Connection Guide Raw TU501

Machine and vehicle guidelines for correct wiring

7005.2104 V4

Wire color	Description
Power	Connect to machine battery through a fuse (mandatory) [1]
Ground	Connect to ground (mandatory)
Digital input 1	Can be connected to hour counter. Optional input [2]
Digital input 2	Connect to the ignition signal (mandatory for vehicles and machines)[1]
Digital input 3	Optional input [1]
Digital input 4	Can be used for INFILT function. Optional input [2]
Digital output 1	Can be used to control a relay [3/4]

Additional input for TU501-2

1 - Wire input	M8 connector for access control and temperature sensor

Additional input for TU501-4

CAN High	Connect to CAN High
CAN Low	Connect to CAN Low
1 - Wire input	M8 connector for access control and temperature sensor

[1] Supply voltage range 12 - 48 V

[2] Active/high when min. 9,5V DC at input

[3] Max. load 200 mA

[4] Do NOT use this output to switch off vehicles and machines during operation or driving

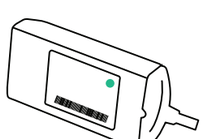
Functionality Check

LED status indication

Status	LED mode	LED color	Status indication
✓	Red flashing light and constant green light in LED	• • • —	- Mobile network is OK - GPS has valid satellite position
✗	No light in LED		- No power supply
✗	Constant red light and no green light in LED	—	- NO mobile network - GPS has NO satellite position
✗	Red flashing light and no green light in LED	• • •	- Mobile network is OK - GPS has NO satellite position
✗	Constant red light and green light in LED	— —	- NO mobile network - GPS has satellite position

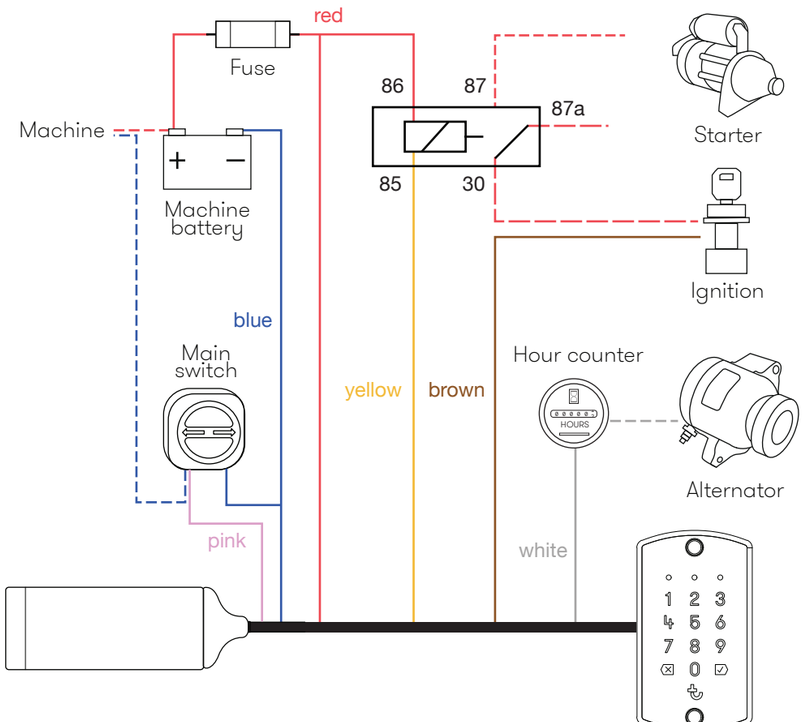
Practical advice

Mobile number and unit serial number are located on the box. The label can be peeled off and saved for later use.



Mount Raw with the serial number facing outwards in order to see the LED.

Installation Example With Access Control



TU501 devices have to be installed in a minimum distance of 5 cm from the user of the machine or vehicle.

Installation Check & Update

Using “Verify my Trackunit”

1. Login

- Go to verify.trackunit.com
- Enter user name and password

2. Find unit

- Enter serial number
- Click “Find”

3. Review status

- Time of last received data
- GPS and mobile signal
- Mobile number
- Power supply voltage
- Internal battery voltage
- Status of inputs 1-4 (on/off)
- Click “Find” again to refresh status

4. Basic configuration options

- Enter:
  - A name of the device
  - Engine hours - start
  - Start distance
- Select “Category”
- Connect up to multiple groups
- Add a note (will be visible for the device in Trackunit Manager)

5. Logout

- Click “Update” to save
- Click “Logout”

Note: Prior to verification, make sure the Raw is installed and active in an area with sufficient GPS and mobile coverage.

Regulatory Information and Precautions

Use Location
This equipment design applies to commercial or industrial equipment expected to be installed in locations where only adults are normally present.

Terms of Use
Use only Trackunit approved accessories and/or batteries. Do not connect incompatible products.

New Battery
In case of battery malfunction, expiration or any other situation where a new battery might be needed, please contact Trackunit support.

CE mark
The TU501 / ME501 product complies with the essential requirements of the RED 2014/53/EU directive with respect to the EMC requirements, safety and radio spectrum matters.

FCC mark
The TU501 / ME501 product contains radio transmitters and complies with the essential requirements of Part 15, 22 and 24 of the FCC rules, and with RSS-GEN, RSS-132, RSS-133, RSS-210 and ICES-003 of the Industry Canada requirements.

Environmental
The TU501 / ME501 product complies with the environmental conditions for rolling stock and transportation according to DIN EN 50125-1 and IEC 61373 / DIN EN 61373 with the IP67 classification including vibrations/drop according to SAE J1455 (heavy trucks).

Charging
The battery will recharge as long as its temperature range is within 0°C and +45°C / 32°F and 113°F and the vehicle to which the unit is mounted is running.

Operating Conditions
The internal battery will operate in temperature ranges from -20°C to +60°C
In case of temperatures going outside of this range, the internal battery will be disabled by the device. Battery lifetime is expected to be three years under normal operating conditions.

Long Term Storage /Operating Conditions
It is recommended to remove the battery during long term storage/continuous operation outside the temperatures specified in the operating conditions. Battery lifetime is expected to be three years under normal operating conditions.

Fuse
Recommended fuse holders and fuses for installation up to 48V supply voltage (can be ordered at Trackunit A/S):
a. Supply voltage 12V/24V (max. 30A)
   1. ATO blade fuses (max. 32V/1A) used with Littelfuse FHAC0002SXJ fuse holder (standard).
b. Supply voltage 12V - 48V (max. 30A)
   1. FKS blade fuse (max. 80V/3A - ATO style) used with Littelfuse FH2 fuse holder (recommended).

Machinery
The TU501 / ME501 product complies with the essential requirements of the Directive 2006/42/EC and EU regulation 2013/167 when integrated and used as intended:

I) EN 13309	Construction machinery
II) IISO 13766	Earth-moving machinery
III) EN/ISO 14982	Agricultural and forestry machines
IV) EN/ISO 14982	UN regulative ECE R10 EMC rev. 4

in accordance with EU regulation 2009/661 for (Electronic Sub-Assembly) ESA.

NOTE: Harmonized standards under the directive 2014/30/EU has been applied.

Safety Statements

FCC/IC part 15.19 Notice
This device complies with Part 15 of the FCC Rules and with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC part 15.21 Notice
Changes or modifications made to this equipment not expressly approved by Trackunit may void the FCC authorization to operate this equipment.

IC RSS-GEN Notice
Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

FCC/IC Radiofrequency Radiation Exposure Information
This equipment complies with FCC /IC radiation exposure limits set forth for an uncontrolled environment. This equipment may be installed and operated with a minimum distance of 5 cm between the radiator and the user. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Environmental Compliance

IEC 61373, EN/IEC 60068-2-1:2007	Cold
IEC 61373, EN/IEC 60068-2-2:2007	Dry heat
EN 50125-1, EN/IEC 60068-2-27:2008	Shock
SAE J1455, EN/IEC 60068-2-31:2008	Drop
EN 50125-1,SAE J1455, EN/IEC 60068-2-64:2008	Random vibration
IEC 61373, EN/IEC 60068-2-78:2001	Damp heat steady state
IEC 61373, (IEC 60529+A1+A2)CSV:2013	Degrees of protection (IP code) : IP67

NOTE A: The TU501 / ME501 is not to be mounted in areas with presence of motor oil, gasoline, diesel fuel, hydraulic fluid, brake fluid, transmission fluid , glycol and water mixture, etc.

NOTE B: The housing is not designed to withstand high pressure cleaning. Only use the TU501 / ME501 when mounted inside the designated Trackunit protection cap (can be ordered at Trackunit A/S) in mounting areas where high pressure cleaning is common procedure.

Regulatory Labeling
The TU501 / ME501 product family is regulatory compliant to the following regulations:

E1 10R - 04 7440 CE E4867 FCC ID: ZMF-ME501 IC: 9746A-ME501 EAC

PTCRB Certification for Interoperability with Mobile Networks
All variants of the TU501 product series under FCC ID: ZMF-ME501 and IC: 9746A-ME501 are certified for PTCRB interoperability with mobile networks. Specific Trackunit design certificates have been obtained for: TU501-4 and TU501-9.

7005.2104 V3.3