



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

ABL8RPS24050

Range of product	Modicon Power Supply
Product or component type	Power supply
Power supply type	Regulated switch mode
Nominal input voltage	100120 V AC single phase, terminal(s): N-L1 200500 V AC phase to phase, terminal(s): L1-L2
Rated power in W	120 W
Output voltage	24 V DC
Power supply output current	5 A
Permissible temporary current boost	1.5 x In (for 4 s)
Anti-harmonic filter	Low frequency harmonic currents

#### Complementary

Complementary			
Input voltage limits	85132 V AC 170550 V AC		
Inrush current	30 A		
Power factor	0.51 at 240 V AC 0.59 at 120 V AC		
Efficiency	87 %		
Output voltage adjustment	2428.8 V adjustable		
Power dissipation in W	15.5 W		
Provided equipment	Power factor correction filter conforming to IEC 61000-3-2		
Output protection type	Against overload, protection technology: manual or automatic reset Against overvoltage, protection technology: 3032 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		
Connections - terminals	Removable screw terminal block: 2 x 2.5 mm², for diagnostic relay Screw type terminals: 3 x 0.53 x 4 mm², (AWG 22AWG 12) for input connection Screw type terminals: 1 x 0.51 x 4 mm², (AWG 22AWG 12) for input ground connection Screw type terminals: 4 x 0.54 x 4 mm², (AWG 22AWG 12) for output connection Screw type terminals: 1 x 0.51 x 4 mm², (AWG 22AWG 12) for output ground connection		
Status LED	LED (green and red) output voltage     LED (green, red and orange) output current		
Depth	125 mm		

Height

143 mm

Width 95 mm Net weight 0.7 kg Output coupling Parallel Series Series Marking CE Mounting support 35 x 7.5 mm symmetrical DN rail 35 x 7.5 mm symmetrical DN ra				
Output coupling  Marking  CE  Mounting support  35 x 15 mm symmetrical DIN rail 35 x 15 mm sym	Width	56 mm		
Marking	Net weight	0.7 kg		
Mounting support   35 x 15 mm symmetrical DIN rail   35 x 7.5 mm symmetrical DIN rai	Output coupling			
Operating position  Vertical  Set IV conforming to ENNEC 80990-1 SELV conforming to ENNEC 80990-1 Use of ENNEC 82980-1  Product certifications  CSA C22 2 No 80990-1 Use of ENNEC 82980-1  ENNEC 82980-1  Product certifications  CSA C22 No 80990-1 Use of ENNEC 82980-1  ENNEC	Marking	CE		
Supply  SELV conforming to ENIEC 60060-1 STAND With between input and ground  Environment  Standards  CSA C22 2 No 60060-1 U.5 08 ENIEC 62388-1  Product certifications  CCSA 022 2 No 60060-1 U.5 08 ENIEC 62388-1  Product certifications  CCSA 022 2 No 60060-1 U.5 08 ENIEC 62388-1  Environmental characteristic  ENC Conforming to ENIEC 60060-3 ENIEC 62388-1  ENC Conforming to ENIEC 60060-3 ENIEC 6	Mounting support			
SELV conforming to EE/BUSG 4-41  SED V with between input and upond 4000 With between input and upond 4000 With between input and upond 500 V with between comput and ground 500 V with between couput and ground  Environmental CSA CD2 2 No 60950-1 U.S03 ENIEC 62388-1  Product certifications CCS AUS EAC KC K	Operating position	Vertical		
A000 V with between output and output	Supply	SELV conforming to EN/IEC 60204-1		
Standards  CSA CZ2.2 No 60990-1 UL 508 ENIEC D2368-1  Product certifications  CCSAus EAC KC RCM UL  Environmental characteristic  EMC conforming to EN 61000-8-1 EMC conforming to EN 61000-8-3 EMC conforming to EN 61000-8-3 EMC conforming to ENIEC 61000-8-4 EMC conforming to ENIEC 61000-8-4 EMC conforming to ENIEC 61204-3 Safety conforming to ENIEC 61204-3 Safety conforming to ENIEC 60950-1 Safety c	Dielectric strength	4000 V with between input and output		
U. 1.508	Environment			
Environmental characteristic  Enviro	Standards	UL 508		
EMC conforming to EN 61000-6-3 EMC conforming to ENIEC 61000-6-4 EMC conforming to ENIEC 61000-8 Safety conforming to ENIEC 61004-3 Safety conforming to ENIEC 61024-3 Safety conforming to ENIEC 61204-3 Operating altitude  1P degree of protection  1P20 conforming to ENIEC 60529  Ambient air temperature for operation  5060 "C with derating factor mounting position A < 2000 m  -2550 "C without derating mounting position A < 2000 m  Packing Units  Unit Type of Package 1 PCE  Number of Units in Package 1 1 Package 1 Height 16.503 cm Package 1 Weight 911.0 g  Unit Type of Package 2 S06  Number of Units in Package 3 S06  Number of Units in Package 4 S07 S08 S08 S08 S09	Product certifications	EAC KC RCM		
IP degree of protection  IP20 conforming to EN/IEC 60529  Ambient air temperature for operation  5060 °C with derating factor mounting position A < 2000 m  Packing Units  Unit Type of Package 1  PCE  Number of Units in Package 1  Package 1 Height  7.576 cm  Package 1 Width  14.467 cm  Package 1 Length  16.503 cm  Package 1 Weight  911.0 g  Unit Type of Package 2  Number of Units in Package 3  Number of Units in Package 4  Package 2 Height  73.5 cm  Package 2 Width  60.0 cm  Package 2 Weight  95.655 kg  Offer Sustainability  Sustainable offer status  Green Premium product  REACh Regulation  REACh Declaration  EU RoHS Directive  Pro-active compliance (Product out of EU RoHS legal scope)	Environmental characteristic	EMC conforming to EN 61000-6-3 EMC conforming to EN 55024 EMC conforming to EN/IEC 61000-6-4 EMC conforming to EN/IEC 61204-3 Safety conforming to EN/IEC 60950-1		
Ambient air temperature for operation  5060 °C with derating factor mounting position A < 2000 m  -2550 °C without derating mounting position A < 2000 m  Packing Units  Unit Type of Package 1 PCE  Number of Units in Package 1 1  Package 1 Height 7.576 cm  Package 1 Width 14.467 cm  Package 1 Weight 911.0 g  Unit Type of Package 2 S06  Number of Units in Package 2 105  Package 2 Height 73.5 cm  Package 2 Width 60.0 cm  Package 2 Width 60.0 cm  Package 2 Weight 95.655 kg  Offer Sustainability  Sustainable offer status Green Premium product  REACh Regulation REACh Declaration  EU RoHS Directive Pro-active compliance (Product out of EU RoHS legal scope)	Operating altitude	2000 m		
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Package 1 Height 7.576 cm  Package 1 Width 14.467 cm  Package 1 Length 16.503 cm  Package 1 Weight 911.0 g  Unit Type of Package 2 S06  Number of Units in Package 2 105  Package 2 Height 73.5 cm  Package 2 Width 60.0 cm  Package 2 Length 80.0 cm  Package 2 Weight 95.655 kg  Offer Sustainability  Sustainable offer status Green Premium product  REACh Regulation REACh Declaration  EU RoHS Directive Pro-active compliance (Product out of EU RoHS legal scope)		1		
Package 1 Width  14.467 cm  Package 1 Length  16.503 cm  Package 1 Weight  911.0 g  Unit Type of Package 2  S06  Number of Units in Package 2  105  Package 2 Height  73.5 cm  Package 2 Width  60.0 cm  Package 2 Length  80.0 cm  Package 2 Weight  95.655 kg  Offer Sustainability  Sustainable offer status  Green Premium product  REACh Regulation  REACh Declaration  EU RoHS Directive  Pro-active compliance (Product out of EU RoHS legal scope)		7.576 cm		
Package 1 Length 16.503 cm  Package 1 Weight 911.0 g  Unit Type of Package 2 S06  Number of Units in Package 2 105  Package 2 Height 73.5 cm  Package 2 Width 60.0 cm  Package 2 Length 80.0 cm  Package 2 Weight 95.655 kg  Offer Sustainability  Sustainable offer status Green Premium product  REACh Regulation REACh Declaration  EU RoHS Directive Pro-active compliance (Product out of EU RoHS legal scope)		14.467 cm		
Package 1 Weight  911.0 g  Unit Type of Package 2  S06  Number of Units in Package 2  105  Package 2 Height  73.5 cm  Package 2 Width  60.0 cm  Package 2 Length  80.0 cm  Package 2 Weight  95.655 kg  Offer Sustainability  Sustainable offer status  Green Premium product  REACh Regulation  REACh Declaration  EU RoHS Directive  Pro-active compliance (Product out of EU RoHS legal scope)		16.503 cm		
Unit Type of Package 2		911.0 g		
Number of Units in Package 2 105  Package 2 Height 73.5 cm  Package 2 Width 60.0 cm  Package 2 Length 80.0 cm  Package 2 Weight 95.655 kg  Offer Sustainability  Sustainable offer status Green Premium product  REACh Regulation REACh Declaration  EU RoHS Directive Pro-active compliance (Product out of EU RoHS legal scope)				
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Package 2 Weight  95.655 kg  Offer Sustainability  Sustainable offer status Green Premium product  REACh Regulation REACh Declaration  EU RoHS Directive Pro-active compliance (Product out of EU RoHS legal scope)		80.0 cm		
Sustainable offer status  Green Premium product  REACh Regulation  REACh Declaration  EU RoHS Directive  Pro-active compliance (Product out of EU RoHS legal scope)		95.655 kg		
REACh Regulation REACh Declaration  EU RoHS Directive Pro-active compliance (Product out of EU RoHS legal scope)	Offer Sustainability			
EU RoHS Directive Pro-active compliance (Product out of EU RoHS legal scope)	Sustainable offer status	Green Premium product		
1 (	REACh Regulation	REACh Declaration		
	EU RoHS Directive			

Mercury free	Yes
China RoHS Regulation	China RoHS declaration
RoHS exemption information	Yes
Environmental Disclosure	Product Environmental Profile
Circularity Profile	End of Life Information
PVC free	Yes

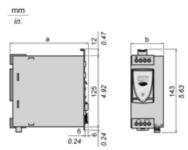
Warranty 18 months

## **ABL8RPS24050**

**Dimensions Drawings** 

#### **Regulated Switch Mode Power Supplies**

#### **Dimensions**



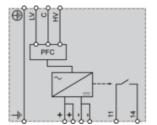
ABL 8	a in mm	a in in.	b in mm	b in in.
RPS24030	125	4.92	45	1.77
RPS24050	125	4.92	56	2.20
RPS24100	145	5.71	86	3.39
RPM24200	145	5.71	146	5.75
WPS24200	160	6.30	96	3.78
WPS24400	160	6.30	166	6.54

## **ABL8RPS24050**

Connections and Schema

#### **Regulated Switch Mode Power Supply**

#### **Internal Wiring Diagram**



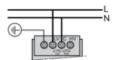
## **ABL8RPS24050**

Connections and Schema

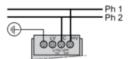
#### **Regulated Switch Mode Power Supply**

#### **Line Supply Wiring Diagram**

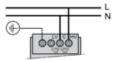
Single-phase (L-N) 100 to 120 V



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



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



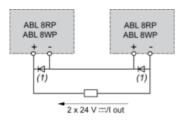
## **ABL8RPS24050**

Connections and Schema

#### **Regulated Switch Mode Power Supplies**

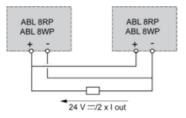
#### **Series or Parallel Connection**

#### **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.

 $\textbf{NOTE:} \ Series \ or \ parallel \ connection \ is \ only \ recommended \ for \ products \ with \ identical \ references.$ 

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

### **ABL8RPS24050**

Performance Curves

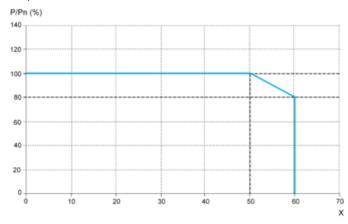
#### **Regulated Switch Mode Power Supplies**

#### **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

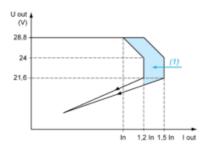
## **ABL8RPS24050**

Performance Curves

#### **Regulated Switch Mode Power Supply**

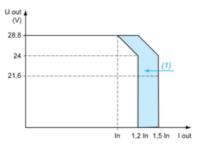
#### **Load Limit**

#### **Manual Reset Protection Mode**



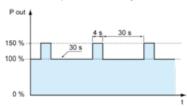
#### (1) Boost 4s

#### **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.

#### Recommended replacement(s)