



INSTALLATION GUIDE XT4

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READ THIS FIRST

LIABILITY

GPS BUDDY cannot be held responsible for any possible damage ensuing from the correct or incorrect following of the recommendations as listed in this document. The technical engineer remains responsible at all times for the correct installation and connection of the hardware.

This manual is but a (partial) recording of, and an addition to, the practical knowledge of the average installer. The illustrations and specific data of non-GPS BUDDY products have been checked thoroughly and have been found correct at the time this manual was composed. However, GPS BUDDY cannot accept any responsibility for possible adaptations by the manufacturer concerned. GPS BUDDY aims for a continuous improvement of its products; for the purpose of technical progress, we reserve the right to implement changes at any time, without prior notice.

SAFETY INSTRUCTION

Before starting the installation, carefully read the following safety instructions. All instructions, notes and regulations in this manual must be closely followed.

SAFE WORK ENVIRONMENT

Make provisions for a safe work environment:

- The installation and initial operation of the unit can only be performed by trained and qualified technicians.
- Use personal protective equipment if required (protective goggles, respiratory / ear protection, etc.).
- Make sure that the workplace is dry and provided with sufficient lighting.
- Pedal actuations can lead to severe injuries if persons are near the vehicle.

Make sure that pedals cannot be actuated as follows:

- Switch the transmission to "neutral" and actuate the park brake.
- Secure the vehicle against rolling by using chocks.
- Fasten a note clearly visible to the steering wheel indicating that work is being performed on the vehicle and that the pedals are not to be actuated.
- Always follow the safety regulations of the country, in which the unit is installed and/or operated.

IMPROPER INSTALLATION / USE

- DURING THE ENTIRE CONNECTION PROCEDURE, THE VOLTAGE MUST BE TURNED OFF.
-
- THE POSITIVE VOLTAGE 12/24 VDC AND THE POSITIVE VOLTAGE AFTER CONTACT MUST BE PROTECTED BY A BLADE FUSE OF BETWEEN 2 AND 3A.
-

Use the device only for its intended purpose.

- Do NOT open the XT unit.
- Do NOT drill in the device housing.

The device safety may be endangered in case:

- The device is not firmly fastened;
- The temperature limits are exceeded;
- The device comes into contact with water (for not IP version);
- The device is visibly damaged.
- If the device is visibly damaged, it must be immediately replaced and sent back to GPS BUDDY.
- Make sure that the unit is not exposed to direct sunlight.
- Do not mount the device or its accessories near the vehicle airbags or inside the impact area of head
- Install the device at a distance of at least 20 cm from the user's body (driver).
- Always follow the specifications and instructions of the vehicle manufacturer.
- Observe all accident regulations of the respective company as well as regional and national regulations.

OPERATING CONDITIONS

Input voltage range: 9 - 95 V

Max. current: 2 A

Operating temperature range: -40°C ~ +70°C

Storage temperature range: -40°C ~ +70°C

IP grade (IP): IP67 (for IP version);

IP grade (IP): IP42 (for normal version);

DISPOSAL

In case you no longer want to use the XT4 unit, it is prohibited to dispose of it together with domestic waste as the system components are electronic scrap. When disposing components, please observe all laws and

regulations applicable in your country. GPS BUDDY strives to protect the environment. As with other old devices, all components can be returned to GPS BUDDY.

BEST PRACTICES IN INSTALLATION

REQUIRED TOOLS

For installation of the XT4 hardware, some specific tools are required in addition to the general workshop tools, such as screw drivers, pliers ...

Specific tools for Tachograph

Tacho removal tool DTCO 1381-90040000

Extraction tool TE 1-1579007-6

Ratchet Crimping Tool Code 724351 BERNER

ASSEMBLY

The assembly of the parts must be done using the accessories provided. GPS BUDDY cannot be held responsible for any errors resulting from the use of other materials. GPS BUDDY wishes to point out that activities which require welding to the vehicle, can cause damage to the electronics of the device. It is imperative that the device is disconnected when carrying out such activities.

TAMPERING THE TACHOGRAPH

If the seal of the tachograph has been broken during assembly, or if signals from the tachograph are being

diverted to the on-board computer, the tachograph has to be resealed by an authorized organization. GPS BUDDY and its distributors do NOT accept any responsibility for possible infringements against local legislation.




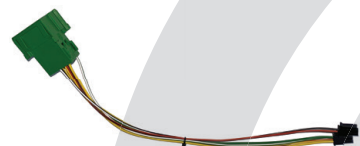
WIRE MANAGEMENT

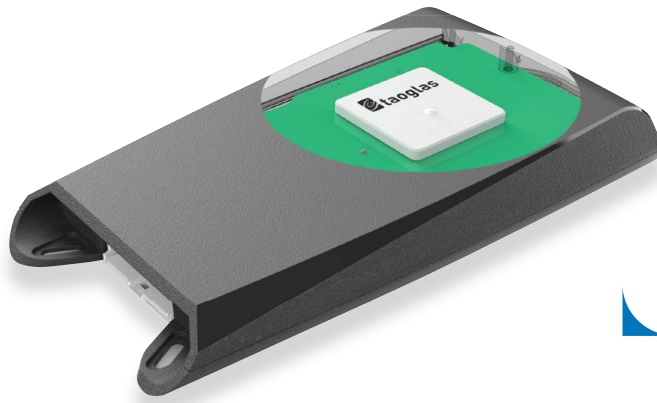
All the wire ways shall be smooth and free from sharp edges. Wires shall be protected, so they do not come into contact with burrs, cooling fins, moving parts, etc., which could cause damage to the insulation of wires.

STEP 1 - WHAT'S INSIDE THE BOX

XT4 is an intelligent integrated solution developed by GPS BUDDY for all truck brands monitoring. XT4 offers GPS position tracking as well as activity tracking and can be connected to the digital tachograph and the vehicle CAN Bus, moreover XT# have a radio capability built in, to manage the external Radio Temperature Sensors and Radio Door Switch.

Its integration with the portal GPS Buddy results in important value-adding back office capabilities. Next to position, kilometre and real-time tacho activity status tracking, XT4 enables remote data download, driver card download and driving behaviour monitoring, temperature registration and door switch.

| COMPONENT | ITEM# | CONTENT |
|----------------------|--------|--|
| XT4 main unit | 8089 |  |
| XT4 main cable wires | 103093 |  |
| XT4 TACHO cable 5mt | 101197 |  |
| FMS extension kit | 101199 |  |



MAIN UNIT HARDWARE DESCRIPTION

TECHNICAL FEATURES

- Dimension with cover: 140x75x22 mm
 - Weight with loom: 250gr
 - Power 12/24V
- Power consumption:
- Average consumption when battery is charged:
2A (When battery is fully discharged)
 - Average consumption in online state at
12V = 60 – 65mA (when internal battery fully charged)
 - Average consumption in online state at
24V = 30 – 35mA (when internal battery fully charged)
 - Deep sleep at 24V with backup battery = 1.8mA

HOW TO FIX XT

XT unit has to be installed in a place protected from source of water, strong humidity and heat. Pay attention to problems due to the electromagnetic interferences. The choice of the fixing point of the unit must be taken by studying the vehicle on which the system must be installed, keeping in mind the position of embedded GPS/GNSS antenna. GPS/GNSS ANTENNA: patch antenna is positioned and already fixed under cap o/n the box. Position of box: leave the GPS patch antenna in the upper side OR FREE TO RECEIVE RF SIGNAL. during operation.

HOW TO POSITION AND FIX XT4

The active GPS Antenna has to be always in horizontal position with the plastic dome turns upward. This particular antenna can be positioned below plastic parts, fiberglass, glasses, hatboxes etc. absolutely avoid placing it near to loudspeakers and to cover with metallic parts as it won't receive signal. To preserve its functions, the installation is advisable in hidden positions and hardly

approachable; avoid places with possible coverage with any metallic material of this spar could cause problems of receipt. Consider the presence of metalized paintings and possible screened glasses above the antenna that could create problems with the receipt of the signals from the satellites. Where possible, place a metallic support of some cm in diameter under the base of the antenna to maximize the receipt.

GSM ANTENNA

The quad band antenna is embedded and any installation is not required. Pay attention to problems due to the electromagnetic interferences.

MAINTENANCE

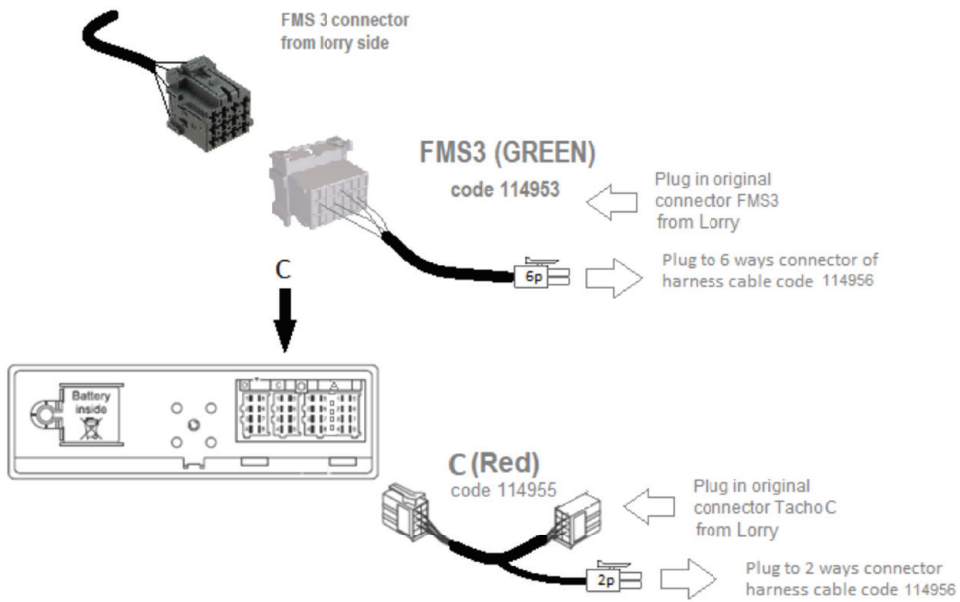
Batteries loose some initial charge during shipment and storage. Depending on storage time, a battery may require a freshening charge. Failure to charge batteries at the required intervals may result in irreversible damage. Freshening charges are required at minimum every three to six months during the storage time period. The same precaution has to be introduced also when the product is installed in a trailer; if the trailer remains long time without connection with a truck, the power has to connect every three to six months during the stop time period. Storage XT batteries not installed within a 4-week period from the time of delivery must be stored in a cool, dry place. Store in a cool, below 30° C, dry and ventilated area, which is subject to little temperature change. Do not place the battery near heating equipment, nor expose to direct sunlight for long periods. Elevated temperatures can result in shortened battery life and degrade performance.

CAUTION: Failure to properly store batteries will void the warranty.

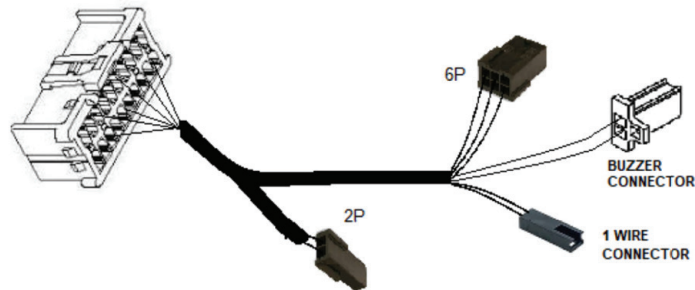
STEP 2 - CONNECT THE HARDWARE

- Connections must be done with the vehicle ignition turned OFF!
- Any wires that are not used, must be tied up in a suitable way, so as not to cause a short circuit.
- **Minimally VBAT (K30), GND (K31) and ignition (K15) must be connected.**

CONNECTION OVERVIEW CASE 1

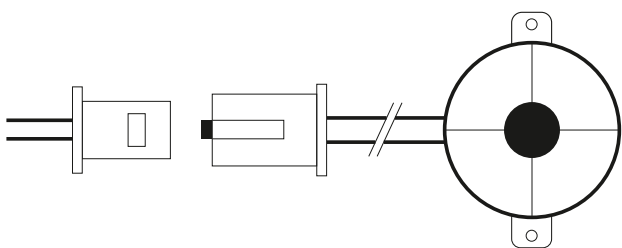


CONNECTION OVERVIEW - BUZZER AND 1 WIRE PORT



BUZZER CONNECTION

Buzzer can be connected to XT4 with dedicated output connector, put the connector standard buzzer (optional) into the counter part of harness cables.



1 WIRE CONNECTION

DRIVER KEY

Dallas Keys are coded keys used for driver identification and vehicle immobilizations. Dallas Keys are read via the Dallas reader, and sent to the unit via its 1-wire interface. Dallas reader (optional) can be connected through the 2 ways dedicated 1 WIRE connector on the XT4 harness.

RFID READER

RFID can be connected to the 1 WIRE input port to read an RFID card. How to connect the reader: BLUE wire of RFID READER connect to BLACK wire of 1 WIRE connector of XT4 harness



1 SOUND INDICATOR

| Buzzer | Description |
|----------|-------------|
| Bi- | Read OK |
| Bi-Bi-Bi | Read Error |

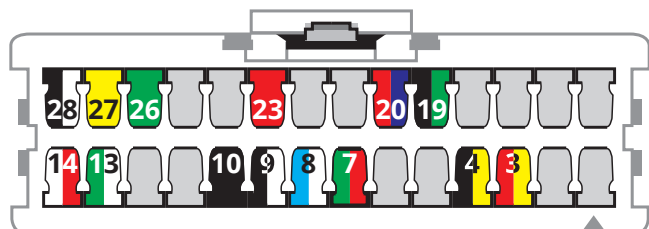
2 LED INDICATOR

| Green | Red | Description |
|-------|-------|-------------|
| On | Off | Standby |
| Blink | Off | Read OK |
| Off | Blink | Read Error |
| On | On | ISP Mode |

3 6 PIN TERMINAL

| Pin/Colour | Signal | Description |
|------------|--------|--------------------------|
| 1/Red | VCC | Power Input: 10~48 Volts |
| 2/Black | GND | Power Ground |
| 3/Blue | 1-WIRE | DATA In/Out |
| 4/Purple | 1-WIRE | To Next Device |
| 5/White | TX | RS232 TX (transmit) |
| 6/Yellow | RX | RS232 RX (receive) |

CONNECTION OVERVIEW XT4 HARNESS DESCRIPTION

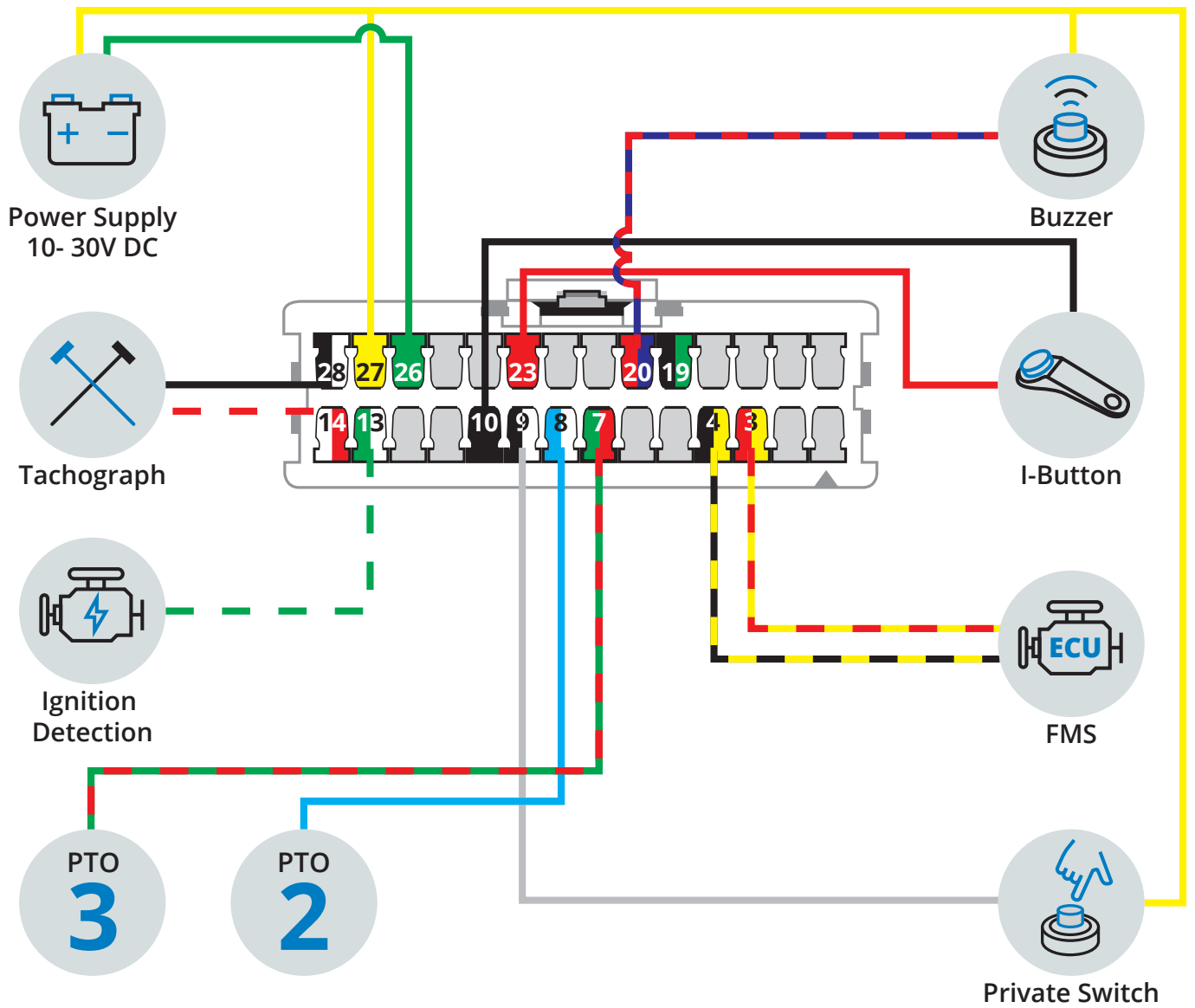


The positive voltage 12/24 VDC AND the positive voltage after contact must be protected by a blade fuse of between 2 and 3A. When using the FMS standard connector, this circuit is fused by the truck manufacturer (consult the truck manual for the fuse location). When using direct power connections, a separate fuse has to be installed (not included).

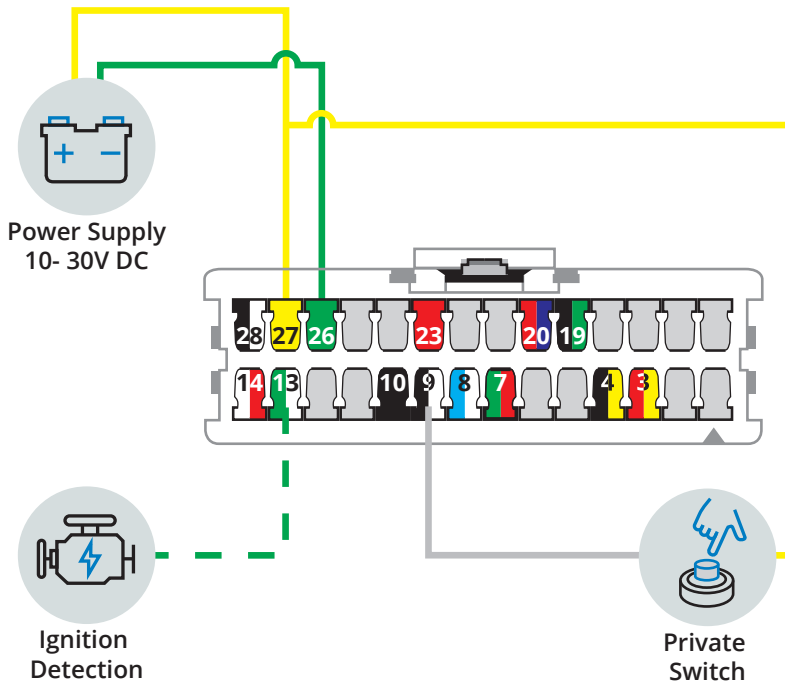
**PTO ports status HIGH at POWER level
**PTO ports status low at GND

| Pin/Colour | Description |
|--|------------------------|
| 3/Yellow-Red | FMS CAN LOW |
| 4/Yellow-Black | FMS CAN HIGH |
| 7/Green-Red** | PTO1 (INPUT1) |
| 8/White-Blue (input driver/passenger switch)** | PTO2 (INPUT2) |
| 9/White (input private/work switch)** | PTO3 (INPUT3) |
| 10/Red | 1 WIRE |
| 13/White-Green | K15 IGN (Ignition) |
| 14/White-Red | RDD CAN LOW |
| 19/Green-Black | OUTPUT 2 |
| 20/Red-Blue | BUZZER OUTPUT |
| 23/Black | 1 WIRE |
| 26/Green | K31 GND |
| 27/Yellow | K30 VBAT (+ 12/24 VDC) |
| 28/White/Black | RDD CAN HIGH |

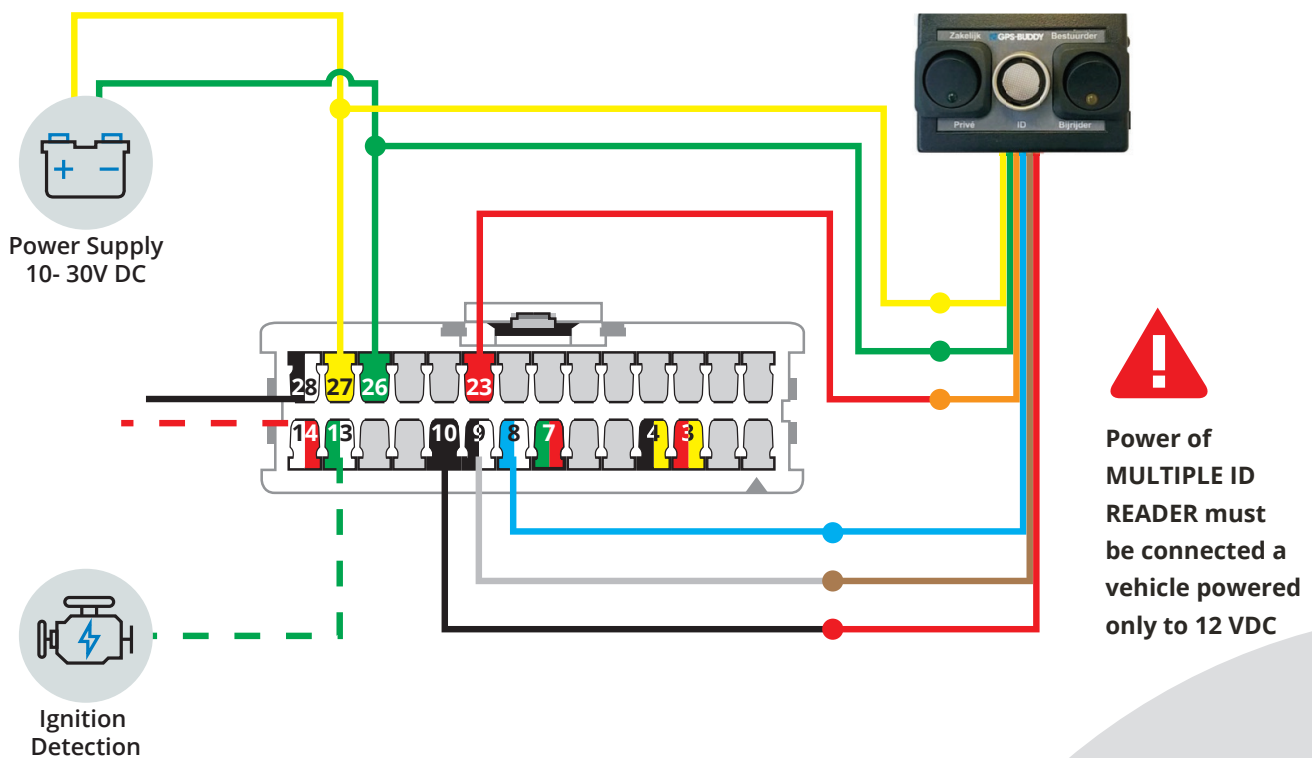
CONNECTION DIAGRAM SINGLE ID



CONNECTIONS PRIVATE SWITCH



CONNECTIONS MULTIPLE ID READER



| | | |
|------------|---------------------------------|--|
| Green Led | Switch for work/home | Connect BROWN wire of MIDR to WHITE wire of XT4 (PTO1) |
| Yellow Led | Switch for driver/passenger | Connect BLUE wire of MIDR to BLUE wire of XT4 (PTO2) |
| | Probe ID Reader | Connect RED wire of MIDR to BLACK wire of XT4 Connect ORANGE wire of MIDR to BLACK wire of XT4 |
| | Power supply multiple ID reader | Connect YELLOW wire of MIDR to YELLOW wire of XT4 (Positive) Connect GREEN wire of MIDR to GREEN wire of XT4 (Negative) |

CONNECTION TO THE STANDARD FMS CONNECTOR

WHAT IS AN FMS INTERFACE?

FMS gateway refers to an interface that helps to release technical information about a vehicle to the back office. Leading truck manufacturers have agreed to use one, single standard for delivering information from their vehicle CAN Bus to third parties: the FMS standard. By fitting an FMS interface / gateway into a vehicle, the CAN Bus technology is linked to the telematics solution of the fleet management system (FMS). This allows the carrier's back office to read out and understand all the technical details.



In recent truck types, a standard FMS connector should be available with all required signals.

If no FMS interface is available, you will need to connect the power signals (GND, +15 and +30) and the CAN signals (CAN HIGH and CAN LOW) directly to the truck.

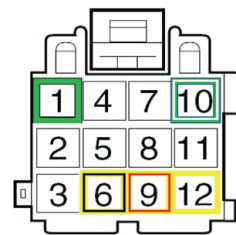
Consult the truck-specific installation guide for more information on direct vehicle connections (without standard FMS connector) or contact the garage.

If an active FMS connector is available in your vehicle, the following signals are available:

| Pin | Signal |
|-----|---------------|
| 1 | GND (31) |
| 10 | Ignition (15) |
| 12 | Vbat (30) |
| 6 | CAN H |
| 9 | CAN L |



THE POSITIVE VOLTAGE 12/24 VDC AND THE POSITIVE VOLTAGE AFTER CONTACT MUST BE PROTECTED BY A BLADE FUSE OF BETWEEN 3 AND 5A.



Insertion side view

The technical engineer remains responsible at all times for the correct installation and connection of the hardware. Always check all functionalities after each installation. GPS BUDDY cannot be held responsible for any possible damage / interruption ensuing from the correct or incorrect following of the recommendations as listed in this document.



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