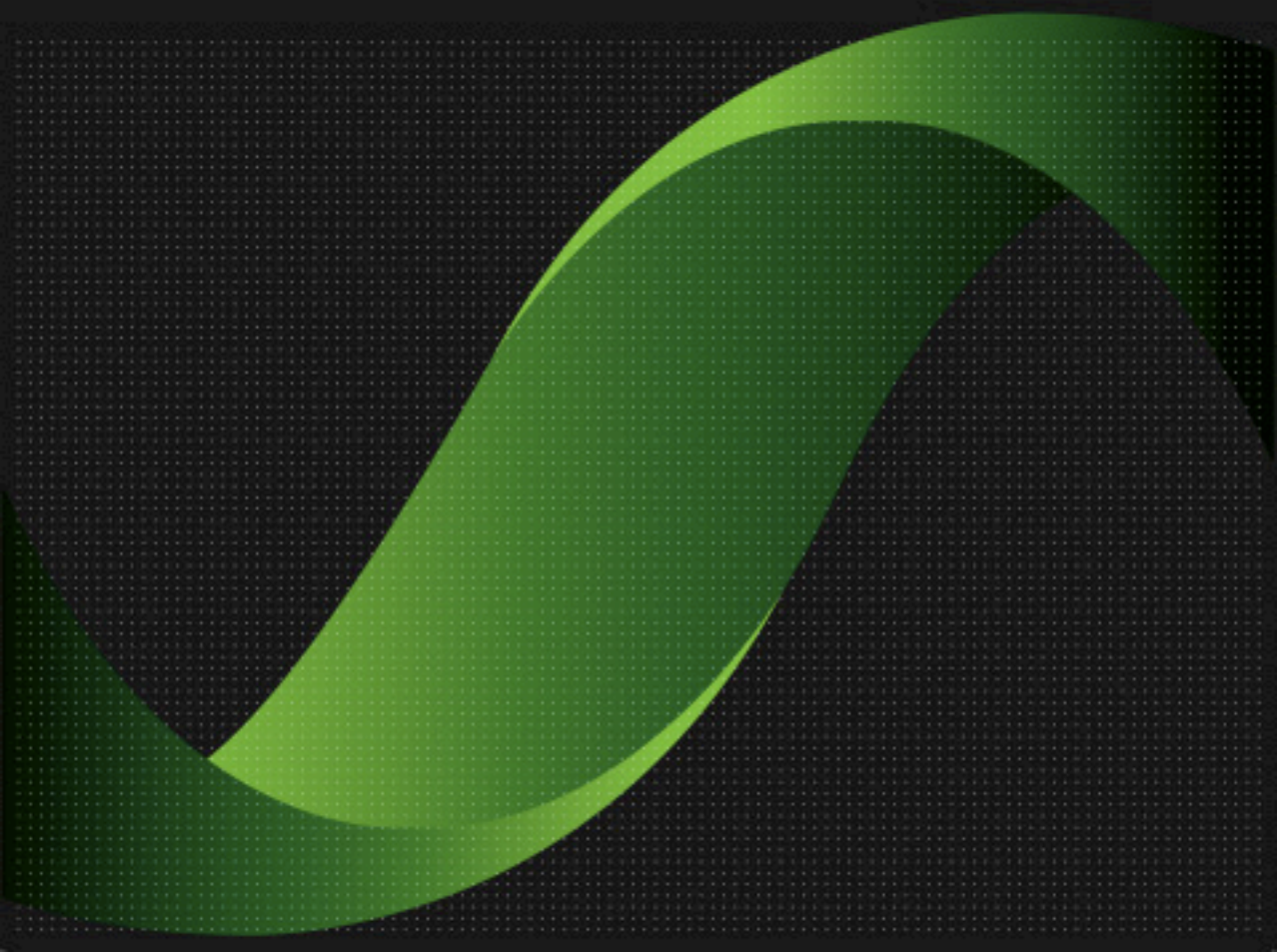




ELTEK VALERE
always **on**





A STRONG TEAM.

IN GERMANY AND THE WORLD OVER

ELTEK VALERE IS THE MARKET LEADER for telecom power supply systems used for landline, mobile and data networks in Germany and Central Europe.

We are also a leader on a worldwide scale. Being integrated into the international Eltek-Valere Group with subsidiaries in 25 countries grants us access to global resources, distribution and service channels.

Our aspirations are to produce efficient technologies that couple the rapid growth in the areas of mobile communications, telecommunications, data centres and the Internet with the highest potentials for our international customers. **We supply everything from a single source, in reliable quality and on schedule.**

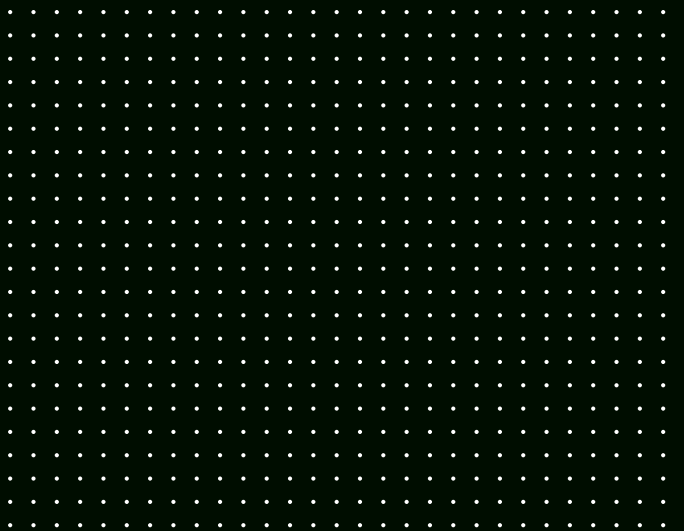
ELTEK VALERE can today look back over 120 years of successful company history and lay claim to more than 70 years of experience in the field of efficient, assured power supply technology. The expertise and outstanding know-how associated with this constitute the basis of our company's customer-oriented alignment.

ELTEK VALERE

is now at your disposal with the full set of skills of a world market leader – who is right at home in your market.

THE ELTEK VALERE GROUP:

- **Rapidly growing company in the field of DC power**
- **More than 1500 highly qualified employees worldwide**
- **Subsidiaries in 25 countries and business activities in over 100 countries**
- **A wealth of know-how and experience in the field of modern telecommunications**



ONE STEP AHEAD WITH POWERFUL TECHNOLOGY

At Eltek, we are committed to meeting the power needs of the telecom industry. This catalogue represents an overview of our extensive range of products and solutions designed to match any power requirement. They all reflect our commitment and our vision "to become the global center of excellence in telecom power."

3



DC POWER SYSTEMS

ELTEK DC POWER SYSTEMS COVER THE ENTIRE RANGE OF APPLICATION AREAS WITHIN THE TELECOMMUNICATIONS INDUSTRY. A TYPICAL DC POWER SYSTEM INCLUDES RECTIFIERS, CONTROL AND MONITORING MODULES, AC DISTRIBUTION FOR RECTIFIER INPUT, DC DISTRIBUTION, BATTERIES, AND LOW VOLTAGE DISCONNECT OPTIONS.

Minipack Systems p. 3-4/ IFC Cabinet p. 5-6/ Flatpack2 Systems p. 7-8/
Flatpack2 Cabinetized p. 9-10/ Scalable Systems p. 11-12/

RECTIFIERS AND CONVERTERS

THE RECTIFIER WILL ALWAYS BE THE CORE COMPONENT, THE "HEART" OF A DC POWER SYSTEM. ELTEK THEREFORE DEVOTES MUCH OF ITS R&D EFFORTS TO THE DEVELOPMENT OF NEW STATE-OF-THE-ART DESIGNS, WHICH HAVE THE QUALITY AND THE FUNCTIONALITY EXPECTED IN MODERN TELECOMMUNICATION NETWORK.

Minipack p. 13-14/ Flatpack2 p. 15-16/ Powerpack p. 17-18/



13

20



SYSTEM MONITORS

ELTEK OFFERS MONITORING PRODUCTS THAT ARE EASILY INTEGRATED INTO AN EXISTING TELECOMMUNICATIONS NETWORK INFRASTRUCTURE USING PROVEN, STABLE AND SECURE TECHNOLOGIES AND GLOBALLY ACCEPTED COMMUNICATIONS PROTOCOLS.

Smartpack p. 19-20/ Smartnode p. 21-22/ WebPower, PowerSuite ,
WinPower p. 23/



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 |

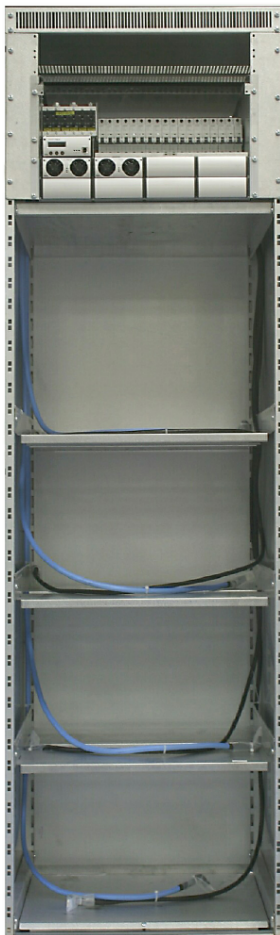
Specifications are subject to change without notice

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 |

IFC | Indoor cabinet



New cabinet generation

With focus on streamlined assembly, multi functional use and optionally flatpacked transportation, Eltek has developed a new series of indoor cabinets. The result is a very innovative design characterized by:

Key Features

- ü Light weight (<50 kg)
- ü Very flexible
- ü Some few basic elements:
 - side wall (identical left and right)
 - top cover
 - rear wall,
 - bottom(including "toolbox")
 - battery shelves
 - adjustable legs
- ü Steel finish
- ü Shipment bulk parts to system assembly or Optionally flatpacked shipment to site with assembly time of less than 20 minutes

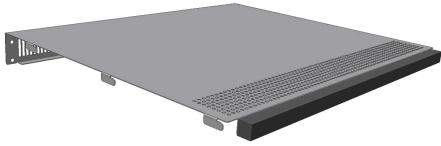
There are several sizes of IFC cabinets available (HxWxD):

- ü 2000x600x600mm (79x24x24") Weight 44kg (97lbs)
- ü 2000x600x400mm (79x24x16") Weight 42kg (93lbs)
- ü 1800x600x600mm (71x24x24") Weight 38kg (84lbs)
- ü 1800x600x400mm (71x24x16") Weight 36kg (79lbs)
- ü 1500x600x600mm (59x24x24") Weight 32kg (71lbs)
- ü 700x600x400mm (28x24x16") Weight 14kg (31lbs)

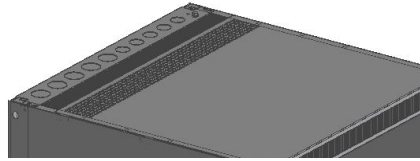
The new IFC cabinet is now available as a separate CTO (configure-to-order). Product number 900241.

IFC Cabinet

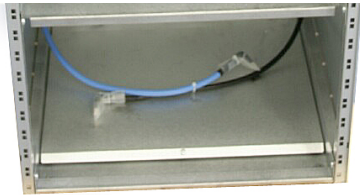
Some key features



Removable top-cover including neoprene bar for convenient cable entry.



Extra knock outs for cable grommets



Combined cabinet bottom and lower shelf



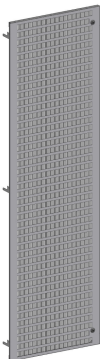
Each battery shelf can take load up to 270kg

Integrated "tool box" with

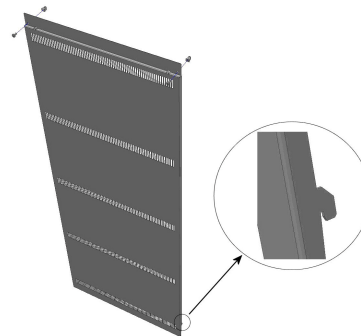


- wall fixing brackets, lifting ears, wrench for cabinet levelling and weight distribution plates

Options



Optional hinged lockable door



Optional battery section front cover

Specifications are subject to change without notice.

ORDERING INFORMATION

| Part no. | Description |
|----------|--|
| 900241 | CTO configuration IFC cabinet with integrated FP2 power core |
| 214403 | Cab IFC 2000x600x600 G1 flat packed |
| 214426 | Cab IFC 1800x600x600 flat packed G1 |
| 214555 | Cab IFC 1800x600x400 flat packed G1 |

Document Rev. No.: 900241.DS3 v.01



Flatpack2

2U Integrated

Higher density and more compact power solutions

The Flatpack2 2U Integrated has been specifically designed to meet the demand for higher density and more compact power solutions. It is suitable for applications needing an expandable, easily serviceable and reliable power supply, fitting within a minimal space

Product Description

The Flatpack2 2U Integrated is a compact power system containing a Monitoring and Control Unit (Smartpack), LVD, battery and load MCBs. It can house up to 4 Flatpack2 rectifier modules. 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 (85-290 VAC) and draws sinusoidal current with a soft start power-up.

Applications

Wireless, fiber and fixed line communication

Today's communications demand state of the art, cost efficient and compact DC power systems. Flatpack2 delivers the industry leading power density of 21W/in³ and superb reliability at lowest lifetime cost

Broadband and network access

Increasing network speed demands flexible and expandable DC power solutions. Flatpack2 is your key building block for future needs.

Product Features and Advantages

Highest efficiency in minimum space

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

Digital controllers

Primary and secondary controls are 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

Flatpack2 is CE marked, UL recognized and NEBS certified for world wide installation.

Flatpack2, 2U Integrated

Additional Technical Specifications

Maximum number of rectifiers: 4

| AC Input | |
|-----------------|--|
| Voltage | 1 phase 230 VAC (single, dual or individual feed) |
| Frequency | 45 to 66Hz |
| Maximum Current | See Flatpack2 48VDC datasheet |
| Protection | <ul style="list-style-type: none"> ○ Soft start ○ Surge protection (varistors) ○ Internal fuses (L & N) ○ Disconnect above 290 VAC |

| 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 and SNMP protocol) |
| 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 | 6 (for monitoring of external equipment) |
| Current measurements | 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 |

| DC Output | |
|-----------|----------|
| Voltage | 48 VDC |
| Current | Max 150A |

| DC Distribution Options | |
|-------------------------|--|
| No. of Load breakers | 6 x breakers (2-32A) |
| No. of Battery fuses | 1 or 2 (max. 100A each) |
| Programmable LVD | Optional: 1 LVBD (150A) Optional: 1 LVLD (150A) |

| Connections | |
|----------------------|--|
| Battery connections | Battery cable, M6 bolts |
| Load MCB connections | Negative distribution from row connector (max 10mm ²). |
| Alarm connections | Rear access row connector (2,5mm ²) |

| 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 +65°C (-40 to +145°F) |
| Storage temp. | -40 to +85°C (-40 to +185°F) |
| Dimensions | 482 x 370 x 89mm (2U) (wxdxh) (19 x 14.6 x 3.5”) recommended cabinet depth is min 400 mm (15.7”) |
| Weight | Approx. 5kg (11lbs) excl. rectifiers |

| Applicable Standards | |
|----------------------|---|
| Electrical safety | <ul style="list-style-type: none"> ○ IEC 60950-1 ○ UL 60950 |
| EMC | <ul style="list-style-type: none"> ○ ETSI EN 300 386 V.1.3.1 (telecommunication network) ○ EN 61000-6-3 (emission, light industry) ○ EN 61000-6-2 (immunity, industry) |
| Environment | <ul style="list-style-type: none"> ○ ETSI EN 300 019-2 ○ ETSI EN 300 132-2 |

Ordering Information

| Part no. | Description |
|--------------|---|
| 241115.100 | Flatpack2 Rectifier Module, 48V 2kW (also the “High Efficiency” and “Back-to-Front Air flow” rectifier options) |
| CTO20402.nnn | Flatpack2, 2U Integrated 8kW (Sales configured system, CTO) |
| C20402.nnn | Flatpack2, 2U Integrated 8kW (Engineering Dep. configured system, CTE) |

Specifications are subject to change without notice

200010.DS3 – 3v0

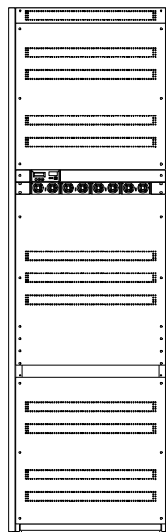
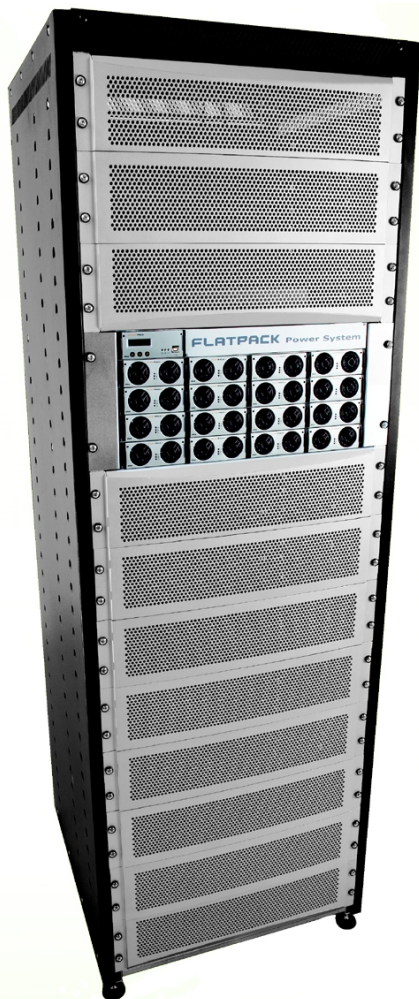
Flatpack2 | Cabinetized

System Range 1.8 kW – 72 kW

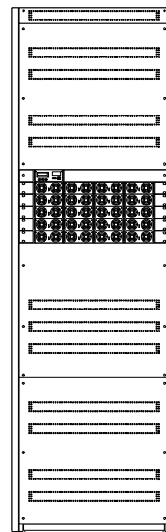


One size fits all

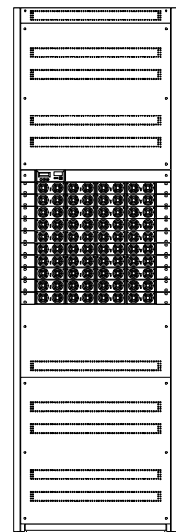
The Flatpack 2 is the ultimate building block in any telecom application. Its power density and cost efficiency makes it ideal for loads from 1 kilowatt to several 10's of kilowatts. With horizontal airflow, there is no limit to how many shelves of rectifiers can be stacked on top of each other, and other equipment can be mounted directly on top. Fully flexible, extremely compact: a single rectifier module that covers all your DC power requirements.



Flatpack2
Power System
7.2 kW 150A



Flatpack2
Power System
35 kW, 750A



Flatpack2
Power System
72 kW, 1500A

Flatpack2 | Cabinetized Range 1.8 – 72 kW

Technical Specifications

| AC Input | |
|-----------------|--|
| Voltage | 1 phase 230 VAC 3 phase 230 VAC (Δ) 3 phase 400 VAC+N (Y) |
| Frequency | 45 to 66Hz |
| Maximum Current | See Flatpack2 48VDC datasheet (241115.001.DS3) |
| Protection | Soft start Surge protection (varistors) Internal fuses (L & N) Disconnect above 290 VAC |

| Monitoring | |
|----------------------|---|
| Monitoring unit | See Smartpack (242100.100.DS3) datasheet |
| Local operation | Menu driven software via keypads and LCD or PC (PowerSuite) |
| Remote operation | PowerSuite via modem or Web NMS via SNMP-agent |
| Alarm relays | 6 relays are standard |
| Visual indications | Green LED – System ON Yellow LED – Minor alarm(s) Red LED – Major alarm(s) LCD – system status |
| Digital inputs | 6 (for monitoring of external equipment) |
| Current measurements | Battery current Rectifier current |
| Alarms | 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 |

| DC Output | |
|-----------|--|
| Voltage | 48 VDC |
| Current | From 1U PR (150A) up to 10U PR (1500A) |

Specifications are subject to change without notice.

| DC Distribution Options | |
|-------------------------|---|
| Load breakers | 32 x Breakers (2-63A) |
| No. of Battery fuses | 6 (max. 100A each) 3 (max. 200A each) 2 (max. 250A each) |
| Programmable LVD | 1 LVBD (150, 300, 500 or 600A) 1 LVLVD (150, 300, 500 or 600A) |

| Connections | |
|----------------------|---|
| Battery connections | Battery cable, M8 bolts |
| Load MCB connections | Negative distribution directly from CBs. Common positive bus bars |
| Alarm connections | Plug-in wire connectors front or rear access |

| Other Specifications | |
|----------------------------|--|
| Isolation | 3.0 KVAC – input and output 1.5 KVAC – input earth 0.5 KVDC – output earth |
| Operating temp. | -40 to +60°C (-40 to +140°F) |
| Storage temp. | -40 to +85°C (-40 to +185°F) |
| Dimensions (Ref. ETSI std) | 600 x 600 x 1500/ 1800/ 2000/ 2200mm (wxdxh) (23.6 x 23.6 x 59/ 70.9/ 78.74/ 86.6") |
| Weight /1.8m | Appr. 90kg (199lbs) excl. rectifiers |
| Weight /2.0m | Appr. 97kg (214lbs) excl. rectifiers |
| Weight /2.2m | Appr. 102kg (225lbs) excl. rectifiers |

| Applicable Standards | |
|----------------------|---|
| Electrical safety | IEC 60950, UL 60950 |
| EMC | ETSI EN 300 386 V.1.3.1 (telecommunication network) EN 61000-6-3 (emission, light industry) EN 61000-6-2 (immunity, industry) |
| Environment | ETSI EN 300 019-2 ETSI EN 300 132-2 |

ORDERING INFORMATION

| Part no. | Description |
|------------|--------------------------------|
| 241115.001 | Flatpack2 48V rectifier module |



Scalable DC Power System

Highly reliable and fully configurable system

The Eltek Valere Scalable DC Power System is a highly reliable and fully configurable system designed specifically for wire line and wireless applications that require large capacity power plants. The Scalable DC Power System can be configured for capacities ranging from 1000 amps to 10,000 amps utilizing our innovative architecture, which enables flexible, practical, and simple expansion in the field.

Applications/Features

Power to support switch applications

The Scalable DC Power System is ideal for applications such as Central Offices, MTSOs, and other Switching centers that are planned for an ultimate, large power capacity - typically in the range of 1000 to 10,000 amps.

Modular building block design

The two basic building blocks of the Scalable DC Power System are the rectifier bay and the load distribution bay, each of which is rated for 3000 amps capacity along with an integral modular system bus that expands to your ultimate planned capacity. These building blocks can be configured in a wide variety of combinations to meet the capacity needs and growth profile of any network.

High density rectifier bay

Eltek Valere's proprietary power conversion technology allows the deployment of 3000 amps of rectifiers in a 12 inch wide bay

Flexible and efficient distribution bay

An innovative physical design allows the installation of GJ, GS and bullet-style breakers, as well as TPL fuses, while also providing ample space for bending and terminating large

The Eltek Valere Difference

The flexibility to adapt

Highly configurable system, designed for easy expansion to satisfy the changing needs of each particular site

Simplified installation, turn-up and operations

Plug and play architecture, distribution designed to minimize cable congestion, a modular battery and return bus bar, a user-friendly controller, and thorough monitoring and diagnostics capability reduce the cost and interval for installing and maintaining the system.

More productive workforce

A powerful remote management interface over a variety of communications media and protocols – including SNMP over an Ethernet link – can improve the productivity of any workforce.

Better quality of service

92% efficiency and Advanced Monitoring and Management all result in reliable, cost-effective, and trouble free networks

Scalable DC Power System

Additional Technical Specifications

- o 48 V systems with flexible distribution modular, expandable battery and return bus bar up to 10,000 amps
- o Advanced digital control & communication
- o Rectifier cabinet with high power density

Modular Power System Components

| | |
|-------------------------------|--|
| X series rectifiers | 48V Single Phase: 100A, 150A 48V Three Phase: 100A |
| Scalable rectifier cabinet | <ul style="list-style-type: none"> o Up to twelve dual slot single phase rectifier shelves o Up to fifteen single slot three phase rectifier shelves o Supports 48V rectifiers o Up to 3000A per bay o Equipped with XC2100 controller and door mounted display o Front access AC termination panel with single or three phase AC input terminations o Stand alone operation for upgrades and retrofits |
| Scalable distribution cabinet | <ul style="list-style-type: none"> o 30000A internal bus with 48 module attachment positions o Numerous fuse/circuit breaker modules <ul style="list-style-type: none"> o 1-70A TPS style fuses o 70-800A TPL style fuses with shunt o 1-100A bullet style pluggable circuit breakers o 100-600A GJ style circuit breakers (shunt optional) o Fused low voltage disconnect contactor o Integral hot and return bus bars with double hole pattern o Second return bus equipped with 4000A shunt |
| Modular bus bar system | <ul style="list-style-type: none"> o Integral hot and return bus capacity up to 3000A o Optional overhead hot and return bus up to 10,000A o Ample battery connection points o Integrated and isolated return bus bars o Double 3/8" holes, 1" on centers |

Control and Communications

| | |
|----------------------------|---|
| Control and communications | <ul style="list-style-type: none"> o Full graphic, multi language front panel display o Full plant & battery management features o Auto battery discharge test, and auto battery boost/equalize mode o Thermal Compensation Feature o Event History Log o Full battery float / boost / equalize control o Battery recharge and system current limit o Six programmable form-C relays o Ethernet, RS232, Modem communications o SNMP, SMTP, Telnet |
|----------------------------|---|

AC Input Voltage Range

| | |
|-----------------|------------------------------------|
| Single phase AC | 180 to 305 Vac |
| Three phase AC | 208, 480 Vac nominal |
| Power factor | >.98 for loads above 60% full load |
| THD | Line Harmonics meet EN61000-3-2 |

Output Specifications

| | |
|------------|---|
| Noise | 40mV RMS, 10 Hz -20 MHz bandwidth |
| Regulation | +/- 1% over line, load, and temperature |
| Efficiency | 92% typical |
| Polarity | May be configured for positive or negative polarity |

Temperature Range

| | |
|-----------|----------------|
| Storage | -40°C to +85°C |
| Operating | -40°C to +65°C |

Dimensions and Weight

| | |
|---------------------------------|---|
| Rectifier cabinet dimensions | <ul style="list-style-type: none"> o Height: 2133.6mm (7') o Width: 304.8mm (12") o Depth: 599.4mm (23.6") |
| Distribution cabinet dimensions | <ul style="list-style-type: none"> o Height: 2133.6mm (7'-00") o Width: 901.7mm (35.5") o Depth: 599.4mm (23.6") |
| Weight | <ul style="list-style-type: none"> o Actual weight depends on installed components o Rectifier cabinet: 41kg (90lbs) o Distribution cabinet: 64kg (141lbs) o Single phase rectifier: 6.8kg (15lbs) o Three phase rectifier: 10kg (22lbs) |

Agency Approvals

| | |
|-----------|--|
| TELCORDIA | NEBS Level 3, NRTL Certification |
| UL | Canada/US ULEN60950 / UL1801 |
| EMI/EMC | CISPR Class B conducted and radiated 10V/M radiated susceptibility |



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"> o Transient protection o Mains fuse in both lines |

| DC Output | |
|----------------------------|--|
| Voltage | <ul style="list-style-type: none"> o Nominal output: 53.5 VDC o Float/Boost range: 48 – 57.6Vdc o 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% of maximum current from 10% to 100% load |
| 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 > 43.5 VDC at 80% load |
| Ripple and Noise | < 100 mV peak to peak, 20 MHz bandwidth < 2 mV _{rms} psophometric |
| Output Protection | <ul style="list-style-type: none"> o Overvoltage shutdown o Blocking diode o Short circuit proof o High temperature protection |

| Other Specifications | |
|----------------------|--|
| Efficiency | Typ. 91% at 60-100% load |
| Isolation | <ul style="list-style-type: none"> o 3.0 KVAC – input and output o 1.5 KVAC – input earth o 0.5 KVDC – output earth |
| Alarms | <ul style="list-style-type: none"> o Low mains shutdown (<85VAC) o High temperature shutdown o Rectifier Failure o Overvoltage shutdown on output o Low voltage alarm at 43.0V 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 o Loss of CAN communication with control unit, stand alone mode |
| 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 +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 | > 400, 000 hours Telcordia SR-332 Issue I, method III (a) (T _{ambient} : 25°C) |
| Acoustic Noise | < 48dBA at nominal input and full load, T _{ambient} < 30°C |
| Humidity | <ul style="list-style-type: none"> o Operating: 5% to 95% RH non-condensing o 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"> o IEC 60950-1 o UL 60950-1 o CSA 22.2 |
| EMC | <ul style="list-style-type: none"> o ETSI EN 300 386 V.1.3.2 (telecommunication network) o EN 61000-6-1 (immunity, light industry) o EN 61000-6-2 (immunity, industry) o EN 61000-6-3 (emission, light industry) o EN 61000-6-4 (emission, industry) |
| Harmonics | EN 61000-3-2 |
| Environment | <ul style="list-style-type: none"> o ETSI EN 300 019-2 (-1, -2, -3) o ETSI EN 300 132-2 o RoHS compliant |

Specifications are subject to change without notice

241117.110.DS3 – v3

Ordering Information

| Part no. | Description |
|------------|--------------------|
| 241117.110 | Minipack 48/800 FC |

Flatpack2 48/4000 Dual

Switch Mode Power Supply 48VDC



POWERFUL TECHNOLOGY

Product Description

The Flatpack2 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.

Flatpack2 is optimized for a wide range of system sizes. Digital communication over CAN bus with Smartpack simplifies system design and enhances flexibility.

Realization of Flatpack2 systems is possible by fitting 2 rectifiers across a 19" shelf.

Applications

Wireless, fiber and fixed line communication
Today's communications demand state of the art, cost efficient and compact DC power systems. Flatpack2 delivers the industry leading power density of 22W/in³ and superb reliability at lowest lifetime cost.

Broadband and network access
Increasing network speed demands flexible and expandable DC power solutions. Flatpack2 is your key building block for future needs.

Key Features

ü **Highest efficiency in minimum space**
Resonant topology makes the module efficiency industry leading and contributes to the rectifier's ultra compact dimensions.

ü **Digital controllers**
Primary and secondary controls are 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.

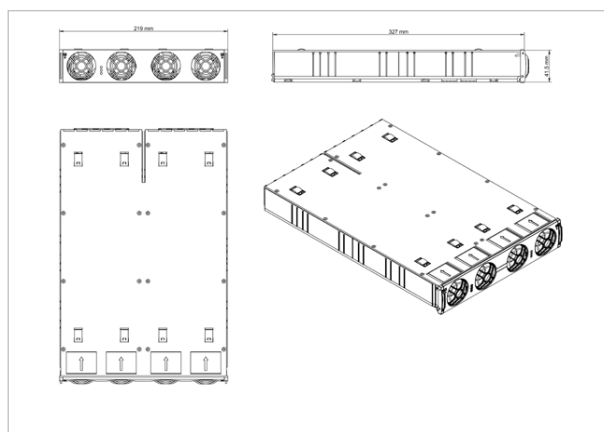
ü **Heat management**
Front-to-back air flow with chassis-integrated heat sinks gives the module the most suitable working environment and no limitations in the scalability of the desired system solution.

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

ü **Global approvals**
Dualpack is CE marked and UL recognized for world wide installation.



Flatpack2 Dual
Switch Mode Power Supply 48VDC



Flatpack2 48/4000 Dual

Additional Technical Specifications

| AC Input | |
|------------------|--|
| Voltage | 85-300 VAC (Nominal 185 – 275 VAC) |
| Frequency | 45 to 66Hz |
| Maximum Current | 25 A _{rms} maximum at nominal input and full load |
| Power Factor | > 0.99 at 20% load or more |
| Input Protection | Varistors for transient protection Mains fuse in both lines Disconnect above 300 VAC |

| DC Output | |
|----------------------------|--|
| Voltage | 53.5 VDC (adj. range: 43.5-57.6 VDC) |
| Output Power | 4000 W at nominal input |
| Maximum Current | 74.8 Amps at 53.5 VDC and nominal input |
| Current Sharing | ±3% from true average current between modules |
| 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 > 43.5 VDC at 3000W load |
| Ripple and Noise | < 100 mV peak to peak, 30 MHz bandwidth < 0.96 mV rms psophometric |
| Output Protection | Overvoltage shutdown Blocking diode Short circuit proof High temperature protection |

| Other Specifications | |
|----------------------|--|
| Efficiency | Typical 92%, min. 91% at 40-90% load |
| Isolation | 3.0 KVAC – input and output 1.5 KVAC – input earth 0.5 KVDC – output earth |
| Alarms: | Low mains shutdown High temperature shutdown Rectifier Failure Overvoltage shutdown on output Fan failure, one or two fans. Low voltage alarm at 43.5V CAN bus failure |
| Warnings: | Low temperature shutdown 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 | Green LED: ON, no faults Red LED: rectifier failure Yellow LED : rectifier warning |
| Operating temp | -40 to +75°C (-40 to +158°F), derating above +45°C (+113°F) |
| Storage temp | -40 to +85°C (-40 to +185°F) |
| Cooling | 4 fans (front to back airflow) |
| Fan Speed | Temperature and current regulated |
| MTBF | > 150, 000 hours Telcordia SR-332 Issue I, method III (a) (T _{ambient} : 25°C) |
| Acoustic Noise | < 55dBA 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 | 218 x 41.5 x 327mm (wxhxd) (8.5 x 1.69 x 13") |
| Weight | 3.8 kg (8.4lbs) |

| Applicable standards | |
|----------------------|---|
| Electrical safety | IEC 60950-1 UL 60950-1 CSA 22.2 |
| EMC | 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 | ETSI EN 300 019-2 (-1, -2, -3) ETSI EN 300 132-2 RoHS compliant |

Specifications are subject to change without notice.

ORDERING INFORMATION

| Part no. | Description |
|------------|------------------------|
| 241115.500 | Flatpack2 48/4000 Dual |

Document Rev. No.: 241115.500.DS3 v.01

| Location | Company | Telephone | Fax |
|--------------|-----------------------|-----------------|-----------------|
| Europe | Eltek Energy AS | +47 32 20 32 00 | +47 32 20 32 10 |
| Americas | Eltek Energy, LLC | +1 815 459 9100 | +1 815 459 9118 |
| Asia/Pacific | Eltek Energy Pte Ltd. | +65 6 7732326 | +65 6 7753602 |
| China | Eltek Energy Ltd. | +852 28982689 | +852 28983189 |
| Middle East | Eltek Middle East | +971 4 887 1176 | +971 4 887 1175 |

Powerpack

Rectifier Module 48V, 11kW 208VAC



Powerful 3 phase AC DC rectifier module

The Powerpack rectifier is optimized for medium and large system sizes. Bay configuration of Powerpack systems is possible by adding up to 10 modules in a 23" cabinet.

Applications

Wireless, fiber and fixed line communication

Today's communications demand state of the art, cost efficient and compact DC power systems. Powerpack has a space saving power density of 650W/liter.

Broadband and network access

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

Product Description

The Powerpack is a battery charger and rectifier 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 improves flexibility.

Key Features

High efficiency

Rectifier technology utilizes soft switching and three-level boost converter that make the module efficiency industry leading and compact size.

Local module monitoring

Display and push buttons gives easy local monitoring of individual rectifier as an addition to the Smartpack monitoring.

Heat management

Front-to-back air flow with chassis integrated heat-sinks and chimney gives the module the best reliable working environment.

Unique connection

It is a real plug-and-play connection system that shortens installation time and reduces total cost. User friendly handles lock the module to the shelf.

Global approvals

Powerpack is CE marked, UL recognized and NEBS certified for worldwide installation.

Powerpack Rectifier Module – 48V, 11kW 208VAC

Additional Technical Specifications

| AC Input | |
|---------------------------------|---|
| Voltage | Nominal: 185 – 250 VAC 3ph Tolerances: 180 – 264 VAC 3ph |
| Frequency | 45 to 66Hz |
| Maximum Current | 38.5 Arms maximum at nominal input and full load |
| Power Factor | > 0.99 at 50% load or more @208VAC |
| Total Harmonic distortion (THD) | < 5% at 50% load or more @208VAC |
| Input Protection | <ul style="list-style-type: none"> ○ Varistors for transient protection ○ Mains fuse in all lines |

| DC Output | |
|----------------------------|--|
| Voltage | 53.5 VDC (adj. range: 43-58.5 VDC) |
| Output Power | 11 kW at nominal input |
| Maximum Current | 230 Amps at 48 VDC and nominal input |
| Current Sharing | ±3% of maximum current from 10% to 100% load |
| Static voltage regulation | ±0.5% at 0-100% load |
| Dynamic voltage regulation | ±3.5% for 10-90% or 90-10% load variation, regulation time < 10ms |
| Hold up time | > 20ms; output voltage > 44 VDC at full load |
| Ripple and Noise | <ul style="list-style-type: none"> < 100 mV peak to peak, 30 MHz bandwidth < 2.0 mV_{rms} psophometric |
| Output Protection | <ul style="list-style-type: none"> ○ Overvoltage shutdown (level adjustable) ○ Overload and Short circuit proof ○ High temperature protection |

| Other Specifications | |
|----------------------|---|
| Efficiency | Typical 92%, 95.3% at 50% load |
| Isolation | <ul style="list-style-type: none"> ○ 3.0 kVAC – input / output ○ 1.5 kVAC – input / earth ○ 1.0 kVDC – output / earth |
| Rectifier Alarms | <ul style="list-style-type: none"> ○ Low mains alarm ○ High mains alarm ○ Low output voltage alarm ○ Over voltage shutdown alarm ○ Current limit alarm ○ Current sharing alarm ○ Fan Alarm ○ Temperature alarm ○ Rectifier failure alarm |
| Visual indications | <ul style="list-style-type: none"> ○ Green LED: ON, no faults ○ Red LED: rectifier failure ○ Yellow LED blinking: no communication ○ Yellow LED solid: derating power |
| User interface | <ul style="list-style-type: none"> ○ LCD and 3 push buttons ○ ON/OFF switch |
| Operating temp | -10 to +70°C (-40 to +158°F) Derating above +55°C (+131°F) |
| Storage temp | -25 to +85°C (-13 to +185°F) |
| Cooling | Fans (front to back airflow) ball bearing |
| Fan Speed | Temperature regulated |
| MTBF | > 200,000 hours Telcordia Issue I, method III (a) at 20°C ambient |
| Acoustic Noise | < 72dBA, compliant to ETS 300 753 |
| Humidity | <ul style="list-style-type: none"> ○ Operating: 5% to 95% RH non-condensing ○ Storage: 0% to 99% RH non-condensing |
| Dimensions | 23" x 2U x 500 mm (wxhxd) |
| Weight | 18.5 kg (40.8 lbs) |

| Applicable Standards | |
|----------------------|--|
| Electrical safety | <ul style="list-style-type: none"> ○ IEC 60950-1 ○ UL 60950-1 |
| EMC | <ul style="list-style-type: none"> ○ ETSI EN 300 386 V.1.3.1 (telecommunication network) ○ EN 61000-6-3 (emission, light industry) ○ EN 61000-6-2 (immunity, industry) ○ NEBS Telcordia GR-1089 CORE |
| 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 ○ NEBS Telcordia GR-63 CORE Zone 4 |

Specifications are subject to change without notice

241246.100.DS3 – v3

Ordering Information

| Part no. | Description |
|------------|------------------------------|
| 241246.100 | Powerpack 48/11kW 3ph 208VAC |



Smartpack Controller

Monitoring and Control Unit



Powerful and cost effective control module

The *Smartpack* controller is a monitoring and control unit used as the vital nerve center of the DC power plant. You operate the system from the elegant front panel, using three front keys and the LCD-display. They represent the main interface between you and the system.

Applications

CAN bus communication

Smartpack utilizes a digital interface architecture (CAN bus communication). It allows the unit to support dedicated communication channel with each rectifier, providing for increased number of functions and greater flexibility.

Modular design

The Smartpack is extremely flexible in its expandability. Additional units connected to the CAN bus can be added to provide extended functionality and increased number of measuring points. Accordingly, system components can be set up and upgraded to meet the demand of any tailor-made power solution.

Product Description

The Smartpack controller is a powerful and cost-effective module, developed for monitoring and controlling a wide range of Eltek Valere's DC power supply systems, such as Powerpack, Flatpack2 and Minipack DC power systems.

You can also operate the system locally via a PC using the PowerSuite PC application, or remotely via modem, Ethernet and the Web. The module then utilizes the USB- or RS-232 ports to interface with a local PC, SNMP or Web adapters.

Key Features

- ✓ Front panel LCD and buttons for on-site service without PC. (Not on Basic Slave model)
- ✓ USB- or RS-232 interface for PC connection locally or remote monitoring and control via modem, Ethernet, web or SNMP.
- ✓ 6 user programmable relay outputs for traditional remote monitoring
- ✓ 6 user programmable inputs for monitoring of other equipment on site
- ✓ Battery monitoring and testing without site attendance
- ✓ Temperature compensated charging for increased battery lifetime
- ✓ Battery lifetime indication
- ✓ Password protected operator access levels
- ✓ Alarm/event log with time and date
- ✓ Windows-based PC communication software

Smartpack Controller

Additional Technical Specifications

Remote Monitoring and Control

- ✓ **From a PC running PowerSuite**
a Windows-based communication program installed on a remote computer, the system can be monitored and controlled via modem or Ethernet network
- ✓ **From an NMS via Ethernet (SNMP)**
With an SNMP agent connected to the Smartpack, the system can be monitored and controlled from a Network Management System (NMS) through Ethernet on Simple Network Management Protocol (SNMP)
- ✓ **Using alarm relays (voltage free contacts)**
6 internal failsafe alarm relays provide voltage free contacts that can be connected to equipment used for traditional alarm monitoring

Local Monitoring and Control

- ✓ **From a PC running PowerSuite**
a Windows-based communication software, can also communicate with the Smartpack through an USB serial or RS-232 cable
 - ✓ **LCD and three keypads for local operations**
If any alarm (major or minor) is activated, a (red or yellow) LED is lit in the front panel, the alarm text appears in the LCD and the corresponding alarm relay is activated
- In normal operation, the front LCD will display the output voltage, battery current, load current and charge mode. (Not on Basic Slave version)

Features

- System**
- Output Voltage Measurement
 - Total Load Current Measurement
 - Load/Battery Disconnect
 - Alarm Level Settings (major / minor)
 - Alarm Log (up to 1000 events)
 - Real Time Clock with Battery Backup
 - Site Text/ID
 - Test of Relay Outputs
 - Voltage Level setup
 - Data logging (up to 7000 data points)
-
- Battery**
- Battery Current Measurement
 - Battery Temperature Measurement (optional)
 - Battery Testing (acc. to discharge table or set time limit)
 - Battery Test Information (10 latest tests)
 - Setup of Battery Data
 - Battery shunt setup
 - Battery quality indication
 - Battery Boost Charging
 - Battery Cable Voltage Drop Compensation
 - Temperature Compensated Charging
 - Protection against Temperature Probe Failure
-
- Rectifier**
- Available information about each rectifier, e.g. serial number, version, internal temperature
 - Individual Rectifier Current Measurement
 - Individual Rectifier Input Voltage
 - Efficiency Management

Available Alarms

All alarms can be set up with monitoring of minor, major, average and peak levels.

- System**
- Mains Failure (individual phases)
 - Digital Inputs (programmable names)
 - Load Disconnect (voltage or timer)
 - Load Fuse
 - Load Current
-
- Battery**
- High Battery voltage
 - Low Battery voltage
 - High Battery temperature
 - Low Battery temperature
 - Battery Capacity
 - Battery Disconnect
 - Battery Fuse
 - Symmetry Failure
 - Battery quality indication
 - Battery discharge current
-
- Rectifier**
- Rectifier Failure
 - Critical Rectifier Failure (> 1, programmable)
 - Rectifier Capacity w. programmable level
 - Rectifier Current Limit
 - Rectifier Overvoltage Protection
 - Rectifier Current

Specifications

| | |
|--------------------|---|
| Input Voltage | 24/48/60 VDC nominal system voltages |
| Dimensions (WxHxD) | 109 x 44 (1U) x 140mm 4.3 x 1.7 x 5.5" |

Specifications are subject to change without notice
242100.100.DS3- v6

Ordering Information

| Part no. | Description |
|------------|---|
| 242100.110 | Smartpack Extended |
| 242100.111 | Smartpack RS-232 front |
| 242100.112 | Smartpack RS-232 rear |
| 242100.113 | Smartpack WEB/SNMP |
| 242100.000 | Smartpack Basic Slave (without display, buttons & internal power for distributed systems) |



Smartnode

CAN node for modem call-back
SMS and protocol conversion

Intelligent protocol converter module

Not everyone speaks the same language; this is also true for networks. Smartnode with customized software can create protocols to suit any customer network.

Applications

Modem Call-back/SMS

With an analog modem or GSM modem the DC power system status and alarms can be communicated instantly to a traditional analog modem pool based monitoring system or to a mobile phone with an SMS message.

Custom monitoring networks

Not everyone speaks the same language; this is also true for networks. Smartnode with customized software can create protocols to suit any customer network.

Product Description

Smartnode is a control unit (CAN node) that can be used with Smartpack -based DC power solutions.

The unit allows communication with external equipment with proprietary protocols. SW for protocol conversion is developed on project basis.

Standard SW is developed with modem call-back and SMS (only with GSM modems) functionality when modem connected to RS-232 port.

Key Features

- ✓ RS-232 (9-pin D-SUB) interface in rear.
- ✓ RS-485 (RJ-45) interface at front.
- ✓ Plug-and-play with Smartpack.
- ✓ No local powering. Module is powered through CAN-bus from Smartpack and/or CAN power.
- ✓ Modem Call-back/SMS functionality
- ✓ Monitoring and communication with 3rd party equipment with proprietary protocols.
- ✓ Configuration and setup through PowerSuite PC SW.

Smartnode

Additional Technical Specifications

Communication Port Pin-out

RS-232 (9-pin D-SUB, female)

| Pin | Signal | Pin | Signal |
|-----|--------|-----|----------------|
| 1 | | 6 | |
| 2 | TxD | 7 | CTS (Not used) |
| 3 | RxD | 8 | RTS (Not used) |
| 4 | | 9 | |
| 5 | GND | | |

<Blank>: Not connected

RS-485 (RJ-45)

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1 | | 5 | A |
| 2 | | 6 | |
| 3 | | 7 | |
| 4 | B | 8 | GND |

<Blank>: Not connected

Available Protocols

✓ MODBUS

An Eltek Valere developed MODBUS protocol is default available on the RS-485 port. Request document no. 2027380 for details/register list

✓ Modem Call-back/SMS

An Eltek Valere developed protocol for communicating with external 3rd party modems is default available on the RS-232 port

✓ Battery Cell Monitoring

A special protocol for "talking" to 3rd party Battery Cell monitoring equipment. The equipment monitors voltage, temperature and conductivity on battery cell (2V) level

✓ COMLI

A telecom operator specified communication protocol

✓ TEC

A telecom operator specified communication protocol

Modem Call-back/SMS Functionality

Call-back

- o ASCII data text
- o 5 Configurable phone numbers
- o Instant alarm dial-up
- o Interval dial-up (Configurable "I'm alive" message)
- o Selectable Alarm Groups for individual phone numbers
- o Re-dial when busy

SMS

- o GSM modem signal strength monitoring
- o Instant alarms on SMS
(configurable through Alarm Groups)
- o Interval SMS (Configurable "I'm alive" message)
- o Selectable Alarm Groups for individual phone numbers
- o Status report request by SMS with automatic SMS reply

Modems and Init-strings

- o Default init-string for most common analogue modems
- o Advanced configuration options

Modem user guide and HAYES commands knowledge is necessary when setting up 3rd party modems to work with Smartnode.

Default: AT&FE0V1Q0S0=1

Example (Siemens MC35i GSM modem): AT+cmgf=1E0V1Q0S0=1

Available Software

| Part No. | Description |
|-------------------|--|
| 402077.009 v01.00 | Modem Call-back/SMS & MODBUS |
| 402076.003 v0A.0V | Battery Cell monitoring & TEC |
| 402077.009 v02.00 | Modem Call-back/ SMS & MODBUS & COMLI |

Software for Smartnode can only be uploaded through CAN port. FW Loader SW application and a USB -> CAN converter are needed.

Default SW on Smartnode (242100.200) is 402077.009 v01.00. If needed the correct SW is uploaded by system test department during manufacturing of the DC power system.

Smartpack Part no. 242100.11x is needed with firmware version 2.03 or newer.

PowerSuite v2.3 is needed for configuration and setup

Specifications

| | |
|-----------------------|--|
| Input Voltage | +/- 15 VDC from Smartpack (Distributed CAN bus voltage) |
| Dimensions (WxHxD) | 109 x 44 (1U) x 112 mm 4.3 x 1.7 x 4.4" |

Specifications are subject to change without notice
242100.200.DS3- v2

Ordering Information

| Part no. | Description |
|------------|-------------------------|
| 242100.200 | Smartnode RS232 & RS485 |

WEBPOWER/POWERSUITE/WINPOWER



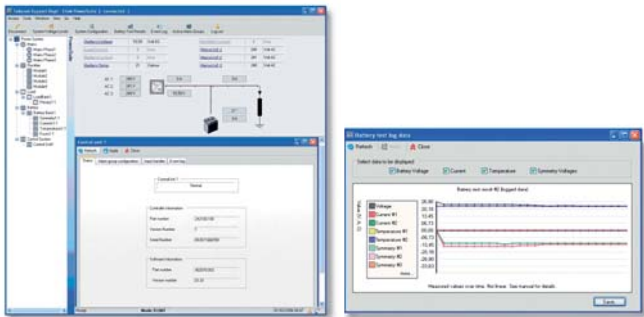
WebPower

WEBPOWER

The Eltek WebPower, Web and SNMP adapter, is the perfect interface between the Eltek DC power system and your network.

WebPower includes the highly reliable SNMP Get, Set and Traps for alarm messages combined with easy access over HTML (using any Web-browser). E-mail functionality is also included making the Eltek WebPower suitable for most Network Management Systems (NMS).

It can be utilized in remote or limited access telecommunications sites; locations requiring connectivity to a centralized SNMP NMS and mission-critical power systems requiring real time data access from diverse locations.

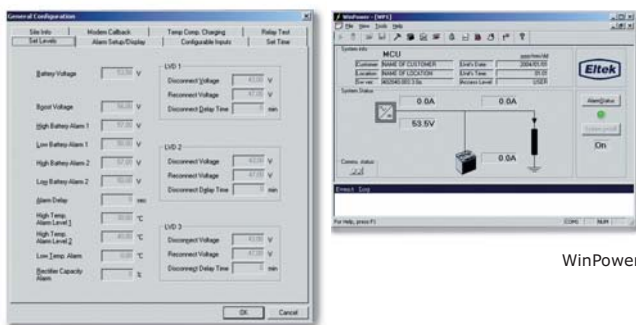


PowerSuite

POWERSUITE

Fully featured software program PowerSuite allows you to configure and monitor your Eltek Flatpack2 or Powerpack system. Once connected to Smartpack, this Windows-based program is as easy to use as Windows Explorer®.

Password protection prevents accidental changes whilst the multi-layered windows allow you to navigate quickly and easily within the different areas of your system. With PowerSuite, you can even create your own specific Smartpack configuration files that can be downloaded or distributed to any Smartpack in your network.



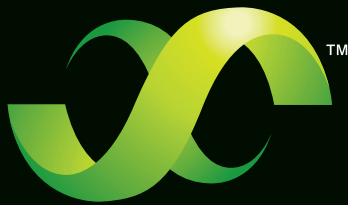
WinPower

WINPOWER

The Windows-based program provides full access and control of any Flatpack 700, 1500, 1800 or 2500 system.

WinPower Silver connects to your Flatpack MCU via the serial port and provides easy access to all information such as system voltage levels and battery monitoring.

Password protection prevents accidental changes and since version 5.0, you can create Flatpack MCU configuration file that can be transferred to other Flatpack MCU controllers.



ELTEK VALERE

always **on**

always on.

**Our slogan actually says it all:
We are always right up at the front
for our customers
- and always at their disposal.**

Eltek Valere.

Cooperation with synergy effects.

Eltek Valere supplies discerning customers in Europe and throughout the world.

As a full-service provider, we regard ourselves as your vital partner, who supports you in the implementation of your projects with efficient technologies and forward-looking advice.

We attach utmost importance to professionalism, continuity and fairness. This applies both to the working relationships we forge with our customers and to our international distribution and service network.

Our strategic partnerships assure the high standards associated with Eltek Valere: future-oriented planning, trouble-free operation, utmost quality and cost efficiency.



Used everywhere: Eltek Valere Flatpack systems



*For all weathers:
Eltek Valere outdoor systems*

A global leader in telecom power

Eltek is committed to providing leading edge telecom power products and services at the best prices, on time, all over the world.

Eltek ASA

PO Box 2340 Stromso, 3003 Drammen, Norway

Graterudveien 8, 3036 Drammen, Norway

Tel: +47 32 20 32 00

Fax: +47 32 20 32 10

always **on**

