PRODUCT FACT SHEET

LTE CAT M1 EXTERNAL MODEM

OVERVIEW

In some regions, network operators are announcing end-of-life of the 2G and 3G networks and replacing them with LTE based technology. In regions with well-established LTE CAT M1 coverage, this external modem offers an opportunity to extend the operational like of the installed Fleet Management equipment.

When the external modem is installed on an FM Communicator/Tracer device loaded with compatible firmware, the firmware will ignore its on-board internal modem and start using the external LTE CAT M1 device.

After the first successful LTE connect all further communications are made over the LTE channel and not using the modem internal to the FM. The FM's internal modem is not available as a fall back option. Only if the external modem is physically unplugged will the FM transition back to its internal modem.

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Technical Specification	
General	
Dimensions	L = 85 mm W = 38 mm H = 20 mm
Weight	< 40 g
Environment (on all variants)	
Temperature	DIN EN 60068-2-1 DIN EN 60068-2-2 Operating temperature functionality extends to -25°C and +85°C
IP Rating	DIN EN 40050-9 IP32
Vibration	In accordance with ISO 16750-3:2007(E) for 9h in each of the perpendicular axes. The vibration profile is as per table 14 of ISO16750-3:2007(E)
Shock	In accordance with Mil-Std-810F method 516.5 at a level 30g and with pulse duration of 11ms. The test consists of three shocks to be executed in each major axis and for both positive and negative directions resulting in a total of 18 shocks (in all 3 perpendicular axes).
Mechanics: Free fall	DIN EN60068-2-32: According to automotive guidelines 3 drops from 1 m height (outside packaging)
Humidity	Perform the test as specified in IEC 60068-2-30, Db, Variant 1 • Upper temperature: +55 °C, • Number of cycles: 6. Perform a functional test (operating mode 3.2 according to ISO 16750-1) when the maximum cycle Temperature is reached.
Power Supply (on all variants)	
Primary power supply	10.5 – 32 VDC 250 mA max
Current Consumption at 12V (primary side)	< 125 mA (average)
Current Consumption at 24V (primary side)	< 62 mA (average)
Power Consumption	Maximum heat dissipation < 0.2 W
Circuit protection	ISO7637-2 Over voltage rating: 56 V DC for 60 s
Reverse Polarity Protection	ISO7637-2 Reverse Polarity rating: -30 V for 60 s
Modem	
Modem	**SARA-R410M-02B**
Description	LTE Cat M1
Class	Power Class 3 (23 dBm)
Band	PTCRB Bands: FDD Band 2 (1900 MHz) FDD Band 4 (1700 MHz) FDD Band 5 (850 MHz) FDD Band 12 (700 MHz) FDD Band 13 (700 MHz) The mode is also capable of doing:

	FDD Band 17 (700 MHz) FDD Band 28 (700 MHz) FDD Band 20 (800 MHz) FDD Band 26 (850 MHz) FDD Band 19 (850 MHz) FDD Band 8 (900 MHz) FDD Band 3 (1800 MHz) FDD Band 25 (1900 MHz) FDD Band 1 (2100 MHz) TDD Band 39 (1900 MHz)
Data transmission/rate	LTE category M1: • up to 375 kb/s UL • up to 375 kb/s DL
Protocol stack	3GPP Release 13
Antenna type	16-band, external
Antenna	50 Ω
General	Jamming Detection Automatic thermal-shutdown
SIM (on all variants)	
Format	Nano (4FF)
RS232 Ports	
Maximum Speed	115200 Baud (higher rates possible with hardware flow control)
Protection (Transient)	IEC1000-4-2 Air Discharge, 15kV, IEC1000-4-2 Direct Contact,8kV
Protection (DC)	-12V , +12V

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WARNING

This product can expose you to chemicals including Carbon black and Nickel, which are known to the State of California to cause cancer, and including Bisphenol A and 1,3-Butadiene, which are known to the State of California to cause birth defects or other reproductive harm.

For more information go to www.P65Warnings.ca.za