

## **BC/BBC SERIES**

## **BUCK / BUCK – BOOST DC/DC CONVERTER**

**USER MANUAL**

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 DANGER

Never use this product in locations where flammable gas or ignitable substances are present.

 INSTALLATION WARNING

- When installing, ensure that work is done in accordance with the instruction manual. When installation is improper, there is risk of electric shock and fire.
- Installation shall be done by Service personnel with necessary and appropriate technical training and experience. There is a risk of electric shock and fire.
- Do not cover the product with cloth or paper etc. Do not place anything flammable around. This might cause damage, electric shock or fire.

 WARNING on USE

- Do not touch this product or its internal components while circuit in operation, or shortly after shutdown. You may receive a burn.
- While this product is operating, keep your hands and face away from it as you may be injured by an unexpected situation.
- There are cases where high voltage charge remains inside the product. Therefore, do not touch even if they are not in operation as you might get injured due to high voltage and high temperature. You might also get electric shock or burn.
- Do not make unauthorized changes to this product nor remove the cover as you might get an electric shock or might damage the product. We will not be held responsible after the product has been modified, changed or dis-assembled.
- Do not use this product under unusual condition such as emission of smoke or abnormal smell and sound etc. Please stop using it immediately and shut off the product. It might lead to fire and electric shock. In such cases, please contact us. Do not attempt repair by you, as it is dangerous for the user.
- Do not operate and store these products in environments where condensation occurs due to moisture and humidity. It might lead fire and electric shock.
- Do not drop or apply shock to this product. It might cause failure. Do not operate these products mechanical stress is applied.

 CAUTION on MOUNTING

- Confirm connections to input/output terminals are correct as indicated in the instruction manual before switching on.
- Input voltage, Output current, Output power, ambient temperature and ambient humidity should be kept within specifications, otherwise the product will be damaged, or cause electric shock or fire.
- Do not use this product in special environment with strong electromagnetic field, corrosive gas or conductive substances and direct sunlight, or places where product is exposed to water or rain.
- Mount this product properly in accordance with the instruction manual, mounting direction and shall be properly be ventilated.
- Please shut down the input when connecting input and output of the product.
- The power supply may cause damage when it intake conductive material, dust and liquid. When use this product, please be careful to prevent entry of those materials to inside the product by using filter etc.
- Do not use this product in environments where causes the salt damage.

 CAUTION on USE

- Product individual notes are shown in the instruction manual. If there is any difference with common notes individual notes shall have priority.
- Before using this product, be sure to read the catalog and instruction manual. There is risk of electric shock or damage to the product or fire due to improper use.
- Input voltage, Output current, Output power, ambient temperature and ambient humidity should be kept within specifications, otherwise the product will be damaged, or cause electric shock or fire.

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## 1. Basic Operation of PESS BC / BBC Series DC/DC Converters

PESS BC / BBC Series DC/DC Converters are industrial type DC power converter devices that convert the applied DC voltage to the desired DC voltage level. The following section will explain the different type DC/DC Converters basic operation principle and how to work information for customers and end-users.

The BC Series DC/DC Converter devices will be referred to as BC device and The BBC Series DC/DC Converter devices will be referred to as BBC device throughout the remainder of this document.

BC / BBC device in the Figure 1. is designed for especially high power, high IP rating and industrial applications.

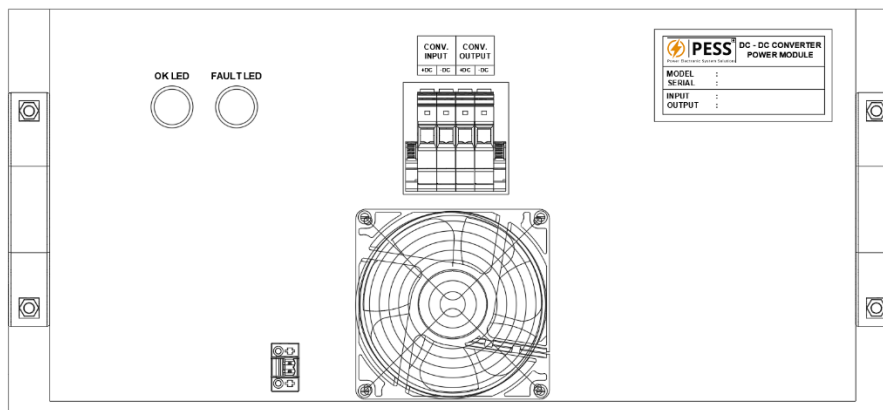


Figure 1 High Power Industrial type BC / BBC Converter

General applications of the BC / BBC device are

- Telecommunication server supply
- Internet and data centers supply
- Battery string voltage level step-down
- Industrial Rectifier and Battery Chargers output voltage step-down
- DC load supply

BC / BBC device consist of the

- Semiconductor devices
- Snubber devices
- DC BUS capacitors
- Protection devices
- Electronic control boards

## 2. Power Supply Terminals Connection

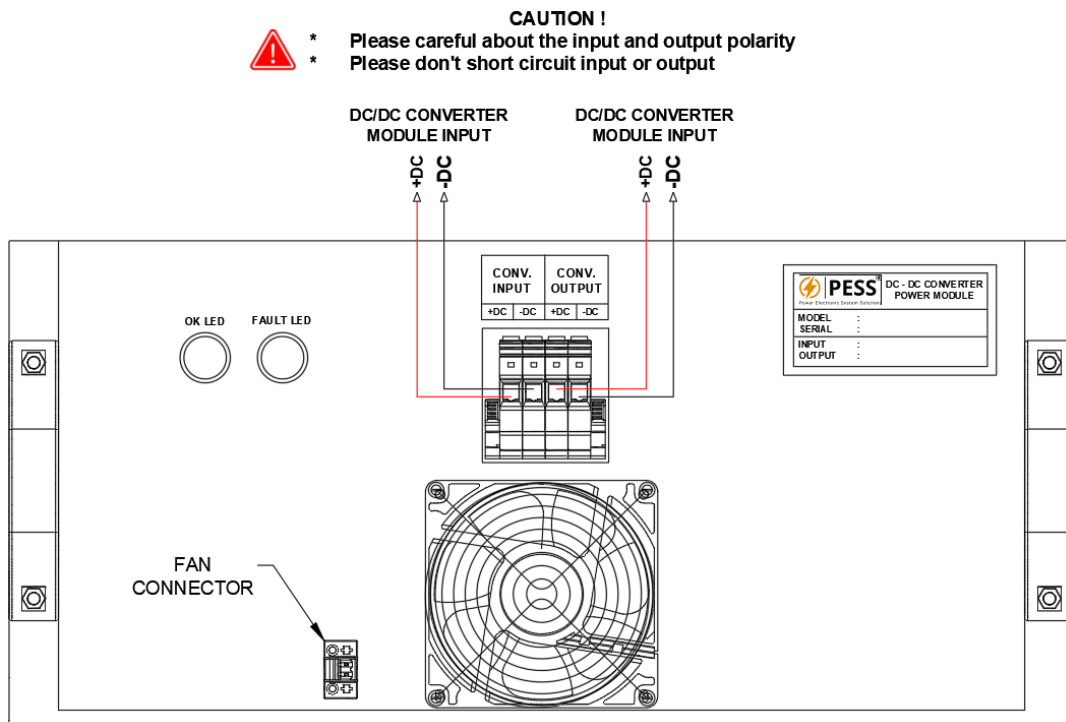


Figure 2 Power Terminal Connections

- BC / BBC device has easy and quick connection abilities.
- If there is any problem in cooling fan, customer easily change the fan using the fan connector.
- BC / BBC devices has internal OCP(over current) protection but optionally connect correct type and rating DC fuse.

PESS Company recommends under 125 VDC use MCB circuit breaker, above 125 VDC we are recommend using a DC cylindrical cartridge fuse or NH type fuse. The Fuse Current and  $I^2t$  ratings is depend to device device power.

- BC / BBC devices has internal OVP(over voltage) protection but optionally connect metal-oxide varistor between external DC circuit breaker and device input.
- BC / BBC devices has output soft-start algorithm but above 125 VDC input voltage we are recommended apply input voltage with soft-start because of the huge DC link capacitor, otherwise it's may be give damage to the dc link capacitor
- PESS Company recommends use suitable cable lugs for better connection at the input and output cables of the module

### 3. Indicator Led Status Description

BC / BBC devices use green and red led for status information. In Figure 3. shows two main led status. The explanation of the led status

- Green LED : Turn-on                      Red LED : Turn-off

Everything is ok. Device running under normal conditions.

- Green LED : Turn-off                      Red LED : Turn-off

There is/are fault situations. Device not working.

- Green LED : Turn-off                      Red LED : Blinking

It's mean there is/are critical fault or short circuit. Device not working.

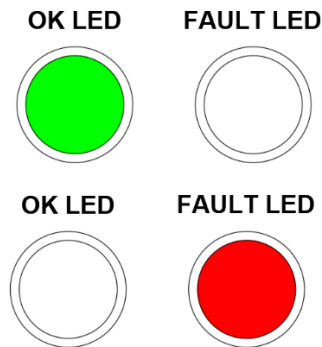


Figure 3 Indicator leds