

We analyse power quality in compliance with EN 50160

Network analyzer MC 760, Network recorder MC 750,
Multifunction meter MC 740

FEATURES

- 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.)
- Accuracy class 0.5 (optional 0.2)
- Recording up to 32 measurands and 32 alarms in the internal memory (8 MB flash)
- Frequency range from 16 Hz to 400 Hz
- RS 232/RS 485 communication up to 115,200 bit/s or Ethernet communication
- MODBUS and DNP3 communication protocol
- Up to 4 inputs or outputs (analogue outputs, pulse outputs, alarm outputs, tariff inputs)
- Universal or AC power supply
- Automatic range of nominal current and voltage (max. 12.5 A and 750 V)
- Adjustable tariff clock, display of electric energy consumption in optional currency
- Multilingual support
- User-friendly PC MiQen software

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.



Think energy

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Family features

EN 50160 STANDARD

The EN 50160 standard specifies the most important voltage characteristics of electricity supplied by public distribution systems and the limit values where such characteristics can be expected. EN 50160 specifies allowable voltage values at:

1. Voltage and frequency deviations
2. Voltage dips, interruptions and voltage unbalance
3. Harmonics and THD
4. Fast voltage changes (flickers)

MC 760 ELECTRICAL NETWORK ANALYZER - EN 50160 STANDARD

- Permanent analysis of power quality in compliance with EN 50160
- Large memory capacity of the recorder: 8 MB - reports for a period of seven years and 170,000 deviations from the standard values
- Optional setting of limit values of the electrical network characteristics

MC 760 ELECTRICAL NETWORK ANALYZER - FINDING DEVIATIONS FROM THE EN 50 160 STANDARD

- Frequency deviations
- Voltage deviations
- Voltage dips
- Voltage interruptions
- Voltage unbalances
- Overvoltages
- Fast voltage changes
- Flicker intensity
- THD
- Harmonics

HANDLING THE COSTS - MC 760, MC 750, MC 740

A special function of the meter is energy cost evaluation (active, reactive, total) by tariffs. The meter enables tracing the energy costs in optional currency. Consumption is calculated by means of the adjustable tariff clock and electricity price by tariffs.

MC 750 - ELECTRICAL NETWORK RECORDER

- Recording up to 32 measuring quantities and 32 alarms in the internal memory (4 MB flash)
- Measuring instantaneous values of more than 140 electrical quantities (also THD, MD, energy, electricity price by tariffs, harmonics)
- Display of electricity consumption in optional currency
- RS232/RS485 or Ethernet & USB communication

MC 740 MULTIFUNCTION METER

- Monitoring and measuring over 130 electrical quantities of three-phase electric-energy distribution system
- 32 program adjustable alarms
- Up to four inputs or outputs
- RS 232/RS 485 or Ethernet & USB communication
- Settings of a tariff clock (four periods, four working groups, electricity price for each period and a working group, 16 different price periods)

INPUT / OUTPUT MODULES

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

- | | |
|--|-------------------|
| • Alarm output | 2 outputs |
| • Analogue output | 2 x 20 mA outputs |
| • Pulse output | 2 outputs |
| • Tariff input | 2 inputs |
| • Bistable alarm output | 1 output |
| • Digital input | 2 inputs |
| • Additional communication port (COM2) | |

Characteristics

MC 7x0 FAMILY OF MEASURING CENTRES - COMPARISON AND COMMON CHARACTERISTICS

Instrument	MC 740	MC 750	MC 760
Hardware configuration			
Backlight LCD 128x64	•	•	•
Keyboard keys	5	5	5
MMC card	•	•	•
Power supply	Univ, AC	Univ, AC	Univ, AC
Energy meters	4	4	4
Real time clock	•	•	•
Memory size	-	4 Mb	8 Mb
Auto Range Current	•	•	•
Auto Range Voltage	•	•	•
Communication (COM1)			
Communication ports	1	1	1
RS232 & RS485 / Ethernet & USB	•, • / •, •	•, • / •, •	•, • / •, •
Modbus and DNP3	•	•	•
Inputs and Outputs (I/O)			
I/O Slot 1 (2 PO / 2 TI ² / 2 AL / 2 AN / 2 AI / 1 BA / 2 DI)	○ / ○ / ○ / ○ / ○ / ○ / ○	○ / ○ / ○ / ○ / ○ / ○ / ○	○ / ○ / ○ / ○ / ○ / ○ / ○
I/O Slot 2 (2 PO / 2 TI ² / 2 AL / 2 AN / 2 AI / 1 BA / 2 DI / 1 COM ³)	○ / ○ / ○ / ○ / ○ / ○ / ○	○ / ○ / ○ / ○ / ○ / ○ / ○	○ / ○ / ○ / ○ / ○ / ○ / ○
Available functions			
Setup wizard	•	•	•
Wrong connection warning	•	•	•
Custom screens	•	•	•
Reset default settings	•	•	•
Programmable refresh time (LCD , Comm.)	•, •	•, •	•, •
MD calculation (TF, FW, SW)	•, •, •	•, •, •	•, •, •
Tariff clock	•	•	•
Cost management	•	•	•
Programmable alarms	32	32	32
Alarms recording	-	•	•
Measurements recording	-	•	•
EN 50160 analysis	-	-	•
PC software	MiGen	MiGen	MiGen
Available measurements			
Actual values: U, I, P, Q, S, PF, PA, f, φ	•	•	•
Energy	•	•	•
Maximum demands	•	•	•
Minimum values: U, I, P, Q, S, PF, PA, f, φ	•	•	•
Maximum values: U, I, P, Q, S, PF, PA, f, φ	•	•	•
THD (actual)	•	•	•
Harmonics	up to 31 st	up to 31 st	up to 63 rd

² One module only (2TI).

³ Additional COM2 (RS232 or RS485), optional for MC 740, MC 750, MC 760. COM2 replaces I/O modules 3 and 4.

Legend:

- - feature not supported
- - MC has feature
- - optional feature
- PO - pulse output
- TI - tariff input
- AL - alarm output
- AN - analogue output

- AI - analogue input
- BA - bistable alarm
- DI - digital input
- TF - thermal function
- FW - fixed window
- SW - sliding window
- COM - additional communication port (COM2)

Ordering

INPUTS

Input signals	Current	Voltage
Nominal frequency	50, 60 Hz	
Measuring frequency range	16 2/3 - 400 Hz	
Nominal value (In, Un)*	5 A	500 V _{L-N}
Maximal value	12.5 A	750 V _{L-N}
Rating	1-5 A	57.7 - 500 V _{L-N}
Consumption	< 0.1 VA	< 0.1 VA

* Automatic range

Inputs / Parameters	Connections	
Measuring inputs:	IL1	TT1
	IL2	TT2
	IL3	TT3
	UL1	2
	UL2	5
	UL3	8
Auxiliary supply:	N	11
	+ / AC	13
Input / Output modules:	- / AC	14
	I/O-1	15
	C-12	16
	I/O-2	17
	I/O-3	18
	C-34	19
	I/O-4	20

POWER SUPPLY

Power supply	Universal	AC
Nominal voltage AC	48 - 276 V	57.7 / 63.5 / 100 / 110 / 230 / 400 / 500 V
Nominal frequency	40 - 65 Hz	40 - 65 Hz
Nominal voltage DC	20 - 300 V	-
Consumption	< 7 VA	< 8 VA

ACCURACY

Measured quantity	Accuracy
Rms current (I1, I2, I3, Iavg, In)	0.5 (optional 0.2)
Rms phase voltage (U1, U2, U3, Uavg) 75 - 500 V	0.5 (optional 0.2)
Phase-to-phase voltage (U12, U23, U31, Uavg)	0.5 (optional 0.2)
Frequency (f)	0.02
Power factor (PF)	2.0 (except for I = 20%..200%)
Phase and phase-to-phase angle (φ, φ12, φ23, φ31)	0.5
THD 0...400 %	0.5
Active power	0.5 (optional 0.2)
Reactive power	1.0 (optional 0.5)
Apparent power	1.0 (optional 0.5)
Active energy SIST EN 62053-21	Class 1 (optional 0.5S)
Reactive energy SIST EN 62053-23	Class 2 (optional 1S)
Real time clock	1 min/month (30 ppm)
Analogue output	+/- 0.2 mA

ORDERING CODE

An example of completely filled-in ordering code:

MC760 - EDC/AC - RS - 2AL 2PO - 0

Meter Type	MC 760
	MC 750
	MC 740

Power Supply	EDC/AC Universal
	E57,7V 57,7 V AC
	E63,5V 63,5 V AC
	E100V 100 V AC
	E110V 110 V AC
	E230V 230 V AC
	E400V 400 V AC
	E500V 500 V AC

Communication (COM1)	WO Without
	RS RS 232 / RS 485 (MC 740, MC 750, MC 760)
	EU Ethernet & USB (MC 740, MC 750, MC 760)

Module 1 / Module 2	WO Without
	2AL 2 X Alarm output (MC 740, MC 750, MC 760)
	2AN 2 X Analogue output (MC 740, MC 750, MC 760)
	2AI 2 X Analogue input (MC 740, MC 750, MC 760)
	2PO 2 X Pulse output (MC 740, MC 750, MC 760)
	2TI 2 X Tariff input (MC 740, MC 750, MC 760)
	1BAL 1 X Bistable alarm output (MC 740, MC 750, MC 760)
	2DI 2 X Digital input
	RS2 1 X RS 232 (COM2) (MC 740, MC 750, MC 760)
	RS4 1 X RS 485 (COM2) (MC 740, MC 750, MC 760)

Class	0 Class 0.5 (standard)
	2 Class 0.2 (optional)

Accessories	MMC 512MB
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Note: All specifications are obligatory except MMC.



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