

INSTALLATION INSTRUCTIONS

LOK, LOR, LOS Series

FEATURES

- Universal input voltage range, AC single phase or DC input
- High efficiency
- Size (W/H/D): 38 x 90 x 114 mm
- Very high reliability, MTBF 1 600 000 h (GB, 40 °C)

INPUT DATA

- Operating input range: 85 – 264 VAC, 47 – 63 Hz
90 – 250 VDC
- Nominal input range: 100 – 240 VAC, 50 – 60 Hz
- Inrush current limitation by NTC (16 Ohm)
- Built-in input fuse in the input phase line (L): 1.6 A, slow blow

OUTPUT DATA

FRONT-END MODELS	Vo [VDC]	Io [A]	Po nom [W]
LOK4001-2RLD	5.1	5.2	26
LOS4301-2	12	1.25	15
LOR4301-2	12	2.5	30
LOK4301-2R	12	4	48
LOS4601-2	24	0.65	15
LOR4601-2	24	1.25	30
LOK4601-2R	24	2	48
LOK4801-2R	48	1	48

BATTERY CHARGERS	Vo [VDC]	Io [A]	Po nom [W]
LOK4140-2RLD	13.6	3.6	49
LOK4240-2RLD	27.25	1.8	49
LOK4740-2RLD	54.5	0.9	49

- Linear output power derating down to 85% Po nom below 105 VAC
- Linear output power derating down to 45% Po nom at ambient temperature above 50 °C up to 71 °C (LOK)
- Phase to phase connection at low mains (120 / 208 VAC) provides full output power (second fuse in the line to the N[≈] terminal required = option F).
- Hold-up time 115 / 230 VAC at Po nom: 14 / 90 ms
- Output continuously no-load, overload and short-circuit proof
- Overload protection with self recovery (hiccup) or current limitation (suffix L)
- Operation of several units in series possible

ELECTROMAGNETIC COMPATIBILITY

- Immunity according to IEC/EN 61000-4-2, -3, -4, -5, -6:
 - Electrostatic discharge (-4-2): level 2; 8 kV air (B)
 - Electromagnetic field (-4-3): level 2; 3 V/m (B)
 - Burst (-4-4): level 3; 2 kVp (B)
 - Surges (-4-5): level 3, line to PE: 2 kV (B)
level 2, line to line: 1 kV (B)
 - Conducted immunity (-4-6): level 2; 3 VAC (A)
- Electromagnetic emissions, EN 55011, conducted (0.15 – 30 MHz): Class B

ENVIRONMENTAL CONDITIONS

- Ambient operating temperature Ta: -10 to 50 °C at free air convection cooling
- Case temperature Tc: -10 to 80 °C
- Storage temperature Ts: -40 to 85 °C
- For use in environments pollution degree 2
- Damp heat steady state: 40 °C, 93%, 21 days
- Shock, bump and vibrations mounted on 35 mm DIN-rail:
 - Shock: 15 gn, 11 ms, 18 bumps, 3 in each direction
 - Bump: 10 gn, 11 ms, 6000 bumps, 1000 in each direction
 - Vibration sinus: 10 – 60 Hz: 0.15 mm; 60 – 150 Hz: 2 gn

CONTROL FUNCTIONS

- LED Output OK
- Output voltage adjustment via R-pin: 90 – 110% Vo nom (suffix R)
- Output voltage OK signal (suffix D)

PROTECTION CIRCUITS

- Input surge and transient protection

OPTIONS

- F: (LOK only): Built-in second fuse in the input neutral line (N)
Caution: Double pole fusing!
- K: System connectors fitted with screw-terminals for pre-assembling

TERMINAL ALLOCATION

- The terminal allocation is defined in table 1 and 2

SAFETY AND INSTALLATION INSTRUCTIONS

- Class I equipment according to IEC/EN 62368-1
- Overvoltage category II
- 1.5 kVAC input/PE electric strength test voltage
- Safety approved to IEC/EN 62368-1, IEC 60950-1, UL/CSA 60950-1
- ES1 outputs according to IEC/EN 62368-1
- Degree of protection: IP 20
- Built-in device for vertical mounting on a DIN-rail
- Cage-clamp terminals (standard)
- Self-cooling; no forced cooling required
- Minimum space to next device:
 - Top/bottom: 30 mm; left/right: 10 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 unit

WARNINGS

- Installation must strictly follow the national safety regulations.
- Switch off the system, before connecting the converter!
- A second fuse should be installed in the wiring to the input neutral line N[≈] (or use LOK models with option F), provided that:
 - Local requirements demand an individual fuse in each source line.
 - Phase and neutral lines of the mains are not defined.
- Only qualified personnel are allowed to work around or on the equipment.
- Failure to properly install and maintain this equipment may result in failure, severe personal injury, or substantial damage to property.
- Hazardous voltages are present, when connected to the mains.
- Do not open this apparatus!
- Safe operation of this equipment depends upon proper handling, installation, and correct operation.



CAUTION – High voltage: Turn off the power supply before disconnecting any terminal. Discharge the power terminals or wait 15 seconds before servicing. Do not turn on when any terminal is not connected.

ATTENTION – Haute tension : éteindre le l'alimentation avant de déconnecter toute borne. Décharger les bornes d'alimentation ou patienter 15 sec. avant toute réparation. Ne pas mettre l'alimentation en marche lorsqu'aucune borne n'est connectée.

WEIGHT

- LOK: 0.35 kg, LOR: 0.27 kg, LOS: 0.23 kg

DIMENSIONS

- See fig. 1.

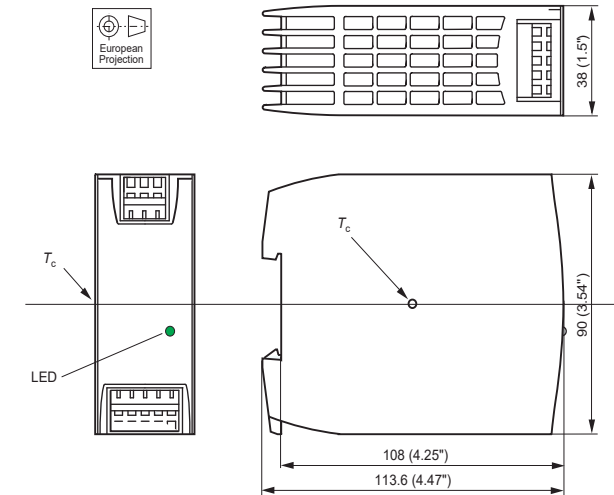


Figure 1.



INSTALLATION INSTRUCTIONS

LOK, LOR, LOS Series

CONNECTOR PIN ALLOCATION

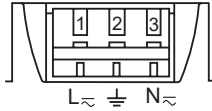


Figure 2. Input Terminals

PIN NO.	ELECTRICAL DETERMINATION	PIN DESIGNATION
1	Input phase line	L ≈
2	Protective earth PE	⊕
3	Input neutral line	N ≈

Table 1. Input

DC input connections:

- Unearthed battery or earthed negative pole:
Connect + to 1 (L)
Connect - to 3 (N)
- Earthed positive pole
Connect - to 1 (L)
Connect + to 3 (N)

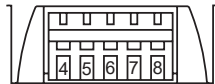


Figure 3. Output Terminals

PIN NO.	ELECTRICAL DETERMINATION	PIN DESIGNATION
4	D, Output positive	D / +
5	Output positive	+
6	Output negative	-
7	Output negative	-
8	R-input, not connected	R / n.c.

Table 2. Output

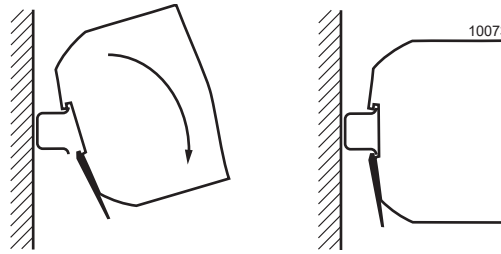


Figure 4. Snap-fit mounting to DIN-rail

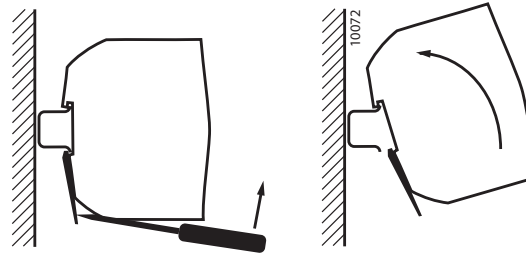


Figure 5. Dismounting from DIN-rail. Use proper tool (min. 3 mm screw driver) and adequate force.

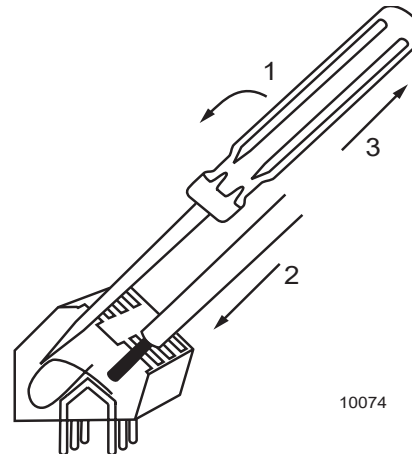


Figure 6. Cage clamp terminals (standard).
Use 0.5 to 2.5 mm² (AWG 20 to 12) solid wires or stranded wires, depending on local requirements.

OPTION K

System connectors fitted with screw-terminals allow for the use of preassembled harnesses.

Option K is UL-approved for currents up to 10 A.

Section of solid wires: 1.5 mm² (AWG 14),

Section of stranded wires: 1 mm² (AWG 16)

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.



UL/CSA 60950-1



¹ LOK



UL 508

