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.

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.

As additional options the measuring and signaling can be widely extended by incorporating the Eltek Flexi-Monitor and Relay Board see details in specific Data sheet.

Flatpack2 Integrated 19” 2U
24VDC, 48 VDC, 60 VDC, 110 VDC, 125 VDC & 220 VDC Systems

MODULAR ARCHITECTURE
RECTIFIER MODULE
The most efficient power conversion module in the industry!
Since the launch the Flatpack 2 family has expanded into a wide selection of power ratings and voltages.

The modular architecture, industry-leading efficiency, compact size, innovative design and comprehensive monitoring and control features provide significant benefits over the current industry standard.

APPLICATIONS
Power Utilities
- Low & High voltage switchgear
- Transformer & substations
- Power generation & distribution
- Control & protection
- Scada system
- Communication equipment

Railway & Metro infrastructure
- Control & protection
- Signaling
- Safety Systems

Telecom-mobile
- LTE/4G/WiMAX
- Distributed antenna system
- Broadband
- Radio base stations/cell sites

KEY FEATURES
- COMPACT DESIGN AND SIMPLE INSTALLATION
- 85-300 VAC OR DC INPUT
- HOUSE UP TO 4 RECTIFIER MODULES
- 24-220 VDC 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
- DIGITAL PROGRAMMABLE RELAY OUTPUTS
- PROGRAMMABLE MULTIPURPOSE INPUTS (“DIGITAL INPUTS” OR ANALOG SIGNALS).
**Flatpack2 Integrated 19” 2U**

- **MODEL**: 24-125 VDC-12 KW
- **INPUT DATA**
  - Voltage (nominal): 185-275 VAC or Vdc
  - Voltage (operating range): 85-305 VAC or Vdc
  - Maximum current AC (per input): 11.6-19.2 A
  - Frequency: 45-66 Hz / 0 Hz
  - Power factor: > 0.99
- **OUTPUT DATA**
  - Voltage (nominal) DC: 24, 48, 60, 110, 125 V
  - Adjustable range DC: See module type
  - Max output power DC: 12 kW
  - Static Voltage regulation: +/- 0,5%
- **CONTROLLER TYPE**
  - Smartpack 2
  - Basic unit: Standard basic
  - I/O unit: Type 2

Specifications are subject to change without notice

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**AVAILABLE RECTIFIERS & DC/DC CONVERTERS FP2 HE**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Part number</td>
<td>241115.205</td>
<td>241119.106</td>
<td>241115.105</td>
<td>241119.105</td>
<td>241115.705</td>
<td>241115.805</td>
</tr>
</tbody>
</table>

**INPUT DATA**

- Voltage AC (nominal): 185-275 VAC
- Voltage DC (nominal): 185-275 VDC
- Voltage AC (range): 85-300 VAC
- Voltage DC (range): 85-300 VDC
- Frequency: 0-66 Hz
- Current (maximum): 11.25 Arms
- Protection: Fuse
- Voltage (default): 26.7 VDC
- Voltage (adjustable range): 21.7-28.8 VDC
- Power (maximum): 1800 W
- Power @ 85 VAC: 750 W
- Current (maximum): 75 A
- Protection: Fuse

**OUTPUT DATA**

- Nominal output voltage: 24 VDC
- Voltage @ 85 VAC: 750 W
- Power (maximum): 1800 W
- Voltage (adjustable range): 21.7-28.8 VDC
- Power @ 85 VAC: 750 W
- Current (maximum): 75 A
- Protection: Fuse

**OTHER SPECIFICATIONS**

- Efficiency @ nominal input: 95.4 %

Specifications are subject to change without notice
Flatpack2 Integrated 19” 2U

**MODEL**
- 110-220 VDC-8 KW

**Part number**
- CIO20402.4xxx

**INPUT DATA**
- **Voltage (nominal)**: 185-275 Vac or Vdc
- **Voltage (operating range)**: 85-305 Vac or Vdc
- **Maximum current AC (per input)**: 11.9 A
- **Frequency**: 0-66 Hz
- **Power factor**: > 0.99

**OUTPUT DATA**
- **Voltage (nominal) DC**: 110, 125, 220 V
- **Adjustable range DC**: See module type
- **Max output power DC**: 8 kW
- **Static Voltage regulation**: +/- 0.5%

**CONTROLLER TYPE**
- Smartpack 2
- Basic unit
- I/O unit (option)
  - Master
  - Industrial basic
  - Fleximonitor/relay box

Specifications are subject to change without notice

**AVAILABLE RECTIFIERS & DC/DC CONVERTERS FP2 HE**

<table>
<thead>
<tr>
<th>Models</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>110/2000 HE</td>
<td>241115.805</td>
</tr>
<tr>
<td>220/2000 HE</td>
<td>241115.815</td>
</tr>
</tbody>
</table>

**INPUT DATA**
- **Voltage AC (nominal)**: 185-275 Vac
- **Voltage DC (nominal)**: 185-275 Vdc
- **Voltage AC (range)**: 85-300 Vac
- **Voltage DC (range)**: 85-300 Vdc
- **Frequency**: 0-66 Hz
- **Current (maximum) @ nominal input, full load**: 11.9 Arms
- **Protection**: Fuse

**OUTPUT DATA**
- **Nominal output voltage**: 110-125 Vdc
- **Voltage (default)**: 122.5 Vdc
- **Voltage (adjustable range)**: 89.2-171.6 Vdc
- **Power (maximum)**: 2000 W
- **Power @ 85 VAC**: 850 W
- **Current (maximum) @ nominal input, full load**: 16.7 A
- **Protection**: Diode

**OTHER SPECIFICATIONS**
- **Efficiency @ nominal input**: 94.4 %

Specifications are subject to change without notice
## Flatpack2 Integrated 19” 2U

### Models / ordering information

<table>
<thead>
<tr>
<th>Voltage (range), see respective module</th>
<th>24-125 VDC-12 kW</th>
<th>110-220 VDC-8 kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual AC input</td>
<td>85-300 V&lt;sub&gt;DC&lt;/sub&gt;</td>
<td>85-300 V&lt;sub&gt;DC&lt;/sub&gt;</td>
</tr>
<tr>
<td>Current (maximum) @ nominal input, full load</td>
<td>19.2 A (3 kW module)</td>
<td>11.9 A</td>
</tr>
<tr>
<td>Recommended input breaker (2 kW module)</td>
<td>16 A for each individual input, 25 A connected as TN net 400V&lt;sub&gt;AC&lt;/sub&gt; + N, 3phase</td>
<td></td>
</tr>
<tr>
<td>Protection</td>
<td>Individual fuse in rectifiers modules</td>
<td></td>
</tr>
<tr>
<td>Connection</td>
<td>Individual screw terminal 6 mm&lt;sup&gt;2&lt;/sup&gt; for L, N, PE</td>
<td></td>
</tr>
</tbody>
</table>

### INPUT DATA

- **Nominal output voltage**: 24-125 V<sub>DC</sub>
- **Power (maximum @ nominal input)**: 12kW
- **Current (maximum)**: See previous page or applicable Flatpack2 HE rectifier datasheet
- **Pb, number of cells supported**: 12-60
- **NiCd, number of cells supported**: 18-104
- **Unprotected bulk output connection**: M5 bolt
- **Output protection in rectifiers**: Fuse
- **Output protection in rectifiers**: Blocking OR-ring diode

### OUTPUT DATA

- **Monitoring master unit**: Smartpack2
- **Monitoring basic unit**: Standard basic
- **Monitoring basic unit**: Industrial basic
- **Local operations**: Display and keys, WEB interface via standard browser
- **Remote operations**: Web interface, SNMP protocol, Modbus
- **Alarm relays**: 6*potential free NO-C-NO
- **Inputs**: See option fleximonitor
- **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

### OPTIONS (see Fleximonitor datasheet)

- **Fleximonitor**: -
- **Option**: option

### OTHER SPECIFICATION

- **Isolation**: 3.0 kVAC - input to output
- **Isolation**: 1.5 kVAC - input to earth
- **Isolation**: 0.5 kV<sub>DC</sub> - output to earth
- **Protection Class**: IP 20
- **Operating temperature**: -40 to +55°C (-40 to +131°F), humidity 5 - 95% RH non-condensing
- **Storage temperature**: -40 to +85°C (-40 to +185°F), humidity 0 - 99% RH non-condensing
- **Dimensions[WxDxH]**: 482 x 432 x 89mm (2U) (19 x 17 x 3.5’’)
- **Dimensions[WxDxH]**: 482 x 470 x 89mm (2U) (19 x 18.5 x 3.5’’)
- **Weight**: 10 kg (1 module) 16 kg (4 module)

### DESIGN STANDARDS

- **Electrical safety**: UL 60950-1, EN 60950-1
- **EMC**: ETSI EN 300 386 V.1.6.1, FCC CFR 47 Part 15
- **Environment**: ETSI EN 300 019: 2-1 (Class 1.2), 2-2 (Class 2.3) & 2-3 (Class 3.2)

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