COMBOX.L

LoRaWAN™
FOR REMOTE MONITORING
AND ENERGY MANAGEMENT

- Internet of Things (IoT)
- Battery and External Powered
- Long Range
- Low Power
- Long Battery Life
- Versatile Applications

ComBox.L are innovative wireless sensors for today's energy management market. They use LoRaWAN, a Low Power Wide Area Network technology, which supports both monitoring and remote triggering of sensors and therefore covers a wider range of innovative IoT applications for Smart Home / Smart Building / Smart Factory Energy Management, Smart Metering, Smart Grid and Smart Cities.

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COMBOX
**SOLVERA
LYNX**

LoRaWAN technology is ideal for battery operated sensors and low power applications. With LoRaWAN, entire cities or countries can be covered with just a few base stations; this has made IoT applications possible with minimal infrastructural investment.

LOW POWER
ComBox.L devices are low power and can be operated for many years (5-10 years) by built-in batteries as well as by external power supplies.

LONG RANGE
ComBox.L devices use spread spectrum modulation allowing the coverage of up to 5 km in dense urban areas and up to 10 km for countryside applications.

CONNECTIVITY
LoRaWAN protocols are used to connect with the remote cloud. The devices have built-in data loggers and schedulers, which ensure that all relevant data is stored and transmitted securely.

PULSE SENSOR
(ComBox.L CI) can be used with any meter with a pulse signal output - potential free contact (such as electricity, gas, water, or heat). Pulses can be aggregated from 15 minute intervals. It can connect up to 2 meters, and both connections have tampering detection.

STATE SENSOR
(ComBox.L DI) can be used with any system that has an on/off output signal (such as a door switch, relay output, or push button). It can connect up to 4 channels. The data is transmitted to the cloud according to LoRaWAN protocol limitations.

TEMPERATURE SENSOR
(ComBox.L 2T) can connect up to two temperature probes (PT1000). Temperature acquisition is performed every 15 minutes and is transmitted to the cloud.

ANALOG SENSOR
(ComBox.L AI) can connect up to two sensing probes with 4..20mA or 0..10V output (like pressure, or flow probes). Measurement acquisitions are performed at 15 minute intervals and are transmitted to the cloud. The module is available only with an external power supply.

MODBUS GATEWAY
(ComBox.L MB) can read intelligent devices over RS-232 or RS-485 output which provide Modbus protocols. Data acquisition is performed every 15 minutes and is transmitted immediately to the cloud. The module is available only with an external power supply.

ACTIVATION DEVICE
(ComBox.L S0) contains 1x output for remote activation / deactivation. Additional 1x S0 pulse input is available to connect them to electricity meters. The module is available only with an external power supply.

01 ATEX - PULSE SENSOR
(ComBox.L ATAEX CI) pulse sensor can be used with a meter with a potential free contact output located inside ATEX Zone 1 (electricity, gas, water or heat meter). Pulses can be agregated from 15 min intervals. It can connect one meter with tampering detection.

02 ATEX - LPG LEVEL SENSOR
(ComBox.L ATEX RO) can be used with a Rochester Hall effect gauge to measure the fluid level in a tank located inside ATEX Zone 1. Measurments are taken in 15 min intervals. It can connect one sensor and provides power supply for the sensor.

BATTERY POWERED MODULES
• ComBox.L CI-B, pulse sensor
• ComBox.L DI-B, state sensor
• ComBox.L 2T-B, temperature sensor

EXTERNAL POWERED MODULES
• ComBox.L CI-DC, pulse sensor
• ComBox.L DI-DC, state sensor
• ComBox.L 2T-DC, temperature sensor
• ComBox.L AI-DC, analog sensor
• ComBox.L MB-DC, modbus gateway
• ComBox.L S0-DC, activation device

SOFTWARE SUPPORT
• Power management
• Remote parameterization
• Data logger
• Scheduler module (only at activation device ComBox.L S0)
• Time synchronization
• Modbus RTU master (only at ComBox.L MB)

ENVIRONMENT
• Battery supply: 2xAA, 2600mAh
• Extrenal supply: 24 VDC
• Temperature range: from -20 to 60°C
• Protection class: IP67
• Housing: 201,4 x 91 x 42,6 mm