Flatpack2 48-60/2000 HE

Rectifier Module

The most efficient rectifier in the industry!

The combination of innovative design, efficiency and reliability makes the Flatpack2 HE stand out. With an efficiency up to 96.2%, the losses have been reduced by 50% compared to the current industry standard.

In a global perspective, considering the high energy consumption in the industry, this technology breakthrough is not only reducing operational cost, but it can also have a significant environmental impact.

Applications

Wireless, fiber and fixed line communication
Today's communications demand state of the art, cost effective and compact DC power systems. Flatpack2 HE delivers an industry leading power density and superb reliability at lowest lifetime cost.

Industry
High efficiency rectifier for DC power supply facilities with or without battery in all areas of industry, power generation and power distribution.

Wide Output Range (WOR)
Wide DC output range to support battery banks of both NiCd and Pb. For NiCd battery banks the any number cells from 38 to 40 are fully supported and for Pb 24 or 30 cells.

The HE rectifier also has an extremely high efficiency at low load, which historically has been a drawback with most modern soft switching technologies.

Small and large
Due to the high power density, cost competitive design and a highly flexible system communication interface, Flatpack2 HE rectifiers are used in system solutions from 2kW to 192kW.

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.

The HE rectifier is made fully compliant with the standard Flatpack2 rectifier which means it can be used in any FP2 system solutions, whether it is in new installations, site expansions or replacement programs.

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. All Flatpack2 rectifiers are CE marked, UL recognized.

Patents pending
Flatpack2 HE is a result of intensive research over many years. Several unique technical solutions are introduced, protected by patent applications.

See reverse side for specifications

Flatpack2 48-60/2000 HE

Additional Technical Specifications

AC Input

Voltage	85-300 VAC (Nominal 185 – 275 VAC)
Frequency	45 to 66Hz
Maximum Current	11.6 A_{rms} maximum at nominal input and full load
Power Factor	> 0.99 at 50% load or more
THD	< 5 % at nominal input and full load
Input Protection	o Varistors for transient protection o Mains fuse in both lines o Disconnect above 300 VAC

DC Output

Voltage	Default: 53.5 VDC (48V mode) 67 VDC in (60V mode)
Pb batteries (48V or 60V)	Float/Boost charge: 2.0 – 2.4 VDC/cell Standby/Test: 1.75 – 2.0 VDC/cell
NiCd batteries (48V)	Float charge: 1,40 – 1.45 VDC/cell Boost charge: 1.45 – 1.70 VDC/cell Standby/Test: 1.05 – 1.2 VDC/cell
No of cells configurable in controller	NiCd: 38 - 40 Pb: 24 or 30
Output Power	2000 W at nominal input, derating linear below 185VAC to 850W at 85VAC Constant Power: 48V – 72V Constant Current: 0 – 48V
Maximum Current	41.6 Amps at 48 VDC 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	±4.0% for 10-50% or 50-10% load variation, regulation time < 200ms
Hold up time	> 20ms; output voltage > 53.5 VDC at 1500W load
Ripple and Noise	< 150 mV peak to peak, 30 MHz bandwidth < 2 mV_{rms} psophometric
Output Protection	o Overvoltage shutdown o Hot plug-in o Output fuse o Short circuit proof o High temperature protection

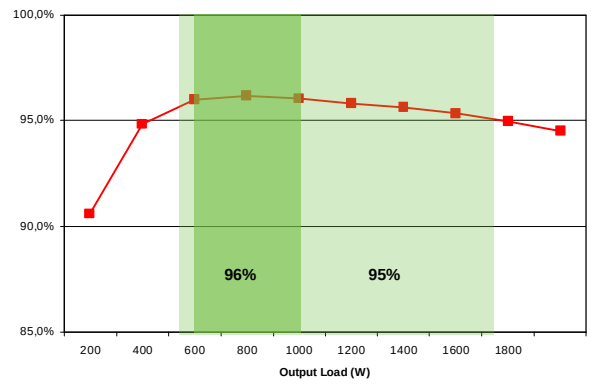
Applicable Standards

Electrical safety	IEC 60950-1 /UL 60950-1 / CSA 22.2
EMC	ETSI EN 300 386 V.1.3.2 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)
Mains Harmonics	EN 61000-3-2
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

Other Specifications

Efficiency	>95% at 30-70% load
Isolation	3.0 KVAC – input - output 1.5 KVAC – input earth 1.0 KVDC – output earth
Alarms:	o Low mains shutdown o High temperature shutdown o Rectifier Failure o Overvoltage shutdown on output o Fan failure o Low voltage alarm o CAN bus failure
Warnings:	o Low temperature shutdown o Rectifier in power derate mode o Remote battery current limit activated o Input voltage out of range, flashing at overvoltage o Loss of CAN communication with control unit, stand alone mode
Visual indications	o Green LED: ON, no faults o Red LED: rectifier failure o Yellow LED : rectifier warning
Operating temp	-40 to +75°C (-40 to +167°F), derating above +55°C (+131°F) to 1350W at +75°C (+167°F)
Storage temp	-40 to +85°C (-40 to +185°F)
Cooling	Fan (front to back airflow)
Fan Speed	Temperature and load regulated
MTBF	> 314, 000 hours Telcordia SR-332 Issue I, method III (a) ($T_{ambient}$: 25°C)
Acoustic Noise	< 52dBA at nominal input and full load ($T_{ambient}$ <= 30°C)
Humidity	Operating: 5% to 95% RH non-condensing Storage: 0% to 99% RH non-condensing
Dimensions	109 x 41.5 x 327mm (wxhxd) (4.25 x 1.69 x 13")
Weight	1.950 kg (4.3lbs)

Efficiency



241115.705.DS3 – v1

Specifications are subject to change without notice

Part no.	Description
241115.705	Flatpack2 48-60/2000 HE

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