



### Mode M3PRO 1-5 M-Bus MID

Three phase energy meter, measure via CT 1 to 10000 A with MID declaration of conformity and M-Bus communication.

MID certification concerns active energy only.

User instructions.

## Safety instructions

i	Read this manual carefully BEFORE installing the instrument.
	This device must be installed indoor only by a professional electrician fitter according to local applicable installation standards.
<u>/</u> 4	Do not plug in or unplug this product when the power supplying is ON. Its use is only permitted within the limits shown and stated in the installation instructions. The device and the equipement connected can be destroyed by loads exceeding the values stated.
Ŵ	Any type of intervention on the products, including cases in which they cease to function or present defects, can be dangerous for the operator's safety and relieves the Manufacturer from all civil and criminal liability.

## Function

This 4 quadrants meter measures the active energy used in an electrical installation. This device can manage 2 tariffs by 230 VAC digital input. Only the total active energy register can be used for billing purposes according to measuring instrument directive (MID).

- Active Energy Class B (according to EN 50470-3:2022) - Active Power Class 1 (according to IEC 62053-21:2020
- and IEC 61557-12:2018).

This device has a backlighted LCD and 3 push-button keys to read Energies, V, I, PF, F, P, Q and to configure some parameters. The design and manufacture of this meter comply with Standard EN 50470-3:2022 requirements.

### Power factor

### Convention according to IEC 62053-23:2020



# Layout of device

# LCD display

(GB)

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Tariff

Energy for all tariffs



### kWlikvarh Units kVA ms Hz

Energy import (consumption  $\rightarrow$ ) Energy export (production  $\leftarrow$ )

Commands

- ( ) UP button: to scroll pages and change parameters
- **DOWN button:** to scroll pages and change parameters
- () MENU/ESC button: to change menu and stop modification procedure of a parameter
- (OK) OK button: to confirm the modification of a parameter

# MID certified

A) Device code and certification data indications B) Safety-sealing between upper and lower housing part

# Dimensions



## Sealable terminal cover





ne	le alle liu accessible parts
eger	nd:
=	Basic insulation
=	Double insulation
=	Reinforced insulation
=	Functional insulation
)	HLV TERMINAL, 1 terminal for neutral
)	HLV TERMINAL, 2 terminal for tariff in

	· = · · · · · · · · · · · · · · · · · ·		commu	101	nounui	
HLV	TERMINAL,	2	terminal	for	tariff input	

SELV TERMINALS, 4 terminals or 2RJ45 connectors

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Tarif Input

- SELV CIRCUIT, (communication) working voltage <25 Vac, <60Vdc
- PLASTIC CASE (NOT EARTHED)
- HLV CIRCUIT, (mains) Working Voltage = 300 Vac
- HLV CIRCUIT, (tariff input) working voltage = 300 Vac

### Wiring diagram

- (2) Four-pole disconnector 3X230Vac. 3P+N.
  - The disconnectors must be clearly labelled and must be easily accessible by the installer
  - (3) 3 fuses or 3 circuit breakers
  - (4) Fuse or circuit breaker in series with the neutral conductor, to be adopted in case the source neutral is not earthed. The installer is responsible for coordinating the rating and the characteristics of the supply side overcurrent protection. The devices must be correctly sized with respect to the installation voltage, the maximum overcurrent applicable to the meter and the fault current available. The following parameters are to be taken into consideration: Maximum current = 6A
  - Maximum Overload current = 10A
  - Maximum Voltage = 276 Vac
  - (5) Control circuit for the tariff: Open contact: Tariff 1, Close contact: Tariff 2 The connection of the Neutral to the Energy Meter is strictly MANDATORY. Failure to connect affects not only the
- quality of the measurements, but also electrical safety.  $(\overline{7})$  The connection of the Neutral to the load is not mandatory. However, consider that in a 3P + N network, if the Neutral is not connected to the load, the measurements referred to L1, L2 and L3 no longer have any meaning Only the 3-phase ( $\Sigma$ L) measurements remain significant.
- (8) 3 wires or 4 wires electrical load. 8
  - (9) The earthing of the CTs' secondary winding is regulated by the national standards of the country where the instrument is installed
  - (10) 3 CTs with basic insulation

### zz () Installation and uninstallation

The disconnectors (reference (1) and (2) in the wiring diagram) must be easy to identify and to operate and must be close to the Meter. They both must be in "OFF" position (open circuits) from the beginning to the end of the installation or of the uninstallation. The Energy Meter, the disconnectors and the overload current protection devices must be easily identifiable, must be installed in an adequate cabinet (IP51 and V1) and it must be easy to intervene on them whenever appropriate. Inside the cabinet, do not install any other device with a flammability class worse than V1.

### Commissioning



- Check the following before putting it into service: Make sure that no dangerous voltages are connected to the SFLV terminals
- Make sure that a phase has not been connected to the Neutral terminal (this would cause the internal protections to
- intervene with permanent damage to the Meter). Check that the main page appears on the display (see menu
- description) and not the Phase Sequence Error page.

## Maintenance



Make sure that no voltage is applied to the instrument. Only dry cleaning is allowed with a natural fiber cloth (for example cotton or linen) or synthetic fabric that does not leave residual fibers that can remain on the surface of the Energy Meter or that can penetrate into the Energy Meter.



# Help in case of problems

### Error condition

When the display shows the message ERROR N02 or ERROR N03, the meter has got a malfunction and must be replaced.



The cabling sequence (L1-L2-L3) is wrong. L1, L2 and L3 icons blink. Invert the voltage wires of 2 phases (phase 1 < > phase 2 or phase 2 < > phase 3). Otherwise, by pressing the «OK» button for at least 5 seconds, the message disappears until the next restart.

(1) Bipolar disconnector 230Vac

- ....
  - <u>^</u> 0 ŝ 90 Vac 3P+N 3



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Wiring

### Intended use The Energy Meter is suitable for use on both impedance

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grounded networks and not grounded networks. Reactive power inductive/

٦шГ capacitive Phase indicator 

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Cable section. Cable stripping length Screwdriver type. Maximum terminal screw torque Adopted cables shall retard flame propagation. Cables must therefore comply with IEC 60332-1-2:2004 or have a flammability rate UL 2556 VW-1 PZ1 🕀 ↓ max 0.5 Nr  $\bigcirc$ PZ1 🕀 ↓ max 0.5 Nm 

Note on cable sizing. For the current and voltage connection cables, it is recommended to use multi-strand copper cables with AWG 11 (with a 4.2 mm2 section), as they are suitable for Imax = 6A and IovI = 10A. The use of cables with a smaller section fails under the responsibility of the installer, who must in this case, ensure that the maximum permanent current (Imax) and the overload current (IovI) remain proportionally lower for the entire duration of use For example, with AWG 14 cable (2.1 mm2) the permanently applied current (Imax) cannot exceed 3A and the overload current (Imax).

### **General Menu**



### **Technical data**

Data in compliance with EN 62052-11:2021+A11:2022, EN 62052-31:2016-06, EN 50470-3:2022, EN 62059-32	2-1:2012			
General characteristics				
Housing	DIN 43880		DIN	4
Mounting	EN 60715		DIN rail	35 mm
Depth			mm	60
Weight Description			g	293
	to three_phace_patwork _ pum	ther of wires		4
Storage of energy values and configuration	Internal flash non volatile men	norv		<u>4</u>
Tariff	for active and reactive energy	nory	-	T1 T2 230V
Approval (EN 50470-3:2022)	ion dealer and reactive energy			
Connection			-	CT /5A - CT /1A
Reference Voltage (Un)	phase / neutral		VAC	230
	phase / phase		VAC	400
Nominal Current (In)			Α	1
Minimum Current (Imin)			Α	0.01
Maximum Current (Imax)			Α	6
Starting Current (Ist)			Α	0.002
External CT	max. CT ratio		-	10000/5 2000/1
Reference Frequency (fn)			Hz	50
Number of phases / number of wires			-	3/4
Certified Measures			kWh	$\rightarrow$ kWh $\leftarrow$ kWh
				D / /
- Active Energies (accord. to EN 50470-3:2022)			classe	B / I
- Acure Fowers (accord, an Eco 2003-21:2020 and the 01007-12:2018) Sunniv Voltage and Power Consumption				
Operation Supply Voltage range			v	92 276 / 160 480
Maximum Power Consumption (Voltage circuit)			VA / W	<2/0.6
Maximum VA burden (Current circuit) @ Imax			VA	≤0.2
Voltage Input Waveform			-	AC
Voltage impedance			MΩ	1
Current impedance			MΩ	≤20
Overload capability				
Voltage	continuous	phase / neutral	VAC	276
	temporary (1 s)	phase / neutral	VAC	300
	continuous	phase / phase	VAC	480
	temporary (1 s)	phase / phase	VAC	800
Current	Maximum		Α	6
	temporary (0.5 ms)		Α	120
Measuring Features				
Voltage range	phase / neutral		VAC	92276
0	phase / phase			VAC 160480
current range			A	0.001 6
E			11-	
Frequency range			Hz	
Frequency range Measured Quantities 2 above: Careary calculation			Hz -	45 65 V, A, kWh, PF, Hz, kW
Frequency range Measured Quantities 3 phases Energy calculation Bienaw features			Hz - -	45 65 V, A, kWh, PF, Hz, kW WELMEC
Frequency range Measured Quantities 3 phases Energy calculation Display features Display theorem	ICD with backlight		Hz - -	43 03 V, A, KWh, PF, Hz, KW WELMEC 72+32
Frequency range Measured Quantities 3 phases Energy calculation Display features Display type Active Energy	LCD with backlight		Hz - - -	43 03 V, A, KWh, PF, Hz, KW WELMEC 7.2 +3.2 0.01 99999999 9
Frequency range Measured Quantities 3 phases Energy calculation Display features Display type Active Energy Voltane	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digit		Hz - - - - - - - - - - - - - - - - - - -	45 65 V, A, kWh, PF, Hz, kW WELMEC 7.2 +3.2 0.01 99999999.9 92.0 276.0
Frequency range Measured Quantities 3 phases Energy calculation Display features Display type Active Energy Voltage Current	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digit 2 digits + 2 decimal digit / 3	+1/4+0	Hz - - - - - - - - - - - - - - - - - - -	45 65 V, A, kWh, PF, Hz, kW WELMEC 7.2 +3.2 0.01 99999999.9 92.0 276.0 0.01 6000
Frequency range Measured Quantities 3 phases Energy calculation Display features Display type Active Energy Voltage Current Power factor	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digit 2 digits + 2 decimal digits / 3 1 digit + 3 decimal digits with	+1 / 4+0 sion + capac./induc. indic.	Hz - - - - - - - - - - - -	43 05 V. A, kWh, PF, Hz, kW WELMEC 7.2 +3.2 0.01 99999999.9 92.0 276.0 0.01 6000 -1.000 1.000
Frequency range Measured Quantities 3 phases Energy calculation Display features Display type Active Energy Voltage Current Power factor Frequency	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digit 2 digits + 2 decimal digits / 3 1 digit + 3 decimal digits with 2 digits + 2 decimal digits	+1 / 4+0 sign + capac./induc. indic.	Hz - - - - - - - - - - Hz	43 05 V. A, kWh, PF, Hz, kW WELMEC 7.2 +3.2 0.01 99999999.9 92.0 276.0 0.01 6000 -1.000 1.000 45.00 65.00
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Frequency range Measured Quartities 3 phases Energy calculation Display features Display type Active Energy Voltage Current Power factor Frequency Active Power Display refresh period	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digit 2 digits + 2 decimal digits / 3 1 digit + 3 decimal digits with 2 digits + 2 decimal digits 2 digits + 2 decimal digits	+1 / 4+0 sign + capac./induc. indic.	Hz - - - - - - - - - - - - - - - - - - -	43 05 V, A, kWh, PF, Hz, kW WELMEC 7.2 +3.2 0.01 99999999.9 92.0 276.0 0.01 6000 -1.000 1.000 45.00 65.00 0.00 1987 1
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Frequency range         Measured Quantities         3 phases Energy calculation         Display features         Display type         Active Energy         Voltage         Current         Power factor         Frequency         Active Power         Display refresh period         Optical metrological LED         Front mounted red LED (meter constant)         Safety         Utilization category         Overvoltage category	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digit 2 digits + 2 decimal digits / 3 1 digit + 3 decimal digits with 2 digits + 2 decimal digits 2 digits + 2 decimal digits proportional to active imp/exp	+1 / 4+0 sign + capac./induc. indic. Energy	Hz - - kWh V A - Hz kW S s imp/kWh - -	43 03 V. A, kWh, PF, Hz, kW WELMEC 7.2 +3.2 0.01 99999999.9 92.0 276.0 0.01 6000 -1.000 1.000 45.00 65.00 0.00 1987 1 100000 UC1 3
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Frequency range         Measured Quantities         3 phases Energy calculation         Display features         Display features         Active Energy         Voltage         Current         Power factor         Frequency         Active Power         Display refresh period         Optical metrological LED         Front mounted red LED (meter constant)         Safety         Utilization category         Overvoltage category         Protective class         AC voltage test (EN 50470-3:2022)         Descent deviction	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digit 2 digits + 2 decimal digits / 3 1 digit + 3 decimal digits with 2 digits + 2 decimal digits 2 digits + 2 decimal digits proportional to active imp/exp	+1 / 4+0 +1 / 4+0 sign + capac./induc. indic. Energy	Hz - - - - - - - - Hz kW s - - Hz kW - - - - - - - - - - - - -	4305 V. A, kWh, PF, Hz, kW WELMEC 7.2 +3.2 0.0199999999.9 92.0276.0 0.016000 -1.0001.000 45.0065.00 0.001987 1 10000 UC1 3 II 4 4
Frequency range Measured Quartities 3 phases Energy calculation Display features Display type Active Energy Voltage Current Power factor Frequency Active Power Display refresh period Optical metrological LED Front mounted red LED (meter constant) Safety Utilization category Overvoltage category Protective class AC voltage test (EN 50470-3:2022) Degree of pollution Constributions	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digit 2 digits + 2 decimal digits / 3 1 digit + 3 decimal digits with 2 digits + 2 decimal digits 2 digits + 2 decimal digits proportional to active imp/exp	+1 / 4+0 I sign + capac./induc. indic. Energy	Hz - - - - - - - - - - - - -	43 05 V. A, kWh, PF, Hz, kW WELMEC 7.2 +3.2 0.01 99999999.9 92.0 276.0 0.01 6000 -1.000 1.000 45.00 65.00 0.00 1987 1 10000 UC1 3 II 4 2 2000
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Frequency range         Measured Quartities         3 phases Energy calculation         Display features         Display type         Active Energy         Voltage         Current         Power factor         Frequency         Active Power         Display type         Active Power         Display refresh period         Optical metrological LED         Front mounted red LED (meter constant)         Safety         Utilization category         Overvoltage category         Protective class         AC voltage test (EN 50470-3:2022)         Degree of pollution         Operational voltage         Inpulse voltage test (Uimp)         Housing material flame resistance         Safety-sealing between upper and lower housing part         Printed circuit board flammability class         Material Group         Embedded communication M-Bus         Baud rate	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digit 2 digits + 2 decimal digits / 3 1 digit + 3 decimal digits with 2 digits + 2 decimal digits 2 digits + 2 decimal digits proportional to active imp/exp 	+1 / 4+0 +1 / 4+0 Sign + capac./induc. indic. Energy	Hz - - - - - - - - - Hz kW S - - Hz kW S - - Hz kW S - - Hz kW S - - Hz kW - - Hz kW - - Hz kW - - - - - Hz kW - - - - - - - - - - - - -	43 03 V. A, kWh, PF, Hz, kW WELMEC 7.2 +3.2 0.01 99999999.9 92.0 276.0 0.01 6000 -1.000 1.000 45.00 65.00 0.00 1987 1 100000 UC1 3 II 4 2 3000 6.4 classe V0 ☑ ✓ V1 III III 3 300-600-1200-2400-4800-9600
Frequency range         Measured Quartities         3 phases Energy calculation         Display features         Display type         Active Energy         Voltage         Current         Power factor         Frequency         Active Power         Display type         Active Power         Display refresh period         Optical metrological LED         Front mounted red LED (meter constant)         Safety         Utilization category         Overvoltage category         Protective class         AC voltage test (EN 50470-3:2022)         Degree of pollution         Operational voltage         Safety-sealing between upper and lower housing part         Printed circuit board flammability class         Material Group         Embedded communication M-Bus         Baud rate         Unit load	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digit 2 digits + 2 decimal digits / 3 1 digit + 3 decimal digits with 2 digits + 2 decimal digits 2 digits + 2 decimal digits proportional to active imp/exp 	+1 / 4+0 i sign + capac./induc. indic. Energy	Hz - - - - - - - - - - - - -	43 03 V. A, kWh, PF, Hz, kW WELMEC 7.2 +3.2 0.01 99999999.9 92.0 276.0 0.01 6000 -1.000 1.000 45.00 65.00 0.00 1987 1 10000 UC1 3 II 4 4 2 300 6.4 dasse V0 ☑ ✓ Y1 III III 3 300-600-1200-2400-4800-9600 1
Frequency range         Measured Quartities         3 phases Energy calculation         Display features         Display fype         Active Energy         Voltage         Current         Power factor         Frequency         Active Power         Display type         Active Tower         Display refresh period         Optical metrological LED         Front mounted red LED (meter constant)         Safety         Utilization category         Overvoltage category         Protective class         AC voltage test (EN 50470-3:2022)         Degree of pollution         Operational voltage         Impulse voltage test (Uimp)         Housing material flame resistance         Safety-sealing between upper and lower housing part         Printed circuit board flammability class         Material Group         Embedded communication M-Bus         Baud rate         Unit load         Isolation class	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digit 2 digits + 2 decimal digits / 3 1 digit + 3 decimal digits with 2 digits + 2 decimal digits 2 digits + 2 decimal digits proportional to active imp/exp 	+1 / 4+0 : sign + capac./induc. indic. Energy	Hz - - - - - - - - - - - - -	43 03 V. A, kWh, PF, Hz, kW WELMEC 7.2 +3.2 0.01 99999999.9 92.0 276.0 0.01 6000 -1.000 1.000 45.00 65.00 0.00 1987 1 10000 UC1 3 II 4 2 300 6.4 classe V0 E∫ V1 III II 300-600-1200-2400-4800-9600 1 SELV circuit
Frequency range         Measured Quartities         3 phases Energy calculation         Display features         Display fype         Active Energy         Voltage         Current         Power factor         Frequency         Active Dower         Display refresh period         Optical metrological LED         Front mounted red LED (meter constant)         Safety         Utilization category         Overvoltage category         Protective class         AC voltage test (EN 50470-3:2022)         Degree of pollution         Operational voltage         Impulse voltage test (Uimp)         Housing material flame resistance         Safety-sealing between upper and lower housing part         Printed circuit board flammability class         Material Group         Embedded communication M-Bus         Baud rate         Unit load         Isolation class         Tariff	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digit 2 digits + 2 decimal digits / 3 1 digit + 3 decimal digits with 2 digits + 2 decimal digits 2 digits + 2 decimal digits proportional to active imp/exp 	+1 / 4+0 i sign + capac./induc. indic. Energy	Hz - - - - - - - - - - - - -	43 03 V. A, kWh, PF, Hz, kW WELMEC 7.2 +3.2 0.01 99999999.9 92.0 276.0 0.01 6000 -1.000 1.000 45.00 65.00 0.00 1987 1 10000 UC1 3 II 4 2 300 6.4 classe V0 ☑ ✓ V1 IIIa 300-600-1200-2400-4800-9600 1 SELV circuit
Frequency range         Measured Quartities         3 phases Energy calculation         Display features         Display type         Active Energy         Voltage         Current         Power factor         Frequency         Active Power         Display refresh period         Optical metrological LED         Front mounted red LED (meter constant)         Safety         Utilization category         Overvoltage category         Protective class         AC voltage test (EN 50470-3:2022)         Degree of pollution         Operational voltage         Impulse voltage test (Uimp)         Housing material flame resistance         Safety-sealing between upper and lower housing part         Printed circuit board flammability class         Material Group         Embedded communication M-Bus         Baud rate         Unit load         Isolation class         Tariff 1	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digit 2 digits + 2 decimal digits / 3 1 digit + 3 decimal digits / 3 2 digits + 2 decimal digits 2 digits + 2 decimal digits proportional to active imp/exp 	+1 / 4+0 sign + capac./induc. indic. Energy	Hz	43 05 V. A, kWh, PF, Hz, kW WELMEC 7.2 +3.2 0.01 99999999.9 92.0 276.0 0.01 6000 -1.000 1.000 45.00 65.00 0.00 1987 1 10000 UC1 3 II 4 2 300 6.4 classe V0 ⊠ V1 IIIa 300-600-1200-2400-4800-9600 1 SELV circuit ⊠
Frequency range         Measured Quartities         3 phases Energy calculation         Display features         Display type         Active Energy         Voltage         Current         Power factor         Frequency         Active Power         Display refresh period         Optical metrological LED         Front mounted red LED (meter constant)         Safety         Utilization category         Overvoltage category         Protective class         AC voltage test (EN 50470-3:2022)         Degree of pollution         Operational voltage         Impulse voltage test (Uimp)         Housing material flame resistance         Safety         Embedded communication M-Bus         Baud rate         Unit load         Isolation class         Tariff         Tariff 1         Tariff 2	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digit 2 digits + 2 decimal digits / 3 1 digit + 3 decimal digits / 3 2 digits + 2 decimal digits 2 digits + 2 decimal digits proportional to active imp/exp 	+1 / 4+0 sign + capac./induc. indic. Energy	Hz - - - KWh V A - Hz KW S imp/kWh - - classe kV - V 1.2/50 UL 94 - - - - - - - - - - - - -	43 03 V. A, kWh, PF, Hz, kW WELMEC 7.2 +3.2 0.01 99999999.9 92.0 276.0 0.01 6000 -1.000 1000 45.00 65.00 0.00 1987 1 10000 UC1 3 II 4 2 300 6.4 classe V0 ☑ ☑ ✓ V1 IIIa 300-600-1200-2400-4800-9600 1 SELV circuit ☑ 230 ±20%
Frequency range         Measured Quantities         3 phases Energy calculation         Display features         Display features         Outreat         Active Energy         Voltage         Current         Power factor         Frequency         Active Power         Display refresh period         Optical metrological LED         Front mounted red LED (meter constant)         Safety         Utilization category         Overvoltage category         Protective class         AC voltage test (EN 50470-3:2022)         Degree of pollution         Operational voltage         Impulse voltage test (Uimp)         Housing material flame resistance         Safety-sealing between upper and lower housing part         Printed circuit board flammability class         Material Group         Embedded communication M-Bus         Baud rate         Unit load         Isolation class         Tariff         Tariff         Tariff         Tariff         Tariff         Input impedance	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digits 2 digits + 2 decimal digits /3 1 digit + 3 decimal digits with 2 digits + 2 decimal digits 2 digits + 2 decimal digits proportional to active imp/exp adjustable	+1 / 4+0 sign + capac./induc. indic. Energy	Hz - - - KWh V A - Hz KW S S imp/kWh - - classe KV - V 1.2/50 UL 94 - - - - - - - - - - - - -	43 03           V. A, kWh, PF, Hz, kW           WELMEC           7.2 +3.2           0.01 99999999.9           92.0 276.0           0.01 6000           -1.000 1.000           45.00 65.00           0.00 1987           1           100000           UC1           3           II           4           2           3000           6.4           classe V0           5           V1           IIIa           3000-600-1200-2400-4800-9600           1           SELV circuit           5           230 ± 20%           224
Frequency range         Measured Quantities         3 phases Energy calculation         Display features         Display type         Active Energy         Voltage         Current         Power factor         Frequency         Active Power         Display refresh period         Optical metrological LED         Front mounted red LED (meter constant)         Safety         Ultization category         Overvoltage category         Protective class         AC voltage test (EN 50470-3:2022)         Degree of pollution         Operational voltage         Safety-sealing between upper and lower housing part         Printed circuit board flammability class         Material Group         Embedded communication M-Bus         Baud rate         Unit load         Isolation class         Tariff         Tariff 1         Tariff 2         Input impedance         Environmental conditions	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digit 2 digits + 2 decimal digits / 3 1 digit + 2 decimal digits with 2 digits + 2 decimal digits 2 digits + 2 decimal digits proportional to active imp/exp adjustable	+1 / 4+0  +1 / 4+0  isign + capac./induc. indic.  Energy	Hz - - KWh V A - Hz kW S - Hz kW S - Hz kW S - Hz kW S - Hz kW S - - - - - - - - - - - - -	4303         V. A, kWh, PF, Hz, kW         WELMEC         7.2 +3.2         0.0199999999.9         92.0276.0         0.016000         -1.0001.000         45.0065.00         0.001987         1         100000         UC1         3         II         4         2         3000         6.4         classe V0         ダ         V1         IIIa         300-600-1200-2400-4800-9600         1         SELV circuit         ダ         230 ± 20%         224
Frequency range         Measured Quantities         3 phases Energy calculation         Display type         Active Energy         Voltage         Current         Power factor         Frequency         Active Power         Display type         Active Power         Display refresh period <b>Optical metrological LED</b> Front mounted red LED (meter constant)         Safety         Utilization category         Overtage category         Protective class         AC voltage test (EN 50470-3:2022)         Degree of pollution         Operational voltage         Impulse voltage test (Uimp)         Housing material flame resistance         Safety-sealing between upper and lower housing part         Printed circuit board flammability class         Material Group         Embedded communication M-Bus         Baud rate         Unit load         Isolation class         Tariff 1         Tariff 2         Input impedance         Environmental conditions         Storage temperature range	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digit 2 digits + 2 decimal digits / 3 1 digit + 3 decimal digits with 2 digits + 2 decimal digits 2 digits + 2 decimal digits proportional to active imp/exp	+1 / 4+0 i sign + capac./induc. indic. Energy	Hz - - - KWh V A - - Hz kW s - Hz kW s - - - classe kV - - classe kV - - - - - - - - - - - - -	43 03 V. A, kWh, PF, Hz, kW WELMEC 7.2 +3.2 0.01 99999999.9 92.0 276.0 0.01 6000 -1.000 1.000 45.00 65.00 0.00 1987 1 100000 UC1 3 II 4 4 2 3000 6.4 classe V0 ☑ ✓ V1 III III 3 300-600-1200-2400-4800-9600 1 SELV circuit ☑ 230 ±20% 224 -25 +70
Frequency range         Measured Quantities         3 phases Energy (calculation         Display features         Display function         Active Energy         Voltage         Current         Power factor         Frequency         Active Power         Display refresh period         Optical metrological LED         Front mounted red LED (meter constant)         Safety         Utilization category         Overotage category         Protective class         AC voltage tast (EN 50470-3:2022)         Degree of pollution         Operational voltage         Impulse voltage tast (Uimp)         Housing material flame resistance         Safety-sealing between upper and lower housing part         Printed circuit board flammability class         Material Group         Embedded communication M-Bus         Baud rate         Unit load         Isolation class         Tariff 1         Tariff 2         Input impedance         Environmental conditions         Storage temperature range	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digit 2 digits + 2 decimal digit 3 digits + 2 decimal digits with 2 digits + 2 decimal digits 2 digits + 2 decimal digits 2 digits + 2 decimal digits 3 digits + 2 decimal digits 4 digits	+1 / 4+0 i sign + capac./induc. indic. Energy	Hz - - - - - - - - - - - - -	43 03 V. A, kWh, PF, Hz, kW WELMEC 7.2 +3.2 0.01 99999999.9 92.0 276.0 0.01 6000 -1.000 1.000 45.00 65.00 0.00 1987 1 100000 UC1 3 II 4 2 3000 6.4 classe V0 ☑ ✓ V1 III III 3 300-600-1200-2400-4800-9600 1 SELV circuit ☑ 230 ±20% 224 -25 +70 -25 +55
Frequency range         Measured Quantities         3 phases Energy calculation         Display type         Active Energy         Voltage         Current         Power factor         Frequency         Active Dower         Display type         Active Power         Display refresh period <b>Optical metrological LED</b> Front mounted red LED (meter constant)         Safety         Utilization category         Overvoltage category         Protective class         AC voltage test (EN 50470-3:2022)         Degree of pollution         Operational voltage         Impulse voltage test ( <b>Uimp</b> )         Housing material flame resistance         Safety-sealing between upper and lower housing part         Printed circuit board flammability class         Material Group <b>Embedded communication M-Bus</b> Baud rate         Unit load         Isolation class         Tariff 1         Tariff 2         Input impedance         Environmental conditions         Storage temperature range         Operating temperature range         Operati	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digit 2 digits + 2 decimal digits / 3 1 digit + 3 decimal digits with 2 digits + 2 decimal digits 2 digits + 2 decimal digits proportional to active imp/exp adjustable adjustable	+1 / 4+0 i sign + capac./induc. indic. Energy	Hz - - - KWh V A - - Hz KW S - - Hz KW S S - - - - - - - - - - - - -	4303         V.A, kWh, PF, Hz, kW         WELMEC         7.2 + 3.2         0.0199999999.9         92.0276.0         0.016000         -1.0001.000         45.0065.00         0.001987         1         10000         UC1         3         II         4         2         300         6.4         classe V0         ☑         Y1         IIIa         300-600-1200-2400-4800-9600         1         SELV circuit         ☑         230 ± 20%         224         -25 +70         -25 +55         M1
Frequency range         Measured Quantities         3 phases Energy valculation         Display features         Display type         Active Energy         Voltage         Current         Power factor         Frequency         Active Power         Display fresh period         Optical metrological LED         Front mounted red LED (meter constant)         Safety         Utilization category         Overvoltage category         Protective class         AC voltage test (EN 50470-3:2022)         Degree of pollution         Operational voltage         Impulse voltage test (Uimp)         Housing material flamm existance         Safety-sealing between upper and lower housing part         Printed circuit board flammability class         Material Group         Embedded communication M-Bus         Baud rate         Unit Itad         Isolation class         Tariff         Tariff 1         Tariff 2         Input impedance         Environmental conditions         Storage temperature range         Operating temperature range         Operating tenviron	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digit 2 digits + 2 decimal digits / 3 1 digit + 3 decimal digits with 2 digits + 2 decimal digits 2 digits + 2 decimal digits proportional to active imp/exp adjustable adjustable	+1 / 4+0 +1 / 4+0 i sign + capac./induc. indic. Energy	Hz - - - kWh V A - - Hz kW s s - - - - - - - - - - - - -	4305         V.A, kWh, PF, Hz, kW         WELMEC         7.2 +3.2         0.0199999999.9         92.0276.0         0.016000         -1.0001.000         45.0065.00         0.001987         1         10000         UC1         3         II         44         2         3000         6.4         classe V0         Ef         V1         IIIa         300-600-1200-2400-4800-9600         1         SELV circuit         Ef         -25+70         -25+55         M1         E2         -25+55
Frequency range         Measured Quantities         3 phases Energy calculation         Display features         Display type         Active Energy         Voltage         Current         Power factor         Frequency         Active Power         Display fresh period         Optical metrological LED         Front mounted red LED (meter constant)         Safety         Ublization category         Overvoltage category         Protective class         AC voltage test (EN 50470-3:2022)         Degree of pollution         Operational voltage         Impulse voltage test (Uimp)         Housing material flame resistance         Safety-sealing between upper and lower housing part         Printed circuit board flammability class         Material Group         Embedded communication M-Bus         Baud rate         Unit load         Isolation class         Tariff 1         Tariff 2         Input impedance         Environmental conditions         Storage temperature range         Operating temperature range         Operating teminerature range	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digit 2 digits + 2 decimal digits / 3 1 digit + 3 decimal digits with 2 digits + 2 decimal digits 2 digits + 2 decimal digits proportional to active imp/exp adjustable adjustable indoor only	+1/4+0 i sign + capac./induc. indic. Energy	Hz - - - kWh V A - - Hz kW s s - - - - - - - - - - - - -	4305         V.A, kWh, PF, Hz, kW         WELMEC         7.2 +3.2         0.0199999999.9         92.0276.0         0.016000         -1.0001.000         45.0065.00         0.001987         1         10000         UC1         3         II         42.2         300         6.4         classe V0         Ø         V1         IIa         300-600-1200-2400-4800-9600         1         SELV circuit         Ø         -25+70         -25+55         M1         E2         Ø         -25+55
Frequency range         Measured Quantities         3 phases Energy calculation         Display features         Display type         Active Energy         Voltage         Current         Power factor         Frequency         Active Power         Display refresh period <b>Optical metrological LED</b> Front mounted red LED (meter constant)         Safety         Utilization category         Overroltage category         Protective class         AC voltage test (EN 50470-3:2022)         Degree of pollution         Operational voltage         Impulse voltage test (Uimp)         Housing material flame resistance         Safety-sealing between upper and lower housing part         Printed circuit board flammability class         Material Group         Embedded communication M-Bus         Baud rate         Unit load         Isolation classes         Environmental conditions         Storage temperature range         Operating temperature range         Operating temperature range         Mechanical environment         Lineutific         Linetific	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digits 2 digits + 1 decimal digits / 3 1 digit + 3 decimal digits with 2 digits + 2 decimal digits 2 digits + 2 decimal digits 3 digits + 2 decimal digits 4 d	+1/4+0 sign + capac./induc. indic. Energy	Hz - - - - - - - - - - - - -	43 03 V. A, kWh, PF, Hz, kW WELMEC 7.2 +3.2 0.01 99999999.9 92.0 276.0 0.01 6000 -1.000 1.000 45.00 65.00 0.00 1987 1 100000 UC1 3 II 4 2 300 6.4 classe V0 ☑ ✓ V1 IIIa 300-600-1200-2400-4800-9600 1 SELV circuit ☑ 230 ±20% 224 -25 +70 -25 +55 M1 E2 ☑ ≤2000
Frequency range         Measured Quantities         3 phases Energy         Display features         Display type         Active Energy         Voltage         Current         Power factor         Frequency         Active Power         Display refresh period         Optical metrological LED         Front mounted red LED (neter constant)         Safety         Utilization category         Vervoltage category         Protective class         AC voltage test (EN 50470-3:2022)         Degree of pollution         Operational voltage         Impulse voltage test (Uimp)         Housing material flame resistance         Safety-sealing between upper and lower housing part         Printed circuit board flammability class         Material Group         Embedded communication M-Bus         Bad rate         Unit load         Isolation class         Tariff 1         Tariff 2         Input impedance         Environmental conditions         Storage temperature range         Operating temperature range         Operating temperature range         Operatin	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digit 2 digits + 2 decimal digits / 3 1 digit + 3 decimal digits with 2 digits + 2 decimal digits 2 digits + 2 decimal digits 3 digits + 2 decimal digits 2 digits + 2 decimal digits 3 di	+1 / 4+0 sign + capac./induc. indic. Energy Energy	Hz - - - KWh V A - Hz kW S - Hz kW S - Hz kW S - - - classe kV - V 1.2/50 UL 94 - - - - - - - - - - - - -	43 03 V. A, kWh, PF, Hz, kW WELMEC 7.2 +3.2 0.01 99999999.9 92.0 276.0 0.01 6000 -1.000 1.000 45.00 65.00 0.00 1987 1 100000 UC1 3 II 4 2 3000 6.4 classe V0 ☑ ✓ V1 III III 300-600-1200-2400-4800-9600 1 SELV circuit ☑ ✓ 2230 ±20% 224 -25 +70 -25 +55 M1 E2 ☑ ≤2000 ≤75% -05%
Frequency range         Measured Quantities         3 phases Energy calculation         Display features         Display features         Display type         Active Energy         Voltage         Current         Power factor         Frequency         Active Power         Display refresh period         Optical metrological LED         Front mounted red LED (meter constant)         Safety         Ublization category         Overvoltage category         Profective class         AC voltage test (EN 50470-3:2022)         Degree of pollution         Operational voltage         Impulse voltage test (Uimp)         Housing material flame resistance         Safety         Printed circuit board flammability class         Material Group         Embedded communication M-Bus         Baud rate         Unit load         Isolation class         Tariff 1         Tariff 2         Input impedance         Environmental conditions         Storage temperature range         Operating temperature range         Operating temperature range	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digit 2 digits + 2 decimal digits / 3 1 digit + 2 decimal digits with 2 digits + 2 decimal digits 2 digits + 2 decimal digits 2 digits + 2 decimal digits 3 di	+1 / 4+0  sign + capac./induc. indic.  Energy  Insation I	Hz - - KWh V A - Hz kW S - Hz kW S - Hz kW S - Hz kW S - Hz kW S - Hz kW S - Hz kW S - Hz kW S - Hz kW S - Hz kW S - Hz kW S - - Hz kW S - - - - - - - - - - - - -	43 03 V. A, kWh, PF, Hz, kW WELMEC 7.2 +3.2 0.01 99999999.9 92.0 276.0 0.01 6000 -1.000 1.000 45.00 65.00 0.00 1987 1 100000 UC1 3 II 4 4 2 3000 6.4 classe V0 ☑ ☑ V1 III 300-600-1200-2400-4800-9600 1 SELV circuit ☑ ☑ 224 -25 +70 -25 +55 M1 E2 ☑ ≦2000 ≤75% ≤90% ▷ PC1
Frequency range         Measured Quantities         3 phases Energy calculation         Display features         Display type         Active Energy         Voltage         Current         Power factor         Frequency         Active Power         Display refresh period         Optical metrological LED         Fornt mounde red LED (meter constant)         Safety         Utilization category         Overvoltage category         Protective class         AC voltage test (IN 50470-3:2022)         Degree of pollution         Operational voltage         Impulse voltage test (Uimp)         Housing material finame resistance         Safety-scaling between upper and lower housing part         Printed circuit board flammability class         Material Group         Embedded communication M-Bus         Baud rate         Unit load         Isolar class         Tariff 1         Tariff 2         Input impedance         Environmental conditions         Storage temperature range         Operating temperature range         Operating temperature range         <	LCD with backlight 7 digits + 2 decimal digits 3 digits + 1 decimal digit 2 digits + 2 decimal digits / 3 1 digit + 3 decimal digits with 2 digits + 2 decimal digits 2 digits + 2 decimal digits  proportional to active imp/exp  adjustable adju	+1 / 4+0  i sign + capac./induc. indic.  Energy  Insation	Hz - - - KWh V A - Hz kW s - Hz kW s - - Hz kW s - - - classe kV - - classe kV - - - - - - - - - - - - -	43 03 V. A, kWh, PF, Hz, kW WELMEC 7.2 +3.2 0.01 99999999.9 92.0 276.0 0.01 6000 -1.000 1.000 45.00 65.00 0.00 1987 1 100000 UC1 3 II 4 4 2 3000 6.4 classe V0 ☑ ✓ V1 III III 300-600-1200-2400-4800-9600 1 SELV circuit ☑ 220 ±20% 224 224 225 +70 -25 +55 M1 E2 ☑ ≤2000 ≤75% ≤95% IP51 IP20