

Three phase electricity meters B23/B24

EQ meters in Steel version from ABB

The compact and versatile EQ meters B23 and B24 are three phase meters with outstanding performance. They can be used in most of the common applications for reliable and trustworthy metering of energy usage.

EQ meters B23/B24 in Steel version can be used in stand-alone applications or metering network installations with the option of inbuilt M-Bus or Modbus.



General features

B23 is a three phase direct connected meter up to 65 A and B24 is a three phase transformer connected for 5 A. The B23 and B24 are measuring active energy with accuracy class B (Cl. 1). The low rated or base currents of these products ensures high dynamic performance with superior accuracy even at low currents. Navigation of the meters is easily done via the push-buttons below the display. The exceptional low power consumption of the meters, less than 1.6 VA, makes them economical in the long run-an important feature specially for large meter populations.

Communication

Data from B23 and B24 can be collected via pulse output or serial communication. The meters are equipped with a transistor output for 5-40 VDC external supply. It can be used for pulses proportionally to the measured energy or various alarms. The meters are also available with built-in serial communication interfaces for Modbus RTU (RS-485) or M-Bus as options.

Instrumentation

The B23 and B24 meters support reading of instrument values. A large number of electrical properties can be read.

- Active power - Total and per phase
- Voltage - Total and per phase
- Current - Total and per phase
- Power factor
- Frequency

Approvals

The B23 and B24 meters are type approved according to IEC as well as type approved and verified according to MID. MID is the Measure Instruments Directive 2004/22/EC from European Commission. The type approval is according to standards that covers all relevant technical aspects of the meter. These include climate conditions, electromagnetic compatibility (EMC), electrical requirements, mechanical requirements and accuracy.

Ordering details

65 A direct connected, 4 DIN

| Voltage V | Communication | Type | Order code | Weight 1 pc |
|--|---------------|---------------|-----------------|-------------|
| Steel Active energy, pulse output, class B (Cl. 1) | | | | |
| 3 x 230/400 V AC | - | B23 111 - 100 | 2CMA100163R1000 | 0.31 |
| | RS-485 | B23 112 - 100 | 2CMA100164R1000 | 0.32 |
| | M-Bus | B23 113 - 100 | 2CMA100165R1000 | 0.33 |

6 A transformer connected, 4 DIN

| Voltage V | Communication | Type | Order code | Weight 1 pc |
|--|---------------|---------------|-----------------|-------------|
| Steel Active energy, pulse output, class B (Cl. 1) | | | | |
| 3 x 230/400 V AC | - | B24 111 - 100 | 2CMA100177R1000 | 0.25 |
| | RS-485 | B24 112 - 100 | 2CMA100178R1000 | 0.25 |
| | M-Bus | B24 113 - 100 | 2CMA100179R1000 | 0.27 |

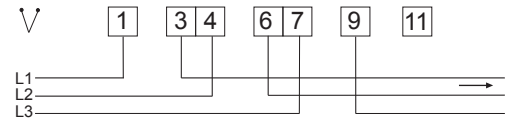
B series

Technical data

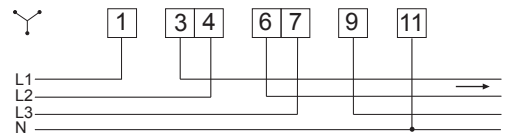
| | B23 | B24 |
|--|--|--------------------------|
| Voltage/current inputs | | |
| Nominal voltage | 3x230/400 V AC | |
| Voltage range | 3x220-240 VAC (-20% - +15%) | |
| Power dissipation voltage circuits | 1,6 VA (0,7 W) total | |
| Power dissipation current circuits | 0,007 VA (0,007 W) per phase at 230 V AC and I_b | |
| Base current I_b | 5 A | |
| Rated current I_n | - | 1 A |
| Reference current I_{ref} | 5 A | |
| Transitional current I_t | 0,5 A | 0,05 A |
| Maximum current I_{max} | 65 A | 6 A |
| Minimum current I_{min} | 0,25 A | 0,02 A |
| Starting current I_{st} | < 20 mA | < 1 mA |
| Terminal wire area | 1 - 25 mm ² | 0,5 - 10 mm ² |
| Recommended tightening torque | 3 Nm | 1,5 Nm |
| Communication | | |
| Terminal wire area | 0,5 - 1 mm ² | |
| Recommended tightening torque | 0,25 Nm | |
| Transformer ratios | | |
| Configurable current ratio (CT) | - | 1/9 - 9999/1 |
| Pulse indicator (LED) | | |
| Pulse frequency | 1000 imp/kWh | 5000 imp/kWh |
| Pulse length | 40 ms | 40 ms |
| General data | | |
| Frequency | 50 or 60 Hz ± 5% | |
| Accuracy Class | B (Cl. 1) | |
| Active energy | 1% | |
| Display of energy | 7 digit LCD | |
| Environmental | | |
| Operating temperature | -40°C - +70°C | |
| Storage temperature | -40°C - +85°C | |
| Humidity | 75% yearly average, 95% on 30 days/year | |
| Resistance to fire and heat | Terminal 960 °C, cover 650°C (IEC 60695-2-1) | |
| Resistance to water and dust | IP20 on terminal block without protective enclosure and IP51 in protective enclosure, according to IEC 60529. | |
| Mechanical environment | Class M1 in accordance with the Measuring Instrument Directive (MID), (2004/22/EC). | |
| Electromagnetic environment | Class E2 in accordance with the Measuring Instrument Directive (MID), (2004/22/EC). | |
| Outputs | | |
| Current | 2 - 100 mA | |
| Voltage | 5 - 40 VDC. | |
| Pulse output frequency | Programmable: 1 - 999999 imp/kWh | |
| Pulse length | Programmable: 10 - 990 ms | |
| Terminal wire area | 0,5 - 1 mm ² | |
| Recommended tightening torque | 0,25 Nm | |
| EMC compatibility | | |
| Impulse voltage test | 6 kV 1,2/50µs (IEC 60060-1) | |
| Surge voltage test | 4 kV 1,2/50µs (IEC 61000-4-5) | |
| Fast transient burst test | 4kV (IEC 61000-4-4) | |
| Immunity to electromagnetic HF-fields | 80 MHz - 2 GHz (IEC 61000-4-6) | |
| Immunity to conducted disturbance | 150kHz - 80MHz (IEC 61000-4-6) | |
| Immunity to disturbance with harmonics | 2kHz - 150kHz | |
| Radio frequency emission | EN 55022, class B (CISPR22) | |
| Electrostatic discharge | 15 kV (IEC 61000-4-2) | |
| Standards | IEC 62052-11, IEC 62053-21 class 1, GB/T 17215.211-2006, GB/T 17215.312-2008 class 1, GB 4208-2008, EN 50470-1, EN 50470-3 category B | |
| Mechanical | | |
| Material | Polycarbonate in transparent front glass. Glass reinforced polycarbonate in bottom case and upper case. Polycarbonate in terminal cover. | |
| Dimensions | | |
| Width | 70 mm | |
| Height | 97 mm | |
| Depth | 65 mm | |
| DIN modules | 4 | |

Wiring diagram B23

3 wire connection, 2 elements

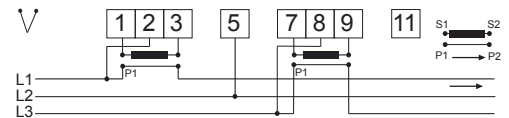


4 wire connection, 3 elements



Wiring diagram B24

3 wire connection, 2 elements



4 wire connection, 3 elements

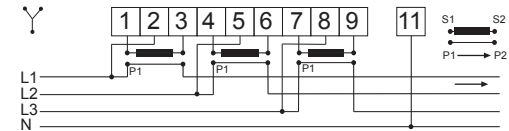


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