Nokeval
made to measure

PM10A chassis
PM20A chassis
PM10UNI2A dual analog input
PM10OUT2A dual analog output
PM10REL2A dual relay output
PM10POW24SA 24 VDC power supply

PM10A and PM20A

Quick Manual

Document ID 6381 V16 15.4.2016

Introduction

This is a quick manual covering only the most fundamental usage of the Nokeval PM10 modular panel meter family. For further information, please download the following manuals from http://www.nokeval.com/:

- PM10 system manual introducing the family.
- PM10A or PM20A manual depending on which chassis you have.
- A manual for each card you use, e.g. PM10UNI2A.

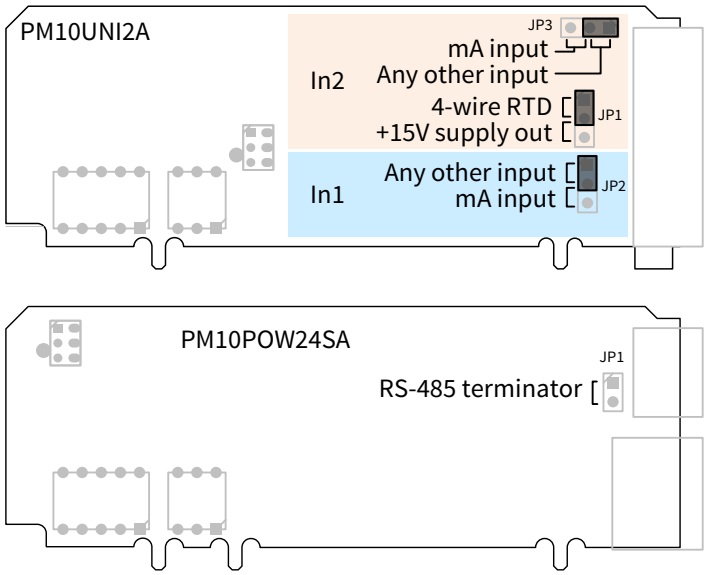
The system uses the FreeRTOS real-time operating system. The source code is available from Nokeval on request, please contact support@nokeval.com.

Setting the jumpers

The jumpers need to be set in the following cases, except when the device is ordered pre-configured:

- A current (mA) input signal is used on the PM10UNI2A card.
- The transmitter supply (+15V out) is used on the PM10UNI2A card.
- Serial bus termination is desired on the PM10POW24SA card – it is the last device on the RS-485 bus.

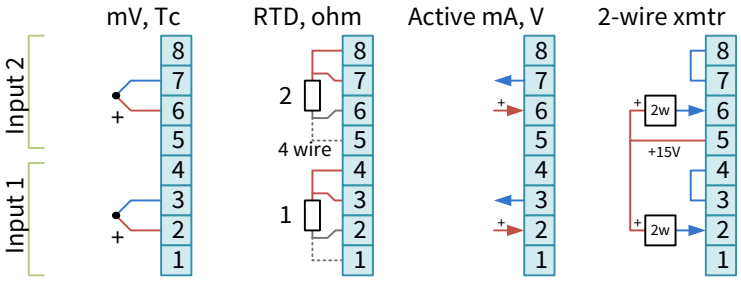
To set the jumpers, disconnect all the detachable connector blocks, push the front panel off, and slide out the circuit boards. In PM20A, remove the four screws on the top and bottom ends of the spacers to allow accessing the cards.



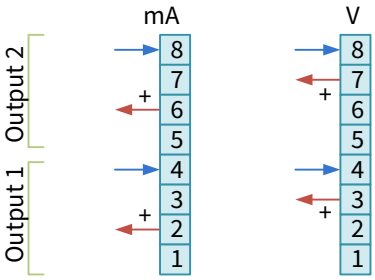
Connecting

- ⚠ A hazardous voltage must never be connected to a green terminal block.
- Green = SELV circuit
- Gray = live circuit, up to 265 VAC/VDC

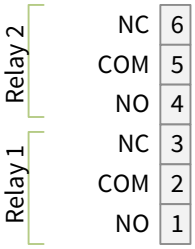
PM10UNI2A – analog input



PM10OUT2A – analog output

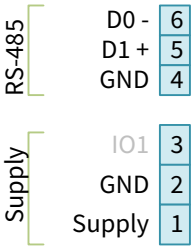


PM10REL2A – relay output



Max 250 VAC
2 A

PM10POW24SA, PM10POW24A – power supply



Supply voltage 24 VDC ±15 %, max 15 W. An external fuse is not required, but if one is used, it should be at least 1 AT.

If there is hazardous voltage in any connector, please tie all the wires so that they can't touch the neighbor connector even if one wire comes loose.

Configuring on the front panel

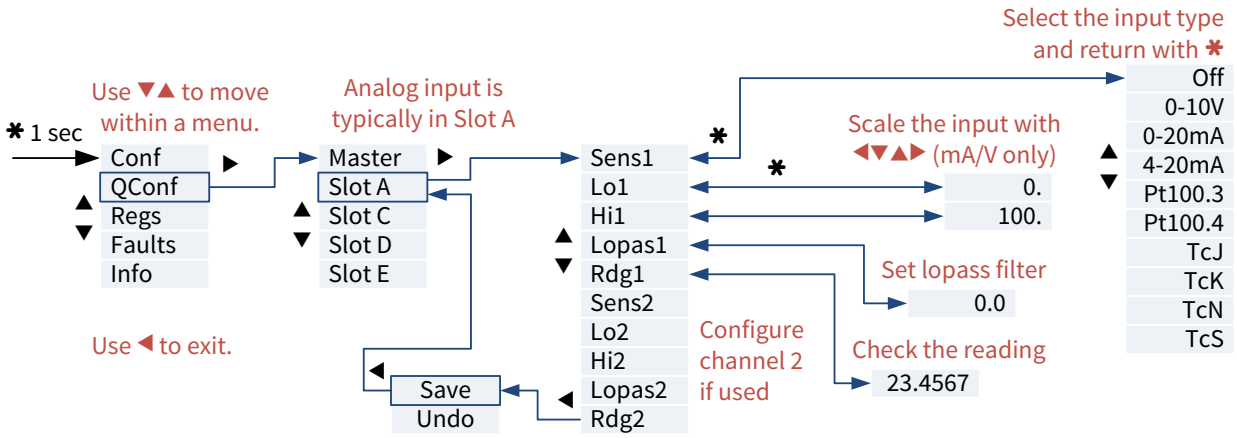
If the device is ordered pre-configured, this chapter may be skipped.

PM10 and PM20 offer three ways to configure:

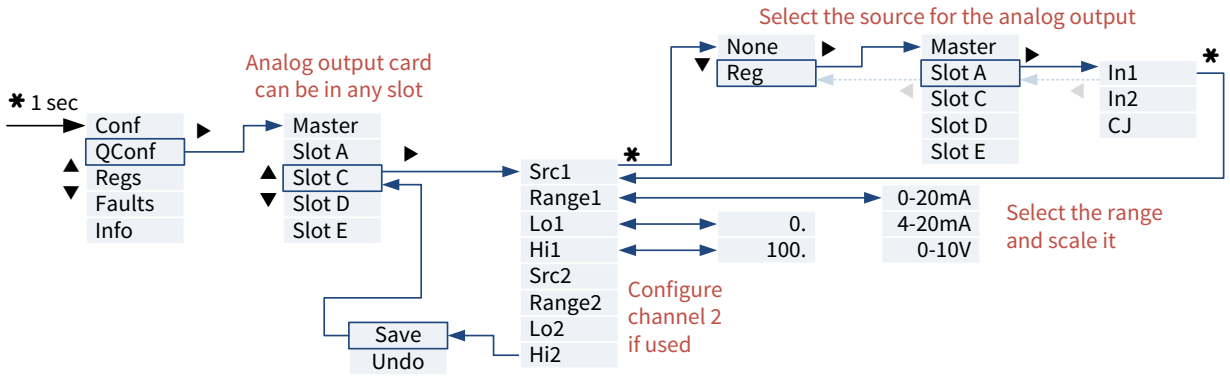
1. Quick configuration menu on the front panel: simple but limited.
2. Full configuration menu on the front panel: powerful but more complex.
3. Mekuwin software: visual and powerful, but needs a computer and a connection setup.

This quick manual covers the Quick configuration menu on the front panel, and Mekuwin.

Analog input – PM10UNI2A

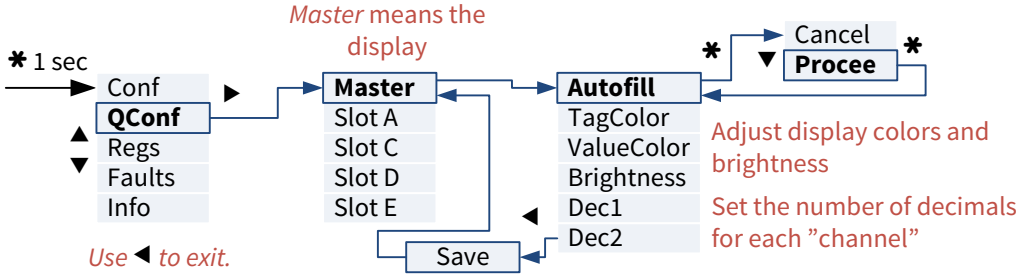


Analog output – PM10OUT2A



Display

The contents of the display is configurable, thus the device will not indicate anything before being configured. The easiest way to define the display contents is to use Autofill. It should be executed when the number of inputs has been changed, and for a new device. Autofill is not capable of guessing the number of decimals to show; it must be done manually.

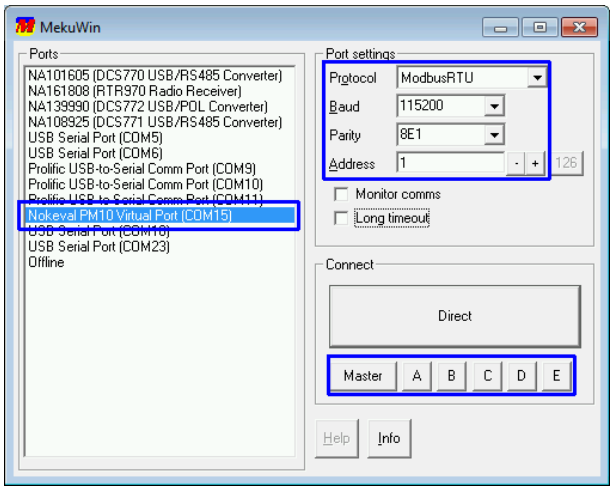


Configuring with Mekuwin

Connect the PM10 to a Windows computer via USB or RS-485.

- To use USB, connect a Micro-USB cable from a computer to the USB connector on the PM10 rear. If necessary, download a driver from www.nokeval.com > Support > Software and Drivers > PM10ADISP USB Driver or from Nokeval Software CD. Open the Windows Device Manager and locate PM10DISP. If it has a yellow exclamation mark, right-click and select Update driver. Point to the directory where the downloaded driver is.
- To use RS-485, wire the Slot E card terminals 4-6 to a RS-485 port, e.g. Nokeval DCS770 converter.

Obtain Mekuwin version 1.20 or newer. Select the correct serial port and other communication parameters.

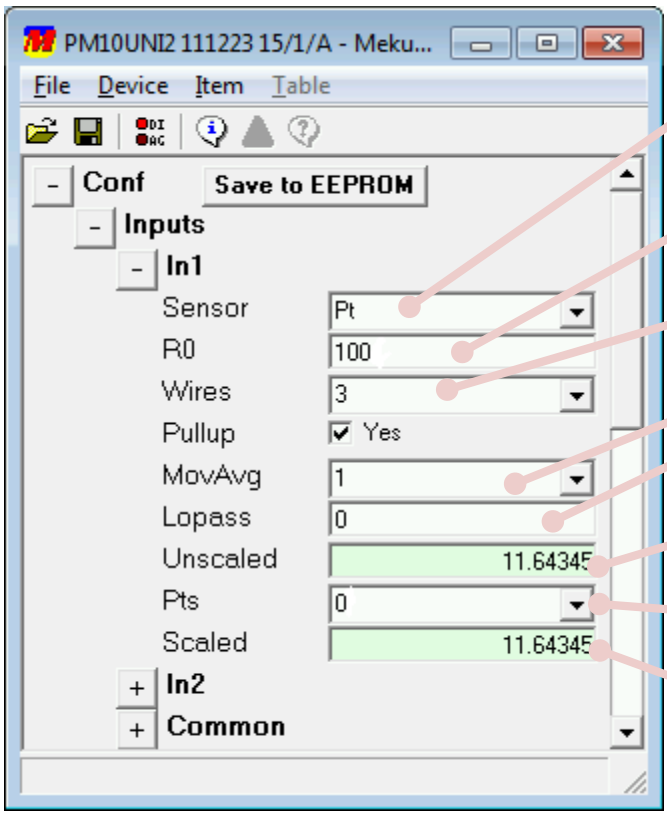


- With USB, select Modbus protocol, 115200 baud (any should work), and address 1.
- With RS-485, select parameters matching to the Slot E configuration. Factory defaults are Modbus, 115200 baud, 8E1 parity, address 1. If in doubt, use the quick configuration menu on the Slot E to verify.

Use the Master, A, B, etc buttons on Mekuwin to select a card to configure. Each card has a configuration menu of its own. It is easiest to begin with the input card(s), then advance to the display and outputs.

Analog input – PM10UNI2A

RTD input, e.g. Pt100:



Select input / sensor type.

Set the nominal resistance of an RTD, e.g. 100 for Pt100.

Set the number of wires, 3 or 4.

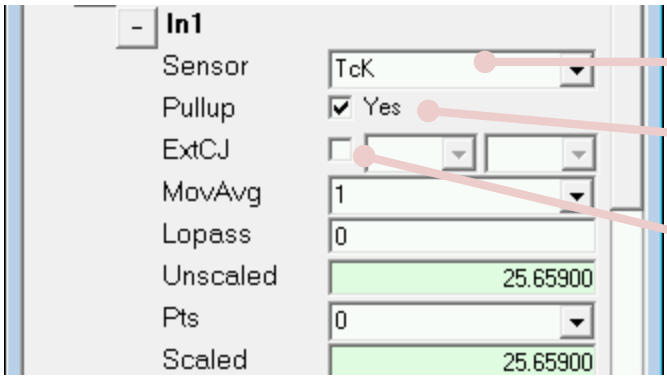
For fastest response, set MovAvg = 1 and Lopass = 0. Increase for more damping.

Check that the reading seems correct (if the input/sensor is already connected).

Pts = 0 means no scaling or fine-tuning.

The final reading, available for display, analog output, etc (register In1).

Thermocouples

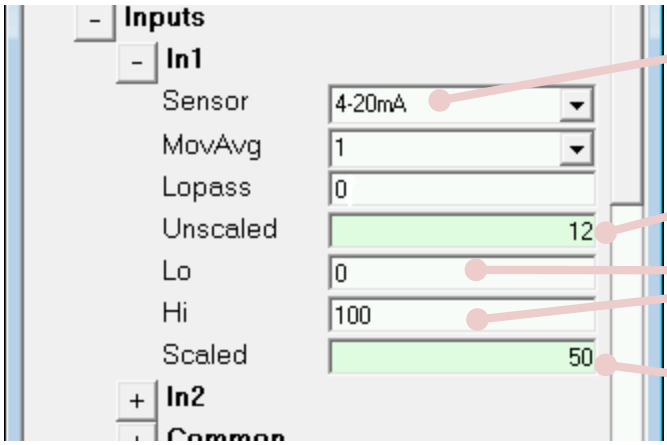


Select input / sensor type.

Pullup detects a sensor fault. Should be disabled only on a high-impedance special sensor.

Most often external cold junction compensation is not used.

Standard signals



Select input / sensor type among 0-10V, 0-20mA, 4-20mA.

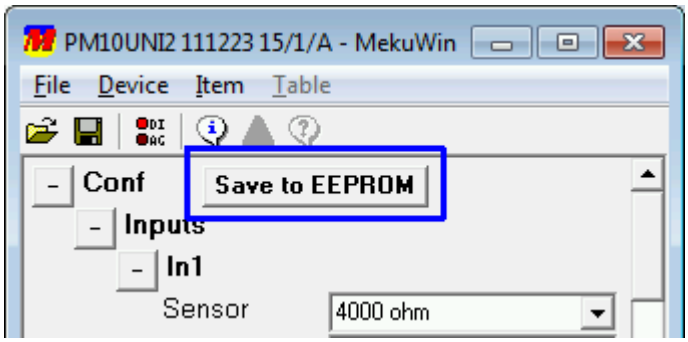
See the unscaled input in V or mA.

Scale the input to engineering units.

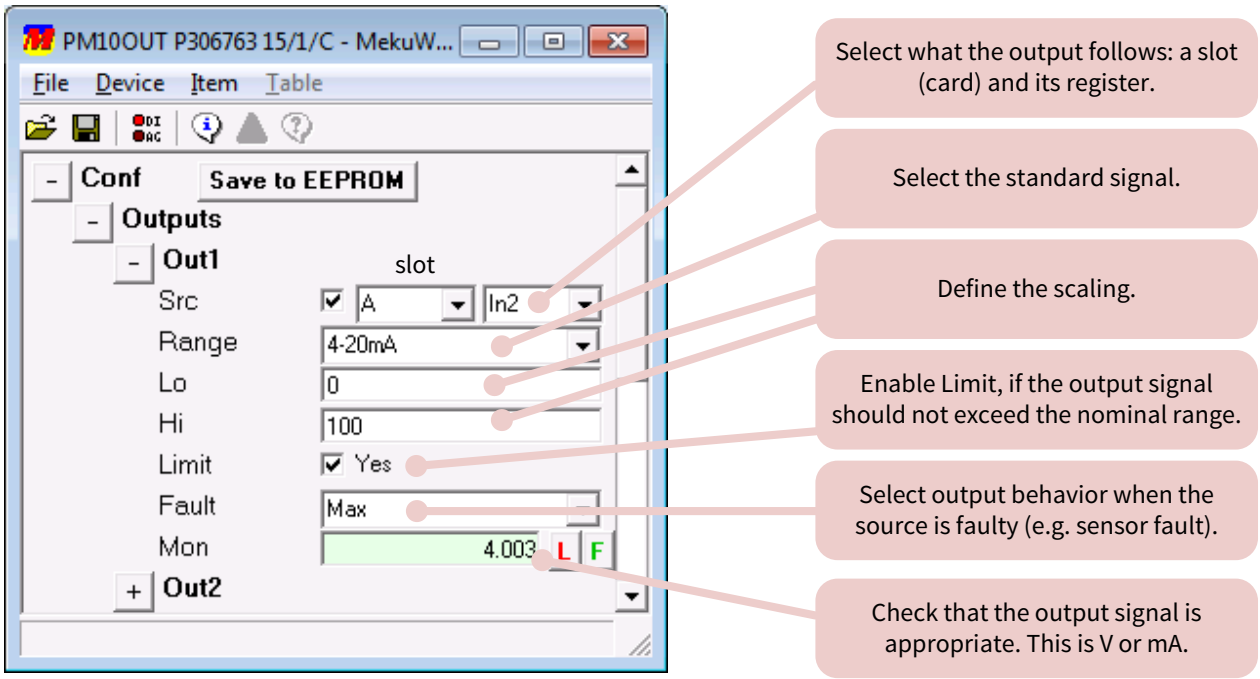
The final reading, available for display, analog output, etc (register In1).

Finally

Configure the second input In2. When both inputs are OK, click Save to EEPROM.



Analog output – PM10OUT2A

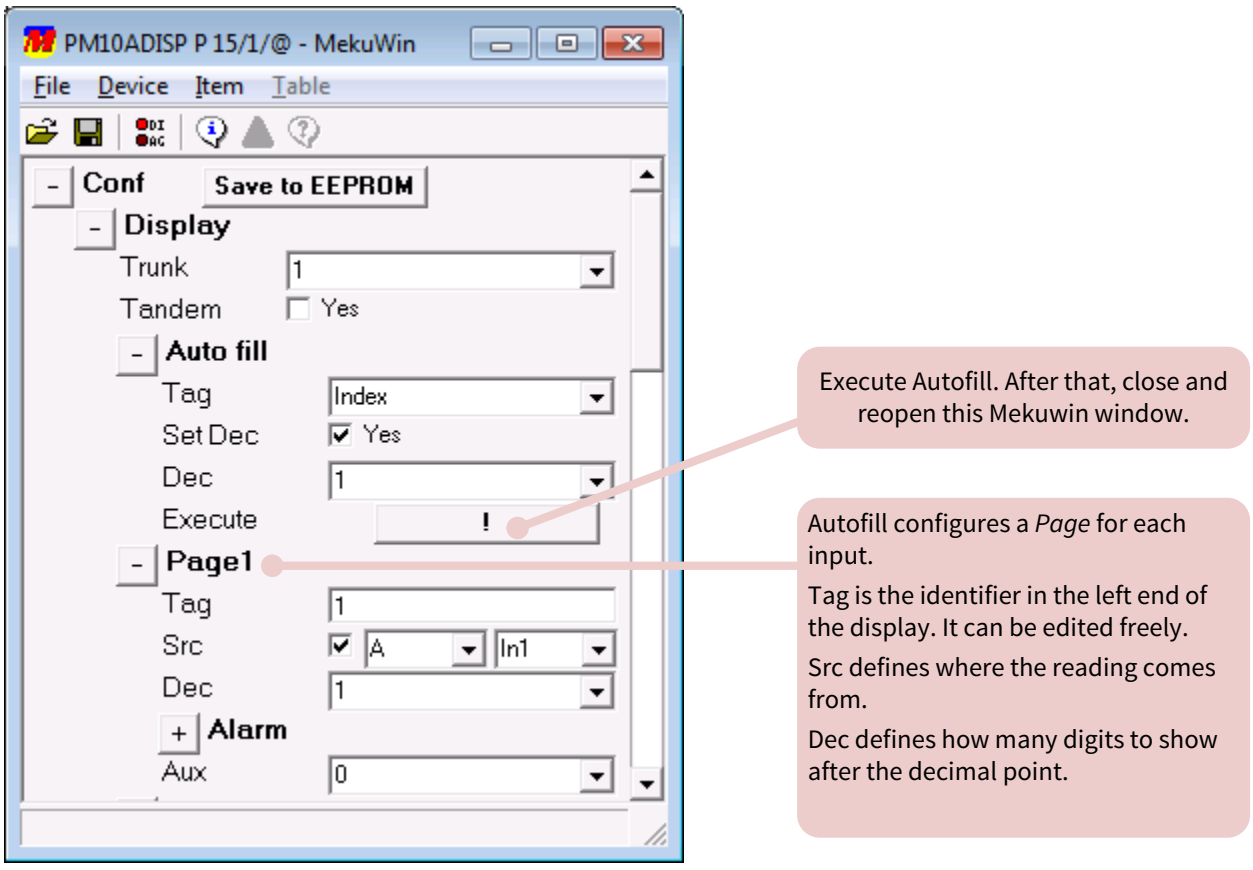


Configure the other output Out 2 similarly. Finally click Save to EEPROM.

Display

The display contents are not fixed but can be user-defined. For basic cases, an Autofill function can be used. It configures the display automatically to show all the analog inputs. Autofill should be executed after the inputs have been configured or at least enabled.

Open the display settings by clicking Master in Mekuwin.



When there are several pages defined, the user may move among them with the ▼▲ buttons, or engage automatic “scanning” at Conf\Display\Scan settings in the configuration menu.

Troubleshooting

Problem: The Fault indicator is on (the rightmost indicator).
Solution: Push ✱ button 1 second. Use ▼▲ to select *Faults* and push ✱. Read the message. Use ▼▲ to see if there are more messages. Exit with ◄◄.

Problem: The configuration menu can’t be entered with ✱.
Solution: The display page may contain an Event setpoint. Try ✱+▲.

Problem: The display is blank.
Solution: Enter the configuration menu or the quick configuration menu. Check that there is at least one display page defined (under Master/Display) that has a tag or a reading. Check that the color settings under Master/Display/Colors/Normal are valid (brightness is >10).

Problem: Now and then the display dims for a moment.
Solution: There are short dips or interruptions in the supply voltage. Enhance the quality of the supply.

Warnings

Read this manual carefully before using the device.

The device must not be disposed with household waste. Observe local regulations concerning electronic waste recycling.

Manufacturer

Nokeval Oy
Rounionkatu 107
FI-37150 Nokia
Finland

Tel +358 3 342 4800 (Mo-Fr 8:30-16:00 EET)
WWW http://www.nokeval.com/
Email sales@nokeval.com,
support@nokeval.com