GSM fault reporting device
IT70
IT70-VdS
IT70-OPC

Operation manual

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SAFETY INDICATION

Hardware and software of the IT70 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.

CE

Designated use

- The IT70 is intended for an operation with Safety Extra Low Voltage (SELV) according to EN 60950 / VDE 0805.
- Other equipment connected to the IT70 must meet the conditions of EN 60950 (Safety of Information technology equipment).
- The IT70 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 IT70 is only provided for professional use and stationary installation in electric control cabinets.
- The installation has to comply with the electrotechnical rules.
- During switching on the IT70 all risks by controlled equipment, eg unexpected start up of motors or unforeseen switching of voltages, must be prohibited.

Misuse

The IT70 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 IT70 the eviateg GmbH disclaims liability and all warranty claims expire.

Functional principle

The IT70 works according to the principle of event and reaction:

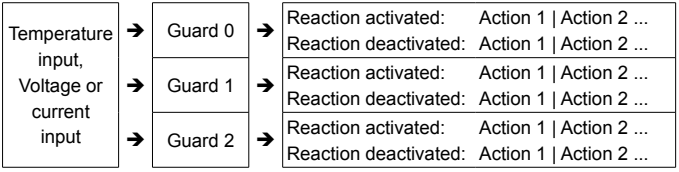
- The device detects a multitude of events.
- To each event there is a reaction assigned which is executed each time the event occurs.
- The reaction is composed of single actions put into execution consecutively.
- In the delivery status all reactions are empty and the IT70 does not react to any event.
- 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.

Event	→	IT70	→	**Reaction:** Action 1 | Action 2 | Action 3 .....

Examples for events:				**Example for actions:**
Input contact closed Input contact opened	→	IT70 free assignment of events and reactions	→	Sending a SMS, fax or eMail
			→	Voice call to an arbitrary number
Expiration of timers	→			
Exceeding of temperatures	→		→	Switching of an output
Undershooting of voltages Achievement of counter	→		→	Start / Stopp of a timer
			→	Setting / clearing of flags
limits	→		→	Relaying of control commands to other devices
Reception of control SMS	→			
Incoming call of a known telephone number	→		→	Execution of macros
			→	Aktivation or deactivation of inputs
Evaluation of DTMF tone sequences	→		→	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.

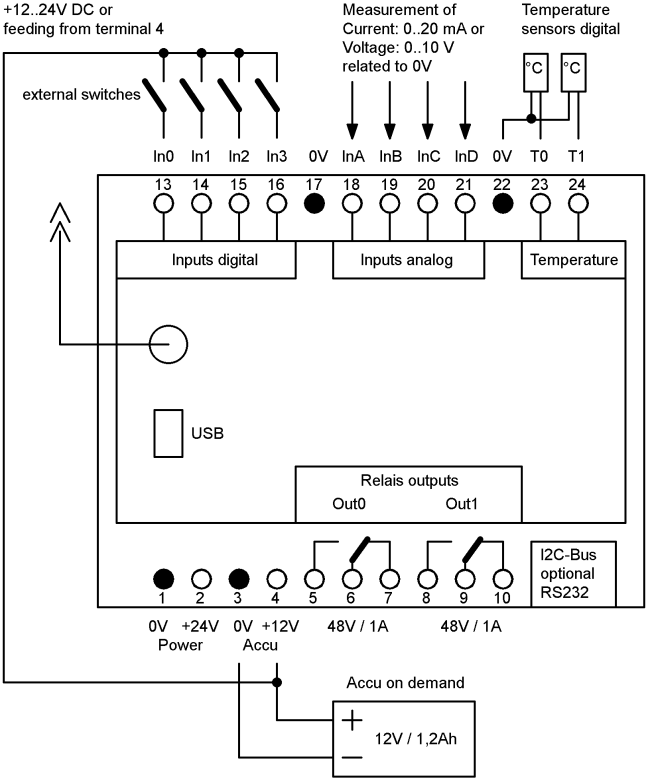


Switching capacity of the relais outputs

The relais outputs are designed for switching power relais and power contactors with a preferred coil voltage of 24 V DC.
The switching capacity specified in the Technical Specifications must not be exceeded in no case.

CAUTION: Small electronic devices with a 12 V power supply like router, modems, WLAN access points and so on **MUST ONLY** be switched with an additional inrush current limitation !
The internal switching power supplies of such devices draw inrush current peaks between 5 and 25 A and will result in damage of the relais contacts.

Block diagram



Picture 1: Block diagram of the IT70

Terminal connections

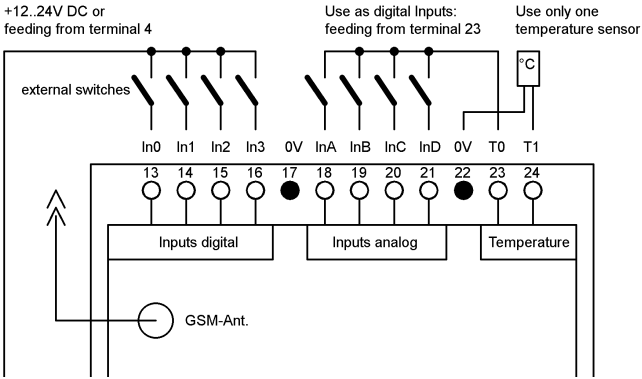
Terminal	Marking	Description
1, 2	Power	12 to 24 V DC / 80 mA (200 mA with battery charging)
3, 4	Accu	Connection for the emergency power battery (internal trickle charging circuit), usable for feeding the digital inputs
5..7	Out 0	Relais output 0 (rating see „Technical Data“)
8..10	Out 1	Relais output 1 (rating see „Technical Data“)
11..12	I^2C bus	Interface for I^2C extension modules, optional RS232 interface (RXD, TXD GND)
13..16	In0..In3	Digital inputs for potential separated contacts
18..21	InA..InD	Voltage inputs 0..10 V or Current inputs 0..20 mA (individually switchable)
23, 24	T0, T1	Temperature inputs for digital temperature sensors
1, 3, 17, 22	0V	Reference potential / signal common

Using the analog inputs InA, InB, InC, InD as digital switching inputs

The analog inputs InA to InD can be used individually as digital switch input if their respective feeding is accomplished from terminal 23 („T0“). The respective analog input mode must be set to „0..10V“ (Voltage measurement).
Terminal 23 supplys a feeding voltage of about 4.1 V.

The particular analog value guard assigned to the respective input InA, InB, InC or InD must be set to a threshold of 2.0 V and a hysteresis of 1.0 V.

If terminal 23 (T0) is used for feeding an analog input, it cannot be used for connecting a temperature sensor.



Picture 2: Using the analog inputs InA to InD as digital switch inputs

Connecting water sensors to the IT70

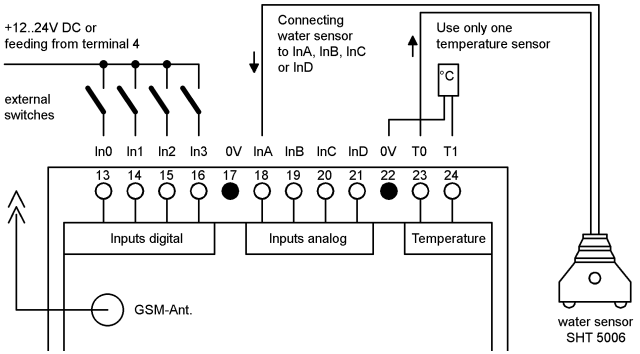
The analog inputs InA to InD can be used individually for monitoring a water sensor SHT 5006, if if their respective feeding is accomplished from terminal 23 („T0“). In this way up to four water sensors can be monitored.

The respective analog input mode must be set to „0..10V“ (Voltage measurement).

Terminal 23 supplys a feeding voltage of about 4.1 V.

Due to the conductance of water on the voltage input a value of > 1.0 V can be measured. The particular analog value guard assigned to the respective input InA, InB, InC or InD must be set to a threshold of 0.5 V and a hysteresis of 0.2 V.

If terminal 23 (T0) is used for feeding a water sensor, it cannot be used for connecting a temperature sensor.



Picture 3: Connecting a water sensor

Technical specifications

Dimensions	86 mm (L) ✶ 70 mm (W) ✶ 63 mm (H)
Weight	160 g
Operating voltage	12 to 24 V DC (at least 21 V DC for charging operation)
Current consumption	max. 80 mA (about 200 mA with battery charging)
Backup battery	external / 12 V / 2 to 7.5 Ah / charging rate about 120 mA
Service temperature	-20 °C to +55 °C
Humidity	0 to 70%, non-condensing
Degree of protection	IP20
GSM modem	Quadband 850/900/1800/1900 MHz
SIM card	Mini SIM (25 ✶ 15 mm)
Terminals	22 screw-typ terminals 1.5 mm²
Inputs	• 4 switching inputs, max. input voltage 24 V DC • 4 voltage inputs 0..10 V or • 4 current inputs 0..20 mA (individually switchable per software)

	• 2 inputs for digital temperature sensors DS18S20

Voltage inputs InA...InD	Measurement range: 0..10 V Resolution: ± 10 mV (10 Bit) Accuracy: ± 50 mV / ± 0.5% Internal resistance: 13 kOhm
Current inputs InA...InD	Measurement range: 0..20 mA Resolution: ± 0.03 mA Accuracy: ± 0.1 mA respectively ± 0.5% Internal resistance: 100 Ohm
Temperature inputs T0, T1	Installation of max. 2 digital temp. sensors DS18S20, max. distance 100 m, measurement range -40°C to +85°C
Outputs Out0, Out1	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
Extension bus	I^2C bus or optional RS232 interface (RXD, TXD, GND)
Alarm events (selection of supported events)	• switching operation 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 USB and GSM
VdS 2465 protocol (only IT70-VdS)	Version 03/1999, up to 10 VdS centrals, free programming of addresses / address extensions / priorityes, free assignment of inputs to centrals

Konformitätserklärung

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

Hiermit erklären wir, dass das Gerät

IT70 GSM-Störmeldegerät

in seiner Konzeption und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den grundlegenden Sicherheits- und Gesundheitsanforde-rungen 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

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Norderstedt, den 2015-01-05

Thomas Plagens, Geschäftsführer

Disposal instruction

The IT70 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.

Norderstedt, 2016-04-14

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