

# Product data sheet

Specifications



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

ABLM1A12021

Product availability : Stock - Normally stocked in distribution facility

Price\* : 132.01 USD

### 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
Kw Rating	25 W
Output voltage	12 V DC
Power supply output current	2.1 A

### Complementary

Efficiency at full load	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) 4 A Curve B External protection (recommended) 4 A Curve C
Inrush current	25 A 115 V 50 A 230 V
Power factor	0.48 at 115 V AC 0.38 at 230 V AC
Efficiency	85 % 115 V AC 85 % 230 V AC
Output voltage adjustment	12...15 V
Power dissipation in W	4.6 W
Current consumption	< 0.8 A 115 V AC < 0.6 A 230 V AC
Turn-on time	< 2 s
Holding time	> 20 ms 115 V AC

\* Price is “List Price” and may be subject to a trade discount – check with your local distributor or retailer for actual price.

	> 60 ms 230 V AC
Startup with capacitive loads	3000 µF
Residual ripple	< 100 mV
Meantime between failure [MTBF]	2500000 h at 77 °F (25 °C), full load 1000000 h at 131 °F (55 °C), 80 % load
Output protection type	Against overload and short-circuits automatic reset Against over temperature manual reset Against overvoltage manual reset
Connections - terminals	Screw connection 0.5...1.5 mm², AWG 20...AWG 16) without wire end ferrule input/output Screw connection 0.5...1 mm², AWG 20...AWG 18) with wire end ferrule input/output
Line and load regulation	< 0.5 % network in line < 1 % network 0 to 100 % load
Status LED	1 LED (Green) output voltage
Depth	2.19 in (55.6 mm)
Height	3.58 in (91 mm)
Width	1.42 in (36 mm)
Net Weight	0.37 lb(US) (0.170 kg)
Output coupling	Serial
Mounting support	Top hat type TH35-15 rail IEC 60715 Top hat type TH35-7.5 rail IEC 60715 Double-profile DIN rail panel mounting
Supply	SELV IEC 60950-1 SELV IEC 60204-1 SELV 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	< 6561.68 ft (2000 m) overvoltage category III 2000 m...5000 m overvoltage category II
Shock resistance	150 m/s² 11 ms
IP degree of protection	IP20
Ambient air temperature for operation	-13...131 °F (-25...55 °C) without current derating mounting position A < 6561.68 ft (2000 m) 131...158 °F (55...70 °C) with current derating of 2.67 % per °C mounting position A < 6561.68 ft (2000 m)

Electrical shock protection class	Class II without PE connection
Pollution degree	2
Vibration resistance	3 mm 2...9 Hz)IEC 60721-3-3 10 m/s² 9...200 Hz)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 IEC 61000-6-3 Radiated emissions IEC 61000-6-4

### Ordering and shipping details

Category	22525-ABL8 AND ABL7 POWER SUPPLIE
Discount Schedule	CP12
GTIN	3606481500144
Returnability	Yes
Country of origin	TH

### Packing Units

Unit Type of Package 1	PCE
Number of Units in Package 1	1
Package 1 Height	1.77 in (4.5 cm)
Package 1 Width	2.44 in (6.2 cm)
Package 1 Length	4.33 in (11 cm)
Package 1 Weight	6.07 oz (172 g)
Unit Type of Package 2	S02
Number of Units in Package 2	29
Package 2 Height	5.91 in (15 cm)
Package 2 Width	11.81 in (30 cm)
Package 2 Length	15.75 in (40 cm)
Package 2 Weight	8.09 lb(US) (3.67 kg)
Unit Type of Package 3	P06
Number of Units in Package 3	464
Package 3 Height	29.53 in (75.0 cm)
Package 3 Width	23.62 in (60.0 cm)
Package 3 Length	31.50 in (80.0 cm)
Package 3 Weight	279.99 lb(US) (127 kg)

### Offer Sustainability

Sustainable offer status	Green Premium product
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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 <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a>
REACH Regulation	<a href="#">REACH Declaration</a>
EU RoHS Directive	Pro-active compliance (Product out of EU RoHS legal scope) <a href="#">EU RoHS Declaration</a>
Mercury free	Yes
China RoHS Regulation	<a href="#">China RoHS declaration</a>
RoHS exemption information	<a href="#">Yes</a>
Environmental Disclosure	<a href="#">Product Environmental Profile</a>
Circularity Profile	<a href="#">End of Life Information</a>
WEEE	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins.

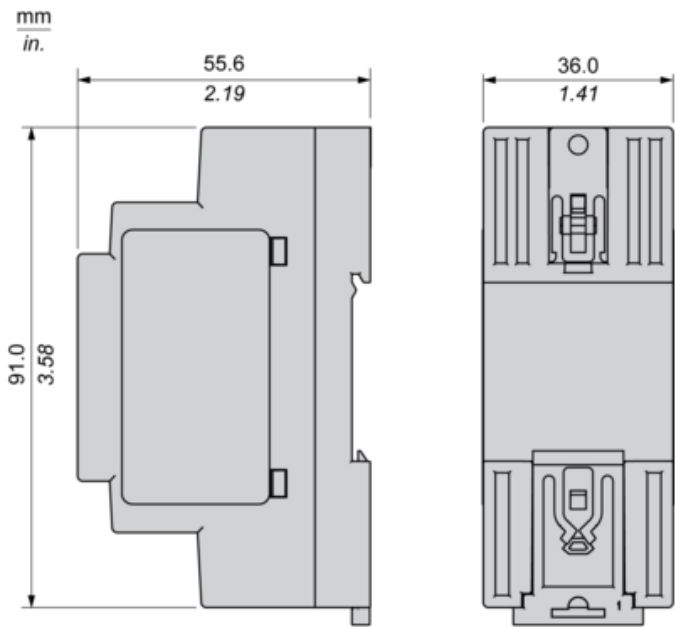
Electrical Safety

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- 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.

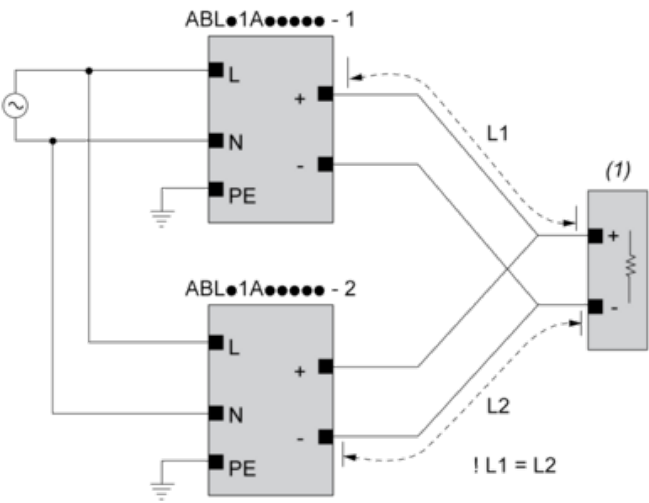
Dimensions

Side and Rear View



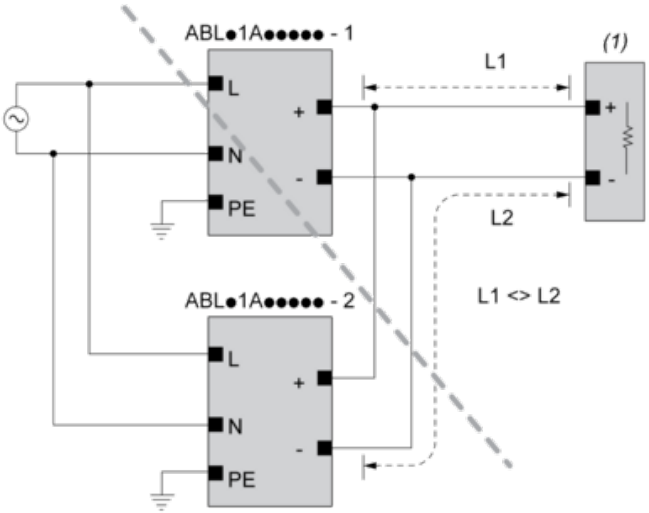
Connections and Schema

Correct Parallel Connection



(1) : Load

Incorrect Parallel Connection



(1) : Load

ABLx1Axxxxx-1 = ABLx1Axxxxx-2

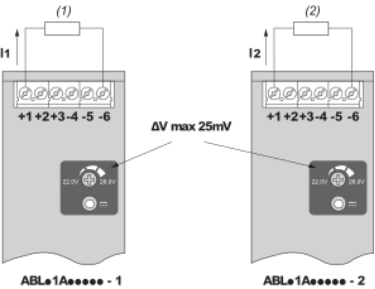
max 2 x ABLx1Axxxxx

L1 = L2

$\Delta V$  max 25 mV

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

Output Voltage Balancing



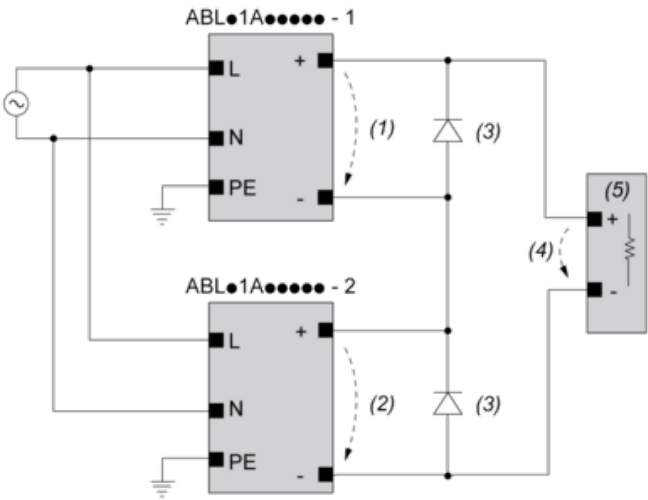
(1) :  $R_{Load1}$

(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

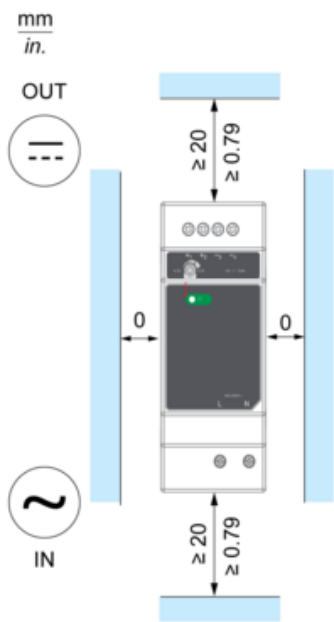
Connections and Schema

		(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

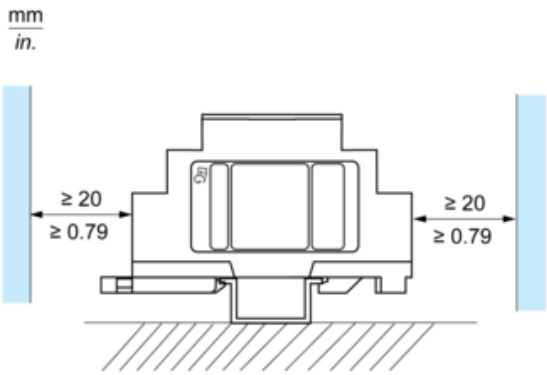
(1) : Ambient

Mounting

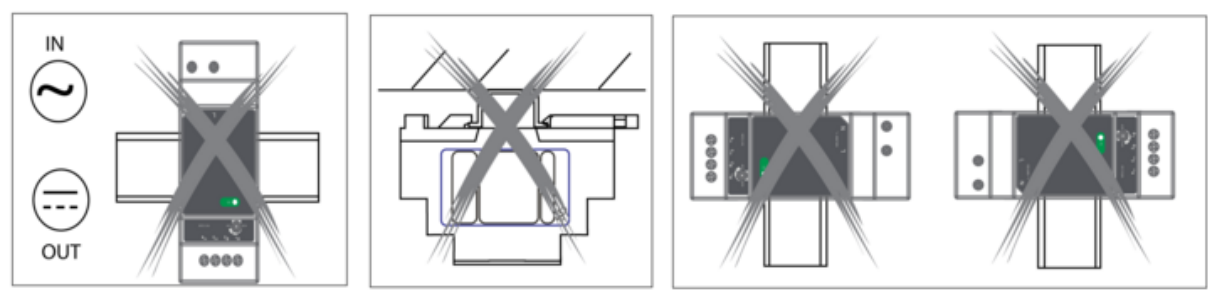
Mounting Position A



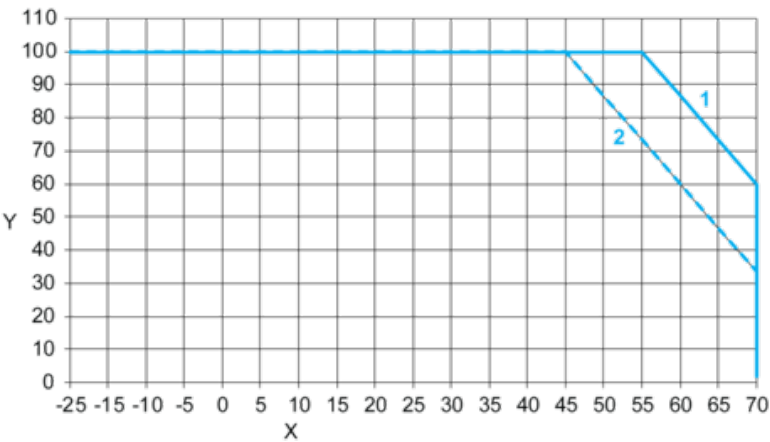
Mounting Position B



Incorrect Mounting



Performance Curve



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

Recommended replacement(s)