TC MOBILE I/O X200-4G

Remote monitoring via mobile network



Data sheet
107971_en_02

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1 Description

The compact **TC MOBILE I/O X200-4G** signaling system monitors analog and digital values via the mobile network. It also switches relay outputs remotely.

The alarms and status messages are transmitted via SMS and e-mail. Status messages can also be visualized in an app via HTTPS.

The device offers numerous helpful software functions, such as mobile communication diagnostics, sending of log books via e-mail, and different user roles. A USB connection to a computer with a web browser is all that is needed for configuration.

Application

- Machine, building and system monitoring
- Pumps, wastewater treatment plants, water supply
- Light controllers, remote switching systems
- Lifts, doors
- Alarm and domestic engineering
- Climate and ventilation engineering
- Battery monitoring up to 60 V
- Railway applications according to EN 50121-4

Features

- Data transmission via SMS, e-mail, and app (SMS, HTTPS)
- European LTE mobile network, CAT1:
  B3 (1800 MHz), B7 (2600 MHz), B20 (800 MHz)
- GSM mobile phone network: 850, 900, 1800, and 1900 MHz
- Event-controlled or interval-controlled communication
- 4 digital inputs
- 4 relay outputs, can be switched via SMS or phone call
- 2 scalable analog inputs, can be switched between current and voltage
- Standard mini SIM card, LTE-capable
- Compact design: 4 pitches (DIN 43880)
- Housing cover, can be sealed
- Mounting on DIN rail or on the wall
- Alarming in case of voltage failure via SMS
- Manual or automatic time correction
- Message chain for sending an alert to the relevant service technician
- SMS configuration commands

The devices are intended for use in Europe.
If you are planning to use the device outside of Europe, refer to the “5 Use outside of Europe” section.

Make sure you always use the latest documentation.
It can be downloaded at: phoenixcontact.net/product/1038567
The additional information in the user manual must also be strictly observed.

2 Table of contents

1 Description 1
2 Table of contents 2
3 Ordering data 3
4 Technical data 4
4.1 Derating 7
5 Use outside of Europe 7

3 Ordering data

Description	Type	Order No.	Pcs./Pkt.
SMS relay and signaling module, European version, monitor analog and digital values via mobile network, switch relay outputs remotely, communication via SMS or mobile network data connection (e-mail transmission, app), supply voltage 10 V ... 60 V DC	TC MOBILE I/O X200-4G	1038567	1

Accessories	Type	Order No.	Pcs./Pkt.
Multiband mobile communication antenna with mounting bracket for outdoor installation, 5 m antenna cable with SMA circular connector, suitable for LTE/4G	TC ANT MOBILE WALL 5M	2702273	1
Mobile network antenna cable, 10 m in length, SMA (male) -> SMA (female), 50 ohm impedance	PSI-CAB-GSM/UMTS-10M	2900981	1
Mobile network antenna cable, 5 m in length, SMA (male) -> SMA (female), 50 ohm impedance	PSI-CAB-GSM/UMTS- 5M	2900980	1
Primary-switched STEP POWER power supply for DIN rail mounting, input: 1-phase, output: 24 V DC/0.5 A	STEP-PS/ 1AC/24DC/0.5	2868596	1
USB connecting cable: USB plug type A to USB plug type Mini-B; length: 3 m	CABLE-USB/MINI-USB-3,0M	2986135	1
Attachment plug with Lambda/4 technology as surge protection for coaxial signal interfaces Connection: male/female SMA connectors.	CSMA-LAMBDA/4-2.0-BS-SET	2800491	1

Operation of the wireless system is only permitted when using accessories available from Phoenix Contact. The use of any other components can lead to the withdrawal of the operating license.

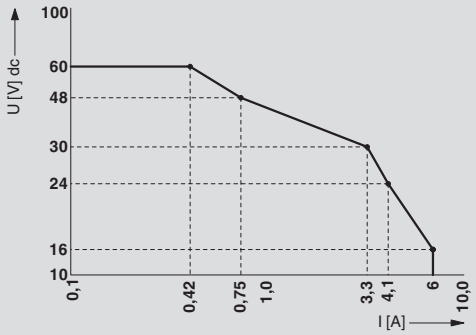
You can find the approved accessories for this wireless system listed with the item at phoenixcontact.net/product/1038567.

4 Technical data

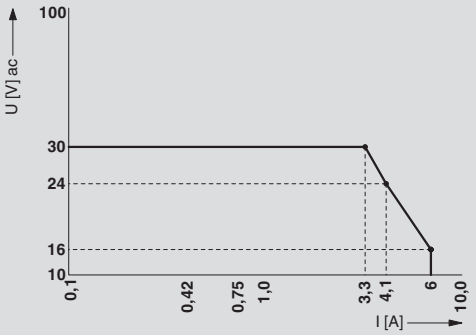
Supply	
Supply voltage range	10 V DC ... 60 V DC
Typical current consumption	50 mA (24 V DC)
Max. current consumption	80 mA
Torque	0.5 Nm ... 0.6 Nm (5-7 lbs-in, screw terminal blocks)
Conductor cross section	0.20 mm^2 ... 2.50 mm^2 (24 AWG ... 14 AWG)
USB 2.0	
Connection method	Mini-USB type B, 5-pos.
Transmission length	≤ 3 m (only for configuration and diagnostics)
Wireless interface	
Interface description	GSM / GPRS / EDGE / LTE (FDD)
Frequency	850 MHz (2 W (EGSM)) 900 MHz (2 W (EGSM)) 1800 MHz (1 W (EGSM)) 1900 MHz (1 W (EGSM)) 800 MHz (LTE B20) 1800 MHz (LTE B3) 2600 MHz (LTE B7)
GPRS	Multislot Class 33
EDGE	Multislot Class 33
LTE	CAT1
Digital input	
Number of inputs	4
Switching threshold "0" signal in reference to U_N	≤ 0.3
Switching threshold "1" signal in reference to U_N	≥ 0.7
Analog input	
Number of inputs	2
Input signal, voltage	0 V DC ... 60 V DC
Input signal, current	0 mA ... 20 mA
	4 mA ... 20 mA (configurable)
Resolution	15 bit
Precision	± 0.1 %
Input impedance	600 kΩ (voltage inputs)
	50 Ω (current inputs)

Relay output	
Number of outputs	4
Contact type	N/O contact
Minimum switching voltage	100 mV
Maximum switching voltage	60 V DC 30 V AC
Limiting continuous current	6 A
Min. switching current	1 mA
Switching capacity	100 W (Power Source PS2, P_{out} ≤100 W)
Electrical service life	30000 cycles

Relay load curve DC



Relay load curve AC



General data	
Degree of protection	IP20
Dimensions (W/H/D)	72 mm x 90 mm x 62 mm
Housing material	Polycarbonate
MTTF (mean time to failure) SN 29500 standard, temperature 25 °C, operating cycle 21 % (5 days a week, 8 hours a day)	674 Years
MTTF (mean time to failure) SN 29500 standard, temperature 40 °C, operating cycle 34.25 % (5 days a week, 12 hours a day)	324 Years
MTTF (mean time to failure) SN 29500 standard, temperature 40 °C, operating cycle 100 % (7 days a week, 24 hours a day)	130 Years
Electromagnetic compatibility	Conformance with RED Directive 2014/53/EU

Ambient conditions	
Ambient temperature (operation)	-25 °C ... 70 °C (see 4.1 Derating)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	0 % ... 95 %
Altitude	2000 m

Approvals / Certificates	
Conformance	CE-compliant
Standards/regulations	EN 50360 EN 50121-4

Compliance with standard EN 50121-4 is achieved under the following operating conditions.

For installations within the 3 m area and safety-related devices, there are additional requirements specified by EN 50121-4, Table 1, Note 1. This area is excluded from the manufacturer's declaration.

Section 1, Paragraph 3 of EN 50121-4 shall apply. Use power supplies from the Phoenix Contact QUINT product range directly on the device.

Conformance with RED Directive 2014/53/EU		
Noise immunity according to EN 61000-6-2		
Electrostatic discharge	EN 61000-4-2	
	Contact discharge	± 6 kV
	Discharge in air	± 8 kV
	Indirect discharge	± 6 kV
	Comments	Criterion B
Electromagnetic HF field	EN 61000-4-3	
	Frequency range	26 MHz ... 6 GHz
	Field intensity	10 V/m
	Comments	Criterion A
Fast transients (burst)	EN 61000-4-4	
	Input	± 2 kV (unshielded supply line)
	Signal	± 2 kV (shielded signal line)
		± 2 kV (analog I/O cables, unshielded)
	Comments	Criterion B
Surge current loads (surge)	EN 61000-4-5	
	Input	± 0.5 kV (symmetrical, unshielded supply line) ± 0.5 kV (asymmetrical, unshielded supply line)
	Signal	± 1 kV (data line, asymmetrical)
	Comments	Criterion B
Conducted interference	EN 61000-4-6	
	Frequency range	0.15 MHz ... 80 MHz
	Voltage	10 V
	Comments	Criterion A

Emitted interference in acc. with EN 61000-6-4	
Emitted radio interference in acc. with EN 55011	Class B, area of application: Industry and residential

Criterion A	Normal operating behavior within the specified limits
Criterion B	Temporary impairment of operating behavior that is corrected by the device itself

Conformance with RED Directive 2014/53/EU		
Safety - protection of personnel with regard to electrical safety	IEC/EN 62368-1	
Health - limitation of exposure of the population to electromagnetic fields	EC Gazette 1999/519/EC	EC Council recommendation of July 12, 1999
Radio - effective use of the frequency spectrum and prevention of radio interference	DIN EN 301511	

4.1 Derating

Derating, maximum ambient temperature	SMS mode	GPRS data link
Relay not used	70 °C	60 °C
Max. relay load current 1 A	60 °C	55 °C
Max. relay load current 6 A	50 °C	50 °C

5 Use outside of Europe

The devices are intended for use in Europe.

If the required general conditions are met, use outside of Europe is possible.



For an initial idea of which frequency bands are available in your country of use, visit www.frequencycheck.com.

- Verify with your provider whether one of the following frequency bands is available:
  - LTE, CAT1, B3
  - LTE, CAT1, B7
  - LTE, CAT1, B20
- Verify with your provider whether there is network coverage at the installation location.
- Verify with your provider whether the device is approved for operation at the installation location.