MULTIFUNCTION TRANSDUCER & ANALYSER
UMT560/MT560
MULTIFUNCTION TRANSDUCER & RECORDER
UMT550/MT550

- Evaluation of the electricity supply **quality in compliance with EN 50160.**
- Voltage and current auto range measurements up to **600 V$_\perp$, 12.5 A.**
- **Wide measurement frequency range** 16 Hz– 400 Hz.
- Power **accuracy class 0.2** (IEC-688), 0.1 on communication.
- Up to **three communication ports.**
- **Remote display.**
- Up to **four I/O modules.**
- Powerful **analogue output**; **6 voltage and current ranges**, non-linear characteristics.

FEATURES

- Evaluation of the electricity supply quality in compliance with EN 50160 (UMT/MT560 only).
- Measurements of instantaneous values of more than 140 quantities (U, I, P, Q, S, PF, PA, f, φ, THD, MD, energy, energy cost by tariffs, etc.).
- Power accuracy class 0.2.
- Harmonic analysis of phase, phase-to-phase voltages and currents up to the 63rd harmonic (UMT/MT550 up to 31st harmonic).
- Recording up to 32 measurands and 32 alarms in the internal memory (8 MB flash).
- Measurements of 40 minimal and maximal values in different time periods.
- 32 adjustable alarms.
- Frequency range from 16 Hz to 400 Hz.
- Up to three communication ports (RS 232/485 up to 115,200 bit/s, Ethernet and USB communication).
- MODBUS and DNP3 communication protocols.
- Remote display connection.
- Up to 4 inputs or outputs (analogue inputs/outputs, digital inputs/outputs, alarm/watchdog outputs, pulse input/outputs, tariff inputs).
- Universal power supply (two voltage ranges).
- Automatic range of nominal current and voltage (max. 12.5 A and 600 VL-N).
- Adjustable tariff clock, display of electric energy consumption in selected currency.
- Housing for DIN rail mounting.
- User-friendly setting software, MiQen.

DESCRIPTION

UMT550/560 are intended for measuring, analysing and monitoring single-phase or three-phase electrical power network. They measure RMS value by means of fast sampling of voltage and current signals, which makes instruments suitable for acquisition of transient events. A built-in microcontroller calculates measurands (voltage, current, frequency, energy, power, power factor, THD phase angles, etc.) from the measured signals.

COMPLIANCE WITH STANDARDS

Standard EN	Description
61010-1: 2001	Safety requirements for electrical equipment for measurement, control and laboratory use
60688:1995 / A2: 2001	Electrical measuring transducers for converting AC electrical variables into analogue and digital signals
50160:2010	Voltage characteristics of electricity supplied by public distribution networks
61326-1:2006	EMC requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements
60529:1997/A1:2000	Degrees of protection provided by enclosures (IP code)
60 068-2-1/ -2/ -6/ -27/-30	Environmental testing (-1 Cold, -2 Dry heat, -30 Damp heat, -6 Vibration, -27 Shock)
UL 94	Tests for flammability of plastic materials for parts in devices and appliances

APPLICATION

The (U)MT560 multi transducer and analyser is used for a permanent analysis of electricity supply quality in compliance with the EN 50160 standard. Records are stored in the internal memory for the period of the last three years. Moreover, more than 100,000 deviations of the measurands from the standard values are stored, which enables finding eventual reasons for the problems in network. Wide range of various I/O modules makes (U)MT560 a perfect choice for numerous applications. (U)MT560 can be delivered pre-configured to the required measuring set-up and output characteristic or it can be delivered un-configured for customer configuration with user friendly setting software MiQen. (U)MT560 supports a wide range of communication interfaces. Standard serial RS232/485 with speed up to 115200 baud is perfect for simple applications and serial bus interfacing.

Ethernet 10/100 is ideal for a long distance monitoring and configuration of numerous transducers. USB 2.0 can be used for a fast set-up or memory acquisition.

8Mb internal flash memory can store records of harmonics (up to 63rd for (U)MT560) and other events, important for electrical network analysis (periodical or permanent)

Pulse inputs are suitable for reading consumption counters (water, gas, heat, compressed air…) and displaying that consumption in primary values.

In combination with analogue extender EX104 it is possible to support up to 7 analogue outputs.

In combination with remote display RD500 it is possible to remotely monitor readings and make settings of up to 32 in a network connected transducers.

TECHNICAL DATA

Rail mounting according DIN EN60715.

Measurement input: ⊖

- Nominal frequency range   50 Hz, 60 Hz
- Measuring frequency range:
  16 Hz–400 Hz (max. 1000 Hz)

Current measurements:

- Nominal value (I_N)   0.31 A…5 A
- Max. measured value   12.5 A sinusoidal
- Max. allowed value (thermal)   15 A cont.
- (acc. to IEC/EN 60 688) $20 \times I_N$; 5×1 s
- Consumption $< I^2 \times 0.01$ Ω per phase

Voltage measurements:

- Nominal value (UN)   57.7 V_{LN} …500 V_{LN}
- Max. measured value (cont.)
  600 V_{LN} ; 1000 V_{LL}
- Max. allowed value $2 \times U_N$; 10 s
- (acc. to IEC/EN 60 688)
- Consumption $< U^2 / 4.2$ M Ω per phase
- Input impedance   4.2 M Ω per phase

System:

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

Current inputs can be connected either directly to low-voltage network or shall be connected to network via a corresponding current transformer (with standard 1 A or 5 A outputs).

BASIC ACCURACY UNDER REFERENCE CONDITIONS

Total accuracy (measurements and analogue output) according to IEC/EN 60 688.

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

Measurand	Accuracy (±% of reading)	
Current Rms	*0.2*	*0.05[1]*
Voltage Rms P-N and P-P	*0.2*	*0.05[1]*
Power (P, Q, S)	*0.2*	*0.1[1]*
Power factor (PF)	*0.1*	
Frequency (f)	*10 mHz*	
P-N and P-P angle	*0.1°*	
THD (U), THD (I) (0…400) %	*0.5*	
Active energy	*Class 1*	*0.5S[2]*
Reactive energy	*Class 2*	
Real time clock (RTC)	*1 min/month*	

[1] On communication
[2] Optional

COMMUNICATION

(U)MT560/550 has a wide variety of communication possibilities to suit specific demands. It is equipped with three standard communication ports (COM1A, COM1B, COM1C) and one optional (COM2). This allows up to four different users to access data from a device simultaneously and by using ethernet communication, data can be accessed worldwide.

Different configurations are possible (to be specified with an order).

Configuration	COM1A	COM1B	COM1C	COM2[1]
1	*RS232/485[2]*	*/*	*/*	*/*
2	*RS232/485[2]*	*/*	*/*	*RS485*
3	*Ethernet*	*USB*	*RS485*	*/*
4	*Ethernet*	*USB*	*RS485*	*RS485*

[1] COM2 uses connection terminals of I/O4 module in case of secondary communication (RS485 only) or RJ11 connector in case of remote display communication

[2] RS485 communication is available through DB9 or screw-in terminals, while RS232 is available only through DB9

Serial communication:	RS232[1]	RS485[1][2]
Connection type	Direct	Network
Connection terminals	DB9[1]	screw terminals[1]
Function	Settings, measurements and records acquisition, firmware upgrade	
Insulation	Protection class I, 3.3 kV$_{ACRMS}$ 1 min	
Max. connection length	3 m	1000 m
Transfer mode	Asynchronous	
Protocol	MODBUS RTU, DNP3 (autodetect)	
Transfer rate	2.4 kBaud to 115.2 kBaud	
Number of bus stations	/	≤ 32

[1] Both types of comm. are available but only one at a time

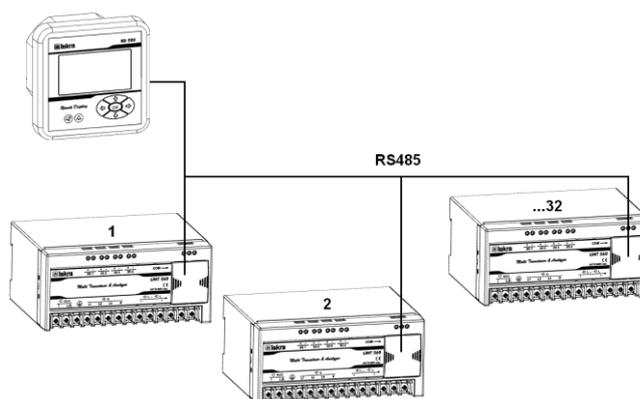[2] Specifications are identical for COM2

Ethernet:	
Connection type	Network
Connection terminals	RJ-45
Function	Settings, measurements and records acquisition, firmware upgrade
Insulation	Protection class I, 3.3 kV$_{ACRMS}$ 1 min
Transfer mode	Asynchronous
Protocol	MODBUS TCP, DNP3 (autodetect)
Transfer rate	10/100 Mb/s autodetect

USB:	
Connection type	Direct
Connection terminals	USB-B
Function	Settings, measurements and records acquisition, firmware upgrade
Insulation	Protection class I, 3.3 kV$_{ACRMS}$ 1 min
Transfer mode	Asynchronous
Protocol	MODBUS RTU, DNP3 (autodetect)
Transfer rate	USB 2.0

REMOTE DISPLAY

Remote display is very useful for a quick look-up to all measured parameters or to set up the (U)MT560/550 measuring transducers without the PC. Navigation keys and graphical LCD display enable remote application and remote display settings. By choosing different RD500 target communication addresses it is possible to track measurements and change settings for up to 32 (U)MT560/550 measuring transducers.

Connection of remote display RD500 depends on application:

- DIRRECT CONNECTION TO A SINGLE (U)MT560/550

This type of connection is useful for instant measurement and waveform acquisition as well as adjusting settings of a single (U)MT560/550 by using a quick access RJ11 jack (under the transparent cover).

- BUS CONNECTION TO MULTIPLE (U)MT560/550

This type of connection is useful for a remote monitoring and adjusting settings of multiple (up to 32) (U)MT560/550 attached to a RS485 bus through COM1 or COM2 (if available) communication port. To access each individual (U)MT560/550, the user should enter an address of required (U)MT560/550.

For more information about connection, and using of remote display see User's manual.

INPUT/OUTPUT MODULES

(U)MT560/550 is equipped with four multipurpose input/output slots. The following modules are available:

Analogue input	4 inputs	any I/O
Analogue output	4 outputs	any I/O
Digital input	4 inputs	any I/O
Alarm/Relay output	4 outputs	any I/O
Pulse input	4 inputs	any I/O
Pulse/Digital output	4 outputs	any I/O
Watchdog output	4 outputs	any I/O
Tariff input	2 inputs	I/O 1,2
Additional comm. port (COM2)*	1 I/O	I/O 4

*See page 4 (serial communication)

Analogue input:

Three types of analogue inputs are suitable for acquisition of low voltage DC signals from different sensors. According to application requirements it is possible to choose current, voltage or resistance (temperature) analogue input. They all use the same output terminals.

MiQen software allows setting an appropriate calculation factor, exponent and required unit for representation of primary measured value (temperature, pressure, flux, etc.).

DC current input:

Nominal input range 1	−20…0…20 mA (±20%)
Nominal input range 2	−2…0…2 mA (± 20%)
input resistance	20 Ω
accuracy	0.5 % of range
temperature drift	0.1% / °C (for range 2)
conversion resolution	16 bit (sigma-delta)
Analogue input mode	internally referenced Single-ended

DC voltage input:

Nominal input range1	−10…0…10 V (±20%)
Nominal input range 2	−1…0…1 V (±20%)
input resistance	100 kΩ
accuracy	0.5 % of range
temperature drift	0.1% / °C (for range 2)
conversion resolution	16 bit (sigma-delta)
Analogue input mode	internally referenced Single-ended

Resistance (temperature) input:

Nominal input range (low)*	0 Ω - 200 Ω (max. 400 Ω) PT100 (-200°C–850°C)
Nominal input range (high)*	0 kΩ – 2 kΩ (max. 4 kΩ) PT1000 (-200°C–850°C)
connection	2-wire
accuracy	0.5 % of range
conversion resolution	16 bit (sigma-delta)
Analogue input mode	internally referenced Single-ended

* Low or high input range and primary input value (resistance or temperature) are set by the MiQen setting software

Analogue output:

Each of up to four analogue outputs is fully programmable and can be set to any of 6 full-scale ranges, 4 current and 2 voltage, without opening an instrument. They all use the same output terminals. Analogue outputs can represent any of the measured values as well as analogue input quantity.

Programmable DC current output:

Output range values −100 %…0…100 %

(-1…0…1) mA	Range 1
(-5…0…5) mA	Range 2
(-10…0…10) mA	Range 3
(-20…0…20) mA	Range 4
other ranges possible	Sub range
Burden voltage	10 V
External resistance	$R_{Bmax} = 10\,V/I_{outN}$

Programmable DC voltage output:

Output range values −100 %…0…100%

(-1…0…1) V	Range 5
(-10…0…10) V	Range 6
other ranges possible	Sub range
Burden current	5 mA
External resistance	$R_{Bmin} = U_{outN}/5\,mA$

General:

Linearization	Linear, Quadratic
No. of break points	5
Output value limits	$\pm$ 120% of nominal output
Response time	< 100 ms
(measurement and	
analogue output)	
Residual ripple	< 0.5 % p.p.

The outputs 1 to 4 may be either short or open-circuited. They are electrically insulated from each other (500 VACrms) and from all other circuits (3320 VACrms).

All output range values can be altered subsequently (zoom scale) using the setting software, but a supplementary error results (see INTRINSIC ERROR).

Digital input

Rated voltage	48 V AC/DC (+ 40% max)
Max. current	< 1.5 mA
Min. signal width	20 ms
Min. pause width	40 ms
SET voltage	40 %...120 % of rated voltage
RESET voltage	0 %...10 % of rated voltage

Alarm (digital) output:

Type	Relay switch
Rated voltage	48 V AC/DC (+40% max)
Max. switching current	1000 mA
Contact resistance	$\leq$ 100 mΩ (100 mA, 24 V)
Impulse	Max. 4000 imp/hour
	Min. length 100 ms
Insulation voltage	
Between coil and contact	4000 VDC
Between contacts	1000 VDC

Pulse input

Rated voltage	5 V- 48 V DC ($\pm$ 20 %)
Max. current	8 mA (at 48 VDC + 20 %)
Min. pulse width	0.5 ms
Min. pulse periode	2 ms
SET voltage	40 %...120 % of rated voltage
RESET voltage	0 %...10 % of rated voltage

Pulse (digital) output

Type	Solid state
Max. voltage	40 V AC/DC
Max. current	30 mA ($R_{ONmax} = 8\Omega$)
Pulse length	programmable
	1 ms...999 ms

Tariff input

Rated voltage	230 V_{AC} or 110 V_{AC} $\pm$ 20 %
Max. current	< 0.6 mA
Frequency range	45 Hz...65 Hz
SET voltage	40 %...120 % of rated voltage
RESET voltage	0 %...10 % of rated voltage

Watchdog (status) output

Type	Relay switch
Normal operation	Relay in ON position
Failure detection delay	$\approx$ 1.5 s
Rated voltage	48 V AC/DC (+40 % max)
Max. switching current	1000 mA
Contact resistance	$\leq$ 100 mΩ (100 mA, 24 V)

UNIVERSAL POWER SUPPLY

Standard (high):

Nominal voltage AC	80 V… 276 V
Nominal frequency	40 Hz… 65 Hz
Nominal voltage DC	70 V… 300 V
Consumption	< 8VA
Power-on transient current	< 20 A ; 1 ms

Optional (low):

Nominal voltage AC	48 V… 77 V
Nominal frequency	40 Hz… 65 Hz
Nominal voltage DC	19 V… 70 V
Consumption	< 8 VA
Power-on transient current	< 20 A ; 1 ms

SAFETY:

Protection:	*protection class I*
⚠ ⏚	*(protective earth terminal due to touchable metal parts (USB-B, RJ-45, DB9), current limiting fuse 1 A on aux. supply*
	Voltage inputs via high impedance
	Double insulation for I/O ports and COM1-2 ports
Pollution degree	*2*
Installation category	*CAT III ; 600 V⎓ meas. inputs*
	CAT III ; 300 V⎓ aux. supply
	Acc. to EN 61010-1
Test voltages	$U_{AUX} \leftrightarrow I/O$, COM1,2: 2210 VAC$_{rms}$
	$U_{AUX} \leftrightarrow U$, I inputs: 3320 VAC$_{rms}$
	U, I inputs $\leftrightarrow$ *I/O, COM1,2: 3320 VAC$_{rms}$*
	HV Tariff input $\leftrightarrow$ *I/O, COM1,2: 2210 VAC$_{rms}$*
	U inputs $\leftrightarrow$ *I inputs: 3320 VAC$_{rms}$*
Enclosure material	*PC/ABS*
	Acc. to UL 94 V-0
Enclosure protection	*IP 40 (IP 20 for terminals)*

MECHANICAL

Dimensions	*(100 × 123 ×75) mm*
Mounting	*Rail mounting (35 × 15) mm acc. to DIN EN 50 022*
Enclosure material	*PC/ABS, PC (sliding cover)*
Flammability	*Acc. to UL 94 V-0*
Weight	*500 g*

AMBIENT CONDITIONS:

Ambient temperature	*usage group III*
	-10°C …0…45…55°C
	Acc. to IEC/EN 60 688
Operating temperature	*-30°C to +70°C*
Storage temperature	*-40°C to +70°C*
Average annual humidity	*≤ 93% r.h.*

REFERENCE CONDITIONS:

Ambient temperature	*0°C …45°C*
Relative humidity	*≤ 93% r.h.*
Voltage input	*57.7 V…500 V*
Current input	*0.31 A…5 A*
Frequency	*45 Hz…65 Hz*
Active/Reactive power factor	*cosϕ = 1, sinϕ = 1*
Waveform	*Sinus*

AUXILIARY BATTERY

A built-in replaceable auxiliary battery enables the clock operation and recording the measurements in the memory with the time stamp. The battery shall be replaced by the authorised service.

Type	*CR2032 Li-battery*
Nominal voltage	*3 V*
Life span	*approx. 6 years (typical at 23°C)*

INTRINSIC-ERROR (FOR ANALOGUE OUTPUTS):

For intrinsic-error for analogue outputs with bent or linear-zoom characteristic multiply accuracy class with correction factor (c). Correction factor c (the highest value applies):
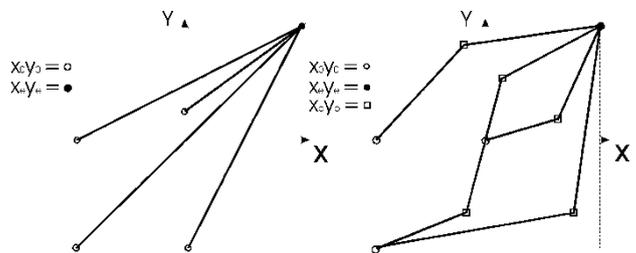
Linear characteristic

$$c = \frac{1 - \dfrac{y_0}{y_e}}{1 - \dfrac{x_0}{x_e}} \quad or \quad c = 1$$

Bent characteristic

$$x_{b-1} \leq x \leq x_b$$

b – number of break point (1 to 5)

$$c = \frac{y_b - y_{b-1}}{x_b - x_{b-1}} \cdot \frac{x_e}{y_e} \quad or \quad c = 1$$

Limit of the output range

Examples of settings with linear and bent characteristic.

RECORDER

A built-in recorder (8Mb) enables storing measurements and detected alarms. The recorder is additionally used for measurements related to the inspection of voltage quality.

ALARMS

(U)MT560/550 supports recording and storing of 32 alarms in four groups. A time constant of maximal values in a thermal mode, a delay time and switch-off hysteresis are defined for each group of alarms.

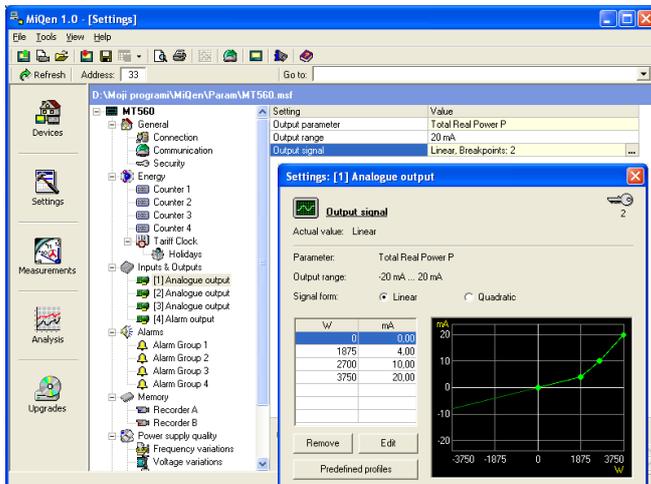## MIQEN - SETTING AND ACQUISITION SOFTWARE

MiQen software is intended for supervision of (U)MT560/550 and many other instruments on a PC. Network and the transducer setting, display of measured and stored values and analysis of stored data in the transducer are possible via the serial, Ethernet or USB communication. The information and stored measurements can be exported in standard Windows formats. Multilingual software functions on Windows 98, 2000, NT, XP operating systems.

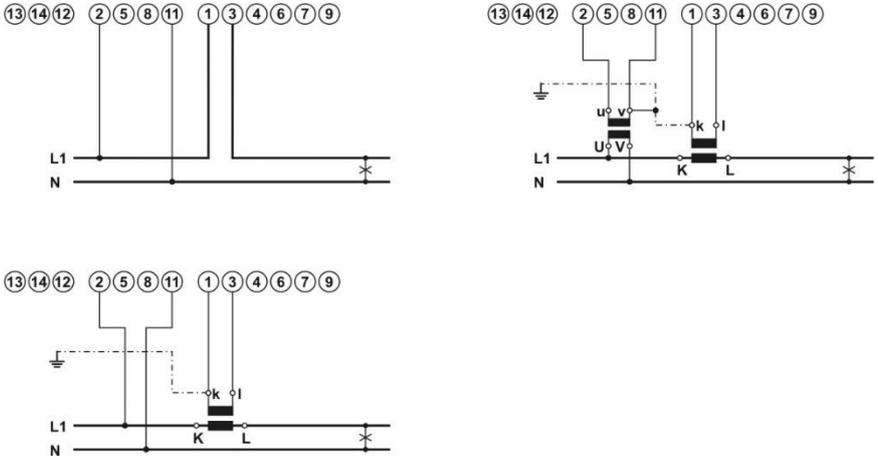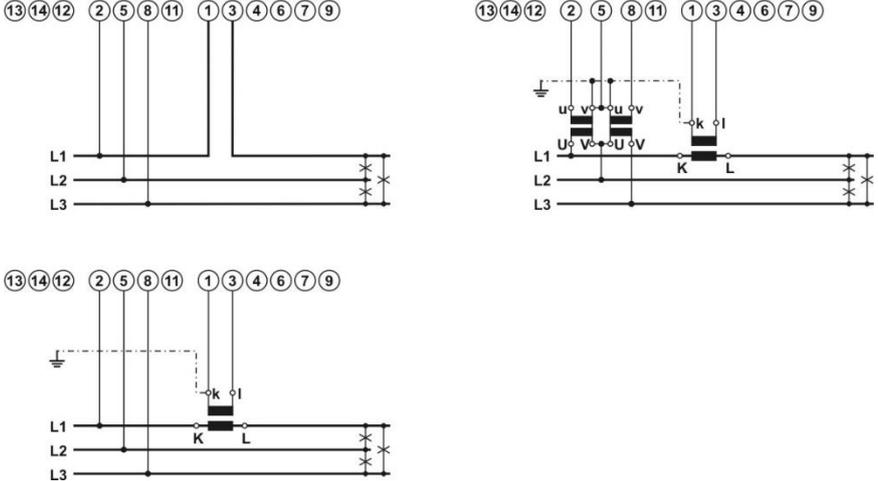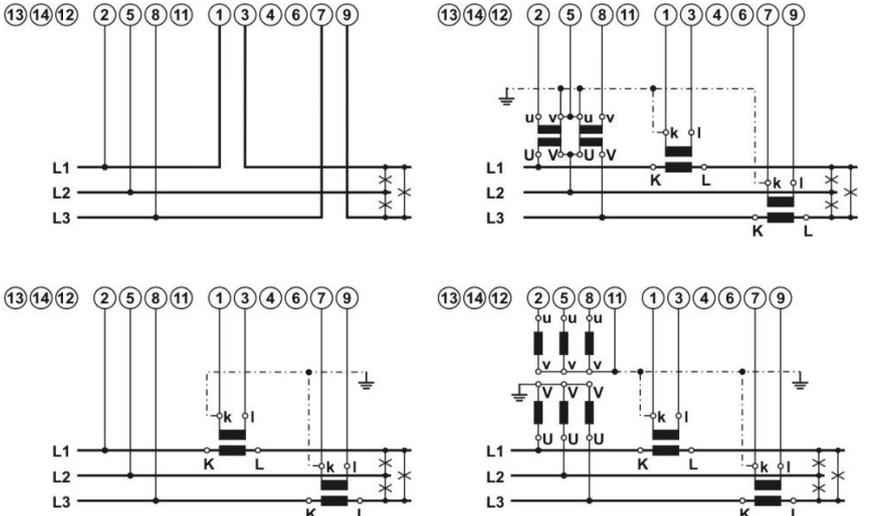MiQen software is intended for:

- Setting all of the instruments parameters (online and offline).
- Viewing current measured readings.
- Setting and resetting energy counters.
- Complete I/O modules configuration.
- Upgrading instruments firmware.
- Searching the net for devices.
- Virtual interactive instrument.
- Comprehensive help support.

HANDLING THE COSTS

A special, (U)MT560 only, function is cost evaluation of energy (active, reactive and total) per tariffs. The transducer itself enables tracing the costs in optional currency and calculates consumption by means of the adjustable tariff clock and electric energy price.

CONNECTION

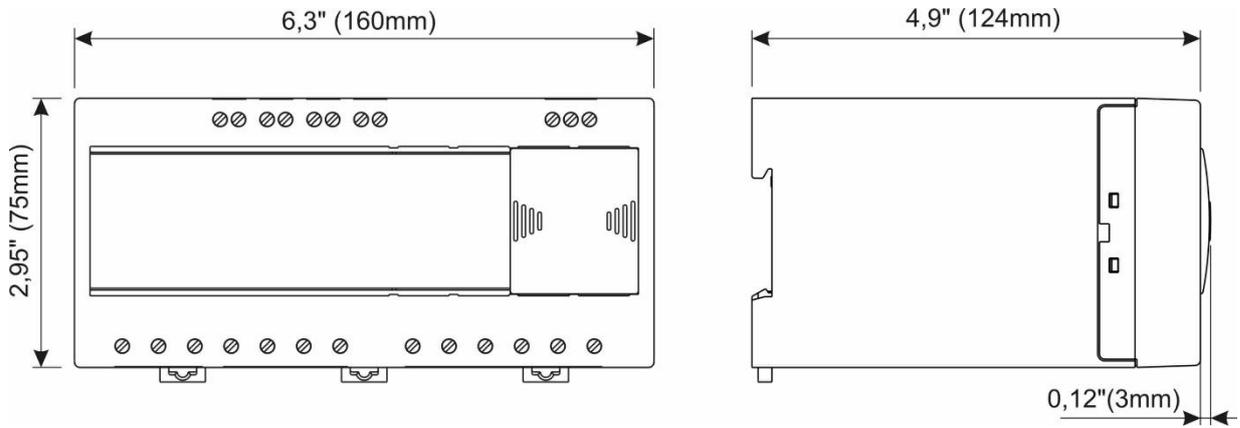| System/ connection	Terminal assignment
Single-phase connection *1b (1W)*	
Three-phase three-wire connection with balanced load *3b (1W3)*	
Three-phase three-wire connection with unbalanced load *3u (2W3)*	

System/ connection	Terminal assignment
Three-phase four wire connection with balanced load *4b (1W4)*	
Three-phase four wire connection with unbalanced load *4u (3W4)*	

DIMENSIONAL DRAWING

Dimensions for MT550/560 (standard EU clamp style terminals):

Dimensions for UMT550/560 (ring type terminal block):

CONNECTION TABLE

Function			Connection
Measuring input:	AC current	IL1	1/3
		IL2	4/6
		IL3	7/9
	AC voltage	UL1	2
		UL2	5
		UL3	8
		N	11
		I/O	
Inputs / outputs:	Module 1	⊖➔ +	15
		⊖➔ —	16
	Module 2	⊖➔ +	17
		⊖➔ —	18
	Module 3	⊖➔ +	19
		⊖➔ —	20
	Module 4	⊖➔ +	21
		⊖➔ —	22
Auxiliary power supply:		+ / AC (L)	13
		− / AC (N)	14
		GROUND ⏚	12
Communication:	RS485	A	23[#]
		NC	24[#]
		B	25[#]

[#] *RS232 communication is available only on DB9 connection terminal under transparent cover*

DATA FOR ORDERING

(U)MT560\550:

The following data shall be stated:

Type of a transducer
Type of power supply
Type of communication
Type of I/O module(s)
Required energy accuracy

Supplement:

MiQen software

ORDERING

When ordering (U)MT560/550, all required specifications shall be stated in compliance with the ordering code. Additional information could be stated regarding functionality of analogue outputs.

Example of ordering:

MT560 with EU style clamp terminals which has active energy accuracy class 1 and reactive energy accuracy class 2. The transducer with a universal-HI supply is connected to an universal high voltage and 5 A secondary current on 50 Hz network. Ethernet & USB & RS485 communication, two analogue outputs as I/O1 and I/O2 and two pulse outputs as I/O3 and I/O4.

Voltage and current nominal value are due to auto-range fixed to max. nominal value and are therefore omitted from ordering code.

Connection type is user programmable and is therefore omitted from ordering code. Default is 4u connection.

Example ordering code:

```
MT560  S  S  H  F  N  A  A  S  S
       |  |  |  |  |  |  |  |  |
       |  |  |  |  |  |  |  |  Pulse output
       |  |  |  |  |  |  |  Pulse output
       |  |  |  |  |  |  Analogue output
       |  |  |  |  |  Analogue output
       |  |  |  |  No
       |  |  |  Ethernet & USB & RS485
       |  |  70 VDC... 300 VDC, 80 VAC... 276 VAC
       |  50 Hz, 60 Hz
       Active cl.1 / Reactive cl.2
```

Default settings for analogue outputs provided that no ordering information is given will be:

Analogue output	Input quantity	Output quantity
AO1	P (-7500...0...7500)W	-20...0...20 mA
AO2	Q (-7500...0...7500)var	-20...0...20 mA
AO3	U1 (0...500V)	0...20 mA
AO4	I1 (0...5A)	0...20 mA

If different analogue output settings are required, a proper input quantity/output quantity pair for each analogue output should be provided.

The transducers automatic range of input current (5 A) and voltage (500 V_{L-N}) is not stated in the code.

GENERAL ORDERING CODE

All specifications are obligatory except function of analogue output(s), which should be stated in a form of description.

Device Type	Energy Accuracy Class	Nominal freq.	Aux. power supply	Comm. COM1	Remote display supp.	I/O module 1	I/O module 2	I/O module 3	I/O module 4		
(U)MT5X0	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**		
								A		Analogue output*	
								S		Pulse output	
								M		Relay (alarm) output	
								W		Watchdog output	
								I		Analogue input - mA $_{DC}$	
								U		Analogue input - V $_{DC}$	
								R		Analogue input - R/Temp.	
								P		Pulse input 5 - 48 V $_{DC}$	
								F		Digital input 48 V $_{AC/DC}$	
								T		Tariff input 230 V $_{AC}$	I/O module 1 and 2
								Z		Tariff input 110 V $_{AC}$	I/O module 1 and 2
								C		RS485 Communication - COM2	I/O module 4 only **
								X		Output Extender - COM2	I/O module 4 only **
								N		Without	
						N		No *			
						Y		Yes			
					R		RS232 & 485 DB9 + Terminal *				
					F		Ethernet & USB & RS485				
				H		70...300 V $_{DC}$, 80...276 V $_{AC}$ *					
				L		19...70 V $_{DC}$, 48...77 V $_{AC}$					
			S		50, 60 Hz *						
			A		400 Hz						
		S		Active cl.1 / Reactive cl.2 *							
		H		Active cl.0.5S / Reactive cl.2							
MT550		EU style clamp terminals									
MT560											
UMT550		ring style terminal block									
UMT560											

* - standard

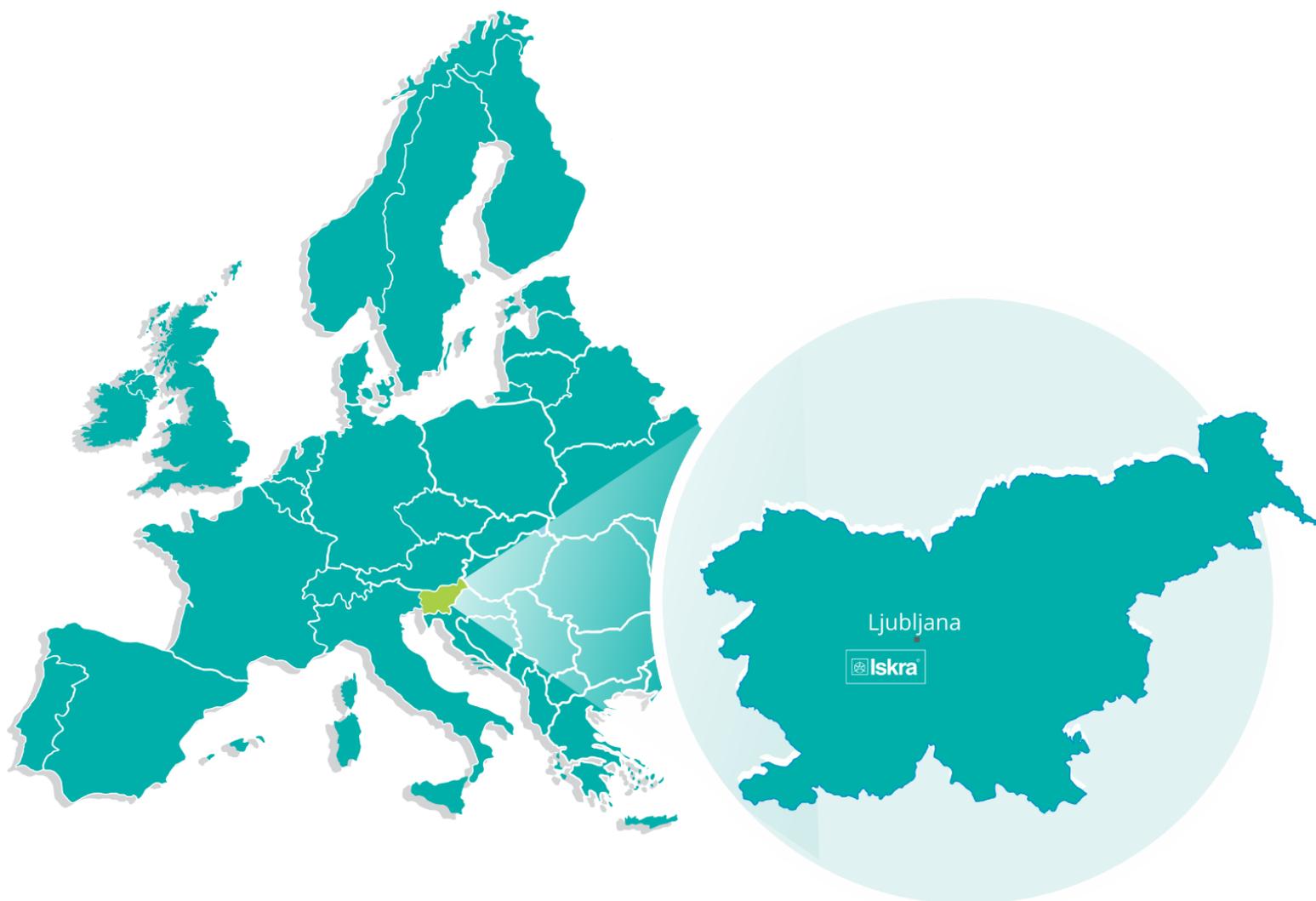****- not available together with Remote display support**

DISPOSAL

It is forbidden to deposit electrical and electronic equipment as municipal waste.

The manufacturer or provider shall take waste equipment free of charge.

DICTIONARY:

RMS	*Root Mean Square*
PO	*Pulse output*
TI	*Tariff input*
PA	*Power angle (between current and voltage)*
PF	*Power factor*
THD	*Total harmonic distortion*
Ethernet	*IEEE 802.3 data layer protocol*
MODBUS/DNP3	*Industrial protocol for data transmission*
MiQen	*ISKRA setting and acquisition Software*
AC	*Alternating quantity*
IR	*Infrared (optical) communication*

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