# 405-VT5B-90B10

405-VT5B-90B10, Three-phase energy meter indirect connection

Code: QBK50

> Communications: RS-232 | RS-485
> Class (Active/Reactive): C (0,5S)/1
> System: Three-phase
> Measure: Indirect
> Measurement Range (V): 3x57/100 ... 3x230/400
> Measurement Range (A): .../5
> Quadrants: 4
> Frequency (Hz): 60

## Description

The CIRWATT-B505 is an indirect three-phase meter, recorder, and multi-tariff device, classified as Class C for active energy as per the European MID Directive (EN 50470) or Class 0.5s as per IEC-62053-22, and reactive energy Class 1 as per IEC-62053-23. It offers multiple communication options and expansion modules, allowing it to adapt to any type of industrial or tertiary sector installation.

## Application

CIRWATT B-505 is ideal for medium-voltage supplies using external voltage and current transformers. Offering solutions for large industry with a power between 450 kW and 10 MW (Consumer type 2). Available in 2 quadrants for energy consumption or 4 quadrants for photovoltaic plants (energy generation and consumption).

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## Specifications

### AC power supply

| | |
|---|---|
| Tolerance | 80 % ... 115 % Un |
| Consumption | < 2 W; < 10 VA |
| Frequency | 50 / 60 Hz |
| Nominal voltage | 3 x 57 (100) V... 3 x 230 (400) V |

### Battery specification

| | |
|---|---|
| Performance-guarantee | > 20 years @ 30 °C |
| Type | Lithium |

### Mechanical characteristics

| | |
|---|---|
| Size (mm) width x height x depth | 172 x 255 x 67 (mm) |
| Envelope | DIN 43859 |

### Environmental characteristics

| | |
|---|---|
| Relative humidity (without condensation) | 95 % max. |
| Storage temperature | -40 ... +85 °C |
| Working temperature | -25 ... +70 °C |

### Voltage measurement circuit

| | |
|---|---|
| Connection | Asymmetrical |
| Consumption | < 2 W; 10 VA |
| Nominal frequency | 50 / 60 Hz |
| Nominal voltage | 3x57/100 ... 3x230/400 V |

### Current measurement circuit

| | |
|---|---|
| Consumption | < 0,1 VA |
| Reference current (Iref) | .../ 5 A |
| Maximum current | 10 A |
| Minimum current measurement | < 0,5 x Itr |

### Communication Network

| | |
|---|---|
| Protocol | 3x57/100 ... 3x230/400 V |

### Optical communication interface

| | |
|---|---|
| Hardware | IEC 62056-21 |
| Protocol | REE, IEC 870-5-169 |

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| | |
|---|---|
| Type | Serial;bi-directional |

## User interface

| | |
|---|---|
| Resolution of the display | up to 8 digits (8 mm) |
| Display type | LCD |

## Memory

| | |
|---|---|
| Memory capacity | Data: non-volatile memory, Setup and events: serial-flash |
| Write time | 4000 |
| Type | Serial flash |

## Standards

| | |
|---|---|
| Standards | UNE-EN 50470-1 Electricity metering equipment (a.c.) -- Part 1: General requirements, tests and test conditions - Metering equipment -class indexes B-) UNE-EN 50470-3 Electricity metering equipment (a.c.) -- Part 3: Particular requirements - Static meters for active energy -class indexes B-) IEC 62052-11, IEC 62053-21, IEC 62053-22 (Standards for static active energy meters for alternating current of class 0.2s, 0.5s) UNE-EN 55022 (Conducted Emissions: Class B, Radiated Emissions: Class B) UNE-EN 61000-4-2, UNE-EN 61000-4-3, UNE-EN 61000-4-4, UNE-EN 61000-4-5, UNE-EN 61000-4-6, UNE-EN 61000-4-8, UNE-EN 61000-4-11 |

## PLC

| | |
|---|---|
| Hardware | CENELEC A or CENELEC B |
| Protocol | CirPLC & PEP (PLC Encapsulated Protocol) |
| Modulation system | DSCK with repeater system |

## Measurement accuracy

| | |
|---|---|
| Reactive energy measurement (kvarh) | IEC 62053-23 (Class 1 / 2) |
| Active energy measurement (kWh) | IEC 62053-22 (Class 0,5S) EN 50470 (Class C) |

## Features / performance

| | |
|---|---|
| Billing closures | 12 locks per contract. Programable date and hour |
| Load curve | 2 load curves, programmable integration time (1 ... 253 min) |
| Optional | Communications: RS-232 / PLC ,RS-485 / PLC, RS-232 / RS-232 , RS-485 / RS-485, RS-232 / RS-485, RS-232 / Ethernet, R-485 / Ethernet. Expansion boards: No inputs / outputs, 4 relay outputs (Rate Indicator), 2 relay inputs / 4 pulse outputs, 4 pulse inputs, Differential current measurement, 2 relay outputs / 2 pulse outputs, / 2 pulse inputs |
| Tariff programming | 12 days 10 types of data 9 types of tariffs 30 public holidays 12 special days |

## Clock

| | |
|---|---|
| Source | Temperature compensated oscillator |
| Accuracy (EN 61038) | < 0,5 s/day (23 °C) |

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Code: QBK50

| | |
|---|---|
| Type | Gregorian calendar |

**Serial communication**

| | |
|---|---|
| Protocol | REE, IEC 870-5-102 |
| Technology / Type | RS-232\|RS-485 |

**CIRWATT B 505**

Indirect three-phase meter, recorder, and multi-tariff device, classified as Class C for active energy as per the European MID Directive (EN 50470) or Class 0.5s as per IEC-62053-22

| CODE | TYPE | Measurement Range (V) | Measurement Range (A) | Communications | Class (Active/Reactive) | System | Measure |
|---|---|---|---|---|---|---|---|
| **CIRWATT B 505** | | | | | | | |
| QBP1E | 405-MT5A-90B10 | 3x63,5/110 | .../5 | RS-232 \| RS-485 | C (0,5S)/1 | Three-phase | Indirect |
| QBP1F | 405-MT5A-A0B10 | 3x63,5/110 | .../5 | RS-232 \| Ethernet | C (0,5S)/1 | Three-phase | Indirect |
| QBP1K | 405-MT5A-C0B10 | 3x63,5/110 | .../5 | RS-485 \| Ethernet | C (0,5S)/1 | Three-phase | Indirect |
| QBP1I | 405-MT5A-70B10 | 3x63,5/110 | .../5 | RS-232 \| RS-232 | C (0,5S)/1 | Three-phase | Indirect |
| QBP1J | 405-MT5A-80B10 | 3x63,5/110 | .../5 | RS-485 \| RS-485 | C (0,5S)/1 | Three-phase | Indirect |
| QBK10 | 405-VT5A-90B10 | 3x57/100 ... 3x230/400 | .../5 | RS-232 \| RS-485 | C (0,5S)/1 | Three-phase | Indirect |
| QBK20 | 405-VT5A-A0B10 | 3x57/100 ... 3x230/400 | .../5 | RS-232 \| Ethernet | C (0,5S)/1 | Three-phase | Indirect |
| QBK30 | 405-VT5A-C0B10 | 3x57/100 ... 3x230/400 | .../5 | RS-485 \| Ethernet | C (0,5S)/1 | Three-phase | Indirect |
| QBN00 | 405-VT7A-90B10 | 3x57/100 ... 3x230/400 | .../ 1 | RS-232 \| RS-485 | C (0,5S)/1 | Three-phase | Indirect |
| QBN10 | 405-VT7A-A0B10 | 3x57/100 ... 3x230/400 | .../ 1 | RS-232 \| Ethernet | C (0,5S)/1 | Three-phase | Indirect |
| QBN30 | 405-VT7B-90B10 | 3x57/100 ... 3x230/400 | .../ 1 | RS-232 \| RS-485 | C (0,5S)/1 | Three-phase | Indirect |
| QBK10T24 | 405-VT5A-90B10-TRMC400-1000-3.0.2 | 3x230/400 | .../5 | RS-232 \| RS-485 | B (1) / 2 | Three-phase | Indirect |

Please contact us for other configurations (Inputs, outputs and other communications)

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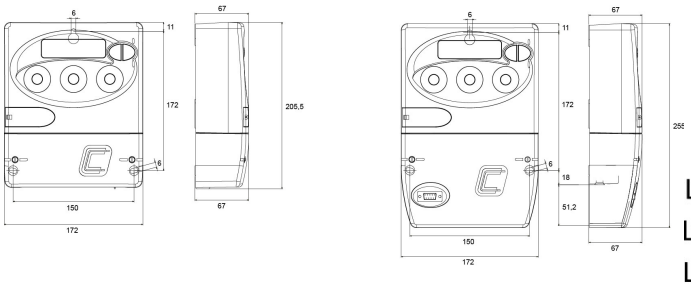
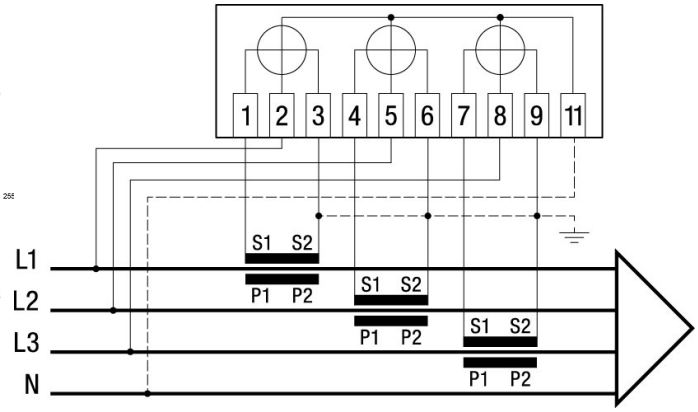
## Dimensions




## Connections