

# Product data sheet

Specifications



## Regulated Power Supply, 100 to 240V AC, 24V, 3.1A, single phase, Optimized

ABLS1A24031

**Product availability: Stock - Normally stocked in distribution facility**

### 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 phase to phase 140...340 V DC
Kw Rating	75 W
Output voltage	24 V DC
Power supply output current	3.13 A

### Complementary

Efficiency at full load	85...264 V AC without temperature derating 120...375 V DC without temperature derating
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) 5 A External protection (recommended) 20 A Curve C External protection (recommended) 13 A Curve B External protection (recommended) 10 A Curve C
Inrush current	40.0 A 115 V 80.0 A 230 V
Power factor	0.55 at 115 V AC 0.45 at 230 V AC
Efficiency	88 % 230 V AC
Output voltage adjustment	21.6...26.4 V
Power dissipation in W	15 W
Current consumption	< 1.8 A 115 V AC < 1 A 230 V AC < 0.8 A 140 V DC
Turn-on time	< 1.2 s
Holding time	> 20 ms 115 V AC > 40 ms 230 V AC

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

<b>Startup with capacitive loads</b>	5000 µF
<b>Residual ripple</b>	< 120 mV
<b>Meantime between failure [MTBF]</b>	700000 h at 77 °F (25 °C), full load conforming to SR 332
<b>Output protection type</b>	Against overload and short-circuits, protection technology: automatic reset Against over temperature, protection technology: manual reset Against overvoltage, protection technology: manual reset
<b>Connections - terminals</b>	Screw connection 0.5...2.5 mm <sup>2</sup> , AWG 20...AWG 14) output Screw connection 0.75...2.5 mm <sup>2</sup> , AWG 18...AWG 14) input
<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>	4.02 in (102 mm)
<b>Height</b>	4.9 in (123.6 mm)
<b>Width</b>	1.06 in (27 mm)
<b>Net Weight</b>	0.49 lb(US) (0.22 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 IEC 60950-1 SELV 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)
<b>Overvoltage category</b>	II

## Environment

<b>Standards</b>	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
<b>Product certifications</b>	CE CUL Listed CUL Recognized RCM CB Scheme EAC KC NEC class 2
<b>Operating altitude</b>	< 5000 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 1 % per °C mounting position A < 6561.68 ft (2000 m) 14...104 °F (-10...40 °C) without derating mounting position A 115 V AC < 6561.68 ft (2000 m) 14...122 °F (-10...50 °C) without derating mounting position A 230 V AC < 6561.68 ft (2000 m) 104...158 °F (40...70 °C) with current derating of 1.67 % per °C mounting position A 115 V AC < 6561.68 ft (2000 m) 122...158 °F (50...70 °C) with current derating of 2.5 % per °C mounting position A 230 V AC < 6561.68 ft (2000 m)
<b>Electrical shock protection class</b>	Class I
<b>pollution degree</b>	2
<b>Vibration resistance</b>	3 mm (f= 2...9 Hz) conforming to IEC 60068-2-6 10 m/s <sup>2</sup> (f= 9...200 Hz) conforming to IEC 60068-2-6
<b>Electromagnetic immunity</b>	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 Immunity to conducted RF disturbances - test level: 15 V/m (80 MHz...2 GHz) conforming to IEC 61000-4-3 Immunity to conducted RF disturbances - test level: 5 V/m (2...2.7 GHz) conforming to IEC 61000-4-3 Immunity to conducted RF disturbances - 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 RF 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 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
<b>Electromagnetic emission</b>	Conducted emissions IEC 61000-6-3 Radiated emissions IEC 61000-6-4

## Ordering and shipping details

<b>Category</b>	US1CP1222525
<b>Discount Schedule</b>	CP12
<b>GTIN</b>	3606481500205
<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>	1.46 in (3.700 cm)
<b>Package 1 Width</b>	5.51 in (14.000 cm)
<b>Package 1 Length</b>	6.30 in (16.000 cm)
<b>Package 1 Weight</b>	11.393 oz (323.000 g)
<b>Unit Type of Package 2</b>	S03
<b>Number of Units in Package 2</b>	22
<b>Package 2 Height</b>	11.81 in (30.000 cm)

<b>Package 2 Width</b>	11.81 in (30.000 cm)
<b>Package 2 Length</b>	15.75 in (40.000 cm)
<b>Package 2 Weight</b>	16.830 lb(US) (7.634 kg)
<b>Unit Type of Package 3</b>	P06
<b>Number of Units in Package 3</b>	176
<b>Package 3 Height</b>	29.53 in (75.000 cm)
<b>Package 3 Width</b>	23.62 in (60.000 cm)
<b>Package 3 Length</b>	31.50 in (80.000 cm)
<b>Package 3 Weight</b>	147.710 lb(US) (67.000 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.

[Environmental Data explained >](#)

[How we assess product sustainability >](#)

### Environmental footprint

Carbon footprint (kg CO2 eq, Total Life cycle) **648**

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 **698d9b2a-7a6a-4b8f-a149-489156f55645**

REACH Regulation [REACH Declaration](#)

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 [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)**

## Use Again

### Repack and remanufacture

Circularity Profile [End of Life Information](#)

Take-back **No**

WEEE  **The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins.**

## Dimensions Drawings

### Electrical Safety

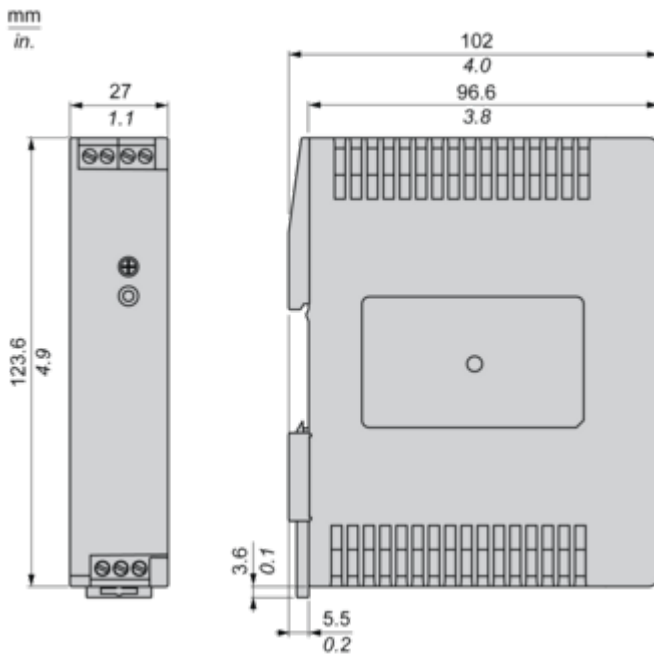
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- If the unit is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- For means of disconnection a switch or circuit breaker, located near the product, must be included in the installation.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

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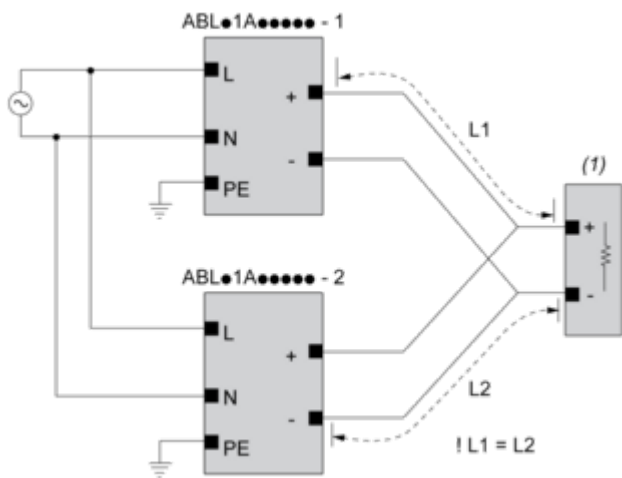
Front and Side Views



Connections and Schema

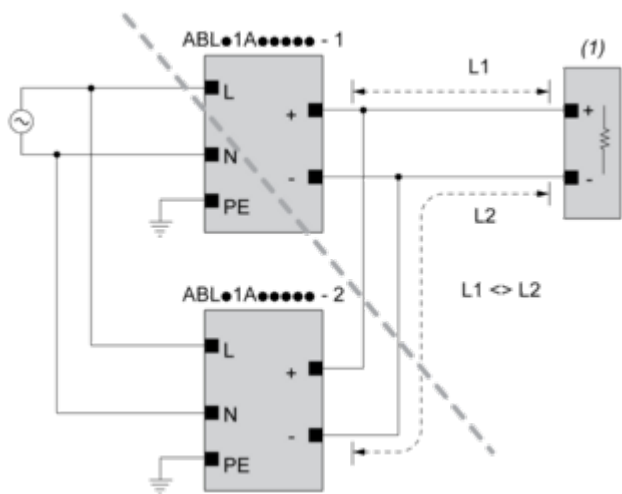
Connections and Schema

Correct Parallel Connection



(1) : Load

Incorrect Parallel Connection



(1) : Load

$ABLx1Axxxx-1 = ABLx1Axxxx-2$

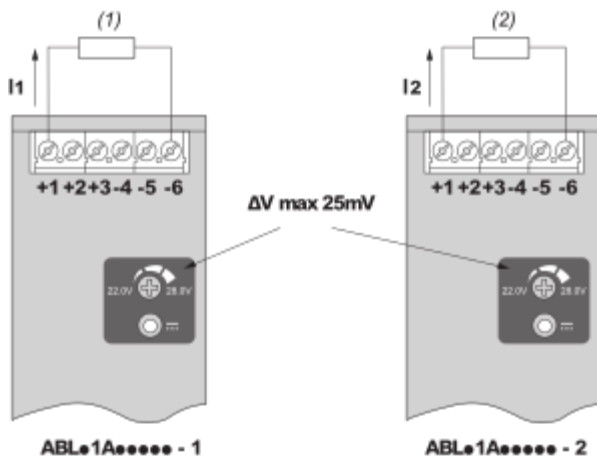
max 2 x ABLx1Axxxx

$L1 = L2$

$\Delta V$  max 25 mV

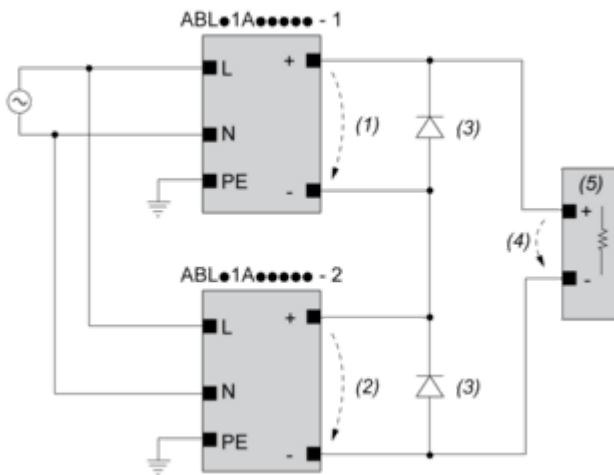
$I_{Load} < 90\% \cdot 2 \cdot I_{nom}$

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

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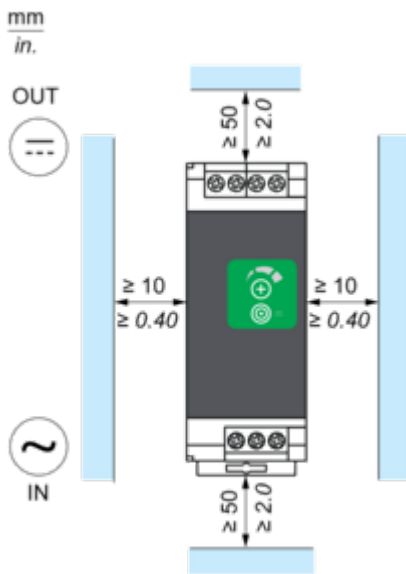
	(1)		
	<40°C	<50°C	<70°C
ABLS1A24021	50°C	60°C	75°C
ABLS1A24038	50°C	60°C	75°C
ABLS1A12062	50°C	60°C	80°C
ABLS1A24031	50°C	60°C	80°C
ABLS1A12100	60°C	70°C	90°C
ABLS1A24050	60°C	70°C	90°C
ABLS1A48025	60°C	70°C	90°C
ABLS1A24100	60°C	70°C	90°C
ABLS1A24200	95°C	95°C	90°C

(1) : Ambient

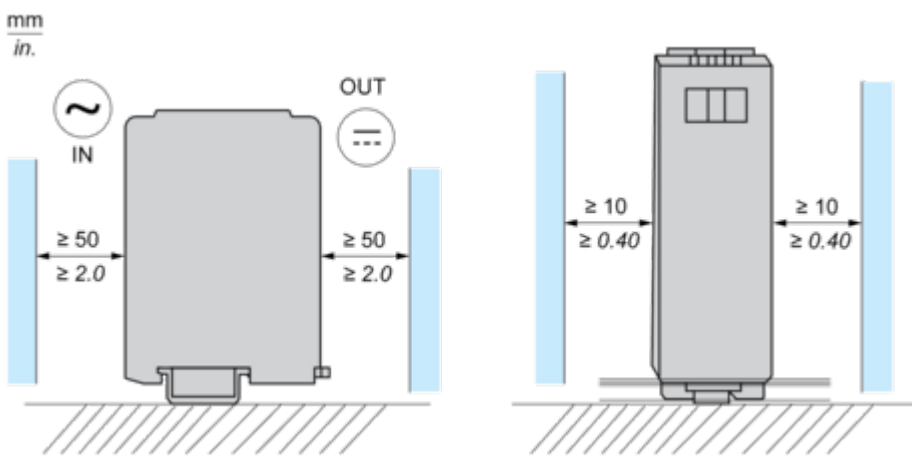
Mounting and Clearance

Mounting

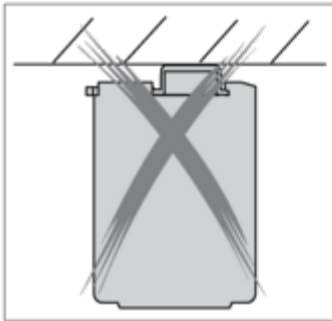
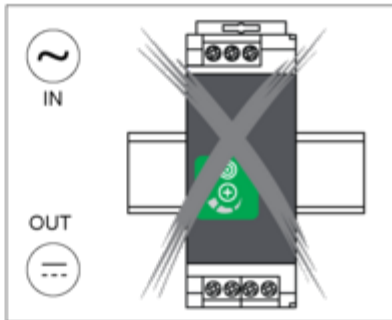
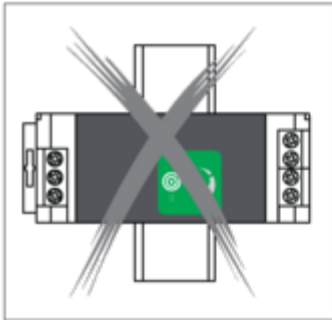
Mounting Position A



Mounting Position B



Incorrect Mounting

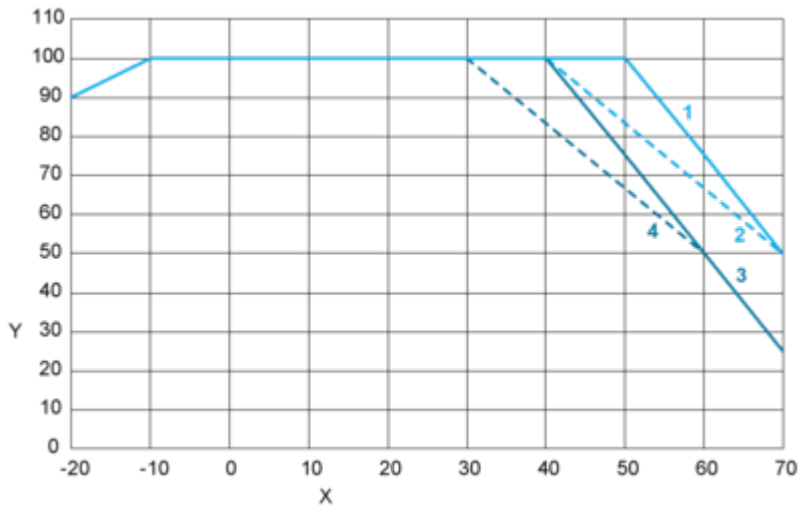


Performance Curves

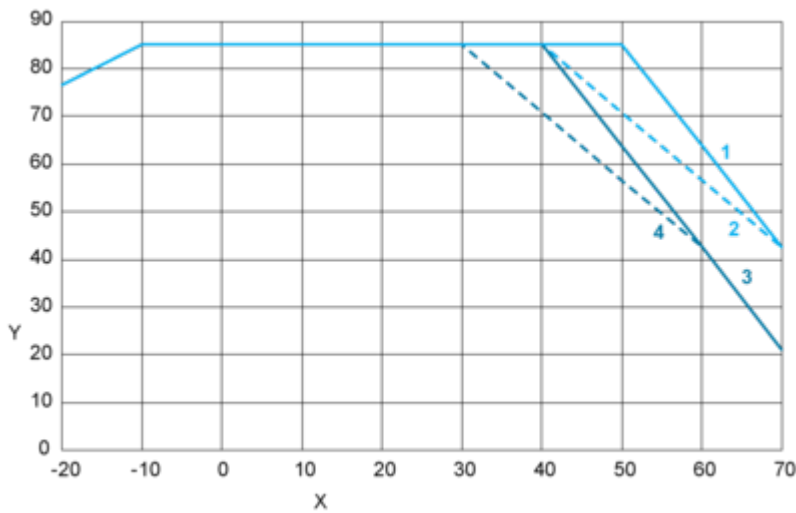
Performance Curve

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Mounting Position A



Mounting Position B



X : Surrounding Air Temperature (°C)

Y : Percentage of Maximum Load (%)

1 : Altitude ≤ 2000 m (6561 ft), Input voltage = 230 VAC / 325 VDC

2 : Altitude ≤ 2000 m (6561 ft), 115 VAC / 162 VDC

3 : Altitude ≤ 5000 m (16404 ft), Input voltage = 230 VAC / 325 VDC

4 : Altitude ≤ 5000 m (16404 ft), 115 VAC / 162 VDC

Image of product / Alternate images

Alternative

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