

Smartpack Controller

Monitoring and Control Unit

Advanced Datasheet – Functions list

This document lists features and functions in a Smartpack based DC power system. Features may be dependent of a specific hardware version, variant and/or optional CAN Node devices.



SMARTPACK CONTROLLER

MONITORING AND CONTROL UNIT

Doc 242100.11X.DS3 – rev5

AC MAINS

- Configurable number of mains phases
- Phase voltage monitoring and alarming through rectifiers
- Number of phases lost alarming

RECTIFIERS

- Auto/manual ID number assignment (up to 96 rectifiers)
- Suppressing of rectifier failure alarm during AC mains failure (when all configured phases is lost)
 - Adjustable voltage ramp-up (44Vdc to 53.5Vdc) at start-up (long or short time)
 - Adjustable output overvoltage shutdown
 - Adjustable current limitation
 - Adjustable set point for emergency low voltage
 - Adjustable system start up delay
 - Optional feedback signal from generator
 - Efficiency Management
 - Redundant or non-redundant mode
 - HE rectifier priority option (only applicable in systems with mixed standard and HE rectifiers)
 - Adjustable "shuffle" time
 - -Adjustable turn-on/off overlapping time

- Energy supplied logging (see Control System - Energy logging for details)
- Load supply capacity monitoring, warning when general load increase without adding number of rectifiers in system
- Detailed individual rectifier status
 - Internal Alarms
 - Temperature
 - AC voltage
- Inventory overview including
 - Serial number, HW version, SWversion

MONITORING AND CONTROL UNIT

SOLAR CHARGERS

- Suppressing solar charger warning during full panel shading (nighttime)
- Individual panel shading warning

LOAD

- Total load current and load fuse monitoring
- Total energy consumed logging (se Control System- Energy logging for details)
- Individual load current, fuse and power monitoring* – requires Load Monitor device
- Individual energy consumed logging* – requires Load Monitor device
- Low Voltage Load Disconnect (LVLD)
 - Adjustable disconnect and reconnect voltages
 - Timer based disconnect after AC mains fail
 - Optional AC mains independency
- Configurable load descriptions

BATTERY

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| <ul style="list-style-type: none"> • Total battery current, temperature and battery fuse monitoring • Battery string current, temperature and individual fuse monitoring* - require Battery Monitor • State of Health (SOH) indication based on battery discharge test • State of Charge (SOC) indication based on monitored charge/discharge currents • Battery Life Time monitoring (accumulation based on logged temperatures in temp ranges with life time reduction factor.
Example: battery life time is reduced by 50% when temperatures increase with 6-7 degrees C.) • Energy supplied/charged logging (see Control System - Energy logging for details) • Charge current limitation <ul style="list-style-type: none"> ◦ 2-level option, mains feed and generator feed • Temperature compensated float charging, adjustable settings <ul style="list-style-type: none"> ◦ Cell voltage reference ◦ Temperature reference ◦ Slope ◦ Max and Min voltages • Boost charging <ul style="list-style-type: none"> ◦ Adjustable fixed voltage, optional temperature compensated ◦ Optional start/stop modes <ul style="list-style-type: none"> -Manually triggered -Auto – start by: discharged capacity or low voltage, stop by: recharged factor or low charge current and time limit security -Interval scheduled ◦ Memory if LVBD disconnected • Low Voltage Battery Disconnect (LVBD) <ul style="list-style-type: none"> ◦ -Adjustable disconnect and reconnect voltages ◦ -Optional temperature dependency (reconnect only: if <BatteryTemperature - MajorHigh> event is cleared) ◦ Optional AC mains independency | <ul style="list-style-type: none"> • Battery Discharge Testing <ul style="list-style-type: none"> ◦ Simplified mode, results indicating “good” or “bad” <ul style="list-style-type: none"> -Result criteria: Elapsed on time or end voltage/ discharged Ah ◦ Normal mode, based on selected/entered discharge table, results indicating SOH in percentage <ul style="list-style-type: none"> ◦ Adjustable max duration ◦ Storing of discharge tables as files on PC ◦ Discharge data logging, last 10 tests stored with <ul style="list-style-type: none"> -Start date [mm/dd/yyyy] -End time [hh:mm] -Test type [Manual/Periodic/Automatic] -Battery table used -Test duration [m] -Discharge current [Ah] -End voltage [V] -Calculated Quality [%] -Test Result event -Logged measurements <ul style="list-style-type: none"> -Battery current -Battery Voltage -Temperature -Symmetry voltages -First 10 min and last 10 min logging are done every minute, in between every <ul style="list-style-type: none"> -10 min (test duration < 300 min) -20 min (300 min < test duration < 600 min) -40 min (600 min < test duration < 1200 min) ◦ Discontinuance test, detecting battery string unbalance* <ul style="list-style-type: none"> - require Battery Monitor -Adjustable repeat frequency per week -Adjustable maximum duration • Battery symmetry monitoring <ul style="list-style-type: none"> ◦ Discharge only or continuous mode ◦ Adjustable discharge delay before monitoring starts |
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MONITORING AND CONTROL UNIT

GENERATOR

- Energy supplied logging (se Control System - Energy logging for details)
- On/Off control signaling based on SOC monitoring for battery cycling applications, adjustable limits
- Time based, daily and/or monthly on/off signaling
- Emergency start, "On" signaling (LVBD+1.0V)
- Run time monitoring, optional feedback signaling for alarming
- Optional delayed system start-up and lowering of charge current limit
- Dual generator support

CONTROL SYSTEM

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| <ul style="list-style-type: none">• Multilanguage, changeable "on-the-fly"<ul style="list-style-type: none">◦ English, German, French, Polish, Spanish, Norwegian, Swedish, Finnish, Turkish, Chinese Simplified* and Chinese Traditional* - *Special HWversions• Event logging<ul style="list-style-type: none">◦ 10 000 time stamped records* - HW and SW version dependent• Data logging<ul style="list-style-type: none">◦ 10 000 time stamped records* - HW and SW version dependent◦ 7 user configured monitors, drag-and-drop for any available in control system◦ Adjustable time intervals<ul style="list-style-type: none">-Normal interval-Critical interval (AC mains failure) | <ul style="list-style-type: none">• Energy logging<ul style="list-style-type: none">◦ Resolution from current is 52 times back<ul style="list-style-type: none">-Hour [Wh]-Day [kWh]-Week [kWh]• Global settings<ul style="list-style-type: none">◦ Fahrenheit or Celsius◦ Site information◦ Log on security<ul style="list-style-type: none">-Read only level – no password-Service level – 4 digit pin code◦ "deciAmpere" option for small systems• Average value and peak value logging of all monitors |
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INPUTS/OUTPUTS

- 17 user configurable Alarm Groups for bundling/OR of monitor events
- Boolean AND and NOT of Alarm Groups, 10 Result Groups available
- Alarm relay outputs configurable as Normally Activated or Normally Deactivated
- Clock timer based relay output activation
- Available commands/events triggered by inputs (descriptions changed/customized in setup)
 - Generic major or minor alarm
 - Service mode (block alarm relays temporarily)
 - Generator running
 - Lower charge current limit
 - Battery test
 - Boost/Battery test inhibit
 - Emergency low voltage
 - Clear manual reset events

INPUTS/OUTPUTS - OUTDOOR* - REQUIRE O/I UNIT OUTDOOR

- Factory configurable fan speed regulation
- Fan speed deviation alarming
- Humidity Reduction Scheme
- Pressure Test
- Additional Data logging

INPUTS/OUTPUTS - OUTDOOR* - REQUIRE O/I UNIT OUTDOOR

- Web pages access security
 - Read only level – user and password protected
 - Service level – user and password protected
 - Administration level – user and password protected
 - Same DC power system access level as service, in addition network settings access
 - Up to 10 configurable user accounts with own username, access level and password
 - Optional SSL (HTTPS)
- SNMP
 - Supports SNMP v1, v2c
 - Optional heartbeat TRAP
 - TRAP lap time up to 60 seconds
 - Optional “off TRAPS”
 - MIB file <ELTEK-DISTRIBUTED-MIB> Branch 9 for 3rd party NMS available
 - Selection of GET and SET parameters
 - TRAPs generated by monitor events
 - Up to 10 TRAP receive IP addresses
 - Private or Public communities
- DHCP assignation of IP address
- Optional email sender with TRAP content
Ethernet port with HP Auto MDI/MDI-X for detection and correction for straight-through and crossover cables. Eliminates confusion whether to use straight cable or crossover between controller and PC
- Protocols available* - require Smartnode device
 - pComm
 - Eltek proprietary
 - MODBUS (RTU)
 - PSTN/GSM modem call-back
 - Simple ASCII data or SMS messaging of Alarm Groups
 - Telecom Operator specific
 - TEC
 - RDP
 - COMLI
 - EVTS