

Energy efficiency

EQ meters B series



B-series

2CNC48502EFC001

| Technical features | | B21 |
|------------------------------------|---|-----|
| Voltage/current inputs | | |
| Nominal voltage | 230 V AC | |
| Voltage range | 220...240 VAC (-20% - +15%) | |
| Power dissipation voltage circuits | 0.9 VA (0,4 W) total | |
| Power dissipation current circuits | 0.014 VA (0.014 W) at 230 V AC and I_b | |
| Base current I_b | 5 A | |
| Rated current I_n | - | |
| Reference current I_{ref} | 5 A | |
| Transitional current I_{tr} | 0.5 A | |
| Maximum current I_{max} | 65 A | |
| Minimum current I_{min} | 0.25 A | |
| Starting current I_{st} | < 20 mA | |
| Terminal wire area | 1 - 25 mm ² | |
| Recommended tightening torque | 3 Nm | |
| Communication | | |
| Terminal wire area | 0.5 - 1 mm ² | |
| Recommended tightening torque | 0.25 Nm | |
| Transformer ratios | | |
| Configurable current ratio (CT) | - | |
| Pulse indicator (LED) | | |
| Pulse frequency | 1000 imp/kWh | |
| Pulse length | 40 ms | |
| General data | | |
| Frequency | 50 or 60 Hz ± 5% | |
| Accuracy Class | B (Cl. 1) and Reactive Cl. 2 | |
| Active energy | 1% | |
| Display of energy | 6 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 - 240 V AC/DC. For meters with only 1 output 5 - 40 VDC. | |

| B23 | B24 |
|---|---|
| 3x230/400 V AC | |
| 3x220/380...240/415 VAC (-20% - +15%) | |
| 1.6 VA (0,7 W) total | |
| 0.007 VA (0.007 W) per phase at 230 V AC and I _b | |
| | - |
| | 1 A |
| | - |
| | 0.05 A |
| | 6 A |
| | 0.02 A |
| | < 1 mA |
| | 0.5 - 10 mm ² |
| | 1.5 Nm |
| | |
| | |
| | 1/9 - 9999/1 |
| | |
| | 5000 imp/kWh |
| | |
| | |
| | B (Cl. 1) or C (Cl. 0.5 S) and Reactive Cl. 2 |
| | 0.5%, 1% |
| 7 digit LCD | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| IP20 on terminal block without protective enclosure and IP51 in protective enclosure, according to IEC 60529. | |
| | |
| Class M1 in accordance with the Measuring Instrument Directive (MID). (2004/22/EC). | |
| | |
| Class E2 in accordance with the Measuring Instrument Directive (MID), (2004/22/EC). | |
| | |
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| | |
| 5 - 240 V AC/DC. For meters with only 1 output 5 - 40 VDC. | |

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| Technical features | |
|--|---|
| | B21 |
| 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 |
| Inputs | |
| Voltage | 0 - 240 V AC/DC |
| OFF | 0 - 12 V AC/DC |
| ON | 57 - 240 V AC/24 - 240 V DC |
| Min. pulse length | 30 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 burn 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 & 2, IEC 62053-22 class 0,5 S, IEC 62053-23 class 2, IEC 62054-21, GB/T 17215.211-2006, GB/T 17215.312-2008 class 1 & 2, GB/T 17215.322-2008 class 0,5 S, GB 4208-2008, EN 50470-1, EN 50470-3 category A, B & C |
| Mechanical | |
| Material | Polycarbonate in transparent front glass. Glass reinforced polycarbonate in bottom case and upper case. Polycarbonate in terminal cover. |
| Dimensions | |
| Width | 35 mm |
| Height | 97 mm |
| Depth | 65 mm |
| DIN modules | 2 |

B23

B24

IEC 62052-11, IEC 62053-21 class 1 & 2, IEC 62053-22 class 0,5 S, IEC 62053-23 class 2, IEC 62054-21, GB/T 17215.211-2006, GB/T 17215.312-2008 class 1 & 2, GB/T 17215.322-2008 class 0,5 S, GB 4208-2008, EN 50470-1, EN 50470-3 category A, B & C

Polycarbonate in transparent front glass. Glass reinforced polycarbonate in bottom case and upper case. Polycarbonate in terminal cover.

70 mm

97 mm

65 mm

4

Energy efficiency

EQ meters B series

The EQ meters, B series is a range of meters for single phase and three phase metering. The B series meters are mounted on a DIN rail and are suitable for installation in distribution boards and small enclosures such as consumer units. The B series are suitable in applications where there is a need for reliable energy measurements and where space is limited.

The B series meters are high runner meters for many applications and installations. Navigating the meter is easily done via the push-buttons below the display. To configure the meter settings, the set button must be accessed and this button is protected against unauthorized use when the "glass lid" on the front of the meter is closed and sealed. The power consumption of the meter is very low, less than 0.8 VA.

Data from the B series meters can be collected via pulse output or serial communication. The pulse output is a solid state relay that generates pulses proportionally to the measured energy. The meters can also be equipped with built-in serial communication interfaces for M-Bus or Modbus RTU (RS-485). Meters with RS-485 interface can also be set to communicate over the new EQ bus with the new gateway G13. All meters in the B series come with an infrared port for communication with an external Serial Communication Adapter (SCA) such as the KNX adapter.

The B series meters support reading of instrument values. A large number of electrical properties can be read. Depending on version of the meter the following data is available:

- Active power
- Apparent power
- Reactive power
- Current
- Voltage
- Frequency
- Power factor

The tariffs are controlled via inputs or communication.

The B series support two inputs and two outputs in a fixed configuration. Inputs can be used for counting pulses from e.g. a water meter, or reading status from external devices. Outputs can be used as pulse outputs or controlling external apparatus like a contactor or an alarm (connected via an external relay).

The B series meters are type approved according to IEC and they are both type approved and verified according to MID. MID is the Measuring Instruments Directive 2004/22/EC from the European Commission. MID type approval and verification is mandatory for meters in billing applications within EU and EEA. 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.

Where to find more:
Energy Meters technical catalogue
(code 2CMC481003C0201)



Frequently asked question - FAQ:
You can find all ABB instruction manuals on www.abb.com/abblibrary/download-center

Maybe you are also interested in:
Current and Voltage Transformers
p.8/68 and p.8/81



B21

Direct connected electricity meter up to 65 A. Verified and approved according to MID. IEC approval. Instrument values. Alarm function. - Communication - Infrared (M-Bus).
Optional - Communication with M-Bus, RS-485 Modbus, RS-485 EQ bus.

EQ meters single phase electricity meter, 2 DIN with IR port, 65 A

For direct connection up to 65 A. Class B (Cl. 1) with functionality level Steel.

Active energy

| Description | Bbn | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|------------------------------------|---------|---------------|-----------------|------------------|-------------------|--------------|
| | 7392696 | Type code | Order code | | | |
| | EAN | | | | kg | pc. |
| 1 x 230 V AC, Pulse output | | B21 111 - 100 | 2CMA100149R1000 | | 0.140 | 1 |
| 1 x 230 V AC, Pulse output, RS-485 | | B21 112 - 100 | 2CMA100150R1000 | | 0.150 | 1 |
| 1 x 230 V AC, Pulse output, M-Bus | | B21 113 - 100 | 2CMA100151R1000 | | 0.150 | 1 |

For direct connection up to 65 A. Class B (Cl. 1) (Reactive Cl. 2) with functionality level Bronze.

Active and reactive energy, import/export.

| Description | Bbn | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|------------------------------------|---------|---------------|-----------------|------------------|-------------------|--------------|
| | 7392696 | Type code | Order code | | | |
| | EAN | | | | kg | pc. |
| 1 x 230 V AC, Pulse output, RS-485 | | B21 212 - 100 | 2CMA100152R1000 | | 0.150 | 1 |

For direct connection up to 65 A. Class B (Cl. 1) (Reactive Cl. 2) with functionality level Silver.

Active and reactive energy, import/export, tariffs 1-4, tariff controll via inputs and communication.

| Description | Bbn | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|---|---------|---------------|-----------------|------------------|-------------------|--------------|
| | 7392696 | Type code | Order code | | | |
| | EAN | | | | kg | pc. |
| 1 x 230 V AC, 2 output, 2 input | | B21 311 - 100 | 2CMA100154R1000 | | 0.140 | 1 |
| 1 x 230 V AC, 2 output, 2 input, RS-485 | | B21 312 - 100 | 2CMA100155R1000 | | 0.150 | 1 |
| 1 x 230 V AC, 2 output, 2 input, M-Bus | | B21 313 - 100 | 2CMA100156R1000 | | 0.150 | 1 |

Energy efficiency

EQ meters B series



B23

Direct connected electricity meter up to 65 A. Verified and approved according to MID. IEC approval. 2- and 3-element metering. Instrument values. Alarm function. Communication - Infrared (M-Bus). Optional - Communication with M-Bus, RS-485 Modbus, RS-485 EQ bus.

EQ meters three phase electricity meter, 4 DIN with IR port, 65 A

Class B (Cl. 1) with functionality level Steel. Active energy

| Description | Bbn | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|--|---------|---------------|-----------------|------------------|-------------------|--------------|
| | 7392696 | Type code | Order code | | | |
| | EAN | | | | kg | pc. |
| 3 x 230/400 V AC, Pulse output | | B23 111 - 100 | 2CMA100163R1000 | | 0.310 | 1 |
| 3 x 230/400 V AC, Pulse output, RS-485 | | B23 112 - 100 | 2CMA100164R1000 | | 0.320 | 1 |
| 3 x 230/400 V AC, Pulse output, M-Bus | | B23 113 - 100 | 2CMA100165R1000 | | 0.330 | 1 |

Class B (Cl. 1) (Reactive Cl. 2) with functionality level Bronze. Active and reactive energy, import/export.

| Description | Bbn | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|--|---------|---------------|-----------------|------------------|-------------------|--------------|
| | 7392696 | Type code | Order code | | | |
| | EAN | | | | kg | pc. |
| 3 x 230/400 V AC, Pulse output, RS-485 | | B23 212 - 100 | 2CMA100166R1000 | | 0.320 | 1 |

Class B (Cl. 1) (Reactive Cl. 2) with functionality level Silver. Active and reactive energy, import/export, tariffs 1-4, tariff control via inputs and communication.

| Description | Bbn | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|---|---------|---------------|-----------------|------------------|-------------------|--------------|
| | 7392696 | Type code | Order code | | | |
| | EAN | | | | kg | pc. |
| 3 x 230/400 V AC, 2 output, 2 input | | B23 311 - 100 | 2CMA100168R1000 | | 0.330 | 1 |
| 3 x 230/400 V AC, 2 output, 2 input, RS-485 | | B23 312 - 100 | 2CMA100169R1000 | | 0.340 | 1 |
| 3 x 230/400 V AC, 2 output, 2 input, M-Bus | | B23 313 - 100 | 2CMA100170R1000 | | 0.350 | 1 |

Where to find more:

Energy Meters technical catalogue
(code 2CMC481003C0201)



Frequently asked question - FAQ:

You can find all ABB instruction manuals on www.abb.com/abblibrary/download-center

Maybe you are also interested in:

Current and Voltage Transformers
p.8/68 and p.8/81

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EQ meters B series



B24

Transformer CT connected electricity meter up to 6 A. Verified and approved according to MID. IEC approval. 2- and 3-element metering. Instrument values. Alarm function. Communication - Infrared (M-Bus). Optional - Communication with M-Bus, RS-485 Modbus, RS-485 EQ bus.

EQ meters three phase electricity meter, 4 DIN with IR port, 6 A

Class B (Cl. 1) with functionality level Steel. Active energy

| Description | Bbn | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|--|---------|---------------|-----------------|------------------|-------------------|--------------|
| | 7392696 | Type code | Order code | | | |
| | EAN | | | | kg | pc. |
| 3 x 230/400 V AC, Pulse output | | B24 111 - 100 | 2CMA100177R1000 | | 0.250 | 1 |
| 3 x 230/400 V AC, Pulse output, RS-485 | | B24 112 - 100 | 2CMA100178R1000 | | 0.250 | 1 |
| 3 x 230/400 V AC, Pulse output, M-Bus | | B24 113 - 100 | 2CMA100179R1000 | | 0.270 | 1 |

Class B (Cl. 1) (Reactive Cl. 2) with functionality level Bronze. Active and reactive energy, import/export.

| Description | Bbn | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|--|---------|---------------|-----------------|------------------|-------------------|--------------|
| | 7392696 | Type code | Order code | | | |
| | EAN | | | | kg | pc. |
| 3 x 230/400 V AC, Pulse output, RS-485 | | B24 212 - 100 | 2CMA100180R1000 | | 0.250 | 1 |

Class C (Cl. 0.5 S) (Reactive Cl. 2) with functionality level Silver. Active and reactive energy, import/export, tariffs 1-4, tariff control via inputs and communication.

| Description | Bbn | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|---|---------|---------------|-----------------|------------------|-------------------|--------------|
| | 7392696 | Type code | Order code | | | |
| | EAN | | | | kg | pc. |
| 3 x 230/400 V AC, 2 output, 2 input | | B24 351 - 100 | 2CMA100182R1000 | | 0.270 | 1 |
| 3 x 230/400 V AC, 2 output, 2 input, RS-485 | | B24 352 - 100 | 2CMA100183R1000 | | 0.270 | 1 |
| 3 x 230/400 V AC, 2 output, 2 input, M-Bus | | B24 353 - 100 | 2CMA100184R1000 | | 0.290 | 1 |