

Product data sheet

Specifications



Regulated Power Supply, 100-240V AC, 24V 20 A, single phase, Optimized

ABLS1A24200

Main

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|-----------------------------|--------------------------------------------------------------------------|
| Range of product | Modicon Power Supply |
| Product or component type | Power supply |
| Power supply type | Regulated switch mode |
| Variant option | Optimized |
| Enclosure material | Aluminium |
| Nominal input voltage | 100...240 V AC single phase 100...240 V AC 2 phases 140...340 V DC |
| Rated power in W | 480 W |
| Output voltage | 24 V DC |
| Power supply output current | 20 A |

Complementary

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|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input voltage limits | 85...264 V AC (without temperature derating) 120...375 V DC (without temperature derating) 85...120 V DC (with temperature derating) 85...120 V DC |
| Nominal network frequency | 50...60 Hz |
| Network system compatibility | TN TT IT |
| Maximum leakage current | 1 mA 240 V AC |
| Input protection type | Integrated fuse (not interchangeable) 10 A External protection (recommended) 20 A Curve C External protection (recommended) 16 A Curve B External protection (recommended) 13 A Curve C |
| Inrush current | 45.0 A at 115 V 90.0 A at 230 V |
| Power factor | 0.95 at 115 V AC 0.95 at 230 V AC |
| Efficiency | 85 % at 115 V AC 88 % at 230 V AC |
| Output voltage adjustment | 22...28 V |
| Power dissipation in W | 60 W |
| Current consumption | < 5.4 A 115 V AC < 2.7 A 230 V AC < 5 A 140 V DC |

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| Turn-on time | < 1.5 s |
| Holding time | > 20 ms 115 V AC > 20 ms 230 V AC |
| Startup with capacitive loads | 8000 µF |
| Residual ripple | < 120 mV |
| Meantime between failure [MTBF] | 700000 h at 25 °C, full load conforming to SR 332 |
| Output protection type | Against overload and short-circuits, protection technology: automatic reset Against over temperature, protection technology: manual reset Against overvoltage, protection technology: manual reset |
| Connections - terminals | Screw connection: 0.75...4 mm ² , (AWG 20...AWG 12) without wire end ferrule for output Screw connection: 0.75...4 mm ² , (AWG 20...AWG 14) with wire end ferrule for output Screw connection: 0.75...4 mm ² , (AWG 18...AWG 12) without wire end ferrule for input Screw connection: 0.75...4 mm ² , (AWG 18...AWG 12) with wire end ferrule for input |
| Line and load regulation | < 0.5 % network 0 to 100 % load at 25 °C < 1 % network full voltage range in line at 25 °C |
| Status LED | 1 LED (green) output voltage |
| Depth | 128.5 mm |
| Height | 123.6 mm |
| Width | 85.5 mm |
| Net weight | 1.25 kg |
| Output coupling | Parallel Serial |
| Mounting support | Top hat type TH35-15 rail conforming to IEC 60715 Top hat type TH35-7.5 rail conforming to IEC 60715 Double-profile DIN rail |
| Supply | SELV conforming to EN/IEC 60950-1 SELV conforming to EN/IEC 60204-1 SELV conforming to IEC 60364-4-41 |
| Dielectric strength | 3000 V AC with input to output |
| Service life | 10 year(s) |

Environment

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|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standards | EN 62368-1 EN/IEC 61010-1 EN 61010-2-201 EN/IEC 61204-3 EN 61000-6-1 EN 61000-6-2 EN 61000-6-3 EN 61000-6-4 EN 61000-3-2 EN 61000-3-3 UL 62368-1 UL 61010-1 UL 61010-2-201 CSA C22.2 No 62368-1 CSA C22.2 No 61010-1 CSA C22.2 No 61010-2-201 EN/IEC 62368-1 |
| Product certifications | CE CUL listed CUL recognized RCM CB Scheme EAC KC |
| Environmental characteristic | 3M4 conforming to IEC 60721-3-3 |
| Operating altitude | < 5000 m |
| Shock resistance | 100 m/s ² for 11 ms |
| IP degree of protection | IP20 |
| Ambient air temperature for operation | -20...40 °C without derating mounting position A 115 V AC < 2000 m -20...50 °C without derating mounting position A 230 V AC < 2000 m 40...70 °C with current derating of 1.67 % per °C mounting position A 115 V AC < 2000 m |

50...70 °C with current derating of 2.5 % per °C mounting position A 230 V AC < 2000 m

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|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electrical shock protection class | Class I |
| Pollution degree | 2 |
| Vibration resistance | 3 mm (f= 2...9 Hz) conforming to IEC 60068-2-6 10 m/s ² (f= 9...200 Hz) conforming to IEC 60068-2-6 |
| Electromagnetic immunity | Immunity to electrostatic discharge - test level: 6 kV (contact discharge) conforming to EN/IEC 61000-4-2 Immunity to electrostatic discharge - test level: 9 kV (air discharge) conforming to EN/IEC 61000-4-2 Immunity to conducted RF disturbances - test level: 10 V/m (80 MHz...2 GHz) conforming to EN/IEC 61000-4-3 Immunity to conducted RF disturbances - test level: 5 V/m (2...2.7 GHz) conforming to EN/IEC 61000-4-3 Immunity to conducted RF disturbances - test level: 3 V/m (2.7...6 GHz) conforming to EN/IEC 61000-4-3 Immunity to fast transients - test level: 4 kV (on input-output) conforming to EN/IEC 61000-4-4 Surge immunity test - test level: 3 kV (between power supply and earth) conforming to EN/IEC 61000-4-5 Surge immunity test - test level: 1.5 kV (between phases) conforming to EN/IEC 61000-4-5 Immunity to conducted RF disturbances - test level: 10 V (0.15...80 MHz) conforming to EN/IEC 61000-4-6 Immunity to magnetic fields - test level: 30 A/m (50...60 Hz) conforming to EN/IEC 61000-4-8 Immunity to voltage dips conforming to EN/IEC 61000-4-11 Disturbing field emission conforming to EN 55016-2-3 Limits for harmonic current emissions conforming to EN 61000-3-2 Conducted disturbance emission conforming to EN 55016-1-2 Conducted disturbance emission conforming to EN 55016-2-1 |
| Electromagnetic emission | Conducted emissions conforming to EN 61000-6-3 Radiated emissions conforming to EN 61000-6-4 |

Packing Units

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|-------------------------------------|-----------|
| Unit Type of Package 1 | PCE |
| Number of Units in Package 1 | 1 |
| Package 1 Height | 9.5 cm |
| Package 1 Width | 17.5 cm |
| Package 1 Length | 18.0 cm |
| Package 1 Weight | 1.419 kg |
| Unit Type of Package 2 | S03 |
| Number of Units in Package 2 | 7 |
| Package 2 Height | 30 cm |
| Package 2 Width | 30 cm |
| Package 2 Length | 40 cm |
| Package 2 Weight | 10.517 kg |

Offer Sustainability

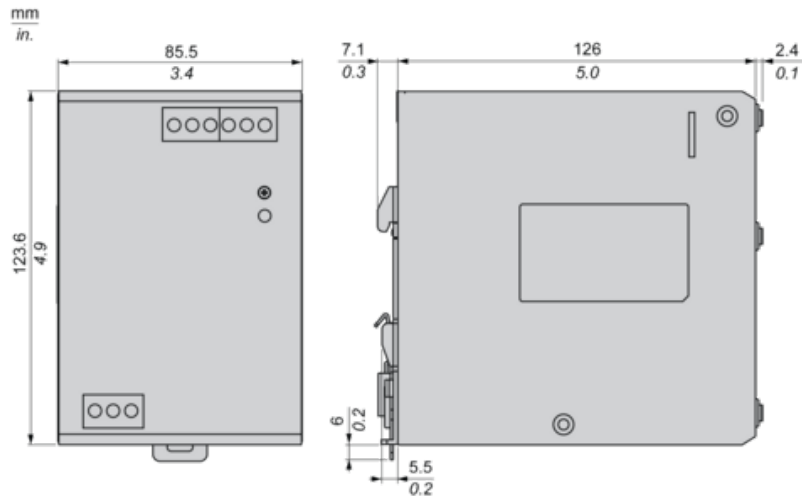
| | |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Sustainable offer status | Green Premium product |
| REACH Regulation | REACH Declaration |
| EU RoHS Directive | Pro-active compliance (Product out of EU RoHS legal scope) EU RoHS Declaration |
| Mercury free | Yes |
| China RoHS Regulation | China RoHS declaration |
| RoHS exemption information | Yes |
| Environmental Disclosure | Product Environmental Profile |
| Circularity Profile | End of Life Information |
| WEEE | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins |

Electrical Safety

- If the unit is use in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- For means of disconnection a switch or circuit breaker, located near the product, must be included in the installation. A marking as disconnecting devi
- The device has an internal fuse. The unit is tested and approved with branch circuit protective device up to 20A. This circuit breaker can be used as d
- The power supply is only suitable for audio, video, information, communication, industrial and control equipment.

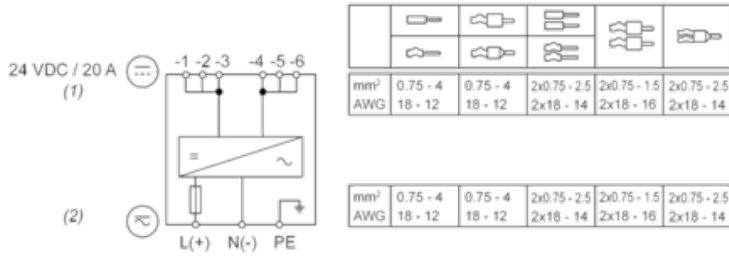
Dimensions

Front and Side Views



Connections and Schema

Wiring

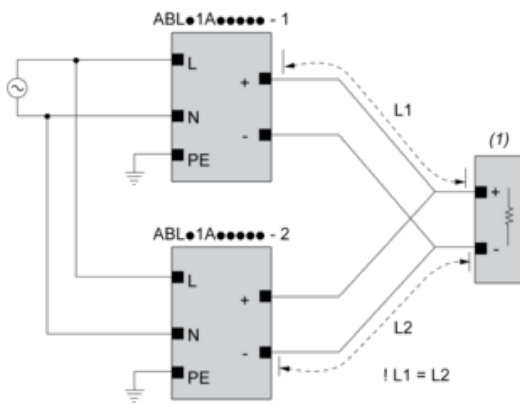


(1) : Output wiring

(2) : Input wiring

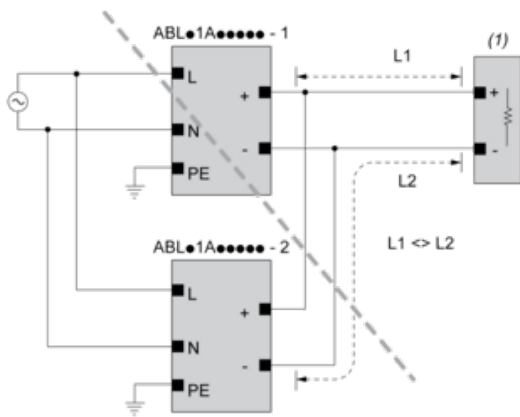
This is only the terminal wire rating. The wire size to be used in the application must be selected by the machine builder according to the ambient temperature, the wiring method and the end-use product standard. The unit has been tested and approved with input wire (80°C) and output wire 1 x 12AWG (95°C) or 3 x 18 AWG copper wire.

Correct Parallel Connection



(1) : Load

Incorrect Parallel Connection



(1) : Load

ABLx1Axxxx-1 = ABLx1Axxxx-2

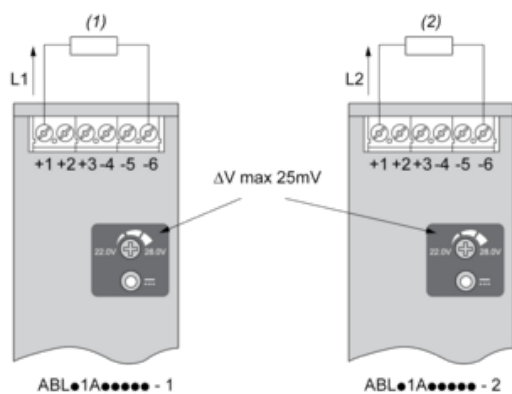
max 2 x ABLx1Axxxx

L1 = L2

ΔV max 25 mV

$L_{Load} < 90\% \times 2 \times L_{nom}$

Output Voltage Balancing



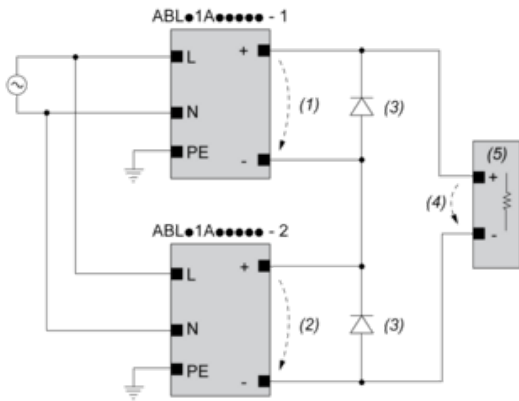
(1) : R_{Load1}

(2) : R_{Load2}

$R_{Load1} = R_{Load2}$

$I_1 = I_2 = \sim I_{nom}$

Series Connection



(1) : V_{out1}

(2) : V_{out2}

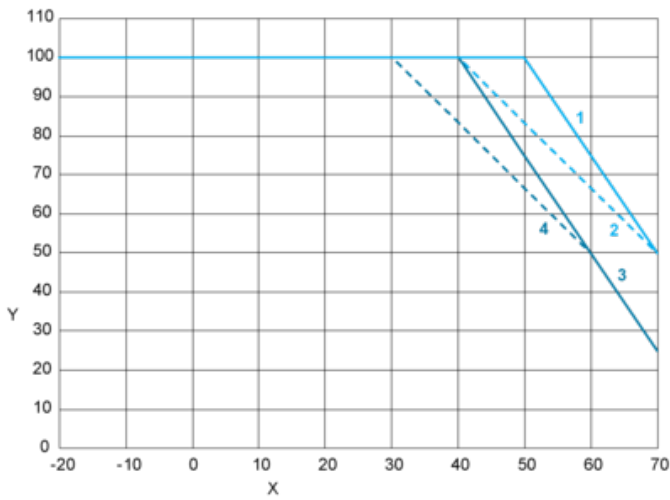
(3) : 2 x Diode, $V_{RRM} > 2 \times V_{out1/2}$, $I_F > 2 \times I_{nom1/2}$

(4) : $V_{Load} = 2 \times V_{out}$

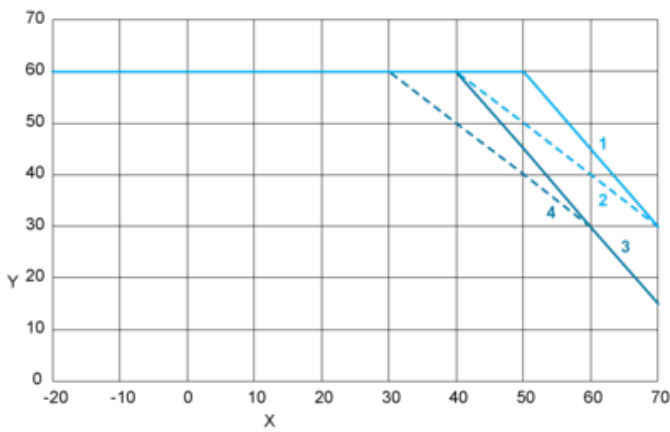
(5) : Load

Performance Curve

Mounting Position A



Mounting Position B



X : Surrounding Air Temperature

Y : Percentage of Max Load (%)

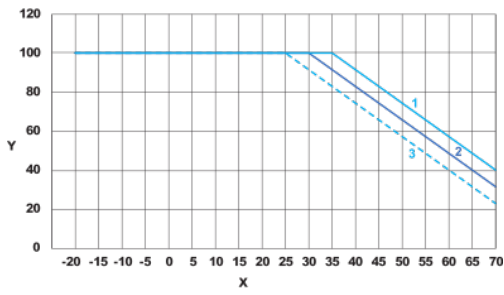
1 : Altitude 2000m, Input voltage = 230 VAC / 325 VDC

2 : Altitude 2000m, 115 VAC / 162 VDC

3 : Altitude 5000m, Input voltage = 230 VAC / 325 VDC

4 : Altitude 5000m, 115 VAC / 162 VDC

DC input voltage



X : Surrounding Air Temperature

Y : Percentage of Maximum Load (%)

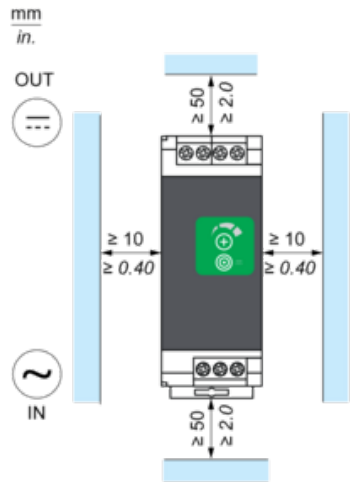
1 : 110 VDC

2 : 90 VDC

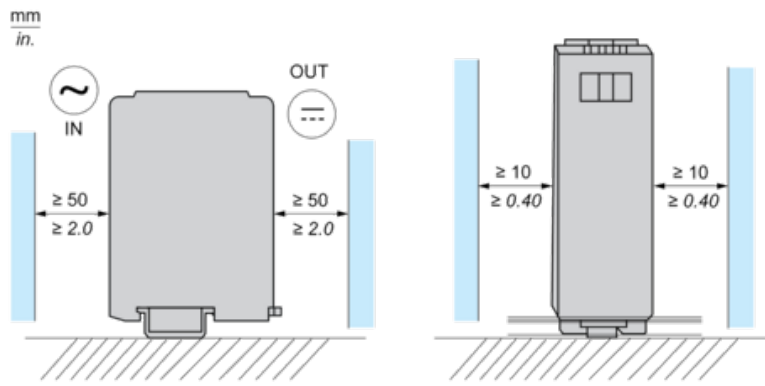
3 : 85 VDC

Mounting

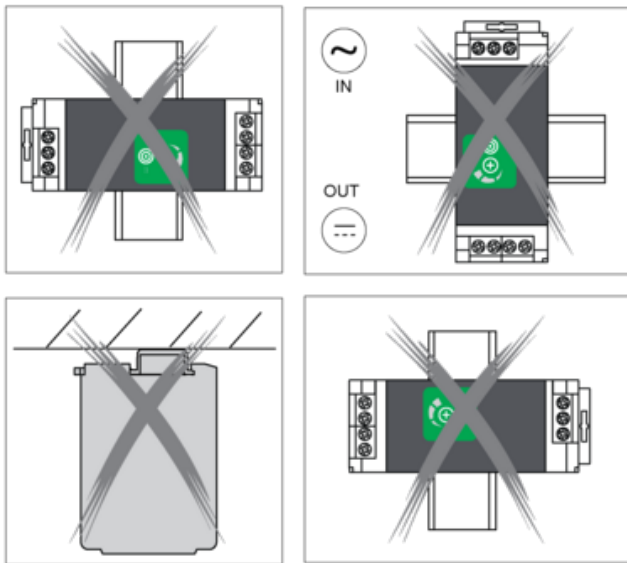
Mounting Position A



Mounting Position B



Incorrect Mounting



Recommended replacement(s)