MT-025 – module for remote monitoring, alarm and control applications

MT-025

- 2G/3G or 2G/4G (Cat M1, NB1) or 2G/4G Cat 1 data packet transmission
- Optional support for LTE450 networks
- Embedded GSM modem
- Binary inputs/counting (4)
- Relay outputs (4)
- Configuration port with jack 3,5 mm socket
- 1-Wire input
- DIN rail mounting
- Configurable via SMS commands
- Datalogger (upto 28k records)
- Communication port RS-485 (option)
- Removable terminal blocks
- 3-years warranty

Telemetry module MT-025 is a new proposition of the INVENTIA company in the segment of economic solutions. Thanks to its very attractive cost to feature ratio, the new construction is well suited for use in small sites remote monitoring and control systems. It allows monitoring, diagnosis and control of remote devices via text messages (SMS) or/and using data packet transmission over GSM provider network. As option we prepared MT-025 to operate with LTE 450 bands. It provides robust connectivity with increased coverage and deeper signal penetration.

Configurable text messages with a fixed or variable content (e.g. containing current measurement value) are convenient way to provide information to the monitoring center or directly to the defined staff phone numbers. Alarm messages can be generated on binary inputs and binary outputs state change, when measured analog values crosses alarm threshold, by timer and counter flags. Communication via GSM provider network enables secure and reliable communication with higher-order applications (SCADA, database, cloud based systems) allowing to expand the capabilities of the monitoring system using remote communication with difficult to access or distant sites.

MT-025 module has 4 optoisolated binary inputs, which can generate alarm messages to notify supervision. The binary inputs can be configured as pulse inputs. The inputs can be used with S0-pulse interface *(option)*. MT-025 module is also equipped with 2 configurable analogue inputs for measurement of current (4-20 mA) or voltage (0-10 V). The device allows also direct connection of temperature sensors using 1-wire interface (1 channel), configuring it in reading mode readings of a single thermometer or a bus supporting up to 4 temperature sensors. Additionally, the module has four relay outputs. Built-in data logger with capacity of 28 000 entries allows storing the measurements in the module memory.

Typical applications:

- Facility monitoring
- Alarm systems
- Access control
- Preventive diagnostics
- Remote meter reading (ARM)
- Remote control of various devices by SMS or GPRS: gates, pumps, heating, lighting, etc.

Resources:

- Power supply (9,5 V – 30 V DC)
- 2 analog inputs 0-10 V/4-20 mA
- 4 optoisolated binary/counting inputs, positive logic
- 4 relay outputs
- Available tree types of GSM modem: 2G/3G, 2G/LTE Cat M1/NB1, 2G/4G Cat 1
- Two-way communication MT/SMS
- 1-Wire input (posibility to connect up to 4 temperature sensors)
- Jack 3,5 mm socket for configuration purpose
- Real Time Clock (RTC) – possible external synchronization
- SIM card socket
- SMA antenna connector
- RS-485 port *(option)* or Isolated RS-485 port *(option)*

Functionality:

- Two-way communication via SMS and GPRS
- Unsolicited message according to event rules and scheduler
- Analog values measurement:
  - Temperaturę measurement with 1-Wire sensors;
  - Voltage measurement in 0–10 V range;
  - Current measurement in 4–20 mA range;
  - Possibility of linear scaling results of the measurements to engineering units;
  - 4 alarm levels, alarm hysteresis, filtration & deadband parameters defined exlusively for each analog input
- Control outputs funcionality:
  - Bistable or monostable output with user-defined pulse duration tume;
  - Local control – control output state is changed by events;
  - Remote control – output state is changed by writing via SMS command/GPRS data frame value to module register
- Universal Timers funcionality:
  - Synchronization with internal RTC clock
  - User-defined counted time range
- Local and remote configuration via dedicated tools and SMS commands
- Possibility of setting limits for SMS transmission
- Dynamic insertion of variables (e.g. temperature, measurement, binary inputs/outputs state) into SMS text messages

LTE 450

SMS

4DI/4DO

2AI

DIN RAIL

1-WIRE TEMP

4G

RS-485 option

MT-025 – module for remote monitoring, alarm and control applications

- Sending SMS to single recipient or defined group of recipients
- Configurable alarm levels, hysteresis and deadband for analog inputs
- Diagnostic LEDs (I/O states, successful login to network, signal level, TX and RX activity of GSM modem
- User-friendly configuration tools
- Internal data logger with 28k records capacity
- DIN rail mounting
- 3-year warranty

General

Dimensions (length x width x height)	70x86x58 mm
Weight	165 g
Mounting type	DIN Rail 35 mm
Operating temperature	-25 do +55 °C
Protection class	IP40

GSM modem (one of the following)

Modem type 2G/3G*	uBlox SARA-U201
Region	Worldwide
2G	850, 900, 1800, 1900 MHz
3G	800, 850, 900, 1900, 2100 MHz

Modem type 2G/4G Cat M1/4G Cat NB1*	uBlox SARA-R412	
Region	Multi-region	
2G	850, 900, 1800, 1900 MHz	
4G LTE Cat M1/NB1	2 (1900 MHz) 3 (1800 MHz) 4 (1700 MHz) 5 (850 MHz) 8 (900 MHz)	12 (700 MHz) 13 (750 MHz) 20 (800 MHz) 26 (850 MHz) 28 (700 MHz)

Modem type 2G/4G Cat 1*	SIMCom A7672E
Region	Europe, Asia
2G	900, 1800 MHz
4G LTE Cat 1	B1, B3, B5, B7, B8, B20

Antenna socket	50 Ω, SMA-F

* option

Power supply

Power voltage range DC (nom. 12 V/24 V)	9,5 – 30 V		
Input current @ 25°C	Idle	Active	Max
12 V DC	0,01 A	0,2 A	1,0 A
24 V DC	0,005 A	0,1 A	0,5 A

Binary inputs I1 – I4*

Input type	voltage, optoisolated
Signal voltage raneg	0 – 30 V
Input ON (1) voltage	>9 V @ 1,5 mA
Input OFF (0) voltage	<3 V @ 0,4 mA
Maximum pulse frequency	250 Hz
Minimum pulse duration	2 ms

* option – posibility to connect S0-pulse interface

Binary outputs Q1 – Q4

Output type	Relay, isolated, NO
Maximum voltage between contacts	250 V AC/30 V DC
Load current	5 A (resistive) 2 A (inductive)
Resistance	< 100 mΩ

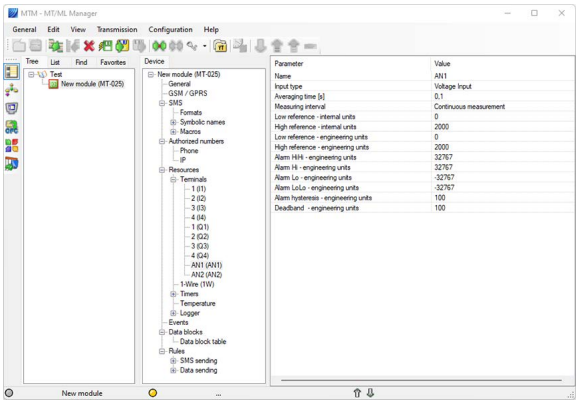
Analog inputs AN1, AN2 – voltage measurement

Measurement range	0 – 10 V
Maximum input voltage	12 V
Input dynamic impedance	213 kΩ typ.
Accurancy	±1,5 % max.
Nonlinearity	±1 % max.

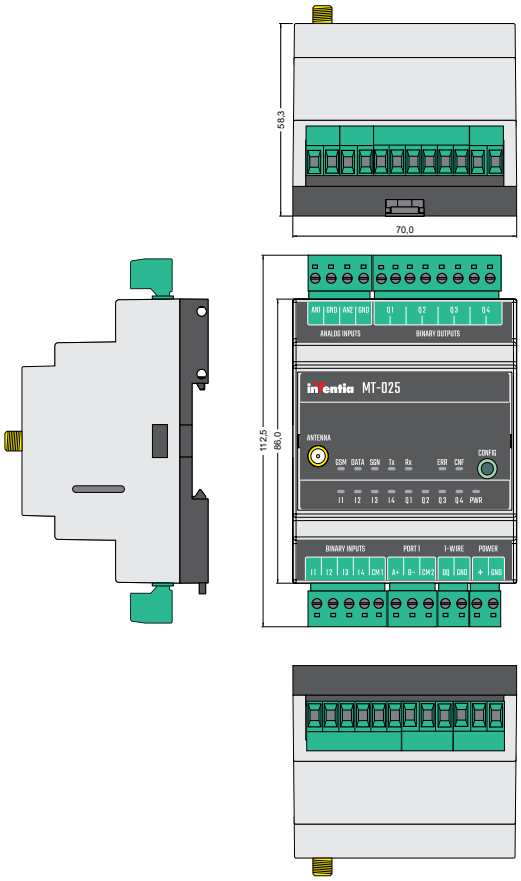
Analog inputs AN1, AN2 – current measurement

Measurement range	4 – 20 mA
Maximum input current	40 mA
Input dynamic impedance	340 Ω typ.
Voltage drop at 20mA	6,9 V
Accurancy	±1,5 % max.
Nonlinearity	±1 % max.

Configuration environment



Drawings and dimensions (all dimensions in milimeters)



MT-025

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