

SMARTebox IO

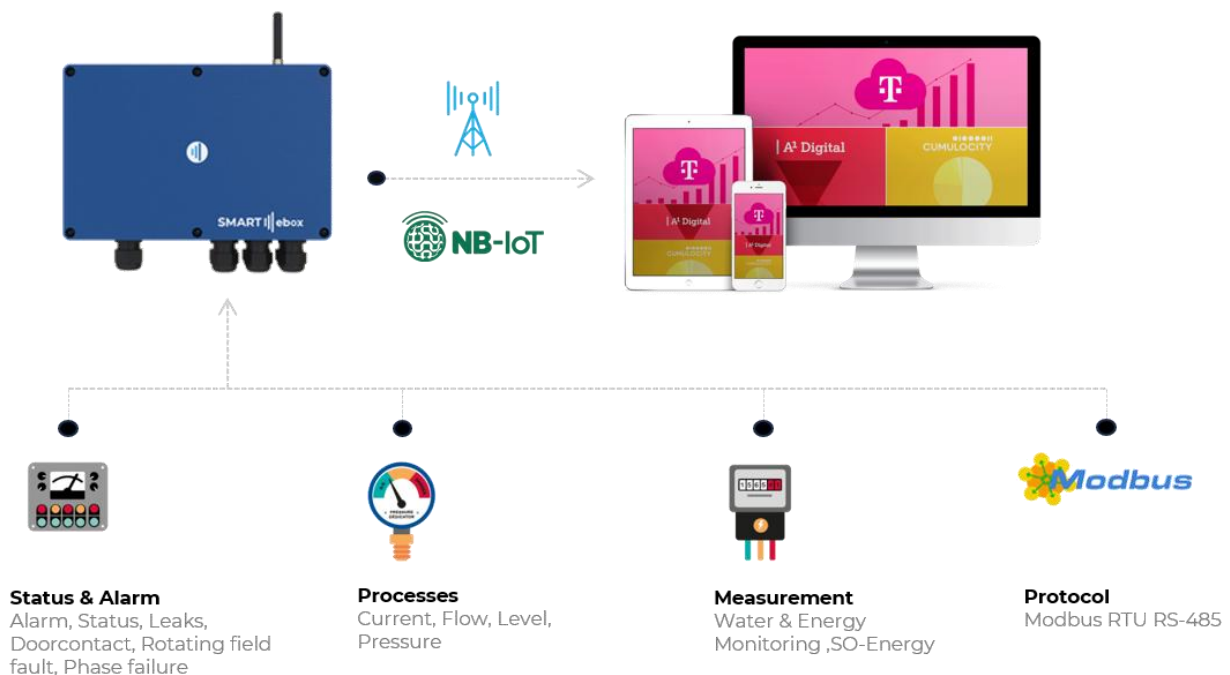
10 Universal IOs for connecting analog and digital sensors

SMARTebox is a fully integrated cellular gate-way with I/O for connecting to a wide range of external sensors. Designed to work in industrial environments, it is the ideal solution for companies looking to add remote monitoring. Local protocol support allows the SMARTebox to communicate with Modbus sensors and capture sensor diagnostics along with data. SMARTebox leverages the IoTCloud of Cumulocity enabling customers who need to monitor large numbers of sensors to easily integrate that data.



Keyfeatures

- 10 Flex inputs
(4...20mA, 0...10V, PT1000, Alarm switch)
- Modbus sensors / devices
- IP Class: 67
- Telekom Cloud for easy management
- Cellular technology





RADIO

2G	B2 B3 B5 B8
NB-IOT / LTE - M	B1 B2 B3 B4 B5 B8 B12 B13 B18 B19 B20 B25 B28 B66 B71 B85 B103
Regionen	Worldwide
4G LTE (Optional)	optional LTE Cat 1 B1(2100) B3(1800) B7(2600) B8(900) B20(800)
Bluetooth (Optional)	v5.0 (Bluetooth low energy) -94 dBm (1 Mbit/s)



LOCATION SERVICE

GNSS (Optional)	GPS, GLONASS, Beidou, Galileo
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SENSORS - FIELDBUS

Layout



Modbus



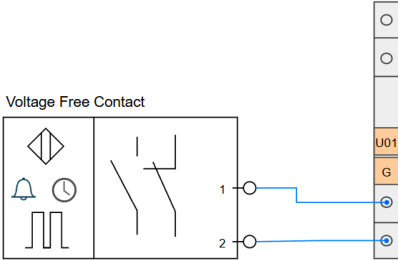
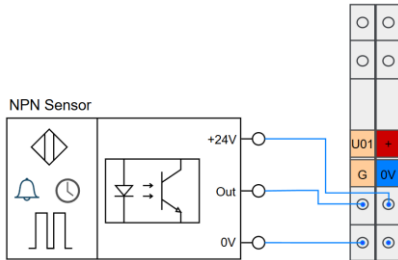
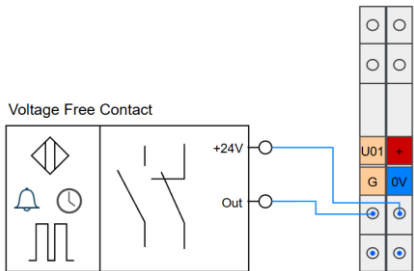
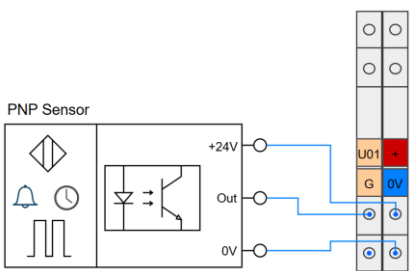
Modbus RTU Master RS485 / RS232 (optional)
 Baudrate: 4800, 9600, 19200, 38400, 57600, 115200
 Parity: Even, ODD, NONE
 Stopbits: 2,1
 Functions: - Funct 1 (Read Single Coils)
 - Funct 2 (Read Input Status)
 - Funct 3 (Read Holding Registers)
 - Funct 4 (Read Input Registers)
 - Funct 5 (Write Coil)
 - Funct 6 (Write Holding Register)

Datapoints: Max. 10 Modbus Slaves, with 40 data-points per device or 400 Datapoints with 1 device

Sensors

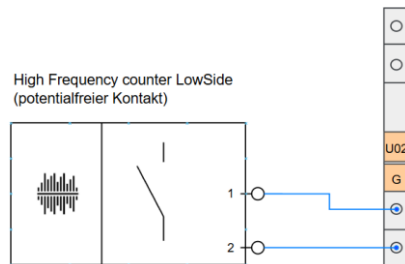
12 Flex IOs – 10 universal inputs + 1 NTC temperature sensor
+ 1 digital input + 1 output

Grundeinstellung	U01	U02	U03	U04	U05	U06	U07	U08	U09	U10	DI	AI	X1
Digitaler Eingang LOSI (Low-Side Input) potentialfreier Kontakt	●	●	●	●	●	●	●	●	●	●	●		
Digitaler Eingang LOSI (Low-Side Input) NPN Ausgang 3- wire	●	●	●	●	●	●	●	●	●	●	●		
Digitaler Eingang HISI (High-Side Input) potentialfreier Kon-takt	●	●	●	●	●	●							
Digitaler Eingang HISI (High-Side Input) PNP Ausgang 3- wire	●	●	●	●	●	●							
Pulse Counter High Frequency (LOSI Input) potentialfreier Kontakt / NPN Sensor (3 wire)		●											
Pulse Counter High Frequency (HISI Input) potentialfreier Kontakt / PNP Sensor (3-wire)		●	●										
S0-Schnittstelle	●	●											
Spannung Messein-gang (0...5V/2...10V/0...10V)	●	●											
Current Loop passive Sensor 0...20mA/4...20mA	●	●	●	●	●	●							
Current Loop passive Sensor 0...20mA/4...20mA	●	●	●	●	●	●							
Digitaler Ausgang	●	●	●	●	●	●							
PT1000 - Temperatur-sensor							●	●	●	●			
Digitaler Schaltaus-gang – 300mA													●
Digitaler Schaltaus-gang – 800mA													●
NTC10K Temperatur-sensor												●	

Typ Sensor	Digitaler Eingang LOSI (Low-Side Input) potentialfreier Kontakt	Digitaler Eingang LOSI (Low-Side Input) NPN Ausgang 3- wire
Anschluss	Voltage Free Contact 	NPN Sensor 
Spezifikation	• (NO / NC) (zwischen Un u. G n=1...10) • U01-U06: Refresh Rate Fast 10ms (U01, U02) /100ms (U02-U06) • U07-U10: Slow 540ms Refresh Rate • Funktionen: Alarme, Betriebsstunden, Counter, Schaltzustände	• (NO / NC) (zwischen Un u. G n=1...10) • U01-U06: Refresh Rate Fast 10ms (U01, U02) /100ms (U02-U06) • Anforderung an Kontakt/NPN-Output • Voltage Rating $\geq 24V$ Current Rating $\geq 30mA$ • U07-U10: Slow 540ms Refresh Rate • Anforderung an Kontakt/NPN-Output • Voltage Rating $\geq 3,6V$ • Current Rating $\geq 1mA$ • Funktionen: Alarme, Betriebsstunden, Counter, Schaltzustände
Typ Sensor	Digitaler Eingang HISI (High-Side Input) potentialfreier Kontakt	Digitaler Eingang HISI (High-Side Input) PNP Ausgang 3- wire
Anschluss	Voltage Free Contact 	PNP Sensor 
Spezifikation	• (NO / NC) (zwischen Un u. G n=1...6) • $V_{in_low_max} = 5V$ / $V_{in_high_min} = 12V$ • U01-U06: Refresh Rate Fast 100ms • Anforderung an Kontakt/PNP-Output • Voltage Rating $\geq 24V$ Current Rating $\geq 30mA$ • Funktionen: Alarme, Betriebsstunden, Counter, Schaltzustände	• (NO / NC) (zwischen Un u. G n=1...6) • $V_{in_low_max} = 5V$ / $V_{in_high_min} = 12V$ • U01-U06: Refresh Rate Fast 100ms • Anforderung an Kontakt/PNP-Output • Voltage Rating $\geq 24V$ Current Rating $\geq 30mA$ • Funktionen: Alarme, Betriebsstunden, Counter, Schaltzustände

Typ Sensor Pulse Counter High Frequency (LOSI Input) potentialfreier Kontakt / NPN Sensor (3 wire)

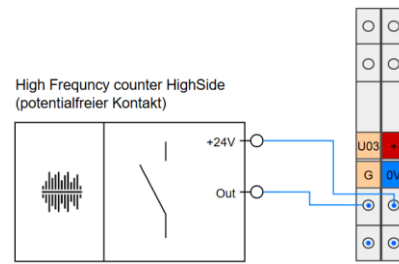
Anschluss



Spezifikation

- U02
- 2000ms Torzeit, max. 32kHz, min. 1Hz

Pulse Counter High Frequency (HISI Input) potentialfreier Kontakt / PNP Sensor (3-wire)

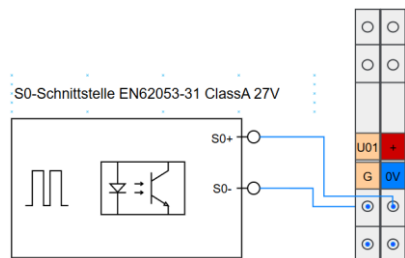


• U02/U03

- 2000ms Torzeit, max. 32kHz, min. 1Hz

Typ sensor S0-Schnittstelle

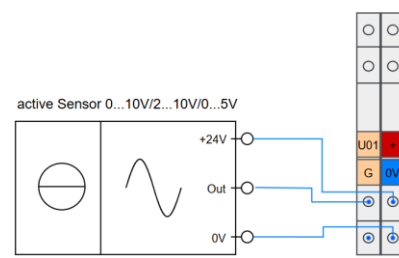
Anschluss



Typ Sensor

- U01/U02
- S0-Schnittstelle EN62053-31
- ClassA 27V

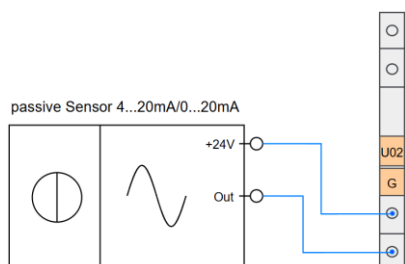
Spannung Messeingang (0...5V/2...10V/0...10V)



- U01/U02
- Eingangsimpedanz: 100kΩ
- HW-Messbereich ist 0...10V:
- Auflösung: 3mV
- Genauigkeit: +/-0,5%

Typ sensor Current Loop passive sensor

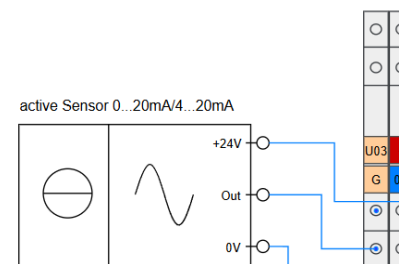
Anschluss



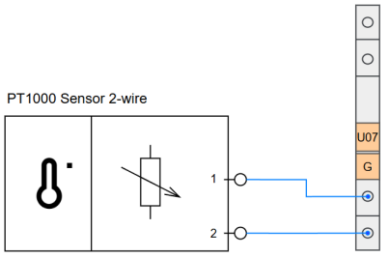
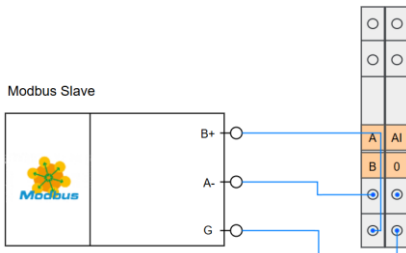
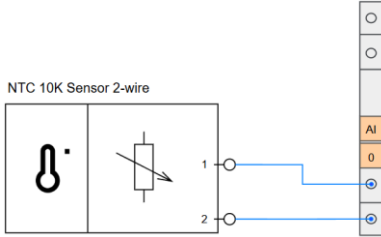
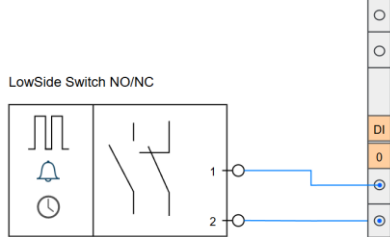
Typ Sensor

- U01...U06
- Genauigkeit typ. +/- 0,5%
- 0...20mA/4...20mA

Current Loop passive sensor



- U01...U06
- Genauigkeit typ. +/- 0,5%
- 0...20mA/4...20mA

Typ Sensor	PT1000 - Temperatursensor	Modbus
Anschluss	 PT1000 Sensor 2-wire • U07...U10 • 2- Wire PT1000 • -120°C...160°C, Res.: 0,1K, Acc.: ±0,5K f.s	 Modbus Slave • Modbus RTU • RS485 (A, B) • Verkabelung: Siehe: AN_PS2504.0-Modbus-Wiring
Spezifikation		
Typ Sensor	NTC10K Temperatursensor	Digitaler Eingang LOSI (Low-Side Input) potentialfreier Kontakt
Anschluss	 NTC 10K Sensor 2-wire • Linearisierung für B = 3988K • Messbereich: • 40°C ... 105°C • Resolution: • 0,6K @ -40°C • 0,1K @ 20°C • 0,7K @ 100°C • Accuracy of Input: • -20°C ... 60°C: +/-0,5K • -40°C ... 105°C +/- 2K	 LowSide Switch NO/NC • NO / NC • Refresh Rate Fast 10ms • Funktionen: Alarme, Betriebsstunden, Counter, Schaltzustände
Spezifikation		
LED	Run / Net IoT/GSM	Cloud connection state Sensor processing data state

Supply



General

This type of SMARTebox is powered by 85V-265V AC. With continuous monitoring, SMARTebox can constantly monitor sensors for an alarm by continually sampling sensor data. This enables Connect Sensor to find alarms faster, and to not miss any alarms that may have occurred between scheduled sensor readings.

Continuous

Supply:

- 230 V AC ±20%, 50 Hz ±5% (EU/UK)
- 120 V AC ±20%, 60 Hz ±5% (US)
- Max. 300mA



MANAGEMENT PLATFORM

Supported Platforms	Telekom Cloud, Cumolocity IoT, A1, Mindsphere, ooredoo, Telia, ...und mehr
Communication	MQTT, LWM2M OMA, https, TLS, TCP, UDP, HTTP
Access	Bi-directional communication
OTA	yes
FOTA	yes



GENERAL

Dimensions	231 x 125 x 90 mm
Weight	849g
Antenna	SMA Connector female
Mounting	Wall bracket or Mast mounting, stainless steel V2A, uncoated
SIM Card	4FF
Operate T / H	-40°C.. 85°C / Max. 85%
Storage T	-40°C.. 85°C / Max. 85%
IP Class	IP 66/IP 68 (1,2 m – 2 h) DIN EN 60529
Colour	Graphite grey, similar RAL 7024
Housing	PC V-0 material is flame-resistant, self-extinguishing and suitable for outdoor use (fl listing acc. to UL 746C), PU seal, foamed
Approvals	
Conformity	2014 / 53 / EU (Radio Equipment Directive-RED)) 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 Safety DIN EN 61010-1: 2020-03, VDE 0411-1:2020-03 Cybersecurity EN 18031:2024
Warranty	1 year

Remote Manager

Fleetmanagement:

Activate, monitor and diagnose your devices from a single point – on your desktop or mobile app.

Monitor the health of your connected facility by taking graphs from different widgets. A large selection of evaluation and diagram types are available.

Cockpit:

Creating threshold monitoring, events, critical alarms, warnings and reports.

Offenes API:

Create Notifications or simply use the REST API from the Cloud platform to feed your third party system with all the data.

Third Party IoT-Platforms



Telia | A¹ Digital ...and more

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