



Programming the meter

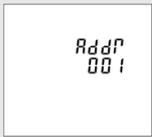
When you receive the meter there will be at least one value that you must programme into the meter. This is the current transformer ratio.

If the meter has been purchased with the intention of using the RS 485 Modbus output then you will need to program the Modbus parameters you require.

IMPORTANT NOTICE

The MA-20/MA-55 is a MID approved panel meter, once you have altered any of the parameters e.g. Current transformer ratio or voltage ratio and you have come out of the programming mode you cannot alter them again. Contact us to assist. This rule does not apply to the Modbus settings.

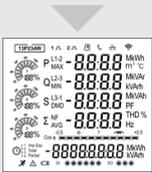
Meter programming check



To check the settings which have been programmed into the meter.

Long press **P**. Modbus Address.

Short press **P** to scroll through the other settings:



Full display test

Time and date - only used if tariffs are set.

7 day and time - only used if tariffs are set.

ID. Serial number

C.T 2 locked at 0.01

C.T 1 primary current ratio

Parity

Baud rate

Password Entry



Setting-up mode is password protected, so you must enter the correct password.

By firmly pressing the button **E** for 3 seconds, the password screen appears. The default password is 1000. If an incorrect password is entered, the display shows ERR.

To set the password press **PFHz MD** to increment and short press **E** to move the cursor along to the right.

C.T.2 (Current Transformer Secondary)

Default CT2: 100mA. Cannot be altered.

C.T. 1 Rate (Current Transformer Primary)



To set the primary current ratio in the meter you must program the primary current ratio into the meter. e.g. to set 200 amp input "0200"

Options: 1~2000
Default CT rate 1. (New Ratio Must Be Programmed Into The Meter)

Long press **E** enter password. "Comms" will appear on the display.

Press **P** "CT" will appear on display. Long press **E** to enter current transformer setting.

Press **P** to enter CT1 setting mode. Long press **E**1st digit will flash

4. Press **PFHz MD** to increment the number

5. Press **E** to move to the next digit on the right

6. Repeat numbers 4 and 5 until you have selected your

full c.t. ratio. Long press **E** to lock number, "Good" will appear on the display if locked.

Example of meter set at 200 amp



Example of how the display should look for a meter programmed to 200 amp.

Communication (RS 485 Modbus)



The RS485 port can be used for communications using Modbus RTU protocol. Parameters such as Address, Baud rate, Parity, Stop bit can be selected.

Long press **E** to enter password. Comms will appear on the display.

Long press **E** to enter Modbus address. Press **E** 1st digit will flash. Press **PFHz MD** to increment the number.

Press **E** to move to the next digit. Repeat until you have selected your address number.

Long press **E** to lock number. "Good" will appear on the display if locked.

Baud rate



Baud rate options: 2400 4800 9600 19200 38400 (bps). Default: 9600bps

Press **P**. Long press **E** numbers will flash.

Press **P** to scroll down list.

Long press **E** to lock. "Good" will appear on the display if locked.

Parity



Parity Options: NONE, EVEN, ODD.

Default Parity : EVEN

Note that if parity is set to ODD or EVEN, Stop Bits will be set to 1 and cannot be changed.

Press **P**. Long press **E** numbers will flash.

Press **P** to scroll down list.

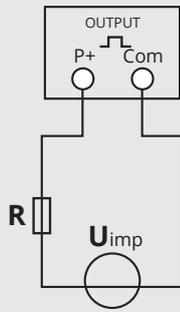
Long press **E** to lock. "Good" will appear on the display if locked.

Exit Programming Mode

To exit programming mode at any stage, press **PhS ESC**.

Pulse Output

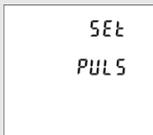
The pulse outputs can be set to generate pulses to represent kWh/kVarh
 Pulse constant: 0.001/0.01/0.1/1/10/100/1000 kWh or kVarh per Pulse
 Pulse width: 200/100/60 Ms.
 The pulse output is passive type, complies with IEC62053-31 Class A.



ATTENTION: Pulse output must be fed as shown in the wiring diagram below. Scrupulously respect polarities and the connection mode. Opto-coupler with potential-free SPST-No Contact.
 Contact range: 5-27VDC Max. current Input: 27mADC

Pulse

This option allows you to configure the pulse output. The output can be set to provide a pulse for a defined amount of energy active or reactive.



Long press **[E]** and enter password. "Comms" will appear on the display.
 Press **[P]** until you see "SET PULS" on the display.
 Press **[P]** "SET PULS OUTPUT 1". Press **[E]** this will allow you to set the pulse output to be export or import kWh, kVarh.
 Long press **[E]** to lock. "Good" will appear on the screen.

Pulse rate

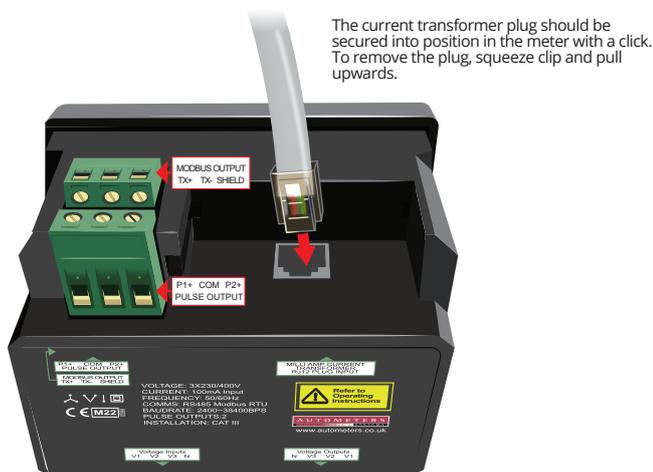


Pulse rate options: 0.001 , 0.01 , 0.1 , 1 , 10 , 100 , 1000 kWh / kVarh per Pulse. Default : 0.01 kWh (100imp/kWh)
 Press **[P]** "SET PULS RATE". Long press **[E]** digits will flash.
 Press **[E]** . All digits will flash. Press **[P]** to scroll through list.
 Long press **[E]** to lock. "Good" will appear on the screen)

Pulse Duration



Pulse Duration time option 200, 100, 60ms
 Default : 100ms
 Press **[P]** "SET PULS TIME". Press **[E]** digits will flash.
 Press **[P]** to scroll through list (60, 100, 200 available).
 Long press **[E]** to lock. "Good" will appear on the screen.



For full installation brochure please visit autometers.co.uk

Product development is continuous and Autometers Systems Limited reserves the right to make alterations and manufacture without notice. Products as delivered may therefore differ from the descriptions and illustrations in this publication.

Electrician

MA-series panel meters should only be installed by a fully qualified electrician who has knowledge of electricity meters connected with current transformers.

It is the installer who is fully responsible for the safe installation of this meter. It must be installed to meet the current electrical regulations concerning installation of panel meters.

EMC Installation Requirements

Please see full installation brochure for details - visit autometers.co.uk

Wiring Information

Power Supply

The MA-20/MA-55 receives its power from any one of the voltage connections and Neutral.

Wiring

The electrical connections of voltage, current and pulse output are made directly to the back of the meter. The RS 485 Modbus connections are at the top on the side of the meter.

All electrical terminals can be unplugged for wiring. The current input is made via a RJ12 plug into the top of the meter.

Electrical Connections

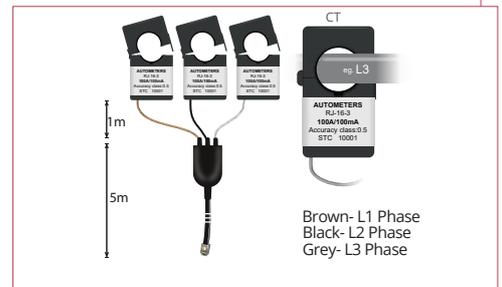
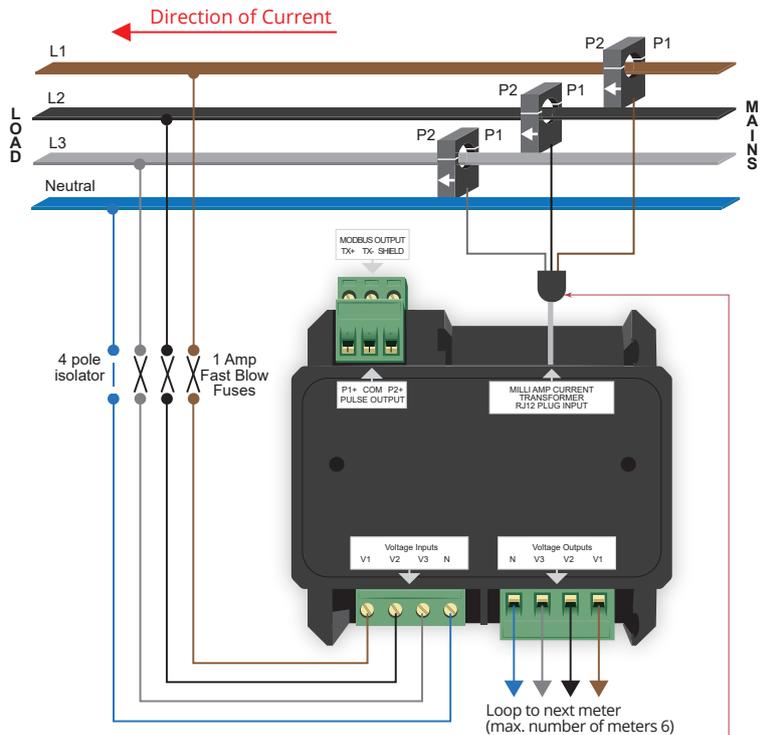
1.0 mm cable is all that is required for the voltage connections. For the low voltage communication connections we recommend a twisted shielded cable Belden 9841 -2 wire or 9842 -4 wire or equivalent.
 Phasing and polarity of the AC current and voltage inputs and their relationship is critical to the correct operation.

Dimensions

The meter is a 96 x 96 mm panel mounted meter with a depth of 70mm
 The cut out hole for the panel meter is 92 x 92 mm.

Wiring Diagram (MA-20 & MA-55 only)

3 phase 4 wire split core CT arrangement



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