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For software V1.3

7.4.1998 ArKa

D30013Be
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# LABKO ME-3 Intelligent Interface

# Installation and user manual

The contents, descriptions and specifications within this manual is subject to change without notice. Oy LABKOTEC Ab accepts no responsibility for any errors that may appear in this manual.

## SOFTWARE REQUIREMENTS FOR PROBES

The LABKO 2000 level probes must have software version V3.2 or newer.

## ELECTRICAL INSTALLATION

The cabling between the LABKO 2000 probes and the barrier units PS-12 is described in the “LABK0-2000 SYSTEM DESCRIPTION”-manual.

The cabling of the PS-12's to ME-3 is described in the figure “ME-3 CONNECTION TO PS-12”.

The digital outputs are used for alarm indication. The outputs are “open collector”-type and each can drive 0.2A. The output drivers need a power supply: 15...30V DC. The current consumption is < 100 mA. The same power supply is also used for the loads. See figure “ME-3 OPTIONAL I/O".

## CONFIGURING THE ME-3

The ME-3 can be configured by two ways: a simple configuration by ME-3 keyboard or a full configuration with ME3 configuration software (included in delivery).

### Simple configuration

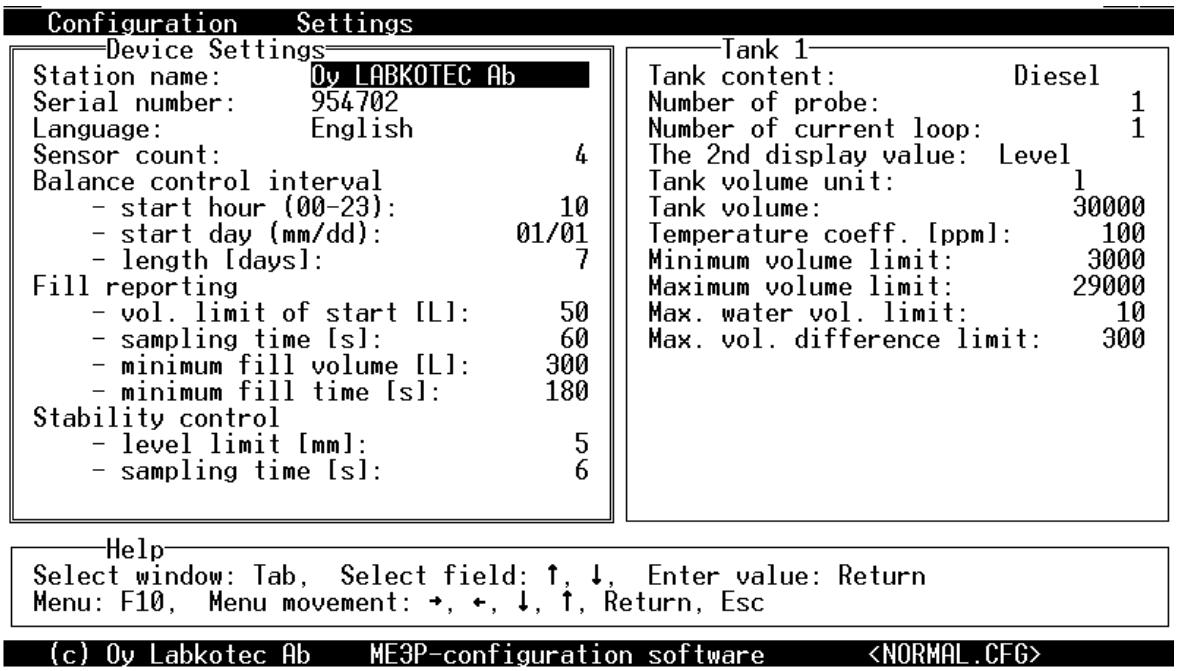
A simple configuration can be carried out by ME-3 keyboard using the following options in the **Settings** menu (described later in this manual): **Setting number of probes**, **Setting the alarm limits** and **Setting date and time**. This configuration method requires that the probes are numbered 01, 02, ... and that they are connected to current loop 1. The name of the procuct to be shown in the display is left blank.

### Full configuration

The ME3 configuration software is used to make a full configuration to the ME-3. The software runs on a normal DOS PC and communicates with ME-3 through serial port.

The serial port (1 or 2) of the PC is connected to the serial port 1 of the ME-3 according to figure “ME-3 OPTIONAL I/O".

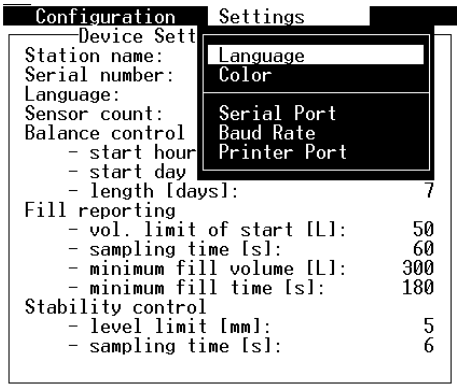
The software can be used from diskette or it can be copied to hard disk and be used from there. The software is started by typing ME3.




Key functions

| | |
|---|---|
| **TAB** | Move between **Device settings** window and **Tank** data windows |
| ⇑⇓ | Move between fields |
| **F10** | Activate menu |
| ⇑⇓⇒⇐ | Menu movement |
| **ENTER** | Activate menu choice |

Menuchoice: Settings




Necessary settings are:

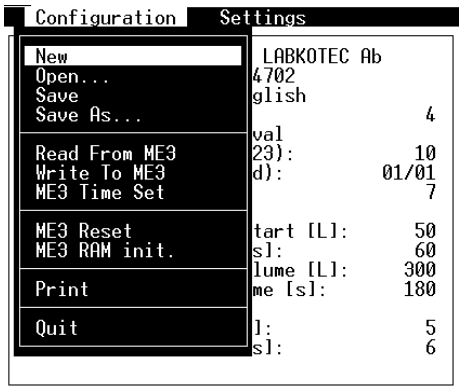
| | |
|---|---|
| Serial port | PC's communication port to ME-3 (COM1 or COM2) |
| Baud rate | 300 (default, must be set to the same value as the serial port 1 speed in ME-3) |

Optional settings are:

| | |
|---|---|
| Language | English or Finnish |
| Color | b/w or color |

| | |
|---|---|
| Printer port | LPT1...3 |

Menuchoice: Configuration




Configuration File Commands

| | |
|---|---|
| New | Open the default configuration file (NORMAL.CFG) |
| Open | Opens a selection list of configuration files |
| Save | Saves the current configuration to file |
| Save As... | Saves the current configuration to file with new name |

Parameter read/write Commands

| | |
|---|---|
| Read from ME3 | Reads the configuration parameters from ME3 |
| Write to ME3 | Writes the current configuration to ME3 |
| ME3 Time Set | Sets the time and date to ME3 |

ME-3 Initialization Commands

| | |
|---|---|
| ME3 Reset | Reboots ME-3 (hardware reset) |
| ME3 Ram init. | Initializes the data memory in ME-3 (clears alarms etc.) |

Other commands

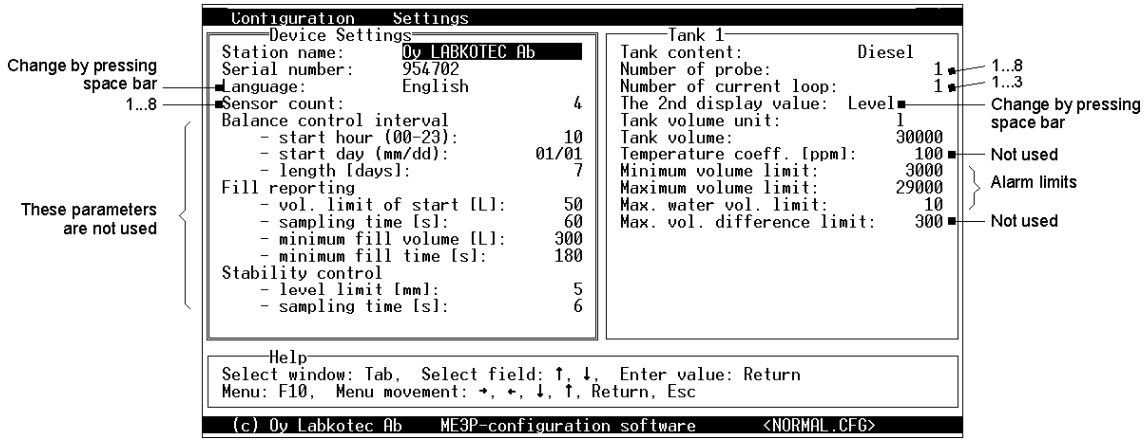
| | |
|---|---|
| Print | Print the current configuration file to printer connected to PC |
| Quit | Exits the software |

Setting the parameters

When making the configuration for the first time, the next steps must be carried out:

1. Read the parameters from ME-3 (Configuration, Read from ME3).

2. Change the parameters in **Device Settings** and **Tank** data windows. Take care to set the correct probe number and correct current loop number (the probes are normally all connected to loop 1). There are some parameters that are not used in this software version of ME-3.




3. Write the configuration back to ME-3 (Configuration, Write to ME3).

4. Set the date and time to ME-3 (Configuration, ME3 Time Set).

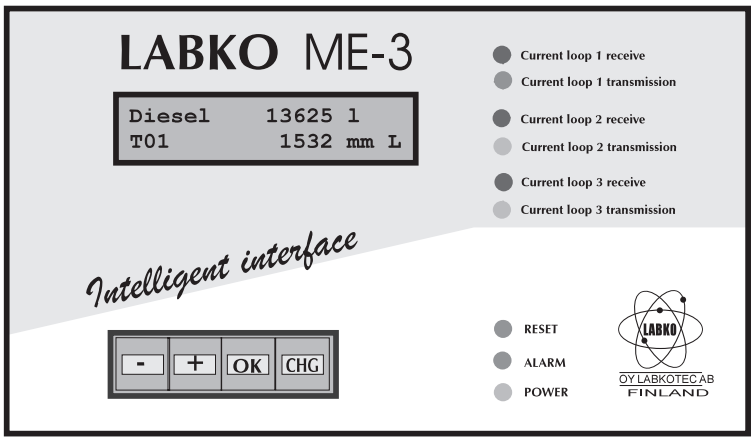
5. Initialize ME-3 data (Configuration, ME3 Ram init.).

6. Reset ME-3 (Configuration, ME3 Reset).

7. Save the configuration to a file for later use (Configuration, Save As...).

The parameters can later be changed, but the step 5 is not needed.

USING ME-3




Tank display

In the first row there are the tank contents and the volume of the product. The value displayed on the lower row can be changed by pressing the CHG-key. The character at the lower right corner indicates the displayed value: L=product level, T=temperature, W=water level. T01 means tank number 1.

The alarms are indicated by characters after the tank number: L=low volume alarm, H=high volume alarm and W=water high level alarm. If there is a probe communication error, the values in the upper and lower row are replaced with dash lines. When the level probe exceeds it's measuring range, the level and the volume values are replaced with stars (******).

The displays for each tank can be browsed with PLUS- and MINUS-keys.

If no key is pressed within 2 minutes, the display goes back to the first tank display and the backlight of the display goes off. In this state the first key press activates the backlight and only the second key press activates the function.

Main menu

The main menu is activated by pressing the OK-key. Menu items are browsed with PLUS- and MINUS-keys. The main menu functions are ALARM BROWSING, SETTINGS, RETURN TO TANK BROWS. The function is activated by pressing the OK-key. To get back to tank browsing, the OK-key must be pressed on the RETURN TO TANK BROWS item.

Alarm browsing

The information of the last alarm is displayed first: alarm type, date, time, tank number and tank contents. The alarm types are: LOW=low volume alarm, HI=high volume alarm, WTR=water high level alarm, OVR=level over range alarm and COM=probe communication error. There is an asterisk (*) after the tank number, if the alarm is not acknowledged. The alarm is acknowledged by pressing the OK-key. The alarms can be browsed by PLUS- and MINUS-keys. To get back to main menu, the OK-key must be pressed on the RETURN TO MAIN MENU item.

## Settings

In the settings menu there are the following functions: ALARM LIMITS, DATE / TIME, LEVEL SETTING, LEVEL RESOLUTION, SERIAL PORT 1 SPEED, DIRECT CONNECTION, NUMBER OF PROBES and RETURN TO MAIN MENU. The functions are browsed with PLUS- and MINUS-keys and activated by pressing OK-key.

## Setting the alarm limits

In this display are shown the values for different alarm limits (one display per tank). Tank number 1 is displayed first. The tank can be selected by pressing the PLUS- or MINUS-keys.

The limit values are WTR=water high level, HI=high volume, LOW=low volume. The value to be changed is selected by pressing the CHG-key. To change the value, OK must be pressed. The digit is selected by pressing CHG, incremented by PLUS and decremented by MINUS. The value is accepted by pressing the OK-key. To go to next/previous tank, press PLUS/MINUS. Pressing OK on the RETURN TO SETTINGS item returns to settings menu.

## Setting date and time

In this display the date is shown in the first row (day.month.year) and the time in the second row (hours:minutes). The value to be changed is selected by pressing the CHG-key. The value is incremented by the PLUS-key and decremented by the MINUS-key. When all values are correct, the date/time is accepted by pressing the OK-key.

## Level setting

In this display the level value of a tank can be adjusted. On the lower row there are the number of the tank and the level value in mm. Tank number 1 is displayed first. The tank can be selected by pressing the PLUS- or MINUS-keys. To exit press CHG.

To change the value press OK. The digit is selected by pressing CHG, incremented by PLUS and decremented by MINUS. The changed value is accepted by pressing the OK-key. The device asks for confirmation: SET THE LEVEL?. The setting is accepted by pressing OK or discarded by pressing CHG.

Pressing OK on the RETURN TO SETTINGS item returns to settings menu.

## Setting level resolution

In this display the level display resolution can be set to 0.1 or 1 mm. The resolution is changed by pressing the PLUS-key and is accepted by pressing OK.

Setting serial port 1 speed

In this display the communication speed of the serial port 1 can be changed. The speed is changed by the PLUS-key and accepted by the OK-key. The selectable communication speeds are 300, 1200, 2400, 4800 and 9600 bauds.

Direct connection

With this function the serial port 1 of the ME-3 is directly connected to current loop 1. By this way a PC connected to serial port 1 can be used to carry out setup and other commands to the probes (by **LABKO 2000 Installation software** or a terminal software).

To exit from direct connection mode press OK. After that ME-3 resets itself. A reset is also done automatically, if there is no communications within five minutes.

Setting the number of probes

The number of probes connected to ME-3 can be changed in this display. The number of probes can be from 1 to 8. The probes are supposed to be connected in the current loop 1 and their numbers are 01, 02, etc. To exit press CHG.

The number of probes can be changed by the PLUS- and MINUS-keys and it is accepted by OK. The device asks for confirmation: SET NUMBER OF PROBES?. The setup is accepted by the OK-key and discarded by the CHG-key. After making the setup the ME-3 resets itself.

LED INDICATORS

CURRENT LOOP X TRANSMISSION
Flashes when a command is sent to a probe in this current loop

CURRENT LOOP X RECEIVE
Flashes when a probe in this loop answers

| | |
|---|---|
| RESET | Flashes once when ME-3 is resetting the hardware (after connecting the mains supply) |
| ALARM | Flashes when new alarm(s), constantly on when active (and acknowledged) alarm(s) |
| POWER | Lit when mains supply is connected |

SERIAL PORTS

The serial port 1 is used for configuring the ME-3, as described before. The serial ports 1 and 2 can also be used to communicate with the LABKO-2000 probes, because the ME-3 acts like direct connection to the probes when using the normal ILS-protocol, which is described in the user manual of the probe. The communication parameters for port 2 are: 300 bauds, 8 data bits, 1 stop bit, no parity, no handshake (3-wire interface: RxD, TxD, Gnd). The parameters for port 1 are the same, but the speed can be changed as described in **Setting serial port 1 speed**.

The serial ports can be used for different purposes, for example:

- probe settings with LABKO 2000 Installation software or with a terminal software (ProComm etc.)
- local monitoring of the fuel tanks with LMS8 software
- remote monitoring with LMS800 software

Addition to ILS-protocol

The alarm state of each probe can be read with the command:

**MLn$_1$n$_2$<CR>**

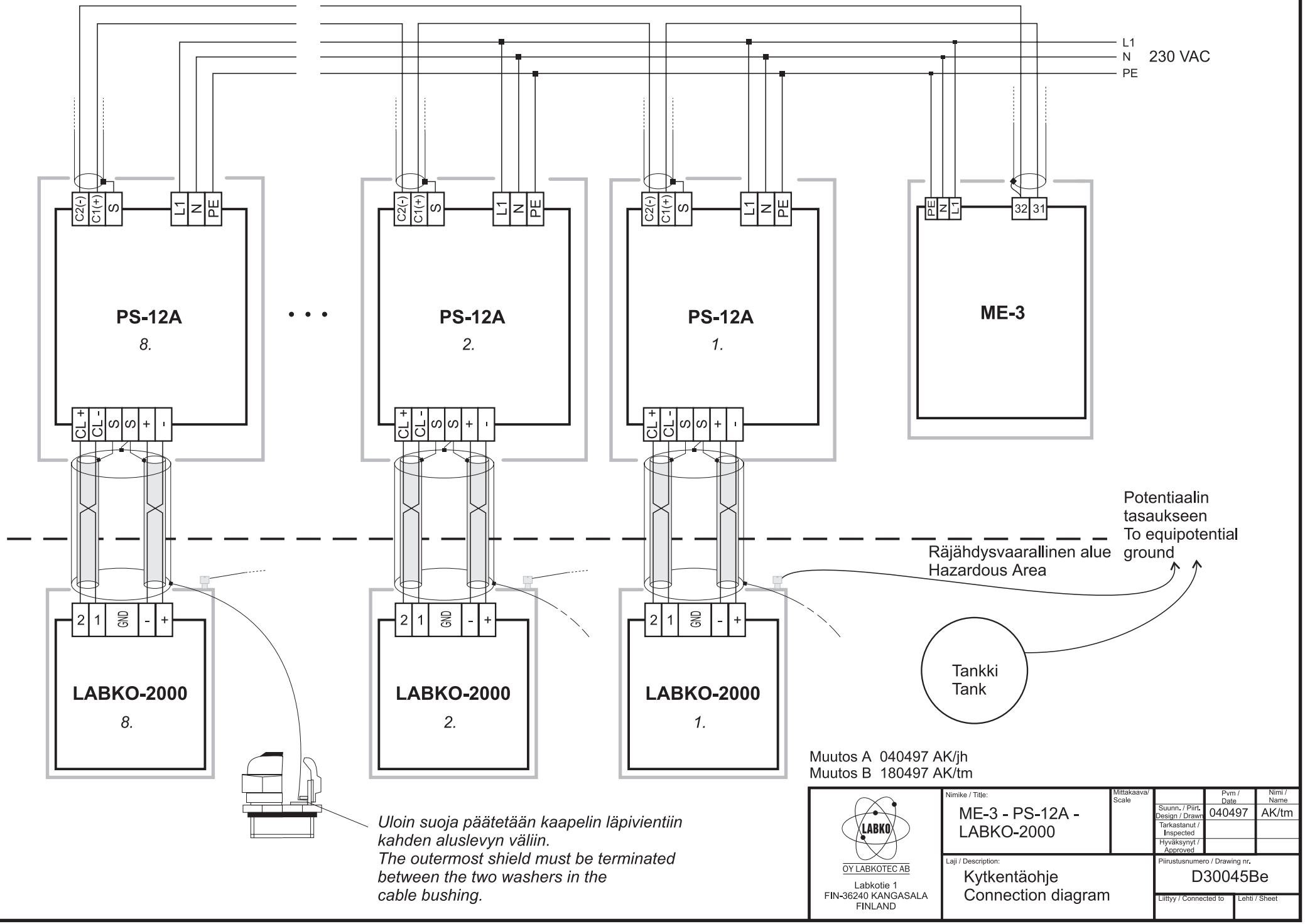
Response:

**#sss<CR>**

where sss is the sum of the corresponding value of the active alarm (in decimal numbers, always three digits):

1 low volume alarm
2 high volume alarm
4 water high level alarm
16 communication alarm
32 over range alarm

For example: high volume and water high level alarms are active, sss is 006.




Muutos A 040497 AK/jh
Muutos B 180497 AK/tm

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Nimike / Title: ME-3 - PS-12A - LABKO-2000

Mittakaava/ Scale

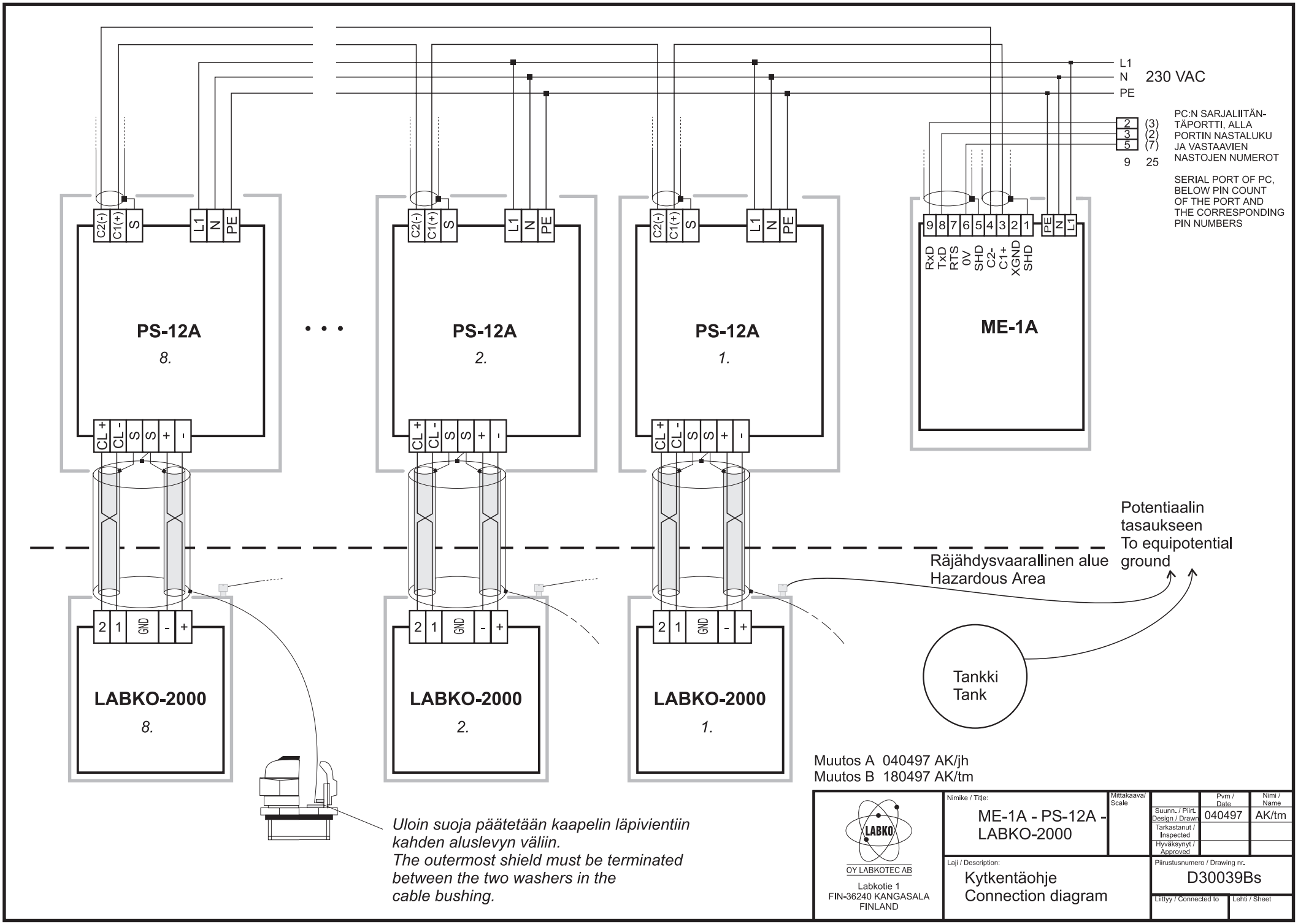
| | Pvm / Date | Nimi / Name |
|---|---|---|
| Suunn. / Piirt. Design / Drawn | 040497 | AK/tm |
| Tarkastanut / Inspected | | |
| Hyväksynyt / Approved | | |

Laji / Description: Kytkentäohje Connection diagram

Piirustusnumero / Drawing nr. D30045Be

Liittyy / Connected to

Lehti / Sheet

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Muutos B 180497 AK/tm

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Nimike / Title: ME-1A - PS-12A - LABKO-2000

Mittakaava/ Scale

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|---|---|---|
| Suunn. / Piirt. Design / Drawn | 040497 | AK/tm |
| Tarkastanut / Inspected | | |
| Hyväksynyt / Approved | | |

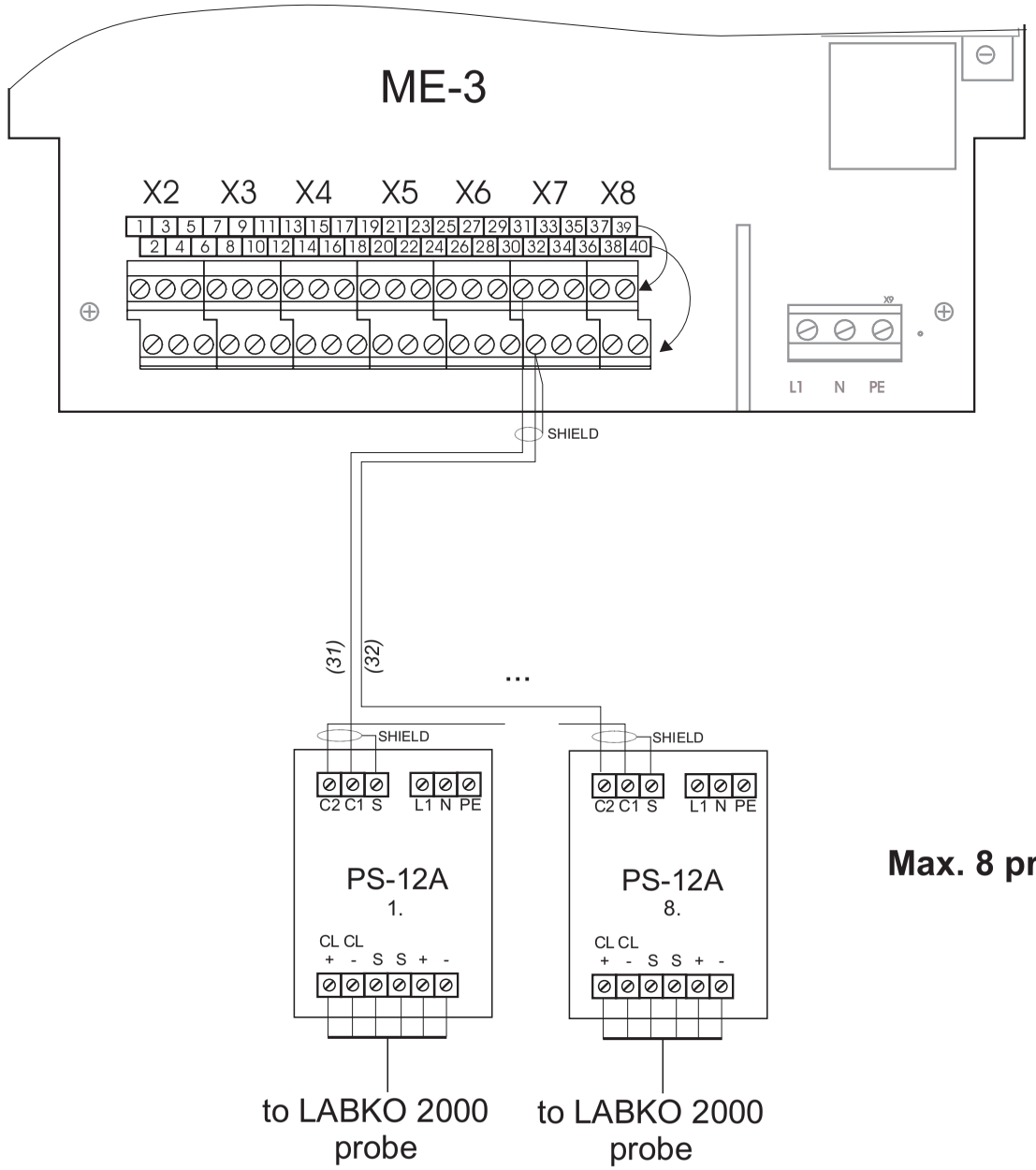
Laji / Description: Kytkentäohje
Connection diagram

Piirustusnumero / Drawing nr. D30039Bs

Liittyy / Connected to

Lehti / Sheet

| | | | |
|---|---|---|---|
| 2 | DI1 | 1 | DI0 |
| 4 | DI3 | 3 | DI2 |
| 6 | DI5 | 5 | DI4 |
| 8 | DI7 | 7 | DI6 |
| 10 | DO7 | 9 | 24V+ (ext) |
| 12 | DO6 | 11 | DO4 |
| 14 | DO5 | 13 | DO2 |
| 16 | DO3 | 15 | DO0 |
| 18 | DO1 | 17 | RGND |
| 20 | FI+ | 19 | R+ |
| 22 | SGND | 21 | FI- |
| 24 | RXD1 | 23 | TXD1 |
| 26 | CTS | 25 | RTS |
| 28 | RXD2 | 27 | TXD2 |
| 30 | GND (ext) | 29 | GND |
| 32 | CL1 | 31 | CL+1 |
| 34 | CL2 | 33 | CL+2 |
| 36 | CL3 | 35 | CL+3 |
| 38 | +24V (out) | 37 | +24V (out) |
| 40 | 24V GND (out) | 39 | 24V GND (out) |




**Max. 8 probes per ME-3 !**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# ME-3 CONNECTION TO PS-12A


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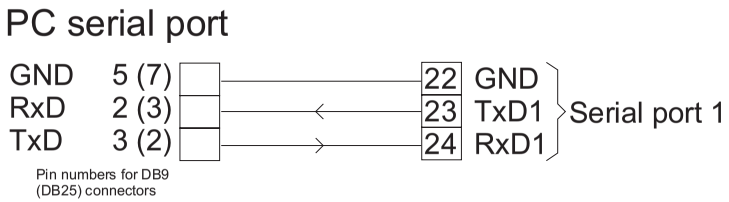


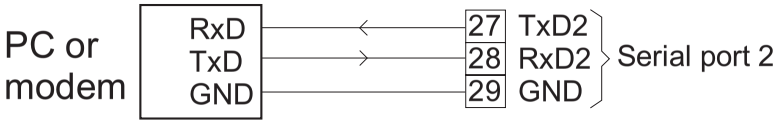


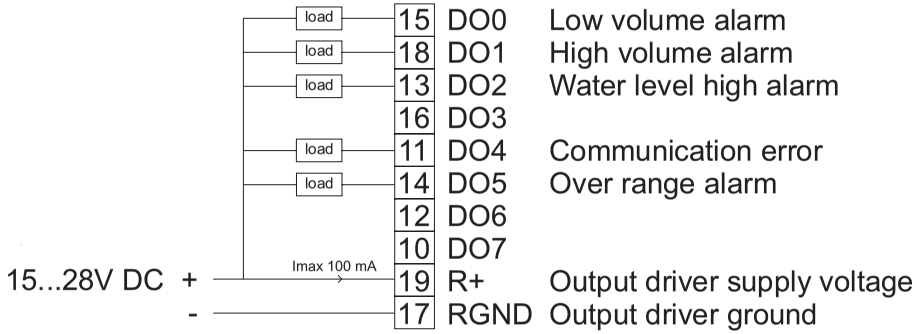


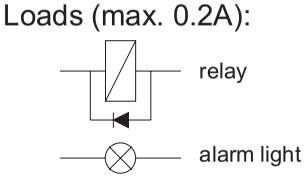


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# ME-3 OPTIONAL I/O

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