

CONVERT SELECT 120 & 240 WATT DC-DC CONVERTER DIN-RAIL SNAP-FIT OR WALL MOUNTING

FEATURES

- DC input 110 V batteries
- Railway applications
- High electromagnetic immunity
- Humidity resistant, pollution degree 3
- Protection degree IP20
- Rugged 35 mm DIN-rail snap-fit design, chassis or wall mounting also possible
- Size (WxHxD): 103 x 138 x 114 mm
- Very high reliability

INPUT DATA

- Operating input range: 66 – 150 VDC
- Nominal input range: 96 – (110) – 120 VDC
- Peak input voltage: 168 V for 3 s
- Over voltage switch-off: 170 – 182 V
- Inrush peak current: 6 A (EWR) / 12 A (EWN)
- Nominal input current:
 - EWR: 1.25 A ($V_i = 110$ V, $P_o = 120$ W)
2.20 A ($V_i = 66$ V, $P_o = 120$ W)
 - EWN: 2.50 A ($V_i = 110$ V, $P_o = 240$ W)
4.40 A ($V_i = 66$ V, $P_o = 240$ W)
- Built-in input fuse in the pos.input line: 6.3 A, 250 V, 4 x 9 mm
- Efficiency: 87% ($V_i = 110$ V, I_o nom)

OUTPUT DATA

- Available output configurations:

MODELS	V_{o1} [VDC]	V_{o2} [VDC]	$I_{o1/2}$ [A]	P_o nom [W]
EWR1601-0	24.7	-	5	120
EWN2660-0	24.7	24.7	5	240

- The EWN2660 has 2 isolated and independently regulated outputs.
- Rectangular current limit characteristic typ. $1.1 \cdot I_{o, nom}$
- Short-term peak power capability $1.5 \cdot P_{o, nom}$, 1s typ.
- Outputs continuously no-load, overload and short-circuit proof
- Max. 3 converters can be connected in parallel, provided that none of the options R, D, M1 or M2 is fitted.

CONTROL FUNCTIONS

- LED Output(s) OK

PROTECTION CIRCUITS

- Input surge and transient protection
- Input over- and under voltage lock-out
- Built-in over temperature protection
- OVP by a second control loop;
 $V_{o, max} = 30$ V, for rated voltage 24 V

OPTIONS

- **Q:** Decoupling diode to protect the input from reverse polarity.
- **R*:** Output voltage adjustment by an external voltage source V_{ext} (1 to 2.75 V) or a resistor: $V_o > 60\%$ to 110% of $V_{o, nom}$
- **M1:** Multiple options via D-Sub connector (R*, D1*, D2, D5*, S)
- **M2:** Multiple options via D-Sub connector (R, D2, D5)

* On EWN2660 the options R, D1, and D5 concern only the output connected to the terminals 6, 7, 8 & 9.

ENVIRONMENTAL CONDITIONS

- Ambient operating temperature T_A : -40 to 70 °C
- Case temperature T_C : -40 to 90 °C
- Storage temperature: -40 to 100 °C

Max. temperatures are valid for converters mounted in vertical position.

SAFETY STANDARDS AND APPROVALS

The devices are:

- Class I equipment according to IEC/EN 62368-1
- Over voltage category II
- 2 kVAC input to case electric strength test voltage
- Built-in device for vertical mounting on DIN-Rail or wall
- Self cooling, no forced cooling required

SAFETY AND INSTALLATION INSTRUCTIONS

- Built-in device for vertical mounting on DIN-rail or wall
- Protective cover over terminals on request
- Cage-clamp terminals: 15 A max per pin
- Self-cooling, no forced cooling required
- Minimum space to next device:
 - Top/bottom: 30 mm; left/right: 20 mm
 - DIN-rail surface to converter front side: 110 mm
- Use proper tool (e.g. 3 mm screw driver) and adequate force for dismounting the converter
- Wire gauges see Fig. 5 and 6

WARNINGS

- Installation must strictly follow the national safety regulations.
- Only qualified personnel is allowed to work around or on the equipment itself.
- Failure to properly install and maintain this equipment may result in failure, severe personal injury or substantial damage to property.
- Do not open this apparatus.
- Switch off the system before connecting to the supply.
- Energy danger at the output terminals even after the supply was switched off.
- Any penetration of liquid or foreign solid objects has to be prevented, since the power supply is not hermetically sealed.
- Ensure that a unit failure (e.g. by an internal short circuit) does not result in a hazardous condition.

ACCESSORIES

- Mounting brackets HZZ00618-G (UMB-W), Fig. 1.
- DIN-rail fixing brackets HZZ00624-G (DMB-EWG)
- Protective covers over terminals HZZ01219-G / HZZ01219A-G
- Battery temperature sensors.

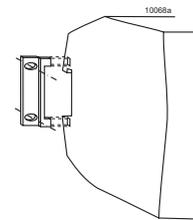


Figure 1. Wall mounting brackets HZZ00618-G (UMB- W)

CONNECTOR PIN ALLOCATION

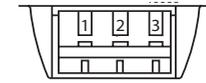


Figure 2. Input Terminals

Pin no.	Pin designation	Electrical determination
1	⊕	Protective earth PE
2	Vi-	DC negative input
3	Vi+	DC positive input

Table 1. Terminal allocation input side

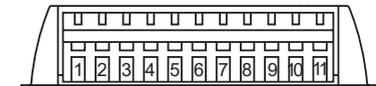


Figure 3. Output Terminals

Pin no.	Pin des.	Single output	Double output
1	⊕	Funct. earth to load	Funct. earth to load
2	+	Output positive	Output 2 positive
3	+	Output positive	Output 2 positive
4	-	Output negative	Output 2 negative
5	-	Output negative	Output 2 negative
6	+	Output positive	Output 1 positive
7	+	Output positive	Output 1 positive
8	-	Output negative	Output 1 negative
9	-	Output negative	Output 1 negative
10	AUX	Option	Option
11	⊕	Funct. earth to load	Funct. earth to load

Table 2. Terminal allocation output side

MECHANICAL DIMENSIONS

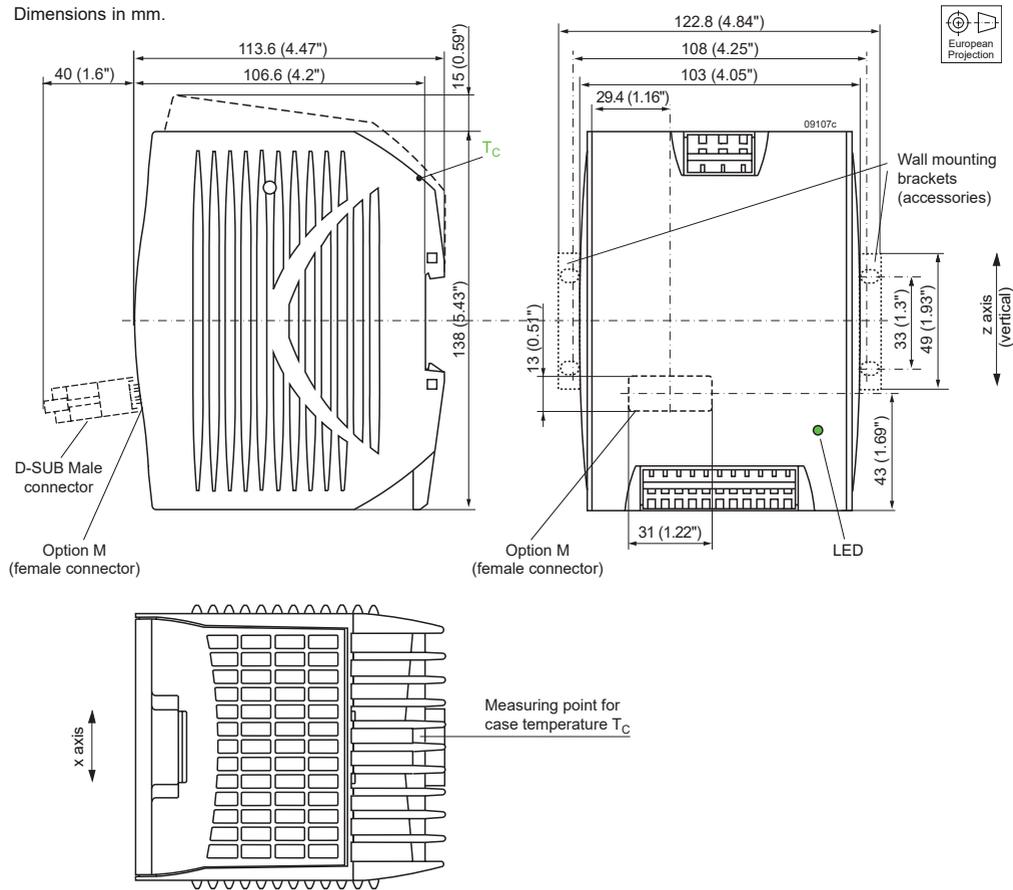


Figure 4. Case W

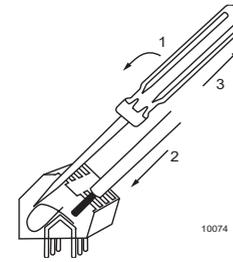


Figure 5. Cage clamp terminals (standard).
Use 0.5 to 2.5 mm² (AWG 20 to 12) solid wires or stranded wires, depending on local requirements.

MOUNTING & DISMOUNTING

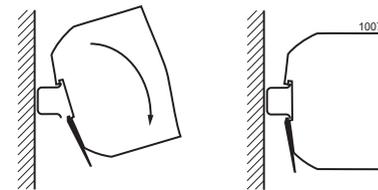


Figure 6. Snap-fit mounting to DIN-rail

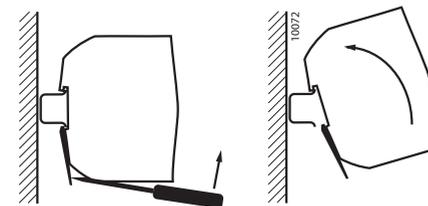


Figure 7. Dismounting from DIN-rail. Use proper tool (min. 3 mm screw driver) and adequate force.

INSTALLATION INSTRUCTIONS

NUCLEAR AND MEDICAL APPLICATIONS

Bel Power Solutions products are not authorized for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems without the express written consent of the President of Bel Fuse, Inc.

TECHNICAL REVISIONS

The appearance of products, including safety agency certifications pictured on labels, may change without prior notice.

IMPORTANT NOTE ON CE MARK

Bel Power Solutions power supplies are components only and are intended for inclusion within other equipment by professional installers. They are not intended for stand alone use.

The EMC behaviour is described in our data sheet. This data provide the necessary basis for establishing the conformity declaration by the OEM.