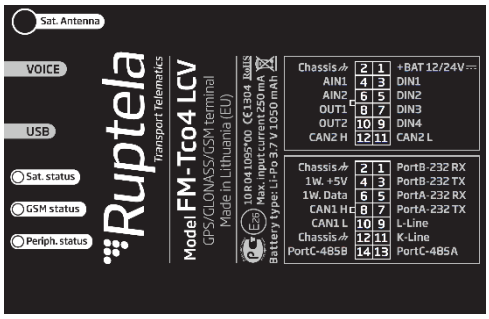
FM-Tco4 LCV Data Sheet v1.3

Ruptela Transport Telematics



- Dual CAN LCV
- Up to 10 LLS on RS485
- More 1-Wire accessories at same time
- Min. 30000 records on internal storage

PHYSICAL PROPERTIES

Dimensions, mm	111 x 75 x 25
Connectors	12pin & 14pin
Indication	3 LEDs
Housing	Plastic

PRODUCT FAMILY

- FM-Eco 4/4+/light/light+
- FM-Eco3
- FM-Pro4
- FM-Pro3
- **FM-Tco4 HCV/LCV**
- FM-Tco3
- FM-Ttr3

CONTACTS

+370 5 272 65 70

info@ruptela.com

www.Ruptela.com

Electrical specification

Power supply range: 10 - 32 V DC

(When charging battery: 11 - 32 V DC)

Absolute maximum ratings	50 V @ 60 s
	72 V @ 0.1 s

Power consumption

Deep sleep mode @ 12 V	16 mA*
Normal mode, battery not charging/full battery @ 12 V	100 mA
Normal mode, battery charging @ 12 V	Max. 250 mA
Internal power supply	Li-Po 3.7 V 1050 mAh

Storage

Internal: 4 MB External SD card: up to 32 GB

Protections

Short circuit protection

Reverse polarity protection

Electrostatic discharge protection on USB

Electrostatic discharge protection on 1-wire data

Over-current protection on 1-Wire power

Charging protection**

**Firmware dependent; does not apply when Eco-Drive panel is connected.*

*** If temp is >45C, charging is disabled, if >60C battery is disconnected from the system at all*

Peripherals

Available on 1 - Wire

4 x Temperature sensors DS18B20/DS18S20

1 x iButton DS1990 with passive socket

Available on digital outputs

1 x Buzzer\LED and Ignition lock

1 x Eco-Drive panel

Available on A, B, C Ports

Up to 11 LLS, RFID, Garmin, Alcohol sensor

Environmental data, reliability, certification

Storage temperature	-40 - +65 °C
Operating temperature	-35 - +55 °C
Operating temperature from battery:	
Charging	-20 - +45 °C
Discharging	-20 - +60 °C
Operating altitude	Up to 2000 m

Certifications:

E-mark	✓
CE ready	✓
RoHS	✓
Temp. Test ISO16750	✓
FCC HW ready	✓

Telecommunication, Positioning

GPS\GLONASS module	Ublox EVA-M8M
Internal	
72 channel	
Sensitivity	-163 dBm (GPS)
	-164 dBm (GPS&GLONASS)
Cold start	30 s
Aided start	3 s
GPS antenna	External
Frequency	1575.42 ± 3 MHz
GSM modem	Quectel M95
Internal	
GSM850\GSM900\DCS1800\PCS1900	
GSM antenna	Internal
GSM850\GSM900\DCS1800\PCS1900	
Accelerometer	3-axis; 2g/4g/8g/16g
Gyroscope	On demand

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IO characteristics

4 x DIN	Digital inputs
Threshold	4 V
2 x DOUT	Digital outputs
Max output	Open collector 32 V, 1 A max
2 x AIN	Analog inputs
Input range	0 - 30 V
Resolution	12 bit
1 - Wire	1-Wire peripherals
5 V power output	200 mA @ 5 V
2 x RS232	TX, RX
Ports A and B	
1 x RS485	PortA 485 -; PortB 485 +
Port C	
2 x CAN interface	CAN bus
3.5 mm TRRS	Microphone connection
USB	Configuration interface

Pin out

IO 12pin

Red	Power supply
Black	Ground
Purple	DOUT1
Orange	DOUT2
White with red stripe	CAN2 H
Blue with red stripe	CAN2 L
Gray	AIN1
Green	AIN2
Yellow	DIN4
Pink	DIN1
White	DIN3
Blue	DIN2

IO 14pin

Yellow	Port B RX
Black	Ground
Orange	Port B TX
Red	1-Wire power +5 V
Purple	Port A RX
Green with yellow stripe	1-Wire data
Pink	Port A TX
White	CAN1 H
Green	L line
Blue	CAN1 L
Brown	K line
Black	Ground
White with red stripe	Port A 485 (A) -
Yellow with brown stripe	Port A 485 (B) +

Optional features

Gyroscope and second SIM card slot are optional features. For inquiry please contact manufacturer (Ruptela) or your manager directly.

Explanations

Deep sleep mode – Power saving mode when GPS and GSM modems and all peripheral devices are disabled, except DINs and DOUTs. Device wake up on state change of any digital Input (DIN).

Device can be installed within 45° angle in any axis but top surface facing up. Device should be installed tightly, does not move or shake.

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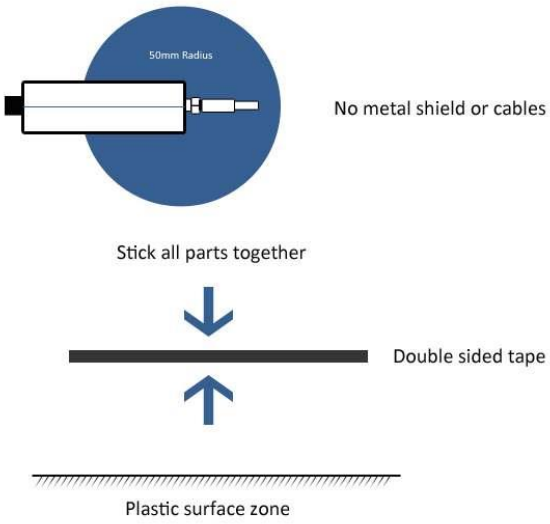
Warning!

All internal components including battery must be replaced only by manufacturer! Any self-willed attempt to open device cases will void any warranty.

Device must be installed in service access area (e.g. under dashboard, behind fuse box).

Device installation

- When installing device into vehicle please obey these instructions over wise you device may not work properly.
- Device should not be seen or easily reached.
- Device should be firmly fixed to the surface. Please avoid mounting device near the metal surface or cables (see the picture below).
- Wrong device mounting may be the cause of device malfunction.
- Device cannot be fixed to heat emitting or moving parts.
- SIM card should be inserted in the device while the connector is plugged off (while device has no power).
- Device must be fitted with double sided stick tape!



Antenna installation

It is recommended to place GPS/GLONASS antenna behind the dashboard as close to the window as possible. It must be uncovered, installed heads up (*see picture*).

Best place for GPS antenna is marked in blue (*see picture*).

