Smartpack just got smarter!

- New and improved interface
- New and improved functionality
- Improved statistics
- Full hybrid support

BatteryVoltage	:	53.56	Volt DC
BatteryCurrent	:	9.8	Amp
LoadCurrent	:	9.8	Amp
BatteryTemp	:	24	Celsius

SYSTEM NORMAL

PRESS OK FOR MAIN MENU

Smartpack2
Distributed control system for medium to large power systems

Doc 242100.50X.DS3 - rev. 5

PRODUCT DESCRIPTION

New features and look on a well-tested control platform

Smartpack2 is built on the proven software platform that is used in Smartpack, making it reliable and robust. Increased program memory and new hardware allows for more features and improved user interface. The new modular distributed control system simplifies connections.

Power solutions

Eltek's power solutions are based on industry leading building blocks, fully integrated into coherent, complete and flexible solutions with one single Smartpack controller overlooking all energy sources, flow and storage. The entire installation is easily and efficiently monitored and controlled over the Internet by means of advanced, yet user friendly software.

Simplifies operation in large multisite systems

Smartpack2 offers many off-site benefits if it is connected to the internet. View the system status, change parameters and receive alarms at a multisite management center. Use features such as battery lifetime estimations, fuel consumption through tank level measurement and generator runtime, to plan for site service. Use the energy logs to document the amount of renewable energy used, and to plan for site upgrades.

Smartpack2

TELECOM

- Radio Base stations/ Cell Sites
- Mobile Switching Center (MSC)
- Microwave
- Central Office
- Cable
- Broadband

SYSTEM SOLUTION

INDUSTRIAL

- Power Utilities
- Railway & Metro
- Marine & Offshore
- Oil & Gas
- Low & High Voltage switchgear
- Transformer & SUB Stations
- Power Generation & Distribution
- Emergency lighting systems
- Industrial control systems
- Process and Heavy industry

SYSTEM SOLUTION

HYBRID

Smartpack2 comes with advanced software to control power systems with multiple power sources. It handles solar energy, generators, unstable grids and is prepared for wind power.

Suitable applications may include (but not exclude):
- Radio Base stations/ Cell Sites
- Mobile Switching Center (MSC)
- Microwave
- Central Office
- Cable
- Broadband

SYSTEM SOLUTION

DATA CENTER

- Distributed power solutions
- Central power solutions
- Front End/In-rack power

SYSTEM SOLUTION

242100.50X.DS3 - rev. 5

Smartpack2

DISTRIBUTED CONTROL SYSTEM

Three units are required to build a complete Smartpack2 control system.

- Smartpack2 Master is the master controler and visible part of the system.
- Smartpack2 Basic handles housekeeping.
- IO Monitor Type2 handles external inputs and outputs.
- The system can be expanded with several Basic, I/O units and other CAN nodes in the Smartpack family, all connected via the CAN bus.

KEY FEATURES

- SCREEN

  High contrast, high resolution TFT color display for easy user-menu navigation

- VISUAL LEDS FOR LOCAL ALARMS

  (Major, Minor, Power ON)

- ETHERNET

  Monitoring and control via WEB Browser Ethernet port with HP Auto MDI/MDI-X for detection and correction for straight-through and crossover cables.

- SNMP PROTOCOL

  TRAP, SET and GET on ethernet. Email of TRAP alarms

- PROGRAMMABLE RELAY OUTPUTS

  6 programmable outputs for "traditional" remote monitoring. Expandable with I/O Monitor CAN Nodes.

- PROGRAMMABLE MULTIPURPOSE INPUTS

  6 programmable multipurpose inputs ("digital inputs" or analog signals). Expandable with I/O Monitor CANNodes.

- COMPREHENSIVE LOGGING
- BACKUP OF CRITICAL CONTROL FEATURES IN BASIC UNIT.
- AUTOMATIC BATTERY MONITORING AND TEST
- BATTERY LIFETIME INDICATION
- BATTERY USED AND REMAINING CAPACITY (AH OR %)
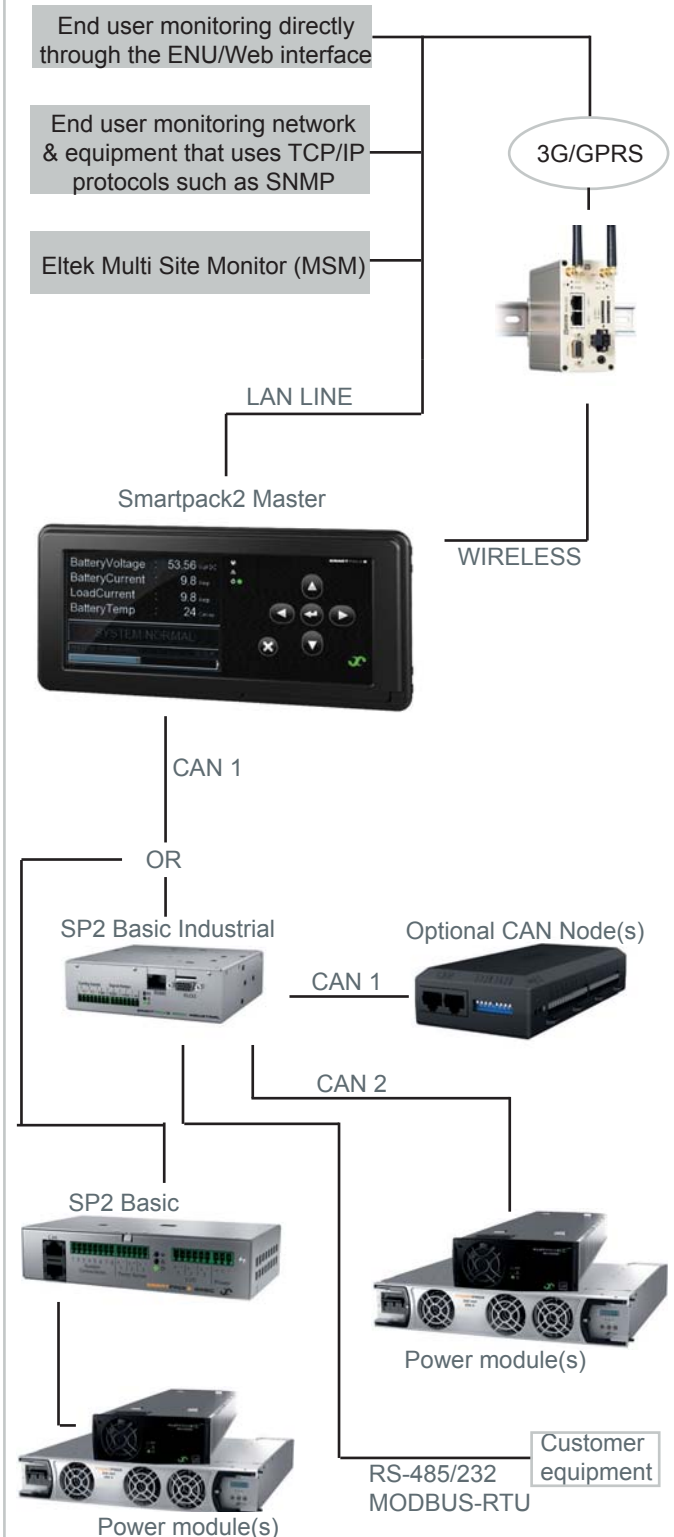- MONITORING
- USER DEFINED ALARM GROUPING

  (boolean logic for grouped alarms)

- UPLOADING AND DOWNLOADING OF CONFIGU-RATION FILES WITH SD CARD OR POWERSUITE

  (Windows™ application).

- SD CARD SLOT FOR DOWNLOADING/UPLOADING OF LOGS AND SETUP
- COMPREHENSIVE GENERATOR/HYBRID/DC SOLAR SYSTEM CONTROL AND MONITORING FEATURES

SYSTEM BUILDING BLOCKS

End user monitoring directly through the ENU/Web interface

End user monitoring network & equipment that uses TCP/IP protocols such as SNMP

Eltek Multi Site Monitor (MSM)

3G/GPRS

LAN LINE

Smartpack2 Master

WIRELESS

BatteryVoltage 53.56 VoltDC
BatteryCurrent 9.8 Amp
LoadCurrent 9.8 Amp
BatteryTemp 24 Celsius
SYSTEM NORMAL

CAN 1

OR

SP2 Basic Industrial

Optional CAN Node(s)

CAN 1

CAN 2

SP2 Basic

Power module(s)

RS-485/232 MODBUS-RTU

Customer equipment

Power module(s)

Smartpack2

SMARTPACK2 WEB INTERFACE - REMOTE MONITORING AND CONTROL

REMOTE MONITORING

Through the internet or on-site directly from PC!

- System overview with status as "home page".
- Graphs show changes over time of various system variables.
- Configure alarm limits and all other parameters through self explanatory symbols and menus.
- Security Protocols; SSL, Secure FTP server, FTPS with SSL/TLS.
- Download logs (event, energy, generator, battery,…)

LOCAL MONITORING

No PC? No problem!

The Smarpack2 high resolution display, allows the user easy access to complete configuration and status messages without the use of an on-site PC.

- Key system status parameters displayed by default: alarms, battery voltage, rectifier current and load current.
- Single key-hit to display list of triggered alarms.
- All configurations and setup available from the menus.
- High resolution and contrast – excellent reading and able to show complex content.
- Multilanguage (changeable "on the fly"): English, Chinese Simp., Chinese Trad., Russian, Norwegian and pending languages: Finish, French, German, Greek, Italian, Polish, Portuguese, Spanish, Swedish and Turkish.
- Disable external alarms while servicing.
- Access control – pin code to change configuration

Setup data and logs – bring your SD card.

- Convenient storage – for backup and transportation.
- Easy and robust to roll out a set of systems with identical setup.

242100.50X.DS3 - rev. 5

Smartpack2

SMARTPACK2 MASTER

- 3.2" Graphical TFT, high resolution color display
- Ethernet for remote or local monitoring and control via responsive WEB Interface
- Front GUI fault finding in "One click"
- SD Card slot
- Multi language menu

SMARTPACK2 BASIC

- Located inside the system – only available to service personnel.
- Powers all control units attached to the CAN bus.
- andles L D control.
- Takes control of critical system function in case of a Master Controller failure.
- Short of CAN power or L D control – add more Basic units

SMARTPACK2 BASIC IND STRIAL

- Full high-voltage range 110 dc and 220 dc
- Positive and floating distribution
- Earth fault detection
- Additional voltage measurements with-out adding CAN Nodes
- igh(er) resolution current sense inputs for better accuracy
- Serial ports for special communication protocols
- Data center 380 dc system compatible
- igh capacity systems, up to 0 power modules

CAN NODES (OPTIONAL)

- AC Mains oltage, current, fre uency and energy consumption
- Battery symmetry, current and fuse monitoring
- Alarm outputs and control inputs
- Load branch current and fuse
- Climate control of fan/filter cabinets
- Generator control/fuel tank level measurements

Smartpack2

ELTEK
A Delta Group Company

CONTROL FEAT RES

Control system	Battery	Rectifier	Generator
• Output oltage Measurement • Load Current Calculation • Energy Calculation • Load/Battery Disconnect • Real Time Clock with Battery Backup • Stored Site Text/ ID and Messages • Position (long/lat) for auto placement • Test of Relay Outputs • Alarm grouping of events for relay outputs	• Battery Current Measurement • Battery Temperture Measurement • Battery Testing (acc. to discharge table or set time limit) • Setup of Battery Data/Table • Battery Capacity Indication • Battery Boost Charging -Auto – Ah discharge or voltage threshold -Interval or Manual • Temperature Compensated Charging • Charge Current Limitation • Battery Low oltage Disconnect -Temperature dependent (optional) -Mains independent (optional)	• Available information about each rectifier, e.g. serial number, version, internal temperature • Individual Rectifier Current Measurement • Individual Rectifier Input oltage • Efficiency Management • Emergency oltage • Startup delay • Detailed internal alarms summary • Current ramp control for Data Centers	• On/Off control for cyclic charging and fuel reduction • Start-up delay of power system • Fuel consumption logging and alarming based on tank level measurement • Discharge cycle counter/ Generator run hour logging • DoD logging w/ time stamp • Generator On/Off based on battery voltage

ALARMS/E ENTS A AILABLE

Power control system	Load	Battery	Rectifier
• AC Mains Low (2-level) • AC Phase oltage x3 (2-level) • "Digital" Inputs (programmable descriptions) • Events trigger by inputs - Service mode (block relays) -Generator running -Lower charge current limit -Battery test -Boost inhibit -Emergency low voltage -Clear manual reset alarms.	• Load Disconnect - oltage or Timer (from mains failure) based -Mains independent (optional) • Load Fuse • Load Current	• Battery oltage (4-level, optional 8-level) • Battery Temperature (2-level) • Battery sed Capacity (2-level) Ah or • Battery Remaining Capacity (2-level) Ah or • Battery Fuse • Symmetry Failure (2-level) -Only with BM Can Node • Battery uality after test (2-level) • Battery Current (4-level) • Battery Life Time (2-level) from temperature log	• Rectifier Failure (2-level) • Rectifier Capacity (2-level) • Rectifier Current (2-level) • Rectifier Avg. Temperature (2-level) • Rectifier Current Share (2-level)

Note:

Alarms can be set up with monitoring of minor and major levels. Hysteresis and time delay is user configurable. All average and peak levels on analogue values are auto logged in Event log

242100.50X.DS3 - rev. 5

Smartpack2

SPECIFICATIONS

MASTER

Part number	242100.500
Power consumption	Max 4.5W
MTBF	1 300 000 hours Telcordia SR-332 Issue I, method III (a) (Tambient : 25°C)
Display	32k colour TFT – QVGA (320x240)
Ethernet port	• 10/100 BASE-T • P Auto MDI/MDI-X
Removable media	SD card
SNMP	v1, v2c, v3 GET, SET TRAP
Web	Webpower; X TML 1, ava script, SSL
Networking	SMTP Client and NTP Client, FTP, FTPS/TLS
Event log	10 500 time stamped events
Data log	10 000 time stamped values of 10 user defined monitoring points
Dimensions (WxHxD)	156 x 72 x 38 mm / 6,4 x 3 x 1,6"

BASIC

Part number	242100.501
Operating temperature	-20 to +70°C (-4 to 158°F)
Storage temperature	-40 to +85°C (-40 to 185°F)
Input voltage	20-172 VDC (20 -75 VDC***) Shutdown: < 18 VDC
Power consumption	Max 1.5A Max 4.5A (3x LVD max loaded)
Contactor outputs	3 x LVD control outputs
Configurable inputs	3x NO/NC/Temperature: NTC probe
System connections: • oltage sense • Current sense • Battery fuse* • Load fuse*	24V, 48V, 60V & 110V** systems 0-20m and 0- 0m range shunts Battery fuse sense, Open/Closed Load fuse sense, Open/Closed, Pull- Up/Down, Diode Matrix
Ground fault	Simple bridge circuit detection
Max basic nodes	8 units on a single CAN-bus
Dimensions (WxHxD)	155 x 35 x 80 mm / 6.4 x 1.4 x 3.3"

BASIC INDUSTRIAL

Part number	242100. 01
Operating temperature	-20 to +70°C (-4 to 158°F)
Storage temperature	-40 to +85°C (-40 to 185°F)
Power consumption	Max 1.6A
Electric isolation	7 different isolated sections
Customer connections: • Configurable Inputs	3x, "digital", temperature / voltage /current measurements. - NO/NC, Pull Up/Dn, Diode Matrix: -10V> +10V (2mV full range) - Current measurements: 4-20mA (ext. sense resistor 100-500Ω) - Temperature measurements: NTC probe

242100.50X.DS3 - rev. 5

Smartpack2

BASIC INDUSTRIAL - CONTINUED

• Relay outputs	3x, NO-C-NO, 0-220V, 30W (max. 1A), configurable
• Serial communication	RS232C port and RS485 port
System connections:	
• oltage sense inputs	3x, Max. 420VDC, Symmetry& battery monitoring
• Current sense inputs	2x, for 20mV to 60mV current shunts
• Battery fuse sense inputs	1x, NO/NC, Pull Up/Dn, Diode Matrix: -10V> +10V (2mV full range)
• Load fuse sense inputs	1x, NO/NC, Pull Up/Dn, Diode Matrix: -10V> +10V (2mV full range)
• L D contactor outputs	3x, 10-420V, 1A, Configurable as latching or non-latching LVD Supply input: 10-420V, 1A
• CAN interface	2 x, CAN bus systems (separated and isolated)
• Earth fault detection	1x, internal Isolation input
Power system compatibility	Industrial & Telecom, Positive, negative and floating DC distributions
Max number of controller nodes	10 on a single CAN-bus, in addition to Smartpack2 Master controller
Controller configuration	Front keys in the Smartpack2 Master controller, via CW I in an standard web browser (Controller s Web-based ser Interface) and via PowerSuite application
Dimensions	(WxHxD) 146.0 x 146.0 x 45.6 mm / (5.7 x 5.7 x 1.8")

I/O MONITOR (TYPE 2)

Configurable Inputs	6x NO/NC/Analog Voltage [0-75V]
Alarm Outputs	6x Relay–Dry/Form C [Max 75V/2A/60W]
Max I/O Monitors	14 units on a single CAN-bus
Power Consumption	Max 3.6W
Dimensions (WxHxD)	135.1 x 23.5 x 59mm / 5.3 x 0.9 x 2.3"

CONTROL DEVICES/CAN NODES

Part no:	Description
242100.300	Battery Monitor
242100.301	Load Monitor
242100.304	I/O Monitor (Outdoor)
242100.30	I/O Monitor Type 3
242100.200	Smartnode RS232/485
242100.500	Smartpack2 Master
242100.501	Smartpack2 Basic
242100. 01	Smartpack2 Basic Industrial
242100. 03	Fleximonitor
242100.502	I/O Monitor – Type 2

*Only Open/Closed for 110V **Basic ver. U1.3 ***Basic ver. 1.0 - 1.2