SMS/e-mail module for remote monitoring, alarm and control applications
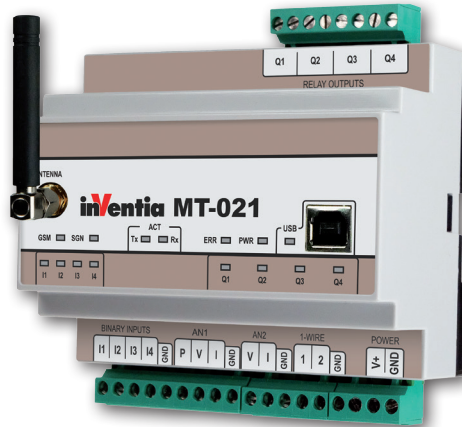
- Integral GSM 850/900/1800/1900 modem
- Binary inputs and outputs (4/4)
- Analog inputs (2)
- USB port
- 1-Wire inputs (2)
- Direct Pt100 and NTC sensors reading
- DIN rail mounting
- Configurable via SMS – no PC needed
- E-mail messaging via GPRS

Telemetry Module MT-021 with built-in GSM modem is a device dedicated for remote monitoring, diagnostics and control of objects via short text messages (SMS/e-mail) or CLIP calls. Configurable messages send from device with static (text) or dynamic (text and measured values) content are a convenient way of passing important information to the monitoring center, or directly to the defined phone numbers. SMS and e-mail messages sending can be triggered by change of binary input state, reaching alarm thresholds, marker state change, counters and clocks. Industrial design, practical set of I/O resources, easy to use software tools as well as the ability to configure the module from remote via SMS commands are significant advantages of MT-021 in the wireless telemetry systems. Direct connection of temperature sensors lowers the cost of building system. 1-Wire inputs can be used for reading typical Dallas pellets for the purpose of identification and authentication. The module can work with humidity sensors, water level sensor, pressure transducers, flow sensors, smoke, gas, motion, shock and noise detectors, etc.

Typical applications:

- Alarm systems
- Access control
- Preventive diagnostic
- Remote meter reading (AMR)
- Remote control of various devices by CLIP call or SMS (gates, pumps, heating, lighting, etc.)

Resources

- 4 optoisolated binary inputs
- 4 relay – potential less outputs
- Dedicated Pt100 input (2- or 3-wire) that can be configured to operate as voltage (0 – 10 V/0 – 5 V) or current (4 – 20 mA) analog input
- Dedicated NTC sensor input that can be configured to operate as voltage (0 – 10 V/0 – 5 V) or current (4 – 20 mA) analog input
- Two 1-Wire inputs that can operate also as serial ports
- A USB port for configuration and diagnostic equipment
- Real Time Clock (RTC) with the possibility of external synchronization

Functionality

- Two-way communication via SMS and e-mail alarming
- Possibility to send SMS and e-mail messages on raise of alarm or according to schedule
- User-defined rules triggering communication (SMS, CLIP calls, e-mail) on binary inputs, timers flags, counters flags or registers, and internal markers state change
- Binary inputs functionality:
  - configurable input filtering;
  - possibility of counting pulses in a user-specified range (max. 2 147 483 647) and direction (increase/decrease counter value)
- Analog values measurement:
  - temperature measurement with Pt100, NTC or 1-Wire sensors;
  - voltage measurement in 0 – 10 V or 0 – 5 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 and deadband parameters defined exclusively for each analog input
- Control outputs functionality:
  - bistable or monostable output with user-defined pulse duration time;
  - local control – control output state is changed by events;
  - remote control – output state is changed by writing via SMS/ingoing CLIP call value to module's register
- Universal Timers functionality:
  - synchronization with internal RTC clock;
  - user-defined counted time range
- Configuration via USB port or from remote using SMS commands
- Dynamic insertion of the variables (e.g. temperature measurement, binary input state) into SMS text messages
- DTMF codes support
- Possibility of setting limits for SMS transmission
- Internal logger – records the history of device operation; capacity up to 48 000 entries
- 9 – 30 V DC accepted power supply
- DIN rail mounting
- SMA antenna connector
- Reach diagnostic LED set (module status, GSM communication activity, GSM signal strength, binary I/O's state)
- User-friendly configuration tools

General

Dimensions (length x width x height)	105x86x58 mm
Weight	300 g
Mounting type	DIN Rail 35 mm
Operating temperature	-20 to +55 °C
Protection class	IP40

GSM Modem

Modem type		μblox LEON G100
GSM		Quad Band (850/900/1800/1900)
Frequency range:		
GSM 850	Transmitter: 824 – 849 MHz	Receiver: 869 – 894 MHz
EGSM 900	Transmitter: 880 – 915 MHz	Receiver: 925 – 960 MHz
DCS 1800	Transmitter: 1710 – 1785 MHz	Receiver: 1805 – 1880 MHz
PCS 1900	Transmitter: 1850 – 1910 MHz	Receiver: 1930 – 1990 MHz
Transmitter peak power GSM850/EGSM900		33 dBm (2W) – class 4 station
Transmitter peak power DCS1800/PCS1900		30 dBm (1W) – class 1 station
Modulation		0,3 GMSK
Channel spacing		200 kHz
Antenna		50Ω

Power

Power voltage range		9 – 30 VDC
Current for 12 VDC	Idle 0,05 A	Max 1,00 A
Current for 24 VDC	Idle 0,03 A	Max 0,70 A

Binary inputs I1 – I4

Signal voltage range	0 – 30 VDC
Input resistance	5,4 kΩ
Input ON (1) voltage	> 9 VDC
Input OFF (0) voltage	< 3 VDC

Outputs Q1 – Q4

Output type	optoisolated, normally open relay
Maximum voltage between contacts	250 VAC/300 VDC
Load current	6 A/230 VAC, 6 A/24 VDC
Maximum switching current	15 A/20 ms
Resistance	<100 mΩ

Analog/Pt100 input AN1 – temperature measurement

Sensor type	Pt100, 2- or 3-wired
Wires resistance compensation	yes (applies only to 3-wire sensor)
Measurement range	-40 to 200 °C
Accuracy	±1 °C

Analog/NTC input AN2 – temperature measurement

Sensor type	NTC 10k
Measurement range	-25 to +55 °C
Accuracy	±1 °C (depending on used sensor)

Analog inputs AN1, AN2 – voltage measurement

Measurement range	0 – 5 V/0 – 10 V
Maximum input voltage	18 V
Input dynamic impedance	150 kΩ typ.
Accuracy	±1,5 % max.
Nonlinearity	±1 % max.

Analog inputs AN1, AN2 – current measurement

Measurement range	4 – 20 mA
Maximum input current	50 mA max.
Input dynamic impedance	100 Ω typ.
Voltage drop at 20 mA	2 V max.
Accuracy	±1,5 % max.
Nonlinearity	±1 % max.

Configuration environment
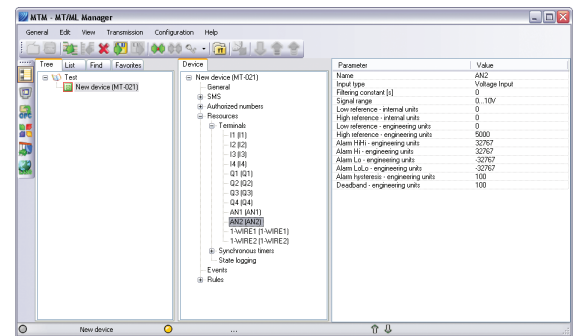
Drawings and dimensions (all dimentions in millimeters)
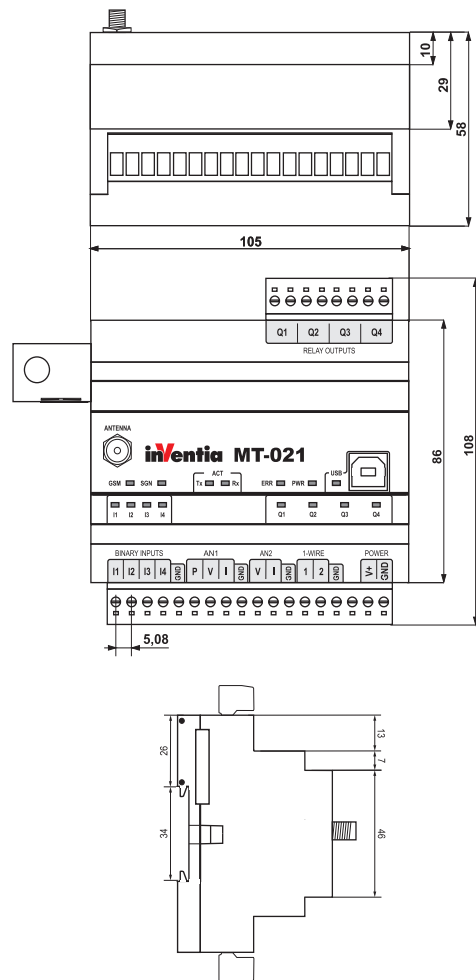
Supplementary information:

INVENTIA Sp. z o.o.
Poleczki 23, 02-822 Warsaw, POLAND
tel.: +48 22 545-32-00, 545-32-01
fax: +48 22 643-14-21
inventia@inventia.pl, www.inventia.pl