Product datasheet

Specifications

Regulated Power Supply, 100 to 240V AC, 12V, 4.2A, single phase, Modular

ABLM1A12042

Discontinued on: Nov 13, 2023 AD

Discontinued

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 100...240 V AC phase to phase
Rated power in W	50 W
Output voltage	12 V DC
Power supply output current	4.17 A

Complementary

Input voltage limits	90...264 V AC
Nominal network frequency	50…60 Hz
Network system compatibility	TN TT IT
Maximum leakage current	0.25 mA 240 V AC
Input protection type	Integrated fuse (not interchangeable) 3.15 A External protection (recommended) 20 A Curve B External protection (recommended) 20 A Curve C External protection (recommended) 10 A Curve B External protection (recommended) 6 A Curve C
Inrush current	30 A at 115 V 60 A at 230 V
Power factor	0.50 at 115 V AC 0.39 at 230 V AC
Efficiency	88 % at 115 V AC 88 % at 230 V AC
Output voltage adjustment	12...15 V
Power dissipation in W	5.5 W
Current consumption	< 1.5 A 115 V AC < 1 A 230 V AC
Turn-on time	< 2 s
Holding time	> 20 ms 115 V AC > 60 ms 230 V AC

Startup with capacitive loads	3000 µF
Residual ripple	< 100 mV
Meantime between failure [MTBF]	1500000 h at 25 °C, full load 1000000 h at 55 °C, 80 % load
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 mm², (AWG 20...AWG 14) without wire end ferrule for output Screw connection: 0.5...1.5 mm², (AWG 20...AWG 16) with wire end ferrule for output Screw connection: 0.5...1.5 mm², (AWG 20...AWG 16) for input
Line and load regulation	< 0.5 % at in line < 1 % at 0 to 100 % load
Status LED	1 LED (green) output voltage
Depth	55.6 mm
Height	91 mm
width	53 mm
Net weight	0.221 kg
Output coupling	Serial Parallel
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 panel mounting
Supply	SELV conforming to IEC 60950-1 SELV conforming to IEC 60204-1 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 EN/IEC 61010-1 EN 61010-2-201 EN/IEC 61204-3 IEC 61000-6-1 IEC 61000-6-2 IEC 61000-6-3 IEC 61000-6-4 IEC 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 NEC: class 2
Operating altitude	< 2000 m overvoltage category III 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 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 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 Immunity to electrostatic discharge - test level: 15 kV (air discharge) conforming to IEC 61000-4-2 Electromagnetic field immunity test - test level: 15 V/m (80 MHz...2 GHz) conforming to IEC 61000-4-3 Electromagnetic field immunity test - test level: 5 V/m (2...2.7 GHz) conforming to IEC 61000-4-3 Electromagnetic field immunity test - test level: 5 V/m (2.7...6 GHz) conforming to IEC 61000-4-3 Immunity to fast transients - test level: 4 kV (on input-output) conforming to IEC 61000-4-4 Surge immunity test - test level: 4 kV (between power supply and earth) conforming to IEC 61000-4-5 Surge immunity test - test level: 3 kV (between phases) conforming to IEC 61000-4-5 Immunity to conducted disturbances - test level: 15 V (0.15...80 MHz) conforming to IEC 61000-4-6 Immunity to magnetic fields - test level: 30 A/m (50...60 Hz) conforming to IEC 61000-4-8 Immunity to voltage dips - test level: 100 % (1 cycle) conforming to IEC 61000-4-11 Immunity to voltage dips - test level: 60 % (10 cycles) conforming to IEC 61000-4-11 Immunity to voltage dips - test level: 30 % (25 cycles) conforming to IEC 61000-4-11 Disturbing field emission conforming to EN 55016-2-3 Limits for harmonic current emissions conforming to IEC 61000-3-2 conforming to EN 55016-1-2 conforming to EN 55016-2-1
Electromagnetic emission	Conducted emissions conforming to IEC 61000-6-3 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	6.100 cm
Package 1 Width	6.100 cm
Package 1 Length	11.000 cm
Package 1 Weight	228.000 g
Unit Type of Package 2	S02
Number of Units in Package 2	24
Package 2 Height	15.000 cm
Package 2 Width	30.000 cm
Package 2 Length	40.000 cm
Package 2 Weight	5.819 kg

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.

How this information helps you

Environmental footprint

Carbon footprint (kg.eq.CO2 per CR, Total Life cycle)	**240**
Environmental Disclosure	**Product Environmental Profile**

Use Better

Materials and Substances

Packaging made with recycled cardboard	**No**
Packaging without single use plastic	**No**
EU RoHS Directive	**Pro-active compliance (Product out of EU RoHS legal scope)**
SCIP Number	**86cefe39-f12b-4dc7-bf4d-ccd095c653fe**
REACh Regulation	**REACh Declaration**
China RoHS Regulation	**China RoHS declaration**

Use Again

Repack and remanufacture

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**
Take-back	**No**

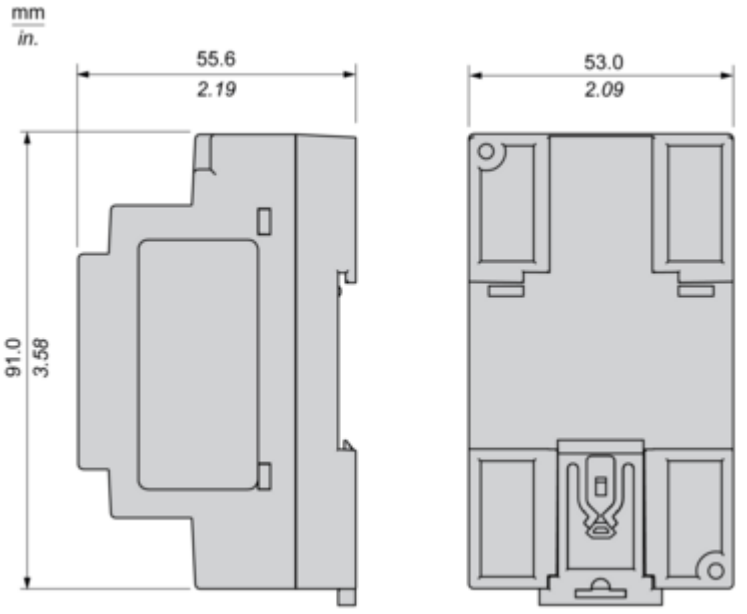
Dimensions Drawings

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

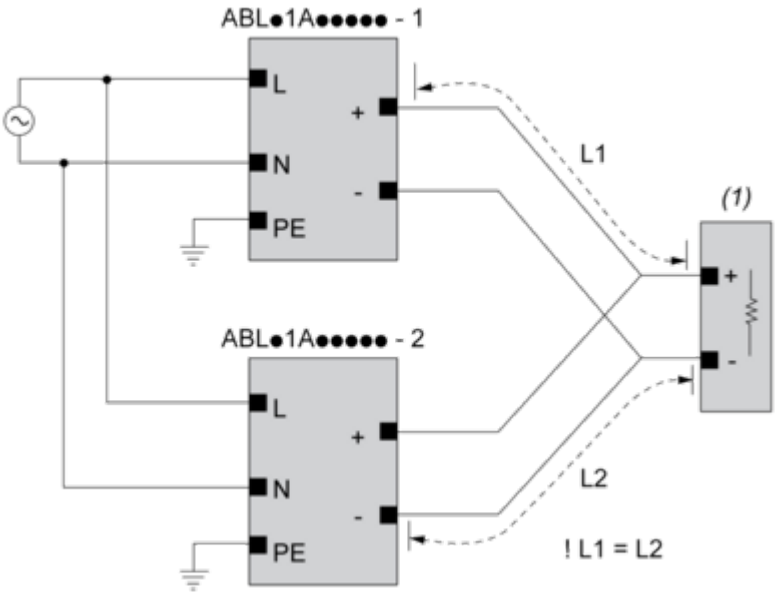
Side and Rear View



Connections and Schema

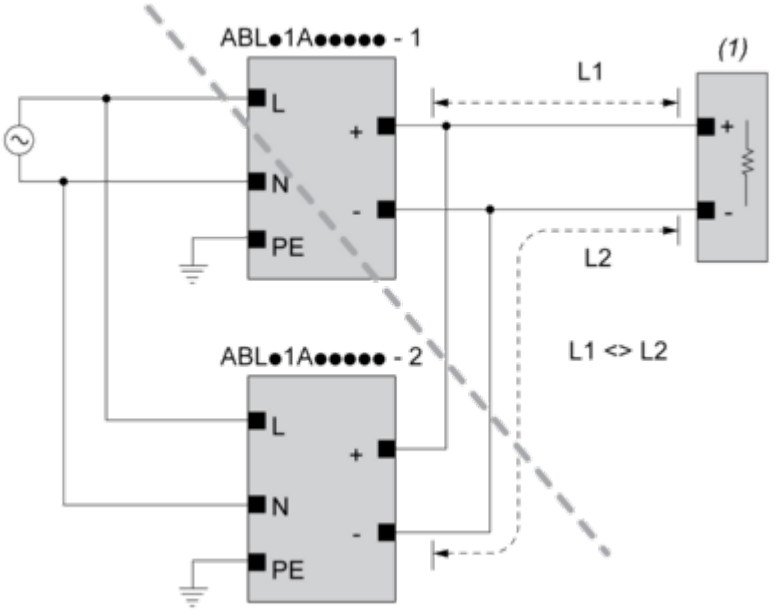
Connections and Schema

Correct Parallel Connection



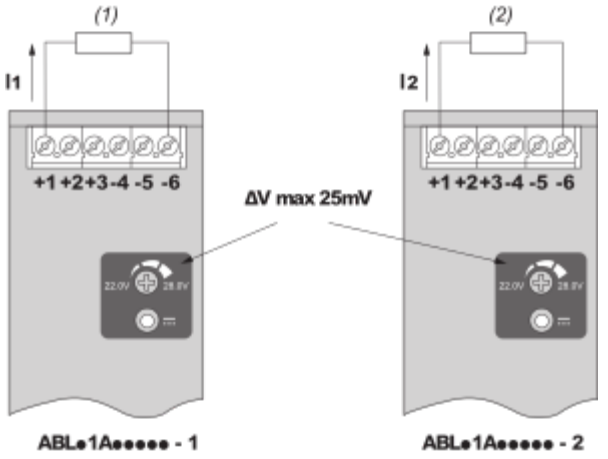
(1) : Load

Incorrect Parallel Connection



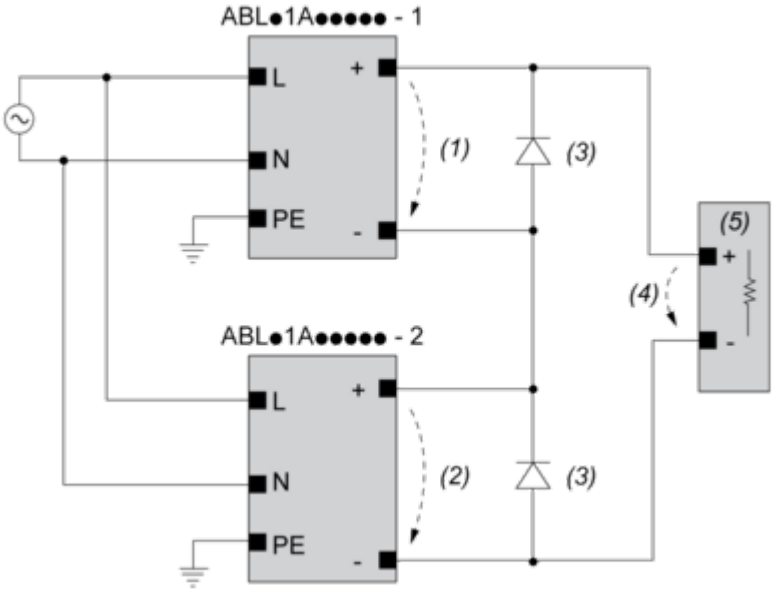
(1) : Load
ABLx1Axxxxx-1 = ABLx1Axxxxx-2
max 2 x ABLx1Axxxxx
L1 = L2
ΔV max 25 mV
$I_{Load} < 90\% \ 2 \times I_{nom}$

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

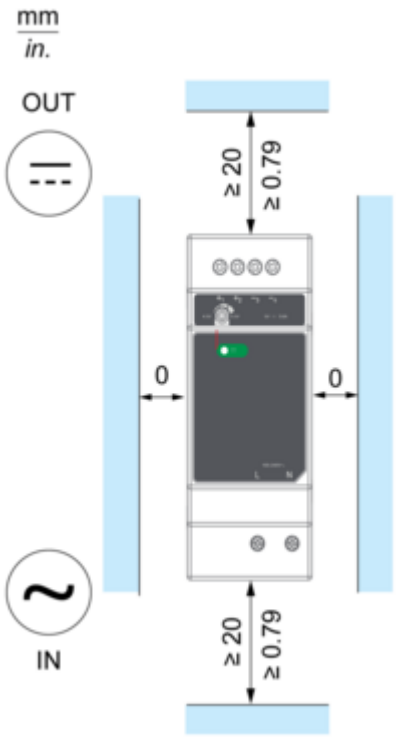
		(1)		
		<40°C	<50°C	<70°C
ABLM1A24004		60°C	75°C	75°C
ABLM1A12010		60°C	75°C	90°C
ABLM1A24006		60°C	75°C	90°C
ABLM1A05036	Input	60°C	75°C	90°C
	Output	75°C	90°C	90°C
ABLM1A12021		60°C	75°C	90°C
ABLM1A24012		60°C	75°C	90°C
ABLM1A12042		60°C	75°C	90°C
ABLM1A24025		60°C	75°C	90°C

(1) : Ambient

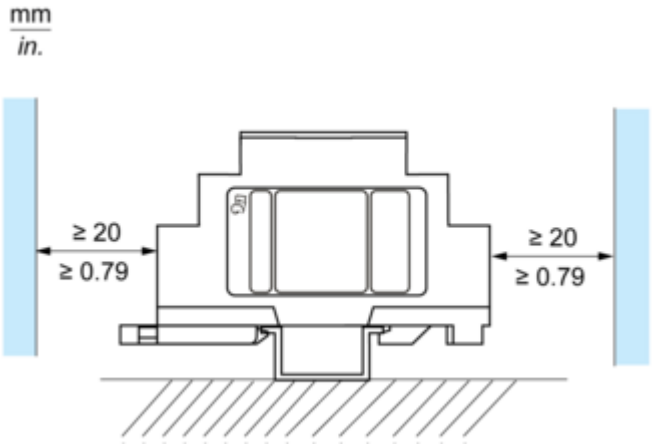
Mounting and Clearance

Mounting

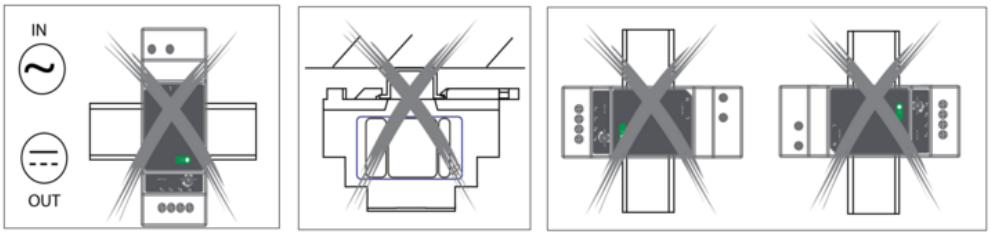
Mounting Position A



Mounting Position B

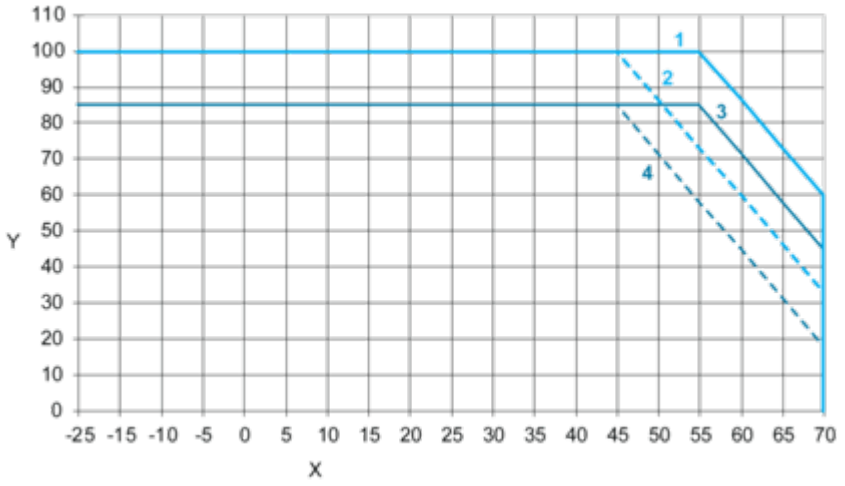


Incorrect Mounting


IN
OUT

Performance Curves

Performance Curve



X : Ambient Temperature (ºC)
Y : Percentage of Max Load (%)
1 : Altitude @2000M with Mounting A
2 : Altitude @5000M with Mounting A
3 : Altitude @2000M with Mounting B
4 : Altitude @5000M with Mounting B

Image of product / Alternate images

Alternative


+1 +2 −3 −4
12V 15V
12V⎓4.17A
Schneider Electric
ABLM1A12042
100-240V~
L N