SMS/GPRS/e-mail module for remote monitoring, alarm and control applications

- Integral GSM/GPRS 850/900/1800/1900 modem
- Binary inputs and outputs (4/2)
- Analog inputs (2)
- USB port
- 1-Wire inputs (2)
- Direct Pt100 and NTC sensors reading
- DIN rail mounting
- Configurable via SMS – no PC needed
- Build-in SLA battery charger
- MIM option available
- SMA antenna connector

Telemetry module MT-020, thanks to its very attractive cost to feature ratio, is well suited for use in small sites remote monitoring systems. It allows monitoring, diagnosis and control of remote devices via text messages (SMS and e-mail), CLIP calls and using data packet transmission of GPRS network. 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 GPRS enables secure and reliable communication with higher-order applications (SCADA, database) allowing to expand the capabilities of the monitoring system using remote communication with difficult to access or distant sites.

Industrial design, practical I/O resources and easy-to-use software tools as well as the possibility of remote management of module via SMS commands or GPRS are the biggest advantages of MT-020. 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 sensors, pressure transducers, flow sensors, smoke, gas, motion, shock and noise detectors, etc.

MT-020 can be powered from a DC voltage source (9-30 VDC) or directly from the mains transformer (12-18 Vrms AC). Integrated circuit which controls and charges external battery ensures continuous system operation during power failures. Dedicated power output allows providing power to external sensors when operating from backup power source. Optionally module can be produced with 3G modem and/or with MIM (Machine Identification Module) soldered to PCB replacing or backing-up standard SIM card.

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

Resources
- 4 optoisolated binary inputs
- 2 potential less outputs with common ground
- Quad-band GSM/GPRS modem (optionally 3G modem)

- 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
- A USB port for configuration and diagnostic equipment
- Real Time Clock (RTC) - possible external synchronization
- Two power outputs (one stabilized) providing power for external sensor
- SMA antenna connector

Functionality
- Two-way communication via SMS and GPRS
- Possibility to send SMS and e-mail messages or GPRS data frame on raise of alarm or according to schedule
- User-defined rules triggering communication (SMS, CLIP calls, e-mail, GPRS data frame) 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 & deadband parameters defined exclusively for each analog input
- Control outputs functionality:
  - bistable, monostable or toggle output with user-defined pulse duration time and normal state;
  - local control – control output state is changed by events;
  - remote control – output state is changed by writing via SMS/ingoing CLIP call/GPRS data frame value to module 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

WARRANTY 3 YEARS

MIM

SMS

e-mail
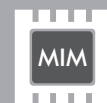
4DI/4DO

2AI

DIN RAIL

3G option

MT-020

- Possibility of setting limits for SMS transmission
- Internal logger – records the history of device operation; capacity up to 48 000 entries
- 12/24V DC accepted power supply
- 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 35mm
Operating temperature	-20 ... +55°C
Protection class	IP40

GSM Modem

Modem type	μblox LEON G100
GSM	Quad Band (850/900/1800/1900)
Class	10
Antenna	50Ω

Power

Power voltage range	9 … 30 VDC	12 – 18 Vrms AC
Current for 12 VDC	Idle 0,05 A	Max 2,00 A
Current for 24 VDC	Idle 0,03 A	Max 1,50 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
Minimum pulse duration	10 ms

Outputs Q1…Q2

Output type	NPN switch to GND
Recommended load current for one output	50 mA
Max. load current for one output	250 mA
Resistance in ON state	3 Ω max.
Max. load current for both outputs powered from VOUT1	150 mA

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 … 200°C
Accuracy	±1°C

Analog/NTC input AN2 – temperature measurement

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

Analog inputs AN1, AN2 – voltage measurement

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

Analog inputs AN1, AN2 – current measurement

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

Backup battery input ACCU

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Nominal battery voltage	6 V
Battery type	Lead-acid/gel
Max. charging current (recommended minimum battery capacity*)	0.4 A (1.3 Ah) 0.8 A (3.0 Ah)

* Please check battery specification

Power output VOUT1 (stabilized)

Output voltage	configurable - 12 V or 20 V
Max. load current for 20 V	150 mA

Power output VOUT2 (non-stabilized)

Output voltage	Vpower - 2 V
Max. load current	50 mA

Drawings and dimensions (all dimentions in millimeters)
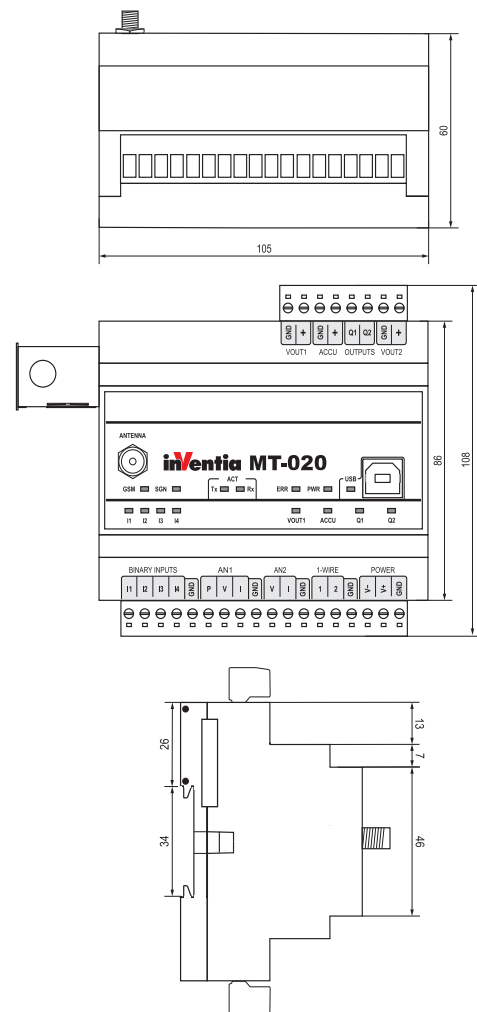
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