



Delta DC-DC Power Supply

DRU-24V10A□

Installation notes

The device must be installed by qualified persons only and in accordance with the specific national regulations (e.g. VDE, DIN, etc.). Before installing this unit, read these operating and installation instructions carefully and completely.

www.DeltaPSU.com

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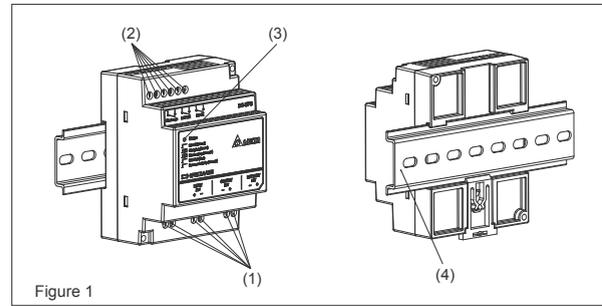


Figure 1

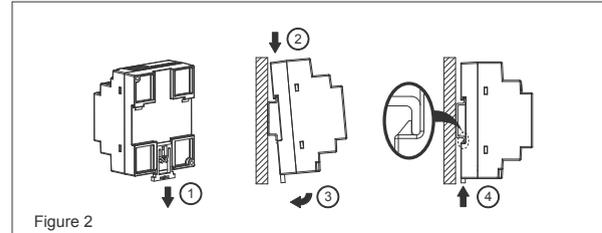


Figure 2

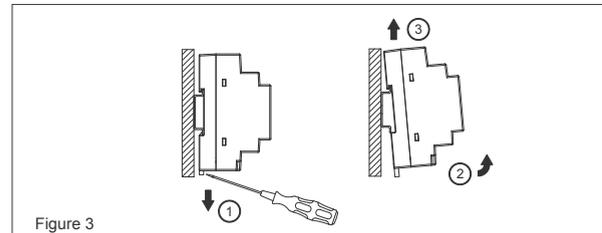


Figure 3

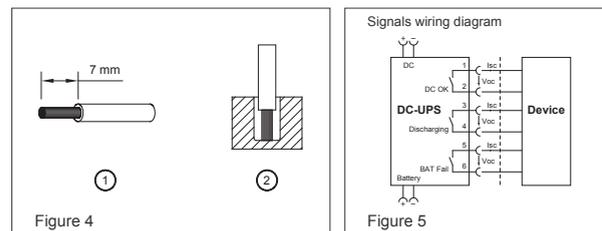


Figure 4

Figure 5

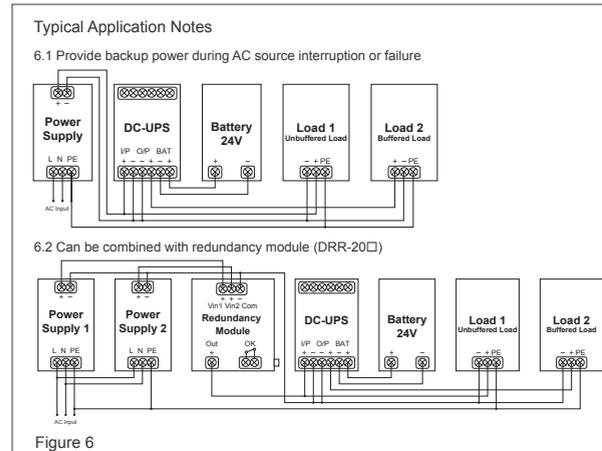


Figure 6

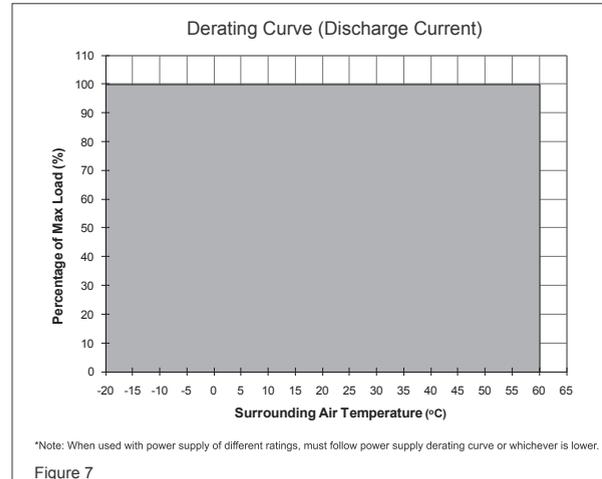


Figure 7

Installation notes

IMPORTANT SAFETY INSTRUCTIONS

- Retain these instructions or go to www.deltapsu.com/manuals. This manual contains important safety instructions.
- When replacing batteries, only use the same type of batteries listed under the "Recommended Batteries" section.
- Proper disposal of batteries is required. Refer to the relevant local codes for disposal requirements.

1. Safety instructions

- Switch main power off before connecting or disconnecting the device. Danger of explosion!
- If the orange status LED is on, this indicates a failure in the installation. In this case, do not turn on power supply while the battery is connected. Danger of explosion!
- To guarantee sufficient convection cooling, please keep a distance of 20mm above and below the device as well as a lateral distance of 5mm to other units.
- Please note that the enclosure of the device can become very hot depending on the ambient temperature and load of the unit. Risk of burns!
- The main power must be turned off before connecting or disconnecting wires to the terminals!
- Do not introduce any objects into the unit!
- Dangerous voltage present for at least 5 minutes after disconnecting all sources of power.
- The unit is a built-in unit and must be installed in a cabinet or room (condensation free environment and indoor location) that is relatively free of conductive contaminants.

CAUTION: "FOR USE IN A CONTROLLED ENVIRONMENT"

2. Device description (Fig. 1)

- Input/Output/Battery terminal block connector
- Signal terminal block connector
- LED display status
- Universal mounting rail system

3. Mounting (Fig. 2)

The unit can be mounted on 35mm DIN rails in accordance with EN60715. For Vertical Mounting, the device should be installed with Input/Output/Battery terminal block on the bottom.

Each device is delivered ready to install.

Snap on the DIN rail as shown in Fig. 2:

- Pull the unit's DIN rail latch DOWN.
- Tilt the unit slightly upwards, hook the top end onto the DIN rail and push downwards until stopped.
- Position the bottom front end against the DIN rail.
- Push the unit's latch DIN rail UP to lock.

4. Dismounting (Fig. 3)

To uninstall,

- Pull the unit's DIN rail latch DOWN.
- Tilt the bottom part of the unit out.
- Push the unit up and pull out from the DIN rail.

5. Connection

The terminal block connectors allow easy and fast wiring.

You can use flexible (stranded wire) or solid cables with the following cross sections:

Refer to Fig. 1:	Stranded / Solid		Torque	
	(mm ²)	(AWG)	(Kgf-cm)	(lb in)
(1)	2.1-3.3	14-12	6.3	5.4
(2)	0.21-3.3	24-12	6.3	5.4

The wires between the DC-DC power supply and battery must not be longer than 2 x 2m (cord length 2m). For reliable and shock proof connections, the wire stripping length should be 7mm (see Fig. 4 (1)). Please ensure that wires are fully inserted into the connecting terminals as shown in Fig. 4 (2).

In accordance to EN60950 / UL60950, flexible cables require ferrules.

Use appropriate copper cables designed to sustain operating temperature of:

- 60°C, 60°C / 75°C for USA
- At least 90°C for Canada.

6. Signals Wiring Diagram (Fig. 5)

Contact relay rating: 1A/30Vdc

No polarity requirement

7. Typical Application Notes (Fig. 6)

- Provide backup power during AC source interruption or failure.
- Can be combined with redundancy module (DRR-20□).

Risk of electrical shock, fire, personal injury or death.

- Turn power off before working on the device.
- Make sure of the wiring is correct by following all local and national codes.
- Do not modify or repair the unit.
- Use caution to prevent any foreign objects from entering into the housing.
- Do not use in wet locations.
- Do not use the unit in area where moisture or condensation can be expected

Technical data

Input (DC)	
Nominal input voltage	24Vdc
Voltage range	24-28Vdc
Maximum input voltage	< 33Vdc
Input Current	Charging Mode: 0.5 ± 0.1A (25°C) Discharging Mode: 10A Max
Charging time	< 30hr ± 5hr (25°C) for battery 24V/12AH
Efficiency	Charging Mode: > 80.0% Discharging Mode: > 99.0%
Output (DC)	
Nominal output voltage	24Vdc typ. (depends on V _{in})
Discharging voltage	22-28Vdc
Maximum output voltage	< 33Vdc
Output current	10A Max
Derating	Refer to Fig. 7
Component derating	V _{in} = 28.0Vdc, Max load
Short circuit / Overload	Discharging Mode: Shutdown and no damage
Recommended Batteries	
Battery types	24V, VRLA 2 x 12V, VRLA
Battery capacity	3.3-12.0Ah
Battery fuse	Auto 15A / 58V, MINI (Littelfuse) or similar in the battery path. The battery fuse protects the wires between the battery and the DC-DC power supply.
General Data	
Type of housing	Plastic (PC), enclosed
LED signals	Green LED On = Unit is fully charged Green LED Flashing = Unit is charging Orange LED Flashing = Unit is discharging Red LED On = Battery fail (no battery is connected) Orange LED On = Battery 24V or DC 24V reverse polarity
Signal relay contacts	DC OK = Contact is closed when battery is fully charged and the unit is ready to discharge/buffer. DISCHARGING = Contact is closed when the unit is discharging/ buffering with output current of 5mA-10A. BATTERY FAIL = Contact is closed when the battery fails to function.
MTBF	> 500,000 hrs. as per Telcordia SR-332
Dimensions (L x W x H)	91mm x 71mm x 55.6mm
Weight	0.14kg
Connection method	Screw Connection
Wire stripping length	7mm
Operating temperature (surrounding air temperature)	-20°C to +60°C (Refer to Fig. 7)
Storage temperature	-25°C to +85°C
Humidity at +25°C, no condensation	5 to 95% RH
Vibration	- Operating IEC60068-2-6, Sine Wave: 10Hz to 500Hz @ 19.6m/s ² (2G peak), 10 min per cycle, 60 min for all X, Y, Z directions - Non-Operating IEC60068-2-6, Random: 5Hz to 500Hz (2.09G _{rms}); 20 min per axis for all X, Y, Z directions
Shock (in all directions)	- Operating IEC60068-2-27, Half Sine Wave: 4G for a duration of 22ms, 3 shocks for each 3 directions - Non-Operating IEC60068-2-27, Half Sine Wave: 50G for a duration of 11ms, 3 shocks for each 3 directions
Pollution degree	2
Altitude (operating)	3000 Meters
Safety and Protection	
Isolation voltage: Input / Output / PE Signal / PE Input / Output / Signal	1.0kVac 1.0kVac 1.0kVac
Polarity protection	Yes
Protection degree	IP20
Safety class	Class III