The best in its class with excellent measurements

Multimeter MC 330, Energy Meter MC 320

KEY FEATURES

- Measurements of instantaneous values for more than 60 quantities (U, I, P, Q, S, PF, PA, f, φ, THD, MD …)
- 4 Energy counters
- Accuracy class U, I, P 0.5 (Active energy Class 1)
- Large frequency range from 16 $^{2}/_{3}$ Hz to 400 Hz
- Up to 2 tariff inputs (option)
- Up to 2 pulse or relay outputs (option)
- AC or Universal (option) power supply
- Graphical LCD; 128 x 64 dots with illumination
- Automatic range of nominal current (max. 12.5 A) and voltage (option)
- User-adjustable display of measurements
- Multilingual support (13 languages)
- RS 485 or RS232 communication up to 115,200 bit/s (option)
- MODBUS communication protocol supported
- User-friendly PC MiQen software for setting via RS485 or RS232 communication

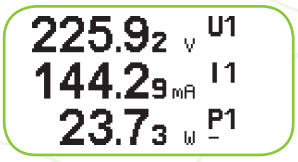
FOR WHOM

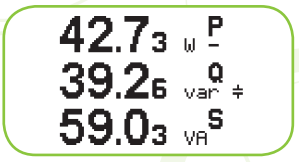
- For electricity distribution and energy production companies, utilities, dwellings, energy management solution providers, industry, business buildings, designers of small power stations, panel builders, etc.

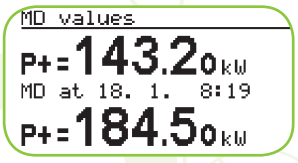
Description of Properties & Technical Data

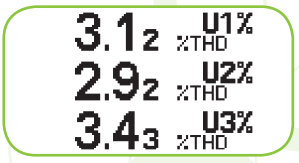
MEASURANDS

- RMS values of currents and voltages (only MC330)
- Measurements of active, reactive, apparent power and power factor (only MC330)
- Measurements of energy in all 4 quadrants
- Average values of measurands per interval (only MC330)









INPUT / OUTPUT MODULES

The modules are available with double inputs/outputs. Each module has three terminals. The meter is available without, with one or with two modules. The following modules are available:

Output module (relay version MC330 only)	2 outputs
Tariff input	2 inputs

Output module is available as:
Opto output according EN62053-31:2001 (27 V, 27 mA)
Relay output in MC330 can be used for pulse output or alarm output (40 V, 1 A).

COMMUNICATION

Option is communication module for reading measured values and instrument setting. Available is RS232 or RS485 communication type module. Communication is galvanic separated from other circuits. For setting we suggest using MIQEN software.

SUPPLY

Standard is AC power supply enables connection of the meter to AC voltage (57.7 & 63.5 / 100 & 110 / 230 / 400).
Option is a universal power supply enables connection of the meter to DC (20–300 V) or AC voltage (48–276 V / 50 Hz).

MIQEN

MiQen software is intended for supervision of the meter on PC. It enables setting meter parameters that are transferred into the instrument via communication (option). Multilingual software functions on Windows 98, 2000, NT, XP operating systems.

ACCURACY

Accuracy is presented as percentage from nominal value of the measurand except when it is stated as an absolute value.

Measurand		Accuracy
Rms current (I1, I2, I3, Iavg, I_n, MD)		0.5
Rms phase voltage (U1, U2, U3, Uavg, MD)	25 … 600 V	0.5
Phase-to-phase voltage (U12, U23, U31, Uavg)		0.5
Frequency (f)		10 mHz
Power factor (PF)		0.5
Phase and phase-to-phase angle (φ, φ12, φ23, φ31)		0.5°
Active, reactive and apparent power		0.5
Active energy	SIST EN 62053-21	Class 1
Reactive energy	SIST EN 62053-23	Class 2
Pulse output	SIST EN 62053-31	Class A & B

INPUTS

Input signals	Current	Voltage
Nominal frequency range	50, 60 Hz	
Measuring frequency range	16 –400 Hz	
Nominal value (In, Un)	1 / 5 A	75, 120, 250, 500 V_{L-N}
Maximal value	12.5 A	600 V_{L-N}
Consumption	< 0.1 VA	< 0.1 VA

POWER SUPPLY

Power supply	Universal	AC
Nominal voltage AC	48–276 V	57.7 & 63.5 / 100 &110 / 230 / 400
Nominal frequency	40–65 Hz	40–65 Hz
Nominal voltage DC	20–300 V	–
Consumption	< 3 VA	< 3 VA

SAFETY

Safety	Protection class **II** **600 V rms**, installation category **II** **300 V rms**, installation category **III** Pollution degree 2 in compliance with **SIST EN 61010-1**: 2002
Enclosure material	PC/ABS incombustibility-self-extinguish ability, complying with **UL 94 V-0**
Enclosure protection	IP 52 (IP 00 for terminals) in compliance with **SIST EN 60529**: 1997

Description of Properties & Technical Data

REFERENCE CONDITIONS

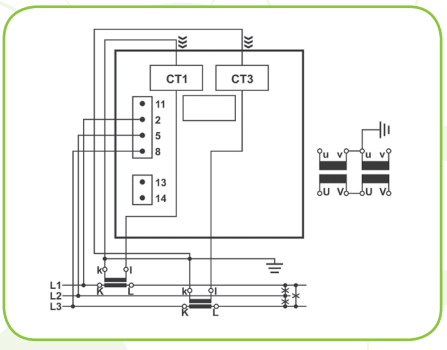
Ambient temperature	–10…23 … 55°C
Voltage input	+/- 20% Un
Voltage input with voltage autorange	50 … 500 V
Current input	0 … 100 % In
Active/reactive power, factor	cos φ =1 / sinφ
Waveform	Sinus

AMBIENT CONDITIONS

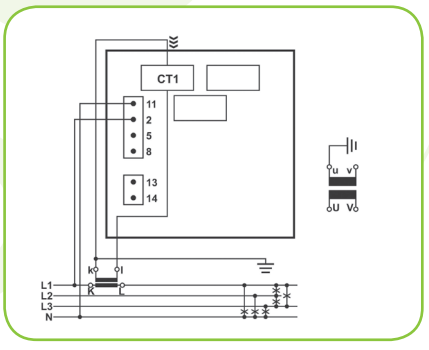
Temperature range of operation	-10 to +55 °C
Storage temperature range	-40 to +70 °C
Average annual humidity	≤ 75 % r.h.

CONNECTION

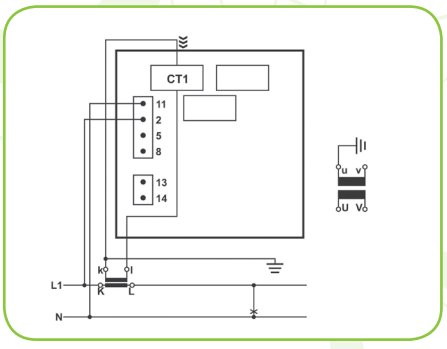
Voltage inputs can be connected either directly to low-voltage network or via a high-voltage transformer to high-voltage network. Current inputs shall be connected to network via a corresponding current transformer.



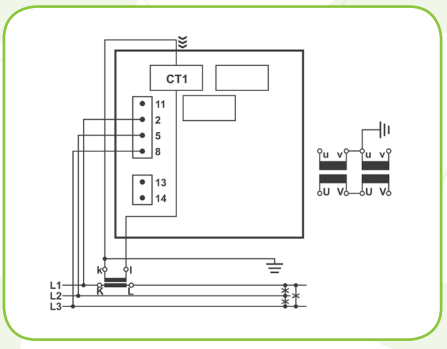
3u – three-wire, unbalanced load



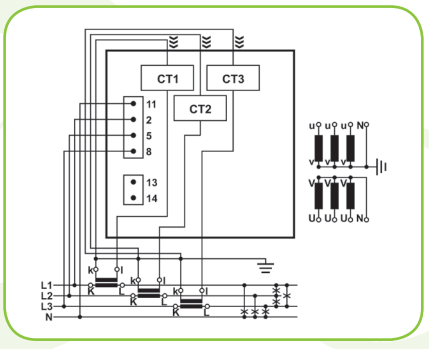
4b – four-wire, balanced load



1b – single-wire, balanced load

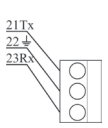
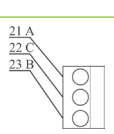


3b – three-wire, balanced load



4u – four-wire, unbalanced load

Inputs / Quantities		Terminals	
Measuring inputs	AC current	IL1	CT1
		IL2	CT2
		IL3	CT3
	AC voltage	UL1	2
		UL2	5
		UL3	8
		N	11
Auxiliary power supply		+ / AC_L	13
		– / AC_N	14
Input / Output modules	Output	Out –1	15
		C–12	16
		Out –2	17
	Tariff input	T 1/2	18
		C	19
		T 3/4	21

	Connector	Terminals	Position	Data direction	Description
RS232	Connector		21	From	Data transmission (Tx)
			22	–	Grounding (⏚)
			23	To	Data reception (Rx)
RS485	Connector		21	To/From	A
			22	–	Do not connect!
			23	To/From	B

TERMINALS

Connection	Max. conductor cross-sections
Voltage inputs (4)	≤ 2.5 mm²; one conductor
Current inputs (3)	≤ Ø 6 mm; one conductor with insulation
Power supply (2)	≤ 2.5 mm2; one conductor
Modules (2 x 3)	≤ 2.5 mm2; one conductor

Ordering & Dimensional Drawing

DATA FOR ORDERING

Measuring centre

The following data shall be stated:

- Type of a meter
- Voltage range
- Type of power supply
- Type of a module
- Communication

Supplement:
MiQen software

ORDERING

When ordering the meter, all required specifications shall be stated in compliance with the ordering code.
The meters automatic range of input current (up to 5 A) is not stated in the code.

EXAMPLE OF ORDERING

The MC3x0 meter is connected to secondary phase voltage up to 500 V_{L-N} and 5 A secondary current. A universal supply and two modules are built-in the meter. The first module is an relay output and the second one is a tariff input. Meter is without communication.

Ordering code:
MC330–AV-EDC/AC–2RO/2TI-WO

GENERAL ORDERING CODE

All specifications are obligatory
An example of a completely filled-in ordering code:

MC330/240V/EDC/AC–2RO/2TI-RS485

Meter type
MC330
MC320

Voltage range (Uln)
AV automatic range 50…500 V
63V 57.7 V and 63.5 V
100V 110 V
240V 230 V and 240 V

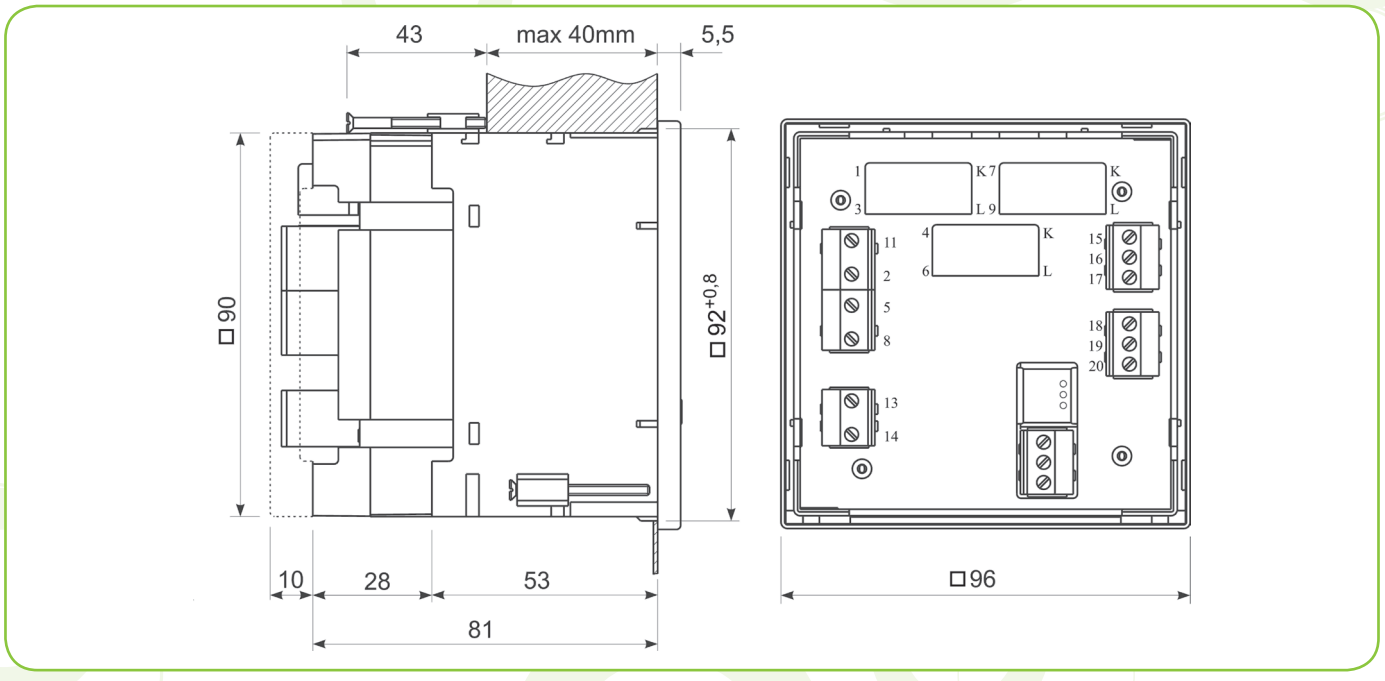
Power supply
EDC/AC Universal
E57/63V 57.7 V / 63.5 V AC
E100/110V 100 V/ 110 V AC
E230/240V 230 V / 240 V AC
E400V 400 V AC

Module 1 (Optional)
WO Without
2S0 2 X pulse output
2RO 2 X Relay output (MC330 only)

Module 2 (Optional)
WO Without
2TI 2 X Tariff input

Comm. RS485 or RS232 module (Optional)
WO Without
RS485 RS485 communication
RS232 RS232 communication

DIMENSIONAL DRAWING



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