

BOX

Technical Datasheet



Universal Building Connector



The Wattsense Box: Universal connector

The Box is an electronic device

- **Created to connect all equipment from all buildings:** IoT sensors, meters, heating, air conditioning air handling systems, building management systems (BMS).
- **Easy and quick to install:** accessible for all. If the building already has a BMS, the Box connects to the main bus as the third party. If there's no BMS, a BMS network is directly created by the Box.
- **Telemetry and controls:** collects data and controls equipment.
- **Smart Converter:** unifies the field communication protocols.
- **Web-Connected:** automatically connects to the cloud via 3G/4G or ethernet cable.
- **Powerful IoT device:** combines the functionality of a gateway, a PLC, a modem, and an edge device.
- **Edge computing:** hosts user plug-ins for local automation.

Power supply

- 24V DC +/-10%, 2A.
- The cable between the power supply and the Box: 2 wires (red, black), 22 AWG, minimum section: 0.35 mm².

The Box is protected against overvoltage, undervoltage, overcurrent from the power supply with indication by LED: green LED when the power supply is compatible, red LED if it is not suitable.

Hardware	
CPU	528MHz ARM Cortex A7
Memory	512MB RAM
Storage	4GB Flash
Consumption	5W
Dimension	160 x 110 x 55 mm
Weight	340g
Operating temperature	From 0 ° C to + 45 ° C
Humidity	5% to 95% humidity - No condensation

Interfaces		
Type of interface	Number	Operating LEDs
3G/4G Modem	1	Yes
LoRaWAN module from 863MHz to 928MHz	1	No
Ethernet	2	Yes
RS485 RJ45	2	Yes
USB	2	No
Micro USB	1	No
KNX	1	Yes
M-Bus (3UL Max.)	1	Yes
X-Bus (LPB)	1	Yes

Protection of communication bus against ESD, short circuit, over consumption.

Drivers

- BACnet IP
- BACnet IP Server
- Diematic
- KNX S et LTE
- LON FT10
- LON IP-852
- LPB
- LoRaWAN 1.0 Local private - Frequency plans supported:
AS_923_925, AU_915-928, EU_863_870, IN_865_867, US_902_928
- M-Bus (3UL Max.)
- Modbus RTU
- Modbus TCP/IP
- Modbus TCP/IP Server
- MQTT Client
- wM-Bus (Beta)

Software

- Secured Linux Yocto distribution.
- Built-in drivers for all buses, protocols and building equipment.
- Onboard LoRaWAN server: decodes LoRaWAN data locally directly in the Box.
- Automatic discovery of equipment on BACnet.
- Remote and automated configuration.
- Secure server communication via MQTT.
- Automatic and secure software updates.

Security

Enterprise-grade security based on SSL/TLS with the following properties:

- Two-way authentication between Box and server with x509 certificates.
- End-to-end encryption.
- Message integrity checks.

Data frequency

Data is retrieved by default at a 10-minute interval, excluding IoT sensors that have their own frequencies to minimize battery consumption. Commands (downlink) are placed instantly.

