

SMARTebox IO

10 Universal IO's for digital Signals and analogue Sensors

SMARTebox is a fully integrated cellular gateway 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 IoT Cloud of Cumulocity enabling customers who need to monitor large numbers of sensors to easily integrate that data.



Key features

- 10 Flex Inputs (4...20mA, 0...10V, PT1000, Alarm switch)
- 10 Modbus sensors / Machines
- IP Class: 67
- Telekom Cloud of Things for easy management
- LTE-M cellular technology
- SIM-free selection





RADIO

| | |
|-----------------------|--|
| 4G LTE | optional LTE Cat 1 B1(2100) B3(1800) B7(2600) B8(900) B20(800) |
| 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 |
| Regions | WorldWide |



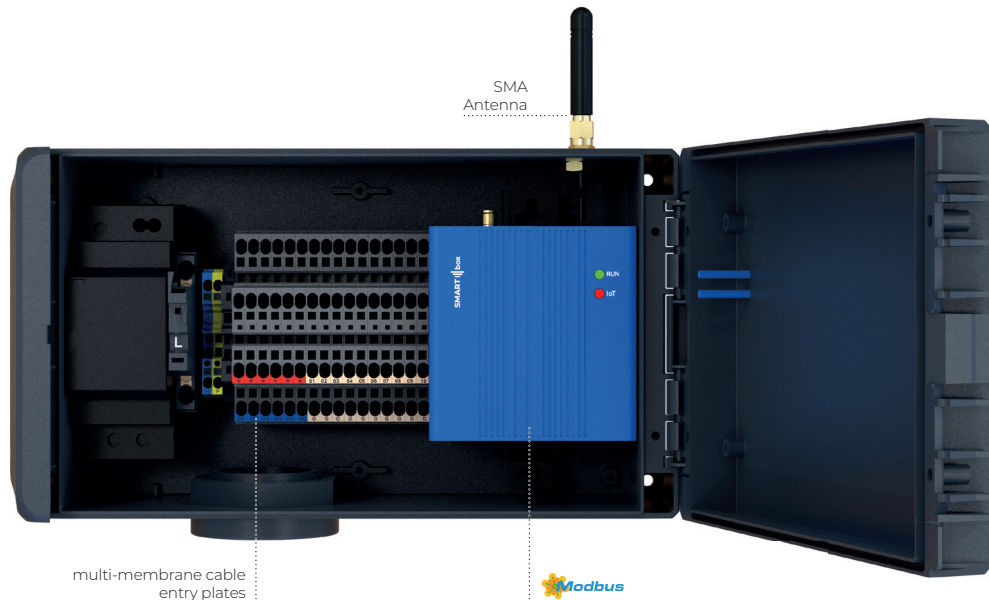
LOCATION SERVICE

| | |
|-----------------|---|
| GNSS | optional 72-channel u-blox M8 engine GPS/QZSS L1C/A, GLONASS L1OF, BeiDou B1I, Galileo E1B/C, SBAS L1C/A: WAAS, EGNOS, MSAS,GAGAN |
| Tracking | Tracking by: · By PowerUp device · selectable time cycle |



SENSORS - FIELDBUS

Layout



SENSORS & FIELDBUS



Modbus



Type: X11 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 100 datapoints per device or 1000 datapoints with 1 device

Sensors

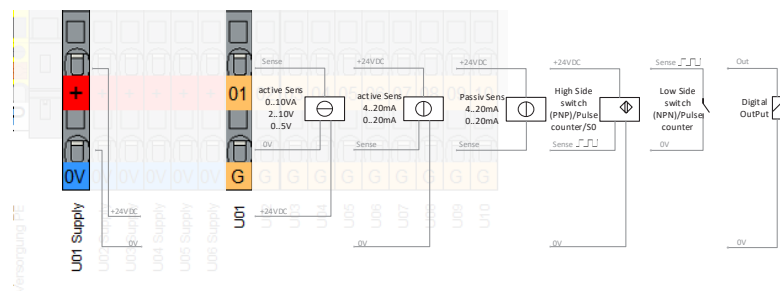
10 I/O's

10 Flex IOs -10 Universal Inputs/Output -including powering of sensors

U1/2

- Digital Input, Fast (Low-Side = NPN, GND): NO / NC
- Digital Input, Fast (High-Side = PNP, 10..24VDC): NO / NC
- Current Input, Slow, Fast: 0..20mA / 4..20mA (Res.: 0,01mA)
- Voltage Input, Slow, Fast: 0..10V / 2..10V / 0..5V (Res.: 0,01V)
- Encoder: max. 1 unit @ input U2 + U3 (max. 5kHz each Line A/B)
- Energy Meter (S0 Interface): EN 62053-31, only Class A
- Digital Output: 24VDC = Uin / max. 20mA (High-Side-Switch)

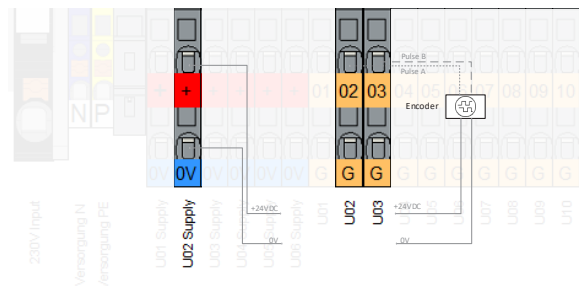
Wire U1/U2



U2/U3

- Encoder: max. 1 unit @ input U2 + U3 (max. 5kHz each Line A/B)
- In case of Encoder is set: U2 and U3 is unavailable for other sensor types

Wire Encoder
U2/U3



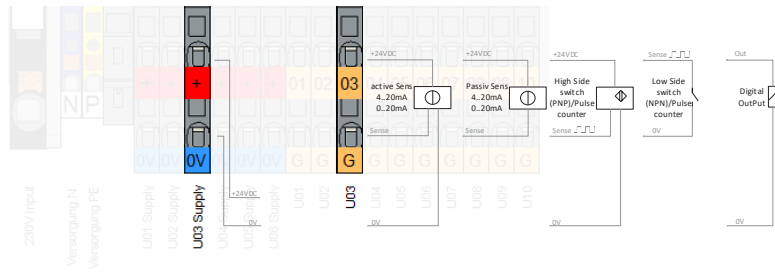
U3/4/5/6

- Digital Input, Fast (Low-Side = NPN, GND): DIN NO / DIN NC
- Digital Input, Fast (High-Side = PNP, 10..24VDC): DIN NO / DIN NC
- Current Input, Slow: 0..20mA / 4..20mA (Res.: 0,01mA)
- Encoder: max. 1 unit @ input U2 + U3 (max. 5kHz each Line A/B)
- Digital Output: 24VDC = Uin / max. 20mA (High-Side-Switch)

SENSORS & FIELDBUS

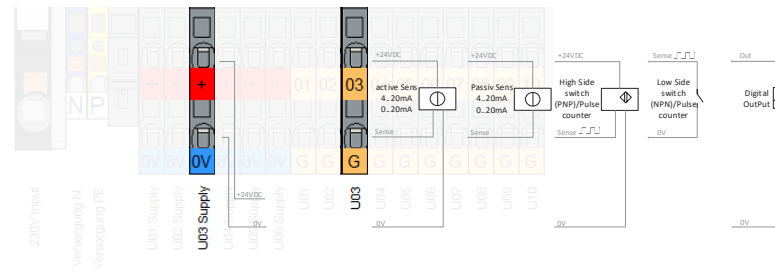


Wire U3-U6



- Temperature: PT1000 (-120°C .. 160°C, Res.: 0,01K, Acc.: ±0,5K f.s.)
- Digital Input, Slow (Low-Side = NPN, GND): DIN NO / DIN NC

Wire U7-U10



Sensorsupply U1/2/3/4/5/6 - 24VDC, max. 200 mA

LED Net/Run Cloud connection state
lot Sensor processing data state

USB USB 2.0 HS - programming, Logging and Trace the device

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:
· 85 - 264 VAC / 50/60Hz
· Max. 300mA



MANAGEMENT PLATFORM

| | |
|----------------------------|--|
| Supported Platforms | Telekom Cloud der Dinge, Cumulocity IoT, AI, Mindsphere, ooredoo, Telia, ...and more |
| Communication | MQTT, LWM2M OMA, https, TLS,TCP, UDP, HTTP |
| Access | Bi-directional communication |
| OTA | yes |
| FOTA | yes |



GENERAL

| | |
|--------------------|---|
| Dimension | 231 x 125 x 90 mm |
| Weight | 849g |
| Antenna | SMA Connector female |
| Mounting | Wall bracket or Mast mounting, stainless steel V2A, uncoated |
| SIM Card | 2FF |
| 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 to 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 | CE |
| Conformity | 2014/53/EU (Radio Equipment Directive-RED) Radio EN301511 v12.5.1 EN301908 v13.1.1 EMC EN 301489-1 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 |
| Warranty | 2 years |

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

Open 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



... and more

Ordering Codes

GATEWAYS

| | ORDERCODE | POWER | EXT. SENSORS | FIELD BUS | RADIO | LOCATION SERVICE | INT. SENSORS |
|---------------------|-------------|---|--------------|---|-----------------------|------------------|--|
| SMARTebox IO | XB401301AXX | Housing fit for cube and mini series Water-proof Housing: IP 66/IP 68 - 1,2m (2h) DIN EN 60529 Graphit grey In-line LTE antennen 230VAC Supply input Easy installation by multi-membrane cable entry plates for 16 cables (sensors and Supply) | | 2 x RS485, Modbus RTU Master / RS485 Modbus Slave | LTE Cat1, 2G Fallback | GNSS optional | 2x In: 0.10V/4.20mA/DI 4x In: 4.20mA/DI 4x In: PT1000/DI 1x In: NTC Temp. 1x In: 1x DI 1x DO: 24V |

ACCESSOIRES

| | ORDERCODE | DESCRIPTION |
|---|-----------|---|
| GSM HQ SMA | 70624 | Adjustable Antenna, Covering Worldwide LTE Bands, 3G/2G Fallback, SMA |
| GSM HQ SMA 5m cable Waterproof | 70625 | Magnetic Mount Antenna, Covering Worldwide LTE Bands, 3G/2G Fallback, 5m, SMA, waterproof |
| GSM HQ SMA 5m cable | 70622 | Antenna, Covering Worldwide LTE Bands, 3G/2G Fallback, SMA |
| PT1000-2L | 70501 | PT1000 Temp. Sensor - 40°C..+105°C, with 5cm metal sleeve, 5m |
| NTC10K-2L | 70504 | NTC 10Kohm Temp. Sensor - 40°C..+105°C, with 5cm metal sleeve, 5m |
| NTC10K-2L PVC | 70542 | NTC 10Kohm Temp. Sensor - 40°C..+105°C, with 5cm metal sleeve, 5m |
| NTC10K-2L magnet | 70541 | NTC 10Kohm Temp. Sensor - 40°C..+105°C, with 5cm metal sleeve, 5m, magnetic |
| PT1000-2L magnet | 70540 | NTC 10Kohm Temp. Sensor - 40°C..+105°C, with 5cm metal sleeve, 5m, magnetic |