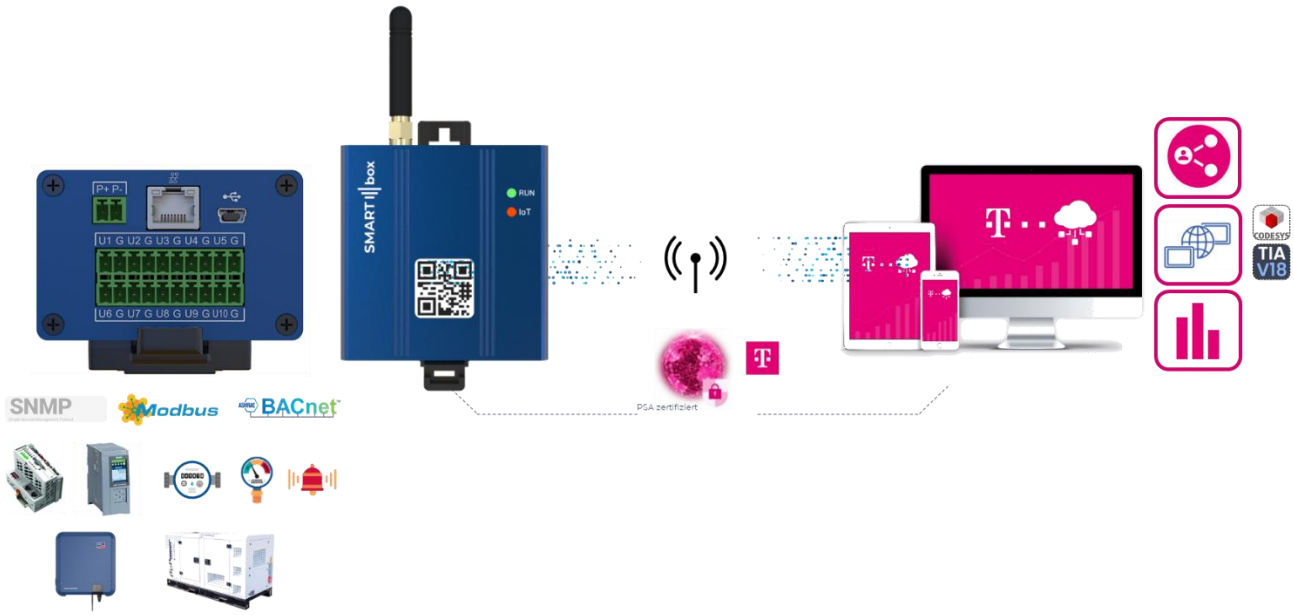
SMARTbox cubeIO ETH

Remote maintenance, process sensors and signalling of fault messages

The SMARTbox cubeIO ETH is an integrated LTE IoT gateway for setting up an effective remote maintenance, fault reporting and monitoring system at decentralised plant locations – without VPN infrastructure and without local IT. Many systems in utilities, industry and infrastructure are not digitally accessible and at the same time are not sufficiently recorded in terms of measurement technology. The device closes both gaps: It enables direct remote access to all IP devices behind the box – for remote maintenance of any PLC systems and plant technology via the secure IoT cloud. Continuous monitoring of the system technology is carried out via Modbus TCP, SNMP and BACnet. Process sensors and digital alarm signals can be connected directly via up to 40 universal IOs – from 4–20 mA and 0–10 V to Pt1000 and potential-free fault signal contacts.

Key features

- 10Flex Inputs
  (4... 20mA, 0... 10V, PT1000, Alarm Circuit)
- Expansion up to 40 IO's (with IO extension)
- Modbus/SNMP/BACNet Devices
- Universal Cloud Platform with REST API
- Mobile Technology
- Mounting via DIN rail
- RJ45 Ethernet Interface: 1GBIT



RADIO

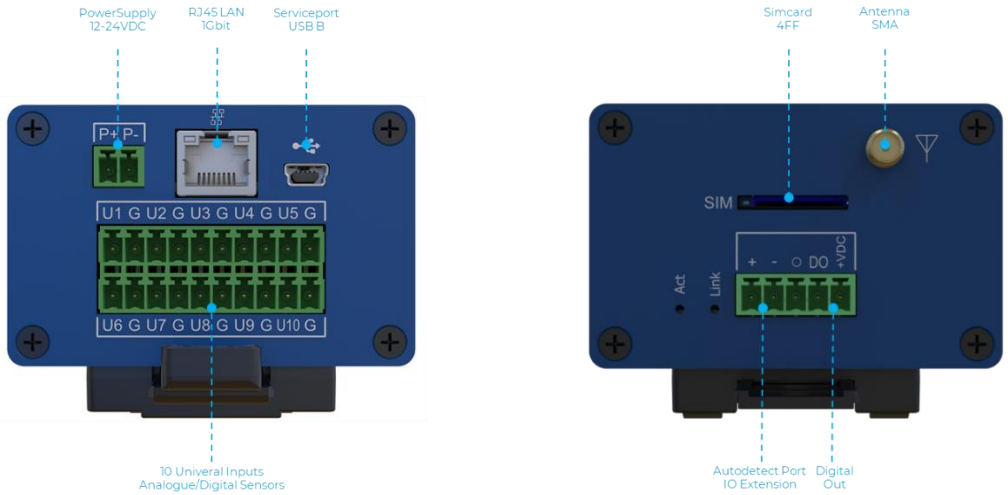
4G LTE	LTE Cat 1 B1(2100) B3(1800) B7(2600) B8(900) B20(800)
Regions	EMEA *(LATAM Optional)*

LOCATION SERVICES

GNSS (Optional)	*GPS, GLONASS, Beidou, Galileo*

SENSORS - FIELDBUS

Layout



Type: Modbus TCP ClientBaud Rates: 4800, 9600, 19200, 38400, 57600, 115200
Functions:

- Function 1 (Read Coils)
- Function 2 (Read Discrete Inputs)
- Function 3 (Read Holding Registers)
- Function 4 (Read Input Registers)
- Function 5 (Write Single Coil)
- Function 6 (Write Single Holding Register)

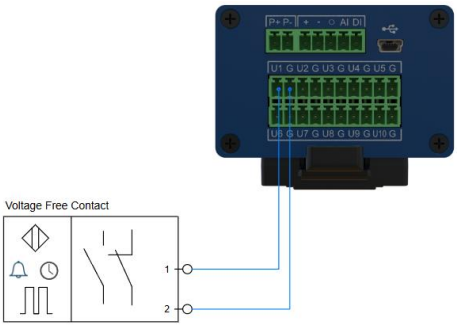
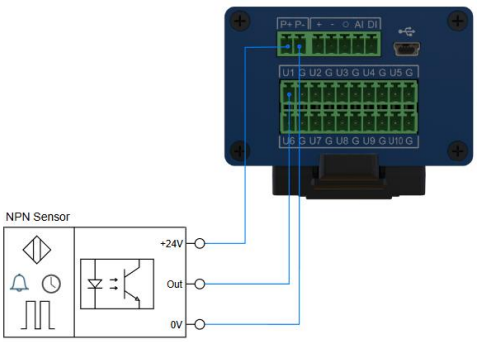
Data Points:Max. 32 Modbus Server with a maximum of 500 datapoints overall

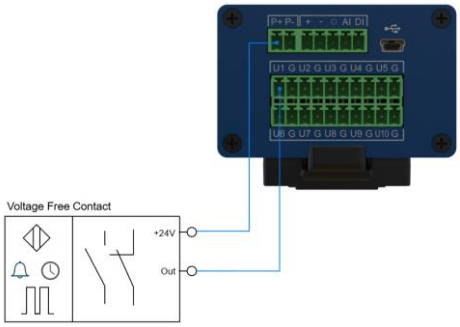
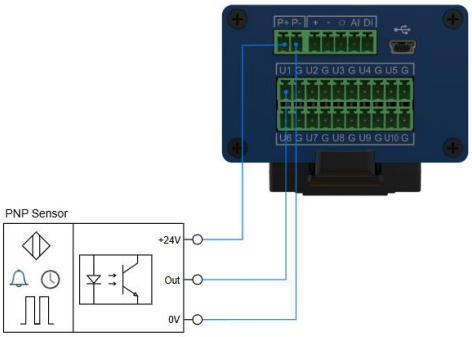
ProtocolBACnet/IP (ASHRAE 135)
Transport UDP
Port 47808
FunctionClient (Read)Object TypesAnalog Input/Output, Binary Input/Output, Multi-State
Max. 1000 data points

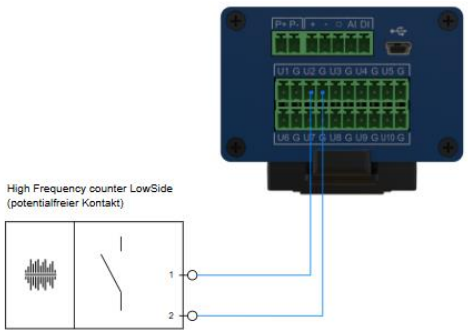
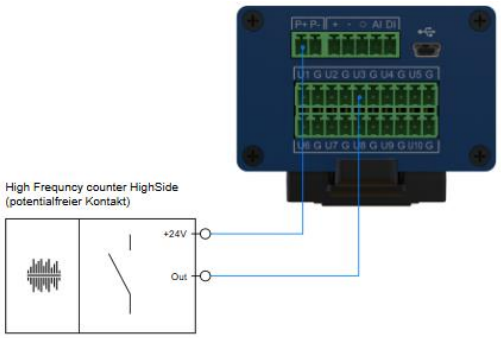
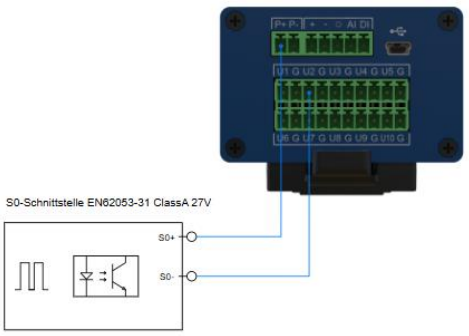
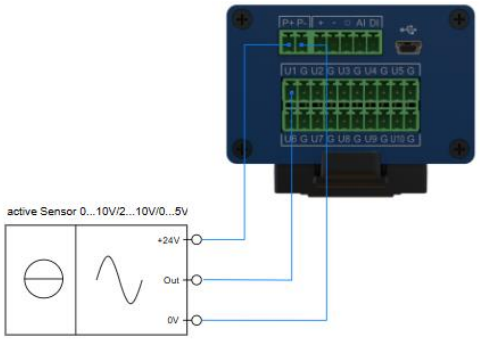
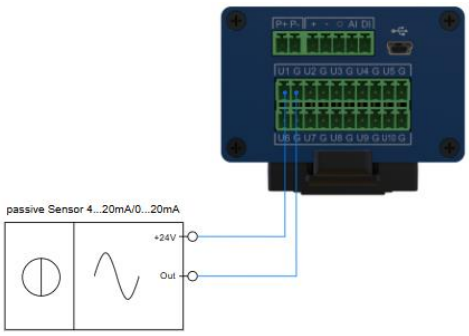
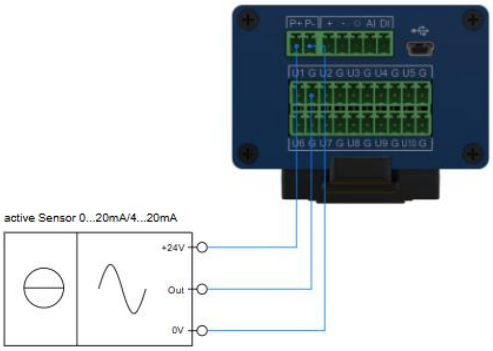
SNMP Manager
Protocol: SNMPv1 / v2c Transport: UDP Port: 161 (Polling) / 162 (Traps) Function: Manager (GET Polling) + Trap Listener (Release Q4 2026)

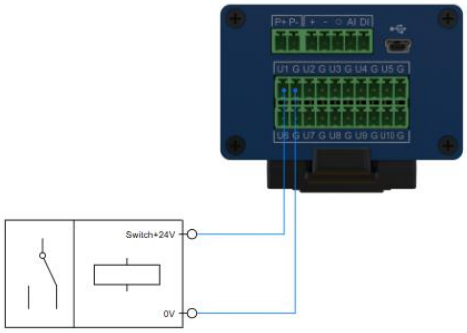
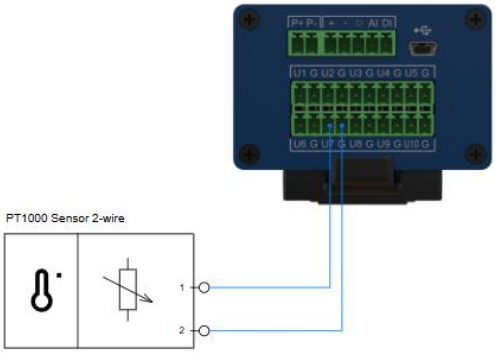
Sensors	10 Universal Inputs + 1 digital input + 1 output

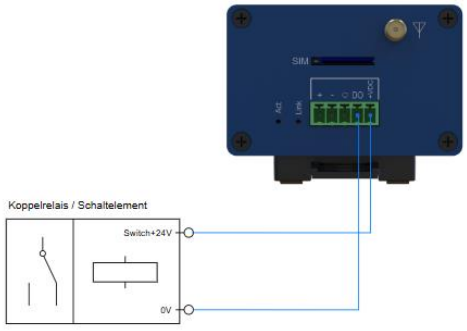
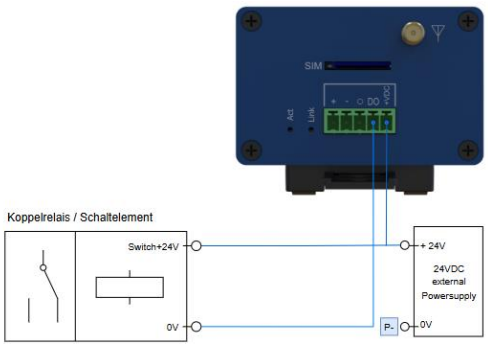
Basic attitude	U01	U02	U03	U04	U05	U06	U07	U08	U09	U10	X1
Digital entrance LOSI (Low-Side Input) Potential-Free Contact	●	●	●	●	●	●	●	●	●	●	
Digital entrance LOSI (Low-Side Input) NPN output 3- wire	●	●	●	●	●	●	●	●	●	●	
HISI digital input (High-Side Input) Potential-free contact	●	●	●	●	●	●					
HISI digital input (High-Side Input) PNP output 3- wire	●	●	●	●	●	●					
Pulse Counter High Frequency (LOSI Input) potential-free contact / NPN sensor (3 wire)		●									
Pulse Counter High Frequency (HISI input) potential-free contact / PNP sensor (3-wire)		●	●								
S0 interface	●	●									
Voltage Measurement Input (0... 5V/2... 10V/0... 10V)	●	●									
Current Loop passive Sensor 0... 20mA/4... 20mA	●	●	●	●	●	●					
Current Loop passive Sensor 0... 20mA/4... 20mA	●	●	●	●	●	●					
Digital Output	●	●	●	●	●	●					
PT1000 - Temperature Sensor							●	●	●	●	
Digital switching output – 300mA											●
Digital switching output – 800mA											●

Type Sensor	Digital entrance LOSI (Low-Side Input) Potential-Free Contact	Digital entrance LOSI (Low-Side Input) NPN output 3- wire
Connection		
Specification	· (NO / NC) (between Un and G n=1...10) · U01-U06: Refresh Rate Fast 10ms (U01, U02) /100ms (U02-U06) · U07-U10: Slow 540ms Refresh Rate · Functions: Alarms, operating hours, counters, switching states	· (NO / NC) (between Un and G n=1...10) · U01-U06: Refresh Rate Fast 10ms (U01, U02) /100ms (U02-U06) · Contact/NPN Output Request · Voltage Rating >=24V | Current Rating >=30mA · U07-U10: Slow 540ms Refresh Rate · Contact/NPN Output Request · Voltage Rating >= 3.6V · Current Rating >=1mA · Functions: Alarms, operating hours, counters, switching states

Type Sensor	HISI digital input (High-Side Input) Potential-free contact	HISI digital input (High-Side Input) PNP output 3- wire
Connection		
Specification	· (NO / NC) (between Un and G n=1...6) · Vin_low_max = 5V / Vin_high_min = 12V · U01-U06: Refresh Rate Fast 100ms · Functions: Alarms, operating hours, counters, switching states	· (NO / NC) (between Un and G n=1...6) · Vin_low_max = 5V / Vin_high_min = 12V · U01-U06: Refresh Rate Fast 100ms · Contact/PNP Output Request Voltage Rating >=24V | Current Rating >=30mA · Functions: Alarms, operating hours, counters, switching states

Type Sensor	Pulse Counter High Frequency (LOSI Input) potential-free contact / NPN sensor (3 wire)	Pulse Counter High Frequency (HISI input) potential-free contact / PNP sensor (3-wire)
Connection		
Specification	· U02 · 2000ms gate time, max. 32kHz, min. 1Hz	· U02/U03 · 2000ms gate time, max. 32kHz, min. 1Hz
Type sensor	S0 interface	Voltage Measurement Input (0... 5V/2... 10V/0... 10V)
Connection		
Specification	· U01/U02 · S0 Interface EN62053-31 · ClassA 27V	· U01/U02 · Input Impedance: 100kΩ · HW measuring range is 0...10V: · Resolution: 3mV · Accuracy: +/-0.5%
Type sensor	Current Loop passive Sensor 0... 20mA/4... 20mA	Current Loop passive Sensor 0... 20mA/4... 20mA
Connection		
Specification	· U01... U06 · Accuracy typ. +/- 0,5% · 0... 20mA/4... 20mA	· U01... U06 · Accuracy typ. +/- 0,5% · 0... 20mA/4... 20mA

Type Sensor	Digital Output	PT1000 - Temperature Sensor
Connection		
Specification	· U01... U06 · + 24V/max. 20mA · Control of small signal relays with coil current less than 20mA (with freewheeling diode) · Digital input of a PLC	· U07... U10 · 2- Wire PT1000 · -120°C... 160°C, Res.: 0,1K, Acc.: ±0,5K f.s

Type Sensor	Digital switching output – 300mA	Digital switching output – 800mA
Connection		
Specification	· Output Type: Sink Outlet · +VDO: +24V/100mA cont. /300mA max. · DO: Digital Output (Load 0V/MOSFET Drain) · Internal freewheeling diode between +VDO connector & DO	· Output Type: Sink Outlet · +VDO: +24V/800mA cont. /1000mA max. · DO: Digital Output (Load 0V/MOSFET Drain) · Internal freewheeling diode between +VDO connector & DO

2nd Fieldbus	· RS485	Connection of up to · 3 IO Extension Modules Art.Nr. 70838.10
LED	Run/Net IoT/GSM Act Link	Sensor processing data state Cloud connection state Flashing: Sensor Board Power Flashing: Sensor Board process data

MANAGEMENT PLATFORM

Supported Platforms	Telekom Cloud, Cumolocity IoT, A1, Mindsphere, Ooredoo, Telia, ... and more
Communication	MQTT, LWM2M OMA, https, TLS, TCP, UDP, HTTP
Access	Bi-directional communication
OTA	Yes
FOTA	Yes

GENERAL

Dimensions	70 x 70 x 45 mm
Weight	228g without accessories
Antenna	SMA Female Connector
Supplies	Nominal voltage range: 12-30 VDC, +/-10% Maximum (average) continuous supply current: 300 mA at 12V, 150 mA at 24V
Fastening	About DIN Rail Adapter
SIM card	4FF
Operation T/H	-40°C... 85°C / Max. 85%
Warehouse T	-40°C... 85°C / Max. 85%
IP class	IP20
Approval	CE UKCA
Compliance	2014 / 53 / EU (Radio Equipment Directive) Radio EN301511 v12.5.1 EN301908 v13.1.1 EMC (Electromagnetic Compatibility) EN301489-1 v2.2.0 General Part EN 301489-52 v1.1.0 DIN EN 61326-1 – 2018-09 Security DIN EN 61010-1: 2020-03, VDE 0411-1:2020-03 Cybersecurity EN 18031:2024
Warranty	1 year

Remote Manager

(Remote Management) Third-Party

IoT Platforms

Fleet management:

Activate, monitor and diagnose

Your devices from a single point of view –

your desktop or mobile app.

Monitor the health of your networked

by creating diagrams of various

Evaluate widgets. Here you will find a large

selection of evaluation options available.

Cockpit:

Creating a threshold monitor,

Events, critical alarms, alerts, and reports.

Open API:

Generate notifications or use

simply use the REST API from the cloud platform to

Provide your third-party systems with all the data.

CUMULOCITY Telia | A1 Digital ... and more

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