

Controller CAN Nodes

Extending the Control System

Various CAN Nodes are available for Smartpack, Smartpack2 and Smartpack S controllers.

The nodes have dedicated inputs and outputs that expand the system monitoring. The units “plug-and-play” with Smartpack controllers, no local powering of the units is needed.



CONTROLLER CAN NODES

Doc 242100.CAN.DS3-rev 8

CONTROL SYSTEM

Overview

The controller CAN nodes cover all aspects of DC power system monitoring:

- AC Mains Voltage, current, frequency 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

KEY FEATURES

• FLEXIBILITY AND RELIABILITY

Most CAN Nodes have a rugged sealed-plastic design, with post, DIN-rail or Velcro tabs as standard mounting options.

Power and communication goes through the CAN bus, and hence only a RJ45 patch cable is required for connecting the node to the control system. This allows great flexibility in positioning of the nodes – they can be put close to their measuring connections, reducing wiring.

All controller CAN nodes comes with a DIP-switch to allow multiple modules of the same type on the CAN bus. The maximum number of each type is limited to 14.

• PLUG AND PLAY

After setting the CAN ID of module by the DIP-switch and connecting it to the CAN bus, it will “plug and Play” with the Smartpack, Smartpack2 and Smartpack S controllers. Meaning, the module will automatically communicate with the controller when connected to the CAN bus.

Configuration, setup and calibration is then available via the controller's front panel and through the controller's web-based user interface (CWUI) or the PowerSuite PC application.

• GLOBAL COMPLIANCE

The CAN Nodes are approved for global use meeting CE safety and EMC requirements. Units are also UL Recognized for safety (incl. CSA).

See the last pages for technical specifications

BATTERY MONITOR

Its' compact design and easy connection to the control system through the CAN bus, makes it perfect for both co-located and remote battery banks. Battery temperature is measured by the embedded temperature probe – no external sensor and wiring required.

The unit has 4 voltage measurement inputs used for battery symmetry monitoring based on midpoint or block measurements. Furthermore the battery monitor has inputs for monitoring one battery shunt and battery breaker.

BATTERY MONITOR



LOAD MONITOR

Individual distribution breaker monitoring can be done with the Load Monitor.

The unit has the possibility to connect up to 8 current shunts and monitor 8 fuses individually. It can be used for both positive and negative distributions. However it is important for the current measurements that the shunts are connected to the same pole as the system reference of the control system. CAN repeater and CAN Power device can be used in cases where this is not fulfilled.

LOAD MONITOR



I/O MONITORS

The I/O Monitors are used to expand the standard monitor and alarm capabilities of the controller.

Each I/O monitor module has 6 configurable inputs for fuse sense and feeding external signals into the control system, and 6 configurable relay outputs for connecting external alarms.

The I/O Monitor Type3 is designed for doing tank level measurements. Some of its inputs are prepared to do high resolution current and voltage measurements.

In addition, special inputs and outputs are added for climate control in outdoor cabinets in the I/O Monitor (Outdoor) and Type3.

I/O MONITORS



FLEXIMONITOR

The FlexiMonitor is a multipurpose, additional and optional CAN Node for Eltek Smartpack2 and Smartpack S based control systems.

FlexiMonitor adds many advanced features to your control system, such as high-accuracy current measurements, symmetry and voltage measurements down to battery cell level, high voltage fuse sensing, more control & alarm outputs, additional temperature measurements and more.

For more details, refer to the Fleximonitor datasheet, Doc # 242100.603.DS3.

FLEXIMONITOR



CAN POWER

All nodes are powered by the distributed power supplied on the CAN bus by the Smartpack and Smartpack2 basic controllers.

If the CAN bus needs to be isolated or additional CAN bus power is need, the CAN power module can be added to supplement the available power. The CAN power module is mandatory if any CAN control units are to be connected to a Compack controller.

CAN POWER



AC MAINS MONITOR

With inputs for measuring voltage and current on up to 3 phases of the AC mains of a system, the mains availability, quality and consumed energy are easily monitored. The energy log keeps track of consumption per phase and total, and stores it by hour, day and week. The log is available for download through the WebPower interface to the system.

The current range are set by selecting the sensor, 0 – 50 A up to 0 – 600 A are available. Due to software restraints the energy log supports only up to 200A.

There is also a configurable data log that by default stores AC frequency together with current and voltage for each measured phase and a time stamp. The log interval is configurable and the log has space for the last 5000 samples.

The 5 configurable digital inputs can be used for monitoring SPDs and other external equipment

AC MAINS MONITOR



CONTROLLER CAN NODES

ADDITIONAL TECHNICAL SPECIFICATIONS

CAN POWER

Input	20 - 75Vdc (Screw terminals)	
Outputs	+/-15V, 500mA (Dual RJ45 connector)	
Functionality	<ul style="list-style-type: none"> o Isolates the power distributed on the CAN bus o Increase power available for the CAN nodes in the system 	
Dimensions (WxDxH)	155.5 x 70.5 x 31 mm	(6.12 x 2.78 x 1.22 ")

Note: 500mA is supplied per Smartpack, 1A per Smartpack2 Basic

CONTROLLER CAN NODES — CAN ID # RANGE

CAN Device	Start	End	Num. of nodes
Smartpack	1	14	14
Smartpack2 Basic	1	10	10
Smartpack2 Master	11	14	4
Smartnode	17	30	14
Battery Monitor	33	46	14
Load Monitor	49	62	14
FlexiMonitor	65	78	14
I/O Monitors	81	94	14
Mains Monitor	97	110	14

AC MAINS MONITOR

3 mains current sensor ports (for LEM HAL or equivalent)	
<ul style="list-style-type: none"> o Sensor reference o Signal o Sensor supply - o Sensor supply + 	0 V 0-4 V _{pp} (45-65 Hz) -15 V 15 V
3 mains voltage input: Signal	0-300 V _{rms} (45-65 Hz)
5 configurable "digital" inputs: NO/NC, Pull Up/Dn, Diode matrix	(0 – 60 V)
1 RS 485 Communication port for customer connection:	CSCP Protocol
Max. CAN Power consumption	Max 300 mA
SW Part number	402093.009
Functionality	
<ul style="list-style-type: none"> o Energy log o Data log 	Last 52 hours, last 52 days and last 52 weeks Up to 5000 samples with timestamp (default: VAC, IAC and frequency)
Dimensions	176 x 97.6 x 42.8 mm (WxDxH) (6.93 x 3.84 x 1.69")

BATTERY MONITOR

Inputs	<ul style="list-style-type: none"> o 4x Symmetry Voltage (0 - 60V) o 1x Fuse failure detect, NO/NC or Diode Matrix o 1x Current sense
Accuracy based on resolution (calibrated)	Voltage: 76mV Current (200A): +/- 1A
Functionality	<ul style="list-style-type: none"> o Symmetry measurement: 2, 6, 12, 24, 30 or 36V o Fuse failure: NO, NC or Diode Matrix o Current sense: 50mV or 60mV shunt o Temperature measurement: Embedded in unit
SW Part number	402086.009
Max. Can Power consumption	90mA
Dimensions (WxDxH)	72 x 54 x 25 mm (2.83 x 2.13 x 0.98 ")

Specifications are subject to change without notice

CONTROLLER CAN NODES

ADDITIONAL TECHNICAL SPECIFICATIONS

LOAD MONITOR

Inputs	<ul style="list-style-type: none"> ○ 8x Configurable (Fuse failure) ○ 8x Current sense
Accuracy based on resolution (calibrated)	Current (200A): +/- 1A
Functionality	<ul style="list-style-type: none"> ○ Fuse failure: NO, NC or Diode Matrix ○ Current sense: 50mV or 60mV shunt
SW Part number	402087.009
Max. CAN Power consumption	120mA
Dimensions (WxDxH)	155.5 x 70.5 x 31 mm (6.12 x 2.78 x 1.22 ")

I/O MONITORS: ¹-OUTDOOR, ²-TYPE 2 AND ³-TYPE 3

6 configurable inputs: "digital", voltage/current measurement:	
<ul style="list-style-type: none"> ○ NO/NC, Pull Up/Dn, Diode Matrix Voltage range 0-75V (78mV res) ○ NO/NC, Voltage range 0-10V (13mV resolution) ○ Current measurement 4-20mA (27µA resolution) 	<ul style="list-style-type: none"> No1-6^(1,2), No1-2⁽³⁾ No3-6⁽³⁾ No5-6⁽³⁾
6 configurable relay outputs: normally activated/deactivated:	
<ul style="list-style-type: none"> ○ Dry/Form C, Max 1A/60W/75V ○ Dry/Form C, Max 8A/300W/75V 	<ul style="list-style-type: none"> No1-4^(1,3), No1-6⁽²⁾ No5-6^(1,3)
Outdoor cabinet specific ports: temp, fan control/monitoring:	
<ul style="list-style-type: none"> ○ 2x Temp sensor inputs: ○ 2x Fan speed inputs: ○ 2xFan speed control outputs: 	<ul style="list-style-type: none"> (-40-100°C with 0.14°C res.)(1,3) (0-5V or pulse sense 1-10 p/r)(1,3) (0-10V, max -10/+20mA) (1,3)
Max. CAN Power consumption	Max 3.4W ^(1,2,3)
SW Part number	402088.009 ^(1,2,3)
Functionality: Data logging (non-volatile memory)	<ul style="list-style-type: none"> ○ 10000 time stamped logs ○ 4 user selectable data points ○ Default: 2x Temp. 2x Fan Speed
Dimensions (WxDxH)	155.5 x 85.2 x 31 mm ^(1,3) (6.1 x 3.4 x 1.2 ") 135.9 x 59 x 25.6 mm ⁽²⁾ (5.4 x 2.3 x 1.2 ")

FLEXIMONITOR

Part number	242100.603
Relay Extension Board, 8 outputs	242100.604
Relay Extension Board, 4 outputs	242100.605
Mounting: DIN Rail clips Screw hole (M4) clips	282523 282524 (vertical) or 315068 (horizontal)
Dimensions (WxDxH)	115 x 84 x 33.6 mm (4.53 x 3.31 x 1.32")
Dimensions (LxWxH) with relay extension board	115 x 84 x 56.5 mm (4.53 x 3.31 x 2.22")

For more details, refer to the Fleximonitor datasheet, Doc # 242100.603.DS3

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CONTROLLER CAN NODES

ADDITIONAL TECHNICAL SPECIFICATIONS

ALL CAN NODES

Max. nodes	14 units of same type can be added a single CAN bus (Also see CAN Power)
Mounting	Slotted groove for post mounting or DIN rail/Velcro (for Battery Monitor)
Visual Indication: 3xLED (1xLED CAN Power)	<ul style="list-style-type: none"> o GREEN: Power o YELLOW: Warning o RED: Alarm (Flashing LED: insufficient power)
SW Upload tools	<ul style="list-style-type: none"> o From the controller's storage device, via the front panel, (Smartpack2 Master's SD card or Smartpack S Flash memory) OR o From a PC, using FWLoader app. (Ver ≥3.25) and "IXXAT USB-to-CAN Converter" (p/n: 208565)
Casing material	Plastic - V0 rated / Steel (CAN Power)
Operating temp. and Storage temp.	-40 to 70°C (-40 to 158°F) and -40 to 85°C (-40 to 185°F)

APPLICABLE STANDARDS

Electrical safety	IEC 60950-1 UL 60950-1 CSA C22.2
EMC	IEC 61000-6-1 IEC 61000-6-2 IEC 61000-6-3 /A1 IEC 61000-6-4 ETSI EN 300 386 v1.3.3 FCC Part 15B Subpart 109
Environment	2002/95/EC (RoHS) & 2002/96/EC (WEEE) ETS 300 019-2-1 Class 1.2 ETS 300 019-2-2 Class 2.3 ETS 300 019-2-3 Class 3.2

PART NUMBERS

Part No.	Description
242100.300	Battery Monitor
242100.301	Load Monitor
242100.304	I/O Monitor (Outdoor)
242100.502	I/O Monitor Type 2
242100.306	I/O Monitor Type 3
242100.603	Fleximonitor
242100.303	CAN Power
242100.305	AC Mains Monitor

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