability labs (Tsunagi), safety services, repairs.

Your needs, our focus

Solutions perfectly matching your needs

We asked ourselves: 'What do you need in sensors and components?' Well, first you need reliability. Then a variety and choice of performance levels. You may also want advanced functionality, with special features defined by you – or you may want standardized solutions, with highly competitive prices.

Whatever it is, it can all add up to a wish list that is difficult to fulfil. Until now. That's because our new 361° Approach not only provides a complete all-round offer without gaps, it also puts you at the very centre of the product selection process. It's an approach that leads to a Perfect Match – one with the extra degree of confidence that comes from choosing Omron.

361° in one view



Quality



Line-up



Application



Customization



Global availability



Specs

	Quality	Line-up	Application	Customization	Global availability	Specs
PRO^{plus}	Premium	Tailored	Special	Yes	Yes	Application oriented
PRO	Premium	Complete	Advanced	Yes	Yes	Above Standard
LITE	Premium	Standard	Basic	No	No	Basic
	'Quality' refers to the standard of manufacturing and the materials used – this translates into reliability	'Line-up' refers to the number of model types	'Application' indicates the complexity of the automation	'Customization' is the possibility to modify the product		'Specs' refers to the choice of performance levels

The extra degree of advantage

Three distinct lines of sensors and components

Three distinct lines

361° Approach offers three distinct lines within each sensor or component product category. LITE products are cost-effective without any compromise in quality. PRO products represent the “install & forget” option, offering longer lifetime, higher protection, and more features. While PROplus products are designed for specific applications or customer demands.

Optimized reliability

All three lines are backed by the Omron commitment to quality, so even when you need a price-competitive advantage, you can be confident that they will never let you down.

Solutions that perfectly match your needs

The 361° Approach ensures that you can quickly and easily identify the perfect match solution to your needs – nothing more, nothing less.

Optimized costs

Your sensor and component costs are also minimized – because it eliminates over-specification.

Why an extra 1°?

The extra degree is what you get when you do business with Omron, and that means different things to different customers – all depending on their needs. For example, if you need specification advice, the extra degree is ‘service’. But ultimately, to everyone it means “an extra degree of confidence in the perfect match”.



Sysmac: A fully integrated platform

Integration and Functionality

Sysmac is an integrated automation platform dedicated to providing complete control and management of your automation plant. At the core of this platform, the Machine Controller series offers synchronous control of all machine devices and advanced functionality such as motion, robotics and database connectivity. This multidisciplinary concept allows you to simplify solution architecture, reduce programming and optimize productivity.



Machine Automation Controller

FACTORY
AUTOMATION

MACHINE
CONTROL



Motion



Filling line

- Motion Control: Integrated within the IDE, and operating in real-time
- Standard PLCopen Function Blocks plus Omron generated motion FB's
- Direct Synchronous control for Position, Speed and Torque



Safety



Assembly

- All safety related data is synchronized with the whole network
- Safety functions such as muting, guard locking, EDM and valve monitoring are simple to manage

- ✓ **One Integrated Development Environment software** for Configuration, Programming, Simulation and Monitoring



Information



- Sysmac communicates in real-time with Databases such as SQL
- Secure Data: In the event of a server going down or losing communications, data is automatically stored in internal memory
- Sysmac operates with Databases at high speed [1000 table element/ 100 ms] ensuring realistic Big Data Processing to improve productivity and aid predictive maintenance etc.

✓ Integrated Automation Control:

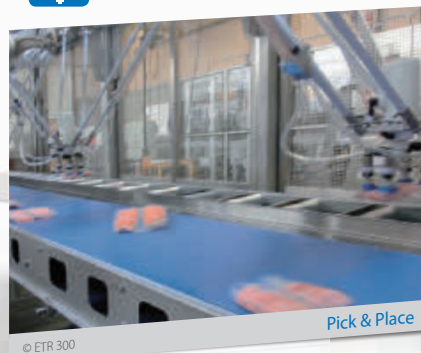
The Sysmac platform is scalable and provides the performance and functionality for a wide range of solutions from simple machines through to manufacturing cells

Vision



- Higher resolution images available without increasing the vision processing time
- Shape search technology: Provides more stable and accurate object detection for Pick & Place projects

Robotics



- Up to 8 Delta robots with one controller
- Time-based Robotic Function Blocks make programming easier

Sensing



- Full control of the process parameter setting and predictive maintenance functions
- High precision detection and positioning data synchronized on the network

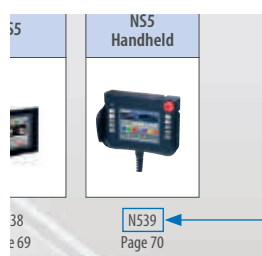
Product selection table

Automation systems				
	12 Machine automation controller	26 Programmable logic controllers (PLC)	54 Remote I/O	68 Human machine interfaces (HMI)
				
	96 Motion controllers	112 Servo systems	170 Robots	202 Frequency inverters
Sensing				
	236 Photoelectric sensors	278 Mark and Color sensors	284 Lightcurtains and area sensors	292 Fiber optic sensors and amplifiers
				
	370 Inspection & Ident systems	426 Measurement sensors		
Safety				
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	574 Temperature controllers	596 Power supplies	614 Uninterruptible power supplies (UPS)	622 Timers
Switching components				
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Software				

Control components

Find information fast!

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Quick Link

Control components

Temperature controllers	574	Timers	622
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Basic temperature controllers		Analog solid state timers	
E5C2	579	H3DS	627
E5CSV	581	H3DK	628
E5CB	582	H3YN	629
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General purpose temperature controllers		Counters	632
E5_C	583	Selection table	634
Advanced and Multi-Loop controllers		Totalisers	
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E5_R/E5_R-T	589	H7ET	637
CelciuX® (EJ1)	591	H7ER	638
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Selection table	598	Programmable relays	
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Uninterruptible power supplies (UPS)

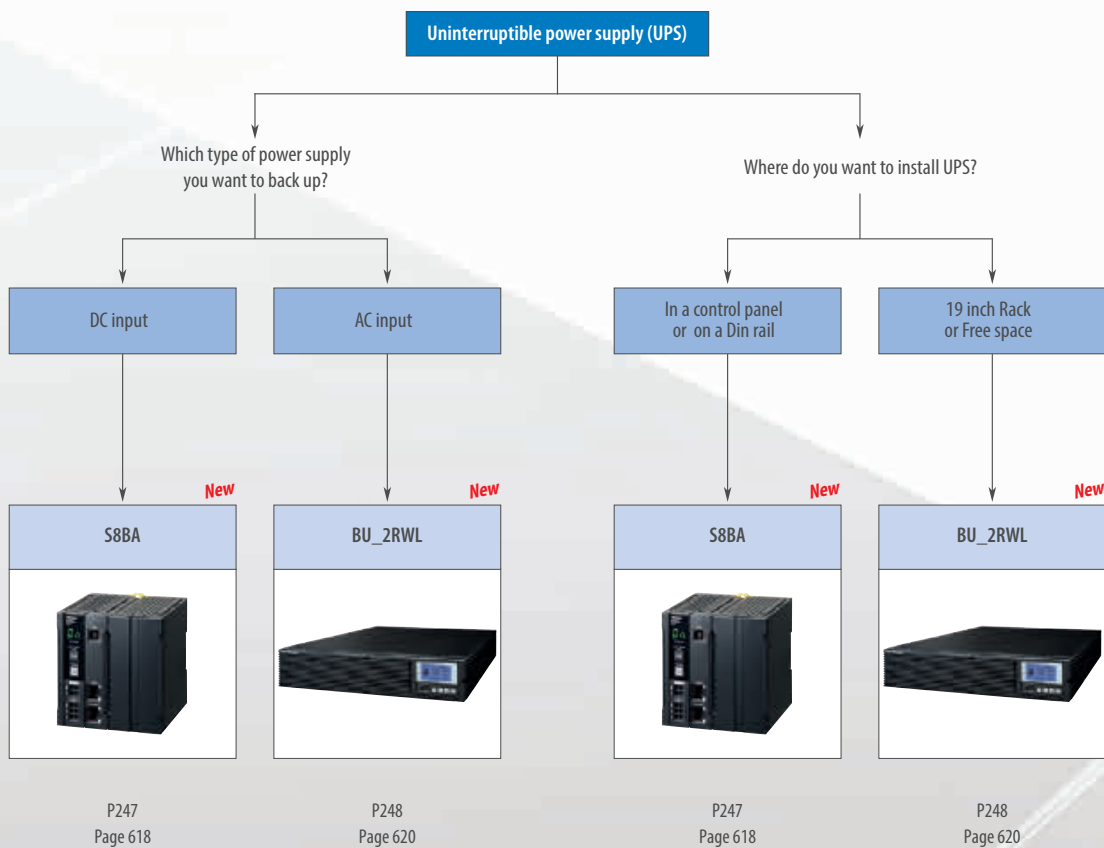
RELIABLE AND EASY OPERATION – WORLDWIDE



S8BA

The easy DIN-rail mountable, DC-DC type UPS is ideal countermeasure for momentary voltage drops and power failures of industrial computers (IPCs) and controllers, switching power supply. They secure full functional reliability of systems by backing up the supply of 24 VDC power source for a guaranteed period of time.

BU_2RWL

- Multiple mounting online AC-AC type UPS, useful in variety of applications.
- They are available as a stand-alone device or for mounting in a 19" rack.
- Optimum UPS for industrial equipment and embedded applications.
- UPS devices are single-phase uninterruptible power supplies.



S8BA					BU_2RWL			
								
Model	S8BA-24D24D120LF	S8BA-24D24D240LF	S8BA-24D24D360LF	S8BA-24D24D480LF	BU2002RWLG	BU3002RWLG	BU5002RWLG	
Selection Criteria	Type	Din-rail mounting				19 inch rack mounting		
	Input-Output type	DC-DC				AC-AC		
	Phases	Single phase						
	Input rated voltage/Maximum current	24 VDC/5.9 A	24 VDC/11.7 A	24 VDC/17.5 A	24 VDC/23.3 A	200 to 240 VAC/9 A	200 to 240 VAC/14 A	200 to 240 VAC/23 A
	Input terminal	Push-in terminal block				Terminal block		NEMA L6-30P/ Terminal block
	Output rated voltage/Maximum current	24 VDC/5 A	24 VDC/10 A	24 VDC/15 A	24 VDC/20 A	Terminal block		NEMA L6-30P/ Terminal block
	Output terminal	Push-in terminal block				Terminal block		NEMA L6-30R × 2, Terminal block
Power	120W	■	–	–	–	–	–	
	240W	–	■	–	–	–	–	
	360W	–	–	■	–	–	–	
	480W	–	–	–	■	–	–	
	1400W	–	–	–	–	■	–	
	2100W	–	–	–	–	–	■	
	3500W	–	–	–	–	–	–	■
Battery	Type	Lithium-ion				Sealed lead		
	Expected battery life	2.5 years (50°C), 5 years (40°C), 10 years (25°C)				2.5 year (40°C), 5 years (25°C)		
	Hot swapping	■						
	Backup time (Maximum power)	6 min				5 min		
	Auto battery check function	■						
	Battery life counter function	■						
Features	Under voltage alarm	■						
	Overvoltage protection	■						
	Overload protection	■						
	UL508	■				–		
	C22.2 No.107.1-01	■				–		
	UL1778	–				■		
	CE	■						
	VCCI class A	–				■		
	Serial communication/ RS232C (Interface terminal)	■ (RJ45)				■ (D-sub 9pin)		
	Serial communication/USB (Interface terminal)	■ (B connector)				–		
I/O signal	■ (RJ45)				■ (D-sub 9pin)			
Page/Quick Link		618/P247				620/P248		



Compact DC-DC UPS with a DIN-rail for mounting, best suited for the prevention of voltage drop and power failure in industrial PCs (IPC)/controllers

- System reliability greatly improved because 24 VDC power supply is backed up for a certain period of time in the event of voltage drop or power failure.
- Compact, weight reduction, and long battery life thanks to the adoption of a lithium-ion battery.
- Push-in terminal block adopted for the power input and output connections.
- Shutdown in conjunction with the IPC or controller realized by the USB, RS-232C, I/O port installed in the UPS.

Ordering information

Uninterruptible power supply (UPS)

Input voltage	Output voltage	Output current/capacity	Battery type	Terminal block shape	Order code
24 VDC	24 VDC	5 A/120 W	Lithium-ion battery	Push-in terminal block	S8BA-24D24D120LF
		10 A/240 W			S8BA-24D24D240LF
		15 A/360 W			S8BA-24D24D360LF
		20 A/480 W ^{*1}			S8BA-24D24D480LF

^{*1} 16.7 A/400 W for use as a UL compliant device.

Communication cable

Specifications	Type	Length	Order code
For RS-232C port	RJ45/Dsub9Pin	2 m	S8BW-C01
For Contact port	RJ45/Discrete wire x 8P	2 m	S8BW-C02

Specifications

Item	Capacity		120 W	240 W	360 W	480 W ^{*1}
DC input	Rated input voltage		24 VDC			
	Input voltage range	(When standard voltage sensitivity is set)	24 VDC±10%			
		(When low voltage sensitivity is set)	24 VDC±12.5%			
		(When high voltage sensitivity is set)	24 VDC±5%			
	Input maximum current	(for rated input voltage)	5.9 A	11.7 A	17.5 A	23.3 A ^{*2}
	Input terminal		Push-in terminal block			
Inrush current		12 A max., 0.1 ms max.	14 A max., 0.1 ms max.	16 A max., 0.1 ms max.		
DC output	Rated current	(for rated output voltage)	5 A	10 A	15 A	20 A ^{*3}
	Switching time		Uninterrupted			
	Output voltage	Normal operation	Output of input voltage as-is			
		Backup operation	24 V±5%			
	Output terminal		Push-in terminal block			
Battery	Type		Lithium-ion battery			
	Rated voltage		14.4 VDC			
	Rated capacity		1600 mAh × 1 parallel	1600 mAh × 2 parallel	1600 mAh × 3 parallel	1600 mAh × 4 parallel
	Expected battery life ^{*4}		2.5 years (50°C), 5 years (40°C), 10 years (25°C)			
	Replacement by user		Yes (Hot swapping)			
	Charging time		4 hours ^{*5}			
Backup time (25°C, initial characteristics)			6 min. (120 W)	6 min. (240 W)	6 min. (360 W)	6 min. (480 W)
Environment	Operating ambient temperature/humidity		0 to 55°/10 to 90% (with no condensation)			
	Storage ambient temperature/humidity		-20° to 55°/10 to 90% (with no condensation)			
Enclosure	Dimensions (W × D × H mm)		94 × 100 × 100	148 × 100 × 100	270 × 100 × 100	
	Weight of unit		Approx. 0.8 kg	Approx. 1.3 kg	Approx. 2.0 kg	Approx. 2.3 kg
	Cooling method		Natural cooling			
Safety standard compliance			UL508/CE/C22.2 No.107.1-01			
Internal power consumption (normal ^{*6} /maximum ^{*7})			7 W/22 W	11 W/41 W	14 W/60 W	18 W/80 W
Serial communication	RS232C (Interface terminal)		Yes (RJ45)			
	USB (interface terminal)		Yes (B connector)			
I/O signal			Yes (RJ45)			

^{*1} 400 W for use as a UL compliant device.

^{*2} 20 A for use as a UL compliant device.

^{*3} 16.7 A for use as a UL compliant device.

^{*4} An estimated value for standard mounting. Not a guaranteed value.

^{*5} When using in an environment at a high temperature, charging may be paused by charging temperature protection, then the charging time will be longer than specified time.
“CS” will be displayed when charging temperature protection is operated.
^{*6} Conditions: With rated loads connected, at a rated input voltage, and with the battery fully charged.
^{*7} Conditions: With rated loads connected, at a rated input voltage, and at the maximum battery charging current.

Backup time table (Time unit: minutes)

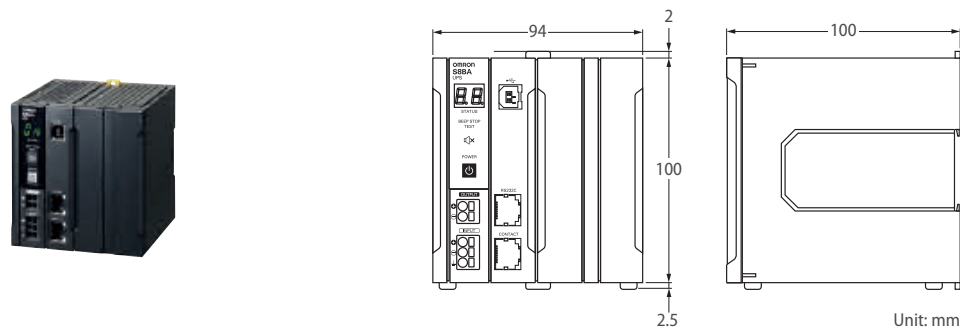
For devices that use the A indication, convert the capacity into W: $W = A \times 24$

	Capacity (W)									
	30	60	90	120	180	240	300	360	420	480
120 W	29	14	9	6	—	—	—	—	—	—
240 W	58	29	19	15	9	6	—	—	—	—
360 W	87	43	28	22	14	10	8	6	—	—
480 W	119	59	39	29	19	15	11	9	8	6

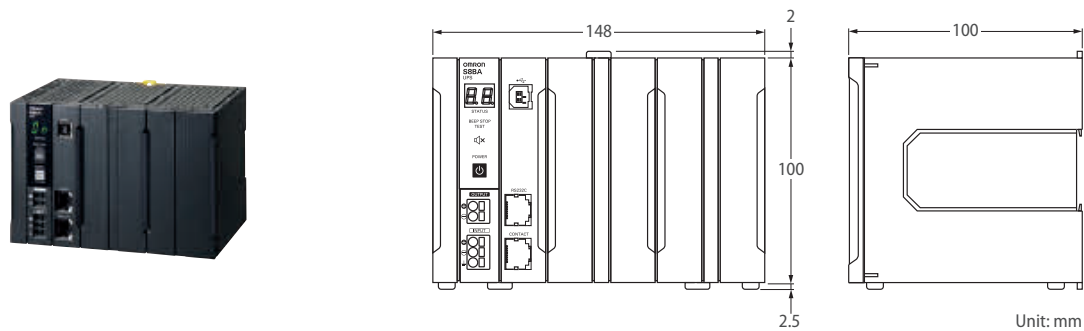
Note: The above backup times are for reference only. They may change depending on the battery life and external environment (such as temperature).

Dimensions

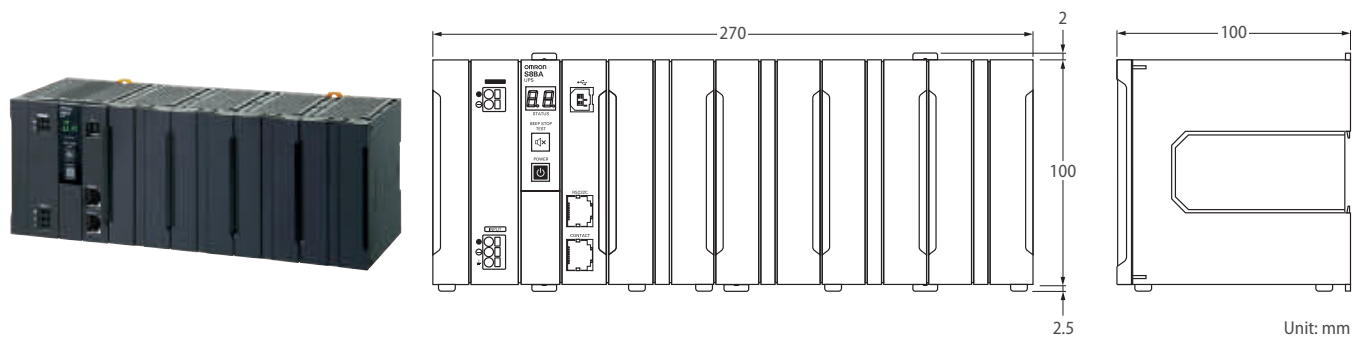
S8BA-24D24D120LF (120 W)



S8BA-24D24D240LF (240 W)



S8BA-24D24D360LF (360 W)
S8BA-24D24D480LF (480 W)





Multiple mounting online AC-AC type UPS, useful in a variety of applications

- Online power supply method: Continuous power supply against instantaneous voltage drop or power interruptions
- Easy LCD operation without PC & multiple mounting methods.
- Multiple connections, input/output terminal block and RS232-C, I/O for external communication, plus external remote ON/OFF signal
- Hot-swappable batteries: Ensures clean, uninterrupted power to protect equipment during battery replacement

Ordering information

Input voltage	Output voltage	Capacity	Type	Order code
200/208/220/230/240 VAC	200/208/220/230/240 VAC	2000 VA/1400 W	Rackmount ^{*1} , Multi voltage power, Low power consumption	BU2002RWLG
		3000 VA/2100 W		BU3002RWLG
		5000 VA/3500 W		BU5002RWLG

^{*1} Can also use the included vertical stand when positioning the unit vertically

Specifications

		BU2002RWLG	BU3002RWLG	BU5002RWLG
Operation method		Full-time inverter supply method (high efficiency)		
AC input	Rated input voltage	200/208/220/230/240 VAC		
	Startup voltage range	200 V mode: 160±2 to 288±2 VAC, 208 V mode: 167±2 to 278±2 VAC 220 V mode: 176±2 to 278±2 VAC, 230 V mode: 184±2 to 278±2 VAC 240 V mode: 192±2 to 278±2 VAC, 100 V mode: 160±2 to 288±2 VAC		
	Input voltage range	200 V mode: 170±2 to 278±2 VAC, 208 V mode: 177±2 to 278±2 VAC 220 V mode: 186±2 to 278±2 VAC, 230 V mode: 194±2 to 278±2 VAC 240 V mode: 202±2 to 278±2 VAC, 100 V mode: 170±2 to 278±2 VAC		
	Input frequency	50/60 Hz±1, 3, 5, or 14% (5% in the factory settings)		
	Maximum current (at rated voltage)	9 A	14 A	23 A
	Phase	Single-phase, two-wire (grounded)		
	Input plug	Terminal block		NEMA L6-30P / Terminal block
AC output	Output capacity (upper limit)	2000 VA/1400 W (1000 VA/700 W in 100 V mode)	3000 VA/2100 W (1500 VA/1050 W in 100 V mode)	5000 VA/3500 W (2500 VA/1750 W in 100 V mode)
	Rated current (at rated voltage)	10 A	15 A	25 A
	Switching time	Uninterrupted		
	Output voltage (commercial operation)	200 V mode: 200 VAC±2%, 208 V mode: 208 VAC±2% 220 V mode: 220 VAC±2%, 230 V mode: 230 VAC±2% 240 V mode: 240 VAC±2%, 100 V mode: 100 VAC±5%		
	Output voltage (backup operation)	200 V mode: 200 VAC±2%, 208 V mode: 208 VAC±2% 220 V mode: 220 VAC±2%, 230 V mode: 230 VAC±2% 240 V mode: 240 VAC±2%, 100 V mode: 100 VAC±5%		
	Output frequency (commercial operation)	Synchronized with input frequency		
	Output frequency (backup operation)	50/60±0.5 Hz		
	Output waveform (in commercial power mode/battery mode)	Sine wave/Sine wave		
	Phase	Single-phase, two-wire		
	Output receptacles	Terminal block		NEMA L6-30R × 2, terminal block
Battery	Sealed lead battery life expectancy	5 years (ultralong operating life) (ambient temperature 25°C)		
	Battery capacity (V/Ah) (× Quantity)	12 VDC/9 Ah (× 4)	12 VDC/9 Ah (× 6)	12 VDC/9 Ah (× 12)
	Charging time	8 hours		
Backup time (25°C, initial characteristics)		5 min (1400 W)	5 min (2100 W)	5 min (3500 W)
Dimensions in mm (W × D × H)		430×660×88 (2U)		430×700×132 (3U)
Weight of unit		Approx. 28 kg	Approx. 33 kg	Approx. 61 kg
Operating environment temperature/humidity		0 to 40°C/25% to 85% with no condensation		
Storage environment temperature/humidity		−15 to 50°C/10% to 90% (with battery fully charged, stored with no condensation)		
Noise regulation		VCCI Class A compliant		
Safety standard compliance		UL1778/CE/RoHS compliance		
Internal power consumption (normal*1/maximum*2)		70 W/145 W	148 W/265 W	249 W/480 W
Cooling method		Forced air cooling		
Serial communication (RS-232C) (interface)		■ (D-sub 9pin)		
Contact signal (interface)		■ (D-sub 9pin)		

^{*1} Rated load/rated input voltage/when fully charged

^{*2} Rated load/rated input voltage/when battery charge current is at maximum

Backup time table (Time unit: minutes)

Model	Capacity (W)																	
	20	50	100	200	300	400	600	800	1000	1200	1400	1600	1800	2000	2100	2700	3000	3500
BU5002RWLG	660	480	320	200	140	106	68	50	39	31	25	21	18	16	15	10	8	5
BU3002RWLG	450	260	165	93	63	45	28	19	15	11	9	7.5	6	5.2	5	—	—	—
BU2002RWLG	360	190	110	60	39	27	16	12	9.5	7	5	—	—	—	—	—	—	—

Note: These backup times are for reference only. Times may vary according to battery life and external environmental conditions (temperature, etc.)