



GSM fault reporting device

IT180 / IT181

IT180 / IT181-VdS

IT180 / IT181-OPC



Operation manual

eviateg GmbH • Muehlenweg 143 • D-22844 Norderstedt
Telephone +49 / 40 / 60848790 • Telefax +49 / 40 / 60849041
Web <http://www.eviateg.com/>

SAFETY INDICATION

Hardware and software of the IT180 / IT181 are not fault-tolerant and have not been developed or made to be used or retailed as online control system in hazardous environments where error-free operation is mandatory, eg use in nuclear facilities, flight control, communication systems, air traffic control, direct life support equipment or weapon systems, for which a malfunction may cause directly death, physical injury or severe bodily harm ("High Risk Activities").

eviateg GmbH explicitly dismisses any specific or indirect warranty for the suitability for High Risk Activities.

The transmission of alerts and fault reports is carried out by the particular network provider and cannot be guaranteed in case of technical modifications in the transport network. For this reason cyclic routine messages should be programmed.

eviateg GmbH assumes no liability for technical inaccuracies and reserves the right to make modifications for the purpose of technical progress.

Modifications, errors and omissions excepted.



DANGER!

Hazardous voltage!

During the installation of the IT180 / IT181 the following safety rules must be observed:

- Switch off the main supply voltage.
- Secure the main supply voltage against a new power-on.
- Check the zero potential on the supply lines.
- Ground and short the power connector block.
- The IT180 / IT181 may only be installed and connected by an electrically qualified person or a skilled person being familiar with electrotechnical installation.
- Pay attention during the installation to be electrostatically discharged before touching the device with open cover.
- The device has an internal functional earthing.
The Protective Earth (PE) must be attached.
- All connecting cables must be arranged in such way that inductive and capacitive crosstalk do not cause functional interference.
- Voltage fluctuation or deviation of main power from the nominal value may not exceed the tolerance limits specified in the Technical Data section or else malfunctions and states of risk can occur.
- Before replacing the internal fuse the main supply voltage must be switched off and the zero potential on the supply lines must be checked.
- If active components like pumps or motors are controlled by the IT180 / IT181 equipment can be damaged if the IT180 / IT181 is faulty connected or programmed.

Designated use

- The IT180 / IT181 is a GSM fault reporting device which can be used as switchgear and controlgear too. An operation is only allowed with an appropriate installation.
- The IT180 / IT181 is only provided for professional use and stationary installation. Power supply and signalling lines must be secured against contact.
- The installation has to comply with the electrotechnical rules.
- During switching on the IT180 / IT181 all risks by controlled equipment, eg unexpected start up of motors or unforeseen switching of voltages, must be prohibited.
- During normal operation the cover has to be closed.

Misuse

The IT180 / IT181 must not be used as a security relevant control requiring error-free operation, eg. use in nuclear facilities, flight control, communication systems, air traffic control, direct life support equipment or weapon systems, for which a malfunction may cause directly death, physical injury or severe bodily harm.

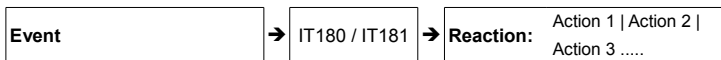
Unauthorised modifications, disassembling or changes to the product are disallowed.

For any consequence of misusing the IT180 / IT181 the eviateg GmbH disclaims liability and all warranty claims expire.

Functional principle

The IT180 / IT181 works according to the principle of event and reaction:

- The device detects a multitude of events.
- To each event there is a reaction assigned which is executed each time the event occurs.
- The reaction is composed of single actions put into execution consecutively.
- In the delivery status all reactions are empty and the IT180 / IT181 does not react to any event.
- Programming of the reactions can be done with the software „QuickSetup“ included in delivery.
- To utilise all features of the device the the configuration software „CONNY“ is also included in delivery.



Examples for events:

Input contact closed
Input contact opened
Expiration of timers
Exceeding of temperatures
Undershooting of voltages
Achievement of counter limits
Reception of control SMS
Incoming call of a known telephone number
Evaluation of DTMF tone sequences

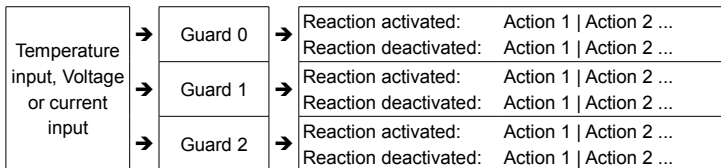
→	IT180 / IT181
→	freie
→	Zuordnung
→	von
→	Ereignissen
→	und
→	Reaktionen

Example for actions:

→	Sending a SMS, fax or eMail
→	Voice call to an arbitrary number
→	Switching of an output
→	Start / Stopp of a timer
→	Setting / clearing of flags
→	Relaying of control commands to other devices
→	Execution of macros
→	Aktivation or deactivation of inputs
→	Group alerts

Principle of measuring temperatures, voltages and currents

- Each temperature, voltage or current input has three software guards assigned.
- A guard monitors the temperature, voltage or current value and compares it with an adjustable threshold.
- When the value falls below the limit or exceeds it, the „Activated“ or respectively „Deactivated“ reaction is executed.



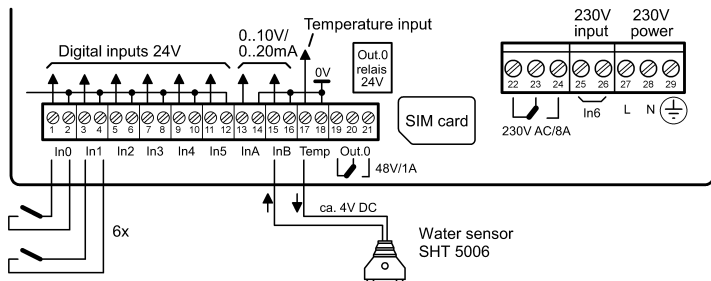
Connecting a water sensor to the IT180 / IT181

The analog inputs InA and InB can be used separately and independent from each other as inputs for the Water Sensor 5006, if the feeding is taken from terminal 17 („Temp“). So there can be connected max. 2 water sensors to the IT180 / IT181.

The operation mode of the respective input must be set to „0..10V“ (voltage measurement). Terminal 17 („Temp“) supplies a voltage of about 4.1 V. Due to the conductance of water a voltage of at least 1.0 V can be measured at the analog input.

The assigned Analog value guard for for input InA or InB should be set to a threshold of 0.5 V and a hysteresis of 0.2 V.

If terminal 17 is used to feed a water sensor, it can't be used for connecting a temperature sensor to the IT180 / IT181.



Picture 1: Connecting a water sensor to the IT180 / IT181

Start / Stop buttons

For programming the IT180 / IT181 the 230V main power supply is not necessary. If the rechargeable 9V battery is inserted, the device can be switched on with the START button. The START button must be pressed until the LEDs are illuminated. The device can be pre-programmed in this way prior to the installation with the programming software „QuickSetup“ or „CONNY“ (both included in delivery).

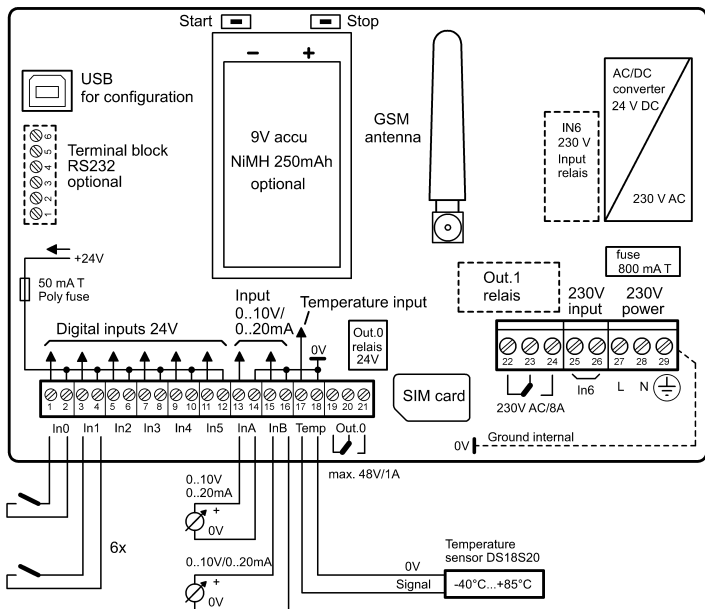
The STOP button can be used to switch of the IT180 / IT181 in battery operation.

Hint: The rechargeable 9V battery serves for sending fault messages in case of 230V main voltage breakdown.

The battery runtime is about 2 hours. Then the deep discharge protection will be activated and the device powers itself down.

Hint: When the IT180 / IT181 is powered with 230V, it starts automatically and stays powered. The STOP button has no effect in this state.

Block diagram



Picture 2: Block diagram of the IT180 / IT181

Terminal	Marking	Description
1..12	In 0...In 5	Optocoupler inputs 0 to 5, no potential separation
13..16	In A, In B	Analog inputs 0..10 V or 0..20 mA (individually switchable)
17, 18	Temp	Temperatur input for digital temperature sensor DS18S20
19..21	Out 0	Relais output 0 (rating see „Technical Data“)
22..24	Out 1	Relais output 1 (IT181 only, see „Technical Data“)
25..26	In 6	Input 230 V AC (IT181 only)
27..29	Power	Main power supply 230 V AC

Technical specifications

Dimensions	180 (L) * 150 (W) * 35 mm (H) without cable fittings
Weight	410 g (IT180), 435 g (IT181)
Operating voltage	230 V AC / +5 % .. -15% / 50..60 Hz
Power consumption	11.5 VA / 50 mA AC
Backup battery	Internal rechargeable 9V block battery 200 mAh (battery not scope of delivery)
Service temperature	-40 °C to +70 °C
Humidity	0 to 100%
Degree of protection	IP65
GSM modem	Quadband 850/900/1800/1900 Mhz, Mini SIM (25 * 15 mm)
Terminals	21 screw-type terminals 1.5 mm ² (rigid) / 0.75 mm ² 3 screw-type terminals 4 mm ² (only for IT180) 8 screw-type terminals 4 mm ² (only for IT181)
Cable fittings	3 cable fittings M12 2 cable fittings M16
Inputs	<ul style="list-style-type: none"> • 6 switching inputs, max. input voltage 24 V DC • 2 voltage inputs 0..10 V or • 2 current inputs 0..20 mA (individually switchable) • 1 input for digital temperature sensor DS18S20 • 1 switching input 230 V AC (coupling relays on IT181)
Voltage inputs InA, InB	Measurement range: 0..10 V Resolution: ± 10 mV (10 Bit) Accuracy: ± 50 mV / ± 0.5% Internal resistance: 13 kOhm
Current inputs InA, InB	Measurement range: 0..20 mA Resolution: ± 0.03 mA Accuracy: ± 0.1 mA respectively ± 0.5% Internal resistance: 100 Ohm
Temperature input Temp	Installation of a digital temperature sensor DS18S20, max. distance 100 m, measurement range -40°C to +85°C
Output Out 0	Relais output 48 V Max switching power: 60 W Max switching current: 2 A 30 V DC / 1 A 48 V DC Max switching voltage: 48 V AC/DC

Output Out 1	Relais output 230 V (IT181 only) Max switching power: 2000 VA AC / 150 W DC Max switching current: 8 A 250 V AC / 5 A 30 V DC Max switching voltage: 250 V AC / 100 V DC
Serial interface	RS232 (115.200 bps / 8N1)
Alarm events (selection of supported events)	<ul style="list-style-type: none"> • switching operations on inputs • expiry of internal timers or counts • incoming calls from known calling parties • on exceeding or falling below temperature / voltage / current thresholds • evaluation of self-defined DTMF tone sequences • evaluation of password protected control SMS • loss of main power supply
Fax and eMail	transmission of fax and eMail per SMS (depending on the network and service provider)
Number pool	up to 256 numbers, groupable in up to 32 alert groups
Message text pool	10 text blocks per 512 bytes, macro capable
Programming/update	via RS232 and GSM
VdS 2465 protocol (only IT180 / IT181-VdS)	Version 03/1999, up to 10 VdS centrals, free programming of addresses / address extensions / priorities, free assignment of inputs to centrals

Switching capacity of relais output Out.0

The relais output is intended for switching a power relay or power contactor with a preferred coil voltage of 24 VDC.

The ratings specified in the Technical specifications may not be exceeded in any case.

ATTENTION: Small electrical appliances with 12 V power supply like router, modems, WLAN access points etc **may only be switched** with an additional **in-rush current limitation**. The internal power switching supply of those devices produce switch-on peak currents of 5 to 25 A and will damage the relais contacts immediately !

Konformitätserklärung

gemäß der EMV-Richtlinie 2014/30/EU (elektromagnetische
Verträglichkeit) vom 26. Februar 2014

Hiermit erklären wir, dass das Gerät

IT180 / IT181 GSM-Störmeldegerät

in seiner Konzeption und Bauart sowie in der von uns in Verkehr
gebrachten Ausführung den grundlegenden Sicherheits- und
Gesundheitsanforderungen der EMV-Richtlinie 2014/30/EU entspricht.
Bei einer mit uns nicht abgestimmten Änderung des Gerätes verliert
diese Erklärung ihre Gültigkeit.

Zur Beurteilung herangezogene Normen:

- DIN EN 60950: 2011
Elektrische Sicherheit informationstechnische Einrichtungen (ITE-Geräte)
- DIN EN 55 022: 2011
Störaussendung informationstechnische Einrichtungen (ITE-Geräte)
- DIN EN 55 024: 2011
Störfestigkeit informationstechnische Einrichtungen (ITE-Geräte)
- DIN EN 61000-3-2: 2010
Störfestigkeit gegen statische Entladungen (ESD)
- DIN EN 61000-3-3: 2009
Störfestigkeit gegen elektromagnetische Felder

eviateg GmbH
Mühlenweg 143
D-22844 Norderstedt

Norderstedt, den 2015-01-05



Thomas Plagens, Geschäftsführer

Disposal instruction

The IT180 / IT181 may neither be delivered at the collection points for the recycling of electrical or electronic equipment nor may it be disposed at a container which is collected from an electronic vendor for recycling purposes.

The device can be returned to the vendor or can be disposed by the user on his own cost in an environmentally compatible manner.

Hint: If there is a rechargeable battery placed in the IT180 / IT181, it must be removed from the device and must be disposed at the local collection point.

Norderstedt, 2016-04-14

eviateg GmbH
Muehlenweg 143
D-22844 Norderstedt

Internet: www.eviateg.com

E-Mail: info@eviateg.com

WEEE-Reg.: DE 68498834