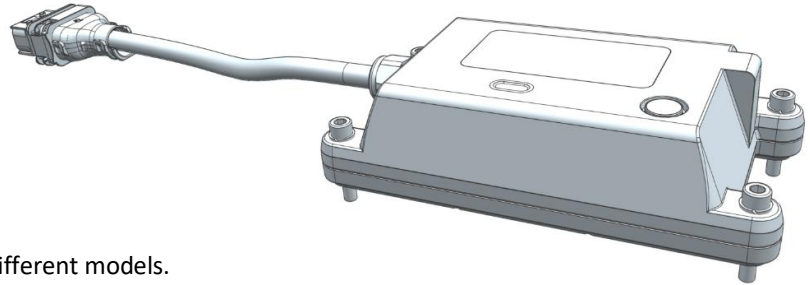


Rugged T Trailer

Technical Specification

Publication QR-RTT-TS
Document Revision 2.1.5
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Models

The **Rugged T Trailer** unit is available in two different models.

- 4G CATM (Questar Catalog Number 101085)
- 4G CAT1 EU (Questar Catalog Number 101086)

Model	Modem	GSM/GPRS	GNSS
4G CATM	Modem BG600	CATM1 B1/B2/B3/B4/B5/B8/ B12/B13/B18/B19/ B20/B25/B26/B27/B28/ B66/B85 EGPRS 850/900/1800/1900 MHz	GNSS LC76 Internal Antenna SUPPORTING GPS, GLONASS, Galileo, BeiDou, QZSS SENSITIVITY Acquisition -148 dBm Tracking -167 dBm Reacquisition -160 dBm
4G CAT1 - EU	Modem EG91EU	GSM/GPRS LTE FDD B1/B3/B7/B8/B20/B28A	GNSS LC76 Internal Antenna SUPPORTING GPS, GLONASS, Galileo, BeiDou, QZSS SENSITIVITY Acquisition -148 dBm Tracking -167 dBm Reacquisition -160 dBm

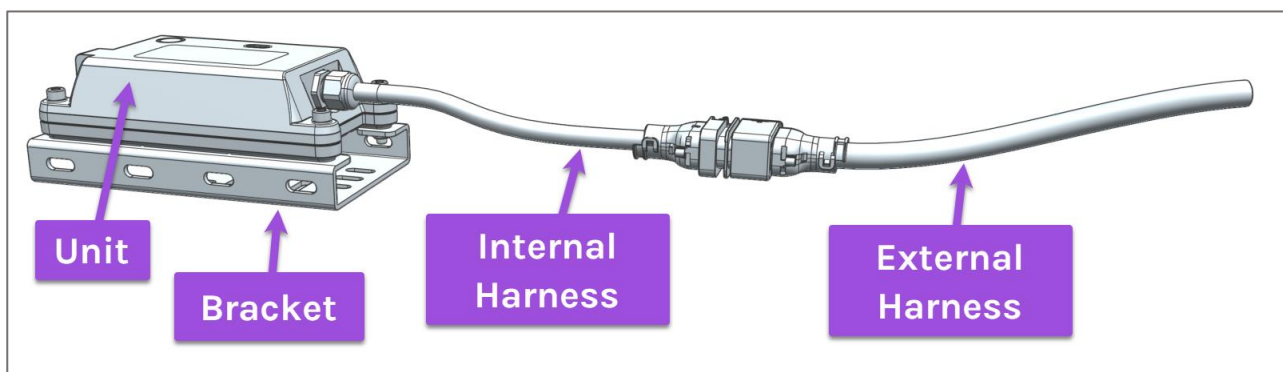
Features

Wireless Communications	
Sub-1 GHz Internal Antenna	UHF 433 MHz Supports multiple external sensors
Wired Communications	
CAN Bus	FMS compatible CAN bus interface J1939 support up to 1 Mbps ISO 15765 (OBDII) with termination option
RS232	RS232 interface, up to 115,200 Kbps max (RX/TX only)

Processor	
Microcontroller	STM32F4xx (where xx identifies the specific product line)
AES	256 Bit
Log Recorder	8 MB internal flash
Accelerometer + Gyro (IMU)	6 axis MEMS
Power	
Power Supply	From 9 to 32 VDC (max 2.5 A). Protection against overcurrent, overvoltage, temperature fluctuation, reverse polarity.
Power Consumption	Operational average 50 mA (at 24 VDC) Sleep mode 5 mA
Backup Battery	Internal 9 Ah Li-Ion backup battery Up to 1 month operation with daily updates Battery recharges automatically when unit is connected to power
Wake-Up	Unit always triggered by ignition. When engine off, unit triggered once per 24 hours and runs for ~10 minutes.
Physical Traits	
Size (without internal harness)	Unit only ~ L 19.9 cm ~ W 10.2 cm ~ H 5.2 cm
	Unit with bracket ~ L 20.4 cm ~ W 11.1 cm ~ H 7.8 cm
Weight (with internal harness)	Unit only ~ 540 grams
	Unit with battery ~ 710 grams
	Unit with battery and bracket ~ 960 grams
Temperature	Operational -20 to 60 °C
	Storage -20 to 85 °C
	Charging 0 to 45 °C
	Wake-up from sleep mode -10 to 60 °C
Certifications	
EMC (Europe)	EN 301 489-1/3/17/19/52 UN ECE R10 (2G/4G) UN ECE R10 E-Mark (2G/4G)
Radio (Europe)	EN 300 200-1/2 EN 300 328-1 V3.2.1 (2018) EN 300 328 V2.2.2 (2019) EN 301 908-1 V13.1.1 (2019) EN 301 908-2 V13.1.1 (2020) EN 301 908-13 V13.1.1 (2019) EN 303 413 V1.1.1 (2017) EN 310 511 V12.5.1 (2017)
EMC (USA)	FCC Part 15 Subpart B (2G/4G)
Radio (USA)	FCC Part 15 Subpart C (FCC ID: 2A6DICONNECT)
Safety	EN 62368-1 (2020) Europe IEC 62368-1 (2018) International UL/CSA 62368-1 (USA/CAN)
Enclosure Material UL94 Level	V0
Environmental	Tested according to ISO 16750-3 and ISO 16750-4 IP69K

Harness Connectors

To install the unit, connect the internal harness connector (10-pin male) into the external harness connector (10-pin female) and close the yellow latch. The external harness provides two open-end wires for connecting to power and ground on trailer.



Pin Diagrams

The pin diagrams of the harness connectors are shown below.

Internal Harness Connector (Pins)		External Harness Connector (Pins)	
6	1	1	6
7	2	2	7
8	3	3	8
9	4	4	9
10	5	5	10

PIN	SIGNAL	DESCRIPTION	WIRE COLOR
1	CAN (H)	CAN Bus high signal	Orange / White
2	OUT	Open collector output	White / Black
3	RS232 TX	RS232 data out	Pink
4	Ignition/In	Ignition sense input	Green
5	+ VDC	Main power supply for unit	Red
6	CAN (L)	CAN Bus low signal	Yellow / White
7		(Pin not currently in use)	
8	RS232 RX	RS232 data in	Light Blue
9	GND	Battery negative (0V)	Black
10	GND	Battery negative (0V)	Black