

Mk6ES

Class 0.2S

High Precision Three Phase Meter
Power Quality / Substation Monitoring

The Mk6ES combines high precision metering and comprehensive data for network operation for power quality and substation monitoring. Designed for grid edge, transmission and distribution metering it provides unprecedented state-of-the-art metrology in terms of accuracy, precision, and reliability. Mk6ES has Power Quality Class S fitted as a standard offering with optional IEC 61850 substation protocol compliance.



Key Features



SECURE



HIGH
ACCURACY



DLMS
READY



LARGE LCD
DISPLAY



MEASURE
EVERYTHING



ETHERNET



ANTI TAMPER



SCRIPT
EXTENSION

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Standards and Compliance

- Class 0.2S Active and Class 0.5S Reactive
- IEC 62052-11, 62053-22, 62053-24, 62052-31, 62059-32-1, SP-1618
- MID Class C

Measurement

- 3 phase 3 wire
- 3 phase 4 wire

Voltage

- Nominal voltage: 57 - 240V L-N/100V - 415 L-L or 57 - 277V L-N/100V - 480 L-L
- Impulse voltage: 12kV
- Terminal size: Ø 3.2mm - 3.3mm

Current

- CT range: 0.3/6A, 1/6A, 1/10A, 5/10A, 5/20A
- CT limit: 20 x I_{max} for 0.5 seconds
- Terminal size: Ø 6.4mm - 6.6mm

Auxiliary Supply Option

- 100 to 240 VAC/VDC
- Auxiliary only input/Auxiliary priority/Phase priority

Power Consumption

- Voltage circuit: <10VA/phase @ V_n
- Current circuit: <0.5VA/phase @ I_n

Frequency

- 50Hz/60Hz

Inputs/Outputs Configuration

- 2 x LED indicators + 1 x Ethernet indicator
- 4 x passive inputs (5VDC/12VDC/24VDC/48VDC 110VAC/240VAC)
- 6 x BOSFET outputs (240V, 100mA maximum)
- 2 x Active inputs (5VDC)/ 2 x S0 outputs (27VDC, 20mA rated)

Battery

- External lithium thionyl chloride battery (1200mAh, 3.6V)
- Internal super capacitor (5V)
- Backup time: 72 hours without power (super capacitor)
- Read-Without-Power (optional): Nickel metal hydride (NiMH) battery (3.6V, 500mAh, Charge cycle: 1000 times)
- Backup time: 10 years without power (lithium battery)

Real-time Clock

- Precision clock accuracy: <5ppm (15 seconds per month) at full temperature range (-40°C to +85°C)
- RTC and frequency synchronisation
- Mains synchronised or internal crystal time keeping with revert

Data Memory

- 64MB of non-volatile memory

Display

- Display digit size: 9mm x 5.2mm
- 16 Characters by 3 lines alphanumeric display
- Programmable units, multipliers and leading zeros
- Displays any available meter parameter
- Up to 64 user-defined screen pages to display any meter/energy parameter

Measured Values

- 3 elements, 4 quadrants
- Import/Export/Absolute Wh, varh and VAh
- Per quadrant: Wh, varh and VAh
- Phase A, B, C and Total W, var, VA
- True RMS voltage and current
- CT and VT correction
- Transformer and line loss compensation
- Power factor, frequency, phase angles

Power Quality

- IEC 61000-4-30 Class S
- Power frequency
- Magnitude of supply voltage
- Supply voltage sag and swell
- Voltage interruption
- Unbalance supply voltage
- Voltage harmonics
- Voltage total harmonics distortion (THD)

Load Survey/Profile

- Up to 70 channels and 2 independent surveys
- Intervals programmable from 1 minute to 1 month
- 30 days storage (70 channels, 30 minute interval)
- 120 days storage (15 channels, 30 minute interval)
- Energy, instantaneous readings, pulsing inputs as channel sources
- Ability to store average/minimum/maximum values for interval duration

Time of Use

- Up to 8 rates plus unified rate
- Up to 32 separate import and export registers
- Daily, weekly, monthly, yearly and special days
- Up to 200 programmable special days
- Up to 100 previous periods plus period totals
- Block or rolling maximum demand
- Energy, pulsing inputs
- Time of maximum demand

Calendar

- Supports Daylight Saving time

Tamper Detection and Alarms

- Multiple tamper detection options
- Provision for sealing with conventional wire or plastic seals
- Pre-configured alarms self-check
- Alarms trigger LEDs and/or communication event

Security

- Secure boot
- Multi-level security (username and password including encrypted log-in)
- Up to 7 independent levels
- Up to 6 individual users

Script Extensions

- Adaptable concept of meter "extensions"
- Standard toolbox extensions provided
- Customer-specific extensions will be made to order

Communications

- Optical port: FLAG (IEC 62056-21)
- Ethernet
- RS-232
- RS-485
 - 2 or 4-wire RJ45
 - 2 or 4-wire screw terminal

Protocol

- EDMI command line
- DLMS/IDIS
- MODBUS RTU/TCP
- IEC 61850 (optional)
- DL/T-645:2007
- DLT698.45

Environmental

- Specified operating range: -25°C to +60°C
- Operating range limit: -40°C to +70°C
- Storage range limit: -40°C to +85°C
- Relative humidity: Up to 75% mean, 95% non-condensing for 30 days
- Ingress protection: IP54 (without suction)
- Salt spray resistance: ASTM B117

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