**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) AND ENABLES ANALYSIS OF RECORDED DATA. MULTILINGUAL SOFTWARE FUNCTIONS ON WINDOWS OPERATING SYSTEMS.

**MiSMART**

- DATA ACQUISITION & ANALYSIS
- THREE ARCHITECTURE
- REAL-TIME ALARM MANAGEMENT
- DATA ACCESS: AUTO-RESTORATION
- POWER QUALITY INDICATORS
- GRAPHICAL MONITORING

**MEASURANDS**

- RMS VALUES OF CURRENTS AND Voltages (MC 350, MC 330)
- MEASUREMENTS OF ACTIVE, REACTIVE, APPARENT POWER AND POWER FACTOR (MC 350, MC 330)
- MEASUREMENTS OF ENERGY IN ALL 4 QUADRANTS
- DATA ACCESS: AUTO-RESTORATION
- AVERAGE VALUES OF MEASURANDS FOR INTERVAL (MC 350, MC 330)

**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:

- PULSE (DIGITAL OUTPUT) 2 OUTPUTS
- RELAY OUTPUT (MC 230, MC 350) OR (MC 330) 2 OUTPUTS
- ANALOGUE OUTPUT (MC 230, MC 330) 2 OUTPUTS
- DIGITAL INPUT 2 INPUTS
- DIGITAL INPUT OR MODBUS 2 INPUTS
- PULSE (DIGITAL OUTPUT) IS AVAILABLE AS: PULSE OUTPUT ACCORDING EN 62053-31 (27 X 27 mA)

**COMMUNICATION**

THIS INSTRUMENT CAN BE EQUIPPED WITH COMMUNICATION MODULES. DIFFERENT OPTIONS ARE POSSIBLE:

- SERIAL, RS485
- SERIAL, RS232
- USB 2.0 (OPTION WITH MC 330, MC 350)
- PAMFIBUS - SERVICE USB OPTION WITH MC 330, MC 350H
- SERVICE USB (OPTION WITH MC 330)

**SUPPLY**

STANDARD AC POWER SUPPLY ENABLES CONNECTION OF THE METER TO AC VOLTAGE 57.7 & 63.5 / 100 & 110 / 230 / 400;

OPTIONAL IS UNIVERSAL POWER SUPPLY WHICH ENABLES CONNECTION OF THE METER TO DC (20-300 V) OR AC VOLTAGE 110 / 230 (Ö).
**Technological Data**

**Key Features**

- Measurements of Instantaneous Values for More Than 60 Quantities (U, I, P, Q, S, PF, PA, f, THD, MD, ...), (MC 330, MC 350).
- Harmonic Measurements up to 31st Harmonic.
- Maximum Absolute Values of Current and Voltage.
- 4-ENERGY Counters.
- 8-MB Flash Memory Recorder.
- Accuracy Class U, I, P, S (Active Energy Class 1, Optional Class 0.5s).
- Frequency Range from 16 Hz to 400 Hz.
- Up to 4 SO / 2 RO Modules with 2 SO / 2 RO Available as Option: 2 Tariff Inputs, 2 Digital Inputs, 2 Digital Outputs (for RS485) or 2 Analog Outputs.
- Graphical LCD 128x64 Data with Information.
- Automatic Range of Nominal Current (Min: 12.5 A) and Voltage (600 V).
- User-Adjustable Display.
- Multilingual Support (13 Languages).

**Optional Feature**

- 8-MB Memory.

**Inputs**

<table>
<thead>
<tr>
<th>Input Signals</th>
<th>Current</th>
<th>Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Frequency Range</td>
<td>50, 60 Hz</td>
<td>16 - 400 Hz</td>
</tr>
<tr>
<td>Measuring Frequency Range</td>
<td>16 - 400 Hz</td>
<td>1 - 250 Hz</td>
</tr>
<tr>
<td>Nominal Value</td>
<td>16 A</td>
<td>750 V</td>
</tr>
<tr>
<td>Nominal Points</td>
<td>128 x 64</td>
<td></td>
</tr>
</tbody>
</table>

**Power Supply**

<table>
<thead>
<tr>
<th>Power Supply</th>
<th>Current</th>
<th>Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Frequency</td>
<td>50, 60 Hz</td>
<td></td>
</tr>
<tr>
<td>Measuring Frequency</td>
<td>16 - 400 Hz</td>
<td></td>
</tr>
<tr>
<td>Nominal Value</td>
<td>16 A</td>
<td></td>
</tr>
<tr>
<td>Nominal Points</td>
<td>128 x 64</td>
<td></td>
</tr>
</tbody>
</table>

**User-Adjustable Display**

- 8-MB Memory.
- Accuracy is presented as percentage from Nominal Value of the Measurand except when it is stated as an Absolute Value.

**Network Recorder MC 350, Multimeter MC 330, Network Recorder with Harmonics MC 350H**

**For Whom**

- For Electricity Distribution and Energy Production Companies, Utilities, Industries, Business Buildings, Designers of Small Power Stations, Panel Builders, etc.

**Technical Data**

**Device**

<table>
<thead>
<tr>
<th>Feature</th>
<th>MC 330</th>
<th>MC 350</th>
<th>MC 350H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 1</td>
<td>2SO / 2RO</td>
<td>2TI / 2DI / 2AO</td>
<td>2TI / 2DI / 2AO</td>
</tr>
<tr>
<td>Module 2</td>
<td>2TI / 2DI / 2AO</td>
<td>2TI / 2DI / 2AO</td>
<td>2TI / 2DI / 2AO</td>
</tr>
<tr>
<td>Communication Ports</td>
<td>RS232 / RS485 / USB</td>
<td>RS232 / RS485 / USB</td>
<td>MODBUS and DNP3</td>
</tr>
<tr>
<td>Service USB</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Technical Data

#### Key Features
- Measurements of instantaneous values for more than 60 quantities (U, I, P, Q, S, PF, PA, f, φ, U1, U2, U3, Uavg, MD...).
- Harmonic measurements up to 31st harmonic.
- Maximum and minimum values.
- 4 energy counters.
- 8 MB flash memory recorder.
- Accuracy class U, I, P, S (active energy class 1, optional class 0.5s).
- Frequency range from 16 Hz to 400 Hz.
- Up to 4 I/O: two modules with 2 I/O are available as option: 2 tariff inputs, 2 digital inputs, 2 digital outputs (for RS 485); 2 I/O available through RS 485 or RS 232.
- Graphical LED, 1/2.6 in dot matrix.
- Automatic range of nominal current (max. 12.5 A) and voltage (600 V).
- User-adjustable display size measurements.
- Multilingual support (13 languages).
- Universal input signals.
- Multimeter for electricity distribution and energy production companies, utilities, dwellings, energy management solutions, manufacturers, designers of small power stations, panel builders, etc.

### Inputs

#### Current Signal

<table>
<thead>
<tr>
<th>Nominal Frequency</th>
<th>Range</th>
<th>Measuring Frequency Range</th>
<th>Harmonics Up to</th>
<th>Nominal Values</th>
<th>Power Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 – 100 Hz</td>
<td>16 – 100 Hz</td>
<td>16 – 100 Hz</td>
<td>122</td>
<td>1.5 A</td>
<td>&lt; 0.5 VA</td>
</tr>
</tbody>
</table>

#### Voltage Signal

<table>
<thead>
<tr>
<th>Nominal Frequency</th>
<th>Range</th>
<th>Measuring Frequency Range</th>
<th>Nominal Values</th>
<th>Power Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 – 65 Hz</td>
<td>40 – 65 Hz</td>
<td>40 – 65 Hz</td>
<td>50, 60 Hz</td>
<td>&lt; 3 VA</td>
</tr>
</tbody>
</table>

#### Power Supply

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal Frequency</th>
<th>Range</th>
<th>Measuring Frequency Range</th>
<th>Nominal Values</th>
<th>Power Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal</td>
<td>16 – 100 Hz</td>
<td>16 – 100 Hz</td>
<td>122</td>
<td>1.5 A</td>
<td>&lt; 0.5 VA</td>
</tr>
</tbody>
</table>

### Data for Ordering

General ordering code can be found on our website: [www.iskra.eu](http://www.iskra.eu)
### Technical Data

#### Key Features
- Measurements of instantaneous values for more than 60 quantities: U, I, P, Q, S, PF, PA, f, φ, THD, MD, …, MC 330, MC 350.
- Harmonics measurements up to 31 harmonic.
- Measurements of minimum and maximum values.
- 4-byte counters.
- 8-MB flash memory recorder.
- Accuracy class U, I, P (class 0.5).
- Frequency range from 16 Hz to 400 Hz.
- Up to 4 I/O: two modules with 2 I/O are available as option: 1 tariff input, 2 digital inputs, 2 digital outputs (RS 485/RS 232) or 2 analog outputs (RS 485/RS 232).
- Graphical LCD: 16 x 4 dot matrix with simplification.
- Automatic range of nominal current (U, I, P, Q, S) and voltage (DC/LV).
- User-adjustable display set of measurements.
- Multilingual support (13 languages).
- User-friendly PC MIQEN software for setting via communication (optional).

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

#### Inputs

<table>
<thead>
<tr>
<th>INPUT SIGNALS</th>
<th>CURRENT</th>
<th>VOLTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOMINAL FREQUENCY RANGE</td>
<td>16 − 400 Hz</td>
<td>16 − 400 Hz</td>
</tr>
<tr>
<td>MEASURING FREQUENCY RANGE</td>
<td>40 – 65 Hz</td>
<td>40 – 65 Hz</td>
</tr>
<tr>
<td>NOMINAL VALUE</td>
<td>75 A</td>
<td>57.7 / 63.5 / 100</td>
</tr>
<tr>
<td>NOMINAL VOLTAGE DC</td>
<td>20 - 300 V</td>
<td>57.7 &amp; 63.5 / 100</td>
</tr>
<tr>
<td>NOMINAL FREQUENCY</td>
<td>50, 60 Hz</td>
<td>50, 60 Hz</td>
</tr>
<tr>
<td>NOMINAL VOLTAGE RANGE</td>
<td>48 - 276 V</td>
<td>57.7 &amp; 63.5 / 100</td>
</tr>
<tr>
<td>NOMINAL CURRENT</td>
<td>1/5 A</td>
<td>&lt; 0.1 VA</td>
</tr>
<tr>
<td>NOMINAL POWER</td>
<td>12.5 A</td>
<td>&lt; 0.1 VA</td>
</tr>
<tr>
<td>RMS PHASE VOLTAGE</td>
<td>0.5°</td>
<td>&lt; 3 VA</td>
</tr>
<tr>
<td>RMS CURRENT</td>
<td>0.5°</td>
<td>&lt; 3 VA</td>
</tr>
<tr>
<td>RMS VOLTAGE</td>
<td>0.5°</td>
<td>&lt; 3 VA</td>
</tr>
<tr>
<td>RMS CURRENT</td>
<td>0.5°</td>
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</tr>
</tbody>
</table>

#### Power Supply

<table>
<thead>
<tr>
<th>POWER SUPPLY</th>
<th>GENERAL</th>
<th>NOMINAL FREQUENCY</th>
<th>NOMINAL FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOMINAL VOLTAGE</td>
<td>75 A</td>
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<td>50, 60 Hz</td>
<td>40 - 65 Hz</td>
<td>40 - 65 Hz</td>
</tr>
<tr>
<td>NOMINAL OUTPUT</td>
<td>12.5 A</td>
<td>48 - 276 V</td>
<td>57.7 &amp; 63.5 / 100</td>
</tr>
</tbody>
</table>

#### Optional Feature

1. RS 485/RS 232 or PROFIBUS DP-V0 (optional).
2. USB 2.0 (optional).
4. Up to 115.200 bit/s, USB 2.0 (optional) or PROFIBUS (optional) up to 12 Mbit/s.

#### Network Recorder

- Network Recorder MC 350, Multimeter MC 330, Network Recorder with Harmonics MC 350H.
- Supported communication protocols: isolated communication RS485 or RS232 up to 115.200 bit/s, USB 2.0 (optional) or PROFIBUS (optional) up to 12 Mbit/s.
- Available functions: custom screens, programmable refresh time, MD calculation (TF - thermal function), tariff clock, programmable alarms, alarms recording, measurements recording, PC software.

#### Instrument

<table>
<thead>
<tr>
<th>MODEL</th>
<th>MC 330</th>
<th>MC 350</th>
<th>MC 350H</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOMINAL POWER</td>
<td>12.5 A</td>
<td>57.7 &amp; 63.5 / 100</td>
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<td>NOMINAL VOLTAGE DC</td>
<td>20 - 300 V</td>
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MiSMART
- Data Acquisition & Analysis
- Three ARCH Architecture
- Real Time Alarm Management
- Data Access: Now Installation
- Power Quality Quality
- Graphical Monitoring

MEASURANDS
- RMS VALUES OF CURRENTS AND VOLTAGES (MC 350, MC 330)
- MEASUREMENTS OF ACTIVE, REACTIVE, APPARENT POWER AND POWER FACTOR (MC 350, MC 330)
- MEASUREMENTS OF ENERGY IN ALL 4 QUADRANTS
- Data Access: Now Installation
- Average Values of Measurands per Interval (MC 350, MC 330)

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:
- Pulse (digital output) 2 inputs, 2 outputs
- Relay output module: 2 outputs
- Analog output module: Mesmerize ends (2) outputs
- Digital inputs (2)
- Digital input module (digital output) 2 inputs
- Pulse (digital) output module: available as: Pulse output according to EN 62053-31 (27 x 27 mA)

COMMUNICATION
This instrument can be equipped with communication modules. Different options are possible:
- Serial: RS485
- Serial: RS232
- USB 2.0 (option with Mc350, Mc350H)
- PAM6500 - Service USB (option with Mc350, Mc350H)
- Service USB (option with Mc350)

SUPPLY
Standard AC power supply enables connection of the meter to AC voltage 57.7 & 63.5 / 100 & 110 / 230 / 400. Optional is universal power supply which enables connection of the meter to DC (20-300 V) or AC voltage (200-270 / 50 / 60 Hz).

APPLICATIONS

UNIVERSAL MEASURING DEVICES MC 3x0
- Relevant for electricity distribution and energy production companies, utilities, dwellings, energy management solution providers, industry, business buildings, designers of small power stations, panel builders, marine.
**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) and enables analysis of recorded data. It offers various software functions on Windows operating systems.

**MiSMART**
- **Data Acquisition & Analysis**
- **Three Arch. Architecture**
- **Real Time Alarm Management**
- **Data Access**
- **Power Quality**
- **Graphical Monitoring**

**Applications**
- **3-tier middleware**
- **Graphical Monitoring**

**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:
  - **Pulse (Digital) Output**: 2 outputs
  - **Relay Output**: MC 325x, MC 350 (3 outputs)
  - **Analog Output**: MC 326x, MC 350 (2 outputs)
  - **Tariff Inputs**: 2 inputs
  - **Digital Input**: MC 325x, MC 350 (2 inputs)
  - **Pulse (Digital) Output Module**: Available as Pulse Output According to EN 62053-31 (27 x 27 mA)

**Communications**
- This instrument can be equipped with communication modules. Different options are possible:
  - **Serial**: RS485
  - **Serial**: RS232
  - **USB 2.0**: Option with MC 326x, MC 350 (1 input)
  - **PASIFBUS**: Service USB Option with MC 326x, MC 350 (1 input)
  - **Service USB**: Option with MC 350 (1 input)

**Supply**
- **Standard AC Power Supply**: Enables connection of the meter to AC voltage 57.7 & 63.5 / 110 & 120 / 230 / 400.
- **Optional Universal Power Supply**: 12-30V DC (20-300 V) or AC voltage (100-240V / 50-60Hz).

**Energy Sector**

**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) and enables analysis of recorded data. It offers various software functions on Windows operating systems.

**MiSMART**
- **Data Acquisition & Analysis**
- **Three Arch. Architecture**
- **Real Time Alarm Management**
- **Data Access**
- **Power Quality**
- **Graphical Monitoring**

**Applications**
- **3-tier middleware**
- **Graphical Monitoring**

**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:
  - **Pulse (Digital) Output**: 2 outputs
  - **Relay Output**: MC 325x, MC 350 (3 outputs)
  - **Analog Output**: MC 326x, MC 350 (2 outputs)
  - **Tariff Inputs**: 2 inputs
  - **Digital Input**: MC 325x, MC 350 (2 inputs)
  - **Pulse (Digital) Output Module**: Available as Pulse Output According to EN 62053-31 (27 x 27 mA)

**Communications**
- This instrument can be equipped with communication modules. Different options are possible:
  - **Serial**: RS485
  - **Serial**: RS232
  - **USB 2.0**: Option with MC 326x, MC 350 (1 input)
  - **PASIFBUS**: Service USB Option with MC 326x, MC 350 (1 input)
  - **Service USB**: Option with MC 350 (1 input)

**Supply**
- **Standard AC Power Supply**: Enables connection of the meter to AC voltage 57.7 & 63.5 / 110 & 120 / 230 / 400.
- **Optional Universal Power Supply**: 12-30V DC (20-300 V) or AC voltage (100-240V / 50-60Hz).