# Product datasheet

Specifications



## Regulated Power Supply, 100-240V AC, 24V 1.2 A, single phase, Modular

ABLM1A24012

## Main

| | |
|---|---|
| **Range of product** | 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** | 30 W |
| **Output voltage** | 24 V DC |
| **Power supply output current** | 1.25 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** | 87 % at 115 V AC<br>87 % at 230 V AC |
| **Output voltage adjustment** | 24...28 V |
| **Power dissipation in W** | 5 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 |

Excluding VAT, FCA Jabal Ali & are subject to change – check with your local distributor.

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, (20 AWG...16 AWG) without wire end ferrule for input/output<br>Screw connection: 0.5...1 mm², (20 AWG...18 AWG) 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<br>Parallel |
| **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 |
| **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** | 5.000 cm |
| **Package 1 Width** | 6.000 cm |
| **Package 1 Length** | 11.000 cm |
| **Package 1 Weight** | 172.000 g |
| **Unit Type of Package 2** | S02 |
| **Number of Units in Package 2** | 29 |
| **Package 2 Height** | 15.000 cm |
| **Package 2 Width** | 30.000 cm |
| **Package 2 Length** | 40.000 cm |
| **Package 2 Weight** | 5.317 kg |
| **Unit Type of Package 3** | P12 |
| **Number of Units in Package 3** | 464 |
| **Package 3 Height** | 45.000 cm |
| **Package 3 Width** | 80.000 cm |
| **Package 3 Length** | 120.000 cm |
| **Package 3 Weight** | 97.312 kg |

## Contractual warranty

| | |
|---|---|
| **Warranty (in months)** | 18 |

## Environmental Data

Schneider Electric aims to achieve Net Zero status by 2050 through supply chain partnerships, lower impact materials, and circularity via our ongoing “Use Better, Use Longer, Use Again” campaign to extend product lifetimes and recyclability.

Environmental Data explained >

How we assess product sustainability >

### Environmental footprint

| | |
|---|---|
| Total lifecycle Carbon footprint | **184 kg CO2 eq.** |
| Carbon footprint of the manufacturing phase [A1 to A3] | **6 kg CO2 eq.** |
| Carbon footprint of the distribution phase [A4] | **0.1 kg CO2 eq.** |
| Carbon footprint of the installation phase [A5] | **0 kg CO2 eq.** |
| Carbon footprint of the use phase [B2, B3, B4, B6] | **177 kg CO2 eq.** |
| Carbon footprint of the end-of-life phase [C1 to C4] | **1 kg CO2 eq.** |
| Environmental Disclosure | Product Environmental Profile |

## Use Better

### Materials and Substances

| | |
|---|---|
| Packaging made with recycled cardboard | **No** |
| Packaging without single use plastic | **Yes** |
| SCIP Number | **12ea84a2-1fbd-460a-b051-6fc2e008caa0** |
| EU RoHS Directive | Compliant By Exemption |
| REACh Regulation | Reference contains Substances of Very High Concern above the threshold |

## Use Longer

### Lifetime extension

| | |
|---|---|
| Repair | **No** |

## Use Again

### Repack and remanufacture

| | |
|---|---|
| Recyclability potential, in % | **15** |
| End of life manual availability | End of Life Information |
| Take-back | **No** |
| WEEE Label | **The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins** |

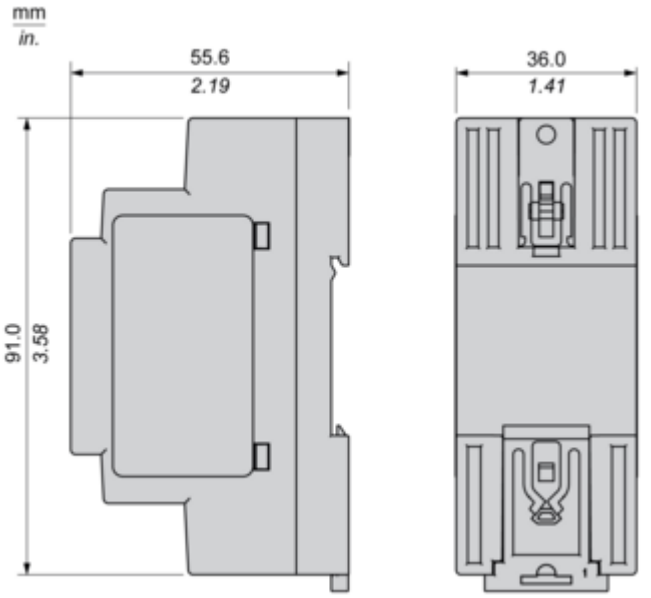
Dimensions Drawings

## 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

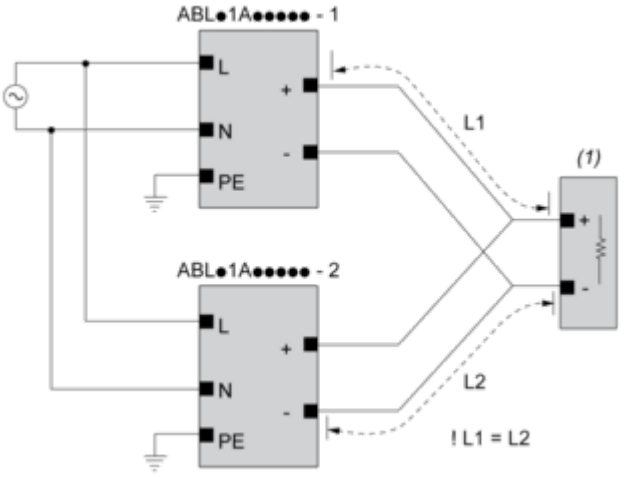
### Side and Rear View



Connections and Schema

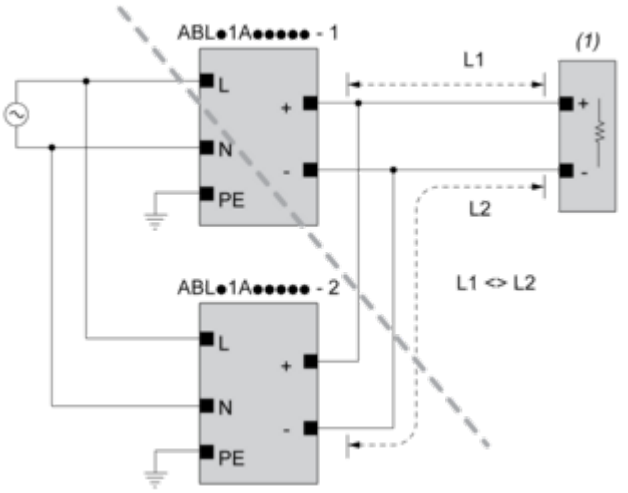
## Connections and Schema

### Correct Parallel Connection



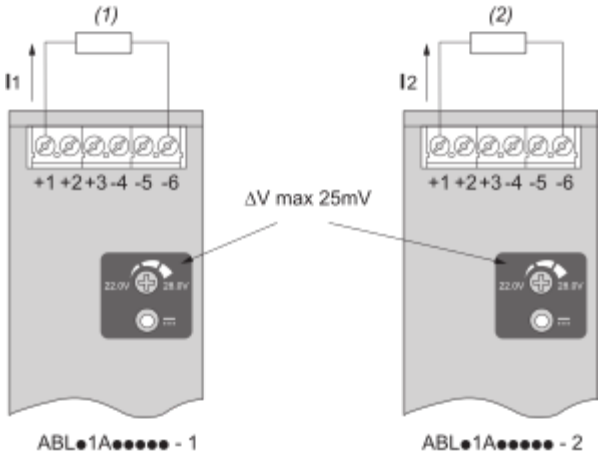

**(1)** : Load

### Incorrect Parallel Connection




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

### Output Voltage Balancing



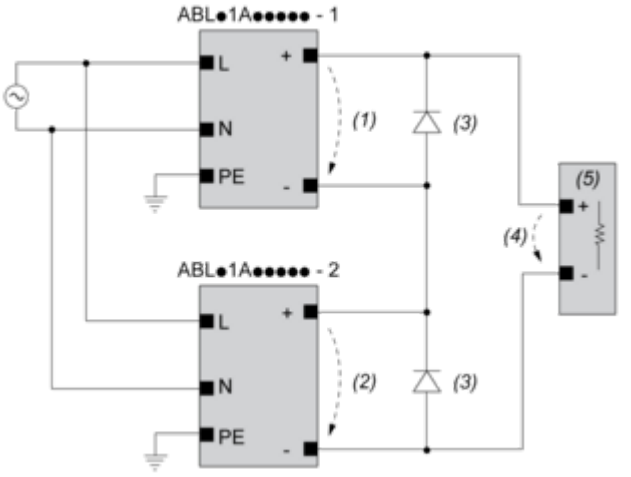

**(1)** : $R_{Load1}$

**(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

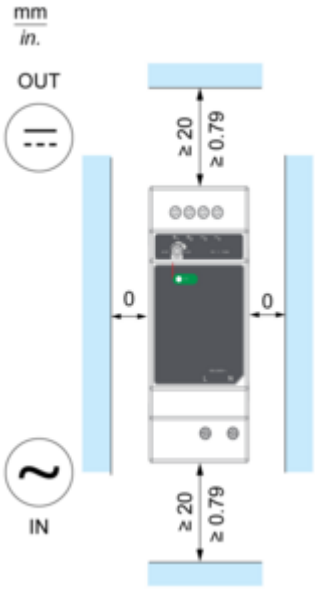
| | | (1) | | |
|---|---|---|---|---|
| | | <40ºC | <50ºC | <70ºC |
| ABLM1A24004 | | 60ºC | 75ºC | 75ºC |
| ABLM1A12010 | | 60ºC | 75ºC | 90ºC |
| ABLM1A24006 | | 60ºC | 75ºC | 90ºC |
| ABLM1A05036 | Input | 60ºC | 75ºC | 90ºC |
| | Output | 75ºC | 90ºC | 90ºC |
| ABLM1A12021 | | 60ºC | 75ºC | 90ºC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

**(1) :** Ambient

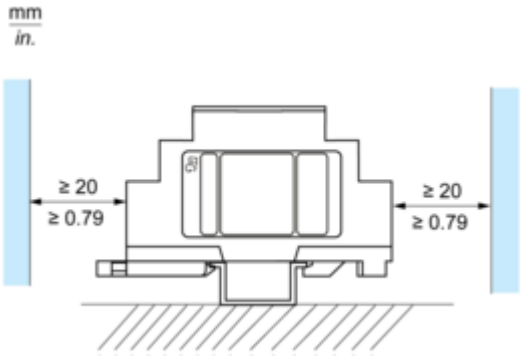
Mounting and Clearance

## Mounting

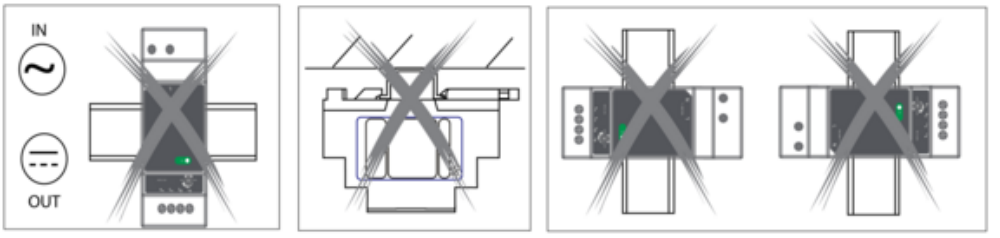
### Mounting Position A




### Mounting Position B

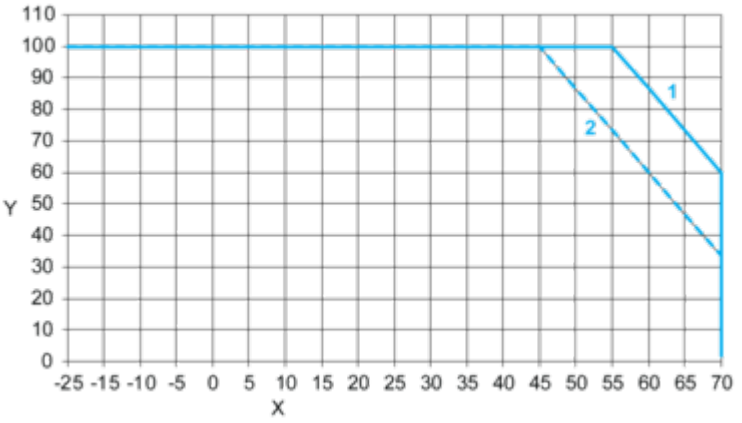



### Incorrect Mounting



Performance Curves

**Performance Curve**

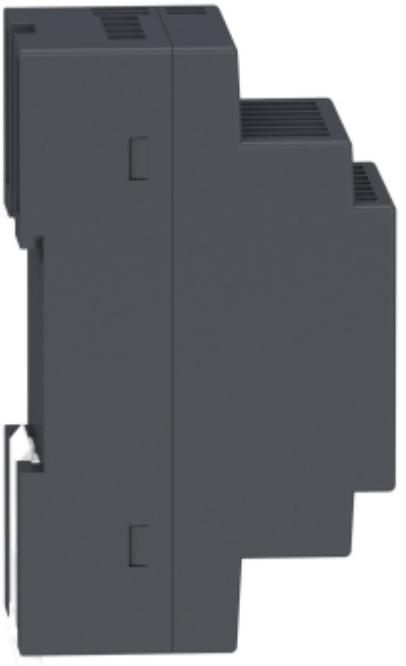



**X :** Ambient Temperature (ºC)
**Y :** Percentage of Max Load (%)
**1 :** Mounting A & B, altitude 2000M
**2 :** Mounting A & B, altitude 5000M

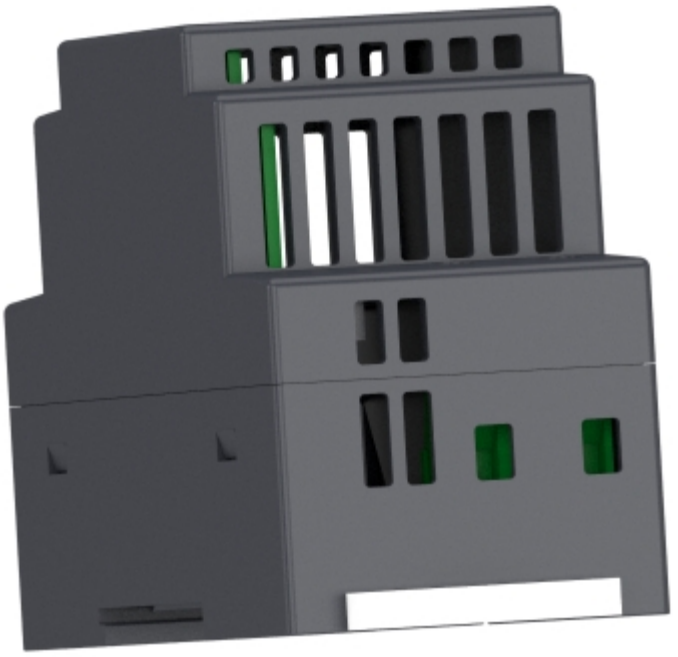
Image of product / Alternate images

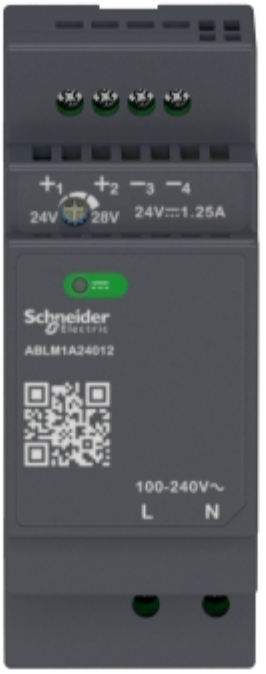
**Alternative**





# Product datasheet ABLM1A24012








Modicon
ABLM1A24012
Modular
Made in Thailand
Schneider Electric