



Field-Node



Modular setup
Simple configuration
Multiple power sources.
Local data storage
Exchangeable radio
Easy sensor connection
High resolution multiple inputs

MainBoard

Board Type WSN-EC-BB-S1
Power-Supply

Rechargeable Accu

Type Li-Ion
Accu power Min.-Max 3,4-4,8V
Accu type 3,6-3,7V
Charging current 450mA
Charging via USB/External

Battery

Range 6-30VDC

Extern

Range 6-30VDC
Current (normal operation) 15mA
Current (incl. sensor supply) 30-150mA
Current (accu charging) 430mA
Current (standby) 30µA

USB

Range 4,5-5,5V
Current (normal operation) 15mA
Current (accu charging) 430mA

Dimensions PCB 80 x 70 mm

Operating temperature -20 .. +70 °C

CPU STM32 Low power, 32Bit

Operating system Realtime Kernel

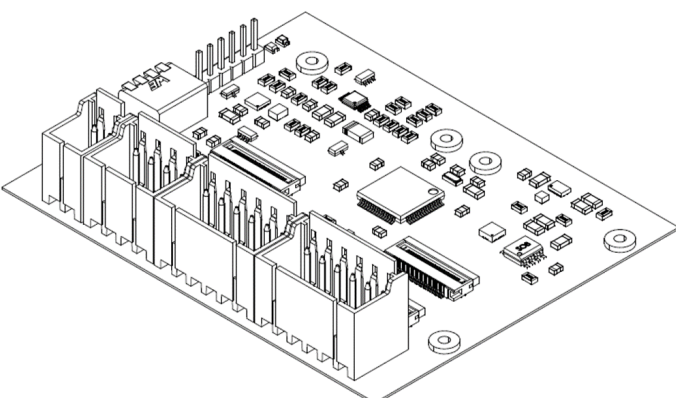
Memory Internal storage

Vibration 3D accelerometer

Configuration Uart 6 pol., FTDI USB cable

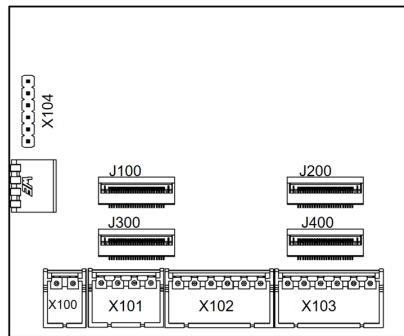
Connections Terminals 1,5 mm²

Extension I/O 4x 24Pol Zif



Extension ports

Port 1, J100 SPI, UART, terminals
Port 2, J200 SPI, UART, with HW Handshake (I/O)
Port 3, J300 SPI, UART
Port 4, J400 UART, with HW Handshake (I/O)



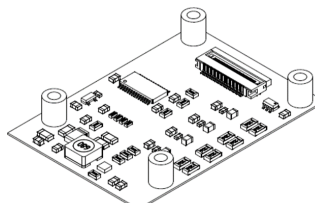
Extensions ports and connectors

J300 WSN-ES-xxxxx
J400 WSN-EC-LORA1
X100 Accu 3,7V
X101 Extern 6-30V
X102 Sensor 1-2
X103 Sensor 3-4

Extension module WSN-ES-4V1

Analog input module with a maximum of 4 different sensors with 0 ... 10V outputs can be connected to this extension via the terminal strip of the WSN-EC-BB-S1. The sensors can be supplied with a voltage of 15V/DC and a maximum total current of 150mA.

Dimensions PCB 54 x 35 mm
Operating temperature -20 .. +70 °C
Sensor channels 4
Input 0...10V (max -1 .. +15v)
Resolution 24 Bit
Sample-Rate max 50 Hz
Sensor supply 15V
Current max.150mA



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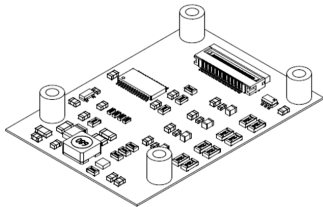


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Extension module WSN-ES-4C1

Analog input module with a maximum of 4 sensors with 0/4 ... 20mA outputs can be connected to this extension via the terminal strip of the WSN-EC-BB-S1. The sensors can be supplied with a voltage of 15V/DC and a maximum total current of 150mA.

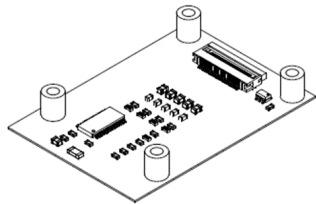
Dimensions PCB	54 x 35 mm
Operating temperature	-20 .. +70 °C
Sensor channels	4
Input	0...20mA (max -2 .. 24mA)
Resolution	24 Bit
Sample-Rate	max 50 Hz
Sensor supply	15V
Current	max.150mA



Extension module WSN-ES-4T1

Input module with a maximum of 4 temperature sensors (e.g.: KTY81-210), can be connected to this extension via the terminal strip of the WSN-EC-BB-S1.

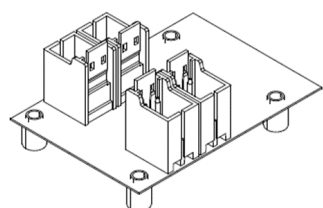
Dimensions PCB	54 x 35 mm
Operating temperature	-20 .. +70 °C
Sensor channels	4
Type	KTY81-210



Extension module WSN-ES-4T2

Input module with a maximum of 4 temperature sensors (e.g.: KTY81-210), however, the temperature sensors are not connected via the terminal strip of the WSN-EC-BB-S1, but via picoMAX terminals on the extension.

Dimensions PCB	54 x 35 mm
Operating temperature	-20 .. +70 °C
Sensor channels	4
Type	KTY81-210

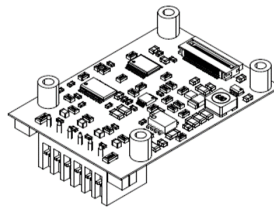


Extension module WSN-ES-2VC

Analog input module with a maximum of 2 sensors that can be connected to this extension via the terminal strip of the WSN-EC-BB-S1.

Dimensions PCB	54 x 35 mm
Operating temperature	-20 .. +70 °C
Sensor channels	
Resolution	24 Bit
Sample-Rate	max 14400 Hz (max 1 channel)
Input	0...+10V -10V...+10V 0...20mA (max -2 .. 24mA)
Configuration	via jumpers

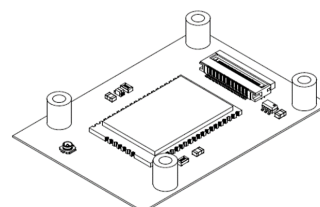
Config1:	
Type	0..20mA
Max	-2mA..24mA
Config2:	
Type	-10V...+10V
Max	-12V...+12V
Type	Single Ended Differential



Extension module WSN-EC-LORA1

Communication module suitable for private network.

Dimensions PCB	54 x 35 mm
Operating temperature	-40 .. +85 °C
Technology	LoRa
Protocol	LoRa WAN
LoRa Chipset	Microchip LoRa Private network
Bitrate	Up to 300kbps with FSK-modulation Up to 10937bps with LoRa Modulation
Frequency	868 MHz (SRD-Band Europa) 433 MHz (ISM-Band Region 1)
Range	LOS max15km LOS max 5km in suburban area Depends heavily on location.
Certifications	
Safety	IEC 60950-1:2005 2nd Ed:A1-2009
Health	EN 62479
EMC	EN 301 489-3 v1.6.1
Radio	EN 300 220-2 v2.4.1



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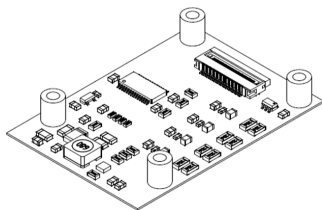


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Extension module WSN-ES-Modbus RTU

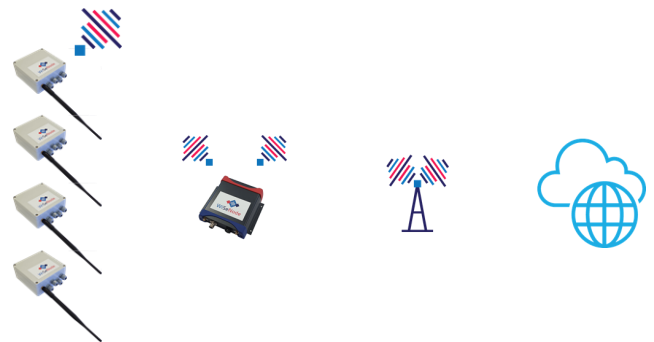
Digital module Modbus RTU master. External Modbus slaves can be connected to this extension via the terminal strip of the WSN-EC-BB-S1.

Dimensions PCB	54 x 35 mm
Operating temperature	-20 .. +70 °C
Sensor channels	255
Input	Modbus-RTU master
Resolution	24 Bit
Sample-Rate	max 10 Hz



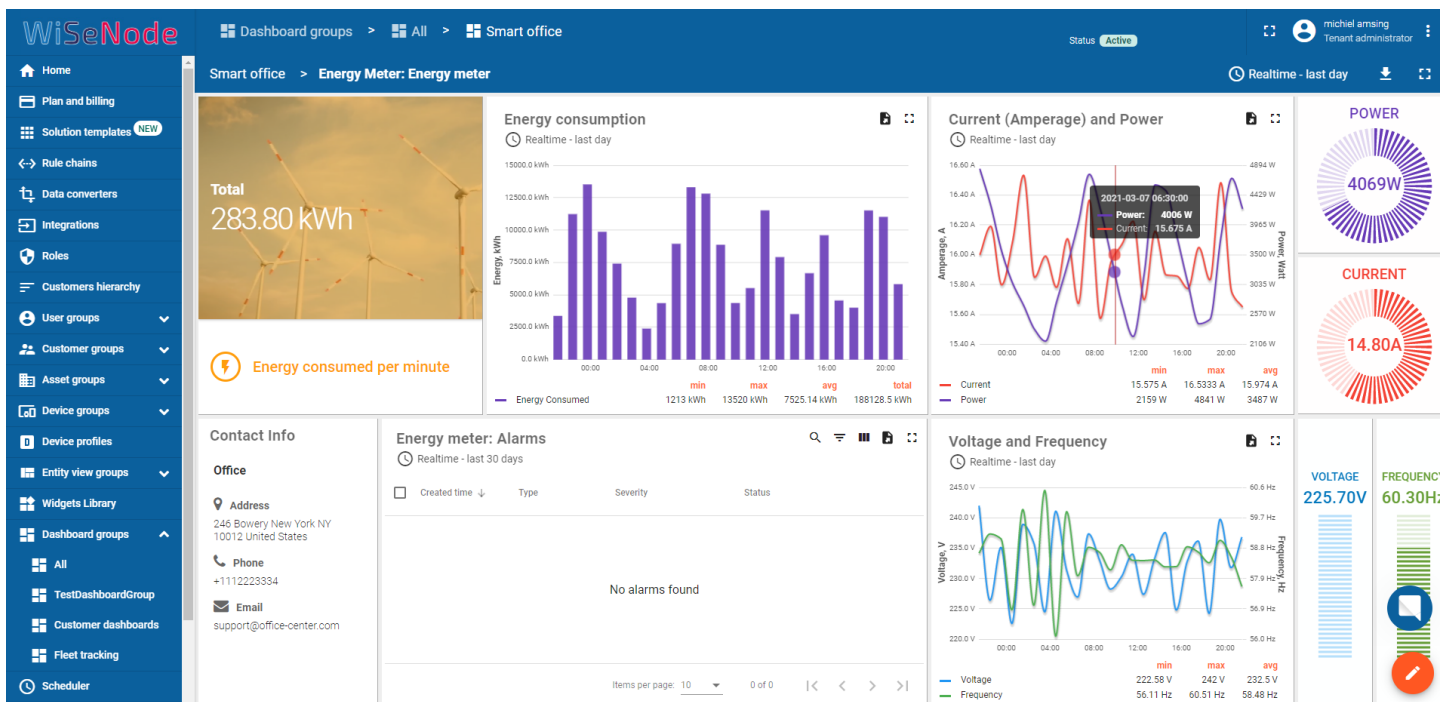
System overview

Below an example with multiple Fieldnodes, integrated LoRa radio's communicating over a LoRa private network, sending data to the Gateway WiSeNode-X. The WiSeNode-X is transferring data via a Public LTE network to the cloud.



WiSeNode.Cloud

In combination with WiSeNode.Cloud the local captured data is displayed real-time and stored for further processing and analysing. A cloud prescription can be ordered together with all WiSeNode gateways. Prescription fees are depending on amount of sensors and data-rate.



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