

# INSTALLATION INSTRUCTION

## K/S Series

### 150 W/100 W DC-DC & AC-DC Converters

#### OPERATION RANGE

Refer to product rating label for input and output ratings.

#### INSTALLATION

Connection to the system shall be made via the female connector H15 (standard) or H15S4; see Accessories datasheet: *Cassette Style Mating Connectors (BCD20022)*. Other installation methods may not meet the safety requirements.

The input pins 30/32 (Vi- or L $\rightarrow$ ) are connected via a built-in fuse, which is designed to protect in the case of a converter failure. An additional external fuse, suitable for the application, might be necessary in the wiring to the other input 26/28 (Vi+ or N $\rightarrow$ ) or even to pins 30/32, particularly if:

- Local requirements demand an individual fuse in each source line
- Phase and neutral of the AC mains are not defined or cannot be assigned to the corresponding terminals.
- Neutral and earth impedance is high or undefined

##### Notes:

- If the inhibit function is not used, pin no. 18 (i) should be connected with pin no. 14 to enable the output(s).
- Do not open the converters, or warranty will be invalidated.
- Due to high current values, the converters provide two internally parallel contacts for certain paths (pins 4/6, 8/10, 26/28 and 30/ 32). It is recommended to connect both female connector pins of each path, to keep the voltage drop low and avoid excessive connector currents.
- If the second output of double-output models is not used, connect it parallel with the main output.

For more details view the Data Sheet / App Notes link on the website at [belfuse.com/power-solutions](http://belfuse.com/power-solutions) and go to the respective Product or family part number listing.

#### PROTECTION DEGREE AND CLEANING LIQUIDS

Condition: Female connector fitted to the converter.

- IP 30: All models except those with option P, and except those with option D or V including a potentiometer.
- IP 20: All models fitted with option P, or with option D or V with potentiometer.

In order to avoid damage, any penetration of cleaning fluids has to be prevented, since the power supplies are not hermetically sealed.

#### SENSE LINES (SINGLE-OUTPUT MODELS)

**Important:** Sense lines must always be connected! Incorrectly connected sense lines may activate the overvoltage protection resulting in a permanent short-circuit of the output.

For more details view the Data Sheet / App Notes link on the website at [belfuse.com/power-solutions](http://belfuse.com/power-solutions) and go to the respective Product or family part number listing.

#### CAUTIONS

The converters are components, intended exclusively for inclusion within other equipment by an industrial assembly operation or by professional installers. Installation must strictly follow the national safety regulations in compliance with the enclosure, mounting, creepage, clearance, casualty, markings, and segregation requirements of the end-use application.

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

#### SAFETY OF OPERATOR-ACCESSIBLE OUTPUT CIRCUITS

If the output circuit of a **DC-DC converter** is operator accessible, it shall be an ES1 circuit according to the standard IEC 62368-1 3rd edition. It is the sole responsibility of the installer to assure the compliance with the applicable safety regulations. For more information see Accessories datasheet: *Cassette Style Mating Connectors (BCD20022)*

#### ISOLATION AND PROTECTIVE EARTHING

Pin no. 24 (⊕) is connected with the case. For safety reasons it is essential to connect this pin reliably to protective earth.

The electric strength test is performed in the factory as routine test in accordance with EN 62911 and IEC/EN 62368-1 3rd edition. The company will not honor any warranty claims resulting from incorrectly executed electric strength field tests. The resistance between earth connection and case (<0.1  $\Omega$ ) is tested as well.

## FUSING

A fuse mounted inside the converter protects against internal fault. This fuse may not fully protect the converter, when the input voltage exceeds 200 VDC. In applications, where the converters operate at source voltages above 200 VDC, an external fuse or a circuit breaker at system level should be installed.

### Fuse Specification

Model	Fuse type	Reference	Rating
AK, AS	fast-blow <sup>1</sup>	Littlefuse 314	30 A, 125 V
BK, BS	fast-blow <sup>1</sup>	Littlefuse 314	25 A, 125 V
CK, CS	slow-blow <sup>2</sup>	Schurter SPT	12.5 A, 250 V
DK, DS	slow-blow <sup>2</sup>	Schurter SPT	8 A, 250 V
EK, LK, ES, LS	slow-blow <sup>2</sup>	Schurter SPT	4 A, 250 V
FK, FS	slow-blow <sup>2</sup>	Schurter SPT	16 A, 250 V

<sup>1</sup> Fuse size 6.3 × 32 mm    <sup>2</sup> Fuse size 5 × 20 mm

## SERVICING

The product(s) must be returned to the Authorized Bel Service Center for repair with a pre-assigned RMA number

## LIMITED WARRANTY

For models with -9 and RoHS (suffix G) the company warrants each power supply of its manufacture for a period of five years from the date of original shipment. This warranty applies to defects in materials and workmanship that result in non-performance to published specifications. The product(s) must be returned to the Authorized Service Center for repair with a pre-assigned RMA number. The company assumes no liabilities for consequential damages of any kind through the use or misuse of its products by any user. No other obligations are expressed or implied. Please note that the specifications, terms, and conditions stated are subject to change without notice.

## INPUT AND OUTPUT CONNECTOR DETAILS

Refer to the product datasheets at [belfuse.com/power-solutions](http://belfuse.com/power-solutions).

## MECHANICAL DIMENSIONS AND MOUNTING REQUIREMENTS

Refer to the product datasheets at [belfuse.com/power-solutions](http://belfuse.com/power-solutions).

## ALLOWED MOUNTING POSITION

Make sure that there is sufficient airflow available for convection cooling and verify it by measuring the case temperature T<sub>c</sub>, when the converter is installed and operated in the end-use application; see Thermal Considerations in the datasheet at [belfuse.com/power-solutions](http://belfuse.com/power-solutions).

## NUCLEAR AND MEDICAL APPLICATIONS

These products are not designed or intended for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems.

## TECHNICAL REVISIONS

The appearance of products, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.



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