# Product datasheet

Specifications



## Regulated Power Supply, 100-240V AC, 12V 2.1 A, single phase, Modular

ABLM1A12021

**EAN Code: 3606481500144**

## Main

| | |
|---|---|
| **Range Of Produc** | Modicon Power Supply |
| **Product Or Component Type** | Power supply |
| **Power Supply Type** | Regulated switch mode |
| **Variant Option** | Modular |
| **Enclosure Material** | Plastic |
| **Nominal Input Voltage** | 100...240 V AC single phase<br>100...240 V AC phase to phase |
| **Rated Power In W** | 25 W |
| **Output Voltage** | 12 V DC |
| **Power Supply Output Current** | 2.1 A |

## Complementary

| | |
|---|---|
| **Input Voltage Limits** | 90...264 V AC |
| **Nominal Network Frequency** | 50…60 Hz |
| **Network System Compatibility** | TN<br>TT<br>IT |
| **Maximum Leakage Current** | 0.25 mA 240 V AC |
| **Input Protection Type** | Integrated fuse (not interchangeable) 3.15 A<br>External protection (recommended) 20 A Curve B<br>External protection (recommended) 20 A Curve C<br>External protection (recommended) 4 A Curve B<br>External protection (recommended) 4 A Curve C |
| **Inrush Current** | 25 A at 115 V<br>50 A at 230 V |
| **Power Factor** | 0.48 at 115 V AC<br>0.38 at 230 V AC |
| **Efficiency** | 85 % at 115 V AC<br>85 % at 230 V AC |
| **Output Voltage Adjustment** | 12...15 V |
| **Power Dissipation In W** | 4.6 W |
| **Current Consumption** | < 0.8 A 115 V AC<br>< 0.6 A 230 V AC |
| **Turn-On Time** | < 2 s |
| **Holding Time** | > 20 ms 115 V AC<br>> 60 ms 230 V AC |
| **Startup With Capacitive Loads** | 3000 µF |

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

| | |
|---|---|
| **Residual Ripple** | < 100 mV |
| **Meantime Between Failure [Mtbf]** | 2500000 h at 25 °C, full load<br>1000000 h at 55 °C, 80 % load |
| **Output Protection Type** | Against overload and short-circuits, protection technology: automatic reset<br>Against over temperature, protection technology: manual reset<br>Against overvoltage, protection technology: manual reset |
| **Connections - Terminals** | Screw connection: 0.5...1.5 mm², (AWG 20...AWG 16) without wire end ferrule for input/output<br>Screw connection: 0.5...1 mm², (AWG 20...AWG 18) with wire end ferrule for input/output |
| **Line And Load Regulation** | < 0.5 % at in line<br>< 1 % at 0 to 100 % load |
| **Status Led** | 1 LED (green) output voltage |
| **Depth** | 55.6 mm |
| **Height** | 91 mm |
| **Width** | 36 mm |
| **Net Weight** | 0.170 kg |
| **Output Coupling** | Serial |
| **Mounting Support** | Top hat type TH35-15 rail conforming to IEC 60715<br>Top hat type TH35-7.5 rail conforming to IEC 60715<br>Double-profile DIN rail<br>panel mounting |
| **Supply** | SELV conforming to IEC 60950-1<br>SELV conforming to IEC 60204-1<br>SELV conforming to IEC 60364-4-41 |
| **Dielectric Strength** | 3000 V AC input/output |
| **Service Life** | 10 year(s) |
| **Overvoltage Category** | II |

# Environment

| | |
|---|---|
| **Standards** | IEC 62368-1<br>EN/IEC 61010-1<br>EN 61010-2-201<br>EN/IEC 61204-3<br>IEC 61000-6-1<br>IEC 61000-6-2<br>IEC 61000-6-3<br>IEC 61000-6-4<br>IEC 61000-3-2<br>EN 61000-3-3<br>UL 62368-1<br>UL 61010-1<br>UL 61010-2-201<br>CSA C22.2 No 62368-1<br>CSA C22.2 No 61010-1<br>CSA C22.2 No 61010-2-201<br>EN/IEC 62368-1 |
| **Product Certifications** | CE<br>CUL listed<br>CUL recognized<br>RCM<br>CB Scheme<br>EAC<br>KC<br>NEC: class 2 |
| **Operating Altitude** | < 2000 m overvoltage category III<br>2000 m...5000 m overvoltage category II |
| **Shock Resistance** | 150 m/s² for 11 ms |
| **Ip Degree Of Protection** | IP20 |

| | |
|---|---|
| **Ambient Air Temperature For Operation** | -25…55 °C without current derating mounting position A < 2000 m<br>55…70 °C with current derating of 2.67 % per °C mounting position A < 2000 m |
| **Electrical Shock Protection Class** | Class II without PE connection |
| **Pollution Degree** | 2 |
| **Vibration Resistance** | 3 mm (f= 2…9 Hz) conforming to IEC 60721-3-3<br>10 m/s² (f= 9…200 Hz) conforming to IEC 60721-3-3 |
| **Electromagnetic Immunity** | Immunity to electrostatic discharge - test level: 8 kV (contact discharge) conforming to IEC 61000-4-2<br>Immunity to electrostatic discharge - test level: 15 kV (air discharge) conforming to IEC 61000-4-2<br>Electromagnetic field immunity test - test level: 15 V/m (80 MHz...2 GHz) conforming to IEC 61000-4-3<br>Electromagnetic field immunity test - test level: 5 V/m (2...2.7 GHz) conforming to IEC 61000-4-3<br>Electromagnetic field immunity test - test level: 5 V/m (2.7...6 GHz) conforming to IEC 61000-4-3<br>Immunity to fast transients - test level: 4 kV (on input-output) conforming to IEC 61000-4-4<br>Surge immunity test - test level: 4 kV (between power supply and earth) conforming to IEC 61000-4-5<br>Surge immunity test - test level: 3 kV (between phases) conforming to IEC 61000-4-5<br>Immunity to conducted disturbances - test level: 15 V (0.15...80 MHz) conforming to IEC 61000-4-6<br>Immunity to magnetic fields - test level: 30 A/m (50...60 Hz) conforming to IEC 61000-4-8<br>Immunity to voltage dips - test level: 100 % (1 cycle) conforming to IEC 61000-4-11<br>Immunity to voltage dips - test level: 60 % (10 cycles) conforming to IEC 61000-4-11<br>Immunity to voltage dips - test level: 30 % (25 cycles) conforming to IEC 61000-4-11<br>Disturbing field emission conforming to EN 55016-2-3<br>Limits for harmonic current emissions conforming to IEC 61000-3-2<br>conforming to EN 55016-1-2<br>conforming to EN 55016-2-1 |
| **Electromagnetic Emission** | Conducted emissions conforming to IEC 61000-6-3<br>Radiated emissions conforming to IEC 61000-6-4 |

## Packing Units

| | |
|---|---|
| **Unit Type Of Package 1** | PCE |
| **Number Of Units In Package 1** | 1 |
| **Package 1 Height** | 4.5 cm |
| **Package 1 Width** | 6.2 cm |
| **Package 1 Length** | 11 cm |
| **Package 1 Weight** | 172 g |
| **Unit Type Of Package 2** | S02 |
| **Number Of Units In Package 2** | 29 |
| **Package 2 Height** | 15 cm |
| **Package 2 Width** | 30 cm |
| **Package 2 Length** | 40 cm |
| **Package 2 Weight** | 3.67 kg |
| **Unit Type Of Package 3** | P06 |
| **Number Of Units In Package 3** | 464 |
| **Package 3 Height** | 75.0 cm |
| **Package 3 Width** | 60.0 cm |
| **Package 3 Length** | 80.0 cm |
| **Package 3 Weight** | 127 kg |

## Contractual warranty

| | |
|---|---|
| **Warranty** | 18 months |

## Sustainability

**Green Premium$^{TM}$ label** is Schneider Electric's commitment to delivering products with best-in-class environmental performance. Green Premium promises compliance with the latest regulations, transparency on environmental impacts, as well as circular and low-$CO_2$ products.

**Guide to assessing product sustainability** is a white paper that clarifies global eco-label standards and how to interpret environmental declarations.

Learn more about Green Premium >

Guide to assess a product's sustainability >



Transparency



RoHS/REACh

## Well-being performance

| | |
|---|---|
| Mercury Free | |
| Rohs Exemption Information | Yes |

## Certifications & Standards

| | |
|---|---|
| **Reach Regulation** | REACh Declaration |
| **Eu Rohs Directive** | Pro-active compliance (Product out of EU RoHS legal scope) |
| **China Rohs Regulation** | China RoHS declaration |
| **Environmental Disclosure** | Product Environmental Profile |
| **Weee** | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins |
| **Circularity Profile** | End of Life Information |

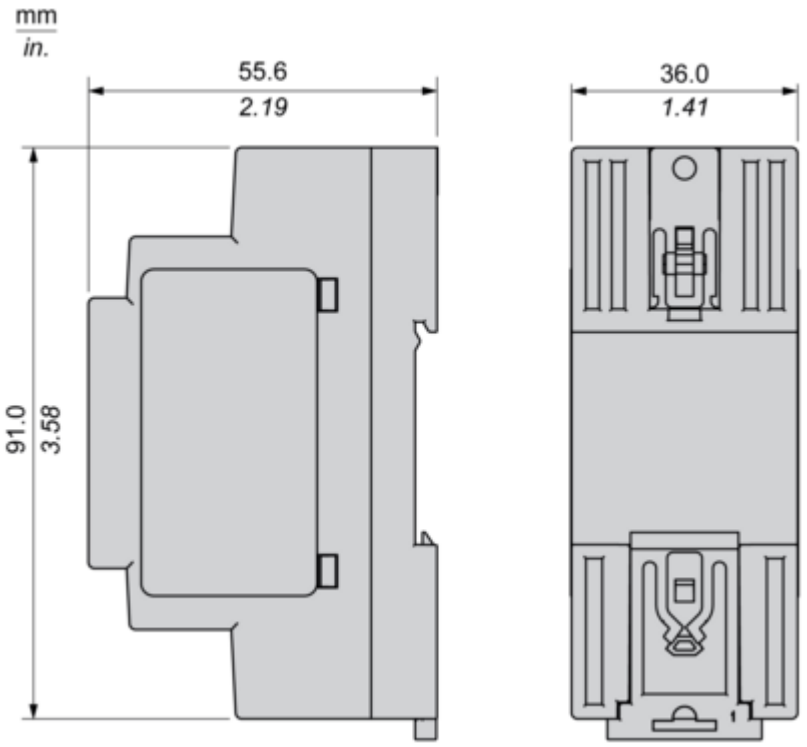
## Dimensions Drawings

### 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 device for the product is required.
- 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 disconnecting device.
- The power supply is only suitable for audio, video, information, communication, industrial and control equipment.

## Dimensions

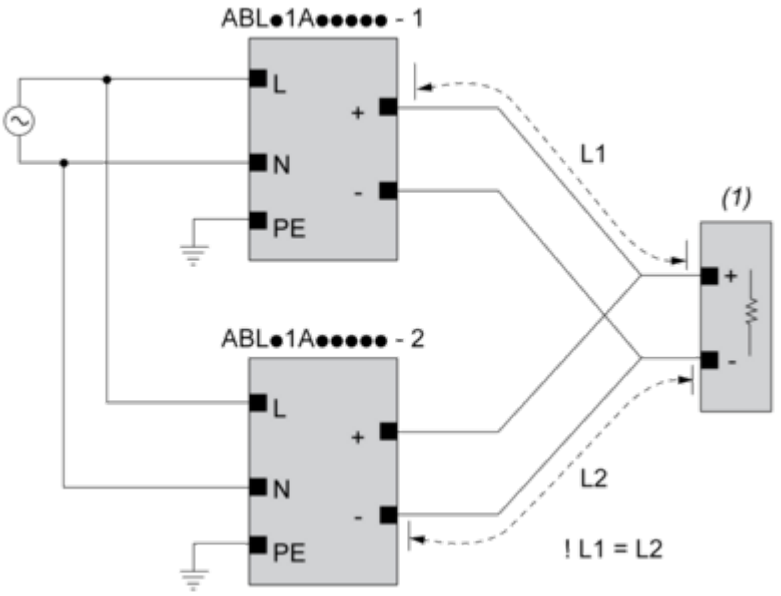
### Side and Rear View



Connections and Schema

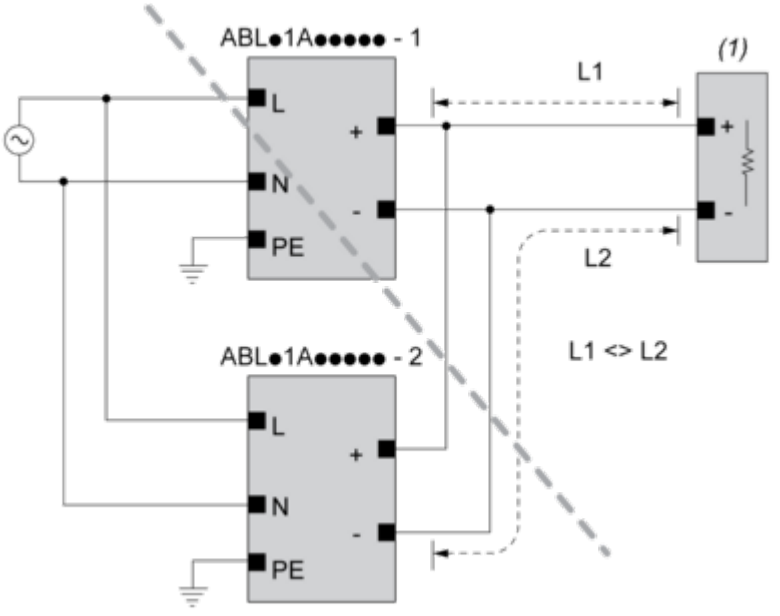
## Connections and Schema

### Correct Parallel Connection



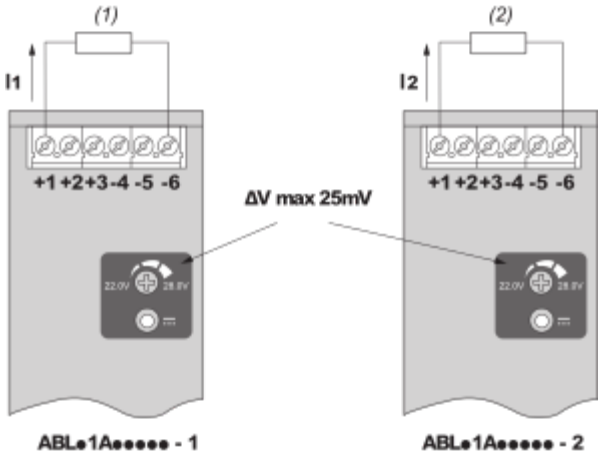

**(1)** : Load

### Incorrect Parallel Connection



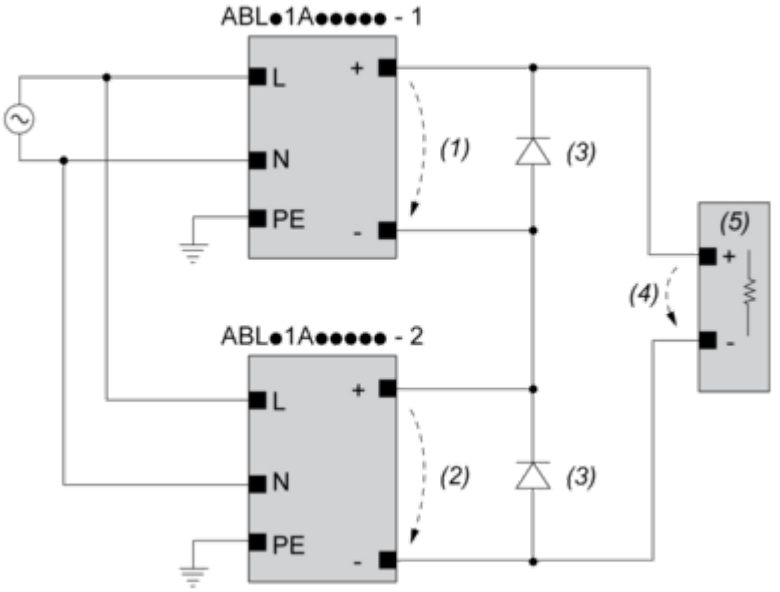

**(1)** : Load
ABLx1Axxxxx-1 = ABLx1Axxxxx-2
max 2 x ABLx1Axxxxx
L1 = L2
$\Delta V$ max 25 mV
$I_{Load} < 90\% \ 2 \times I_{nom}$

### 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

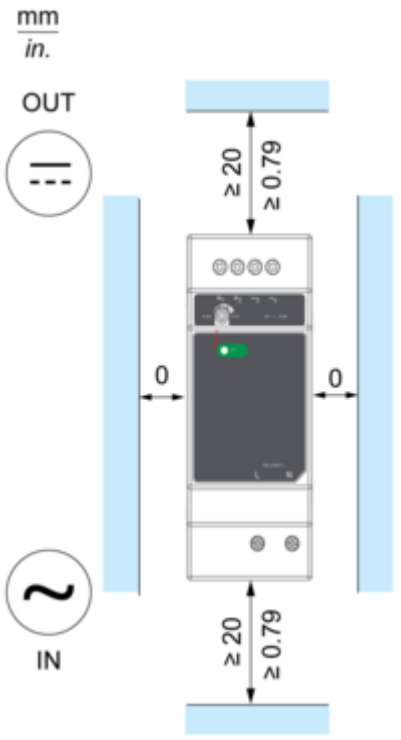
| | | (1) | | |
|---|---|---|---|---|
| | | <40°C | <50°C | <70°C |
| ABLM1A24004 | | 60°C | 75°C | 75°C |
| ABLM1A12010 | | 60°C | 75°C | 90°C |
| ABLM1A24006 | | 60°C | 75°C | 90°C |
| ABLM1A05036 | Input | 60°C | 75°C | 90°C |
| | Output | 75°C | 90°C | 90°C |
| ABLM1A12021 | | 60°C | 75°C | 90°C |
| ABLM1A24012 | | 60°C | 75°C | 90°C |
| ABLM1A12042 | | 60°C | 75°C | 90°C |
| ABLM1A24025 | | 60°C | 75°C | 90°C |

**(1) :** Ambient

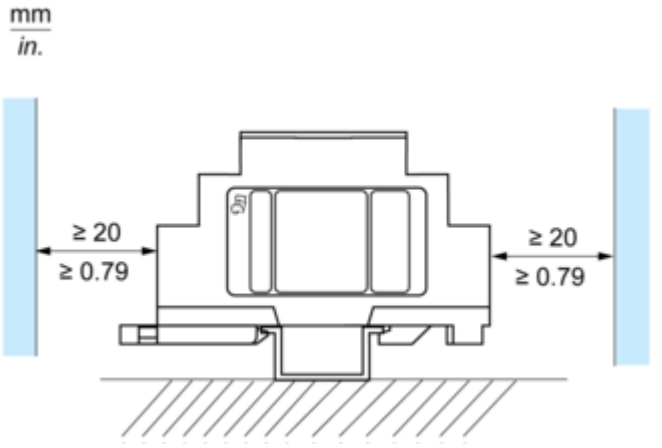
Mounting and Clearance

## Mounting

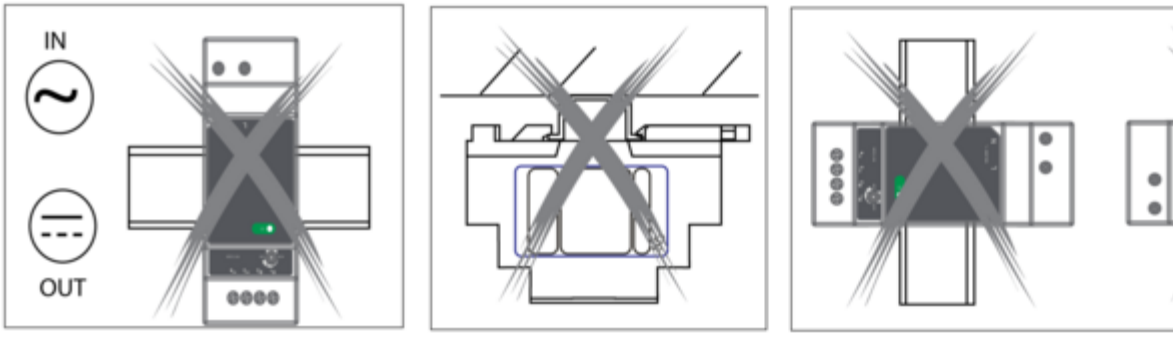
### Mounting Position A




### Mounting Position B

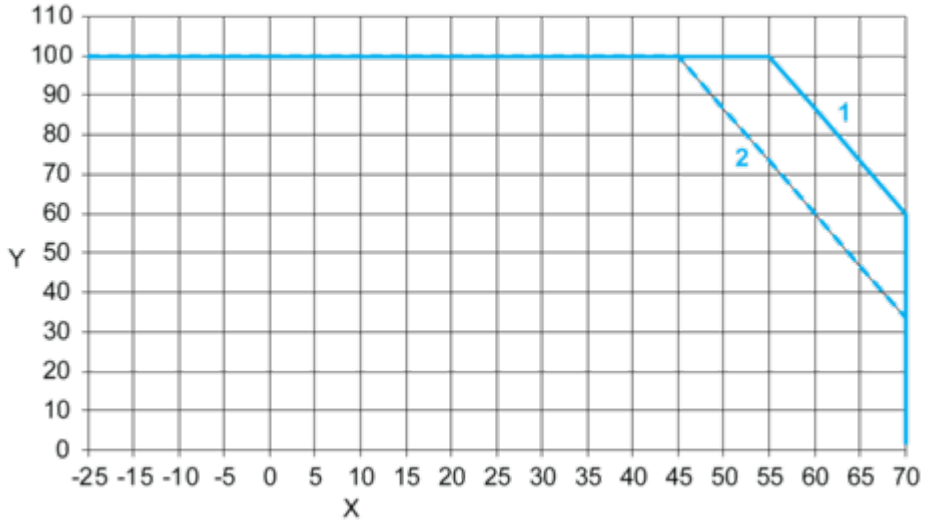



### Incorrect Mounting


IN
OUT

Performance Curves

**Performance Curve**




**X :** Ambient Temperature (°C)
**Y :** Percentage of Max Load (%)
**1 :** Mounting A & B, altitude 2000M
**2 :** Mounting A & B, altitude 5000M