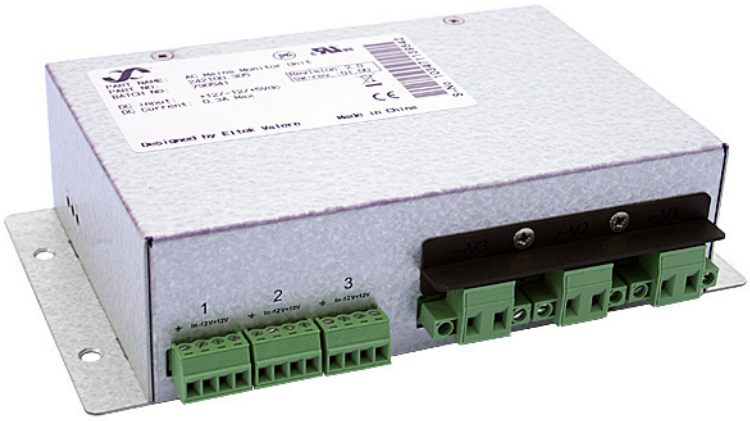
ELTEK
A Delta Group Company

Installation Guide

AC Mains Monitor



CAN Bus Node

Power Supply Systems

Indoor and Outdoor Applications

351508.033

356800.183, 3v5

SAFETY and ENVIRONMENTAL PRECAUTIONS

The **product warranty** becomes invalid if the following safety precautions are not followed during handling, installation, commissioning and general use/operation of *Eltek* power supply systems.

General Precautions


Device Hazard

G1 **CAUTION:** Even though the product incorporates protection circuitry and other safeguards, it can be **damaged, perform poorly or have a reduced lifetime** if it is exposed to **incorrect treatment** during transport, installation or service. Always handle the equipment using proper lifting techniques, do not roll, climb or drill hole in the cabinets or enclosures.


Electric Shock

G2 **WARNING: Opening the equipment may cause terminal injury — even if the mains AC supply is disconnected. Hazardous voltages may be present inside, as large capacitors may still be charged.**

Environmental Precautions


Ventilated Hot Surface

E1 **CAUTION:** To avoid damage the equipment, **keep objects clear of system ventilation inlets, outlets and system fans**, if any, ensuring the **airflow** through the units is **not obstructed**, and that the fans rotate freely. Use caution with power modules, as they can reach **extreme temperatures** under load and normal operation.


Current Surge Protection

E2 **WARNING: The installer/user is responsible for ensuring that the power system is not damaged by current surges, over-voltages, etc. caused by external transients, lightning, electrostatic discharge, etc. To avoid damage and obtain the expected system reliability, it is mandatory to always install SPDs in Eltek's power supply systems. Follow the instructions given in "Guidelines for Lightning and Surge Protection", doc. 2024623**.


Humidity & Dust Protection

E3 **WARNING: The electronics in the power supply system are designed for indoor, clean environment. When installed in outdoor enclosures — using heat sinks or closed loop heat management systems — it is important to maintain the equipment closed and tight during operation, to avoid external air entering the enclosure. Also, when using open loop heat management systems, it is important to replace the filters on a regular basis. Indoor installations in dusty or humid areas require appropriate air filtering of the room, or filtering of the air entering the power system. Follow the instructions given in "Generic Guidelines Environmental Protection.", doc. 2038879**

Precautions during Installation


Qualified Personnel

I1 **CAUTION: Read the user documentation carefully** before installing and using the equipment, as installation and operation is to be performed as described in it. Always tighten screws and bolts with the **torque values recommended** in the documentation. For safety reasons, the **commissioning and configuration of the equipment is only to be performed** by *Eltek*'s personnel or by authorized and qualified persons.


EMC, NEC/CEC Regard

I2 **CAUTION:** This product is tested and verified according to international safety, environmental and EMC standards. Any **non-*Eltek* equipment** installed into this product after delivery might influence the performance and **could infringe the original approvals**. The **installer is responsible** for ensuring that the environmental properties of this product/ system do not deteriorate during installation, and that it is performed in accordance with applying regulations.

Installations in USA and Canada must comply with NEC/CEC requirements.


Device Hazard

I3 **CAUTION:** Before you start the electrical installation, you must **always disconnect** all external supply fuses, as well as internal battery and load fuses/ breakers, if any.


Electric Shock

I4 **WARNING: For safety reasons (high leakage current / high touch current) you must always connect the AC earth wire (PE) to the terminals, before you connect the AC input cable(s).**

The batteries, if any, represent a major energy hazard. To avoid short-circuit of battery poles, you must always remove metallic objects — uninsulated tools, rings, watches, etc. — from the vicinity of the batteries.


Electric Shock

I5 **WARNING: 60V power systems, and higher voltage systems, are only to be installed in Restricted Access Locations (RAL). Access must be limited by use of tool, i.e. lock and key.**

351508.033, 1v2-2016-02

ELTEK
A Delta Group Company

NS-EN ISO 9001 Certified
Certificate No. 4072-2007-AQ-NOR-NA

NS-EN ISO 14001 Certified
Certificate No. 11276-2007-AE-NOR-NA

Eltek's Part Number: 242100.305 *AC Mains Monitor*, CAN Bus Node

Doc No: 351508.033
mafeno

Issue 1.2, 2016 Feb
Published 2016-02-03

351508.033.1v2-2016-02

Table of Contents

351508.033.1v2-2016-02

1. Introduction

Congratulations on your purchase of the *AC Mains Monitor*, CAN Bus Node, an intelligent "plug-and-play" module used to monitor the power system's energy consumption and the status and quality of its AC mains 3 phase input.

About this Guide

This booklet provides you with the required information for installing the *AC Mains Monitor* in your power supply system. The booklet also presents some information about the *AC Mains Monitor*'s configuration and technical specifications.

For more information about the activation, configuration and calibration of the *AC Mains Monitor* nodes, click on the Help button on the toolbar of the PowerSuite configuration program.

System Diagram — CAN Bus Nodes

The *AC Mains Monitor*, CAN Bus Node is used as a building block in *Eltek*'s power supply systems, see *Figure 1*. The *AC Mains Monitor* and other CAN bus nodes, like the Battery Monitor, the Load Monitor, etc. may also be connected to the bus. The nodes are powered directly from the CAN bus, and have dedicated inputs and outputs that expand the system monitoring and controlling capability.

The controller monitors and controls the whole system, and serves as the local user interface between you and the system. The controller's web-based user interface (CWUI) enables you to operate the system from your computer's standard web browser. More advanced configuration tasks may be performed via the PowerSuite application.

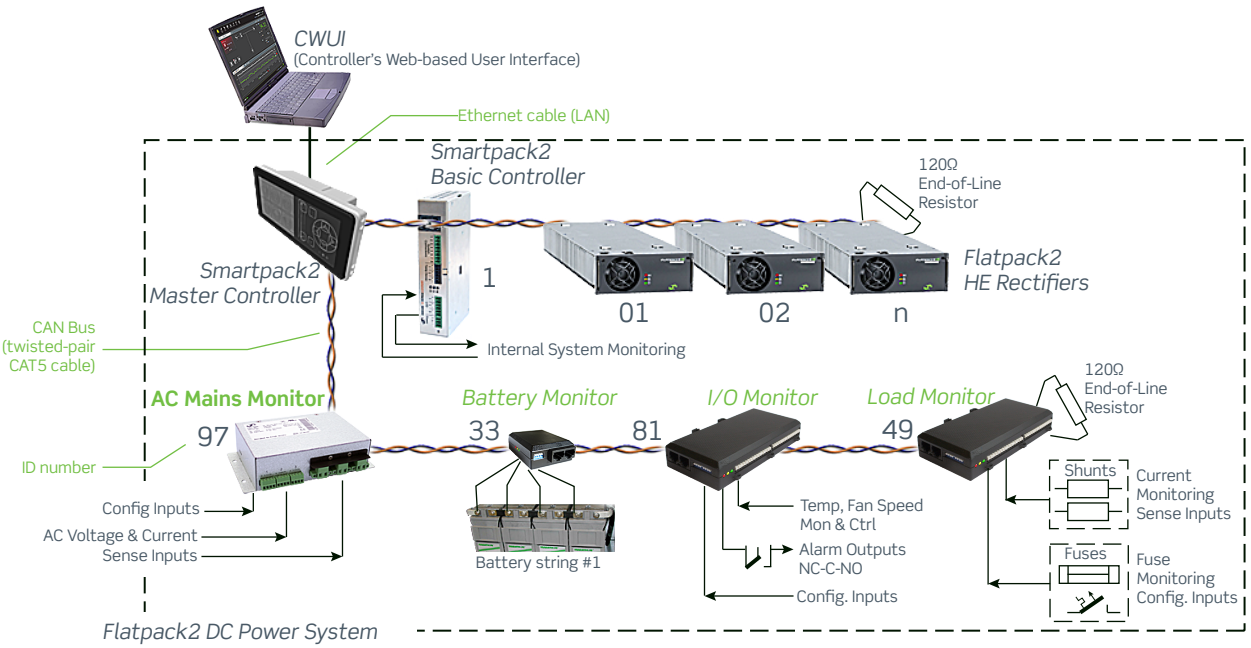


Figure 1. Example of CAN bus nodes connected in a Flatpack2 Power Supply System

351508.033.1v2-2016-02

2. AC Mains Monitor — Description

The *AC Mains Monitor* CAN Bus Node enables you to monitor the voltage, current and frequency of each of the phases in the AC mains 3 phase input of your *Eltek* power supply system.

The AC mains status is displayed via LEDs in the monitor's front, and presented in the controller's display. You can configure the *AC Mains Monitor* to generate warnings and alarms based on the measured parameters.

Also, using the browser in your computer, you can access the controller's web-based user interface, and have remote access to the AC mains measured parameters stored in the *AC Mains Monitor*'s Data Log, see *Figure 11 on page 21* (ref. 5)

Other logs, like the Mains Outage Log and the Energy Log, will keep track of the total energy consumption and the consumption per phase. The log will present the energy supplied by the mains input every hour, every day and every week, as well as the maximum and minimum values. All the logs may be downloaded to your computer.

The *AC Mains Monitor* three voltage sense inputs may measure AC phase voltages up to 300VAC. The consumed energy calculations are based on a maximum of 200A per phase.

The monitor's three current sense inputs are compatible with either current transducers or current transformers with a maximum signal output level of 4Vp-p (1.4VAC). The *AC Mains Monitor* is also equipped with three +/-15V power outputs to supply the external current transducers.

For monitoring of external devices, such as SPDs or similar, the *AC Mains Monitor* has available 5 configurable digital inputs.

The *AC Mains Monitor* communicates with the power system's controller via the system CAN bus. The monitor is also equipped with an RS485 serial port for communication with external equipment in customized applications.

Key Features

A wide range of features are implemented in the *AC Mains Monitor*, CAN Bus Nodes, as mentioned below:

- ◊ Powered via the CAN bus; no external power supply required
- ◊ Firmware upgrade via the CAN bus (see required "SW Upload tools" on chapter *"4. Technical Specifications" on page 23*)
- ◊ 3 voltage sense inputs for monitoring the voltage of AC mains phases
- ◊ 3 current sense inputs for monitoring the current of AC mains phases (via external current transducers or current transformers)
- ◊ 5 user programmable and configurable inputs for SPD monitoring and other site equipment monitoring
- ◊ Storage of measured data in real time Event Log, Data Log, Power Consumption Log and Power Outage Log
- ◊ Setup, configuration and calibration via PowerSuite
- ◊ Flexible mounting using DIN rail tabs or fastening screws

351508.033, 1v2-2016-02

- ◊ Up to 14 *AC Mains Monitor* modules may be connected to the CAN bus
- ◊ RS485 serial port (customized applications)
- ◊ CAN bus addressing via DIP switches

Read also chapter *"4. Technical Specifications" on page 23*, for more details.

Typical Applications

The *AC Mains Monitor* modules are employed in *Eltek*'s power systems, to implement AC mains input monitoring and power consumption analysis.

The monitors are suitable in integrated, cabinetized and in outdoor applications, for telecom, industrial and solar hybrid power supply systems.

351508.033.1v2-2016-02

3. Installation of AC Mains Monitor

When the *AC Mains Monitor* CAN bus node is purchased with the power system, the monitor is always installed, configured and calibrated in factory, and needs no further configuration.

You can install the *AC Mains Monitor* CAN bus nodes in already shipped power systems, whenever the following requirements are met:


Version Sensitive

1. You system's controller is either the Compack, Smartpack, Smartpack2 or a newer *Eltek* controller
2. You system's controller has an Ethernet port, or you have a PC with PowerSuite application version 2.4 or higher installed

You need standard installation tools and equipment used by an authorized electrician. NOTE: All tools must be insulated.

Safety Precautions

Follow these precautions during installation, commissioning and general handling of the power supply system.


Qualified Personnel

CAUTION: For safety reasons, the commissioning and configuration of the equipment is only to be performed by *Eltek*'s personnel or by authorized and qualified persons; otherwise the warranty may be invalidated.

Please, read the user documentation carefully before installing and using the equipment, as installation and operation is to be performed as described in it.


Current Surge Protection

WARNING: To avoid damage and obtain the expected system reliability, it is mandatory to always install SPDs in Eltek's power supply systems. Also, refer to warning E2, page 2

351508.033, 1v2-2016-02

Basic Installation Steps

Carry out these steps to install the *AC Mains Monitor* CAN bus node in your power system.

Power is ON!

1. **Assign the** *AC Mains Monitor*'s **CAN bus address**, by setting the *AC Mains Monitor*'s DIP switches. Read chapter *"CAN Bus Addressing" on page 17*
2. **Connect the node to the CAN bus**, by e.g. using a CAN bus cable and moving the CAN bus termination plug from the controller to the last connected *AC Mains Monitor* or node. Read chapter *"CAN Bus Termination" on page 16*
3. **Attach the AC Mains Monitor to a suitable surface** inside the cabinet; Read chapter *"Fastening the AC Mains Monitor" on page 11*
4. **Switch OFF** the power system's **AC mains supply** internal and external fuses. Ensure that the power system's battery bank may supply the load
5. **Thread** the power system's **AC mains input cable L1** through a suitable current transducer, e.g. the LEM HAL 100-S, and strap or fasten the transducer to the cable.
   Notice:
   If the signal from the current sensor is too small (e.g. lower than 1Vp-p), you can increase the signal strength by threading the AC cable several times through the current sensor (if the sensor's opening is big enough).
   The signal voltage output will be double for 2 turns, triple for 3 turns, etc. This must be considered during the configuration, in step 9.

   Repeat this step for **cable L2 and L3**, if applicable.
   Read chapter *"Connection Drawing" on page 12*
6. **Connect**, for each current transducer, **the four current sense wires** between each transducer and the *AC Mains Monitor*'s Current Sense pluggable screw terminals; Plug the terminals.
   Read chapter *"Connection Drawing" on page 12*
7. **Connect the three voltage sense cables** to dedicated AC mains input terminals and to the module's Voltage Sense pluggable screw terminals. Plug the terminals. Read chapter *"Connection Drawing" on page 12*
8. **Connect**, if applicable, the monitoring **external equipment input cabling** to the *AC Mains Monitor*'s Digital Inputs (requires a flat cable socket-to-terminal block adapter)
9. **Configure the AC Mains Monitor's operation** by using the PowerSuite application. Read chapter *"Configuration in PowerSuite" on page 18*
10. **Switch ON** the power system's **AC mains supply** internal and external fuses. Ensure that the power system is working in normal condition

351508.033.1v2-2016-02

Location of Connectors, Ports, LEDs

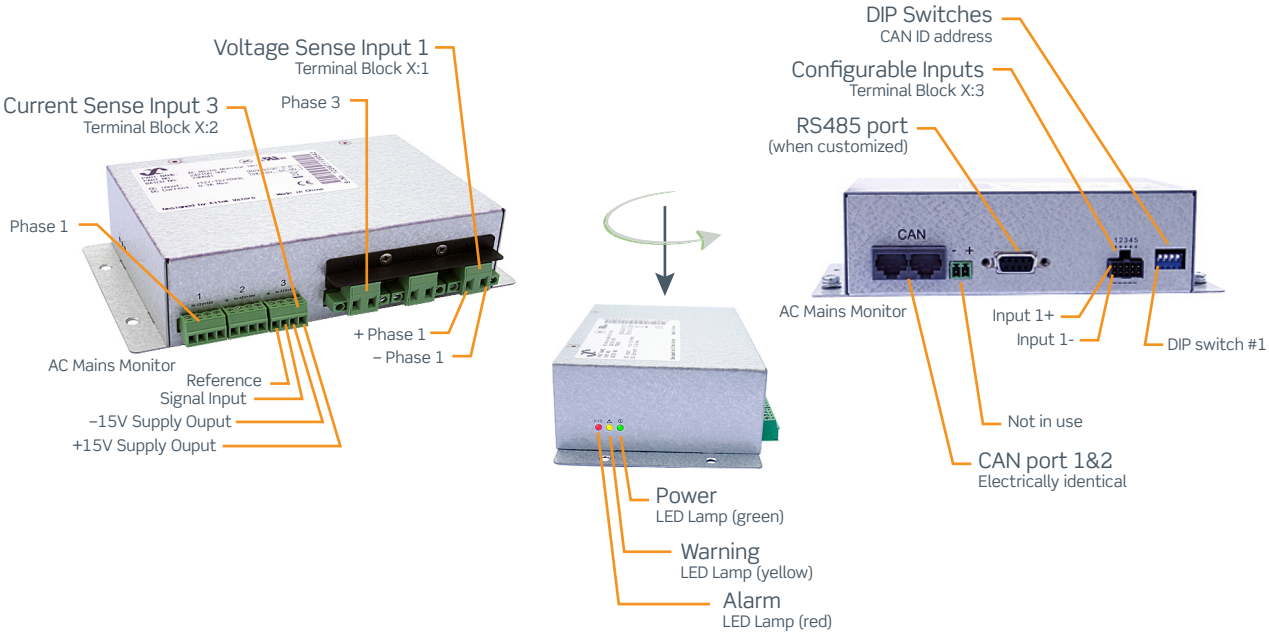


Figure 2. Location of terminals, DIP switches, CAN ports and LED indicators in the AC Mains Monitor

CAN port 1 and 2 are electrically identical, and are used to enable connection of the CAN bus incoming and outgoing CAT5 cables, or the RJ45 CAN bus termination plug. Refer to chapter *"Connection Drawing" on page 12*, for a complete list of signals, pin-out, etc.

LED Indicator	Illumination Status	Description
Power	OFF ON green	The monitor has NO supply The monitor has supply
Warning	OFF ON amber	No Warning Warning (Non-critical alarm)
Alarm	OFF ON red	No Alarm Alarm (Critical Alarm)
Other	Green ON & Red Flashing Green OFF & Red Flashing	Supply voltage too low Firmware boot-loading

Table 1. Description of the AC Mains Monitor's LED illumination status

351508.033.1v2-2016-02

Fastening the AC Mains Monitor

You mount the *AC Mains Monitor* CAN bus nodes inside the power cabinet or subassembly, using the node's DIN rail mounting clips, see *Figure 3 on page 11*.

You may also mount the *AC Mains Monitor* using 4 screws, suitable for the surface, through the monitor's four mounting holes, diameter 4 mm, see *Figure 3 on page 11*.

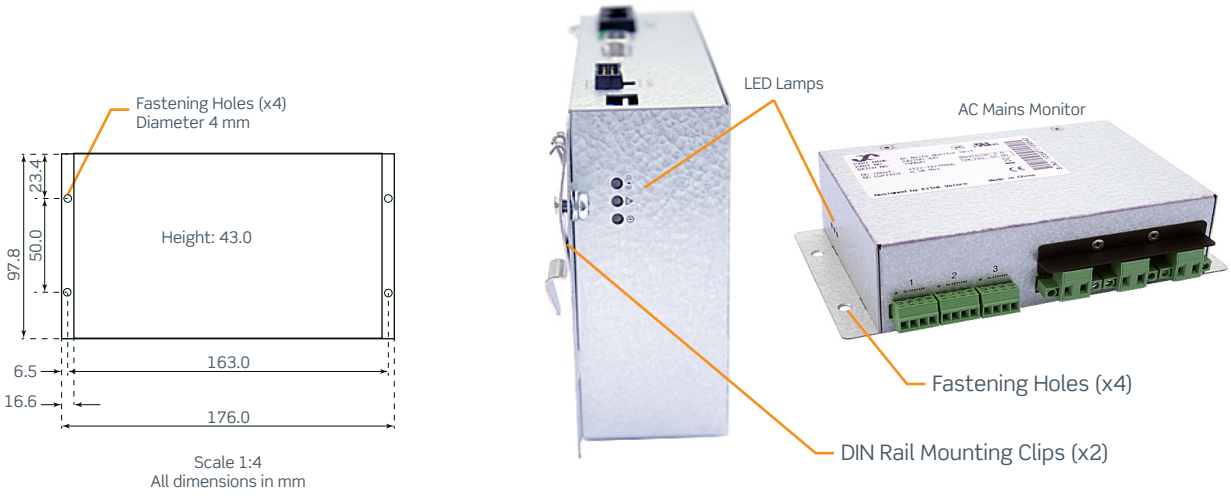


Figure 3. DIN rail or surface mounting the AC Mains Monitor

351508.033.1v2-2016-02

Connection Drawing

Use this drawing as a connection reference for all cabling. You find the exact location of connection terminals, plugs and DIP switches, by referring to chapter *"Location of Connectors, Ports, LEDs" on page 10*.

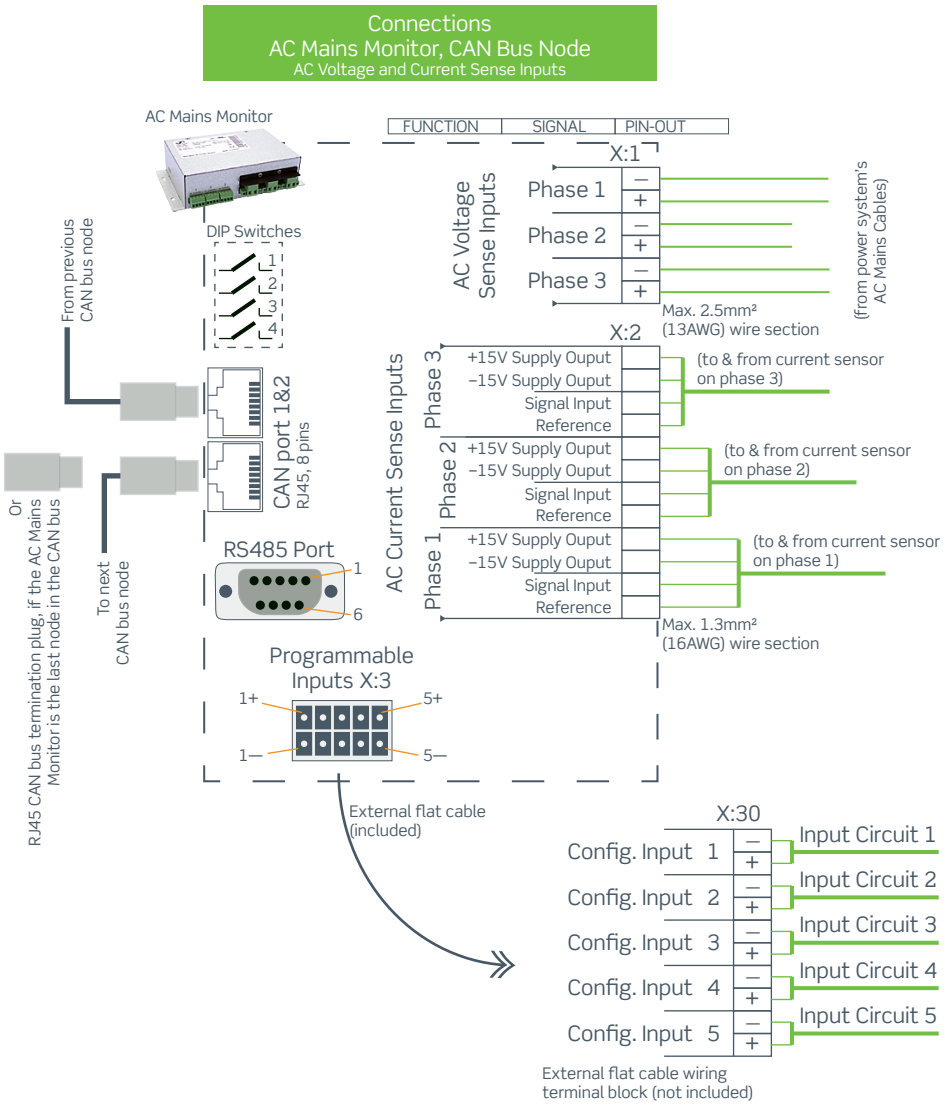


Figure 4. Connection drawing for AC Mains Monitor CAN bus nodes

For information about connecting the Voltage Sense and Current Sense cables to the power system's AC mains, refer to one of the following chapters, to the one that corresponds to the type of AC mains supply used with the power system, e.g. to chapter "AC Mains 3 Phase Delta Connections, IT" if a Delta mains supply is used.

351508.033, 1v2-2016-02

AC Mains 1 Phase Connections

If the power system is supplied from a 1 phase 230VAC mains, connect the *AC Mains Monitor*'s Voltage Sense and Current Sense cables to the power system's AC mains following this connection drawing.

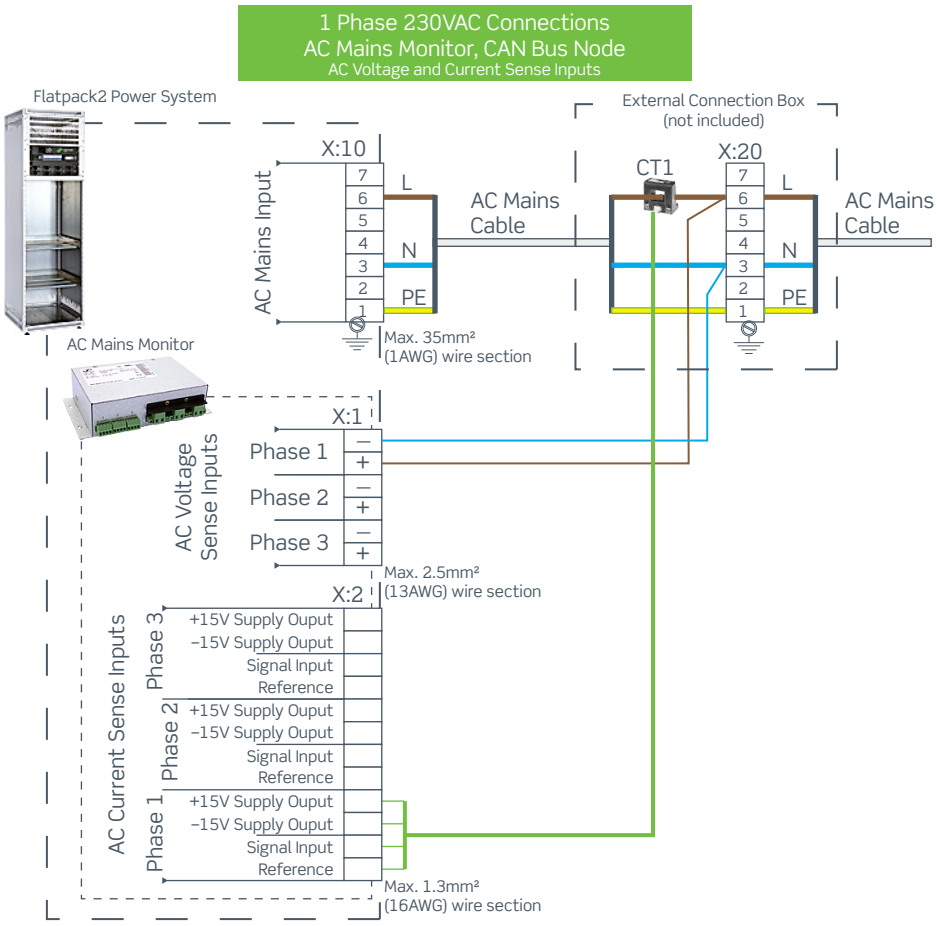


Figure 5. Connection drawing for AC Mains Monitor in 1 phase 230VAC Mains

When the *AC Mains Monitor* is not purchased with the power system, it is advisable to use an external connection box to house a terminal block, X:20, and the current transducer CT1 (e.g. the LEM HAL 100-S).

If suitable, you can instead implement the connections directly on the power system's AC mains input terminals, X:10, inside the cabinet.

WARNING: To avoid damage and obtain the expected system reliability, it is mandatory to always install SPDs in Eltek's power supply systems. In this connection drawing, install the AC side SPDs before terminal block X:20 (right hand side). Also, refer to warning E2, page 2

Current Surge Protection

351508.033.1v2-2016-02

AC Mains 3 Phase Delta Connections, IT

If the power system is supplied from a 3 phase 230VAC mains Delta connection, IT, connect the *AC Mains Monitor*'s Voltage Sense and Current Sense cables to the power system's AC mains following this connection drawing.

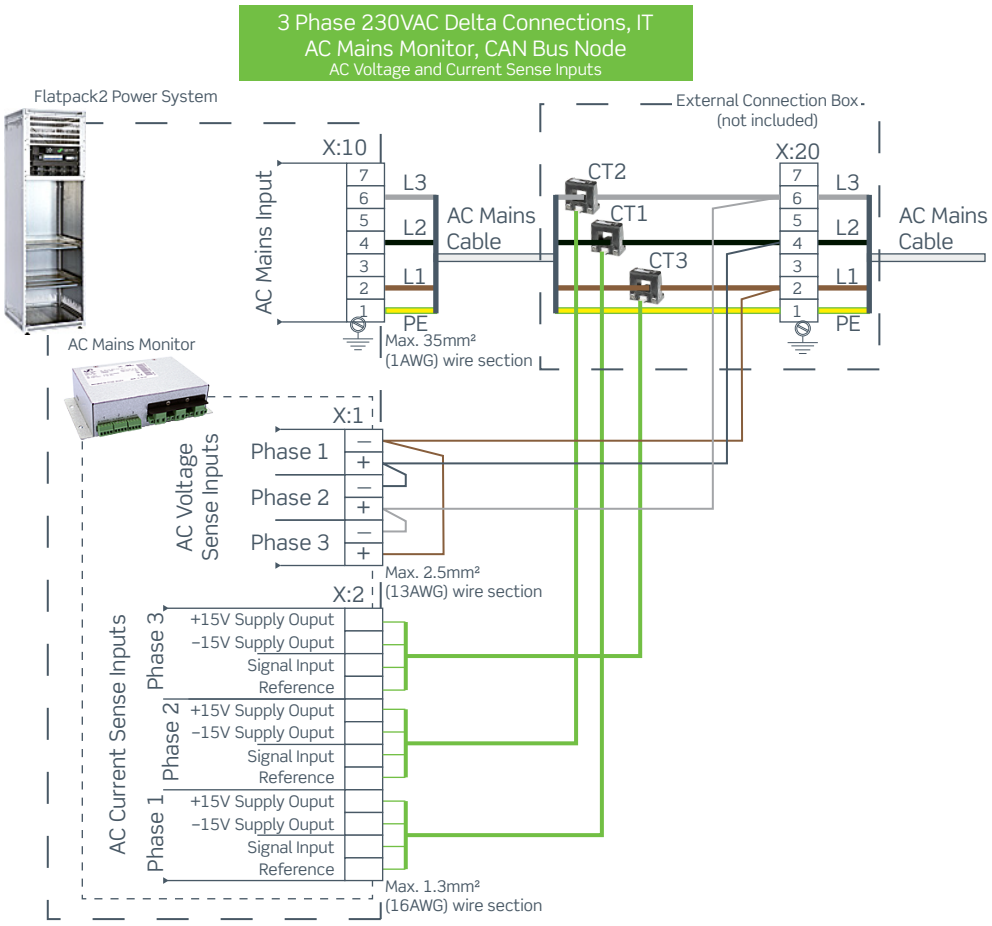


Figure 6. Connection drawing for AC Mains Monitor in 3 phase 230VAC mains Delta Connection, IT

When the *AC Mains Monitor* is not purchased with the power system, it is advisable to use an external connection box to house a terminal block, X:20, and the current transducers CT1, CT2 and CT3 (e.g. the LEM HAL 100-S).

If suitable, you can instead implement the connections directly on the power system's AC mains input terminals, X:10, inside the cabinet.

Current Surge Protection

WARNING: To avoid damage and obtain the expected system reliability, it is mandatory to always install SPDs in Eltek's power supply systems. In this connection drawing, install the AC side SPDs before terminal block X:20 (right hand side). Also, refer to warning E2, page 2

351508.033, 1v2-2016-02

AC Mains 3 Phase Star Connections, TN

If the power system is supplied from a 3 phase 230VAC mains Star connection, TN, connect the *AC Mains Monitor*'s Voltage Sense and Current Sense cables to the power system's AC mains following this connection drawing.

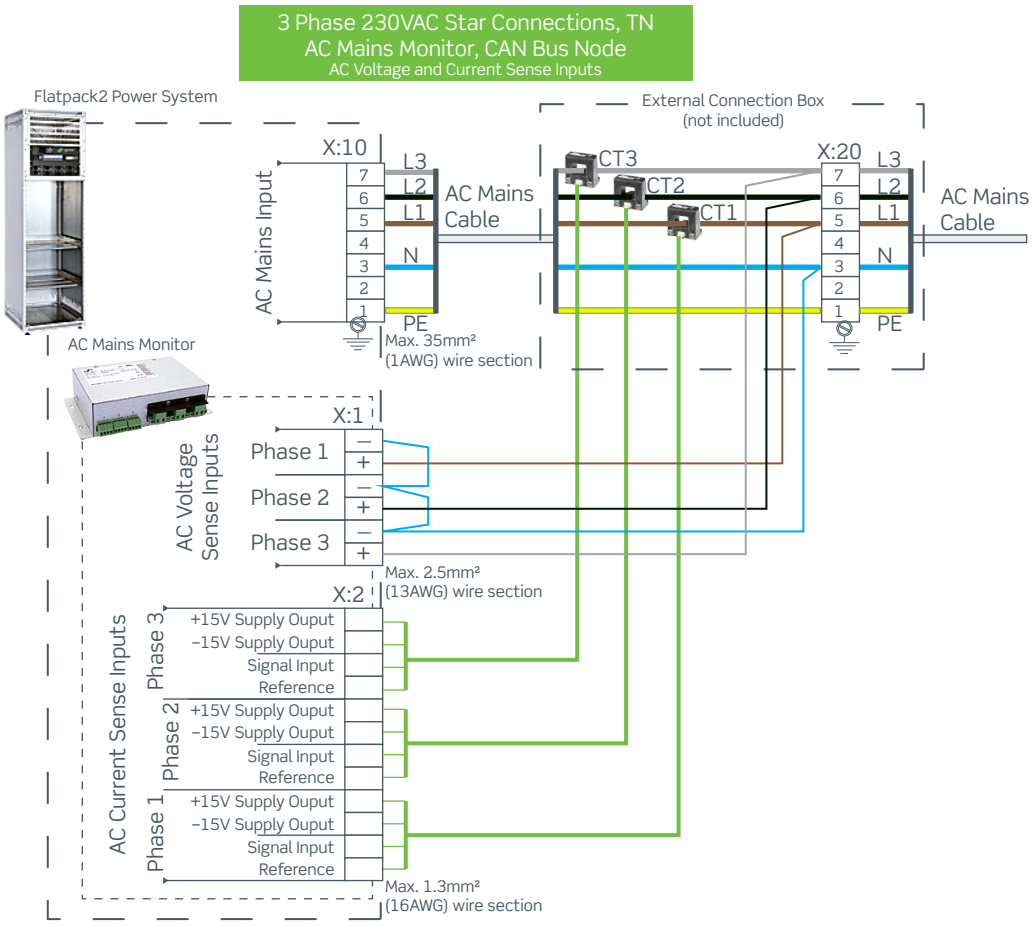


Figure 7. Connection drawing for AC Mains Monitor in 3 phase 230VAC mains Star connection, TN

When the *AC Mains Monitor* is not purchased with the power system, it is advisable to use an external connection box to house a terminal block, X:20, and the current transducers CT1, CT2 and CT3 (e.g. the LEM HAL 100-S).

If suitable, you can instead implement the connections directly on the power system's AC mains input terminals, X:10, inside the cabinet.

WARNING: To avoid damage and obtain the expected system reliability, it is mandatory to always install SPDs in Eltek's power supply systems. In this connection drawing, install the AC side SPDs before terminal block X:20 (right hand side). Also, refer to warning E2, page 2

Current Surge Protection

351508.033.1v2-2016-02

CAN Bus Termination

To ensure a correct bus communication and avoid data reflection, you must always terminate the CAN bus with two 120Ω resistors, one at each end of the line (60Ω bus impedance).

Eltek's power systems are shipped from factory with the CAN bus already terminated with 120Ω resistors. The CAN bus termination is implemented with a special RJ45 plug with built-in 120Ω end-of-line resistor.

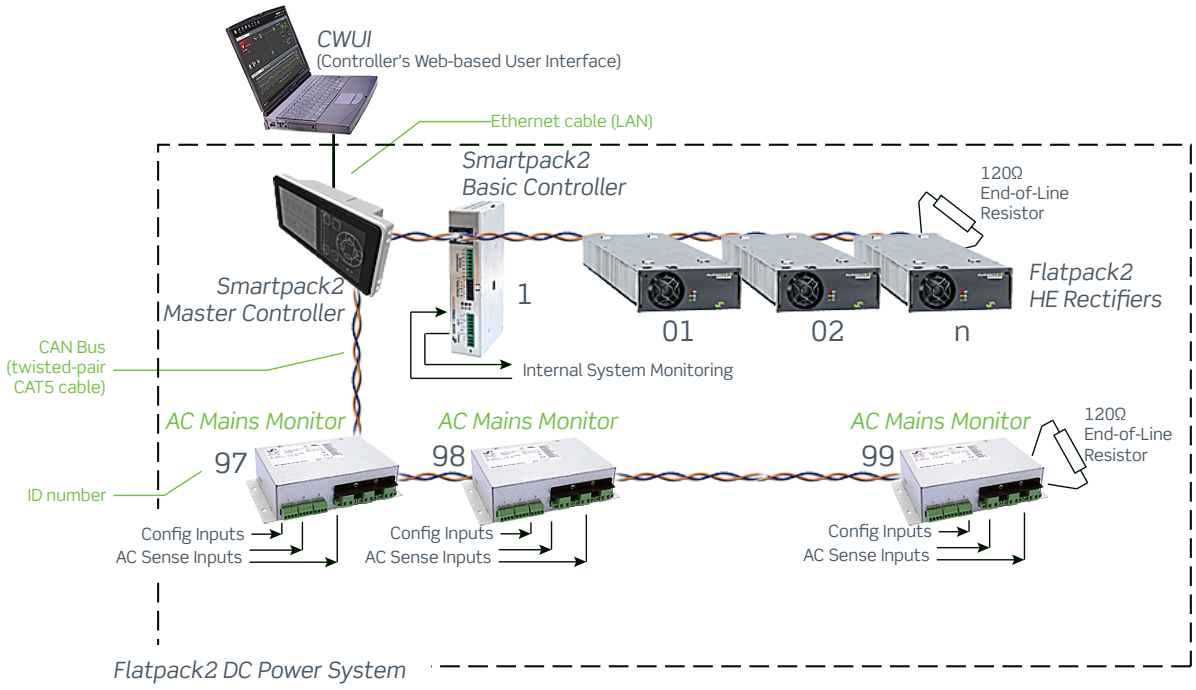


Figure 8. Example of CAN bus addressing and termination in a Flatpack2 system with three AC Mains Monitors connected the CAN bus

When connecting several monitors or nodes to the end of the CAN bus, you have to remove the CAN bus termination plug from the CAN bus end and plug it on one of the CAN ports on the last connected monitor.

You can connect a maximum of 14 *AC Mains Monitor* nodes to the CAN bus, with ID numbers 97, 98...110.

351508.033.1v2-2016-02

Configuration

When the *AC Mains Monitor* CAN bus node is purchased with the power system, the monitor is always installed, configured and calibrated in factory, and needs no further configuration.

When connecting an *AC Mains Monitor* to the CAN bus of already shipped power systems, you have to configure it by carrying out the following:

1. **Setting the DIP switches** with the correct CAN bus address, to assign a unique ID number to the *AC Mains Monitor*, read chapter *"CAN Bus Addressing" on page 17*
2. **Configuring and calibrating the AC Mains Monitor's** operation, using a computer with the PowerSuite application version 3.3 or higher. You must configure and calibrate the *AC Mains Monitor* to work with the connected current transducers. Read chapter *"Configuration in PowerSuite" on page 18*

CAN Bus Addressing

The power system's controller dynamically software-assigns ID numbers to rectifiers. The controller registers the rectifiers' ID numbers — or CAN bus address (01, 02...) — together with their Serial Numbers (software assignment).

Other control units make use of DIP switches for configuring their unique CAN bus ID number (hardware assignment). The ID numbers (97, 98...110) are dedicated to *AC Mains Monitor* nodes, and they are assigned by DIP switches on the nodes' side.

A maximum of 14 *AC Mains Monitor* nodes may be connected to the CAN bus.

AC Mains Monitor	ID #	DIP Switch Position 1 2 3 4
1st Monitor	97	OFF—OFF—OFF—OFF
2nd Monitor	98	**ON** —OFF—OFF—OFF
3rd Monitor	99	OFF— **ON**—OFF—OFF
4th Monitor	100	**ON** — **ON**—OFF—OFF
5th Monitor	101	OFF—OFF—**ON** —OFF
6th Monitor	102	**ON** —OFF— **ON**—OFF
7th Monitor	103	OFF—**ON**— **ON** —OFF
8th Monitor	104	**ON** — **ON**— **ON**—OFF
9th Monitor	105	OFF—OFF—OFF—**ON**
10th Monitor	106	**ON** —OFF—OFF—**ON**
11th Monitor	107	OFF—**ON** —OFF—**ON**
12th Monitor	108	**ON** —**ON** —OFF—**ON**
13th Monitor	109	OFF—OFF—**ON** —**ON**
14th Monitor	110	**ON** —OFF— **ON** —**ON**

AC Mains Monitor
DIP switch configuration
ID <97>
(All Switches OFF)

Note:
The monitor's ID # corresponds to the DIP switch's binary value plus 97

Table 2. DIP switch addressing for AC Mains Monitors

351508.033.1v2-2016-02

Configuration in PowerSuite

To activate, configure and calibrate the *AC Mains Monitor*'s specific settings, use the PowerSuite application. For example, using PowerSuite you connect to the power system's controller, either via an Ethernet connection or via USB port, if accessible.

In general, the connected *AC Mains Monitor* node(s) are displayed in the PowerSuite's Power Explorer pane, under the Mains node (1) and under the Control System node (1b), see *Figure 9 on page 18*.

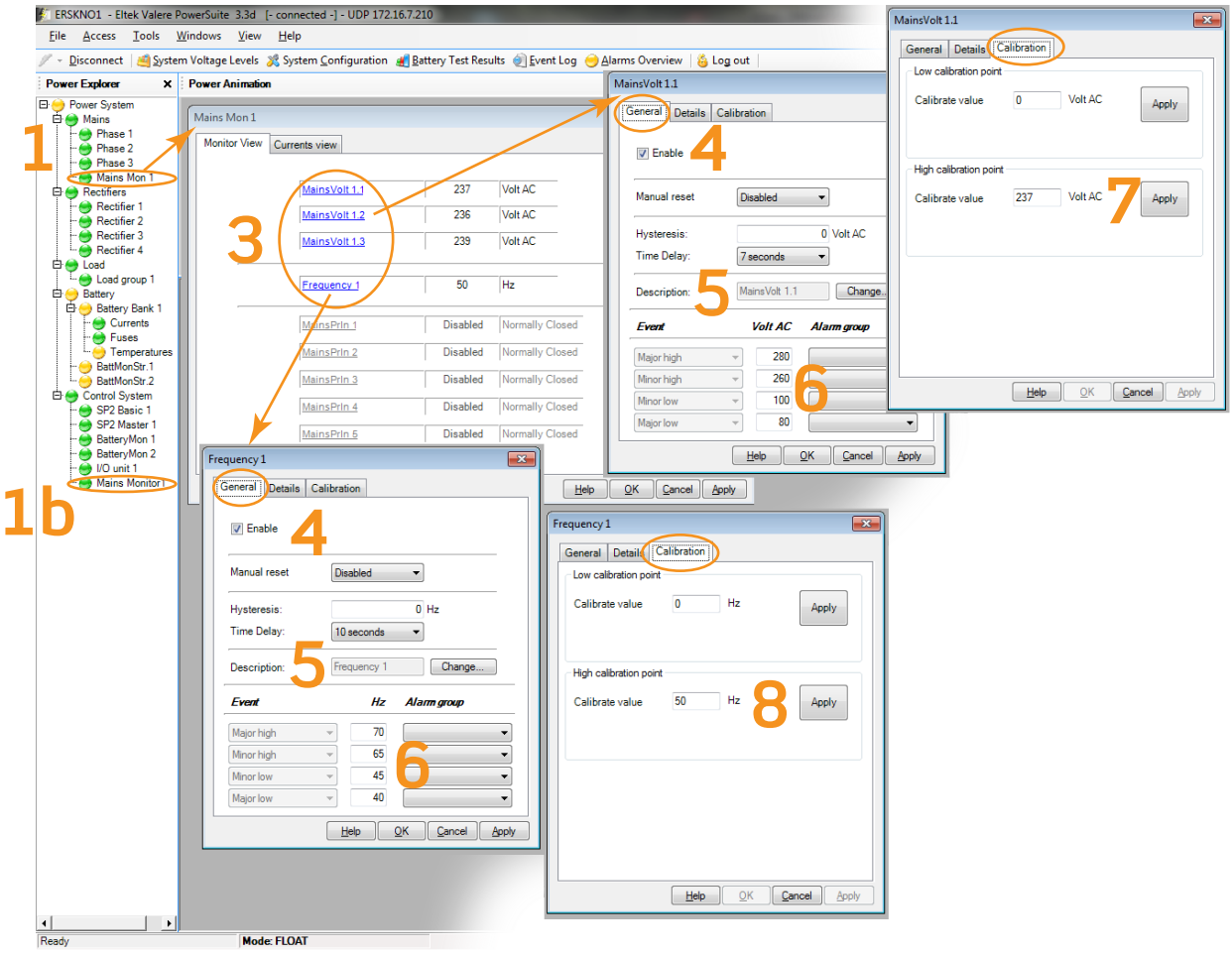


Figure 9. Example of configuration in PowerSuite of AC Mains Monitor's voltage sense inputs

For configuring the AC Mains Monitor's Voltage Sense inputs:

A. Double-click on the "Mains Mon X" icon under the Mains node (1)

B. In the Monitor View tab, click on the alarm monitor links (3) "MainsVolt 1.1", "MainsVolt 1.2", "MainsVolt 1.3" and "Frequency 1", one at a time, then configure and calibrate them.
In short: Enable the input (4), change the description (5), select the input activation type (or event or system internal action), the alarm output group (or relays to activate) (6), the high calibration point (e.g. 237VAC for the phase voltage (7) and 50Hz for frequency (8)), etc.

351508.033.1v2-2016-02

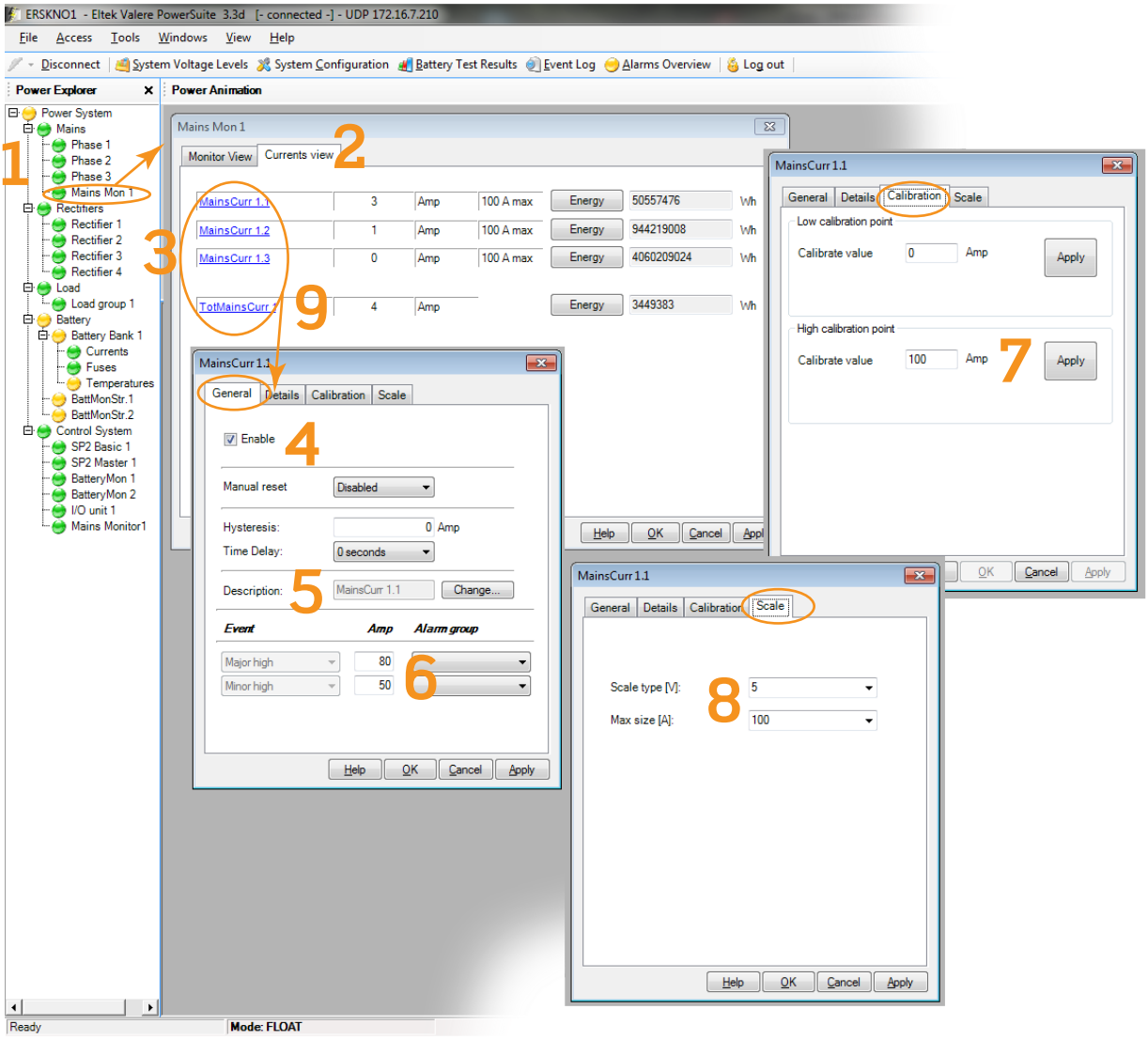


Figure 10. Example of configuration in PowerSuite of AC Mains Monitor's current sense inputs

For configuring the AC Mains Monitor's Current Sense inputs:

A. Double-click on the "Mains Mon 1" icon under the Mains node (1)

B. Click on the Currents View tab (2), then click on the alarm monitor links (3) "MainsCurr 1.1", "MainsCurr 1.2", "MainsCurr 1.3" and "TotMainsCurr 1", one at a time, then configure, calibrate and scale them;
In short: Enable the input (4), change the description (5), select the input activation type (event or system internal action), the alarm output group (or relays to activate) (6), the high calibration point (e.g. 100A phase current (7)), the sensor rating scale (e.g. 5V and 100A max. (8)), etc.

Notice:
If you have increased the sensor's signal strength by threading the AC cable several times through the current sensor, the signal voltage output will be double for 2 turns, triple for 3 turns, etc.

351508.033.1v2-2016-02

For example, if the sensor's nominal current is In=100A, its signal output is 5Vp-p at nominal current and you have threaded the cable 2 turns through the sensor, then you must enter 10 in the "Scale type [V]:" field and 100 in the "Max size [A]:" field (8)

The "TotMainsCurr nn" alarm monitor (9) does not really measure the AC current, but generates alarms based on the addition of the current measurements performed by the individual "MainsCurr X.X" alarm monitors (3).

351508.033, 1v2-2016-02

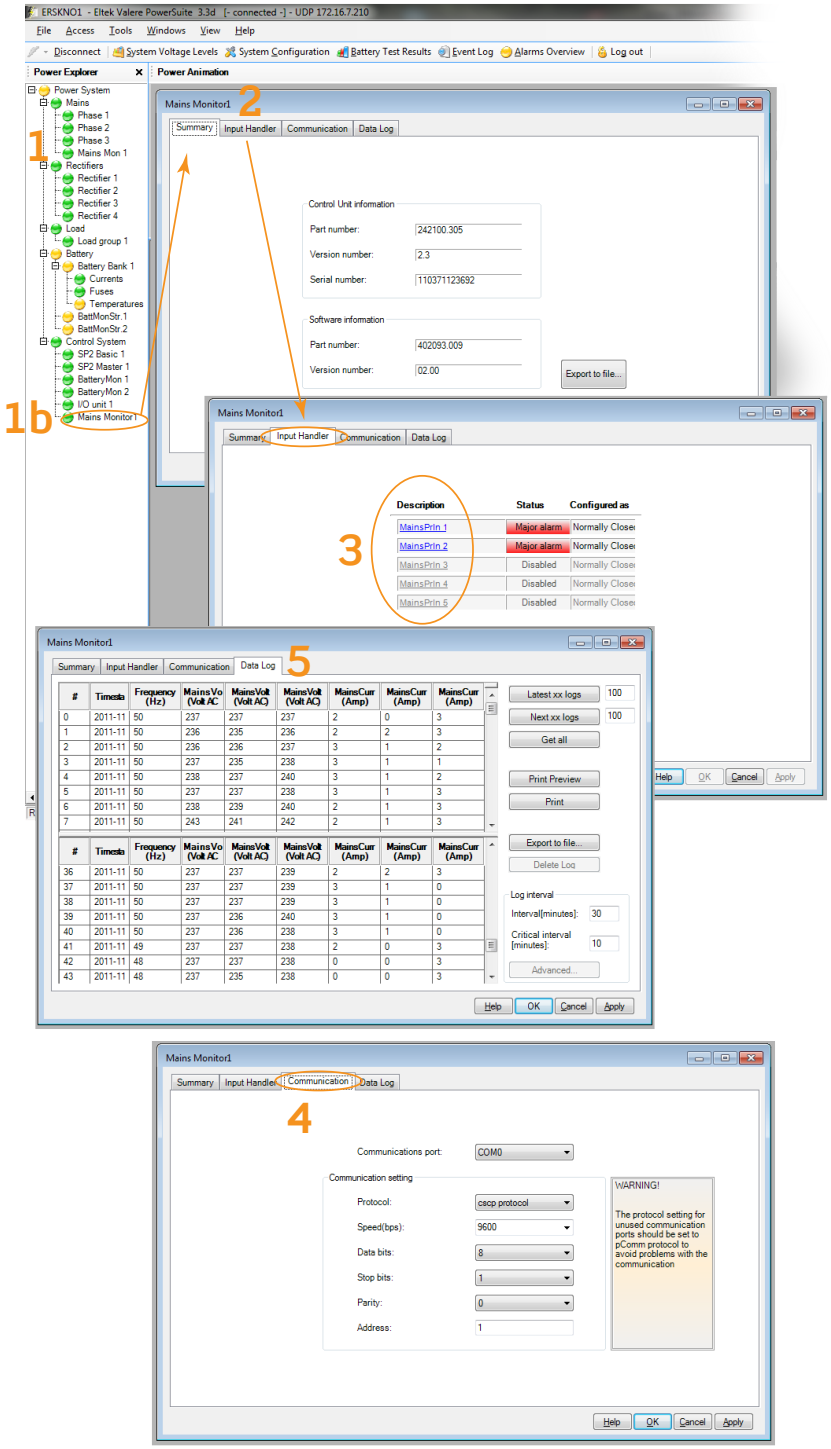


Figure 11. Example of configuration in PowerSuite of AC Mains Monitor's programmable inputs

For configuring the AC Mains Monitor's programmable inputs: (if in use)

A. Double-click on the "Mains Monitor 1" icon under the Control System node (1b)

B. Click on the "Input Handler" tab (2)

C. Click on the alarm monitor links (3) "MainsPriln 1", "MainsPriln 2", etc, one at a time, then configure them;
In short: Enable the input, change the description, select the input

activation type (event or system internal action), the alarm output group (or relays to activate, and in the Configuration tab, the relay contact status (normally close or open), etc.

You can also configure the *AC Mains Monitor*'s programmable inputs from the "Mains Mon 1" icon under the Mains node (1).

Contact *Eltek* Service Department, if you need to configure the *AC Mains Monitor*'s RS485 serial port (4) for specific communication requirements.

For more detailed description of how to configure the CAN Bus nodes, read the PowerSuite application's Online Help.

351508.033.1v2-2016-02

4. Technical Specifications

The technical specifications for the *AC Mains Monitor* CAN node described in this chapter may have being updated or improved.

Refer to *Eltek*'s data sheet number 241120.200.DS3, that you can download from our web site, to read the monitor's latest and freshest technical specifications.

AC Mains Monitor	
Current Sensor Inputs	3 inputs (for LEM HAL or equivalent) • Sensor reference:.....0 V • Signal:.....0 – 4 V_{P-P} (45 - 65 Hz) • Sensor supply– : .....–15 V • Sensor supply+ : .....+15 V
Voltage Sense Inputs	3 inputs • Signal:.....0-300 V_{RMS}(45-65 Hz)
Digital Inputs	5 configurable (for monitoring external equipment) NC/NO, Pull Up/Down, Diode Matrix and analog 0—60V
Communication Ports	• CAN Port, Max. CAN power consumption: 300mA • RS485 Serial Port, CSCP protocol
Firmware Part No	402093.009
Functionality	• Energy log (non-volatile memory) of each phase and total (max 200A per phase) Last 52 hours Last 52 days Last 52 weeks • Data log with up to 5000 samples with timestamp (default: V_{AC}, I_{AC} and frequency)
• Dimensions	176 x 97.6 x 42.8 mm (WxDxH) (6.93 x 3.84 x 1.69")

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) • GREEN: Power, YELLOW: Warning, RED: Alarm (Flashing LED: insufficient power)
SW Upload tools	Smartpack2 Master through CAN or FWLoader (Ver ≥3.25) and IXXAT USB-to-CAN Converter (p/n: 208565)
Casing material	Plastic - V0 rated / Steel (CAN Power)
Operating Temp	-40 to 70°C (-40 to 158°F)
Storage Temp	-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 No.:	Description
242100.305	*AC Mains Monitor*

241120.200.DS3, v4 (part of)

Specifications are subject to change without notice

351508.033.1v2-2016-02

www.eltek.com

Headquarters: **Eltek**
Visitor address: Gråterudveien 8, 3036 Drammen, Norway
Phone: +47 32 20 32 00 Fax: +47 32 20 32 10