

OpenSmartMonitor : ENV01

Energy Monitoring | Environmental Monitoring | Asset Monitoring

Take control of your business by monitoring many parameters from a single box solution.

- **Electricity & Gas Consumption (Modbus/CT/Pulse)**
- **Water usage (Pulse)**
- **Air Quality (PM2.5 & PM10)**
- **Temperature**
- **Humidity**
- **Light Level (Lux)**
- **Sound Level Detector (dB)**
- **RS485 & CAN Bus Communication Channels**



OpenSmartMonitor is the swiss army knife of LoRaWAN enabled sensors designed from the ground up to support decarbonisation and environmental monitoring of your buildings and assets. This Open Source design packs in a comprehensive range of useful measurements maximising value for money. Turnkey monitoring and control solutions are offered by Devtank which include intelligent dashboards and cloud based hosting services.

Applications

- **Continuous monitoring of buildings and assets**
- **Energy profiling**
- **Predictive maintenance**
- **Smart Factories & Industrial Process Monitoring**
- **Smart Farming**
- **Clean Room Monitoring**
- **Production Test**

Benefits

- **Open Source Hardware, Software and Data under your own control**
- **Works towards Net Zero carbon emissions**
- **Save business costs associated with energy usage and machine utilisation**
- **Provide monitoring to ensure safe working environments (HSE controls)**

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Functions

Built in measurements:

- Air Quality
- Temperature
- Relative Humidity
- Sound Level Meter
- Light Level Meter

External measurements/inputs:

- 100A Current Clamp (1ph/3ph)
- Pulse Input x 2 (3.3V TTL)
- RS485 Modbus (e.g. Utility Meters, BMS, Sensors)
- CAN Bus (e.g. Control modules, Sensors)
- 1-Wire DS18B20 Temperature Probe

Power button: OFF/ON/AutoON

Battery Charging/Level & Device Status Indicators

Flexible setup using USB cable:

- Individual sensor ON/OFF control
- Sample rates
- Update rates
- Power saving modes
- Modbus RTU Devices & Registers

ORDER OPTIONS

OSM – ENV01 – CTX – AX – PX – BX-RX-CAL

CT0 Current clamps not supplied (default)

CT1 1-phase current clamp

CT3 3-phase current clamps

A0 Air Quality Sensor not fitted (default)

A1 Integrated Air Quality Sensor

P1 External DS18B20 Temperature Probe

B1 Side Arm Brackets (default)

B2 DIN Bracket

B3 VESA Bracket

R(X) Europe(1), USA/AUS(2), Korea(3), Asia(4), India(5)

CAL Calibration Certificate

CERTIFICATION

CA, CE, RoHS

CONDITIONS OF USE

Indoor/Covered applications

-20 to +70°C, 0 – 95%RH

*Dependant on sampling rate and power saving mode

Applications

Air Quality (PM2.5 & PM10)

Range: 0 - 1000ug/m3

Resolution: 1ug/m3

Accuracy: (0 ug/m3 to 100 ug/m3 range ± 15 ug/m3), (100ug/m3 to 1000 ug/m3 range ± 15 %)

Temperature:

Range: -20 to +70°C

Resolution: 0.04°C

Accuracy: $\pm 1^\circ\text{C}$

Humidity:

Range: 0 – 100%RH

Resolution: 0.7

Accuracy: $\pm 2\%$ RH

Current Clamps:

Channels: 1-3

Range: 0 - 100A

Resolution: 0.081A

Accuracy: $\pm 1.0\%$ (RDG)

(Suitable for cable size upto 13mm diameter)

Digital Inputs (Pulse/1-Wire Functions):

Channels: 2

Range: 0 – 100kHz

Modbus RTU RS485:

Supports 8 devices & 16 registers/device

Data rate: 1Mbps

ESD Protection:

± 15 kV IEC 61000-4-2 air discharge

± 8 kV IEC 61000-4-2 contact discharge

CAN Bus:

Data rate: 1Mbps

Compliant with ISO 11898-2

ESD Protection Exceeds ± 16 kV HBM

Battery Life: 3 months*

Power:

Micro USB 5V 1A adaptor (supplied),

Lithium-ion rechargeable 18650 2900mAh battery.

Weight: 350g

Dimensions: 110mm x 90mm x 48mm

Wireless: LoRaWAN (EU868, US915, AU915, KR920, AS923, IN865)

Licenses: Hardware: CERN OHL-W v2

Software: LGPLv3