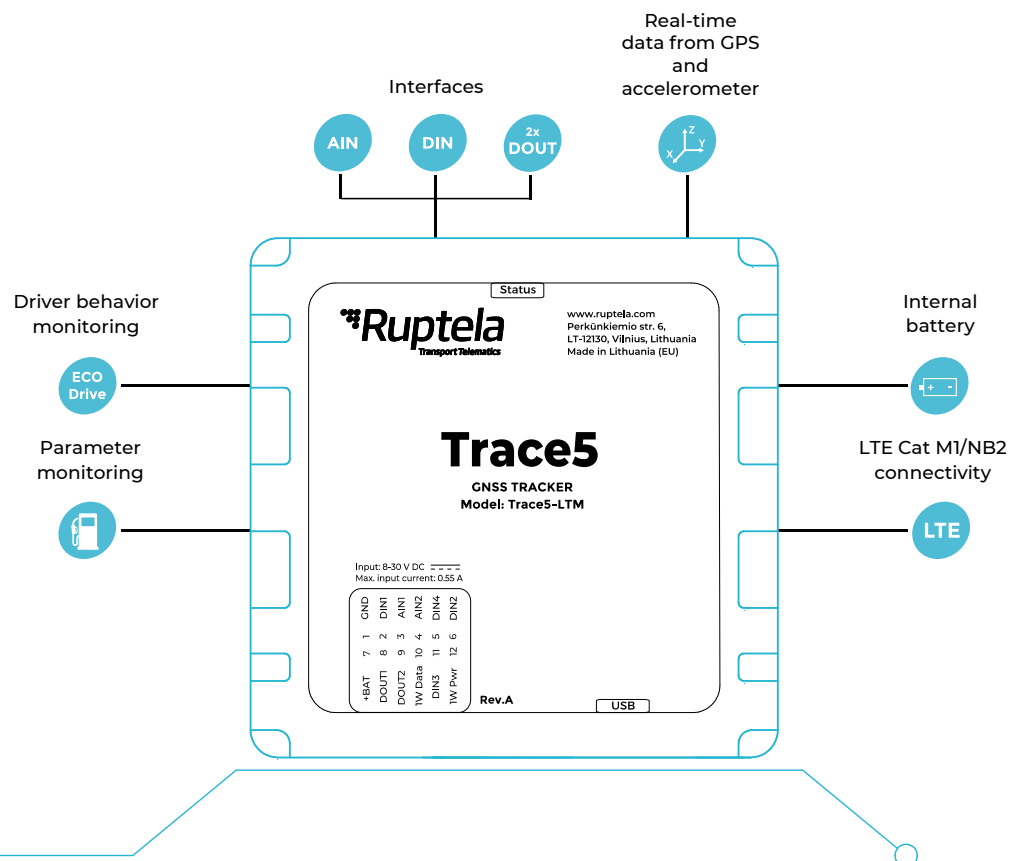# Trace5

Trace5 is a compact GNSS-based Automatic Vehicle Location (AVL) tracker with all essential features for vehicle tracking and fleet management. It acquires its position with a GNSS signal and transfers data to a server via cellular LTE Cat M1, NB-IoT or GSM networks.

This GNSS tracker uses 2G (GSM) and LTE Cat M1/NB2 (4G) connectivity and a premium GNSS module from U-blox.

Applications

- **Track & Trace**
- **Safety & Security**
- **Green fleet**
- **Delivery**
- **Service fleets**
- **Vehicle leasing and financing**
- **Car rental**

Interfaces

AIN DIN 2x DOUT

Real-time data from GPS and accelerometer

Driver behavior monitoring

ECO Drive

Parameter monitoring

Internal battery

LTE Cat M1/NB2 connectivity

LTE

Detailed specifications

	Trace5-2G	Trace5-LTM	Trace5-LTM-IP67

Environmental specifications

Temperature	Operating: -30 to +60 °C (-22 to 140 °F) Storage: -40 to +65 °C (-40 to 149 °F) Battery charging: 0 to +45 °C (32 to 113 °F) Battery discharging: -20 to +60 °C (-4 to 140 °F) Battery storage: -20 to +60 °C (-4 to 140 °F)
Relative humidity	5% to 95% Non-condensing

Electrical specifications

Power supply range	8 – 30 V DC
Internal battery	LiPo 3.7 V 190 mAh
Protections	Battery short circuit protection Reverse polarity protection Electrostatic discharge protection on USB Charging protection

Average power consumption @ 12 V DC

Operating	Idle mode (battery fully charged): 33 mA* Active mode (peak): ~230 mA Sleep mode (lowest): 5 mA** * – configuration dependent value ** – for pre-revision Trace5-LTM

Connectivity

Cellular	Modem: Quectel M95 Antenna: Internal (Quad-band) Frequency band @ GSM: 850/900/1800/1900 MHz	Modem: Quectel BG95-M3 Antenna: Internal Bands (Cat M1): B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25*/B26/B27*/B28/B66*/B85* Bands (Cat NB2): B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25*/B28/B66*/B71*/B85* Bands (GSM): 850/900/1800/1900 MHz * – available upon request
GNSS module	Module: U-blox EVA-M8M Antenna: Internal Positioning systems: GPS, GLONASS, Galileo Augmentation systems: QZSS, SBAS (WAAS, GAGAN, EGNOS, MSAS) Aided start services: AssistNow Online (A-GPS) Tracking sensitivity: -154 to -164 dBm Reacquisition sensitivity: -152 to -160 dBm Cold start duration: < 30 s Aided start: As low as 3 s Navigation update rate: 10 Hz Horizontal position accuracy: 2.5 m (CEP, 50%, 24 hours static, -130 dBm, > 6 SVs)	

Detailed specifications

	Trace5-2G	Trace5-LTM	Trace5-LTM-IP67

Interfaces

4 x Digital inputs (2 invertible)*	Voltage range: Voltage threshold: Voltage threshold when inverted:	0 - 30 V DC 4 V DC 250 mV DC
2 x Analog inputs**	Voltage range: Resolution:	0 - 30 V DC 12 bit
2 x Digital outputs	Maximum voltage: 32 V DC Maximum current: 1 A	
1-Wire interface**	Power output: 0 mA @ 4.87 V DC Power output: 100 mA @ 4.65 V DC Maximum cable capacitance: 4 nF	
User interfaces	Mini USB interface Indication LED	

* – 1 x digital input (invertible) for pre-revision Trace5-LTM.
** – 1 x analog input for pre-revision Trace5-LTM.
*** – not available for pre-revision Trace5-LTM.

Features

SIM card	Micro SIM
Device management	Monitor, manage, upgrade firmware, configure and troubleshoot devices remotely
Accelerometer	Built-in 3-axis (auto-calibrating, impact detection, motion sensing, tilt detection, g-force up to 4 g)

Certifications and ratings

Certifications	CE, E-Mark, CITC, PTCRB, FCC, IC, IP67 (IP67 versions only)

Physical properties

Dimensions	65 x 61 x 22 mm (2.54 x 2.40 x 0.87")	95 x 77 x 29 mm (3.74 x 3.03 x 1.14")
Weight	70 g (2.47 oz)	185 g (6.52 oz)
Housing	Plastic (PC + ABS)	Plastic (PC), IP67 certified.

Ordering information

Trace5-2G	Trace5 with 2G network support
Trace5-LTM	Trace5 with global LTE Cat M1/NB2 and 2G fallback network support
Trace5-LTM-IP67	Trace5 with global LTE Cat M1/NB2 and 2G fallback network support, IP67 housing