



MULTIFUNCTION TRANSDUCER & ANALYZER iMT560

MULTIFUNCTION TRANSDUCER & RECORDER iMT550

- EVALUATION OF THE ELECTRICITY SUPPLY **QUALITY IN COMPLIANCE WITH EN 50160**.
- VOLTAGE AND CURRENT AUTO RANGE MEASUREMENTS UP TO **600 V_L**, **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 iRD500**.
- 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 (iMT560 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 (iMT550 up to 31st harmonic).
- Recording up to 64 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 and WEB server.

DESCRIPTION

iMT550/560 are intended for measuring, analysing and monitoring single-phase or three-phase electrical power network. They measure TRMS 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
61010-1:2010	Safety requirements for electrical equipment for measurement, control and laboratory use
60688:2013	Electrical measuring transducers for converting AC electrical variables into analogue and digital signals
50160:2010	Voltage characteristics of electricity supplied by public distribution networks
61326-1:2013	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 iMT560 multi transducer and analyzer 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 iMT560 a perfect choice for numerous applications. iMT560 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. iMT560 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 iMT560) 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 iRD500 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 $< I^2 \times 0.01 \Omega$ per phase

Voltage measurements:

- Nominal value (UN) $57.7 V_{LN} \dots 500 V_{LN}$
- 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 $< U^2 / 4.2 M \Omega$ per phase
- Input impedance $4.2 M \Omega$ 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 ($\pm\%$ of reading)	
Current Trms	0.2	0.05 ⁽¹⁾
Voltage Trms 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

iMT560/550 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 iRD500 is very useful for a quick look-up to all measured parameters or to set up the iMT560/550 measuring transducers without the PC. Navigation keys and graphical LCD display enable remote application and remote display settings. By choosing different iRD500 target communication addresses it is possible to track measurements and change settings for up to 32 iMT560/550 measuring transducers.

Connection of remote display iRD500 depends on application:

- **DIRECT CONNECTION TO A SINGLE iMT560/550**

This type of connection is useful for instant measurement and waveform acquisition as well as adjusting settings of a single iMT560/550 by using a quick access RJ11 jack (under the transparent cover).

- **BUS CONNECTION TO MULTIPLE iMT560/550**

This type of connection is useful for a remote monitoring and adjusting settings of multiple (up to 32) iMT560/550 attached to a RS485 bus through COM1 or COM2 (if available) communication port. To access each individual iMT560/550, the user should enter an address of required iMT560/550.

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



INPUT/OUTPUT MODULES

iMT560/550 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 ($\pm 20\%$)
Nominal input range 2	-2...0...2 mA ($\pm 20\%$)
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 range 1	-10...0...10 V ($\pm 20\%$)
Nominal input range 2	-1...0...1 V ($\pm 20\%$)
input resistance	100 k 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

Resistance (temperature) input:

Nominal input range (low)*	0 Ω - 200 Ω (max. 400 Ω) PT100 (-200°C-850°C)
Nominal input range (high)*	0 k Ω - 2 k Ω (max. 4 k Ω) 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 (measurement and analogue output)	< 100 ms
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	$\leq 100 \text{ m}\Omega$ (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	$\approx 1.5 \text{ s}$
Rated voltage	48 V AC/DC (+40 % max)
Max. switching current	1000 mA
Contact resistance	$\leq 100 \text{ m}\Omega$ (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 $\frac{1}{2}$ meas. inputs CAT III ; 300 V $\frac{1}{2}$ 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

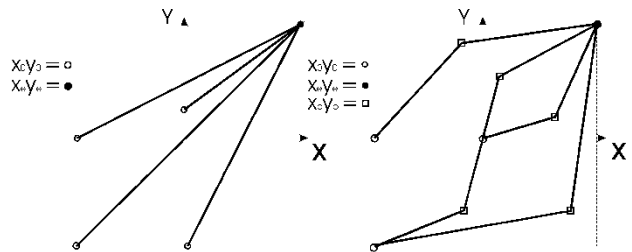
$$c = \frac{1 - \frac{y_0}{y_e}}{1 - \frac{x_0}{x_e}} \text{ or } c = 1$$

Bent characteristic

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

b – number of break point (1 to 5)

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



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

iMT560/550 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

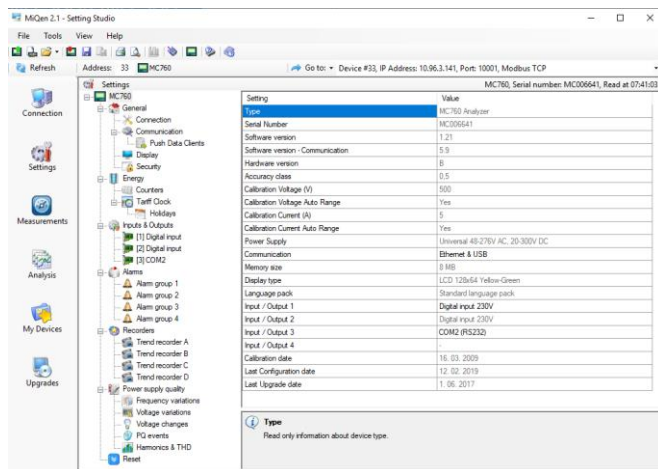
MiQen software is intended for supervision of iMT560/550 and many other instruments on a PC. Network and the transducer setting, display of measured and stored values and analysis of stored data in the transducer are possible via the serial, Ethernet or USB communication. The information and stored measurements can be exported in standard Windows formats. Multilingual software functions on Windows 98, 2000, NT, XP operating systems.

MiQen software is intended for:

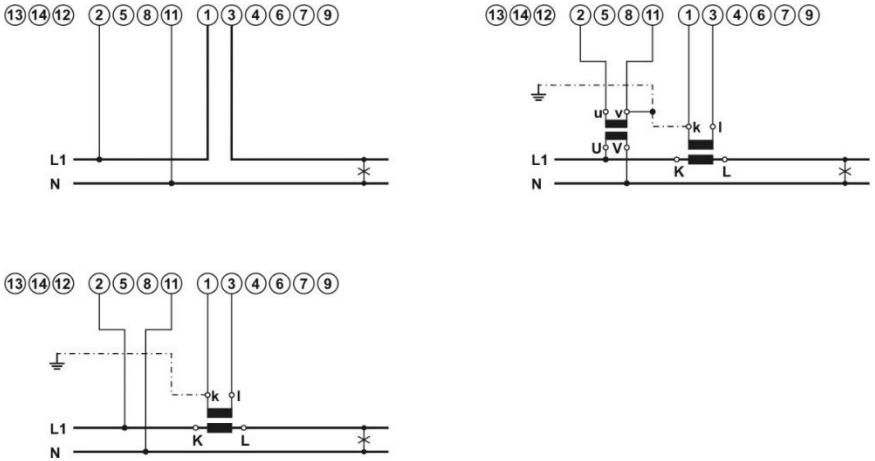
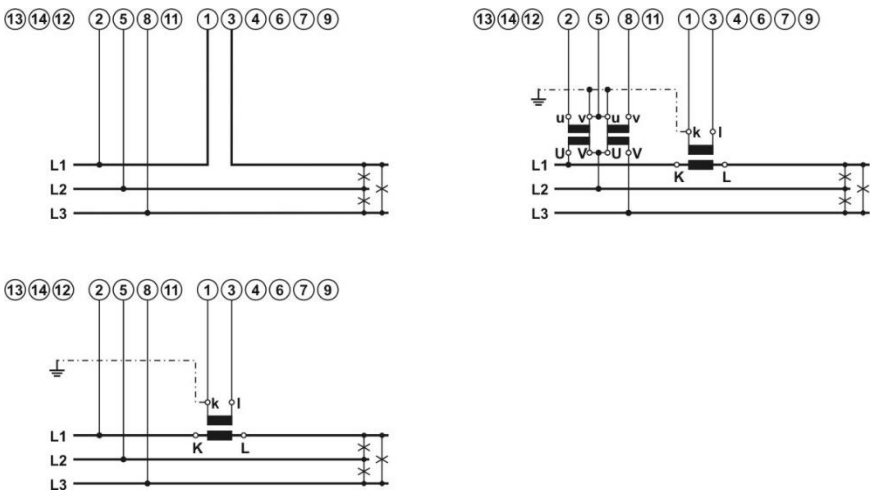
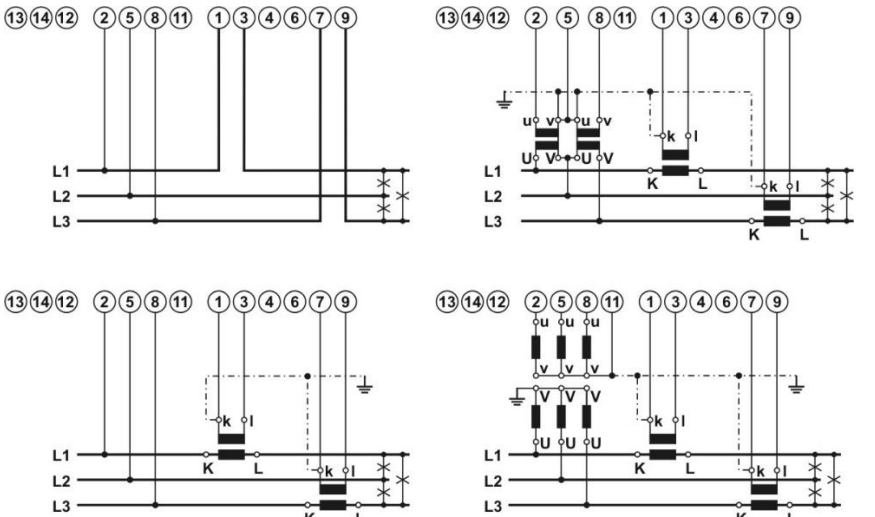
- Setting all of the instruments parameters (online and offline).
- Viewing current measured readings.
- Setting and resetting energy counters.
- Complete I/O modules configuration.
- Upgrading instruments firmware.
- Searching the net for devices.
- Virtual interactive instrument.
- Comprehensive help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

HANDLING THE COSTS

A special, iMT560 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.



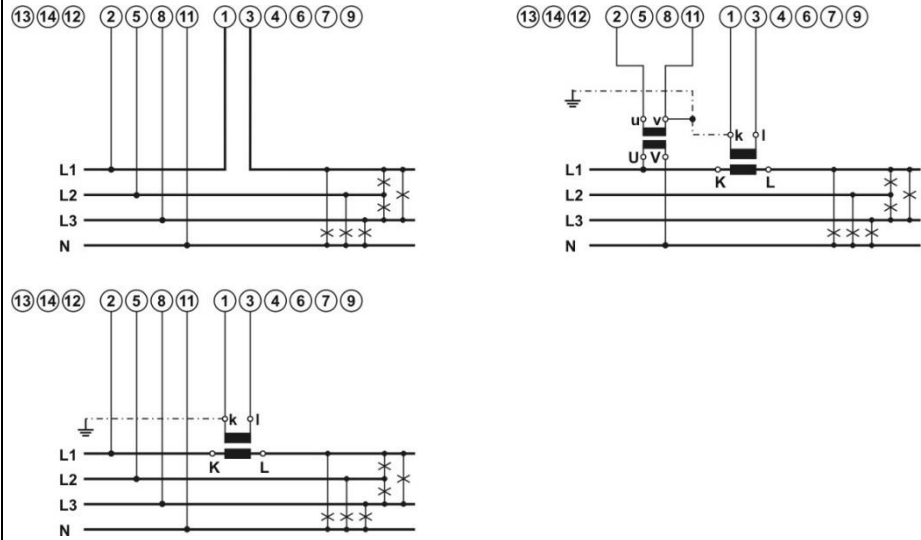
CONNECTION

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

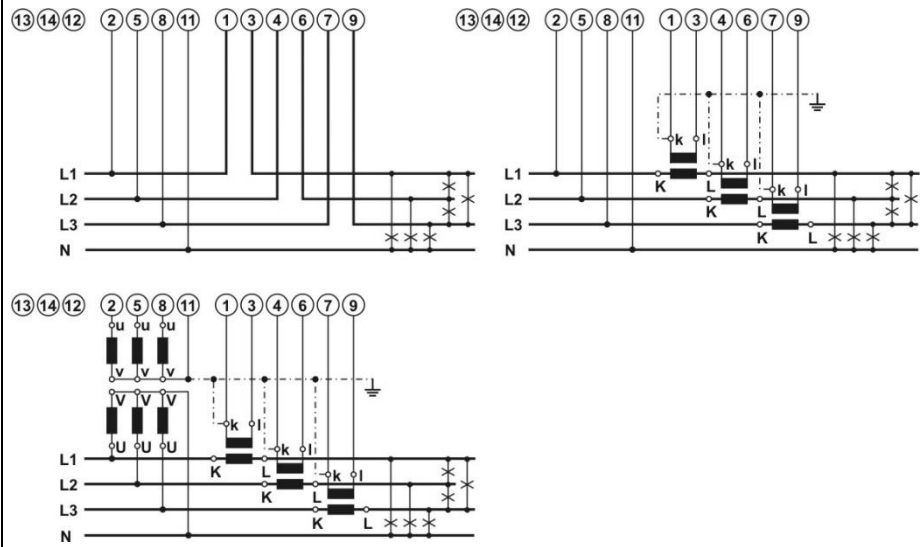
Terminal assignment

Three-phase four wire connection with balanced load
4b (1W4)



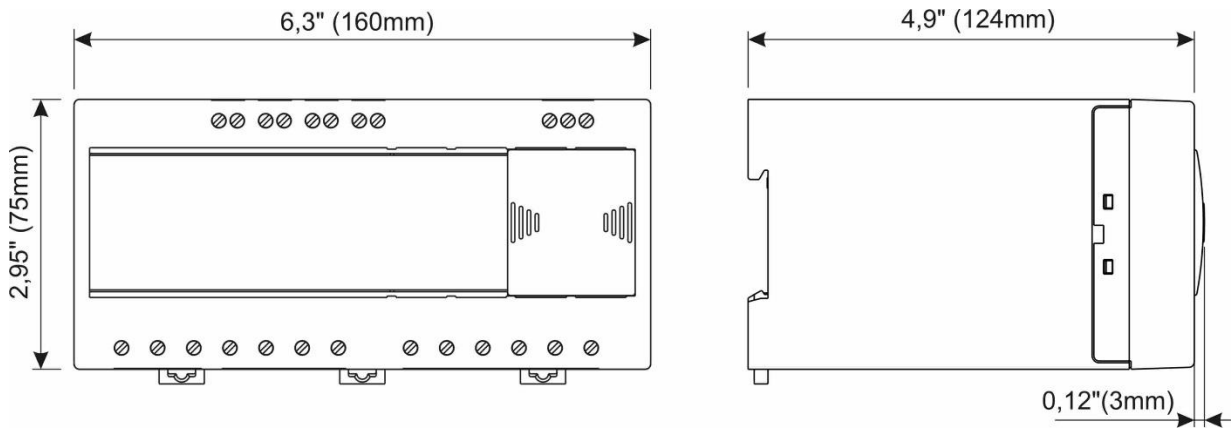
Three-phase four wire connection with unbalanced load

4u (3W4)

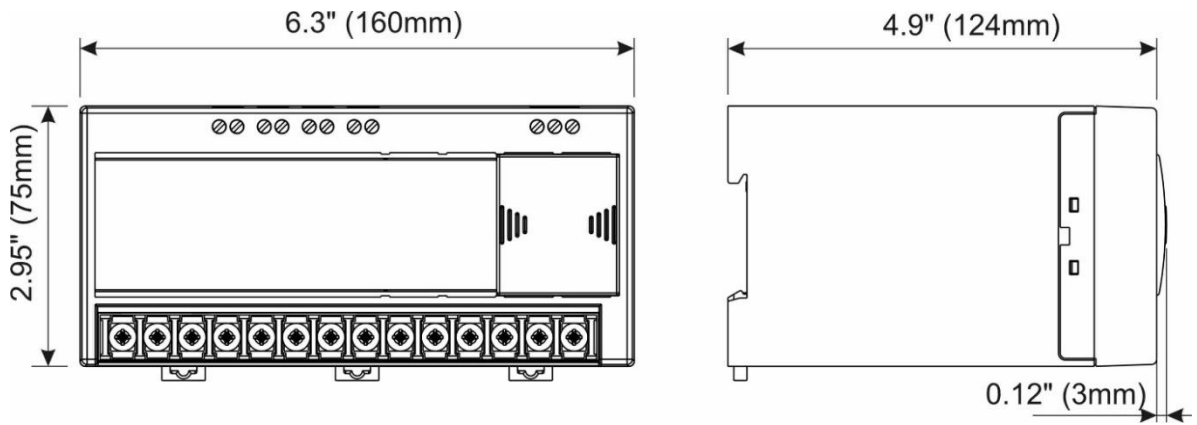


DIMENSIONAL DRAWING

Dimensions for iMT550/560 (standard EU clamp style terminals):



Dimensions for iMT550/560 (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

iMT560\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 iMT560/550, 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:

iMT560 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:

iMT560 **S** **S** **H** **F** **N** **A** **A** **S** **S** **E**
 | | | | | | | | | EU style clamp terminals
 | | | | | | | | | Pulse output
 | | | | | | | | | Pulse output
 | | | | | | | | | Analogue output
 | | | | | | | | | Analogue output
 | | | | No
 | | | Ethernet & USB & RS485
 | | 70 V_{DC}... 300 V_{DC}, 80 V_{AC}... 276 V_{AC}
 | 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	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	Clamp terminals
iMT560	X	X	X	X	X	X	X	X	X	X
										E EU style clamp terminals *
										R Ring style terminal block
							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} **
							Z			Tariff input 110 V _{AC} **
							C			RS485 Communication - COM2 ***
							X			Output Extender - COM2 ***
							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									

* - standard

** - I/O module 1 and 2 only.

*** - I/O module 4 only. Not available together with remote display support.

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	Clamp terminals
iMT550	X	X	X	X	X	X	X	X	X	X
										E EU style clamp terminals *
										R Ring style terminal block
							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} **
							Z			Tariff input 110 V _{AC} **
							C			RS485 Communication - COM2 ***
							X			Output Extender - COM2 ***
							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								

* - standard
 ** - I/O module 1 and 2 only.
 *** - I/O module 4 only. Not available together with remote display support.

DISPOSAL

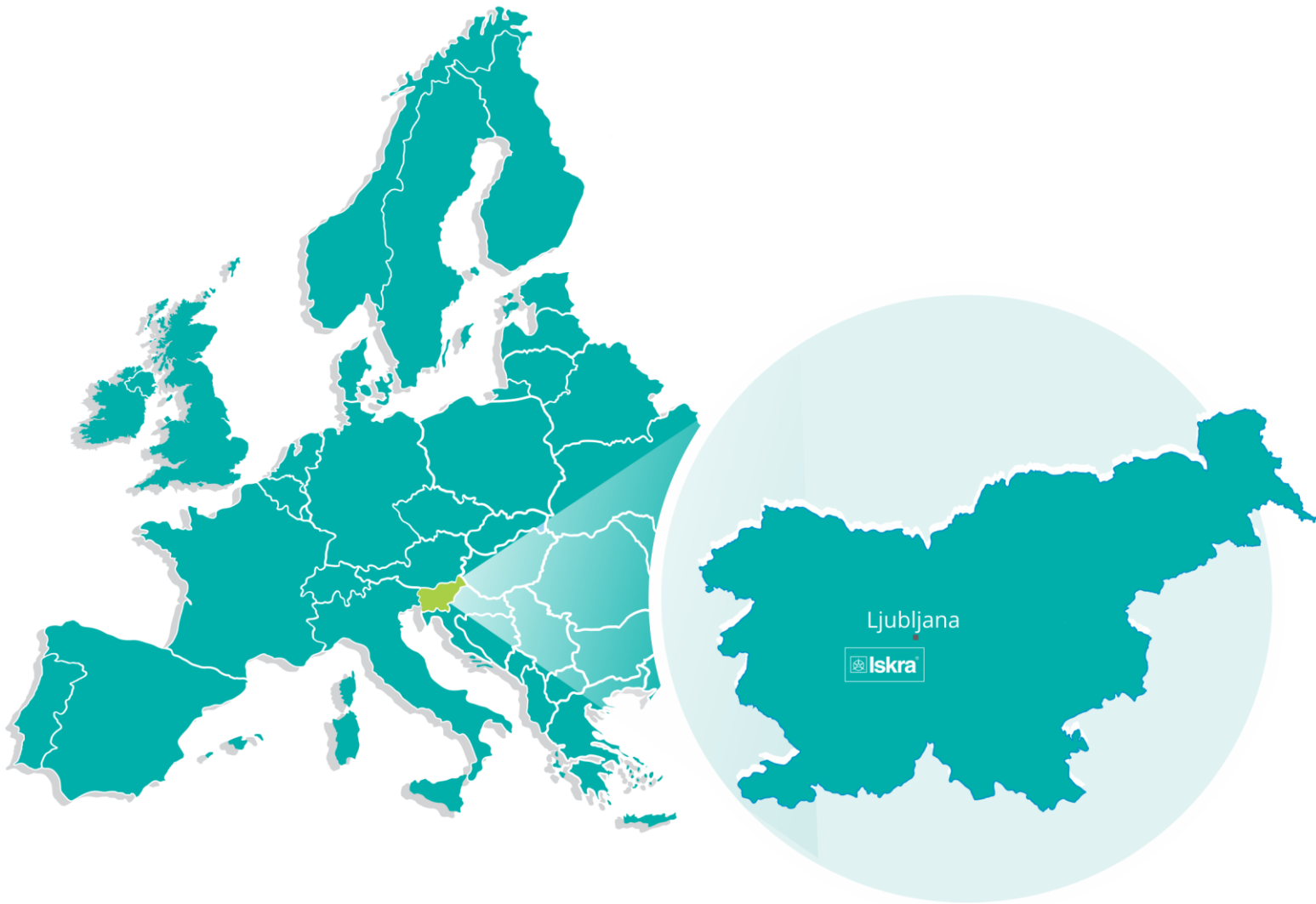


It is forbidden to deposit electrical and electronic equipment as municipal waste.

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

DICTIONARY:

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



Iskra, d.o.o.
BU Ljubljana

Stegne 21
SI-1000, Ljubljana
Phone: +386 1 513 10 00

Iskra, d.o.o.
BU Capacitors

Vajdova ulica 71
SI-8333, Semič
Phone: +386 7 38 49 200

Iskra, d.o.o.
BU MIS

Ljubljanska c. 24a
SI-4000, Kranj
Phone: +386 4 237 21 12

Iskra, d.o.o.
BU Batteries & Potentiometers

Šentvid pri Stični 108
SI-1296, Šentvid pri Stični
Phone: +386 1 780 08 00

Iskra, d.o.o.
BU Electroplating

Glinek 5
SI-1291, Škofljica
Phone: +386 1 366 80 50

Iskra IP, d.o.o.

Vajdova ulica 71
SI-8333, Semič
Phone: +386 7 384 94 54

Iskra STIK, d.o.o.

Ljubljanska cesta 24a
SI-4000, Kranj
Phone: +386 4 237 22 33

Iskra Lotrič, d.o.o.

Ljubljanska c. 24a
SI-4000, Kranj
Phone: +386 4 237 21 12

Iskra ODM, d.o.o.

Ljubljanska c. 24a
SI-4000, Kranj
Phone: +386 4 237 21 12

Iskra Tela L, d.o.o.

Omladinska 66
78250, Laktaši
Phone: +387 51 535 890

Iskra Sistemi - M dooel

Ul, Dame Gruev br. 16/5 kat
1000, Skopje
Phone: +389 75 444 498

Iskra Commerce, d.o.o.

Hadži Nikole Živkoviča br. 2
11000, Beograd
Phone: +381 11 328 10 41

Iskra Hong Kong Ltd.

33 Canton Road, T.S.T.
1705, China HK City
Phone: +852 273 00 917

ISKRA ELECTRONICS GmbH

Südliche Münchner Str. 55
82031 Grünwald
Deutschland



Iskra, d.o.o.
Stegne 21
SI-1000 Ljubljana, Slovenia

Phone: +386 (0) 1 513 10 00
www.iskra.eu