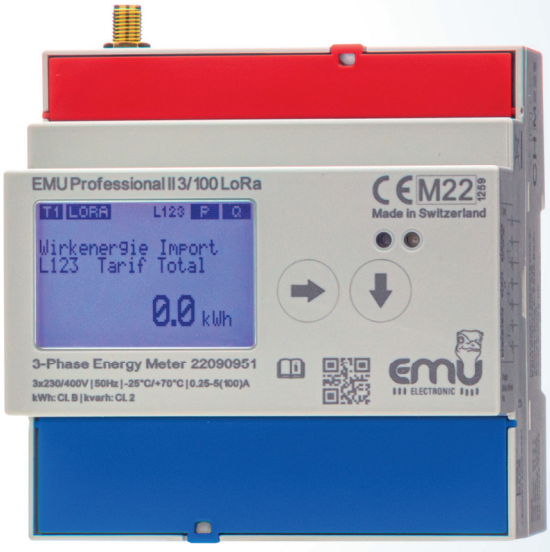
**The worlds first power meter with blockchain technology**




# ENERGY METER

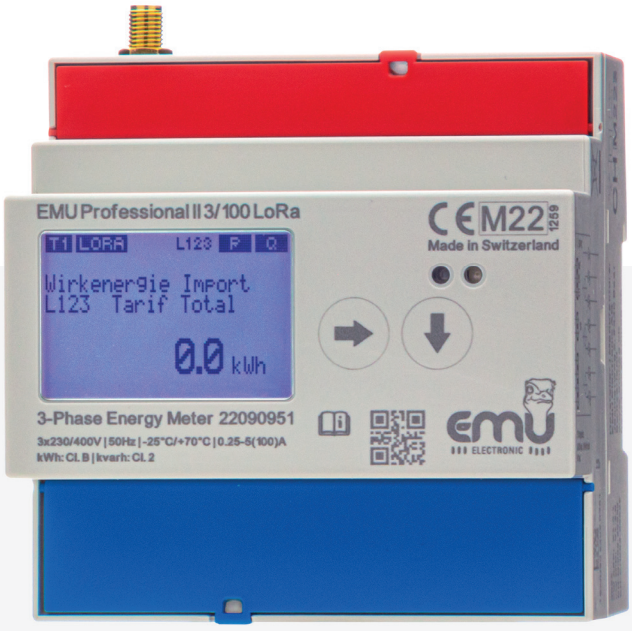
## EMU PROFESSIONAL II

LoRaWAN

**3-phasen multi-measurement device with MID and PTB approval**

# EMU PROFESSIONAL II

The EMU Professional II is a multifunctional bi-directional energy meter with exceptional flexiblity and accuracy. All this fits in an only 90 mm (5 module) wide device. Different parameters from sophisticated applications like residential, industrial and trade environnements can be analysed and supervised via a range of different connection protocols. All that is needed is a direct or current transformer connection. It combines the function of an energy meter, a datalogger and supplies additional measurements such as current, voltage, power etc.

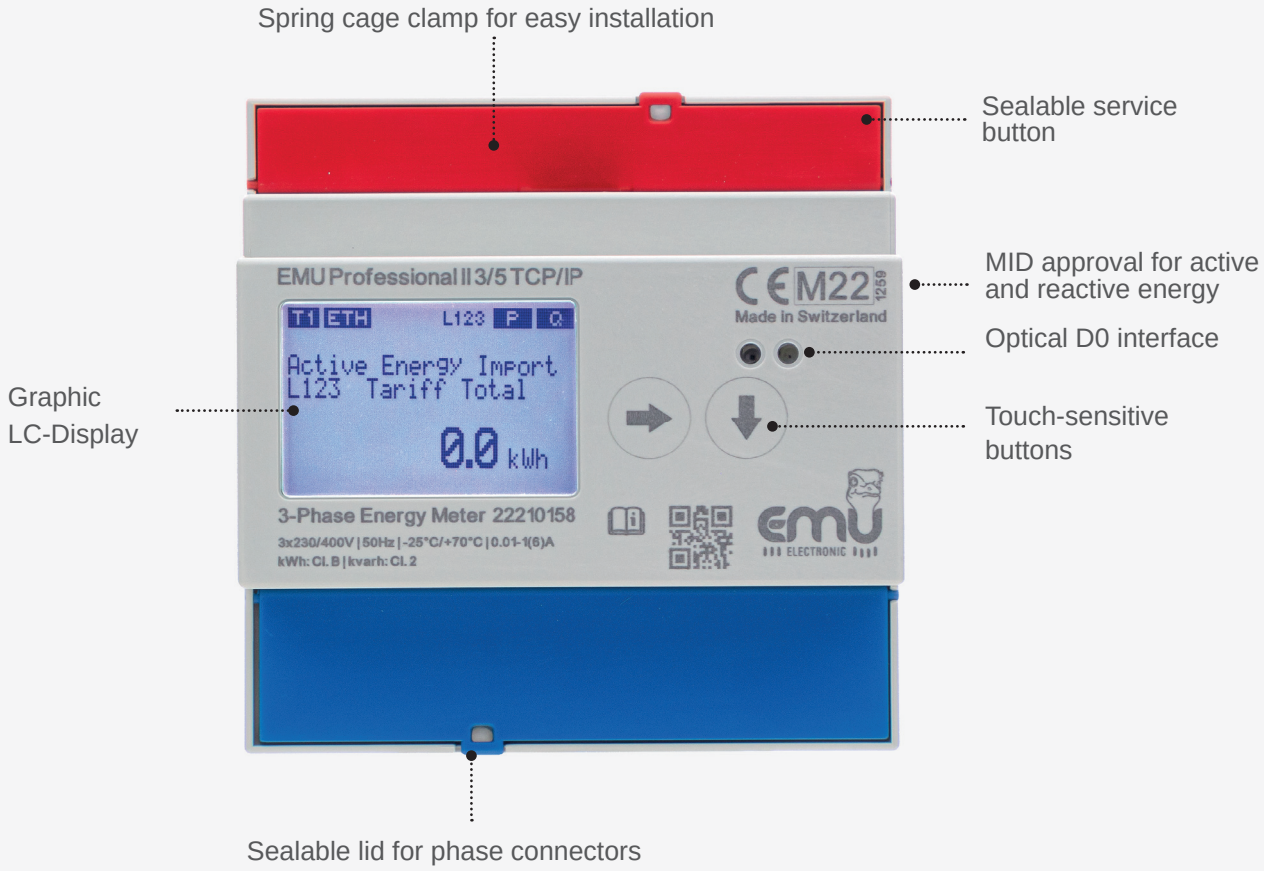


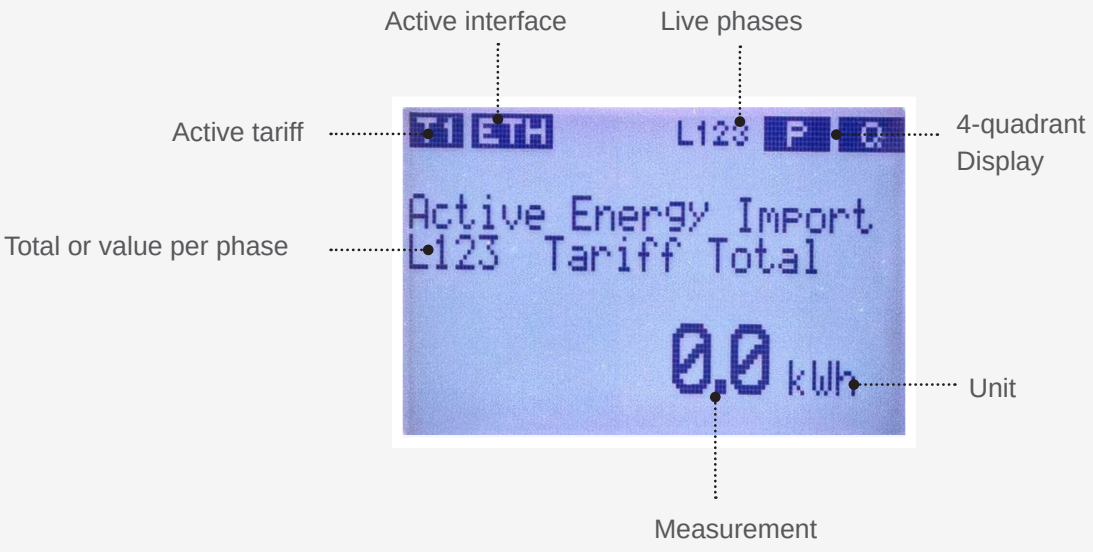

## FEATURES

- Bi-directional meter (export and import)
- Load profile storage
- MID B + D certified for billing purposes
- PTB-A 20.1 and PTB-A 50.7 certified
- Environmental conditions mechanical: M2
- 1 and 5 A current transformer connections for up to 20’000/5 or 4’000/1 A. The CT ratio can be adjusted multiple times via a sealable button
- Direct connector for up to 100A
- 2 or 4 tariffs (Can be set on the meter itself)
- Graphic LC-Display (38x28 mm) with backlight
- Dynamic 8-digit display with up to three decimal places

## CUSTOMER BENEFIT

- Load profile conform to calibration law
- Buffered Clock
- Safe against manipulations of energy data due to blockchain technology
- 15 minutes load profile storage with a storage depth of more than 3 years
- Logbook for configuration adjustments relevant to calibration


Spring cage clamp for easy installation
Sealable service button
MID approval for active and reactive energy
Optical D0 interface
Touch-sensitive buttons
Graphic LC-Display
Sealable lid for phase connectors
EMU Professional II 3/5 TCP/IP
M22
Made in Switzerland
T1 ETH
L123 P Q
Active Energy Import
L123 Tariff Total
0.0 kWh
3-Phase Energy Meter 22210158
3x230/400V | 50Hz | -25°C/+70°C | 0.01-1(6)A
kWh: Cl. B | kvarh: Cl. 2
ELECTRONIC




| | Total / Sum 3-phase | Per phase | Per tariff |
|---|---|---|---|
| Active Energy Import (kWh) | • | • | • |
| Active Energy Export (kWh) | • | • | • |
| Reactive Energy Import(kvarh) | • | • | • |
| Reactive Energy Export (kvarh) | • | • | • |
| Active Power (kW) | • | • | - |
| Reactive Power (kvar) | • | • | - |
| Apparent Power (kVA) | • | • | - |
| Current (A) | • | • | - |
| Voltage (V) L-N | - | • | - |
| Voltage (V) L-L | - | • | - |
| Power factor (Cos Phi) | - | • | - |
| Frequency (Hz) | • | - | - |
| Number of power failures | • | - | - |
| Load profile storage | - | - | • |
| Logbook | • | - | - |

## MEASUREMENT ON DISPLAY

This table is not complete. New measurements may be added or deleted.

# PRODUKT INFORMATION

| | |
|---|---|
| Active Energy | Class B (1%) according to EN50470-3 Direct meter<br>Class B (1%) according to EN50470-3 Indirect meter |
| Reactive Energy | Class 2 (2%) according to EN62053 |
| Supply Voltage | L-L: 400VAC +/- 20%<br>L-N: 230VAC +/- 20% |
| Max Current | Direct meter: 100A<br>Indirect meter: 6A |
| Initial Current | Direct meter 20mA at power factor 1<br>Indirect meter 1mA at power factor 1 |
| Frequency | Nominal frequency: 50Hz, 60Hz on request<br>Critical frequency: 40 - 65 Hz |
| Internal Consumption | Voltage route 0.8 VA / 0.8W per phase<br>Current route of Converter counter 0.075 VA per phase |
| Current and Voltage connector | Direct meter: 1.5-35 $mm^2$, Torque: 2 Nm, max. 3 Nm<br>Converter counter: 1-6 $mm^2$, Torque: 0.8 Nm, max. 1 Nm |
| Tariff Change | 2 or 4 tariff configurable on the Professional II, Tariff change: 230VAC |
| Current transformer ratio | Current transformer ratio can be adjusted multiple times<br>Current transformer /5 A 5/5 A up to 20'000/5 A in 5 A-steps<br>Current transformer /1 A 1/1 A up to 4'000/1 A in 1 A-steps |
| Display | Dynamic 8-digit display with up to three decimal places<br>Graphical LC-Display mit background lighting<br>(LxW) 38x28 mm |
| S0 Pulse Output | Norm EN62053-31<br>Output is potential free<br>Pulse rate per kWh/kvarh: 1, 10, 100, 1'000 or 10'000 pulses<br>Puls duration: 2ms, 10ms, 30ms, 40ms or 120ms<br>Pulse rate and duration adjustable on the meter |
| M-Bus | Norm EN13757-2, -3<br>Current consumption 1.5 mA (one standard load)<br>Connector diameter 1.5 $mm^2$<br>Secondary address 8-digit 00000000-99999999<br>Primary address 0 to 250<br>Baud rate: 300, 600, 1'200, 2'400, 4'800 and 9'600 Baud<br>Configuration via buttons or the EMU MB-Connect Software<br>Read-out data configurable via EMU MB-Connect Software |
| Modbus RTU RS485 | Connector diameter 1.5 $mm^2$<br>Configuration via buttons<br>Baud rate 9600, 19200, 38400, 57600, 115200<br>1/8 standard load |

# PRODUKT INFORMATION

| | |
|---|---|
| Interface | LoRaWAN |
| Security of Data | Dead-voltage in the EEPROM, Miniumum 10 years<br>Optional: IOTA Tangle (Blockchain technology) |
| Clock | Buffered Clock (up to 18 days)<br>Time synchronization via interface or buttons |
| Installation | Not dependent on location and position<br>On 35mm DIN-rails or with front installation frame<br>Weight ca. 350g |
| Housing | Housing material Polycarbonat, halogen free, recyclable<br>Connectors safety class IP20, Housing safety class IP 51<br>Protection class II<br>Physical dimensions (LxWxD) 90x91x72mm<br>5 module width |
| Certificates | CE and MID B + D<br>PTB-A 20.1<br>PTB-A 50.7<br>Suitable for energy management according to ISO 50001 |
| Environnemental Conditions | Mechanical: M2<br>Electromagnetic: E2<br>Temperature operation: -25 °C to + 70 °C<br>Temperatur storage: -40 °C to + 70 °C<br>Relative humidity: Yearly avg. 75%, short term 90%, noncondensing |
| Safety Instructions | The meters may only be installed by electrically skilled personal. Current transformers must not be operated in open loop due to high voltages. These Voltages may lead to damage to persons or property. |
| Choice of device | To ensure most efficient installation and service of the EMU Professional II meter we recommend using indirect metering such as EMU Professional II 3/5 in conjunction with current transformers for installations where a quick and inexpensive shut down of the installation is not possible. |