







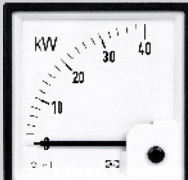




















| | Moving Coil, DQ  (240°) | Moving Coil, VDQ  (90°) | Moving Iron, EQ  (90°) |
|--|--|--|---|
| Main function: | Measurement of DC currents and DC voltages. | Measurement of AC currents and AC voltages. | Measurement of AC currents and AC voltages, adjusted for other frequency range 16..65 Hz. The instruments measure true RMS. |
| Size (mm): | Q48...Q144 | Q72...Q144 | Q48...Q144 |
| Pointer deflection: | 90°, 240° | 90°, 240° | 90° |
| Customised and exchangeable scale available for 90°: | ✓ | ✓ | ✓ |
| Protection IP52: | ✓ | ✓ | ✓ |
| Protection IP54 on request: | ✓ | ✓ | ✓ |
| Accuracy class: | 1.5 | 1.5 | 1.5 |
| Measuring range: | 60 mV...300 V 1 mA...5...10...15...40 A, 4...20 mA (except from Q48: 1 mA...600 mA, 4...20 mA) | 25...300 V, 1...600 mA | 40...800 V (Q48: 40...300 V) 1...60 A (Q48: 1...40 A) |
| Approved by classification societies: | ✓ | ✓ | ✓ |
| | Ammeters w/built-in switch, VDQ96-sw  | Voltmeters w/built-in switch, EQ96-sw7  | Voltmeters w/built-in switch, EQ96-sw4  |
| Main function: | Measurement of AC currents. Selected with built-in switch, measurement of current in a 3-phase network is possible. | Measurement of AC voltages. Selection of measurement of phase to phase voltage or phase to zero voltage in a 3-phase network is possible by means of built-in switch. | Measurement of AC voltages. Measurement of phase to phase voltage in a 3-phase network is possible by means of built-in switch. |
| Size (mm): | Q96 | Q96 | Q96 |
| Pointer deflection: | 90° | 90° | 90° |
| Customised and exchangeable scale available for 90°: | ✓ | – | – |
| Protection IP52: | ✓ | ✓ | ✓ |
| Protection IP54 on request: | – | – | – |
| Accuracy class: | 1.5 | 1.5 | 1.5 |
| Measuring range: | 0...1 A, 0...5 A or from current transformer(s) Scale: According to the used current transformer Frequency: 45...65 Hz | Phase to phase voltages up to 600 V or phase to zero voltages up to 350 V Scale: 0...300 V, 0...500 V, 0...600 V, 0...800 V, 120 V for VT - x/100 V, 132 V for VT - x/110 V, Frequency: 40...60 Hz | Phase to phase voltages up to 600 V or phase to zero voltages up to 350 V Scale: 0...300 V, 0...500 V, 0...600 V, 120 V for VT - x/100 V, 132 V for VT - x/110 V, Frequency: 40...60 Hz |

| | Bimetallic Instruments, BQ  | Combined Ammeters, BEQ  | |
|--|---|--|--|
| Main function: | Measurement of currents. Provided with a maximum-reading pointer. | Measurement of currents. Combined bimetallic system and moving iron system for maximum and momentary reading. Provided with a maximum-reading pointer. | |
| Size (mm): | Q48, Q72, Q96 | Q72, Q96 | |
| Pointer deflection: | 90° | 90° | |
| Customised and exchangeable scale available for 90°: | – | – | |
| Protection IP52: | ✓ | ✓ | |
| Protection IP54 on request: | – | – | |
| Accuracy class: | 3 | 3 (1.5 for moving iron) | |
| Measuring range: | Measuring range: 0...6 A or 0...1.2 A Overload: 1.2 × nominal current (-/5 A or -/1 A) continuously Scale: Always 120% of the current transformer Setting time: BQ48: 4 or 8 min, BQ72-x/BQ96-x: 8 or 15 min | Measuring range: 0...6 A or 0...1.2 A Overload: 1.2 × nominal current (-/5 A or -/1 A) continuously Scale: Always 120% of the current transformer Setting time: Bimetallic system: 8 or 15 min | |
| | Watt or VAR Meters, WQ  | Power Factor Meters, PFQ  | |
| Main function: | Measurement of power or reactive power. | Measurement of CosPhi. | |
| Size (mm): | Q96, Q144 | Q96, Q144 | |
| Pointer deflection: | 90°, 240° | 90°, 240° | |
| Customised and exchangeable scale available for 90°: | ✓ | ✓ | |
| Protection IP52: | ✓ | ✓ | |
| Protection IP54 on request: | ✓ | ✓ | |
| Accuracy class: | 1.5 | 1.5 | |
| Measuring range: | Frequency: 45...65 Hz Measuring current: Direct or from CT -/1 A or -/5 A Measuring voltage: 100...110...127...220...230...240...380...400...415...440...450...480V AC | 0.5 cap. ...1...0.5 ind., 0.7 cap. ...1...0.3 ind., 0...1 cap., 0...1 ind. Voltage: 57.7...63.5...100...110...124...220...230...240...380...400...415...440V AC ±20% Current (Inom): -/1 A and -/5 A from external current transformer | |

| | Pointer Frequency Meters, FQ  | Reed Frequency Meters, FTQ  | Shunt Resistors  |
|--|---|---|---|
| Main function: | Measurement of frequency. | Measurement of frequency with 13 or 21 reeds. | Dimensions: To DIN 43703 Ranges: 1...2500 A, 60/150 mV Form A and B: 60/150 mV Form C: 50 mV |
| Size (mm): | Q72, Q96 | Q72, Q96 | – |
| Pointer deflection: | 90° | – | – |
| Customised and exchangeable scale available for 90°: | ✓ | ✓ | – |
| Protection IP52: | ✓ | ✓ | – |
| Protection IP54 on request: | ✓ | ✓ | – |
| Accuracy class: | 0.5 | 0.5 | 0.5 |
| Measuring range: | Measuring voltage: 100...230V AC ±15% or 440V AC ±15% Scale/meas. range: 45...55 Hz, 55...65 Hz, 45...65 Hz, 360...440 Hz (Others on request) | Measuring voltage: 100...110...220... 230...240...380...400...415... 440V AC ±15% Scale/meas. range: 47...53 Hz, 45...55 Hz, 57...63 Hz, 55...65 Hz | – |

| | | | |
|--------------------|--|--|--|
| | Multi-instrument, MIB  | Multi-instrument, MIC  | Multi-instrument, MIC-2  |
| Size (mm): | Q96 | Q96 | Q96 |
| Main function: | Measurement of voltage, current, active-, reactive- and apparent power, frequency, energy kWh/kVArh (import, export, net, total), min./max. values, PF, THD. | Measurement of voltage, current, active-, reactive- and apparent power, frequency, energy kWh/kVArh (import, export, net, total), PF, THD. | Measurement of voltage, current, active-, reactive- and apparent power, frequency, energy kWh/kVArh (import, export, net, total), PF, THD, demand, min./max. values with time stamp. |
| Connection: | Suitable for all 3-phase network topologies | Suitable for all 3-phase network topologies | Suitable for all 2- and 3-phase network topologies |
| Accuracy class: | 0.5% on measured values 1.0% on calculated values | 0.2% measured values 0.5% calculated values | 0.2% on measured values 0.5% on calculated values |
| Output: | Optional: 2 digital pulse/limit outputs Optional: RS485 serial output with Modbus RTU protocol | RS485 serial output with Modbus RTU protocol. Optional: 2 digital pulse/limit outputs + 2 relays | Optional modules: Communication: TCP/IP Ethernet, Profibus. I/O: digital input, digital output, relay, analogue input |
| Measuring current: | -/1 A or -/5 A | -/1 A or -/5 A | -/1 A or -/5 A |
| Measuring voltage: | 400V AC Ph-N/690V AC Ph-Ph 50/60 Hz | 230V AC N-Ph (400V AC Ph-Ph) 50/60 Hz | 400V AC Ph-N/690V AC Ph-Ph 50/60 Hz |
| Auxiliary supply: | 100...415V AC 50/60 Hz 100...300V DC | 85...264V AC 50/60 Hz/ 24...48, 100...280V DC | 100...415V AC 50/60 Hz 100...300V DC |
| | Multi-instrument, MIQ96-3  | | |
| Size (mm): | Q96 | | |
| Main function: | Measurement of voltage, current, active-, reactive- and apparent power, frequency and energy import (kWh, kVArh), export (kWh, kVArh), PF, THD, MD (max. demands). | | |
| Connection: | Single phase 3-phase 3 wire balanced load 3-phase 4-wire balanced load 3-phase 3-wire unbalanced load 3-phase 4-wire unbalanced load | | |
| Accuracy class: | 0.5 of most values 1.0 of a few values | | |
| Output: | RS485 serial + 2 relays Pulse output/limit switches | | |
| Measuring current: | -/1 A or -/5 A | | |
| Measuring voltage: | 230V AC N-Ph (400V AC Ph-Ph) 50/60 Hz | | |
| Auxiliary supply: | Universal AC/DC power supply 40...276V AC, 40...65 Hz <5 VA or 19...300V DC <5 W | | |

| | Insulation Monitor, ADL-111Q96  | Selectable Insulation Monitor, SIM-Q/SIM-Q LF  | Insulation Monitor, AAL-111Q96  |
|--|--|--|---|
| Main function: | Supervision of the insulation resistance between an insulated low-voltage distribution network and earth cable/safety cable. | Supervision of the insulation resistance between an insulated low-voltage distribution network and earth cable/safety cable. | Supervision of the insulation resistance between an insulated low-voltage distribution network and earth cable/safety cable. |
| Size (mm): | Q96 | Q96 | Q96 |
| Selectable modes: | – | Monitoring, fault finding, test | – |
| Customised and exchangeable scale available: | – | ✓ | ✓ |
| Protection: | IP52 | IP52 | IP52 |
| Accuracy class: | – | 1..0 Mohm scale ±5% of scale length 10..0 Mohm scale ±2% of scale length | ±2% of scale length |
| Relay output: | Built-in relay can be selected as NE or ND. Alarm setpoint adjustable from the rear | Built-in relay can be selected as NE or ND. Alarm setpoint adjustable from the rear | Built-in relay can be selected as NE or ND. Time delay of 4 s can be selected. Alarm setpoint adjustable from the rear |
| Input: | Meas. voltage: ±12V DC ±5% (24 V), ±28V DC ±5% (110, 220 V) Mains voltage: 24V DC, 110V DC, 220V DC +30% -25% | Meas. voltage: ±28V DC ±5% Mains voltage: Max. 690V AC +20% continuously SIM-Q: 20 Hz...500 Hz SIM-Q LF: 5 Hz...500 Hz | Meas. voltage: 12V DC ±10% Mains voltage: Max. 440V AC +20% continuously |
| Mains voltage/leakage cap.: | Selectable for either max. 1µF or max. 20µF | Selectable for either max. 50µF or max. 500µF | – |
| Auxillary supply: | 24V DC, 110V DC, 220V DC +30% -25% | 100...110...127 or 220...230...240 or 400...450...480V AC ±20% 40..70 Hz (< 4 VA) 24V DC ±25% (appr. 4 W) | 110...220...380...415...440V AC ±20%, 45...65 Hz (appr. 4 VA) |
| Approved by classification societies: | ✓ | ✓ | ✓ |
| | Remote Position Indicators, PIR25-1, PIR25-2  | Running Hours Counters, HC48  | Running Hours Counters, HC36/24  |
| Main function: | Indication of circuit breaker position or tie breaker position. | For AC or DC measuring voltage. | Synchronous motor (AC). Step motor (DC). For panel mounting. |
| Size (mm): | Q25 | Q48 Adapter frames 55 × 55 or 72 × 72 | 36 × 24 |
| Black focusing screen ("round"): | ✓ | – | – |
| White focusing screen ("square"): | ✓ | – | – |
| Frequency 50 Hz or 60 Hz: | – | ✓ | ✓ |
| Protection IP40: | – | (Special IP65 available) | ✓ |
| Accuracy class: | – | AC: 1/100 hour (36 s) DC: 1/10 hour (6 min) | – |
| Measuring range: | Nominal voltages: 4...48...110...230V AC/DC | Counting range: AC: 99999.99 hours/ DC: 999999.9 hours Voltage: 24-110-230V AC ±10% and 10-48V DC, 110V DC ±10% | Counting range: AC: 99999.99 hours/DC: 999999.9 hours - automatically resets to zero Voltage: 24...110...230V AC ±10% and 12...36V DC, 110V DC±10% Resolution: For AC - 1/100 hours (36 s), for DC - 1/10 hours (6 min) |

| | DIN Rail Instruments, D45  | DIN Rail Instruments, E45  | DIN Rail Instruments, B45  |
|--|---|---|--|
| Main function: | Moving coil DC instrument for DIN rail mounting (35 × 15 mm). | Moving iron AC instrument for DIN rail mounting (35 × 15 mm). | Bimetallic instrument with maximum reading pointer. For DIN rail mounting (35 × 15 mm). |
| Size (mm): | Q45 | Q45 | Q45 |
| Pointer deflection: | 90° | 90° | 90° |
| Customised and exchangeable scale available for 90°: | ✓ | ✓ | ✓ |
| Protection IP52: | ✓ | ✓ | ✓ |
| Protection IP54 on request: | – | – | – |
| Accuracy class: | 1.5 | 1.5 | 3.0 |
| Measuring range: | 1 V...300 V (incl. 0...60 mV/5 mA) 1 mA...600 mA and (4...20 mA) | 6 V...400 V, 100 mA...25 A Standard ranges: 1...5...10...15...25 A, incl. -1 A and -5 A for external CT | Nominal current -/5 A. Overload: 1.2 × nominal current continuously. Scale: Always 120% of the current transformer. Setting time: 8 min |
| | Alarm Panels, AL8-2  | | |
| Main function: | Suitable for switchboards in industrial and marine plants for alarm and control purposes. | | |
| Size (mm): | Q96 | | |
| Selectable modes: | – | | |
| Customised and exchangeable scale available: | – | | |
| Protection: | IP54 | | |
| Accuracy class: | – | | |
| Relay output: | Two user-configurable output relays One output for horn (alarm) | | |
| Input: | 8 alarm inputs | | |
| Mains voltage/ leakage cap.: | – | | |
| Auxiliary supply: | 12...24...48...110V DC ±25% (min. 10V DC) | | |
| Approved by classification societies: | ✓ | | |