Product data sheet
Characteristics

ABL8RPS24100
regulated SMPS - 1 or 2-phase - 100..500 V - 24 V - 10 A

Main

Commercial Status	Commercialised
Range of product	Phaseo
Product or component type	Power supply
Power supply type	Regulated switch mode
Input voltage	200...500 V AC phase to phase, terminal(s): L1-L2 100...120 V AC single phase, terminal(s): N-L1
Output voltage	24 V DC
Rated power in W	240 W
PFC filter	With PFC filter conforming to IEC 61000-3-2
Power supply output current	10 A
Output protection type	Thermal, protection technology: automatic reset Against undervoltage, protection technology: tripping if U < 21.6 V Against short-circuits, protection technology: manual or automatic reset Against overvoltage, protection technology: 30...32 V, manual reset Against overload, protection technology: manual or automatic reset
Ambient air temperature for operation	-25...60 °C without derating

Complementary

Input voltage limits	170...550 V 85...132 V
Network frequency	47...63 Hz
Inrush current	<= 30 A for 2 ms
Cos phi	0.69 at 120 V 0.68 at 240 V
Efficiency	> 87 %
Output voltage limits	24...28.8 V adjustable
Power dissipation in W	31 W
Line and load regulation	1...3 %
Residual ripple	<= 200 mV
Holding time	>= 40 ms at 240 V >= 20 ms at 100 V >= 120 ms at 400 V
Permissible temporary current boost	1.5 x In for 4 s
Connections - terminals	Screw type terminals for output ground connection, connection capacity: 1 x 0.5...1 x 4 mm²AWG gauge22...12 Screw type terminals for output connection, connection capacity: 4 x 0.5...4 x 4 mm²AWG gauge22...12 Screw type terminals for input ground connection, connection capacity: 1 x 0.5...1 x 4 mm²AWG gauge22...12 Screw type terminals for input connection, connection capacity: 3 x 0.5...3 x 4 mm²AWG gauge22...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

Output coupling	Parallel Series
Name of test	Surge conforming to EN/IEC 61000-4-5 Rapid transient conforming to IEC 61000-4-4 Radiated emissions conforming to EN 55022 Class B Radiated electromagnetic field conforming to EN/IEC 61000-4-3 Primary outage conforming to IEC 61000-4-11 Magnetic field conforming to EN 61000-4-8 Induced electromagnetic field conforming to EN/IEC 61000-4-6 Harmonic current emission conforming to EN/IEC61000-3-2 Electrostatic discharges conforming to EN/IEC 61000-4-2 Conducted emissions on the power line conforming to EN 55022 Class B
Status LED	1 LED green, red and orange for output current 1 LED green and red for output voltage
Depth	155 mm
Height	143 mm
Width	165 mm
Product weight	1 kg

Environment

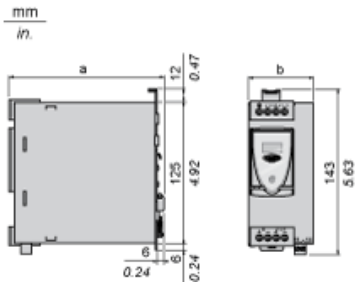
Product certifications	CCSAus C-Tick UL
Environmental characteristic	Safety conforming to SELV Safety conforming to EN/IEC 61204-3 Safety conforming to EN/IEC 60950-1 EMC conforming to EN/IEC 61204-3 EMC conforming to EN/IEC 61000-6-4 EMC conforming to EN/IEC 61000-6-2 EMC conforming to EN 61000-6-3 EMC conforming to EN 61000-6-1
IP degree of protection	IP20 conforming to EN/IEC 60529
Ambient air temperature for storage	-40...70 °C
Relative humidity	0...95 % in storage 0...90 % during operation
Class of protection against electric shock	Class I conforming to VDE 0106-1
Dielectric strength	500 V between output and ground 4000 V between input and output 3500 V between input and ground

Contractual warranty

Period	18 months

Regulated Switch Mode Power Supplies

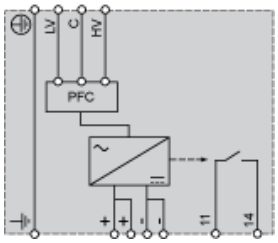
Dimensions



ABL 8	a in mm	a in in.	b in mm	b in in.
RPS24030	120	4.72	44	1.73
RPS24050	120	4.72	56	2.20
RPS24100	140	5.51	85	3.34
RPM24200	140	5.51	145	5.70
WPS24200	155	6.10	95	3.74
WPS24400	155	6.10	165	6.49

Regulated Switch Mode Power Supply

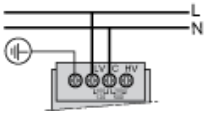
Internal Wiring Diagram



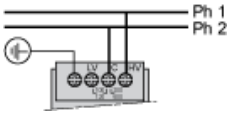
Regulated Switch Mode Power Supply

Line Supply Wiring Diagram

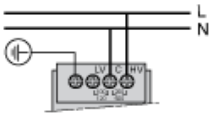
Single-phase (L-N) 100 to 120 V



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



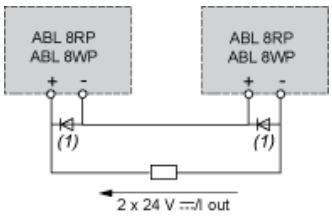
Single-phase (L-N) 200 to 500 V



Regulated Switch Mode Power Supplies

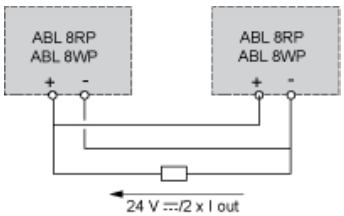
Series or Parallel Connection

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.

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.

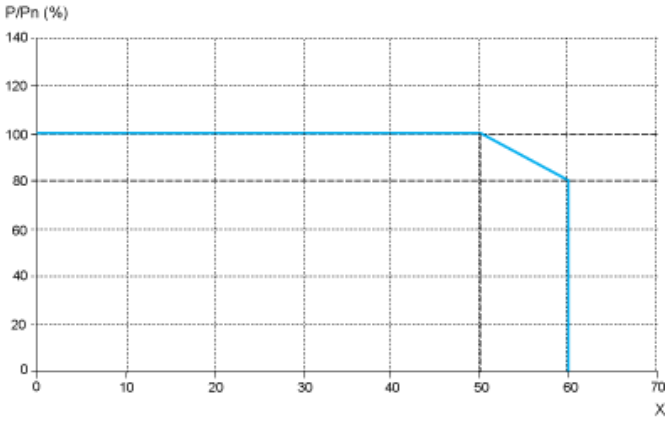
Regulated Switch Mode Power Supplies

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

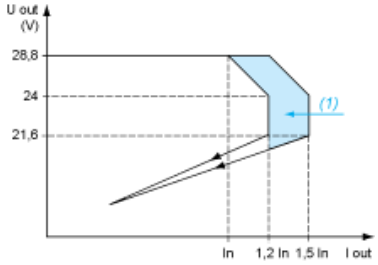
Derating should be considered in extreme operating conditions:

- 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

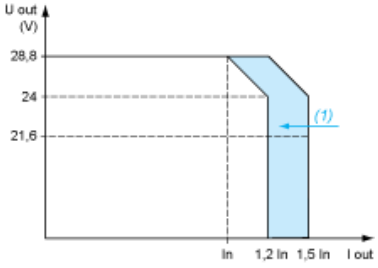
Load Limit

Manual Reset Protection Mode



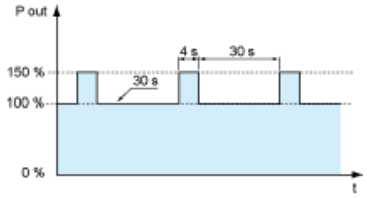
(1) Boost 4s

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.