

**EM220-RTU-4DI2DO****Weidmüller Interface GmbH & Co. KG**

Klingenbergstraße 26

D-32758 Detmold

Germany

[www.weidmueller.com](http://www.weidmueller.com)**Energy meters - BasicLine****Core functions of energy data acquisition**

The BasicLine devices measure power characteristics of single-phase or three-phase loads.

For this purpose, basic values are provided to make the energy demand of a system transparent.

The essential values are displayed directly on the unit and communicated via a network.

Our devices are suitable either for mounting on top hat rails or in the front panel.

By focusing on core functions, the BasicLine devices have a very good cost-benefit ratio.

The devices are now also available with MID approval and Modbus RTU, Modbus TCP and MBUS communication modules.

**General ordering data**

|            |                                                                                                            |
|------------|------------------------------------------------------------------------------------------------------------|
| Version    | Power measurement/display for 1-, 3-phase mains, use of CT, pulse output, digital input/output, Modbus RTU |
| Order No.  | <a href="#">7760051005</a>                                                                                 |
| Type       | EM220-RTU-4DI2DO                                                                                           |
| GTIN (EAN) | 6944169818219                                                                                              |
| Qty.       | 1 items                                                                                                    |

## EM220-RTU-4DI2DO

**Weidmüller Interface GmbH & Co. KG**  
 Klingenbergstraße 26  
 D-32758 Detmold  
 Germany

www.weidmueller.com

## Technical data

## Approvals

Approvals



ROHS Conform

## Dimensions and weights

|            |       |                 |             |
|------------|-------|-----------------|-------------|
| Depth      | 74 mm | Depth (inches)  | 2.9134 inch |
| Height     | 96 mm | Height (inches) | 3.7795 inch |
| Width      | 96 mm | Width (inches)  | 3.7795 inch |
| Net weight | 360 g |                 |             |

## Temperatures

|                     |                            |                       |                |
|---------------------|----------------------------|-----------------------|----------------|
| Storage temperature | -40 °C...70 °C             | Operating temperature | -25 °C...55 °C |
| Humidity            | 0...90 % (no condensation) |                       |                |

## Environmental Product Compliance

|                        |                       |
|------------------------|-----------------------|
| RoHS Compliance Status | Compliant             |
| REACH SVHC             | No SVHC above 0.1 wt% |

## Measuring current input

|                            |         |                                |                                 |
|----------------------------|---------|--------------------------------|---------------------------------|
| Housing main material      | Plastic | Rated current                  | via current transformer 1 A/5 A |
| Current-measuring channels | 3       | Measuring accuracy for current | 0.5 %                           |
| Max. current               | 5000 A  |                                |                                 |

## Measuring voltage input

|                                    |                                                                                                                    |                                    |            |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------|------------------------------------|------------|
| Low voltage network                | 1 phase 2 wire (L + N), 1 phase 2 wire (L1 + L2), 3 phase 3 wire (L1 + L2 + L3), 3 phase 4 wire (L1 + L2 + L3 + N) | Voltage type                       | AC         |
| Frequency range, max.              | 65 Hz                                                                                                              | Frequency range, min.              | 45 Hz      |
| Measuring accuracy for voltage     | 0.5 %                                                                                                              | Three-wire system                  | Yes        |
| Measurement range, voltage L-L, AC | 50...600 V                                                                                                         | Measurement range, voltage L-N, AC | 50...345 V |
| Four-wire system                   | Yes                                                                                                                |                                    |            |

## Communication

|           |                 |           |            |
|-----------|-----------------|-----------|------------|
| Parity    | none, even, odd | Stop bits | 1, 2       |
| Interface | RS485           | Protocol  | Modbus RTU |

## Inputs/outputs

|                          |                                                                                |                             |     |
|--------------------------|--------------------------------------------------------------------------------|-----------------------------|-----|
| Input type               | 3 phase AC (3P, 3P +N), Secondary side of a current transformer 0-1 A or 0-5 A | Digital output configurable | Yes |
| Number of digital inputs | 4                                                                              | Number of digital outputs   | 2   |
| Temperature input        | No                                                                             |                             |     |

## EM220-RTU-4DI2DO

Weidmüller Interface GmbH &amp; Co. KG

Klingenbergstraße 26

D-32758 Detmold

Germany

www.weidmueller.com

## Technical data

## Measurement data recording

|                          |     |          |                        |
|--------------------------|-----|----------|------------------------|
| Update interval register | 1 s | Software | EM configuration tools |
|--------------------------|-----|----------|------------------------|

## Technical data

|                                    |                                                                                                                                                                                                                                      |                                                       |                                                                                                              |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| Display value                      | Voltage, current measured value, Apparent power, Reactive power, Power factor, Frequency, Import / export active power demand, Total import / export active energy, Total import / export reactive energy, Total system power demand | Version                                               | Power measurement/display for 1-, 3-phase mains, use of CT, pulse output,, digital input/output,, Modbus RTU |
| Type of mounting                   | Frontpanel mounting                                                                                                                                                                                                                  | Protection degree                                     | Front panel: IP51, IP20                                                                                      |
| Pollution severity                 | 2                                                                                                                                                                                                                                    | Rated current                                         | via current transformer 1 A/5 A                                                                              |
| Power factor input                 | ± 0.01                                                                                                                                                                                                                               | Max. current                                          | 5000 A                                                                                                       |
| Display monitoring (monitor)       | LCD                                                                                                                                                                                                                                  | Measurement range, voltage L-N, AC                    | 50...345 V                                                                                                   |
| Measurement range, voltage L-L, AC | 50...600 V                                                                                                                                                                                                                           | Surge voltage category                                | III                                                                                                          |
| Supply voltage                     | 75...270 V AC, 100...380 V DC                                                                                                                                                                                                        | Three-wire system                                     | Yes                                                                                                          |
| Four-wire system                   | Yes                                                                                                                                                                                                                                  | Sampling frequency 50/60 Hz                           | 14.4 kHz                                                                                                     |
| Continuous measurements            | Yes                                                                                                                                                                                                                                  | Measurement result per second                         | 1 s                                                                                                          |
| Current-measuring channels         | 3                                                                                                                                                                                                                                    | Measuring accuracy for voltage                        | 0.5 %                                                                                                        |
| Measuring accuracy for current     | 0.5 %                                                                                                                                                                                                                                | Measurement accuracy for active energy (kWh, .../5 A) | Class 0.5S (IEC 62053-22), Class 0.5 (IEC 61557-12)                                                          |
| Clock                              | Yes                                                                                                                                                                                                                                  |                                                       |                                                                                                              |

## Insulation coordination

|                        |     |                    |   |
|------------------------|-----|--------------------|---|
| Surge voltage category | III | Pollution severity | 2 |
|------------------------|-----|--------------------|---|

## Connection data

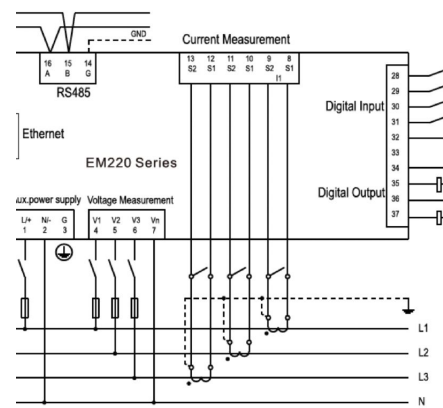
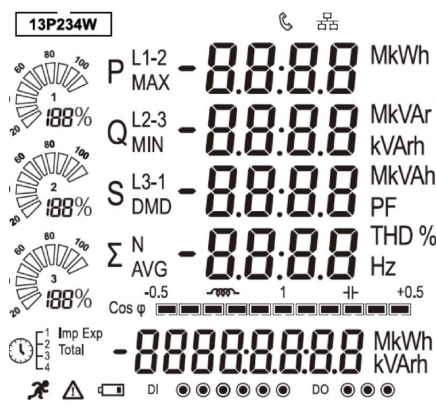
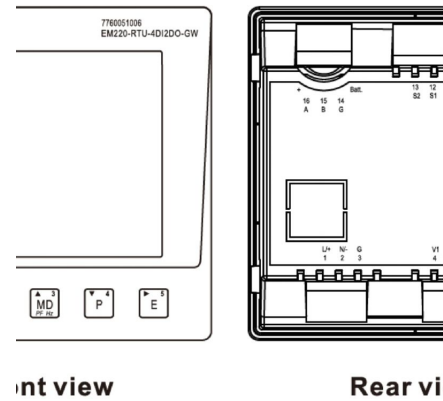
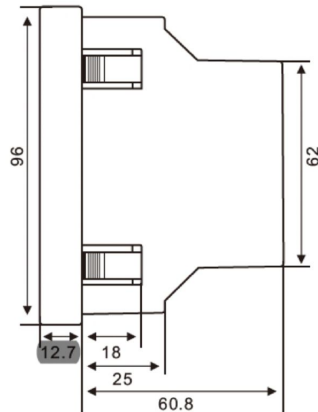
|                                                                           |                     |                                                                |                     |
|---------------------------------------------------------------------------|---------------------|----------------------------------------------------------------|---------------------|
| Stripping length                                                          | 8 mm                | Type of connection                                             | Screw connection    |
| Wire cross-section, solid, min.                                           | 0.5 mm <sup>2</sup> | Wire cross-section, solid, max.                                | 2.5 mm <sup>2</sup> |
| Wire connection cross section, finely stranded, min.                      | 0.5 mm <sup>2</sup> | Wire connection cross section, finely stranded, max.           | 2.5 mm <sup>2</sup> |
| Wire connection cross section, finely stranded, two clampable wires, min. | 0.5 mm <sup>2</sup> | Wire cross-section, finely stranded, two clampable wires, max. | 2.5 mm <sup>2</sup> |

## Classifications

|             |             |             |             |
|-------------|-------------|-------------|-------------|
| ETIM 6.0    | EC002301    | ETIM 7.0    | EC002301    |
| ETIM 8.0    | EC002301    | ETIM 9.0    | EC002301    |
| ETIM 10.0   | EC002301    | ECLASS 9.0  | 27-14-23-30 |
| ECLASS 9.1  | 27-21-03-01 | ECLASS 10.0 | 27-14-23-30 |
| ECLASS 11.0 | 27-14-23-30 | ECLASS 12.0 | 27-14-23-30 |
| ECLASS 13.0 | 27-14-23-30 | ECLASS 14.0 | 27-14-23-30 |
| ECLASS 15.0 | 27-14-23-30 |             |             |

## Drawings

### Dimensioned drawing

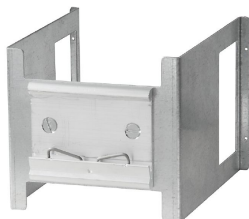


**EM220-RTU-4DI2DO****Weidmüller Interface GmbH & Co. KG**

Klingenbergstraße 26

D-32758 Detmold

Germany

[www.weidmueller.com](http://www.weidmueller.com)**Accessories****Accessories****General ordering data**

|            |                            |         |  |
|------------|----------------------------|---------|--|
| Type       | EM220 BRACKET              | Version |  |
| Order No.  | <a href="#">3068970000</a> |         |  |
| GTIN (EAN) | 4099987062862              |         |  |
| Qty.       | 1 ST                       |         |  |