

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

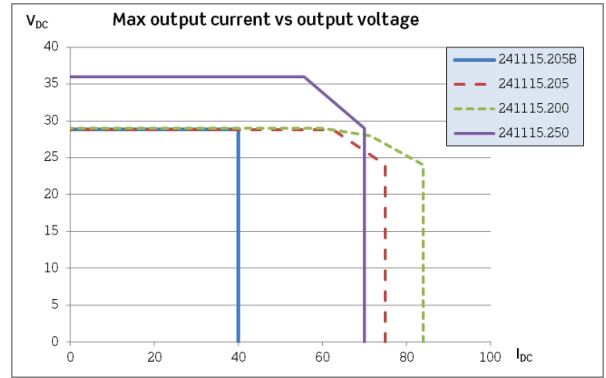
24V/30V Systems

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 |

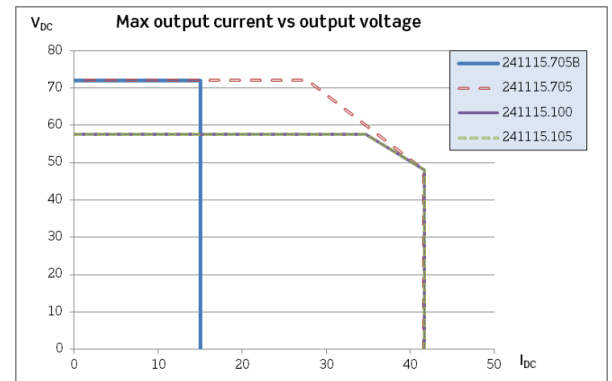
48V/60V Systems

Applications

The 48V rectifiers are designed 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 |

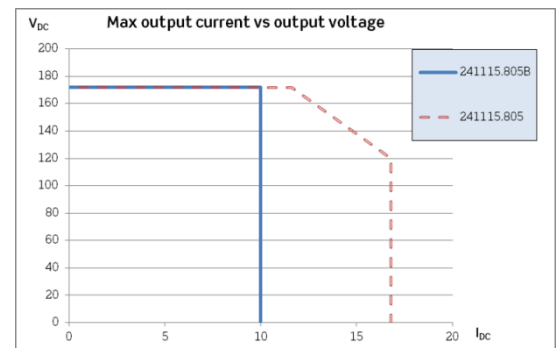
110V/125V Systems

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

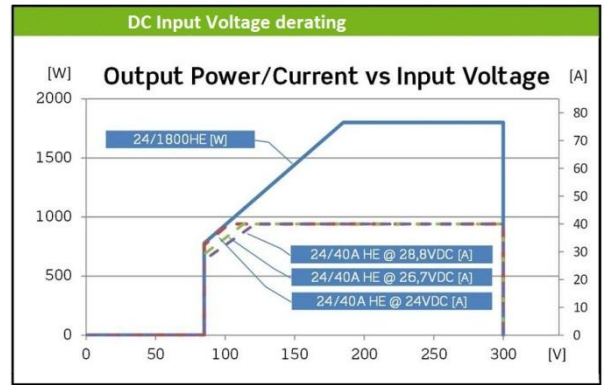
| Part Number | Description | Voltage Range | Efficiency | Maximum Current | | | | Output protection |
|-------------|---------------------------|---------------|----------------------|-----------------|----------|----------|----------|-------------------|
| | | | | 1 Module | 2 Module | 3 Module | 4 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

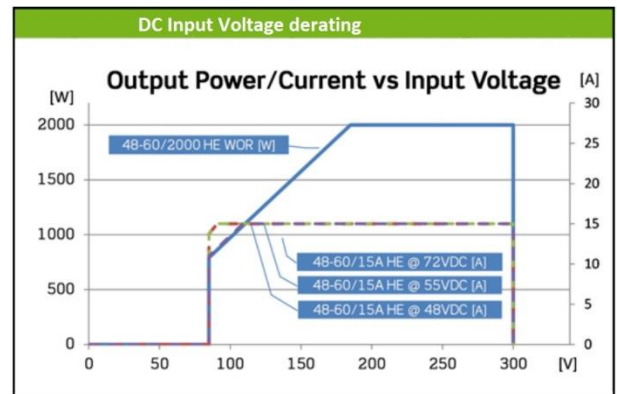
| Part Number | Description | Voltage Range | Efficiency | Max Output current depending on Input Voltage (see curve above) | | | | Output protection |
|-------------|------------------------|---------------|---------------------|---|----------|----------|----------|-------------------|
| | | | | 1 Module | 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

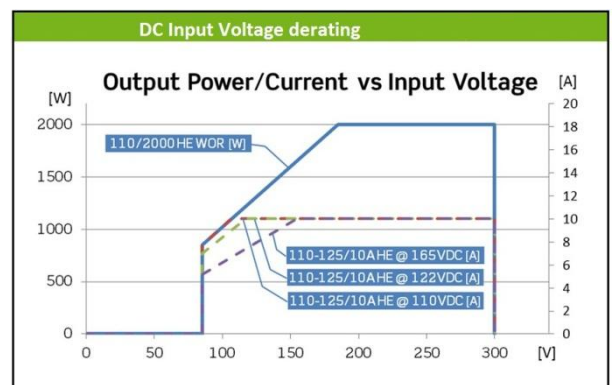
| Part Number | Description | Voltage Range | Efficiency | Max Output current depending on Input Voltage (see curve above) | | | | Output protection |
|-------------|---------------------------|---------------|------------------------|---|----------|----------|----------|-------------------|
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| 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 |
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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*Individuell AC feed | • | • |
| 4*Individuell DC feed | • | • |
| Recommended input breaker | 16A for each individual 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 60950-1-3 rd edition, EN 60950-1-3 rd 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