

# User Manual Easy UPS DIN Rail Mount DC to DC Power Supply BVS240XDPDR/BVS480XDPDR

## Safety and General Instructions

SAVE THESE INSTRUCTIONS - This manual contains important instructions that should be followed during installation and maintenance of the product.



Read the user documentation to become familiar with the equipment before trying to install or operate it.

- Switch off the input power before connecting or disconnecting the wires.
- Use RED color wire for +ve and BLACK color wire for -ve connections.
- Use insulated pin type lugs to be sure that the wire strands do not touch any metallic surface during connection/disconnection.
- Be sure that the wires do not touch any metallic surface during connection/disconnection.
- Be sure to connect the wires to the power supply unit first and then to battery pack(s).
- While disconnecting wires, be sure to disconnect the wires at battery pack(s) first and then at the power supply unit.
- Allow a minimum space of 50 mm above the unit, 180 mm below the unit and 10 mm lateral distance from other devices to be sure of sufficient cooling.
- CAUTION: The enclosure can reach temperatures that exceed the burn thresholds for touchable surfaces, depending on the ambient temperature and load.
- Do not introduce any objects into the power supply unit.
- The power supply unit should be installed in a IP54 (minimum) rated enclosure.

## Specifications

### Environmental

Ambient temperature	Operating	-15 to +50 °C
	Storage	-15 to +70 °C
Humidity		5 to 95% (Non condensing)
Altitude	Operating	3000 m (Max.)
	Storage	3000 m (Max.)
Audible Noise		< 40 db
International Protection Code		IP 20
Operating Protection Class		Class II

### Physical

Dimensions without packaging (H x W x D)	129 x 40 x 119 mm (5.08 x 1.57 x 4.69 in)
Dimensions with packaging (H x W x D)	190 x 57x 188 mm (7.47 x 2.23 x 7.39 in)
Weight without packaging	0.5 kg (1.1 lb)
Weight with packaging	0.7 kg (1.54 lb)

### Input

	<b>240 W</b>	<b>480 W</b>
Model	BVS240XDPDR	BVS480XDPDR
Nominal input voltage	24 VDC	
Voltage Range	21.6 – 28.6 VDC	

	<b>240 W</b>	<b>480 W</b>
Nominal Current	10 A	20 A
Runtime at full load (with 1 battery pack)	10 min at 10 A load	3 min at 20 A load
Efficiency at Nominal Voltage (Bypass mode, battery fully charged)	>95%	
Over current / Short circuit protection	40 A Fuse	

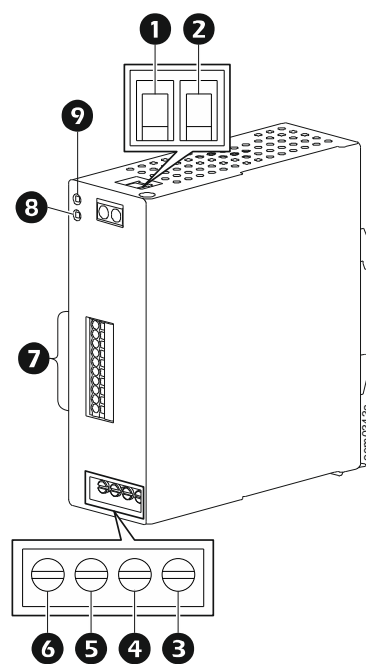
### Output

	<b>240 W</b>	<b>480 W</b>
Nominal output voltage $U_N$ / tolerance	24 VDC	
Switch On time (On delay time typical)	< 1 s	
Output current	10 A	20 A
Output over current limit	10.5 A < OCP < 13 A	20.5 A < OCP < 26 A
Short circuit protection	Yes	
Over temperature protection	Yes	
No. of units series connection	No	
No. of units parallel connection	No	

### Certification and Standards

Safety Extra-Low Voltage (SELV)	SELV (EN62368)
Safety	cTUVus UL60950-1 and UL62368-1 & CSA CB/CE/TUV IEC60950-1 and IEC62368-1
Industrial Equipment	UL508 IEC61010-1
CE	In conformance with EMC Directive 2004/108/EC and Low Voltage Directive 2006/95/EC
CCC	GB4943.1 Suitable for safe use below 2000 m altitude.
Directives for EC Marking	Yes
Immunity	EN55024, EN61000-6.-1, EN61000-6-2 (EN61000-4-2, 3, 4, 5, 6, 8, 11, 12)
EMC	EMC Directive 2014/30/EU EN/IEC 61000-6-2 EN/EC 61204-3
Equipment Category	Category 2 (C2)

### Front Panel Features



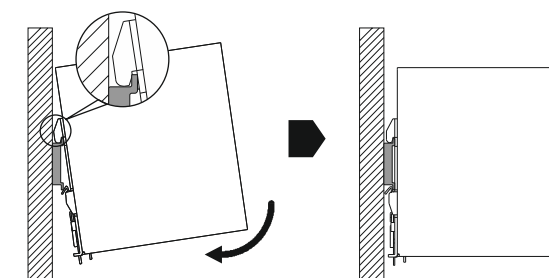
- ① (+) Battery terminal
- ② (-) Battery terminal
- ③ (-) Output terminal
- ④ (+) Output terminal
- ⑤ (-) Input terminal
- ⑥ (+) Input terminal
- ⑦ Dry contact terminals
- ⑧ Status LED - Red
- ⑨ Status LED - Green

## Installation

### Mounting

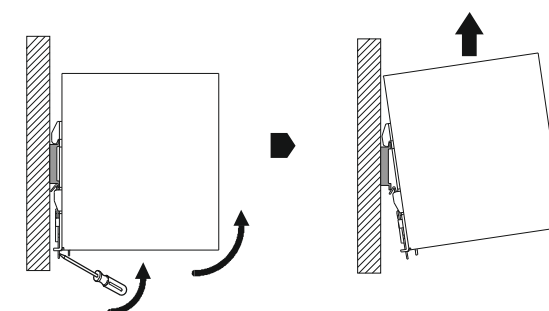
**NOTE:** Be sure that the input/output terminal block is at the bottom while mounting the power supply unit on a 35 mm DIN rail.

1. Locate the top hook of the rail mounting system (on the unit) with the unit slightly tilted upwards.
2. Rotate the unit in clockwise direction till the latch of the rail mount system snaps on to the DIN rail and the unit cannot be rotated any further.
3. Shake the unit slightly to be sure that it is securely mounted on the DIN rail.



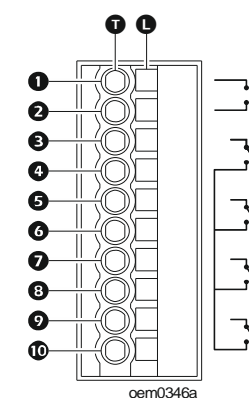
### Dismounting

1. Release the latch of the rail mount system (on the unit) by pulling it downwards using a screw driver.
2. Tilt the unit upwards till the latch is free from the DIN rail.
3. Slide the unit upwards till the top hook gets free from the DIN rail.



### Dry contact details

All dry contacts (Pin3 to Pin10) are normally closed during operation and will open during an event.



①	Pin1	Remote On/Off. Connect Normally Open
②	Pin2	Push to On button to this contact.
③	Pin3	On-Battery mode
④	Pin4	
⑤	Pin5	Replace battery
⑥	Pin6	
⑦	Pin7	Battery disconnected
⑧	Pin8	
⑨	Pin9	Low battery
⑩	Pin10	
L	Locking lever	
T	Terminal	

Mode of Operation → Condition ↓	Line Mode	Battery Mode	Battery Mode Low Battery	Line Mode Battery disconnected	Replace Battery
Remote On/Off	NA	NA	NA	NA	NA
On-Battery	NC	NO	NO	NC	NC
Replace Battery	NC	NC	NC	NC	NO
Battery Disconnected	NC	NC	NC	NO	NC
Low Battery	NC	NC	NO	NC	NC

### NOTE:

- NC = Normally Closed; NO = Normally Open; NA = Not Applicable.
- To insert wires into the Dry Contact terminals, press the locking lever (L) using a suitable screwdriver and insert the wire into the terminal (T). Remove the screwdriver to secure the wire to the terminal.

# Connect Input, Output and Battery



## RISK OF EQUIPMENT DAMAGE

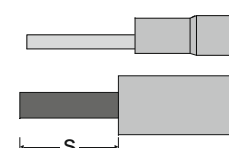
- Wiring should be performed by a qualified electrician.
- Wire size must comply with required current capacity as well as national and local electrical codes.
- Be sure to turn *Off* the input power supply before connecting or disconnecting input, output and battery wires to the terminals.
- Be sure that the wires do not touch each other or any metal object during connection/disconnection.
- Be sure to connect the battery wires first to the power supply unit and then to the battery.
- Be sure to disconnect wires first from the battery and then from the power supply unit.
- Be sure to crimp pin type lugs to the input, output and battery wires to prevent loose strands from touching any metal object.

**Failure to follow these instructions can result in equipment damage and minor or moderate injury.**

## Recommended wire sizes and tightening torque

	Wire Size		Torque
	240 W	480 W	
Input/Output	16 AWG (1.307 mm <sup>2</sup> )	12 AWG (3.310 mm <sup>2</sup> )	0.8 N m
Dry Contacts	26 AWG (0.128 mm <sup>2</sup> )		Not Applicable
Remote On/Off			
Battery	12 AWG (3.310 mm <sup>2</sup> )		0.8 N m

### NOTE:

- Be sure to use a Pin Type cable lug for connecting the Input, Output and Battery wires.
  - To be sure of a secure connection, the wire insulation should be stripped (S) for approx. 6 mm, Be sure that all the strands are completely enclosed in the lug.
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1. Connect the DC Input wires to the input terminals (refer “Front Panel Features” for details).
  2. Connect the output wires to the output terminals (refer “Front Panel Features” for details).
  3. Connect the battery wires to the battery terminals (refer “Front Panel Features” for details).
- NOTE:**
- Be sure to connect the wires first to the terminals on the power supply unit and then to the terminals on the battery pack(s).
  - A maximum of 4 battery packs can be connected to a power supply unit.

## Start up

**NOTE:** Be sure that the load is connected to the UPS before turning *On* the DC input.

### Turn On the DC to DC Power Supply in On-Line mode

The power supply unit turns on automatically when the DC input is applied to the input terminals.

### Turn On the DC to DC Power Supply in On-Battery mode

Press the REMOTE ON/OFF Push to On button, to turn on the power supply unit in On-Battery mode.

### Turn off the DC to DC Power Supply

To turn *Off*, press the REMOTE ON/OFF push button.

## Status Indicators

Green LED	Red LED	UPS Status
Illuminated		Power supply unit is in on-line mode and the battery is charging/charged.
Flashes 1 sec <i>on</i> and 1 sec <i>off</i>		Power supply unit is in on-battery mode.

Green LED	Red LED	UPS Status
Flashes 0.3 sec <i>on</i> and 0.3 sec <i>off</i>		Low battery alert.
	Flashes 1 sec <i>on</i> and 1 sec <i>off</i>	An over current event has occurred.
	Illuminated	Power supply unit has tripped due to an over voltage event.
	Flashes	An over temperature event has occurred.

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