ISKRAEMECO

Energy Measurement and Management

MT830 / MT831

Precision Multi-Function Meter up to Class 0.5S

MT830 / **MT831** is a precision multi-function electronic direct or transformer rated electricity meter, used for measurement and registration of active, reactive and apparent energy, as well as demands.

The meters are intended for large or medium size commercial and industrial customers.

The meter is approved according to IEC 62053-21, IEC 62053-22, IEC 62053-23, ISO 9001, and designed in compliance with even more severe internal Iskraemeco standards, based on 60-year experience in meter manufacturing and 50 million meters installed around the globe.

- Class 0.5S
- Direct or transformer connected
- Quality of energy
- Maximum demand
- GSM / RS485 — Two independent communication interfaces
- Load profile
- Log-book
- Real-time clock
- Multi-rate registration

- MT830 – closed version with only 6 onboard terminals (without modules)
- MT831 - modularity, communication and I/O modules, including 6 onboard terminals
- Active, reactive and apparent energy/demand measurement
- Voltage, current, frequency measurement
- Voltage dips/sags, power interruptions
- Harmonic components analysis
- Power factor, phase angle
- Anti-fraud features
- Multi-range meter
- Power supply from internal or external supply
- Opto-magnetic probe for "no-power" meter reading & setting

Measuring features
- high accuracy and long-term measurement stability,
- measurement by individual phases or poly-phase,
- active energy (import, export) IEC 62053-22, class 0.5S or IEC 62053-21, class 1,
- reactive energy (4 quadrants and combined quadrants) IEC 62053-23, class 2 or 3 (calibrated up to 1%),
- apparent energy 1%,
- direct connection or via CT or CT/VT in three-phase, 3 or 4-wire networks,
- different registration methods,
- CT/VT error compensation,
- neutral line current measurement,
- current average, maximal and cumulative demand measurement,
- maximum demand can be calculated for all energies measured as tariff rated or cumulative.

Network quality

Network parameters are monitored and displayed:
- instantaneous values of phase voltages, currents and frequency,
- rms values of phase voltages and currents,
- power factor and phase angle by phases,
- harmonic analysis up to the 8th harmonic component,
- power failures per phase and total

Onboard terminals

There are 6 terminals on the meter basic board. They are used for inputs (max 2), outputs (max 4), communication (CS or RS-232 or RS-485) and external power supply.
Optional modules (MT831 version only) expand input/output and communication meter capabilities.

Modularity (MT831 only)

The meter is modular version. Different types of communication and I/O modules can be chosen. The same module can also be used for other Iskraemeco meter types: MT86x, MT37x.
Exchangeable modules are automatically recognised (plug & play). The module can be exchanged without disconnecting power supply (hot-swap) or removing calibration seal.
In case of module break-down, 100% safety of other functions is guaranteed.

Communication module

The modules cover the wide range of communication possibilities. Besides communication towards the centre, the modules also offer possibility of cascade connection.

Input/output module

An input/output module has 11 terminals. Maximal combination is 4/8 inputs/outputs, including 6 terminals on the meter basic board. Input and output signals are free programmable.

Time of use

Meters enable multiple rate registration separately for energy and demand. The considerable amount of tariff registers enables complex tariff systems: 16 tariffs, 10 tariff programs, 30 seasons, 200 holidays.

Logbooks

The meter has two logbooks: meter configuration and operational event logbooks.
For tamper protection, the meter cover and terminal cover opening sensors are implemented. Opening is registered in the logbook also in case of power failure.

Accuracy class Active energy Reactive energy Apparent energy	0.5S (IEC 62053-22) or 1 (IEC 62053-21) class 2, 3 (IEC 62053-23), calib. up to 1%. 1%
Measuring voltage (V)	Multirange, 57-240 V ± 20% (phase to neutral)
Measuring current (A)	Directly connected: 5(60), 5(120) CT connected: 1(1.2), 1(2), 1(6), 5(6), 5(10), 5(20)
Outputs Type Permitted load Impulse length	max. 8 (including outputs on I/O module) Photo-MOS potential-free relay, up to 1 km 25 VA (100 mA, 250 V AC) from 10ms to 2500 ms
Inputs	max. 6 (including inputs on I/O module) 80 – 240 V AC
Communication IR RS232 RS485 Protocols	 max. 9600 Baud max. 19200 Baud max. 9600 Baud IEC 62056-21, IEC 60870-102-5, DLMS/COSEM
Optical reading LED Impulse frequency Impulse length	 ≤ 40 Hz approx. 14 ms or 30 ms
Real time clock Accuracy, crystal Super-Cap Li-Battery	 IEC 61038, 6 ppm = £ ±3 min./year. 1F for minimal 250 h of back-up. 2-year operation reserve. Life span 20 years.
EMC testing Electrostatic discharge HF Magnetic field Burst test Dielectric strength Impulse voltage	 15 kV (IEC 60801-2) 10 V/m (IEC 60801-3) 4 kV (IEC 60801-4) 4 kV_{rms}, 50 Hz, 1 min, 6 kV, 1.2/50 µs
Temperature range Operation Storage	IEC62053-22 -20 °C ... +60 °C -30 °C ... +70 °C
Housing Surface-mounted version	DIN 43857, 327 x 177 x 90 mm, 1.4 kg, UL94 (94V0), IP53

Load profiles

Two independent load profiles (e.g. 15 min., 4 channels, 190 days) record demand, energy (cumulative or absolute values), network quality parameters, etc. Each load profile has up to 16 channels.
Each record is accompanied with date and time of the end of the registration period to which it is related.

Display

LCD with eight 7-segment 8 mm x 4 mm high numbers. Displayed data are identified with a five-digit EDIS-code (DIN 43863-3), 6 mm x 3 mm high numbers are 7-segment.

Mechanical features

A compact plastic casing is made of high quality self-extinguishable materials and is resistant to water and dust.
A sliding hanger enables installation for all fixing dimensions, from 165 to 230 mm.
The meter is made of the materials that can be recycled and are environment-friendly.

Power supply

The meter is supplied from measuring voltages or external power supply (50-230 V AC/DC).

Opto-magnetic probe

The opto-magnetic probe enables "no-power" meter reading and setting, which means that magnetic connection enables communication and LCD display also if the meter is not wired.

Software

MeterView 4 for Windows and MeterRead for PDAs software have been designed specifically for the meter specialists. It offers intuitive graphical interface for meter programming and reading.

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Owing to periodical improvements of our products the supplied products can differ in some details from the data stated in the prospectus material.

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