EMM.630(M)CT-MID (1A of 5A CT) and EMM.630MCT-RC (Rogowski coils)

The EMM.630 (M)CT is an advanced 3 phase energy monitor with direct connection to the mains for measuring reference voltages and 3 connection for linking the current transformers 1A or 5A CT or Rogowski coils (EMM.630 MCT-RC) with which consumers can be measured >100A. The configuration of the meter is done via the touch keys on the front panel and the LCD display. The bi-directional measurement measures consumption on mono, 3x230V or 3x380V+N power supplies. Both active and reactive power are measured. The readout of the consumption values can be done via the display or on the linked web server. The module is packed in a 4 module wide DIN rail housing. In addition to an RS485 connection, this energy meter also has 2 pulse outputs, of which 1 is configurable.

1. Connect:

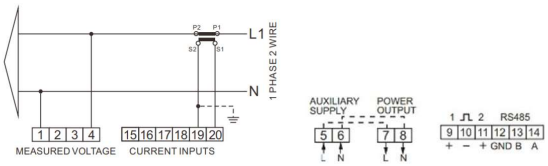
Attention 1: To avoid voltage surge: first connect coil conductors to the meter, only then clip coil around current conductors !! Install the power coil only by a qualified electrician !!! Wear safety goggles during every operation with the coils !!!

Attention 2: With the **EMM.630 CT-MID**, the type of coil can only be entered once, see point 2. Configuration on display

Attention 3: After connecting the coils via display key "P" **polarity check**, if negative power(Watt) or negative PF then open and turn coil, unless there would be injection by solar panels!

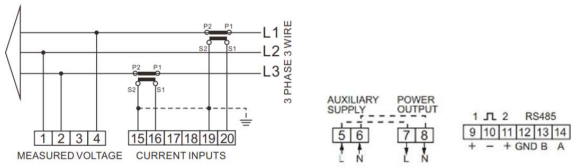
Attention 4: The measured reference voltage and the measured current must be at the same stage: ALWAYS test **with voltmeter** : Voltage between conductor reference voltage and conductor flow pool must be ZERO, otherwise you have a wrong measurement!! Here you can possibly use the voltage drain terminals type UAD (see website)

EMM.630 (M)CT: Mono-phase connection



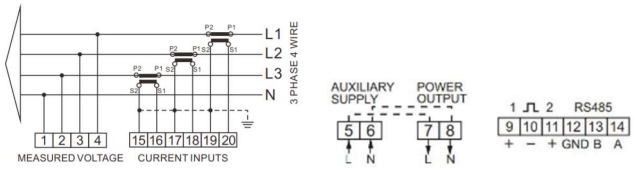
On display: set as mono phase: SYS 1P2
Reference voltage: Neuter on Clamp 1; Phase on Clip 4
Flow coil: Keep flow arrow on coil, arrow points to Users! Black conductor(=GND) on Clip 19; White conductor on Clip 20
Power voltage module: Neuter on Clamp 6,Phase on Clamp 5
Note: by-loop-Clamp to next meter Clamp 7= Clamp 5; Clip 8= Clamp6
Modbus connections: Clamp A (=13) and B (=14) and GROUND (=12 GND)

EMM.630 CT: 3x230V connection



On display: set as 3phase/3guider: SYS 3P3
Reference voltage: L1 on Clamp 4; L2 on Clamp 1; L3 on Clip 2
Flow coil: Keep current arrow on coil, arrow points to consumer!
Rinse L1: Black conductor (=GND) clamp 19; White conductor clamp 20
Rinse L2: Flow I2 (I1+I2+I3=0) is calculated, so does not need to be measured and therefore no coil required! For this reason, no power is logged in the Memo for this phase2.
Rinse L3:Black conductor (=GND) on clip 15; White conductor on clamp 16
Power supply voltage: Neuter on Clamp 6; Phase on Clip 5
Note : by-loop-Clamp to next meter:Clamp7= Clamp 5; Clip 8= Clamp6
Modbus connection: Clamp A (=14) and B (=13) and GROUND (=12 GND)

EMM.630 CT: 3x380V+N connection



On display: set as 3phase/3guider: SYS 3P4
Reference voltage: L1 on Clamp 4;; L2 on Clamp 3; L3 on Clamp 2; N=Clamp 1
Flow coil: Keep current arrow on coil, arrow points to consumer!
Rinse L1: Black conductor (=GND) on Clip 19; White conductor on Clip 20
Rinse L2: Black conductor (=GND) on Clip 17; White conductor on Clip 18
Rinse L3: Black conductor (=GND) on Clip 15; White conductor on Clip 16
Power voltage module: Neuter on Clamp 6; Phase on Clip 5
Note: Loop-Clip to Next Meter Clip 7= Clip 5; Clip 8= Clamp6
Modbus connection: Clamp A (=14) and B (=13) and GROUND (=12 GND)

2: Configuration on the display:

This module is partly pre-configured and only needs to be entered:

- a **UNIQUE** Modbus address, number between 1... 247
- the type of power supply mono,3x230V,3x380V+N, standard at 3x380+N
- the type of coil: be careful, this can only be done once and cannot be adjusted afterwards!!!

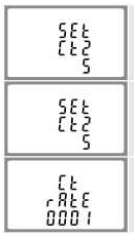
How to get into SETUP:

- **(watch video tutorial)** **https://www.2-wire.net/en/product/3f-energy-meter-ct-mid-modbus-emm-630-ct/)**

Push the bottom button 4 (enter→)until PASS 0000 appears, fill in default password PAS 1000 by pressing the button 2 (M↑) to 1, briefly press button 4 (enter) for next number or press enter for a long time to move to next setting. Go through button 3 (P↓) through the set values and adjust the necessary Modbus values. Briefly press **button 1 (U/I ←))** to leave menu.

Modbus parameters to be set: 9600 8N1

- Modbus address : Id001... Id247
- Baudrate: b 9600
- Parity: Prty n (parity none)
- Data: 8 bit
- Stopbit: 1



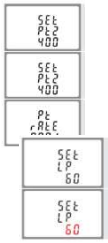
•Secondary current of the coil 1Ampere or 5Ampere: SET Ct2 5 **At the EMM.630CT-MID this can only be set once!!**

•Multiplication factor = primary/ to secondary flow strength of the coil, E.g. 100A/5A=20: Ct rATE 0020 **With the EMM.630CT-MID this can only be set once!**

•In case Rogowski: CT1 should be set to 1kA, in the EMM.630 MCT-RC meter you can still change settings afterwards

ATTENTION:

1. The values SET Pt2 400 and Pt rAtE 0001 for high voltage and can only be adjusted **Leave it on DEFAULT!** !
2. The backlight of the display can be set to 0/5/10/30/60/120. 0 stands for continuous, 5/10/30/60/120 means switch off after the set period . Here better choose 5/10/30 to increase the service life.



are once.

3: Configuration in the web server

In the web server, go to /configuration/modules:

1. Enter **unique fictitious** serial number starting with 03E followed by a unique number with 5 digits: Vb.. **03E00002**
2. Give a name to the meter: Vb.. **EMM.630CT** and press **"NEW"**
3. A table appears with 3 rows, 1 row per stage. Give a recognizable name to the each stage exit: Vb.. **Phase 1, Phase 2, Phase 3**

4. Choose mode **COUNTER**(automatic)
5. Enter the Modbus address of the module: Vb.. **17** (AND NOT **017!!)**
6. Enter Modbus sub-address : **always 0 (phase 1); always 1 (phase 2); always 2 (phase 3);**
7. Log type: Only if you're working on charging data to a central server check the parameters you want
8. Choose unit kWh(automatic)
9. Press "ZEND" if Module OK appears the programming is in order otherwise Module NOK see manual (Modbus address error, cabling check,…)

4. Read values on the display

There are 4 touch buttons by pushing on this momentarily you can read the following readings:

Button1 U/I (voltage/currents): voltages between phase Neuter Volt→ flow per phase in Ampere→ Harmonic on voltage between phase and neuter THD in %→ Harmonic on current THD in %→
Button 2 M (frequency, PF, peak): frequency and power factor→ power factor per phase → maximum flow per phase with set sample time after reset→ maximum total power set sample time after reset Button
3 P (capabilities): current active power per phase in kW→ current reactive power per phase in kVar→ current VA per phase in kVA→ total power in kW, KVar, kVA
Button 4 E (energy consumption meter reading)*: meter reading total active consumption in kWh→ meter position total reactive consumption in kVarh→ meter position import active consumption in kWh → meter position export active consumption in kW → meter position import active consumption in kVarh → meter state export active consumption in kVarh →

***beware** meter reading on 2 lines as 1 line: 0001 04.80 kWh=104.80kWh

5. What values are logged.

MEMo logs every 60 seconds:

- Total active consumption over the 3 phases:
  - Meter mode import in kWh
  - Meter mode export in kWh
- By phase:
  - Tension in Volt
  - Power in Ampère
  - Power in Watt
  - Power factor
  - Reactive capability VAR

6. General note:

- Import consumption over the 3 phases, in the html chart only with 1 hour resolution, is calculated on the basis of difference between start and end counter position and the result you see in the web server below the chart of phase 1 (Modbus sub-address0). Export consumption can be found in the web server under phase 2 (Modbus sub-address 1),see FAQ on 2-wire.be
- The current counter positions import and export can be read in the web server (light green values) by pressing 'AUTO REFRESH'.
- Via button E on the display is ToTal Energy = Import +Export in kWh
- 3x380V NEUTERLESS: connect as 3x230V and set as 3P3
- Visualization of the channels for the customer : see WS.502 web server

- Because the web server cannot show negative graphs, the Energy meter for solar panels must be connected in the direction of the current.
- If current power is at 0 in the web server then check flow direction coils via display
- Rinsing flow direction is wrong if PF or power on the display is negative, **Never swap wires from coils around current feeder but open and turn the coil to avoid power surge!!!**
- In the case of 3x230Volt, current power Phase 2 is always shown as zero in the web server because this calculated power is negative and the web server does not show any negative values.
- Flow-rinse guides may be extended a few meters but with at least the same section
- The comprehensive (English) manual with all technical specifications, detailed configuration, Modbus registers is available through our website www.2-wire.net

7. Installation instructions

The installation must be carried out by an approved installer and in accordance with the rules in force.

- This device is only suitable for DIN rail assembly in accordance with EN 50022 and must be fitted in a closed distribution board.
- Make sure that a safety interruption of the device is possible. Turn off the module before installing it.
- Do not open the device – the warranty expires when the device is opened.

This manual must be attached to the file of the electrical installation. The 2-Wire website always has the latest manual of the product.

8. Support

Do you want to exchange the product in case of a possible defect? Please contact your wholesaler or the 2-wire support service. The contact details can be found on our website www.2-wire.net/contact/

9. Guarantee conditions

The warranty period is two years from delivery date. The date of delivery is the invoice date of purchase of the product by the consumer. If there is no invoice available, the production date applies.
The consumer is obliged to inform Qonnex bvba in writing of the lack of conformity, and this at the latest within two months of adoption. In the event of a lack of conformity, the consumer is only entitled to a free repair or replacement of the product, which is determined by Qonnex. Qonnex is not responsible for any defect or damage caused by improper installation, improper or negligent use, improper operation, product transformation, maintenance in violation of maintenance regulations or an external cause such as moisture damage or damage from span.
The mandatory provisions in national legislation on the sale of consumer goods and the protection of consumers in countries where Qonnex sells directly or through distributors, agents or permanent representatives take precedence over the above provisions

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