Type MIQ96
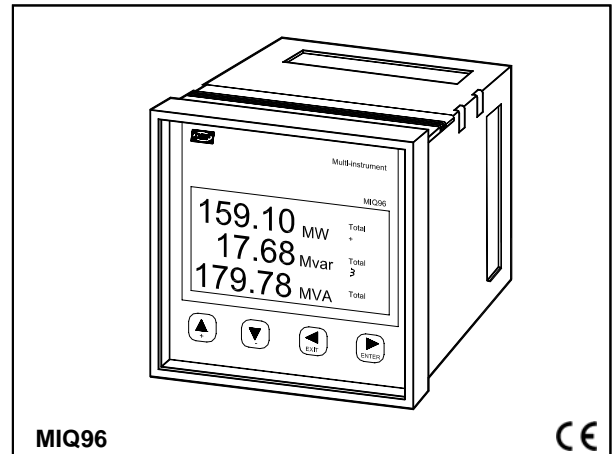
REPLACEMENT

Multi-instrument

- *All 1 or 3-phase AC measurements, true RMS*

- *Programmable CT and VT ratios*

- *More than 50 displayed parameters (V, A, kW, kVA, kvar, kWh, PF, Hz, MD, THD etc.)*

- *Multi language support*

- *Optional serial RS485 output for all values*

- *Optional pulse output for kWh and kvarh*

MIQ96

CE

Application

The MIQ96 multi-instrument is a microprocessor-based measuring unit providing measurement of all electrical quantities on a single phase or 3-phase electric energy distribution network, showing the measurements on the built-in display and transmitting these as:

- 2 pulse outputs for kWh and kvarh (option)

- A serial output RS485 (option)

The MIQ96 can replace several instruments in all electrical measuring applications and can be applied both as a normal instrument and as a remote value-reading unit, where all measured values are transmitted to the remote control system via the serial interface.

The MIQ96 measures true RMS values on all network topologies with/without neutral and with both balanced and unbalanced load.

The MIQ96 contains all necessary measuring circuits and presents all values on a graphic LCD with yellow/green backlight. Messages are presented in clear text, all measuring values in engineering units.

The MIQ96 is a flexible and programmable unit, which enables the user to easily adapt the unit to the application in question. Reset of counters and change of parameters can be password protected.

Standard functions

The unit is designed for measurement on a 3-phase or 1-phase network.

Measured and calculated values on a 3W4 connection:

- Current (3-phase actual current, neutral current, average current, THD in each phase)

- Phase to neutral voltage (3-phase actual voltage, average voltage, THD in each phase, phase angle)

- Phase to phase voltage (3-phase actual voltage, average voltage, THD between phase 1, 2 and 3)

- Active power (3 phase W total and W for each phase)

- Reactive power (3 phase var total and var for each phase)

- Apparent power (3 phase VA total and VA for each phase)

- Power factor PF (3 phase PF total and PF for each phase)

- Frequency

- Energy measuring counter Export and Import

  4 counters: (1) export kWh, (2) export kvarh
  (3) import kWh, (4) import kvarh

- Maximum demands (load from consumer)
  The MIQ96 enables measurement of MDs of total active, reactive and apparent power, moreover the sum of currents
  The MIQ96 can be set up for one of three different modes for calculation of MDs:
  a. Thermal (bimetal element)
  b. Fixed window (average value for one window)
  c. Sliding window (average value for more windows)

Connection

In the menu "Setting" set up for the following connections are available: 1W, 1W3, 2W3, 1W4, 3W4.

Principle diagram for 3W4 connection:
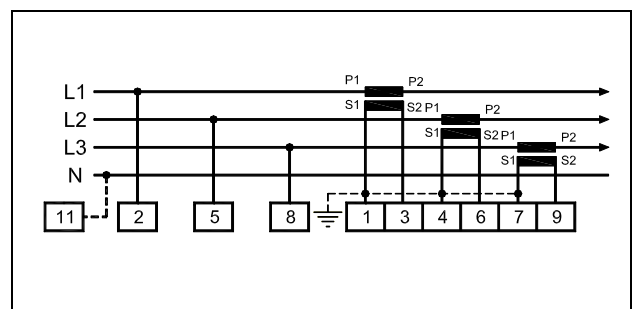
Options

RS485 serial output

RS485 remote value-reading of all values measured by the MIQ96.
RS485 allows remote entering of password, time, MD, reset of counters etc.
Modbus standard telegram.

Energy measurement by 2 relay outputs

For counter 3 and 4:
The 2 potential free relay outputs can be programmed to transmit any fixed number of pulses per produced kWh(3) or kvarh (4).

Aux. supply

Two standards: 24…220V DC or 230V AC 50/60Hz.

Type MIQ96

Technical specifications

Meas. voltage Un:	Ph-N 230V AC Ph-Ph 400V AC, range 0.1…1.5 x Un Consumption: < 0.1VA per phase
	Overload capacity: 1.5 x Un continuously 2 x Un for 10s
Meas. current In:	-/1A range 0…1.6 x In Consumption: < 0.1VA per phase
	Overload capacity: 3 x In continuously 25 x In for 3s 50 x In for 1s
Meas. frequency:	50/60Hz, range 45…65Hz
Auxiliary supply:	Standard AC Un: 200V AC...276V AC ±20%
	Overload capacity: 1.2 x Un continuously 1.5 x Un for 10s
	Aux. frequency: 50/60Hz, range 45…65Hz
	Consumption: < 7VA
	Standard DC Un: 24…220V DC, range 19…300V DC
	Consumption: < 5W

Accuracy:	Phase voltage Ph-N	0.5% of range
	Phase - phase voltage	1.0% of range
	Current	0.5% of range
	Neutral current	1.0% of range
	Active power	0.5% of range
	Reactive power	0.5% of range
	Apparent power	0.5% of range
	Power factor	0.5% of range
	MD values	1.0% of range
	Active energy EN61036:	1996 class1
	React. energy EN61268:	1995 class2
	Frequency	0.05% of reading
	THD	1.0%

Relay outputs (option):

Contact ratings:	250V - 6A - 1500VA (AC) (250V AC - 6A resistive AC load 100.000 operations) 35V - 6A - 210W (DC) (30V DC - 6A resistive load 500.000 operations)
Contact voltage:	Max. 250V (AC) Max. 100V (DC)
Isolation:	1000V (AC) between open contacts 4000V (AC) between coil and contacts
Pulse:	Max. pulses per hour 4000 Pulse duration 100ms
Fuse:	All voltage inputs ought to be protected by a 2A fuse

Safety:	To EN 61010-1 Installation Cat. III, 300V. Pollution degree 2 Installation Cat. II, 600V. Pollution degree 2
Test voltage:	3.7 kV rms according to EN 61010-1
EMC:	To EN 61326-1: 1997 for mentioned accuracy. (To EN 50081-1/2 and EN 50082-1/2 for a general 1.0% accuracy on all measurements)
Connections:	Permissible cross section of the connection leads: For input quantities: ≤ 5mm^2 single wire For communication, auxiliary power supply and relay outputs: ≤ 2.5 mm^2 single wire
Protection:	IP21. Front: IP52. According to EN 60529

Climate:	According to EN 61036:	1996
	According to EN 61268:	1995
	Operating temp., AC supply:	-20 to +70°C
	Operating temp., DC supply:	0 to +50°C
	Storage temperature:	-40 to +70°C
	Annual mean relative humidity: ≤ 75% r.h.	
Housing:	Plastic, in compliance with UL 94 V0	

Dimensions (in mm)

1) Protection lid for terminals

Weight: Approx. 0.65 kg   Panel cut-out: 92 x 92 mm + 0.8
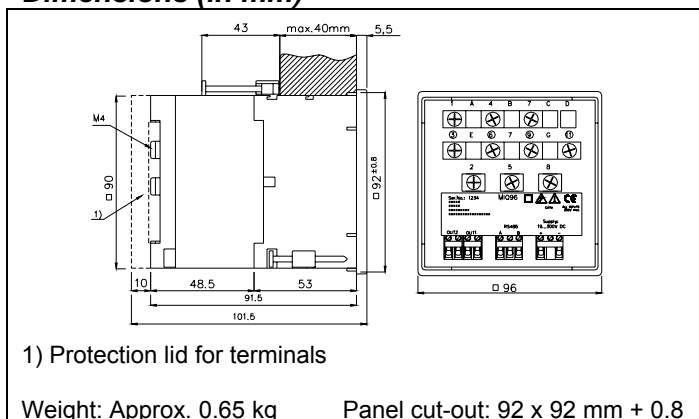
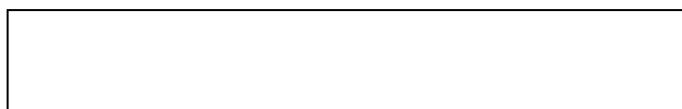## Order specifications

Basic unit Ph-N 230VAC/ Ph-Ph 400VAC

CT -/1A   1

24...220VDC aux. supply   DC

230VAC aux. supply   AC

Option RS 485 and 2 digital outputs   W

Example: MIQ96 – 1 – DC – W

Due to our continuous development we reserve the right to supply equipment which may vary from the described.