# MT-156 HMI v3 – Mobile telemetry controller

- Embedded GSM 2G/3G/4G modem*
- Dual-SIM technology (passive) – access to 2 independent GSM networks ensures superior availability
- 10 inputs for PT1000 (2 of them can be configured as 4-20mA inputs)
- 2 analog inputs 4-20 mA (galvanic isolation)
- 12 binary outputs, selectively configurable as inputs (galvanic isolation)
- 1-wire input
- Ethernet port 10Base-T/100Base-TX
- RS-232/485 serial port for external devices (galvanic isolation)
- M-BUS interface (support up to 16 slave units)
- Dedicated RS-232 serial port for communication with the IOT-RG-01 data module
- OLED graphic display (128x64)
- Diagnostic LEDs
- Battery buffered power supply (SLA battery support)
- Real-Time Clock (RTC)
- Programmable logic controller PLC
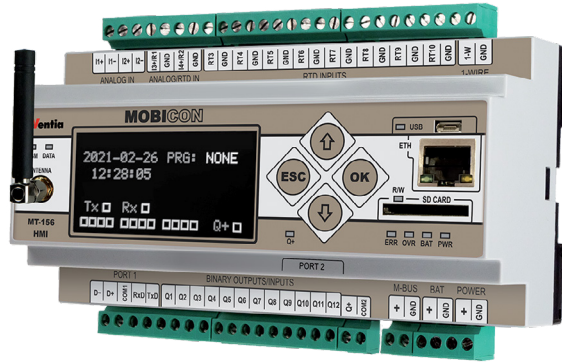
- Data logger with 1 sec resolution (SD card support)
- Standard communication protocols (MODBUS RTU, GAZMODEM, M-BUS, SNMP)
- Remote configuration, programming, diagnostic and firmware update over network
- 3-years warranty

MOBICON is a family of new generation telemetry controllers for demanding tasks and applications. MT-156 HMI v3 model is a professional, industrial design combining functionality of programmable logic controller, data logger, protocol converter and wireless communication interface for 2G/3G/4G packet transmission over 2G/3G/4G* networks or/and Ethernet interface. Dual-SIM technology ensures superior level of GSM network availability, providing redundant channel of data transmission. Ethernet port provides powerful capabilities of integration with other devices and systems of the user. Graphic display is a convenient user interface for local diagnostics, supervision and monitoring – without the use of external operator panel or portable PC. With compact, robust design, integral GSM modem, attractive technical features and easy to use configuration tools the MT-156 HMI controller is an optimal solution for demanding wireless telemetry, control, diagnostic, surveillance and alarm systems.

Resources:

- 12 optoisolated binary outputs 12/24 V DC (Q1-Q12) - selectively configurable as inputs, positive logic
- 2 optoisolated analog inputs 4-20 mA with configurable hysteresis and filtration
- 2 analog inputs 4-20 mA configurable as RTD inputs for 2 wire PT1000 temperature sensor
- 8 RTD inputs for 2-wire PT1000 temperature sensor
- Ethernet port 10Base-T/100Base-TX
- Isolated RS-232/485 serial port
- RS-232 serial port for external LoRa gateway or other external devices
- 1-wire communication interface
- USB port for local configuration and programming

* depending on the mounted modem

- Interface for backup 12 V SLA battery – charging support
- 2 SIM holders – Dual-SIM support
- Embedded temperature sensor
- OLED graphic display (128x64) and status LEDs
- Internal flags and registers for user application program
- Firmware Flash memory with remote update capability
- Data logger supporting SD card
- RTC with external synchronization functions

Functionality:

- Transmission modes:
  - » 2G/3G/4G* – packet transmission, depending on the mounted modem
  - » SMS
  - » e-mail (without SSL)
- Access to the module recources using standard protocols MODBUS RTU and MODBUS TCP
- Intelligent packet routing and Multimaster support in Modbus mode
- Data packets broadcast in transparent mode
- Programmable control logic using I/Os, timers, counters, flags and registers for triggering events (data transmission/recording, SMS transmission, control outputs)
- Event based transmission (unsolicited messaging) triggered by change binary input state, internal flag state, by reaching alarm level of analog input, by true condition
- Configurable SMS messages triggered by alarms and scheduled
- Dynamic fields in SMS text
- Configurable alarm levels, hysteresis, deadband and filtration for analog inputs

WARRANTY 3 YEARS

PLC

MIM
option

SMS

12DI/12DO

4AI

10RTD

DIN RAIL

RS-232/485

4G

M-BUS

- Data recording on SD card with 1 sec resolution
- Transmission of data from external devices connected to RS-232/485 serial port and Ethernet port
- Configurable events based on mirrored resources of external devices
- Remote configuration and programming over network and Ethernet port
- Configurable access security – list of authorized IPs and tel. numbers, optional password
- DIN rail mounting
- Supply voltage 12/24 VDC (24 V DC required for battery buffered power supply operation)
- Built-in management of external SLA backup battery
- Built-in advanced auto-diagnostics
- Detachable terminal blocks

Drawings and dimensions (all dimensions in milimeters)
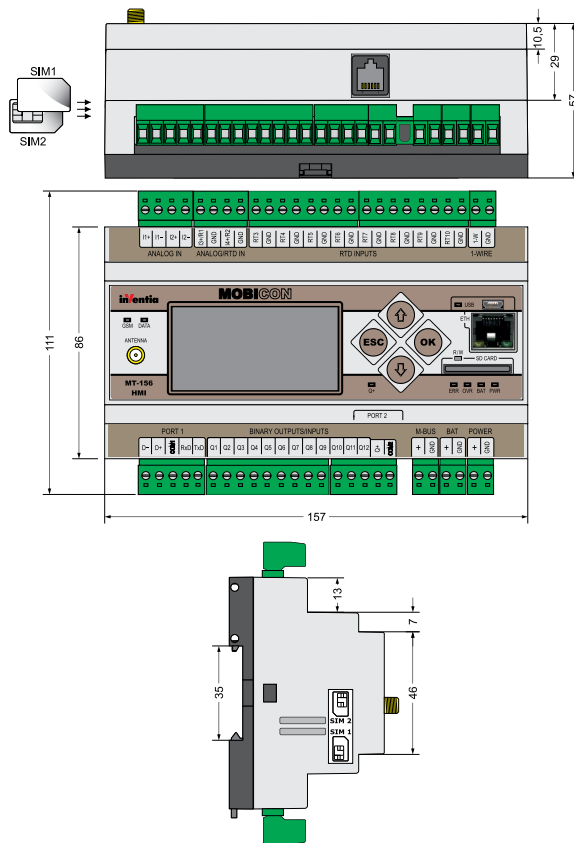
General

Dimensions (L x W x H)	157 x 86 x 58 mm
Weight	382 g
Fixing	DIN Rail 35 mm
Operating temperature	-20 to +65 °C
Operating humidity	up to 95%, noncondensing
Protection class	IP 40

Modem *,**

Modem type	Thales ELS61-E	Thales ELS62-W	SIMCom A7672E
Region	Europe, Asia	Europe, Latin America, India	Europe, Asia
2G	900, 1800 MHz	850, 900, 1800, 1900 MHz	900, 1800 MHz
3G	Band 8, 1 (900, 2100 MHz)	---	---
4G (LTE Cat 1)	Band 1, 3, 8, 20, 28	FDD-LTE Rel.13: Band 1, 2, 3, 4, 5, 7, 8, 20, 28, 66 TDD-LTE Rel.13: Band 38, 40, 41	Band 1, 3, 5, 7, 8, 20
Antenna socket	50Ω, SMA-F	50Ω, SMA-F	50Ω, SMA-F

* depending on the mounted modem **modem versions are available to serve other regions of the world

Inputs Q1–Q12

Maximum input voltage	30 V
Input current	2,4 mA
Input voltage ON (1)	>9,4 V
Input voltage OFF (0)	<8,4 V

Outputs Q1–Q12

Maximum output current	100 mA
Voltage drop @ 100 mA	<0,5 V
OFF state current	<100 μA

Analog inputs 4–20 mA (2)

Measurement range	4–20 mA
Maximum input current	50 mA
Input impedance	55 Ω typ.
Voltage drop @ 20 mA	<5 V
A/D converter resolution	15 bits
Accuracy (@ 25 °C)	0,2 %

Analog inputs 4-20mA/PT1000 (2) – voltage measurement

Measurement range	4-20 mA /-50 to +150 °C
Input impedance	47 Ω
A/D converter resolution	20 bits
Accuracy (@ 25 °C)	0,2 % /± 0,5 °C

Analog inputs PT1000 (10)

Measurement range	-50 to +150 °C
Connection type	2-wire
A/D converter resolution	20 bits
Accuracy (@ 25 °C)	±0,5 °C

Power supply

DC (nom. 12/24 V)	10,8–30 V		
Input current (@ 24 VDC)	Idle 0,06 A	Active 0,25 A	Max. 1,00 A

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