Product data sheet
Characteristics

ABL8RPS24050
regulated SMPS - 1 or 2-phase - 100..500 V - 24 V - 5 A

Main

Range of product	Phaseo
Product or component type	Power supply
Power supply type	Regulated switch mode
Input voltage	100...120 V AC single phase, terminal(s): N-L1 200...500 V AC phase to phase, terminal(s): L1-L2
Output voltage	24 V DC
Rated power in W	120 W
Provided equipment	Power factor correction filter conforming to IEC 61000-3-2
Power supply output current	5 A
Output protection type	Against overload, protection technology: manual or automatic reset Against overvoltage, protection technology: 30...32 V, manual reset Against short-circuits, protection technology: manual or automatic reset Against undervoltage, protection technology: tripping if U < 21.6 V Thermal, protection technology: automatic reset
Ambient air temperature for operation	50...60 °C with -25...50 °C without

Complementary

Input voltage limits	170...550 V 85...132 V
Network frequency	47...63 Hz
Inrush current	30 A for 2 ms
Cos phi	0.051 at 240 V 0.059 at 120 V
Efficiency	87 %
Output voltage limits	24...28.8 V adjustable
Power dissipation in W	15.5 W
Line and load regulation	1...3 %
Holding time	>= 120 ms at 400 V >= 20 ms at 100 V

	>= 40 ms at 240 V
Permissible temporary current boost	1.5 x In for 4 s
Connections - terminals	Screw type terminals for input connection, connection capacity: 3 x 0.5...3 x 4 mm² AWG 22...AWG 12 Screw type terminals for input ground connection, connection capacity: 1 x 0.5...1 x 4 mm² AWG 22...AWG 12 Screw type terminals for output connection, connection capacity: 4 x 0.5...4 x 4 mm² AWG 22...AWG 12 Screw type terminals for output ground connection, connection capacity: 1 x 0.5...1 x 4 mm² AWG 22...AWG 12 Removable screw terminal block for diagnostic relay, connection capacity: 2 x 2.5 mm²
Marking	CE
Mounting support	35 x 15 mm symmetrical DIN rail 35 x 7.5 mm symmetrical DIN rail
Operating position	Vertical
Operating altitude	2000 m
Output coupling	Parallel Series
Name of test	Harmonic current emission conforming to EN/IEC 61000-3-2 Conducted emissions on the power line conforming to EN 55022 Class B Electrostatic discharges conforming to EN/IEC 61000-4-2 Induced electromagnetic field conforming to EN/IEC 61000-4-6 Magnetic field conforming to EN 61000-4-8 Primary outage conforming to IEC 61000-4-11 Radiated electromagnetic field conforming to EN/IEC 61000-4-3 Radiated emissions conforming to EN 55022 Class B Rapid transient conforming to IEC 61000-4-4 Surge conforming to EN/IEC 61000-4-5
Status LED	1 LED green and red for output voltage 1 LED green, red and orange for output current
Depth	125 mm
Height	143 mm
Width	56 mm
Product weight	0.7 kg

Environment

Product certifications	CCSAus UL RCM EAC KC
Standards	UL 508 CSA C22.2 No 60950-1
Environmental characteristic	EMC conforming to EN 55024 EMC conforming to EN 61000-6-1 EMC conforming to EN 61000-6-3 EMC conforming to EN/IEC 61000-6-4 EMC conforming to EN/IEC 61204-3 Safety conforming to EN/IEC 60950-1 Safety conforming to EN/IEC 61204-3 Safety conforming to SELV
IP degree of protection	IP20 conforming to EN/IEC 60529
Ambient air temperature for storage	-40...70 °C
Relative humidity	0...90 % during operation 0...95 % in storage
Overvoltage category	Class I conforming to VDE 0106-1
Dielectric strength	Between input and ground Between output and ground Between input and output
MTBF reliability	915000 H at 100 V AC with UTE C80-810 calculation method 950000 H at 200...500 V AC with UTE C80-810 calculation method

Offer Sustainability

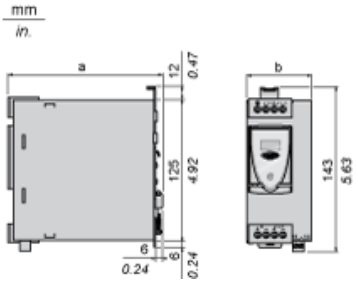
Sustainable offer status	Green Premium product
RoHS (date code: YYWW)	Compliant - since 0501 - Schneider Electric declaration of conformity Schneider Electric declaration of conformity
REACh	Reference not containing SVHC above the threshold Reference not containing SVHC above the threshold
Product environmental profile	Available Product Environmental Profile
Product end of life instructions	Available End of Life Information

Contractual warranty

Warranty period	18 months

Regulated Switch Mode Power Supplies

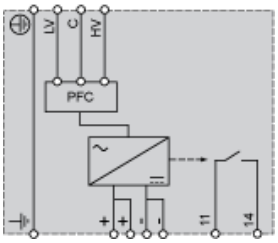
Dimensions



ABL 8	a in mm	a in in.	b in mm	b in in.
RPS24030	125	4.92	45	1.77
RPS24050	125	4.92	56	2.20
RPS24100	145	5.71	86	3.39
RPM24200	145	5.71	146	5.75
WPS24200	160	6.30	96	3.78
WPS24400	160	6.30	166	6.54

Regulated Switch Mode Power Supply

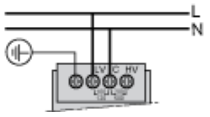
Internal Wiring Diagram



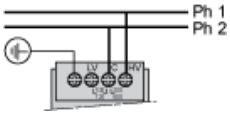
Regulated Switch Mode Power Supply

Line Supply Wiring Diagram

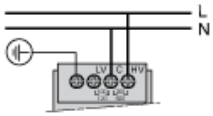
Single-phase (L-N) 100 to 120 V



Phase-to-phase (L1-L2) 200 to 500 V



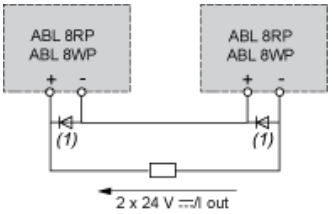
Single-phase (L-N) 200 to 500 V



Regulated Switch Mode Power Supplies

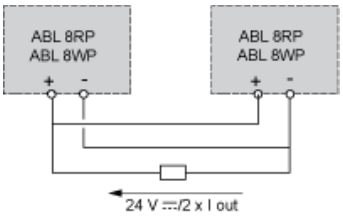
Series or Parallel Connection

Series Connection



(1) Two Shottky diodes Imin = power supply In and Vmin = 50 V

Parallel Connection



Family	Series	Parallel
ABL 8RPS/8RPM/8WPS	2 products max. (1)	2 products max.

NOTE: Series or parallel connection is only recommended for products with identical references.

For better availability, the power supplies can also be connected in parallel using the ABL8RED24400 Redundancy module.

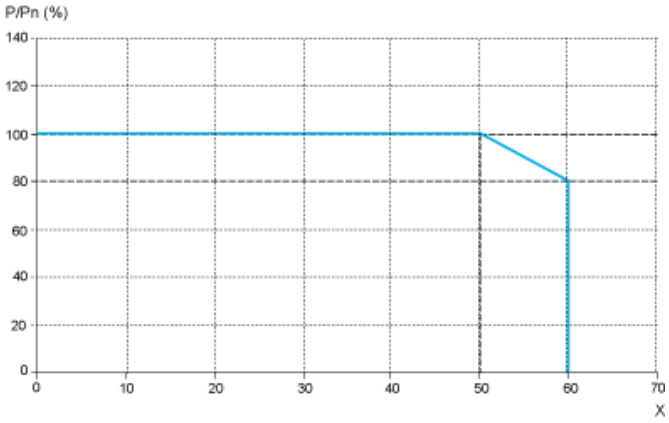
Regulated Switch Mode Power Supplies

Derating

The ambient temperature is a determining factor that limits the power an electronic power supply can deliver continuously. If the temperature around the electronic components is too high, their life will be significantly reduced.

The nominal ambient temperature for the Universal range of Phaseo power supplies is 50°C. Above this temperature, derating is necessary up to a maximum temperature of 60°C.

The graph below shows the power (in relation to the nominal power) that the power supply can deliver continuously, depending on the ambient temperature.



X Maximum operating temperature (°C)

ABL 8RPM, ABL 8RPS, ABL 8WPS mounted vertically

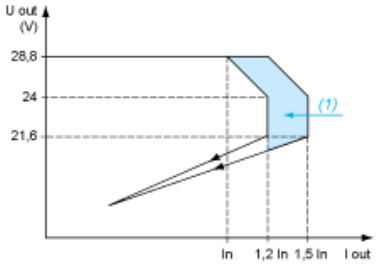
Derating should be considered in extreme operating conditions:

- Intensive operation (output current permanently close to the nominal current, combined with a high ambient temperature)
- Output voltage set above 24 Vdc (to compensate for line voltage drops, for example)
- Parallel connection to increase the total power

Regulated Switch Mode Power Supply

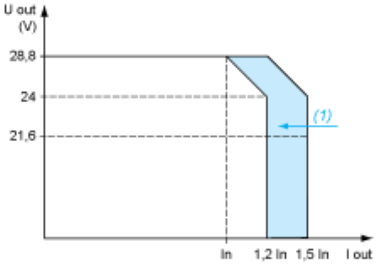
Load Limit

Manual Reset Protection Mode



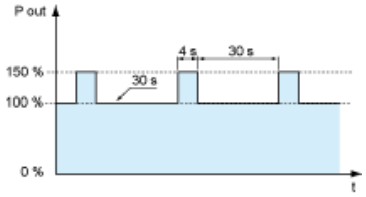
(1) Boost 4s

Automatic Reset Protection Mode



(1) Boost 4s

“Boost” Repeat Accuracy



This type of operation is described in detail in the user manual, which can be downloaded from the website.