

Product data sheet

Specifications



Regulated Power Supply, 100...240V AC, 24V, 2.1A, single phase, Optimized

ABLS1A24021

Main

| | |
|-----------------------------|--|
| Range of product | Modicon Power Supply |
| Product or component type | Power supply |
| Power supply type | Regulated switch mode |
| Variant option | Optimized |
| Enclosure material | Plastic |
| Nominal input voltage | 100...240 V AC single phase 100...240 V AC phase to phase |
| Rated power in W | 50 W |
| Output voltage | 24 V DC |
| Power supply output current | 2.1 A |

Complementary

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| Input voltage limits | 85...264 V AC |
| 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) 3.15 A External protection (recommended) 20 A Curve C External protection (recommended) 10 A Curve B External protection (recommended) 6 A Curve C |
| Inrush current | 35.0 A at 115 V 75.0 A at 230 V |
| Power factor | 0.45 at 115 V AC 0.35 at 230 V AC |
| Efficiency | 86 % at 115 V AC 88 % at 230 V AC |
| Output voltage adjustment | 24...28 V |
| Power dissipation in W | 7.5 W |
| Current consumption | < 1.1 A 115 V AC < 0.65 A 230 V AC |
| Turn-on time | < 3 s |
| Holding time | > 20 ms 100 V AC > 100 ms 230 V AC |

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

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| Startup with capacitive loads | 3000 µF |
| Residual ripple | < 75 mV |
| Meantime between failure [MTBF] | 2000000 h at 25 °C, full load conforming to SR 332 900000 h at 55 °C, 80 % 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: 0.5...2.5 mm ² , (AWG 20...AWG 14) for input/output |
| Line and load regulation | < 0.5 % at 0 to 100 % load at 25 °C < 1 % at full voltage range in line at 25 °C |
| Status LED | 1 LED (green) output voltage |
| Depth | 89.5 mm |
| Height | 75 mm |
| Width | 30 mm |
| Net weight | 0.180 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) |
| Overvoltage category | II |

Environment

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| Standards | EN 62368-1 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 CSA C22.2 No 62368-1 UL 508 CSA C22.2 No 107.1 EN/IEC 62368-1 |
| Product certifications | CE CUL listed CUL recognized RCM CB Scheme EAC KC NEC: class 2 |
| Operating altitude | < 2000 m |
| Shock resistance | 150 m/s ² for 11 ms |
| IP degree of protection | IP20 |
| Ambient air temperature for operation | -20...-10 °C with current derating of 2 % per °C mounting position A < 2000 m -10...55 °C without derating mounting position A < 2000 m 55...70 °C with current derating of 3.33 % per °C mounting position A < 2000 m |
| 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 |

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| Electromagnetic immunity | <p>Immunity to electrostatic discharge - test level: 8 kV (contact discharge) conforming to EN/IEC 61000-4-2</p> <p>Immunity to electrostatic discharge - test level: 15 kV (air discharge) conforming to EN/IEC 61000-4-2</p> <p>Immunity to conducted RF disturbances - test level: 15 V/m (80 MHz...2 GHz) conforming to EN/IEC 61000-4-3</p> <p>Immunity to conducted RF disturbances - test level: 5 V/m (2...2.7 GHz) conforming to EN/IEC 61000-4-3</p> <p>Immunity to conducted RF disturbances - test level: 5 V/m (2.7...6 GHz) conforming to EN/IEC 61000-4-3</p> <p>Immunity to fast transients - test level: 4 kV (on input-output) conforming to EN/IEC 61000-4-4</p> <p>Surge immunity test - test level: 4 kV (between power supply and earth) conforming to EN/IEC 61000-4-5</p> <p>Surge immunity test - test level: 3 kV (between phases) conforming to EN/IEC 61000-4-5</p> <p>Immunity to conducted RF disturbances - test level: 15 V (0.15...80 MHz) conforming to EN/IEC 61000-4-6</p> <p>Immunity to magnetic fields - test level: 30 A/m (50...60 Hz) conforming to EN/IEC 61000-4-8</p> <p>Immunity to voltage dips conforming to EN/IEC 61000-4-11</p> <p>Disturbing field emission conforming to EN 55016-2-3</p> <p>Limits for harmonic current emissions conforming to EN 61000-3-2 conforming to EN 55016-1-2 conforming to EN 55016-2-1</p> |
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| Electromagnetic emission | <p>Conducted emissions conforming to EN 61000-6-3</p> <p>Radiated emissions conforming to EN 61000-6-4</p> |
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Packing Units

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|-------------------------------------|----------|
| Unit Type of Package 1 | PCE |
| Number of Units in Package 1 | 1 |
| Package 1 Height | 3.75 cm |
| Package 1 Width | 8.6 cm |
| Package 1 Length | 10.9 cm |
| Package 1 Weight | 218.0 g |
| Unit Type of Package 2 | S02 |
| Number of Units in Package 2 | 30 |
| Package 2 Height | 15.0 cm |
| Package 2 Width | 30.0 cm |
| Package 2 Length | 40.0 cm |
| Package 2 Weight | 6.917 kg |

Offer Sustainability

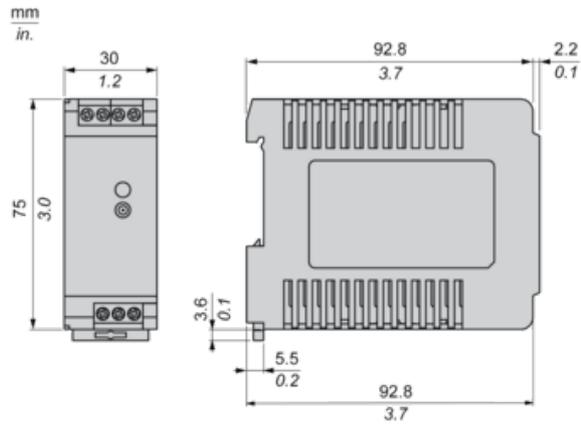
| | |
|-----------------------------------|---|
| Sustainable offer status | Green Premium product |
| REACH Regulation | REACH Declaration |
| EU RoHS Directive | Pro-active compliance (Product out of EU RoHS legal scope) EU RoHS Declaration |
| Mercury free | Yes |
| China RoHS Regulation | China RoHS 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 |
| California proposition 65 | WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov |

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.

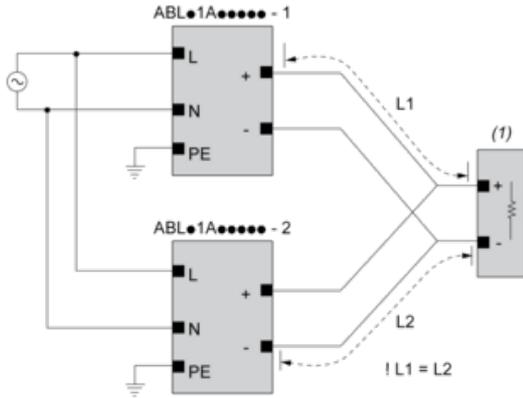
Dimensions

Front and Side Views



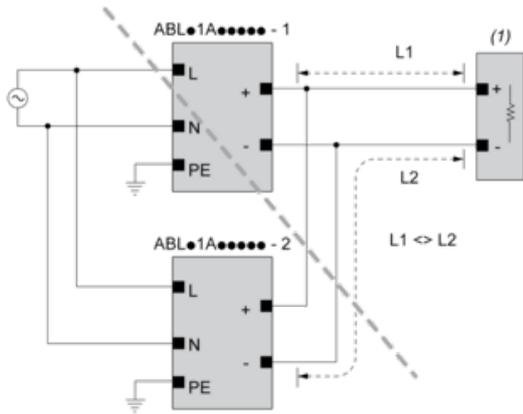
Connections and Schema

Correct Parallel Connection



(1) : Load

Incorrect Parallel Connection



(1) : Load

$ABLx1Axxxxx-1 = ABLx1Axxxxx-2$

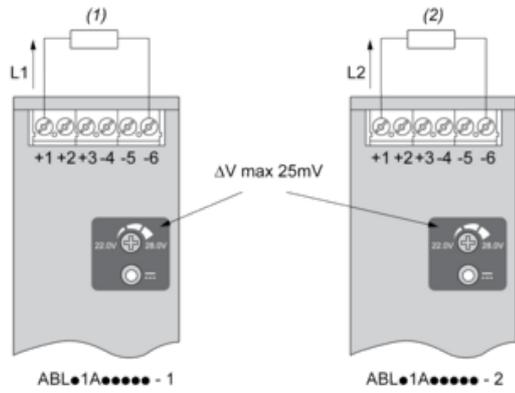
max 2 x $ABLx1Axxxxx$

$L1 = L2$

ΔV max 25 mV

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

Output Voltage Balancing



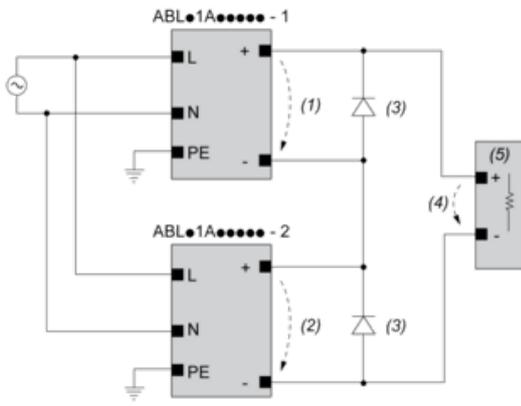
(1) : R_{Load1}

(2) : R_{Load2}

$R_{Load1} = R_{Load2}$

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

Series Connection



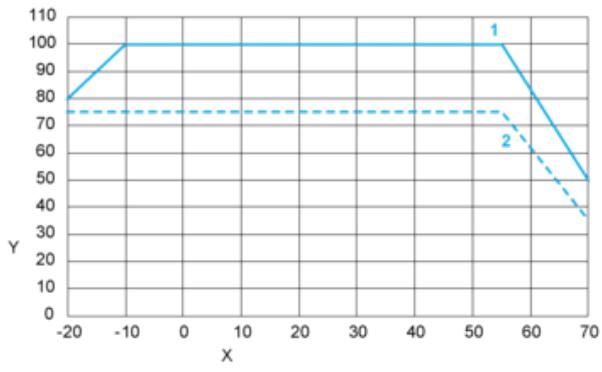
- (1) : V_{out1}
- (2) : V_{out2}
- (3) : 2 x Diode, $V_{RRM} > 2 \times V_{out1/2}$, $I_F > 2 \times I_{nom1/2}$
- (4) : $V_{Load} = 2 \times V_{out}$
- (5) : Load

Connections and Schema

| | (1) | | |
|-------------|-------|-------|-------|
| | <40°C | <50°C | <70°C |
| ABLS1A24021 | 50°C | 60°C | 75°C |
| ABLS1A24038 | 50°C | 60°C | 75°C |
| ABLS1A12062 | 50°C | 60°C | 80°C |
| ABLS1A24031 | 50°C | 60°C | 80°C |
| ABLS1A12100 | 60°C | 70°C | 90°C |
| ABLS1A24050 | 60°C | 70°C | 90°C |
| ABLS1A48025 | 60°C | 70°C | 90°C |
| ABLS1A24100 | 60°C | 70°C | 90°C |
| ABLS1A24200 | 95°C | 95°C | 90°C |

(1) : Ambient

Performance Curve



X : Surrounding Air Temperature

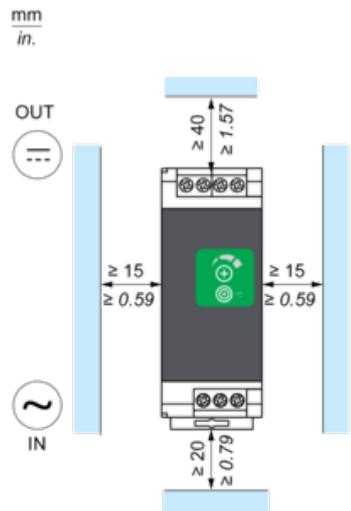
Y : Percentage of Max Load (%)

1 : Position A

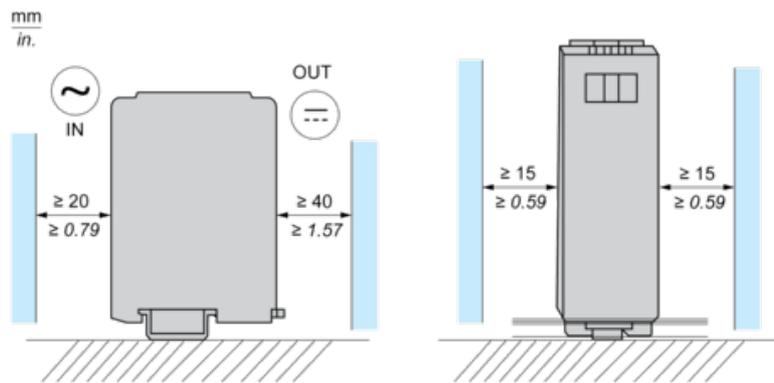
2 : Position B + C

Mounting

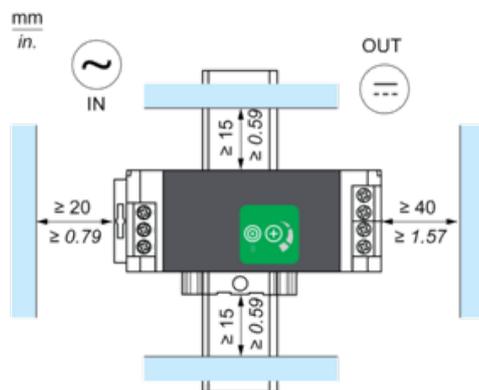
Mounting Position A



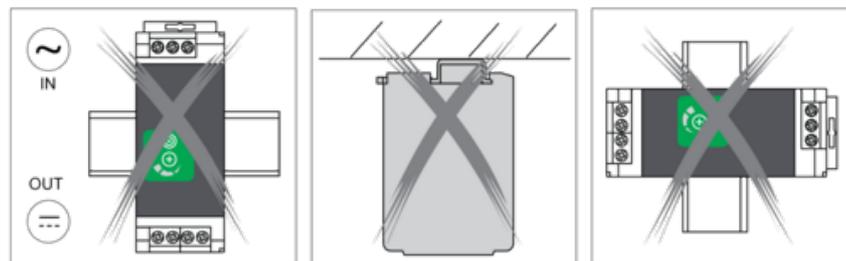
Mounting Position B



Mounting Position C



Incorrect Mounting



Recommended replacement(s)