C4MAX-4MEUAA_V8 - INSTALLATION GUIDE

V 1.0

29/09/2022

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Preface

The information contained in this installation guide is subject to changes in order to improve the reliability, design or features without prior notice. MUNIC reserves the right to make changes in the content without obligation to notify any person or organisation of such changes or improvements. MUNIC can in no event be held liable for technical or editorial errors or omissions herein, nor for incidental, special or consequential damages from the furnishing, performance or use of this installation guide.

Please contact our technical support for current updates and supplemental information concerning the use and operation of this or other MUNIC products.

Warnings and notices

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

Please read the installation guidelines, as well as the safety and operating instructions before operating your device. Follow all instructions and heed all warnings in the installation guide.

There is a risk of explosion if the battery is replaced by a wrong battery type.

There is a risk of explosion if the battery is disposed into fire or a hot oven, or mechanically crushed or cut.

There is a risk of explosion or leakage of flammable liquid or gas if the battery is left in an extremely high temperature surrounding environment or is subjected to extremely low air.

Please discard empty battery according to local regulations.

Dispose of used batteries according to the instructions.

RF Exposure Information (SAR)

This device meets the EU requirement (2014/53/EU Article 3.1a) on the limitation of exposure of the general public to electromagnetic fields by way of health protection.
The device complies with RF specification when the device is used at 20 cm from the Body.

1. Hardware features

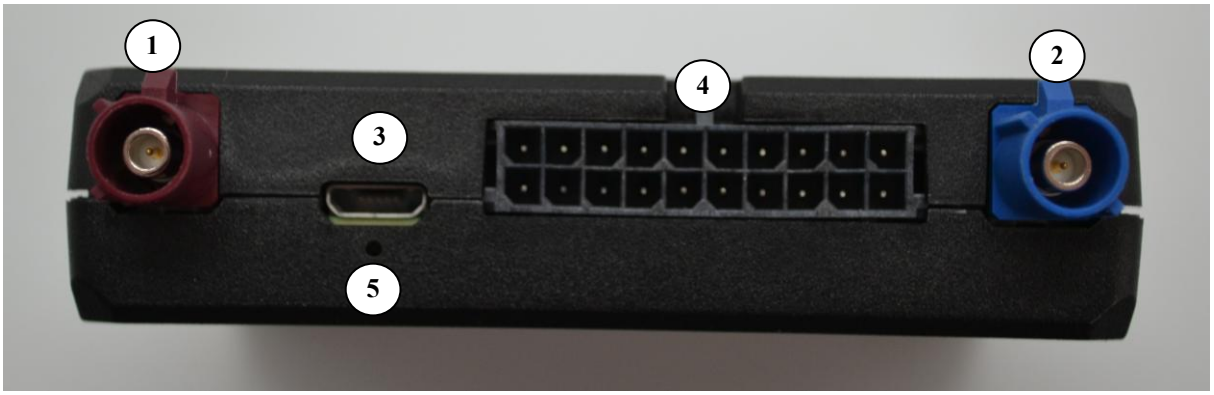
Performance	Processor	ARM A7 – 1.3 GHz
	RAM	200 Mbytes
	NAND Flash	256 Mbytes
Power supply	External power supply	8-32V ⎓ 2A max*
	Li-polymer battery	450mA.h
Communication	Modem	LTE Cat M1 & EGPRS module BG96
	Modem antenna	External
	WLAN	Wi-Fi 802.11b/g/n Bluetooth V4.2 EDR & LE
	WLAN antenna	Internal
Positioning	GNSS receiver	U-blox M10 (GPS, GLONASS, Galileo)
	GNSS antenna	External
Inertial sensors	Internal 3-axis accelerometer	3 axis ±2/4/8/16 g
Interface & Telematics features	(Mini) USB 2.0	Host / Device / UART powered (5V out, 500mA max.)
	Digitals Input	4 (Ignition, alarm and 1 tachograph)
	Digital Outputs	2 (relay-control & immobilizer on option)
	Analog Inputs	2
	1-wire (for driver ID or temp sensor)	Yes
	K-Line	1 (shared with LIN)
	LIN	1 (shared with K-Line)
	LEDs	2 (1 controlled by software)
	RTC	Yes
	CAN interface	2
	RS232	1 (RXD, TXD)
	RS485	1 (shared with J1708)
	J1708	1 (shared with RS485)
Environmental	Connectors	microFIT 20 pins
		Micro USB type B connector
		2 Fakra connectors for external antennas
	Operating temperature	-20°C /+55°C
	Dimensions	80.5x75x18.8mm
	SIM card	Micro SIM slot (3FF)
	Dual GSM/GPS external antenna	3 meters cable With 27mm Fakra connectors

* ⎓ : direct current

2. Hardware description

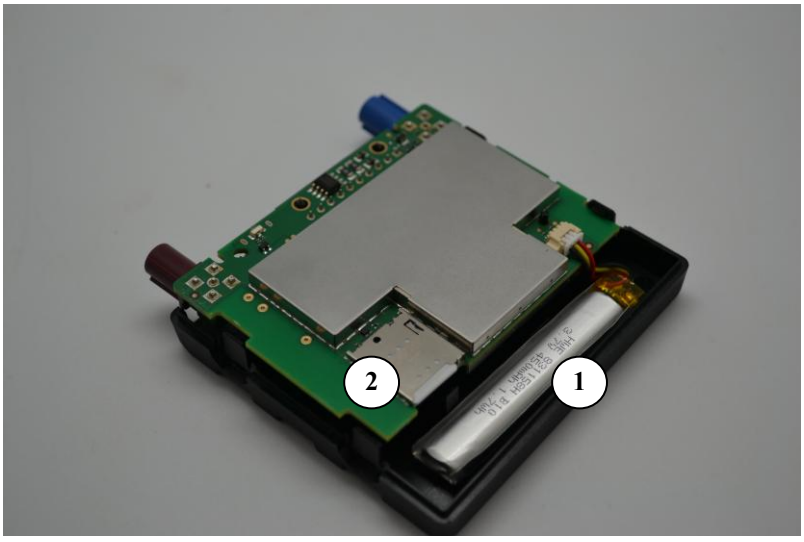
2.1. Device views

Front



1. Modem antenna connector
2. GNSS antenna connector
3. USB connector
4. Micro-Fit 3.0 - 20 pins connector
5. Leds

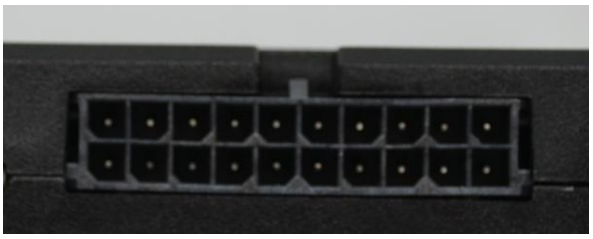
Inside



1. Internal battery
2. SIM card slot

2.2. Pin out & Wires description

Signal	Pin	Colour
DIG_OUT1	1	Purple
DIG_OUT2	2	Blue
RS485_A	3	White with black
RS485_B	4	Red with black
DIG_IN1/Tacho	5	Green
DIG_IN4	6	Blue with black
CAN 2 Low	7	Green with black
CAN 2 High	8	Grey with black
ONE_WIRE	9	Grey
AN_IN1	10	Brown
VBATT	11	Red
GND	12	Black
CAN 1 Low	13	Yellow with black
CAN 1 High	14	Purple with black
IGNITION	15	White
ALARM	16	Orange
RS232_RXD	17	Orange with black
RS232_TXD	18	Brown with black
LIN / KLINE	19	Black with white
AN_IN2	20	Yellow



20	19	18	17	16	15	14	13	12	11
10	9	8	7	6	5	4	3	2	1

Power supply may be derived directly from the vehicle's main power or from the board installation. In the first case, it is an absolute must that a fuse on the main cable is present.

Ignition wire must always be connected to the vehicle's ignition OR tied with the permanent positive to the vehicle's battery.

Ground must be always connected first. It is mandatory to add a fuse (2A) to the permanent positive. The closer to the connection point with vehicle power.

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3. Preparing/installing the device

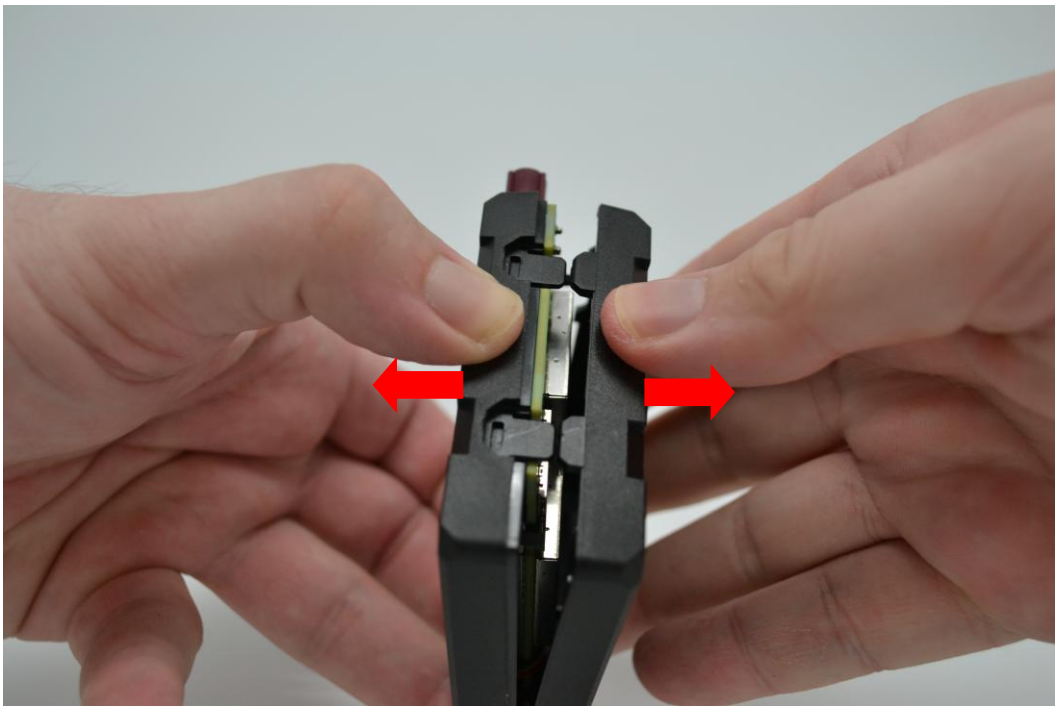
3.1. Open the device

Insert a flat screwdriver into the holes on top of lug in the side of the device and pry it to disengage the lug.

Repeat the operation on the second lug.

And repeat previous operation on the other side.

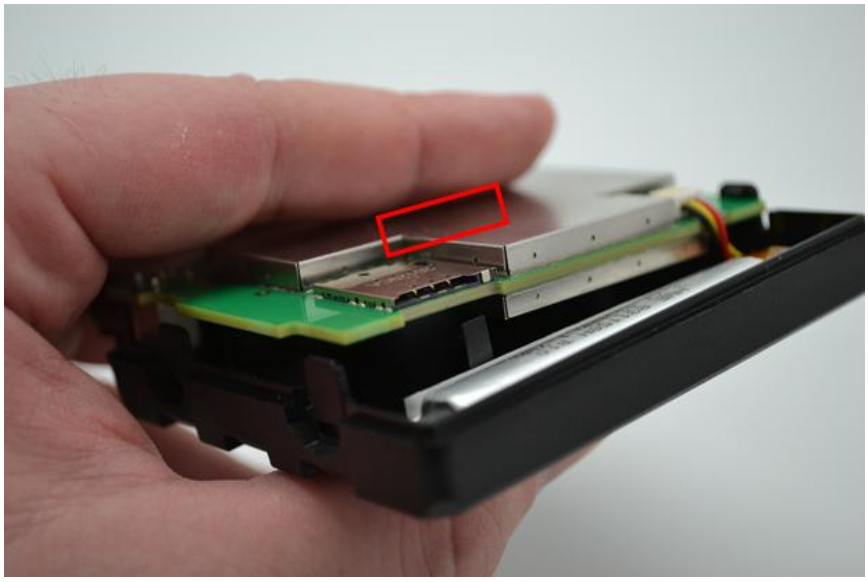
Then you can separate the top cover



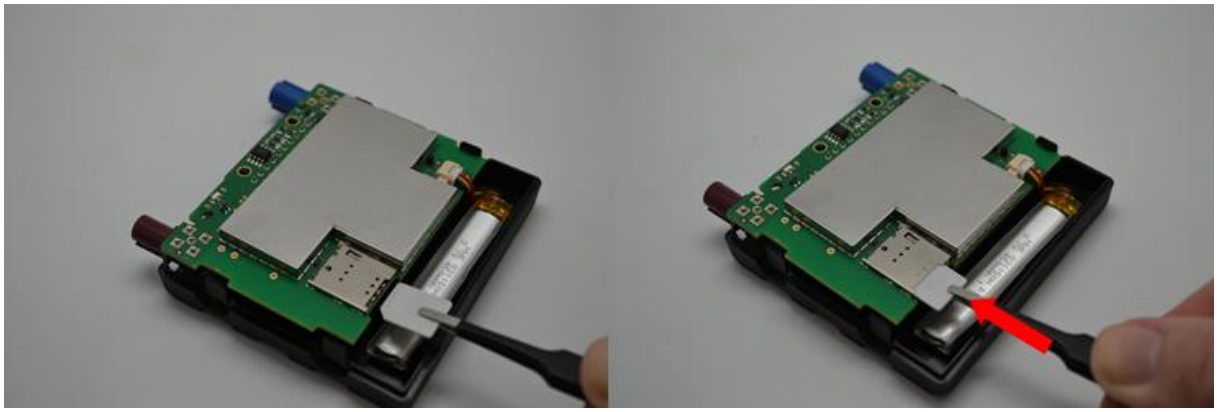
Device is now open

3.2. Insert the SIM card

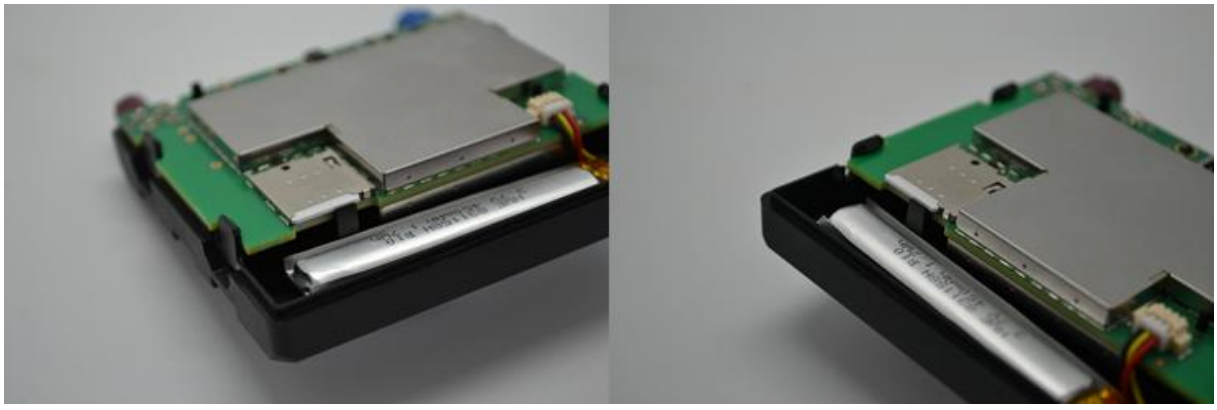
The micro SIM card slot is located on the top of the electronic cards.



Insert the card with contact on bottom and marked corner first into the slot and push it until you sense the locking mechanism.



Once inserted the SIM card looks like this:



3.3. Connect the external antennas

3.4. Choose the appropriate location for mounting

The ideal location for mounting the device is under the dashboard. However, some types of coated windshields, as well as windshields with an in-screen heating system can block GNSS signals. External antenna should never be covered by any kind of object or material, especially not by metal or aluminium. Transmission and reception of GNSS signal is however not hindered by plastic or normal glass. Moreover, put at least 20 cm between the antenna and a speaker.

4. Outputs information

The two Outputs are active low and they can deliver up to 300mA.
Note: Outputs have a pull-up resistance of 10Kohms

5. LED sequences

The device has a two-coloured LED, green and red.
When both colours are brightened, you can see an orange light.

Green LED		**Red LED**	
Sequence	Meaning	Sequence	Meaning
		device OFF	OFF
No Modem /No GNSS	3 times (50ms ON/100ms OFF) 3550ms OFF	Ext. Power/Run	ON
No Modem /Fix GNSS	2 times (50ms ON/100ms OFF) 3700ms OFF		
Modem OK /No GNSS	1 time (50ms ON/100ms OFF) 3850ms OFF		
Modem OK /Fix GNSS	2000ms ON 2000ms OFF		
		Shutdown/Hibernate	30ms ON / 1 s OFF
		Idle/Sleep	30ms ON / 1 s OFF

6. EU Regulatory

6.1. Simplified EU Declaration of Conformity

Hereby, MUNIC declares that the radio equipment type C4MAX-4MEUAA_V8 is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address: store.munic.io/documentations/User_manual_devices

6.2. Operating frequency bands & maximum transmitted RF power

Technology/Band	Mode	Conduct Power (dBm)
GPS	**RX**	NA
GLONASS	**RX**	NA
Galileo	**RX**	NA
LTE Band 3	**QPSK/16QAM**	22.30
LTE Band 8	**QPSK/16QAM**	22.67
LTE Band 20	**QPSK/16QAM**	23.12
LTE Band 28	**QPSK/16QAM**	22.36
GSM 900	**GPRS**	32.65
	EDGE	26.14
GSM 1800	**GPRS**	29.87
	EDGE	25.32
Bluetooth	**EDR**	7.31
Bluetooth	**LE**	6.5
Wi-Fi	**b/g/n**	17.8

7. Support

For all questions not related in this installation guide, please contact the support team by email at support@munic.io