

DC/DC Converter system

The Industrial bulk feed (IBF) unit is designed for systems with high voltage DC input (85-300 VDC). The Power Core is built around the Flatpack2 HE converters, and designed for applications such as switchgear, telecom, emergency lighting and alarm systems.

Its compact design and simple installation make it a powerful 19" power supply package.

The IBF unit can be used as a stand-alone system or as an integrated unit together with our Flatpack2 rectifiers.



IBF DC/DC-HV (high voltage)

24V_{DC}, 48 V_{DC}, 60 V_{DC}, 110 V_{DC}, 125 V_{DC} & 220 VDC systems

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INDUSTRY APPLICATIONS

Power Utilities

- Low & High Voltage switchgear
- Transformer & SUB Stations
- Power Generation & Distribution
- Control & protection
- SCADA
- Communications equipment

Offshore and process industry

- Safety and Automation Systems (SAS)

Marine

- Communication onboard ships

Railway infrastructure

- Control & protection
- Signaling

Telecom – Mobile - Fixed / Wireless

- Radio Base stations/ Cell Sites
- LTE / 4G / WiMAX
- Distributed Antenna Systems
- Microwave
- Broadband



Front panel Smartpack2 Master Ctrl

Flatpack2 HE converters

KEY FEATURES

- Compact design and simple installation
- 85-300 DC Input
- House up to 8 rectifier modules
- 24-220 V_{DC} converter systems
- Bulk feed output
- Option with integrated 2 pole load fuse output
- Graphical 3.2" TFT high contrast, high resolution color display for easy navigation in user menu
- Ethernet for remote or local monitoring and control via WEB Browser
- SNMP protocol with TRAP, SET and GET on Ethernet. Email of TRAP alarms
- 3 digital programmable relay outputs
- 3 programmable multipurpose inputs ("digital inputs" or analog signals).

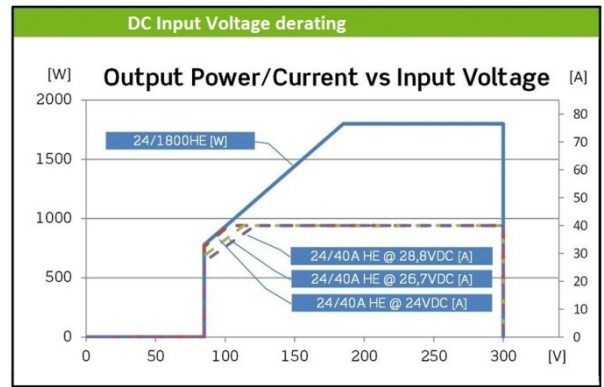
See reverse side for specifications

24V DC/DC Converter

Applications

All HE modules operates with DC input (85-300 VDC), making it a versatile DC/DC converter for stepping down a DC supply or act as a buffer to isolate branches.

- Alarm systems
- PABX systems
- Emergency lighting
- Industrial control systems



1 POWER RACK (1PR)

AVAILABLE 24V DC/DC CONVERTERS

| Part Number | Description | Output Voltage Range | Efficiency | Max Output current depending on Input Voltage (see curve above) | | | | Output protection |
|-------------|------------------------|----------------------|---------------------|---|----------|----------|----------|-------------------|
| | | | | 1 Module | 2 Module | 3 Module | 4 Module | |
| 241115.205B | Flatpack2 24V/40A HE | 21.7 – 28.8 V | > 95% (30-65% load) | 40 A | 80 A | 120 A | 160 A | Fuse |
| 241115.205 | Flatpack2 24V/1800W HE | 21.7 – 28.8 V | > 95% (30-65% load) | 75 A | 150 A | 225 A | 300 A | Fuse |

2 POWER RACK (2PR)

AVAILABLE 24V DC/DC CONVERTERS

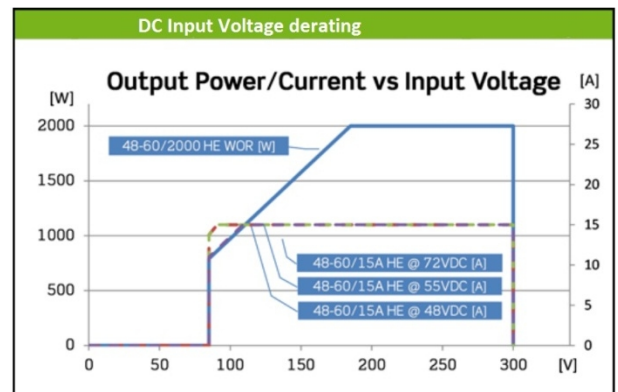
| Part Number | Description | Output Voltage Range | Efficiency | Max Output current depending on Input Voltage (see curve above) | | | | Output protection |
|-------------|------------------------|----------------------|---------------------|---|----------|----------|----------|-------------------|
| | | | | 5 Module | 6 Module | 7 Module | 8 Module | |
| 241115.205B | Flatpack2 24V/40A HE | 21.7 – 28.8 V | > 95% (30-65% load) | 200 A | 240 A | 280 A | - | Fuse |
| 241115.205 | Flatpack2 24V/1800W HE | 21.7 – 28.8 V | > 95% (30-65% load) | - | - | - | - | Fuse |

48V/60V DC/DC Converters

Applications

All HE modules operates with DC input (85-300 VDC), making it a versatile DC/DC converter for stepping down a DC supply or act as a buffer to isolate branches.

- Telecommunication systems; SCADA, GSM-R
- PABX systems
- Emergency lighting
- Industrial control systems



1 POWER RACK (1PR)

AVAILABLE 48/60V DC/DC CONVERTERS

| Part Number | Description | Output Voltage Range | Efficiency | Max Output current depending on Input Voltage (see curve above) | | | | Output protection |
|-------------|---------------------------|----------------------|------------------------|---|----------|----------|----------|-------------------|
| | | | | 1 Module | 2 Module | 3 Module | 4 Module | |
| 241115.705B | Flatpack2 48-60V/15A HE | 39.9 – 72 V | > 95.5% (50-100% load) | 15 A | 30 A | 45A | 60 A | Fuse |
| 241115.705 | Flatpack2 48-60V/2000W HE | 39.9 – 72 V | > 95.5% (25-75% load) | 41.6 A | 83.2 A | 124,8 A | 166,4 A | Fuse |
| 241115.105 | Flatpack2 48V/2000W HE | 43.5 – 57.6 V | > 96% (30-70% load) | 41.6 A | 83.2 A | 124,8 A | 166,4 A | Fuse |

2 POWER RACK (2PR)

AVAILABLE 48/60V DC/DC CONVERTERS

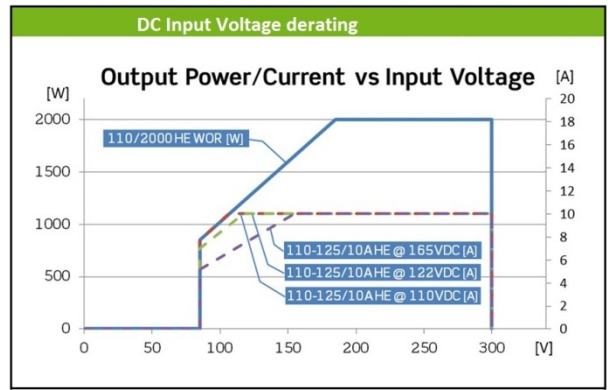
| Part Number | Description | Output Voltage Range | Efficiency | Max Output current depending on Input Voltage (see curve above) | | | | Output protection |
|-------------|---------------------------|----------------------|------------------------|---|----------|----------|----------|-------------------|
| | | | | 5 Module | 6 Module | 7 Module | 8 Module | |
| 241115.705B | Flatpack2 48-60V/15A HE | 39.9 – 72 V | > 95.5% (50-100% load) | 75 A | 90 A | 105 A | 120 A | Fuse |
| 241115.705 | Flatpack2 48-60V/2000W HE | 39.9 – 72 V | > 95.5% (25-75% load) | 208 A | 249,6 A | 291,2 A | - | Fuse |
| 241115.105 | Flatpack2 48V/2000W HE | 43.5 – 57.6 V | > 96% (30-70% load) | 208 A | 249,6 A | 291,2 A | - | Fuse |

110V/125V DC/DC Converters

Applications

All HE modules operates with DC input (85-300 VDC), making it a versatile DC/DC converter for stepping down a DC supply or act as a buffer to isolate branches.

- Low & High Voltage switchgear
- Transformer & SUB Stations
- Power Generation & Distribution



1 POWER RACK (1PR)

AVAILABLE 110/125V DC/DC CONVERTERS

| Part Number | Description | Output Voltage Range | Efficiency | Max Output current depending on Input Voltage (see curve above) | | | | Output protection |
|-------------|---------------------------|----------------------|----------------------|---|----------|----------|----------|-------------------|
| | | | | 1 Module | 2 Module | 3 Module | 4 Module | |
| 241115.805B | Flatpack2 110-125V/10A HE | 89.2-171.6 V | > 94% (45-100% load) | 10 A | 20 A | 30 A | 40 A | Oring diode |
| 241115.805 | Flatpack2 110V/2000W HE | 89.2-171.6 V | > 94% (30-70% load) | 16.8 A | 33.6A | 50.4 | 67.2 | Oring diode |
| 241119.805 | Flatpack2 110-125V/20A HE | 99.7-145 V | > 94% (45-100% load) | 20 A | 40 A | 60 A | 80 A | Oring diode |

2 POWER RACK (2PR)

AVAILABLE 110/125V DC/DC CONVERTERS

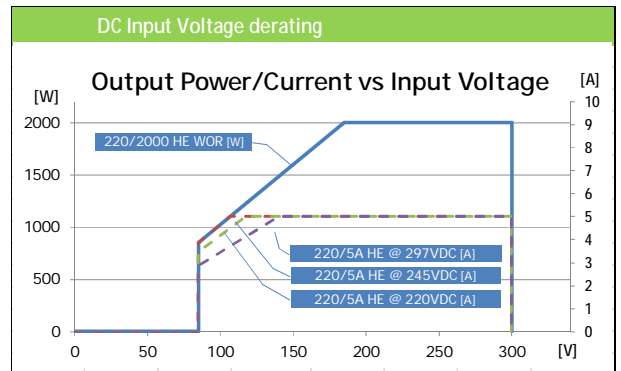
| Part Number | Description | Output Voltage Range | Efficiency | Max Output current depending on Input Voltage (see curve above) | | | | Output protection |
|-------------|---------------------------|----------------------|----------------------|---|----------|----------|----------|-------------------|
| | | | | 5 Module | 6 Module | 7 Module | 8 Module | |
| 241115.805B | Flatpack2 110-125V/10A HE | 89.2-171.6 V | > 94% (45-100% load) | 50 A | 60 A | 70 A | 80 A | Oring diode |
| 241115.805 | Flatpack2 110V/2000W HE | 89.2-171.6 V | > 94% (30-70% load) | 84 A | 96 A | 117,6 A | 134,4 A | Oring diode |
| 241119.805 | Flatpack2 110-125V/20A HE | 99.7-145 V | > 94% (45-100% load) | 100 A | 120 A | 140 A | 160 A | Oring diode |

220V DC/DC Converters

Applications

All HE modules operates with DC input (85-300 VDC), making it a versatile DC/DC converter for stepping down a DC supply or act as a buffer to isolate branches.

- Low & High Voltage switchgear
- Transformer & SUB Stations
- Power Generation & Distribution



1 POWER RACK (1PR)

AVAILABLE 220V DC/DC CONVERTERS

| Part Number | Description | Output Voltage Range | Efficiency | Max Output current depending on Input Voltage (see curve above) | | | | Output protection |
|-------------|-------------------------|----------------------|----------------------|---|----------|----------|----------|-------------------|
| | | | | 1 Module | 2 Module | 3 Module | 4 Module | |
| 241115.815B | Flatpack2 220V/5A HE | 178,5-297 V | > 94% (45-100% load) | 5 A | 10 A | 15 A | 20 A | Oring diode |
| 241115.815 | Flatpack2 220V/2000W HE | 178,5-297 V | > 94% (30-70% load) | 9,16 A | 18,32 A | 27,48 A | 36,64 A | Oring diode |
| 241119.815 | Flatpack2 220V/10A HE | 178,5-297 V | > 94% (45-100% load) | 10 A | 20 A | 30 A | 40 A | Oring diode |

2 POWER RACK (2PR)

AVAILABLE 220V DC/DC CONVERTERS

| Part Number | Description | Output Voltage Range | Efficiency | Max Output current depending on Input Voltage (see curve above) | | | | Output protection |
|-------------|-------------------------|----------------------|----------------------|---|----------|----------|----------|-------------------|
| | | | | 5 Module | 6 Module | 7 Module | 8 Module | |
| 241115.815B | Flatpack2 220V/5A HE | 178,5-297 V | > 94% (45-100% load) | 25 A | 30 A | 35 A | 40 A | Oring diode |
| 241115.815 | Flatpack2 220V/2000W HE | 178,5-297 V | > 94% (30-70% load) | 45,8 A | 54,96 A | 64,12 A | 73,28 A | Oring diode |
| 241119.815 | Flatpack2 220V/10A HE | 178,5-297 V | > 94% (45-100% load) | 50 A | 60 A | 70 A | 80 A | Oring diode |

IBF DC/DC-HV (high voltage)

TECHNICAL SPECIFICATIONS

| Model | IBF-DC/DC-1PR-Stand alone | IBF-DC/DC-2PR-Stand alone | IBF-DC/DC-1PR-Integrated | IBF-DC/DC-2PR-Integrated |
|-------------|---------------------------|---------------------------|--------------------------|--------------------------|
| Part number | CIE20405.xxx | CIE20806.xxx | CIE20405.xxx | CIE20806.xxx |

INPUT DATA

| | | | | |
|---------------------------|--|---|---|---|
| Voltage (range) | 85 - 300 V _{DC} | | | |
| 4*Individuell DC feed | • | - | • | - |
| 8*Individuell DC feed | - | • | - | • |
| Recommended input breaker | 16 A for each individual input 1) | | | |
| Protection | Individual fuse in rectifier modules | | | |
| Connection | Individual screw terminal 6 mm ² PE screw terminal, max 6 mm ² and M5 cable lug directly to chassis | | | |

OUTPUT DATA

| | | | | |
|---|--|---------|--------|---------|
| Voltage (default) | 24-220 V _{DC} | | | |
| Power (maximum) @ nominal input | 8000 W | 16000 W | 8000 W | 16000 W |
| Current (maximum) @ nominal input | See previous page or applicable Flatpack2 datasheet | | | |
| Unprotected bulk output | • | • | • | • |
| Connection bulk output | M8 bolt | | | |
| Optional 2 pole load breaker 6-32 A | Max 8 pcs 2 pole load breaker 6-32 A, B characteristics | | | |
| Connection optional 2 pole load breaker | Directly on output MCB up to 25 mm ² | | | |
| Output Protection in rectifiers | Blocking OR-ing FET or fuse, Short circuit proof & High temperature protection | | | |

CONTROL AND MONITORING

| | | |
|---|---|------------------|
| Monitoring Unit | Smartpack 2 Control System with Industrial Basic | Industrial Basic |
| Local Operation | Display and keys, WEB interface via standard browser | - |
| Remote Operation | WebPower (WEB Interface, SNMP protocol and email) | |
| Alarm Relays (Connection: clamp ≤ 1.5 mm ²) | 3 x Potential free contacts (NO, NC, C) [Max 430 VDC/0,1 A] | |
| Inputs | 3x NO/NC/Temperature: NTC Probe | |
| Current measurements | Load Current | |
| Alarms | Low & high output voltage alarms (Minor and major levels) Earth fault alarm, Temperature alarm, DC Input outage alarm, load breaker alarm and much more | |

OTHER SPECIFICATIONS

| | | | | |
|-----------------------------------|---|--------------------|--------------------|--------------------|
| Isolation | 3.0 kV _{AC} - input to output 1.5 kV _{AC} - input to earth 0.5 kV _{DC} - output to earth | | | |
| Operating temperature | -40 to +45°C (-40 to +113°F), humidity 5 - 95% RH non-condensing Output power de-rates at high temperature, see datasheet for applicable rectifier | | | |
| Storage temperature | -40 to +85°C (-40 to +185°F), humidity 0 - 99% RH non-condensing | | | |
| Dimensions[WxDxH] | 482*432*222mm (5U) | 482*432*267mm (6U) | 482*432*222mm (5U) | 482*432*267mm (6U) |
| Weight (without DC/DC Converters) | 17 kg | 16 kg | 17 kg | 16 kg |

DESIGN STANDARDS

| | |
|-------------------|---|
| Electrical safety | EN 60950-1 |
| EMC | ETSI EN 300 386 V.1.6.1 EN 61000-6-1 / -2 / -3 / -4 / -5 (Depending on module) |
| Environment | ETSI EN 300 019, ETSI EN 300 132 - 2 |

1) For 2kW Flatpack2 rectifiers or DC/DC Converters