

- Specialized module for localization and monitoring of vehicles
- Integral, 50 channel GPS receiver of highest sensitivity (-160 dBm) with Super Sense® technology
- Integral, quad- band GSM modem with automatic logon to GPRS/EDGE function
- Binary inputs and outputs
- Analogue input for fuel level measuring
- Audio input and output
- Driver authentication
- Voluminous data logger
- Optional Bluetooth®



ML-211 localisation module is a specialized telemetry module designed for monitoring of status and geographical location of objects (vehicles). Module's design is based on newest GPS/GSM technologies in order to secure precise localization and reliability in variable GSM propagation conditions.

The design complies with demands of automobile industry.

### Resources

- 5 binary inputs including:
  - dedicated input for ignition detection
  - dedicated input for alarm activation detection
  - 2 general purpose binary inputs (with counter function)
  - 1 floating binary input
- 2 binary outputs including
  - general purpose binary output
  - binary signalling (LED) output
- 1 analogue input for measuring of fuel level in tank with resistance level gauge
- Main power supply input
- Auxiliary power supply input with monitoring of voltage level
- 2 i-Button (Dallas) inputs for driver authentication and temperature measuring
- Audio input and output (for connecting microphone and loudspeaker)

### Functionality

- Cyclical position monitoring (every 0,25 s) based on received GPS signal
- Monitoring of binary and analogue inputs
- Signal filtration on binary inputs for noise elimination
- Forward and reverse pulse counting on I3 and I4 inputs for flow meter connection
- Control of binary output according to remote commands
- Monitoring of level and rapid loss of fuel
- Speed monitoring
- Detection of GPS signal absence
- Reporting according to defined distance, time and direction changes criteria at ignition on/off state
- Data transmission on predefined event
- Data logging in case of GSM connection loss
- Transmission modes
  - GPRS/EDGE – packet transmission
  - SMS
- Configurable transmission settings in home and roaming network
- Dynamic SMS messages with actual measure values
- SMS transmission limits
- Local or remote configuration via GPRS/EDGE
- Configurable access security – list of authorized IP addresses and phone numbers
- Monitoring of main and auxiliary power supply
- Diagnostic LED signalling
- Detachable antenna and harness sockets
- USB socket for computer connection used for configuration and diagnostic

**General**

Size (length x width x height)	120x65x22 mm
Weight	110 g
Mounting mode	Velcro band
Operating temperature	-20 ... +55°C
Protection class	IP40

**GSM/GPRS modem**

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

**GPS Receiver**

Receiver type:	UBX-G5010
Sensitivity	-160 dBm Super Sense® Indoor GPS
Channel number	50
Position setting time*	< 1s

\*Depends on GPS Receiver

**Supply**

Direct current (DC)	9 ... 30 V	
Input current (for 14,5 V DC)	Idle 31	Max 200
Input current (mA) (for 24 V DC)	Idle 20	Max 150

**Inputs I1...I5**

Input voltage range	0 ... 30 V
Input resistance	22 kΩ
Input voltage ON (1)	> 5V
Input voltage OFF (0)	< 3V

**Output 1**

Recommended average current for single output	100mA
Voltage drop at 350 mA	<0,5V
OFF current	20μA

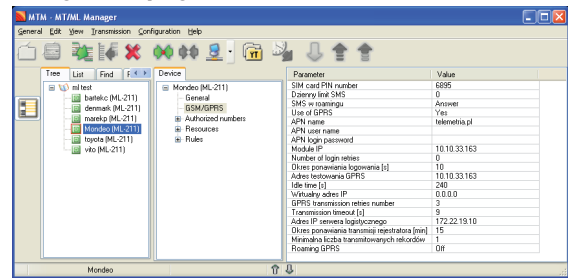
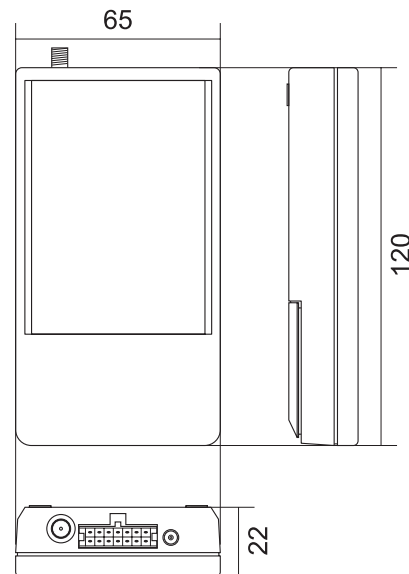
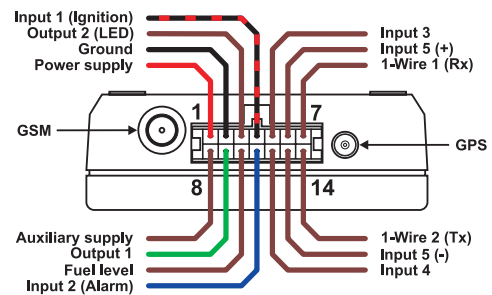
**Input 1-Wire 1, 2**

Standard	Dallas I-Button
Application*	Driver authorization Temperature measurement

\*No functional standard

**Fuel measuring input**

Measuring range	0..30 V
Input resistance	> 1MΩ
A/D converter	10 bits

**Configuration program****Drawings and dimensions (all dimensions in millimeters)****Connections****Supplementary information:**

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