

# Product data sheet

Specifications



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

ABLS1A24021

Product availability : Stock - Normally stocked in distribution facility

**Price\* : 110.00 USD**

### 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 2 phases
Rated power in W	50 W
Output voltage	24 V DC
Power supply output current	2.1 A

### Complementary

Efficiency at full load	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 115 V 75.0 A 230 V
Power factor	0.45 at 115 V AC 0.35 at 230 V AC
Efficiency	86 % 115 V AC 88 % 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

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

> 100 ms 230 V AC

<b>Startup with capacitive loads</b>	3000 µF
<b>Residual ripple</b>	< 75 mV
<b>Meantime between failure [MTBF]</b>	2000000 h at 77 °F (25 °C), full load conforming to SR 332 900000 h at 131 °F (55 °C), 80 % load conforming to SR 332
<b>Output protection type</b>	Against overload and short-circuits automatic reset Against over temperature manual reset Against overvoltage manual reset
<b>Connections - terminals</b>	Screw connection 0.5...2.5 mm <sup>2</sup> , AWG 20...AWG 14) input/output
<b>Line and load regulation</b>	< 0.5 % network 0 to 100 % load at 77 °F (25 °C) < 1 % network full voltage range in line at 77 °F (25 °C)
<b>Status LED</b>	1 LED (Green) output voltage
<b>Depth</b>	3.52 in (89.5 mm)
<b>Height</b>	2.95 in (75 mm)
<b>Width</b>	1.18 in (30 mm)
<b>Product Weight</b>	0.40 lb(US) (0.180 kg)
<b>Output coupling</b>	Parallel Serial
<b>Mounting support</b>	Top hat type TH35-15 rail IEC 60715 Top hat type TH35-7.5 rail IEC 60715 Double-profile DIN rail
<b>Supply</b>	SELV EN/IEC 60950-1 SELV EN/IEC 60204-1 SELV IEC 60364-4-41
<b>Dielectric strength</b>	3000 V AC with input to output
<b>Service life</b>	10 year(s)

## Environment

<b>Standards</b>	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
<b>Product certifications</b>	CE CUL Listed CUL Recognized RCM CB Scheme EAC KC NEC class 2
<b>Operating altitude</b>	< 6561.68 ft (2000 m)
<b>Shock resistance</b>	150 m/s <sup>2</sup> 11 ms
<b>IP degree of protection</b>	IP20
<b>Ambient air temperature for operation</b>	-4...14 °F (-20...-10 °C) with current derating of 2 % per °C mounting position A < 6561.68 ft (2000 m) 14...131 °F (-10...55 °C) without derating mounting position A < 6561.68 ft (2000 m) 131...158 °F (55...70 °C) with current derating of 3.33 % per °C mounting position A < 6561.68 ft (2000 m)
<b>Electrical shock protection class</b>	Class I
<b>Pollution degree</b>	2
<b>Vibration resistance</b>	3 mm 2...9 Hz)IEC 60068-2-6 10 m/s <sup>2</sup> 9...200 Hz)IEC 60068-2-6
<b>Electromagnetic immunity</b>	Immunity to electrostatic discharge 8 kV contact discharge) EN/IEC 61000-4-2

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

<b>Electromagnetic emission</b>	Conducted emissions EN 61000-6-3 Radiated emissions EN 61000-6-4
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## Ordering and shipping details

<b>Category</b>	22525-ABL8 AND ABL7 POWER SUPPLIE
<b>Discount Schedule</b>	CP12
<b>GTIN</b>	3606481500182
<b>Returnability</b>	Yes
<b>Country of origin</b>	TH

## Packing Units

<b>Unit Type of Package 1</b>	PCE
<b>Number of Units in Package 1</b>	1
<b>Package 1 Height</b>	1.48 in (3.75 cm)
<b>Package 1 Width</b>	3.39 in (8.6 cm)
<b>Package 1 Length</b>	4.29 in (10.9 cm)
<b>Package 1 Weight</b>	7.69 oz (218.0 g)
<b>Unit Type of Package 2</b>	S02
<b>Number of Units in Package 2</b>	30
<b>Package 2 Height</b>	5.91 in (15.0 cm)
<b>Package 2 Width</b>	11.81 in (30.0 cm)
<b>Package 2 Length</b>	15.75 in (40.0 cm)
<b>Package 2 Weight</b>	15.25 lb(US) (6.917 kg)

## Offer Sustainability

<b>Sustainable offer status</b>	Green Premium product
<b>California proposition 65</b>	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>
<b>REACH Regulation</b>	<a href="#">REACH Declaration</a>
<b>EU RoHS Directive</b>	Pro-active compliance (Product out of EU RoHS legal scope) <a href="#">EU RoHS Declaration</a>
<b>Mercury free</b>	Yes
<b>China RoHS Regulation</b>	<a href="#">China RoHS declaration</a>
<b>RoHS exemption information</b>	<a href="#">Yes</a>
<b>Environmental Disclosure</b>	<a href="#">Product Environmental Profile</a>
<b>Circularity Profile</b>	<a href="#">End of Life Information</a>
<b>WEEE</b>	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins.

**Electrical Safety**

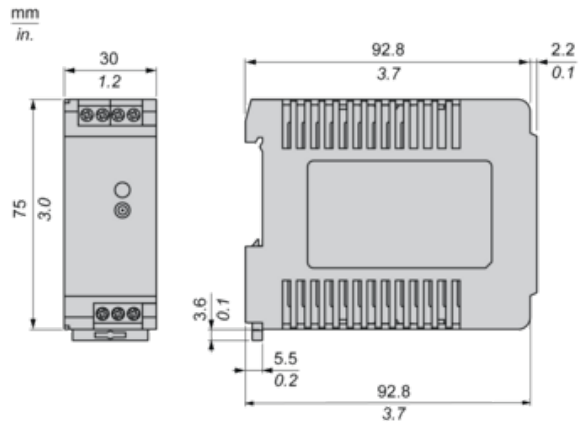
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- If the unit is use in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- For means of disconnection a switch or circuit breaker, located near the product, must be included in the installation. 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

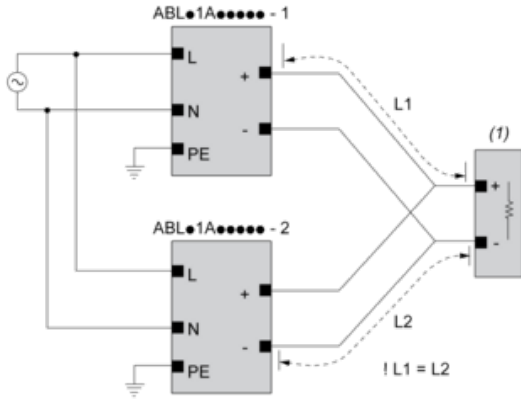
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Front and Side Views



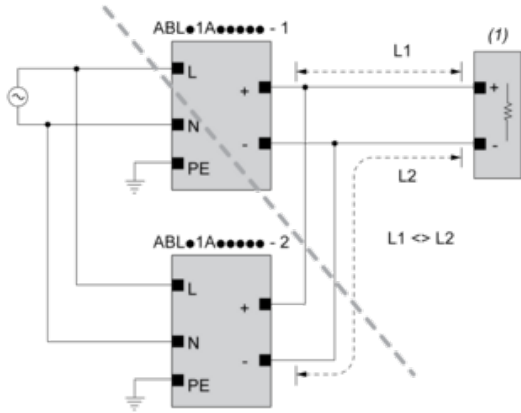
**Connections and Schema**

**Correct Parallel Connection**



(1) : Load

**Incorrect Parallel Connection**



(1) : Load

$ABLx1Axxxxx-1 = ABLx1Axxxxx-2$

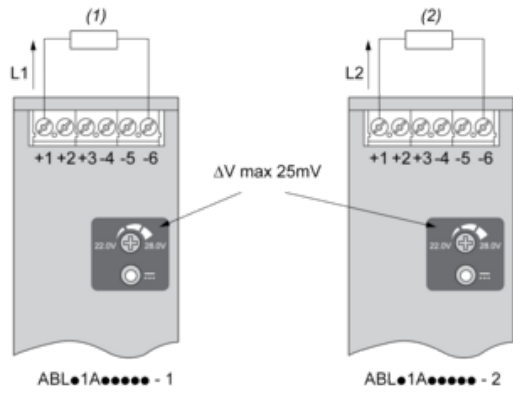
max 2 x  $ABLx1Axxxxx$

$L1 = L2$

$\Delta V$  max 25 mV

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

**Output Voltage Balancing**



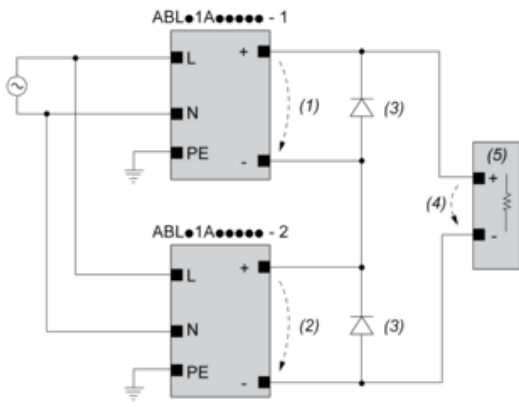
(1) :  $R_{Load1}$

(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**

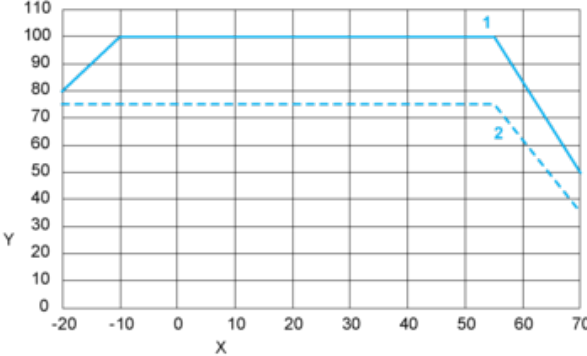
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	(1)		
	<40°C	<50°C	<70°C
ABLS1A24021	50°C	60°C	75°C
ABLS1A24038	50°C	60°C	75°C
ABLS1A12062	50°C	60°C	80°C
ABLS1A24031	50°C	60°C	80°C
ABLS1A12100	60°C	70°C	90°C
ABLS1A24050	60°C	70°C	90°C
ABLS1A48025	60°C	70°C	90°C
ABLS1A24100	60°C	70°C	90°C
ABLS1A24200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

(1) : Ambient



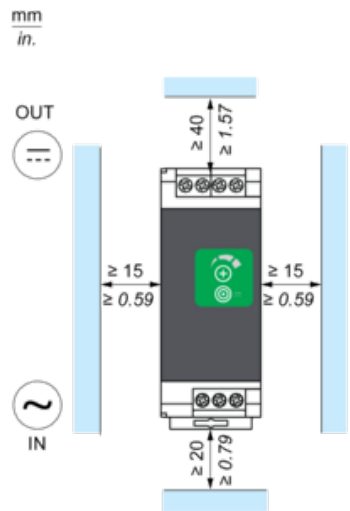
Performance Curve



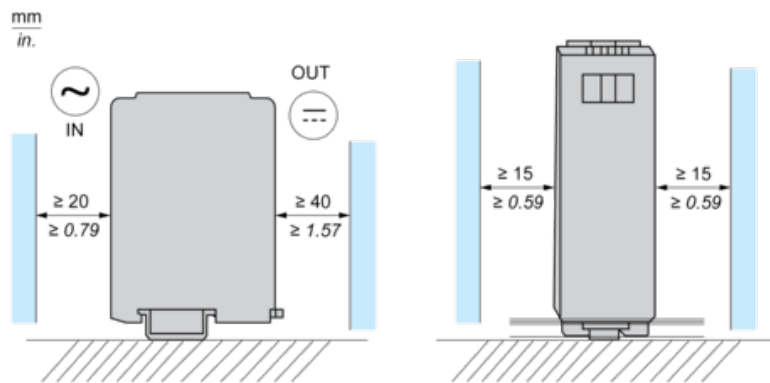
- X : Surrounding Air Temperature
- Y : Percentage of Max Load (%)
- 1 : Position A
- 2 : Position B + C

**Mounting**

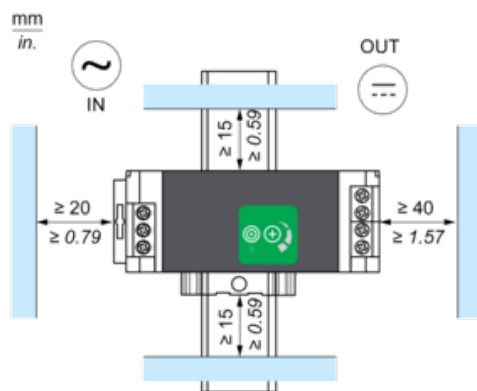
**Mounting Position A**



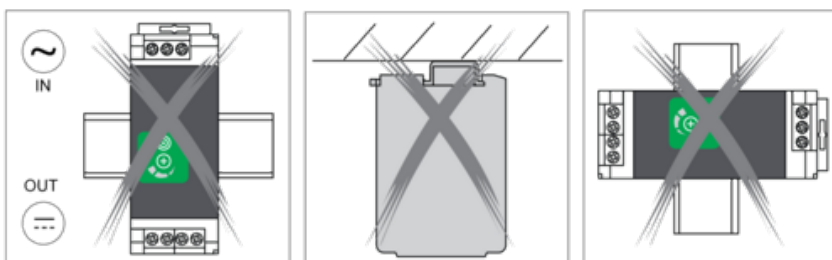
**Mounting Position B**



**Mounting Position C**



**Incorrect Mounting**



**Recommended replacement(s)**

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