Three-phase Digital Energy meters - Direct connection 63A

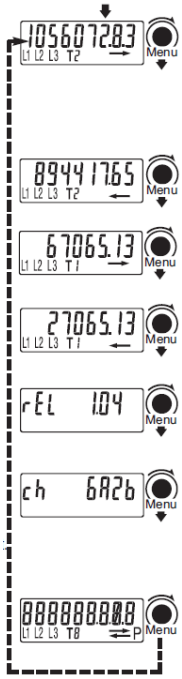
Product and Applications description

• This Energy-meter provides the essential measurement capabilities required to monitor a three phase electrical installation.

• Direct connected (up to 63 A)
• LCD display and 3 push-button keys (to read Energies, V, I, PF, F, P, Q and to configure some parameters)
• 1 push botton and 1 LED dedicated to KNX.
• Display with 8 digits.
• Self supplied (by the input voltage itself).

Device is intended to be installed on DIN rail.

Main Menu



Main Page:
The value of the currently growing Active 3-phase Energy is represented (or the ast one that has grown). The Energy is always Active, and may be Active Imported (right arrow), Active Exported (left arrow), with Tariff T1 or T2, depending on the current Energy flowing.

Second Active Energy Page

Third Active Energy Page

Fourth Energy Page:
In the second, third and fourth pages the other 3 energy registers are Represented

Firmware Release Page:
You can read the index of firmware release.

Firmware CheckSum Page:
The checksum is periodically calculated to verify that the firmware is reliable.

Display Test Page:
All the display segments are visible.

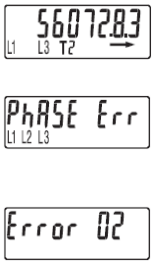
Whichever the page on the display, if no key is pushed for at least 20 sec., the main page appears again.

Partial Counter

Partial Active Energy Counters:
By pushing the “Partial key” partial active energy counters are readable in the main,second, third and fourth pages (i.e. for monthly energy consumption).

These counters are resettable, see the energy reset section. By pushing the “**Partial key**” in any of the four pages, you go back to the Main menu

Diagnostic Messages



One or more missing phase:
In case one or more phase is not detected, the corresponding icon disappears from the bottom row of the display.
E.G. L2 is not detected.
Phase sequence error:
When the three phases are not in the correct zero-crossing sequence this message appears and the icons L1 and L2 blink. To make this message to disappears, you can keep pushed the “Menu key” for at least 4 seconds.
Error condition:
When the display shows the message “Error 2 or Error 3”, the meter has got a malfunction and must be replaced.

KNX Application and Address programming

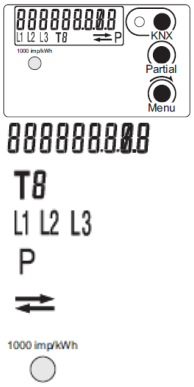
Once the metering equipment is installed, in order to have KNX correctly working, the KNX application (.WD4) and the address writing are required to be downloaded.

On the top right corner of the metering equipment front, there are a LED and a push button key dedicated to the KNX address downloading.
When you turn on the metering equipment, the LED should remain OFF. Also, if you push the KNX key without connecting the KNX bus to the metering equipment or if the KNX external interface is not powered, the LED remains OFF.

To prepare the KNX communication, proceed in the following way:
1) With the power supply totally disconnected, connect both mains and KNX plug-in connector
2) Turn on the metering equipment
3) Launch the KNX programming tools in a personal computer and connect the computer to the meter by means of a KNX interface.
4) Select the operation (application downloading/address writing/application downloading & address writing)
5) If the selected operation involves the address writing, push the KNX when required by the tool.
6) The KNX LED will turn ON

7) Once the operation is completed, the LED will switch OFF

Display



Energy Value

Running tarif

Energy line (L1-2-3)

Energy value „Partial“

Energy **Import**

Energy **Export**
Precision control LED

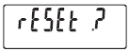
Push - Buttons

KNX address writing

Command button for
“Partial” reading selection

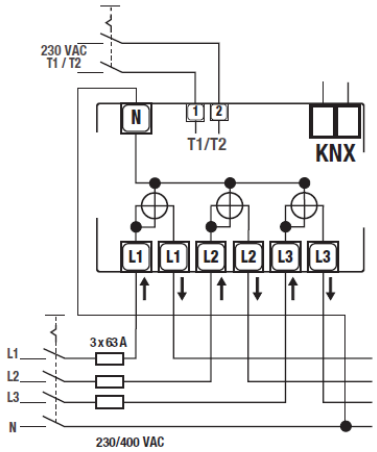
Menu key for reading selection

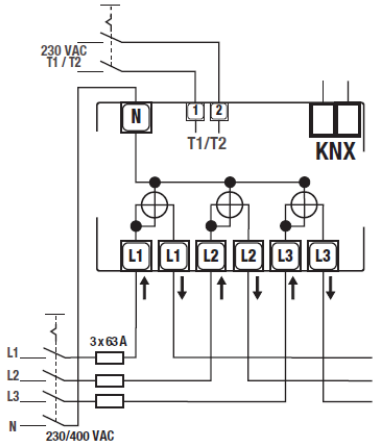
Energy Reset



In all pages representing an Energy value, a pressure of 20 sec. of the “Menu key” allows to enter in the zeroing menu, consequently on the display “see image aside” appears. The key must be released.
In order to confirm the operation and get back to default visualization, push it again for 4 seconds, otherwise after 4 sec., the reset will have no effect.

Wiring Diagram





Neutral wire must be connected to the meter

Installation Instruction

WARNING

Device must be installed keeping a minimum distance of 4mm between electrical power line (mains - 230V) and red / black bus connector or bus cable.

- Device may be used for indoor installations in dry locations.
- Device must be mounted by an authorised installer.
- Device must be installed in a location that is accessible only to qualified installers
- The applicable safety and accident prevention regulations must be observed.
- Device must not be opened. Any faulty device should be returned to manufacturer.
- For planning and construction of electric installations, the relevant guidelines, regulations and standards of the respective country are to be considered.
- KNX bus allows you to remotely send commands to the system actuators. Always make sure that the execution of remote commands do not lead to hazardous situations, and that the user always has a warning about which commands can be activated remotely.

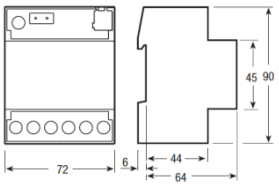
Technical Data

Data in compliance with CLC/TR 50579 , EN 62059-32-1, EN 50470-1, EN 50470-3

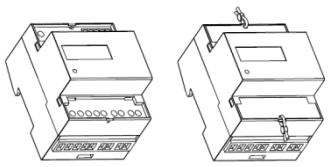
General characteristics			
• Housing	DIN 43880	**DIN**	4 modules
• Mounting	EN 60715	**35 mm**	DIN rail
• Depth		**mm**	70
• Weight		**g**	412
Operating features			
• Connection	to three-phase network	**n° wires**	4
• Storage of energy values and config.	Internal flash memory	-	yes
• Tariff	for active energy	**n° 2**	T1 and T2
Approval (according to EN 50470-1, EN 50470-3)			
• Reference Voltage **Un**	Line to Neutral	**VAC**	230
• Reference Voltage **Un**	Line to Line	**VAC**	400
• Reference Current **(Iref)**		**A**	5
• Minimum Current **(Imin)**		**A**	0.25
• Maximum Current **(Imax)**		**A**	63
• Starting Current **(Ist)**		**A**	0.015
• Reference Frequency **(fn)**		**A**	50
• Number of phases (number of wires)		-	3 (4)
• Measures		**kWh**	→ kWh T1, ← kWh T1 → kWh T2, ← kWh T2
• Accuracy	Active Energies (accor. to EN 50470-3) and Active Powers	**class**	B
Supply Voltage and Power Consumption			
• Operating Supply Voltage range		**VAC**	92 ... 276 / 160 ... 480
• Maximum Power Dissipation (Voltage circuit)		**VA (W)**	=<2 (0.6)
• Maximum VA burden (Current circuit) @ **Imax**		**VA**	=<0.7
• Voltage Input Waveform		-	AC
Overload capability			
• Voltage	continuous; phase/phase	**VAC**	480
	1 second; phase/phase	**VAC**	800
	continuous; phase/N	**VAC**	276
	1 second; phase/N	**VAC**	300
• Current	continuous	**A**	63
	Temporary (10 ms)	**A**	1890
Measuring Features			
• Voltage range	phase/phase	**VAC**	160 ... 480
	phase/N	**VAC**	92 ... 276
• Current range (secondary winding)		**A**	0.015 ... 63
• Frequency range		**Hz**	45 ... 65
• Measured Quantities		-	kWh
Display features			
• Display type	LCD	-	9 (2 Decimal)
	Energy digits dimension	**mm**	6 x 3
• Active Energy	7 digits + 2 decimal digits	**min. ... max. kWh**	0.01 ... 9999999.99
• Running Tariff	1 digit	-	T1 or T2
• Display refresh period		**s**	1
Optical metrological LED			
• Front mounted red LED (meter constant)	proportional to active imp/exp Energy	**p/kWh**	1000
Safety			
• Protective class		**class**	II
• AC voltage test (EN 50470-3, 7.2)		**kV**	4
• Degree of pollution		-	2
• Operational voltage		**VAC**	300
• Impulse voltage test		**1,2/50 µs-kV**	6
• Housing material flame resistance	UL 94	**class**	V0
Embedded communication KNX			
• Physical interface		-	KNX terminal
• Isolation class		-	SELV circuit
Connection terminals			
• Screwdriver for mains terminals	head with Z +/-	**POZIDRIV**	PZ2
• Screwdriver for tariff and communication terminals	slotted head	**mm**	0.8 x 3.5
• Terminal capacity main current paths	solid wire min. (max)	**mm²**	1.5 (35)
	stranded wire with sleeve min. (max)	**mm²**	1.5 (35)
• Terminal capacity for tariff and communication	solid wire min. (max)	**mm²**	1 (4)
	stranded wire with sleeve min. (max)	**mm²**	1 (2.5)
Environmental conditions (storage)			
• Temperature range		**°C**	-25 ... +70
Environmental conditions (operating)			
• Temperature range		**°C**	-25 ... +55
• Mechanical environment		-	M1
• Electromagnetic environment		-	E2
• Installation	Indoor	-	yes
• Altitude (max.)		**meters**	=<2000
• Humidity	yearly average, not condensing	-	=<75%
	on 30 days per year (not condensing)	-	=<95%
• IP rating		-	IP51(*)/IP40

For the installation in a cabinet at least with IP51 protection.

Dimension



Sealable terminal covers



DISPOSAL

The crossed-out bin symbol on the equipment or packaging means the product must not be included with other general waste at the end of its working life. The user must take the worn product to a sorted waste centre, or return it to the retailer when purchasing a new one. An efficient sorted waste collection for the environmentally friendly disposal of the used device, or its subsequent recycling, helps avoid the potential negative effects on the environment and people's health, and encourages the re-use and/or recycling of the construction materials.

CE

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