Power Supply System, Battery Charger Or DC/DC Converter

The Integrated 19" 2U power supply is built around the Flatpack2 rectifier 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 rectifier's wide DC output range makes it suitable for parallel operation with all types of stationary batteries, including lead acid, or nickel cadmium types.

Flatpack2 Integrated 19" 2U

24V_{DC}, 30V_{DC}, 48 V_{DC}, 60 V_{DC}, 110 V_{DC} & 125 V_{DC} 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

Frontpanel Smartpack2

Flatpack2 HE rectifier

KEY FEATURES

- ✓ Compact design and simple installation
- ✓ 85-300 VAC or DC Input
- ✓ House up to 4 rectifier modules
- ✓ 24-125 V_{DC} systems
- ✓ Bulk feed 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
- ✓ 6 digital programmable relay outputs
- ✓ 6 programmable multipurpose inputs ("digital inputs" or analog signals).

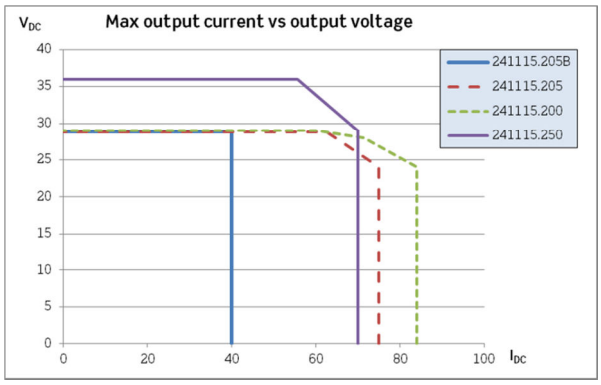
See reverse side for specifications

24V/30V Systems

Applications

The 24V/30V rectifiers are suitable for parallel operation with all types of stationary batteries, including lead acid or nickel cadmium types, and can also operate without batteries.
Typical applications:

- Alarm systems
- Diesel start float application
- PABX systems
- Emergency lighting
- Industrial control systems



AVAILABLE 24/30V RECTIFIERS

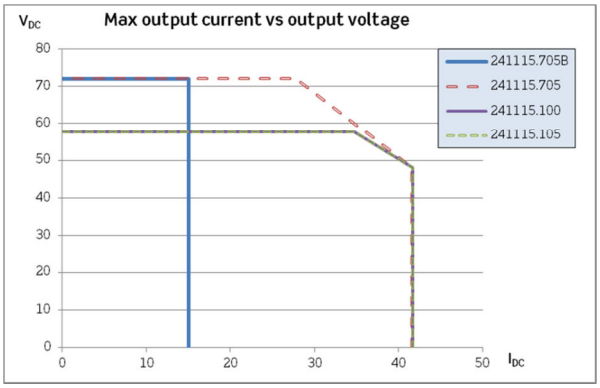
Part Number	Description	Voltage Range	Efficiency	Maximum Current				Output protection
				1 Module	2 Module	3 Module	4 Module	
241115.205B	Flatpack2 24V/40A HE	21.7 – 28.8 V	> 95% (30-65% load)	40 A	80 A	120 A	160 A	Fuse
241115.205	Flatpack2 24V/1800W HE	21.7 – 28.8 V	> 95% (30-65% load)	75 A	150 A	225 A	300 A	Fuse
241115.200	Flatpack2 24V/2000W	21 – 29 V	> 89% (25-100% load)	84 A	168 A	252 A	-	Blocking diode
241115.250	Flatpack2 24V/2000W WOR	21.5 – 36 V	> 91% (25-85% load)	70 A	140 A	210 A	280 A	Fuse

48V/60V Systems

Applications

The 48V rectifiers are deigned to meet international telecom standards for safe and reliable operation in telecom environments or any industrial communication system.
Typical applications:

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



AVAILABLE 48/60V RECTIFIERS

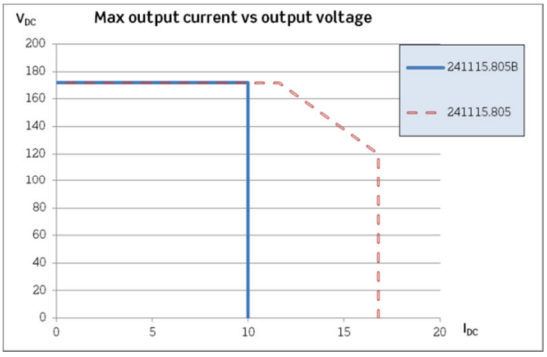
Part Number	Description	Voltage Range	Efficiency	Maximum Current				Output protection
				1 Module	2 Module	3 Module	4 Module	
241115.705B	Flatpack2 48-60V/15A HE	39.9 – 72 V	> 95.5% (50-100% load)	15 A	30 A	45A	60 A	Fuse
241115.705	Flatpack2 48-60V/2000W HE	39.9 – 72 V	> 95.5% (25-75% load)	41.6 A	83.2 A	124,8 A	166,4 A	Fuse
241115.100	Flatpack2 48V/2000W	43.2 – 57.6 V	> 91.5% (45-95% load)	41.6 A	83.2 A	124,8 A	166,4 A	Blocking diode
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

110V/125V Systems

Applications

The 110V rectifiers are designed for demanding environments and comply with IEC61000-6.5 (Immunity Power Stations and Substations) for reliable operation in critical applications.
Typical applications:

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



AVAILABLE 110/125V RECTIFIERS

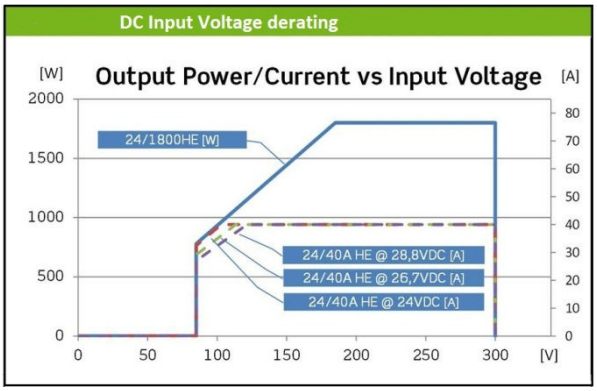
Part Number	Description	Voltage Range	Efficiency	Maximum Current				Output protection
				1 Module	2 Module	3 Module	4 Module	
241115.805B	Flatpack2 110-125V/10A HE	89.2-171.6 V	> 94% (45-100% load)	10 A	20 A	30 A	40 A	Oring diode
241115.805	Flatpack2 110V/2000W HE	89.2-171.6 V	> 94% (30-70% load)	16.8 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

24V DC/DC Converter

Applications

All HE rectifier module also 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



AVAILABLE 24V DC/DC CONVERTERS

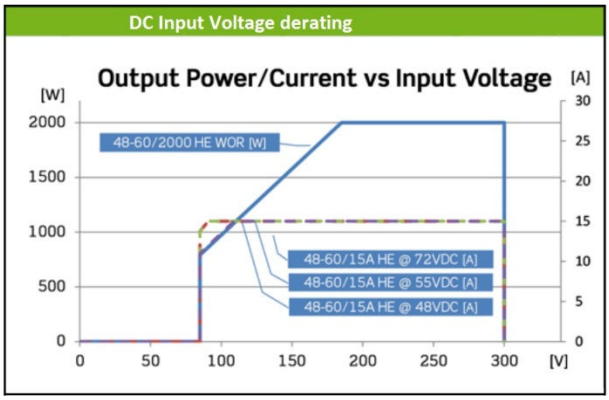
Part Number	Description	Voltage Range	Efficiency	Max Output current depending on Input Voltage (see curve above)				Output protection
				1 Module	2 Module	3 Module	4 Module	
241115.205B	Flatpack2 24V/40A HE	21.7 – 28.8 V	> 95% (30-65% load)	40 A	80 A	120 A	160 A	Fuse
241115.205	Flatpack2 24V/1800W HE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

48V/60V DC/DC Converters

Applications

All HE rectifier module also 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



AVAILABLE 48/60V DC/DC CONVERTERS

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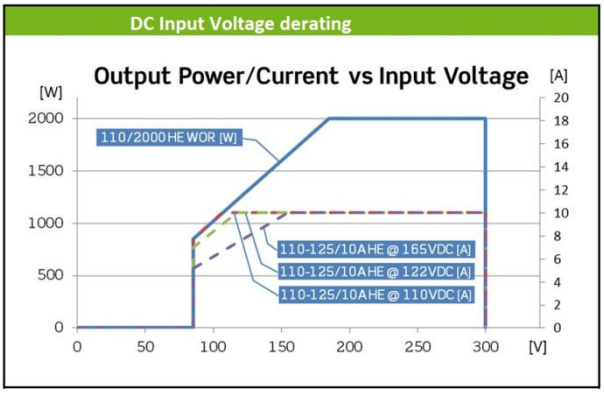
241115.705	Flatpack2 48-60V/2000W HE	39.9 – 72 V	> 95.5% (25-75% load)	41.6 A	83.2 A	124,8 A	166,4 A	Fuse
241115.105	Flatpack2 48V/2000W HE	43.5 – 57.6 V	> 96% (30-70% load)	41.6 A	83.2 A	124,8 A	166,4 A	Fuse

110V/125V DC/DC Converters

Applications

All HE rectifier module also 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



AVAILABLE 110/125V DC/DC CONVERTERS

Part Number	Description	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

Flatpack2 Integrated 19” 2U

TECHNICAL SPECIFICATIONS

Model	Bulk Feed 24-60V	Bulk Feed 110-125V
Part number	CTO30402.400	CIO30402.400
INPUT DATA		
Voltage (range)	85 - 300 $V_{AC/DC}$	
4*Indivuduell AC feed	•	•
4*Individuell DC feed	•	•
Recommended input breaker	16A for each individuel input 1) 25A Connected as TN net, 400VAC + N, 3 Phase 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)	24-60 V_{DC}	110-125 V_{DC}
NiCad, number of cells supported	18-40	85-104
Pb, number of cells supported	12-30	54-60
Power (maximum) @ nominal input	12000 W	12000 W
Current (maximum) @ nominal input	See previous page or applicable Flatpack2 rectifier datasheet	
Unprotected bulk output	•	•
Protected battery outputs	-	-
Protected load outputs	-	-
Integrated battery shunt and disconnect	-	-
Connection	M8 Bolt	M8 Bolt
Output Protection in rectifiers	Blocking OR-ing FET or fuse, Short circuit proof & High temperature protection	
CONTROL AND MONITORING		
Monitoring Unit	Smartpack 2	
Local Operation	Display and keys, WEB interface via standard browser using WebPower	
Remote Operation	WebPower (WEB Interface, SNMP protocol and email)	
Alarm Relays (Connection: clamp ≤ 1.5 mm^2)	6 x Potential free change over contacts (NO, NC, C) [Max 75V/2A/60W]	
Inputs	6 x Configurable (digital, analog) and 3 temperature	
Current measurements	Rectifier current and if battery shunt is used; battery current and load current	
Alarms	Low & high output voltage alarms (Minor and major levels), Earth fault alarm, Temperature alarm, Mains outage alarm, Battery remaining capacity/low quality alarms, Battery/load breaker tripped 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[WxHxD] / Weight	482 x 432 x 89mm (2U) (19 x 17 x 3,5”) / 10 kg (1 module) 16 kg (4 module)	
DESIGN STANDARDS		
Electrical safety	UL 60950-1-3rd edition, EN 60950-1-3rd edition	
EMC	ETSI EN 300 386 V.1.4.1 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