

Energomaster

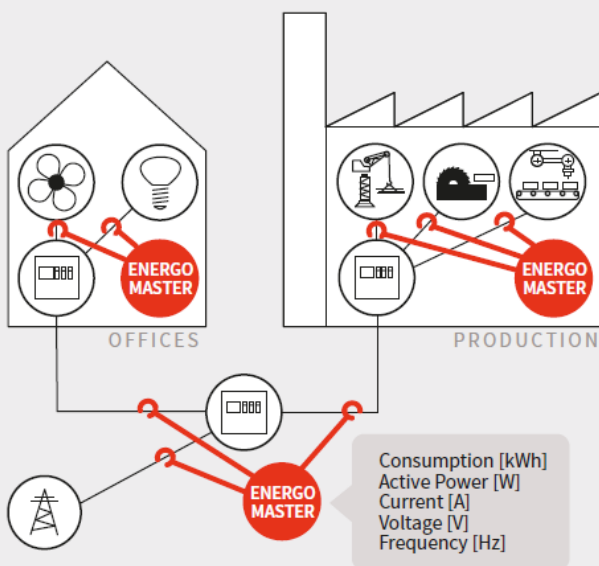
The universal smart electricity sub-meter for the IoT age

- Monitors electricity consumption **accurately**, in real-time
- Monitors voltage, current, power, energy, and power failures
- 3 phases, up to **9 individual circuits**, and **two digital inputs** monitored by one device
- Two digital outputs
- Wide range of communication interfaces (per client's request: LTE, WiFi, LoRaWAN, and others)
- Industry standard interfaces for connecting to monitoring and management systems (MQTT, CoAP, DLMS/COSEM)

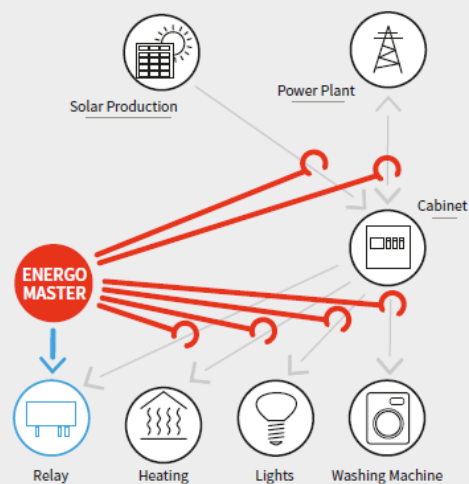
The universal, smart electricity sub-meter Energomaster can be used for a range of applications where fast and accurate information on power consumption or production is needed. It can be optionally complemented by universal digital inputs and outputs, i.e. for monitoring and production control. Energomaster is the ideal solution for Industry 4.0, smart city, microgrids, monitoring efficiency, and other clever energy solutions of the 21st century.



Examples of use in Industry 4.0 installation



Sample household photovoltaic installation

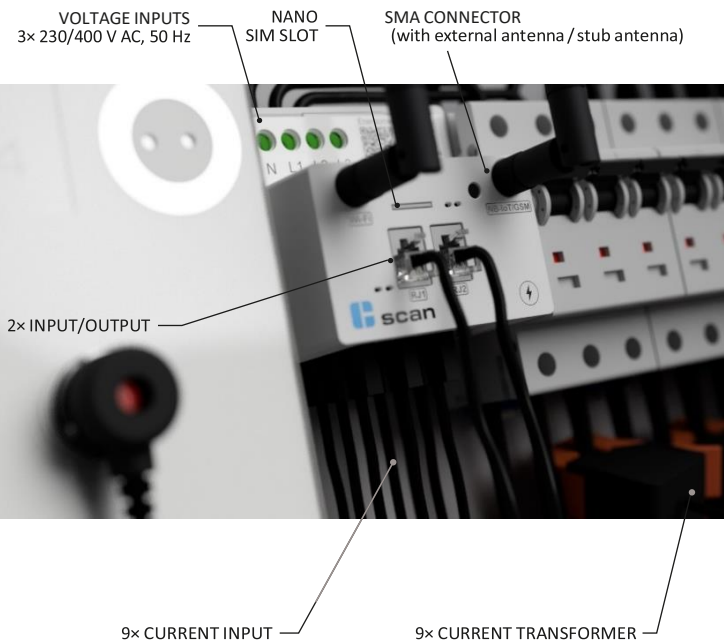


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Use Cases

- Smart industry measuring points (Industry 4.0)
- Industrial machinery consumption and performance
- Smart mobility solutions — measure charging/discharge for electromobile applications
- Demand response management systems (DERMS)
- High resolution building and facility consumption monitoring
- Microgrids
- PV installations, including on-site consumption and measurement of both import and export of energy from/to the grid
- HVAC equipment performance and efficiency
- Heat pump performance monitoring and efficiency
- Public lighting consumption and real-time switching/monitoring (smart city applications)
- Remote sites monitoring of consumption and activity (blackouts, unusual loads, underperforming equipment) in telecom, grid infrastructure, gas and water pumping operations, etc.
- Monitoring of load balance for large equipment or facility to prevent uneven distribution of loads
- Calculate the electrical cost for individual projects for accurate budgeting



Technical details

Measured parameters	Voltage, current, active power, reactive power, frequency, energy, power factor, power failures
Accuracy of metering	1 %
Resolution of metering	1 W
Inputs	<p>3× voltage (230/400V AC, 50 Hz)</p> <p>2× impulse/digital input (optical, SO, general I/O) 9× individual current transformer (CT) inputs, possible combinations of 3 phase measurements, or individual circuits configured by the user:</p> <ul style="list-style-type: none"> • 9× 1 phase • 3× 3 phase • 1× 3 phase + 6× 1 phase • 2× 3 phase + 3× 1 phase
Output	2× digital output
Range of measurement	<p>Different current measurements for CT or Rogowski input. From 50 to 1.600A.</p> <p>The range of impulse inputs is dependent on the used meter/source of impulse data — with indirect measurement can be used even for large MW scale loads.</p>
Network connectivity	<p>One of following*: 2G(GPRS)/3G/LTE, WiFi (802.11 b/g/n, WPA/WPA2/WPA2-Enterprise), Ethernet, LoRaWAN, NB-IoT, sub-1GHz short range radio, Energomonitor Chirp, wM-bus</p> <p>*If a specific version is currently not available, it can be developed per client's request. Bold is available now</p>
SIM Card format	Nano SIM Card for GPRS/3G/LTE and NB-IoT
Frequency Band	<p>WiFi: 2.4 GHz</p> <p>LoRaWAN: 433, 868, 915 MHz sub-1GHz</p> <p>(SRD, ISM): 433, 868, 915 MHz</p>
Session protocol	<p>MQTT (TCP) for GPRS/3G/LTE, WiFi, Ethernet, and Chirp</p> <p>MQTT-SN (UDP) for NB-IoT, LoRaWAN, GPRS/3G/LTE, WiFi, and Ethernet</p>
Physical size	76 × 57 × 63 mm (without antenna)
Mass	140 g
Power supply	100–240 V AC, 50 Hz
Protection	IP20, IP40 from the front of the device (higher protection on demand)
Type of antenna	SMA connector (with external antenna / stub antenna)
Working conditions	From –20 °C to +60 °C, 10 to 90 % RH
Consumption	Max. 5 W