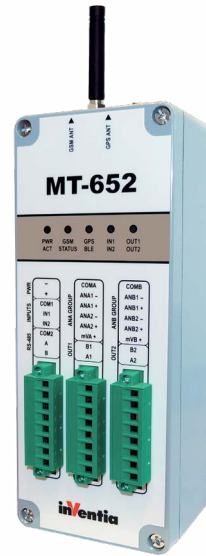


- Embedded GSM 2G/3G modem
- 6 measurement channels
- Measurement of AC and DC voltages
- Measurement in the range of microvolts
- Dual-SIM technology (passive) - access to 2 independent GSM networks ensures superior availability
- Additional binary inputs and outputs
- Power supply by external DC unit, internal built-in Li-ion battery as backup
- Built-in GPS receiver with internal antenna and accelerometer
- Internal temperature sensor
- Local communication over USB
- Communication via RS-485 (galvanic isolation)
- Remote communication via GPRS and SMS
- 5 diagnostic LEDs
- Detachable terminal blocks
- Real Time Clock (RTC) synchronized with UTC time delivered by GPS or Glonass system
- Data logger with 0,1s resolution and 180k records capacity
- Remote configuration, diagnostics and firmware upgrade (OTA)
- 3 years warranty



MT-652 telemetry module provides compact and high specification solution for remote monitoring and controlling of pipeline cathodic protection systems, tanks and other metal structures buried in the ground or submerged in water. The flexibility of module configuration allows you to adjust it to a series of installations – from the simplest to the most complex. Internal resources of the device allow for easy and secure remote configuration and implemented data protection mechanisms ensure safe operation of the system.

With MT-652 module we supplied free of charge applications: MTManager for remote and local configuration, resources monitoring and firmware upgrade, MTData Provider (OPC server, relation data base data saving engine) for communications environment for Microsoft Windows. These applications allow easy integration with available on the market popular SCADA systems.

### Functionality

- DIN 35mm rail mounting
- Power supply by external DC unit or internal battery pack
- Built-in GSM modem
  - » 2G (GSM/GPRS EDGE 850/900/1800/1900)
  - » 3G (UMTS/HSPA+ 800/850/900/1900/2100)
- Communication interfaces: USB, RS-485 (galvanic isolation)
- 2 optoisolated binary inputs (with common ground)
- 2 optoisolated groups of analog inputs where each of them contains 2 differential inputs (configurable measurement range 0-10 V or 0-100 V) and 1 dedicated input 0-100 mV)

- Dual-SIM technology – access to 2 independent GSM networks ensures superior availability
- 2 optoisolated binary outputs (60 V, 1 A)
- Execute of measurements in the synchronous mode
- Scheduler of measurements and tasks with possibility of modification by user
- Built-in GPS receiver for time synchronization
- The accelerometer to detect tampering with the device or the devastation attempts (included unauthorized movement)
- Internal built-in Li-ion battery (2600 mAh) for energy backup in the module version powered by DC power supply unit
- Remote configuration, communication, monitoring and firmware upgrade via GPRS
- Internal temperature sensor
- Detection of main power failure and battery monitoring
- 5 status LEDs (digital I/O states, Power supply status, GSM status and activity, GPS status)
- Data logger with 0,1 second resolution stored data events in flash memory (capacity 180 000 records)
- Ability to integrate with SCADA system (OPC DA, OPC UA, ODBC and CSV support)
- Transmission mode:
  - » GPRS/HSDPA - packet transmission
  - » SMS
- Configurable access security – IP and Phone list, optional password
- User friendly configuration software
- Open communication protocol – OPEN2



2DI/2DO

6AI



DIN RAIL



RS-485



## General

|                       |                        |
|-----------------------|------------------------|
| Dimensions (HxWxD)    | 190 mm x 75 mm x 55 mm |
| Weight                | 900 g                  |
| Operating temperature | -20... +55 °C          |
| Protection class      | IP 65                  |

## GSM/GPRS Modem

|                       |  |
|-----------------------|--|
| Modem type            | uBlox Sara-U270  |
| Frequency range:      | 2G: 850/900/1800/1900 MHz<br>3G: 800/850/900/1900/2100 MHz |
| Antenna               | 50 Ω   |
| GSM antenna connector | SMA-M  |

## Power supply

|                         |                                |                          |
|-------------------------|--------------------------------|--------------------------|
| Voltage range (DC)      | 7-30 V                         |                          |
| Internal battery backup | Li-Ion battery 2,6 Ah capacity |                          |
| Input current (for 24V) | Idle                           | 800 μA                   |
|                         | Active                         | 70 mA, 200 mA (charging) |
|                         | Max                            | 0,7 A                    |

## Inputs IN1, IN2

|                       |              |
|-----------------------|--------------|
| Input voltage range   | -30... +30 V |
| Input resistance      | 5,4 kΩ typ.  |
| Input voltage ON (1)  | > 9 V min    |
| Input voltage OFF (0) | < 3 V max.   |
| Minimum pulse length  | 5 ms         |

## Outputs OUT1, OUT2

|   |           |
|---|-----------|
| Recommended average current for single output | 100 mA    |
| Voltage switching AC/DC                       | 60 V max  |
| Single output current                         | 1 A       |
| Output resistance in the ON (1) state         | 0,5 Ω max |

## Two group of optoisolated input with common ground (ANA, ANB)

|                                       |               |
|---------------------------------------|---------------|
| 0-100 mV input: mVA, mVB              |               |
| Measurement range                     | ±100 mV       |
| Measurement resolution                | 1 μV          |
| Accuracy DC                           | ±0,1 %        |
| Input resistance                      | >1 MΩ         |
| 0-100 V input: ANA1, ANA2, ANB1, ANB2 |               |
| Measurement range DC                  | ±10 V; ±100 V |
| Measurement range AC                  | 10 V; 100 V   |
| Measurement resolution                | 1 mV          |
| Accuracy DC                           | ±0,1 %        |
| Input resistance                      | >10 MΩ        |

## Internal temperature sensor

|          |       |
|----------|-------|
| Accuracy | ±1 °C |
|----------|-------|

## GPS receiver

|                               |       |
|-------------------------------|-------|
| Time synchronization accuracy | ±1 ms |
|-------------------------------|-------|

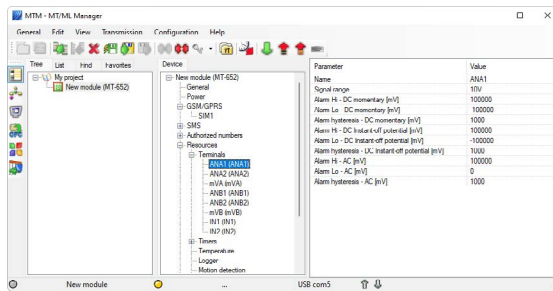
## Communication interfaces RS-485, USB

|       |   |
|-------|---|
| Wired | RS-485 (optoisolated)<br>USB (Non Isolated, internal) |
|-------|---|

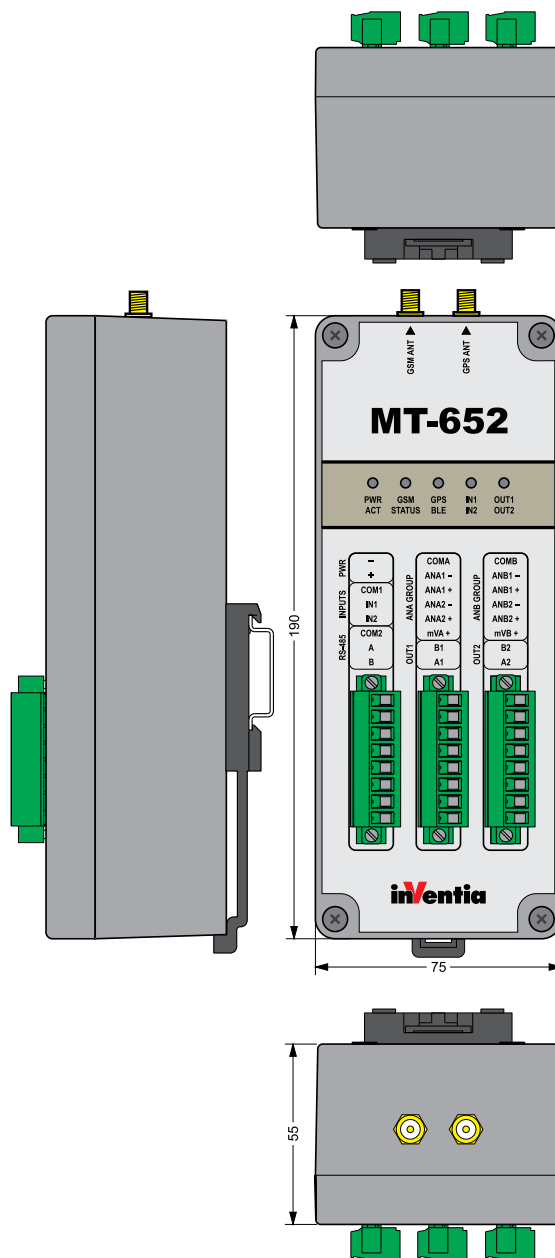
## Datalogger

|                            |                 |
|----------------------------|-----------------|
| Capacity (internal memory) | 180 000 records |
|----------------------------|-----------------|

## Configuration environment



## Drawings and dimensions (all dimensions in millimeters)



# MT-652