



Minipack

Rectifier Module 48V, 800W

Compact and cost effective rectifier module

The fan cooled Minipack rectifier module has been specifically optimized for a wide range of system sizes. Realization of Minipack systems is possible by fitting up to 4 or 6 rectifiers across 2U 19" shelf including controller and distribution.

Applications

Wireless, fiber and fixed line communication

Today's communications demand state of the art, cost efficient and compact DC power systems. Minipack delivers power density of 14W/in³ and superb reliability at lowest lifetime cost.

Broadband and network access

Increasing network speed demands flexible and expandable DC power solutions. Minipack is your key building block for future needs.

Product Description

The Minipack is a battery charger and rectifier for stand-alone use or for working in parallel as part of a DC power system controlled and monitored by the Smartpack. Digital communication over CAN bus with Smartpack simplifies system design and enhances flexibility.

Key Features

Highest efficiency in minimum space

Resonant topology makes the module efficiency industry leading and contributes to the rectifier's ultra compact dimensions.

Digital controllers

Controller is digitalized, enabling excellent monitoring and regulation characteristics. Thus, the number of component has been reduced by 40% - for highly reliable, long life, trouble free DC power systems.

Heat management

Front-to-back air flow with optimal thermal design gives the module the most suitable working environment and no limitations in the scalability of the desired system solution.

Unique connection

A true plug-and-play connection system: time-to-install and cost-reducing solution.

Global approvals

Minipack is CE marked, UL recognized for worldwide installation.

Minipack Rectifier Module – 48V, 800W

Additional Technical Specifications

AC Input	
Voltage	85-300 VAC (Nominal 185 – 276 VAC) Linear derating below 185VAC
Frequency	44 to 66Hz
Maximum Current	Input: 4.9 Arms maximum at nominal input and full load Earth leakage: 1.7mA at 250Vac/50Hz
Power Factor	0.98 at 30% load or more
THD	3.1% (230Vac) 2.1% (115Vac)
Input Protection	<ul style="list-style-type: none"> ○ Transient protection ○ Mains fuse in both lines ○ Disconnect above 300 VAC

DC Output	
Voltage	<ul style="list-style-type: none"> ○ Nominal output: 53.5 VDC ○ Float/Boost range: 48 – 57.6Vdc ○ Standby test range: 43.5 – 48Vdc
Output Power	800 W at nominal input / 350W at 85VAC
Maximum Current	16.7 Amps at 48 VDC and nominal input
Current Sharing	±5% from true average current between modules
Static voltage regulation	±1.0% from 5% to 100% load
Dynamic voltage regulation	±5.0% for 25-100% or 100-25% load variation, regulation time < 10ms
Hold up time	> 20ms; output voltage > 43.0 VDC at 80% load
Ripple and Noise	<ul style="list-style-type: none"> < 100 mV peak to peak, 20 MHz bandwidth < 2 mV_{rms} psophometric
Output Protection	<ul style="list-style-type: none"> ○ Overvoltage shutdown ○ Blocking diode ○ Short circuit proof ○ High temperature protection

Other Specifications	
Efficiency	Typ. 91% at 60-100% load
Isolation	<ul style="list-style-type: none"> ○ 3.0 KVAC – input and output ○ 1.5 KVAC – input earth ○ 0.5 KVDC – output earth
Alarms	<ul style="list-style-type: none"> ○ Low mains shutdown (<85VAC) ○ High temperature shutdown ○ Rectifier Failure ○ Overvoltage shutdown on output ○ Low voltage alarm at 43.0V ○ CAN bus failure
Warnings	<ul style="list-style-type: none"> ○ Rectifier in power derate mode ○ Remote battery current limit activated ○ Input voltage out of range, flashing at overvoltage ○ Loss of CAN communication with control unit, stand alone mode
Visual indications	<ul style="list-style-type: none"> ○ Green LED: ON, no faults ○ Red LED: rectifier failure ○ Yellow LED : rectifier warning
Operating temp	-40 to +75°C (-40 to +167°F) Derating above +55°C linear to 450W at +65°C
Storage temp	-40 to +80°C (-40 to +176°F)
Cooling	1 fan (front to back airflow)
Fan Speed	Temperature and current regulated
MTBF	> 300, 000 hours Telcordia SR-332 Issue I, method III (a) (Tambient : 25°C)
Acoustic Noise	< 45dBA at nominal input and full load
Humidity	<ul style="list-style-type: none"> ○ Operating: 5% to 95% RH non-condensing ○ Storage: 0% to 99% RH non-condensing
Dimensions	42.5 x 88.9 x 250mm (1.67 x 3.5 x 9.84") (wxhxd)
Weight	1.08 kg (2.38lbs)

Applicable Standards	
Electrical safety	<ul style="list-style-type: none"> ○ IEC 60950-1 ○ UL 60950-1 ○ CSA 22.2
EMC	<ul style="list-style-type: none"> ○ ETSI EN 300 386 V.1.3.2 (telecommunication network) ○ 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)
Harmonics	EN 61000-3-2
Environment	<ul style="list-style-type: none"> ○ ETSI EN 300 019-2 (-1, -2, -3) ○ ETSI EN 300 132-2 ○ RoHS compliant

Specifications are subject to change without notice

241117.110.DS3 – v2

Ordering Information

Part no.	Description
241117.110	Minipack 48/800 FC





Minipack 4.8kW System, 6 rectifiers



Minipack 3.2kW System, 4 rectifiers

Minipack System

Power Supply Systems 48V, 3.2 or 4.8kW

Compact and cost effective power supply system

The Minipack system has been specifically designed to meet any requirement in terms of power functionality and cost. Realization of Minipack systems is possible by fitting up to 4 or 6 rectifiers across 2U 19" shelf including controller and distribution.

Applications

Wireless, fiber and fixed line communication

Today's communications demand state of the art, cost efficient and compact DC power systems. Minipack delivers power density of 14W/in³ and superb reliability at lowest lifetime cost.

Broadband and network access

Increasing network speed demands flexible and expandable DC power solutions. Minipack is your key building block for future needs.

Product Description

The Minipack system is a compact power system containing a Monitoring and Control Unit (Smartpack), LVD, battery and load MCBs. Switch mode technology with resonant topology and high switching frequency is used to minimize volume and weight and to obtain high reliability. The system accepts large variations on the input voltage (85-300 VAC) and draws sinusoidal current with a soft start power-up.

Key Features

Highest efficiency in minimum space

Resonant topology makes the module efficiency industry leading and contributes to the rectifier's ultra compact dimensions.

Digital controllers

Controller is digitalized, enabling excellent monitoring and regulation characteristics. Thus, the number of component has been reduced by 40% - for highly reliable, long life, trouble free DC power systems.

Heat management

Front-to-back air flow with chassis-integrated heat sinks gives the module the most suitable working environment and no limitations in the scalability of the desired system solution.

Unique connection

A true plug-and-play connection system: time-to-install and cost-reducing solution.

Global approvals

Minipack is CE marked, UL recognized for worldwide installation.

Minipack PS Systems – 48V, 3.2kW or 4.8kW

Additional Technical Specifications

AC Input

Voltage	4 pos: 2 x AC feeds (230VAC 1 ph) 6 pos: 3 x AC feeds (230VAC 1 ph)
Frequency	45 to 66Hz
Maximum Current	See Minipack datasheet
Input Protection	<ul style="list-style-type: none"> ○ Surge protection ○ Internal fuses (L & N) ○ Disconnect above 300VAC

Monitoring

Monitoring Unit	See Smartpack datasheet
Local Operation	Menu driven software via keypads and LCD or PC (PowerSuite)
Remote Operation	PowerSuite via modem or Monitoring via WebPower (WEB Interface, SNMP protocol and email)
Alarm Relays	6 relays
Visual Indications	<ul style="list-style-type: none"> ○ Green LED – System ON ○ Yellow LED – Minor alarm(s) ○ Red LED – Major alarm(s) ○ LCD – system status
Digital Inputs	<ul style="list-style-type: none"> ○ 6 (for monitoring of external equipment)
Current Measurements	<ul style="list-style-type: none"> ○ Battery current ○ Rectifier current
Alarms	<ul style="list-style-type: none"> ○ Load fuse alarm ○ Battery fuse alarm ○ LVD operated ○ Low output voltage alarms (2 individual alarm levels) ○ High output voltage alarms (2 individual alarm levels) ○ Battery capacity ○ Temperature alarm ○ Symmetry alarm ○ and more

DC Output

Voltage	48VDC
Power	4 pos: 3.2kW (66.7A at 48VDC) 6 pos: 4.8kW (100A at 48VDC)

DC Distribution Options

No. of Load breakers	<ul style="list-style-type: none"> ○ 4 pos: Up to 10 mini MCB type (2-30A) ○ 6 pos: Up to 8 mini MCB type (2-30A)
No. of Battery fuses	<ul style="list-style-type: none"> ○ 4 pos: Up to 4 MCB type (60A) ○ 6 pos: Up to 2 MCB type (100A)
Programmable LVD	<ul style="list-style-type: none"> ○ LVBD: 125A ○ Optional LVLD: 80A ○ 4 pos: Connection options in blocks of 2 breakers (2-8, 4-6, 6-4 or 8-2) ○ 6 pos: Connection options in blocks of 2 breakers (2-6, 4-4 or 6-2)

Connections

Battery connections	Screw terminals (up to 35mm ² lug)
Load MCB connections	Terminal blocks (up to 4 mm ²)
Alarm connections	Terminal blocks (up to 1.5 mm ²)
System	Extractable from frame for easy access

Other Specifications

Isolation	<ul style="list-style-type: none"> ○ 3.0 KVAC – input and output ○ 1.5 KVAC – input earth ○ 0.5 KVDC – output earth
Operating temp.	-40 to +75°C (-40 to +167°F)
Storage temp.	-40 to +80°C (-40 to +176°F)
Dimensions	19" mounting (446mm + brackets) 2U height and 250mm depth Recommended cabinet depth is min 300mm
Weight (excl. rectifiers)	4 pos: Approx. 4.38kg (9.66lbs) 6 pos: Approx. 4.28kg (9.44lbs)

Applicable Standards

Electrical safety	IEC 60950-1 UL 60950-1
EMC	<ul style="list-style-type: none"> ○ ETSI EN 300 386 V.1.3.2 (telecommunication network) ○ 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)
Environment	ETSI EN 300 019-2 ETSI EN 300 132-2

Specifications are subject to change without notice

900920.DS3 – v5

Ordering Information

Part no.	Description
241117.110	Minipack 48/800 FC
900920-xxxxx	Minipack – Sales configured system (CTO)
CTOM0602.000	Minipack standard configuration 6 position, 2 rectifiers

