

## 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<sub>DC</sub>, 48 V<sub>DC</sub>, 60 V<sub>DC</sub>, 110 V<sub>DC</sub>, 125 V<sub>DC</sub> & 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

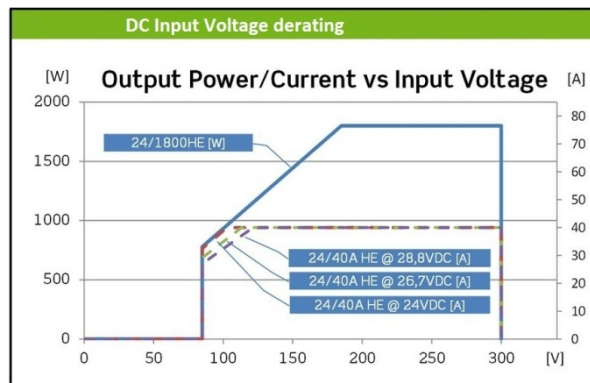
- Compact design and simple installation
- 85-300 DC Input
- House up to 8 rectifier modules
- 24-220 V<sub>DC</sub> converter systems
- Bulk feed output
- Option with integrated 2 pole load fuse output
- Graphical 3.2" TFT high contrast, high resolution color display for easy navigation in user menu
- 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).

## 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

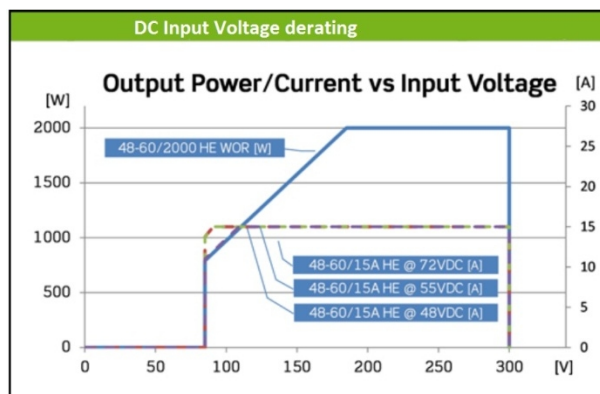
Part Number	Description	Output Voltage Range	Efficiency	Max Output current depending on Input Voltage (see curve above)				Output protection
				5 Module	6 Module	7 Module	8 Module	
241115.205B	Flatpack2 24V/40A HE	21.7 – 28.8 V	> 95% (30-65% load)	200 A	240 A	280 A	-	Fuse
241115.205	Flatpack2 24V/1800W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

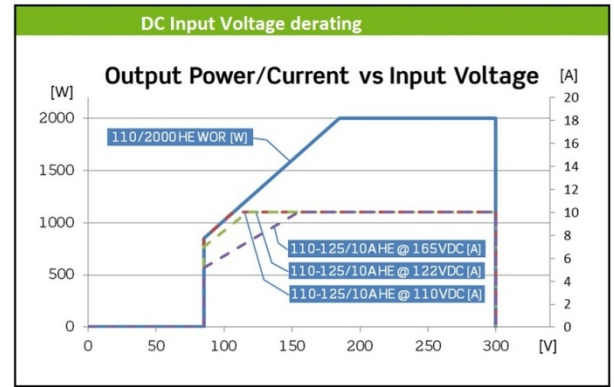
Part Number	Description	Output Voltage Range	Efficiency	Max Output current depending on Input Voltage (see curve above)				Output protection
				5 Module	6 Module	7 Module	8 Module	
241115.705B	Flatpack2 48-60V/15A HE	39.9 – 72 V	> 95.5% (50-100% load)	75 A	90 A	105 A	120 A	Fuse
241115.705	Flatpack2 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

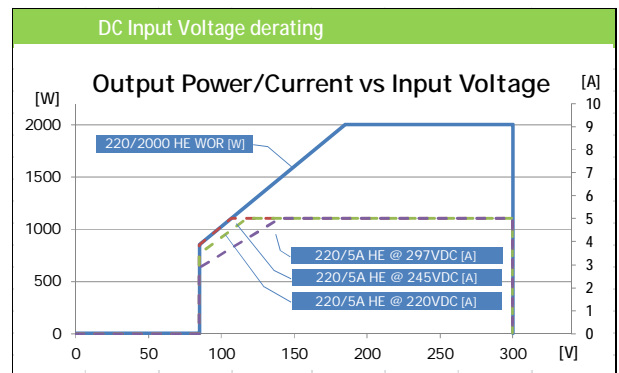
Part Number	Description	Output Voltage Range	Efficiency	Max Output current depending on Input Voltage (see curve above)				Output protection
				5 Module	6 Module	7 Module	8 Module	
241115.805B	Flatpack2 110-125V/10A HE	89.2-171.6 V	> 94% (45-100% load)	50 A	60 A	70 A	80 A	Oring diode
241115.805	Flatpack2 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

## 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 <sub>DC</sub>			
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 <sup>2</sup> PE screw terminal, max 6 mm <sup>2</sup> and M5 cable lug directly to chassis			

### OUTPUT DATA

Voltage (default)	24-220 V <sub>DC</sub>			
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 <sup>2</sup>			
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 <sup>2</sup> )	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 <sub>AC</sub> - input to output 1.5 kV <sub>AC</sub> - input to earth 0.5 kV <sub>DC</sub> - 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