

Flatpack S 24/1000 HE

Rectifier Module



Compact high efficiency rectifier

The combination of innovative design, efficiency and reliability makes the Flatpack S a perfect choice for telecom and industrial applications. With a system depth of only 250mm the Flatpack S systems will fit in most cabinets.

This Flatpack S reduces losses by 30% compared to the current industry standard. The result is reduced total cost of ownership for the customers as well as contribution to reducing the global carbon emissions.

Applications

Offshore, Marine and Process Industry

Applications in these markets demand state of the art, reliable and safe DC power systems. Flatpack S delivers an industry leading power density in its segment, many safety functions, wide operating temperature range and superb reliability in its small housing.

Its small size makes it easier to install it into existing cabinets and new systems will occupy less space. The system controller supports a wide range of communication media and protocols, from plain alarm relays to SNMPv3 through Ethernet port, allowing integration with different customer control system environments.

Telecom Wireless, Fixed line and fiber networks

Increasing network speed demands flexible and expandable DC power solutions. The Flatpack S rectifiers are your key building blocks for future needs. The shallow system depth makes the same Flatpack S power core suitable for many various applications contributing to order standardization, thereby reducing delivery time and easing logistics.

Small and medium

Due to the high power density (26W/in³), high reliability and a highly flexible system communication interface, Flatpack S rectifiers are used in system solutions from 1kW to 10kW.

Product Features and Advantages

Flexibility and reliability

Extensive use of digital controllers has enabled advanced functionality to meet most customers' requirements. It also provides intelligent self-protective features like reduced output power at high temperatures or low mains.

Plug and play

Plug a new rectifier into the system, and it automatically logs on, gets an assigned ID, downloads the system set parameters from the control system and starts up with a minimum of installation time, and without interrupting the system or attached equipment. It also operates stand alone or in parallel with identical rectifiers without controller, still providing rectifier warning and alarms through relays.

Global compliance

Eltek Valere is among the market leaders in all regions in the world, and designs the core products to be compliant to all relevant standards and customer requirements. The Flatpack S 24/1000 HE rectifier is CE marked and UL recognized.

Patents pending

Flatpack S is a result of intensive research over many years. Several unique technical solutions are introduced, protected by patent applications.

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Additional Technical Specifications

| AC Input | |
|------------------|--|
| Voltage | 85 – 300 V _{AC/DC} (Nominal 185 – 275 V _{AC/DC}) |
| Frequency | 0 and 45 to 66Hz |
| Maximum Current | 5.9 A _{rms} maximum at nominal input and full load |
| Power Factor | > 0.99 at 50% load or more |
| Input Protection | <ul style="list-style-type: none"> o Mains fuse o Disconnect above 300 V_{AC/DC} |

| Other Specifications | |
|----------------------|---|
| Efficiency | Typically 93% |
| Isolation | 3.0 kV _{AC} – input to output 1.5 kV _{AC} – input to earth 0.5 kV _{DC} – output to earth |
| Alarms: | <ul style="list-style-type: none"> o Low mains shutdown o High and low temperature shutdown o Rectifier Failure o Overvoltage shutdown on output o Fan failure o Low voltage alarm o CAN bus failure |
| Warnings: | <ul style="list-style-type: none"> o Rectifier in power derate mode o Remote battery current limit activated o Input voltage out of range, flashing at overvoltage |
| Alarm output | <ul style="list-style-type: none"> o Potential free relay contact o Normally activated; deactivated on Alarms and mains off |
| Visual indications | <ul style="list-style-type: none"> o Green LED: ON, no faults o Red LED: rectifier failure o Yellow LED : rectifier warning |
| Operating temp | -40 to +85°C (-40 to +185°F), output power de-rates linear from 1000W @ 45°C (113°F) to 400W @ 85°C(185°F) |
| Storage temp | -40 to +85°C (-40 to +185°F) |
| Cooling | Fan (front to back airflow) |
| Fan Speed | Temperature and output current regulated |
| MTBF | > 300, 000 hours Telcordia SR-332 Issue I, method III (a) (T _{ambient} : 25°C) |
| Acoustic Noise | < 46dBA at nominal input and full load |
| Humidity | Operating: 5% to 95% RH non-condensing Storage: 0% to 99% RH non-condensing |
| Dimensions | 72 x 41.5 x 210mm (wxhxd) (2.83 x 1.63 x 8.27") |
| Weight | <1 kg (2lbs) |

| DC Output | |
|----------------------------|--|
| Voltage | 26.7 V _{DC} (adj. range: 21.5 – 29 V _{DC})* |
| Output Power | 1000 W within nominal input, derates to 440W at 85 V _{AC/DC} |
| Maximum Current | 41.7 Amps at 24 V _{DC} and nominal input |
| Current Sharing | ±5% of maximum current from 10 to 100% load |
| Static voltage regulation | ±0.5% from 10% to 100% load |
| Dynamic voltage regulation | ±5.0% for 10-90% or 90-10% load variation, regulation time < 50ms |
| Hold up time | >20ms; output voltage > 21 V _{DC} at 1000W load |
| Ripple | < 150 mV peak to peak, 30 MHz bandwidth |
| Output Protection | <ul style="list-style-type: none"> o Blocking Oring FET o Short circuit proof o High temperature protection |

* pending, first revisions have 21.5 – 28V_{DC}

| Applicable Standards | |
|----------------------|--|
| Electrical safety | IEC 60950-1/-3 rd edition UL 60950-1/-3 rd edition |
| EMC | ETSI EN 300 386 V.1.4.1 EN 61000-6-1 (immunity, light industry) EN 61000-6-2 (immunity, industry) EN 61000-6-3 (emission, light industry) EN 61000-6-4 (emission, industry) FCC Part 15 Subpart 109 |
| Mains Harmonics | EN 61000-3-2 |
| Marine | DNV-OS-D202, Ch.2 Sec. 4 (DNV 2.4) <ul style="list-style-type: none"> o Temperature Cl. B o Humidity Cl. B o Vibration Cl. A o EMC Cl. B¹⁾ |
| Environment | ETSI EN 300 019-2-1 Class 1.2 ETSI EN 300 019-2-2 Class 2.3 ETSI EN 300 019-2-3 Class 3.2 ETSI EN 300 132-2 RoHS compliant |

¹⁾Class B requires external filters on AC input

Specifications are subject to change without notice

| Part no. | Description |
|------------|----------------------|
| 241122.205 | FlatpackS 24/1000 HE |

241122.205.DS3 – v1