GemOne®

Onyx Access Control Kit

Onyx access control with connectors

Quick install guide - OX-G & OX-C (1/2)

- Collect the necessary information the add on the online platform:
  IMEI number device, asset name, make, type, serial number, manufacturing year

- Locate where to connect the permanent power supply (9-90Vdc)

- Locate where to connect the inputs (input active = 8-90Vdc)
  Din 1 / keyswitch signal is mandatory (common bat - GND is mandatory)

- Locate where to make the interruption to inhibit driving (IB1 - IB2) - (relais pin 30 - 87a)

- Find the place to mount the tracker: optimal GSM/GPS signal =
  GemOne logo facing upwards to sky and device is not enclosed in a metal box

- Find a place to mount the keypad

- Unwrap the tape from the harness for as long as needed to connect the necessary wires

- Insulate the wires that are not needed with electrical tape

Quick install guide - OX-G & OX-C (2/2)

- Remove the battery connector from the equipment
  to make the installation while the equipment is powerless

- Place a 1A fuse between the asset Bat + and the wiring harness Bat +

- Make the connections using a soldering iron and shrinking tube.
  Or in some cases with O-ring connector/ pin connectors/ spade connectors

- Mount the tracking device with double sided 3M tape on a clean surface. (or use zipties)
  Also install the keypad

- Provide the correct relais in the relais socket: **According to the Bat + Voltage** (yellow-yellow connector);
  or **when the external 12V+ (brown wire) is connected** (blue-yellow connectors) use 12V relais

- Connect the device and keypad to the wiring harness;
  reconnect the battery; test the installation

- Make sure access control is activated by having the correct configuration on the platform

Contents

- **OX-G**
- Onyx Access Control Kit
- OX-G RFID keypad & relay voltage selection
- OX-G Access Control Kit wiring diagram
- OX-GE / OX-GU connector pinout

- **OX-C**
- Onyx Access Control Kit
- OX-C RFID keypad & relay voltage selection
- OX-C Access Control Kit wiring diagram
- OX-C DTM04-12PA connector pinout

- Support

OX-G

Onyx Access Control Kit

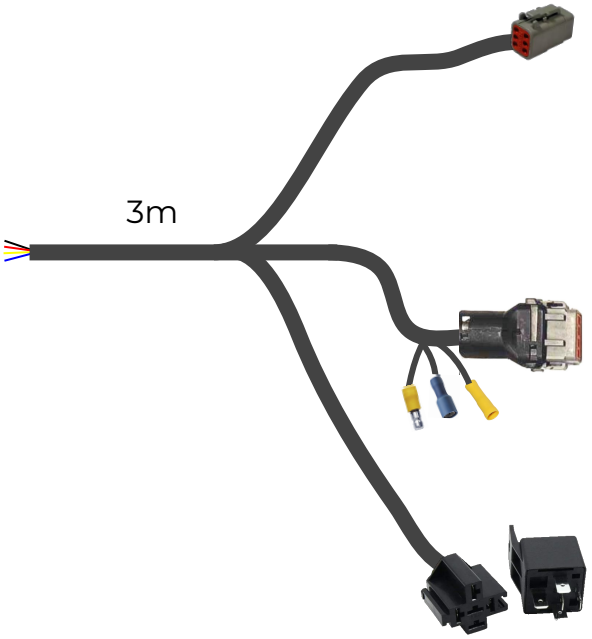
- **Kit contains:**
  - 1 x ACC-RFIDKP-DEUTSCHC
  - 1 x ACC-MS-AC-DEUTSCHC-3.0
  - 1 x COM-12VRELAY
  - 1 x COM-24VRELAY

- **Purchased separately:**
  - 1 x OX-G-GE-DeutschC

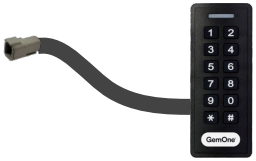
Onyx Access Control Kit

Machine

Machine side cable with access control wiring



ACC-KP with connector



OX-G with connector

OX-G RFID keypad & relay voltage selection

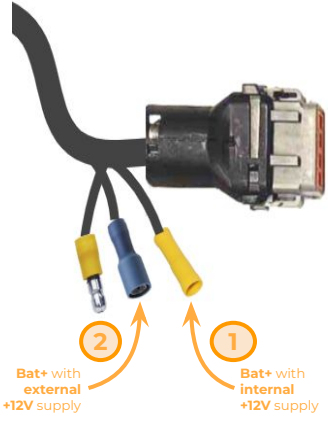
The wiring harness allows **2 different configurations** to power the RFID keypad and relay circuit:

1. Bat+ (maximum 48V) with internal +12V power supply -connect Yellow ↔ Yellow

If your machine has a battery voltage from 12V up to 48V you can use a single power supply to power the telematics unit. The OX-G has a built-in DC/DC converter which can deliver 120mA at 12V to power the relay and RFID keypad. To use this configuration, connect the yellow butt with the yellow socket.

Please make sure the selected relay has a flyback diode built-in and matches the 12V output of the OX-C.
In this configuration, 2 wires are connected to power the complete setup:

- ✓ Bat+ (red)
- ✓ Ground (black)
- ✗ Do not connect the brown wire to a power supply



2. Bat+ with external +12V power supply - connect Yellow ↔ Blue

Attention! – Make sure the device power supply and the 12V power supply have a common ground. If these 2 different supplies have a separate ground, the device will be damaged.

In this configuration, you can power the relay and RFID keypad directly from the machine by providing a separate 12V supply. This additional voltage must be applied to the brown +12V wire and can be selected by connecting the yellow butt with the blue socket.

The external power supply needs to have a common ground with Bat+. If your machine has a 12V battery, we recommend to use this configuration, while connecting Bat+ (red) and 12V (brown) together.
In this configuration 3 wires are connected to power the complete setup:

- ✓ Bat+ (red)
- ✓ Ground (black)
- ✓ +12V (brown)

Label	Color	Description
B+	Red	Attach to permanent 9-90V DC (max) supply via a 1A fuse (mandatory). Do not exceed maximum voltage (90V) under any circumstances as this will damage the Onyx device. Note that voltage spikes above 90V can occur on 72-80V batteries.
B-	Black	Attach to the ground or '-' pole of your machine or battery (mandatory)
+12V in	Brown	Attach to a +12V power supply with a common ground to B- (optional for OX-G). This connection is used to power the RFID keypad and relay in case you want to use the +12V from the machine. Use the yellow and blue but connectors to select the power source for the relay and keypad: - Blue butt connector: Using 12V from the machine - Yellow butt connector: Using the 12V output from the tracker
D1	Green	Digital input 1: Ignition input (mandatory) - 0 up to 90V tolerance max - Din1 0-8V is logic '0', ACC off - Din1 8-90V is logic '1', ACC on
D2	Grey	Digital input 2: Hour counter (optional) - 0 up to 90V tolerance (max) - Din2 0-8V is logic '0' - Din2 8-90V is logic '1'
A1	Blue	Analog input 1 (optional) - 0V to 90Vmax
CAN_H	Yellow	CAN interface - CAN High (without internal 120 Ohm termination) - Not used for the OX-G
CAN_L	White	CAN interface - CAN Low (without internal 120 Ohm termination) - Not used for the OX-G
IB1 / IB2	Purple Orange	Normally open contact used to immobilize the machine. Use IB1 and IB2 contacts to interrupt one of these connections in the machine: • Coil of the starter engine • Driver seat or seat belt switch • Charging switch/input • ... Make sure to never circumvent the safety features of the machine; always consult the vehicle's technical manual.

Basics: connecting the power

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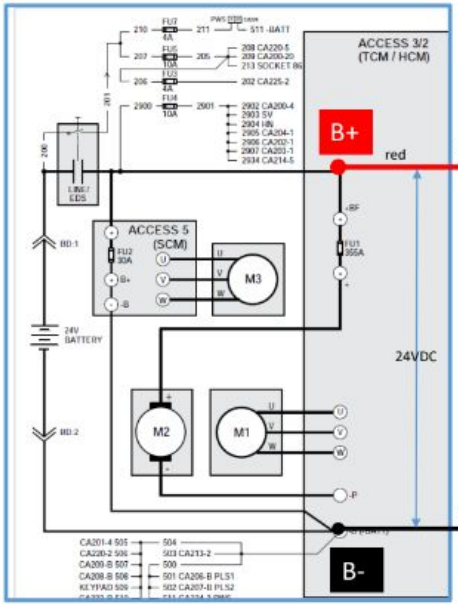


- The Access Control assembly must have uninterrupted +24V power, using the battery's positive and negative power bus.
- Usage of Fusible 1A is mandatory.

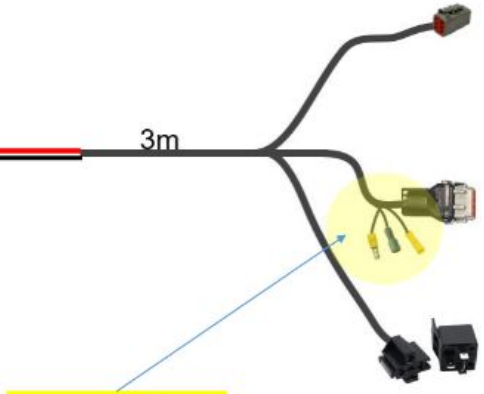
Battery [+]

FUSE 1A

3m

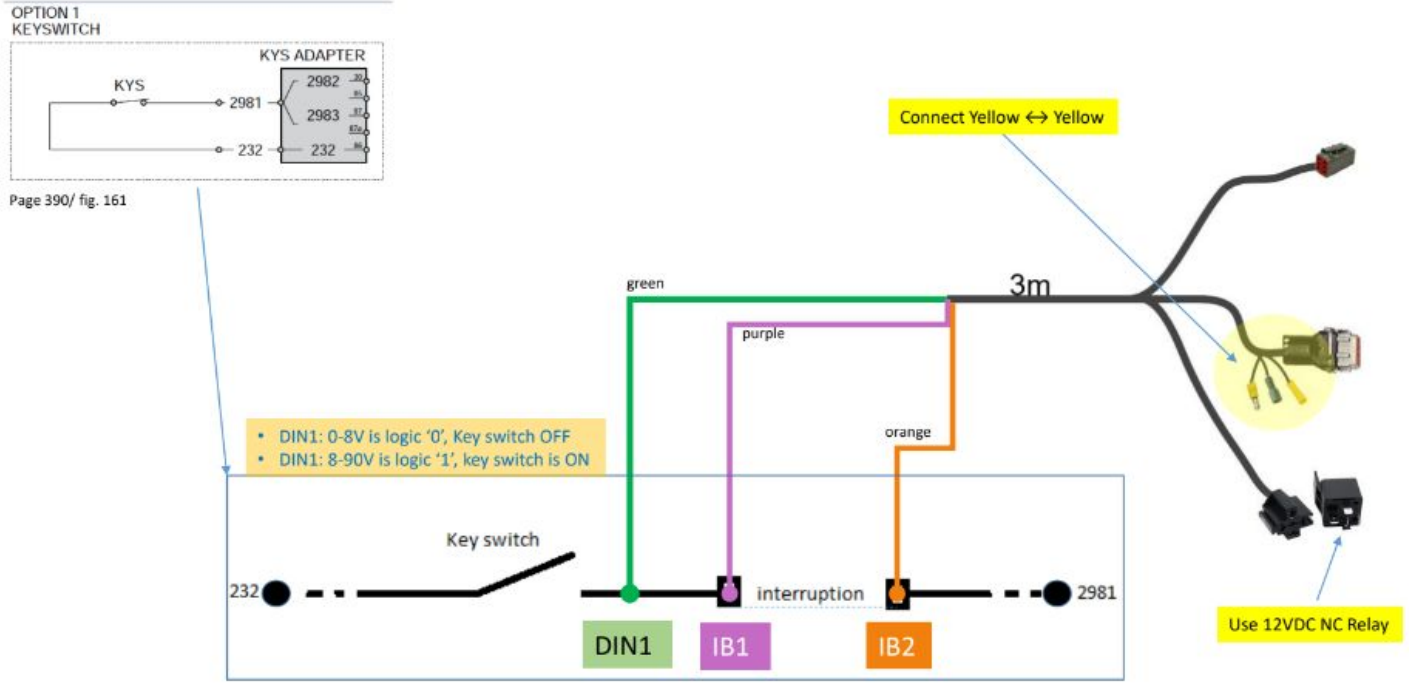
black

Battery [-]

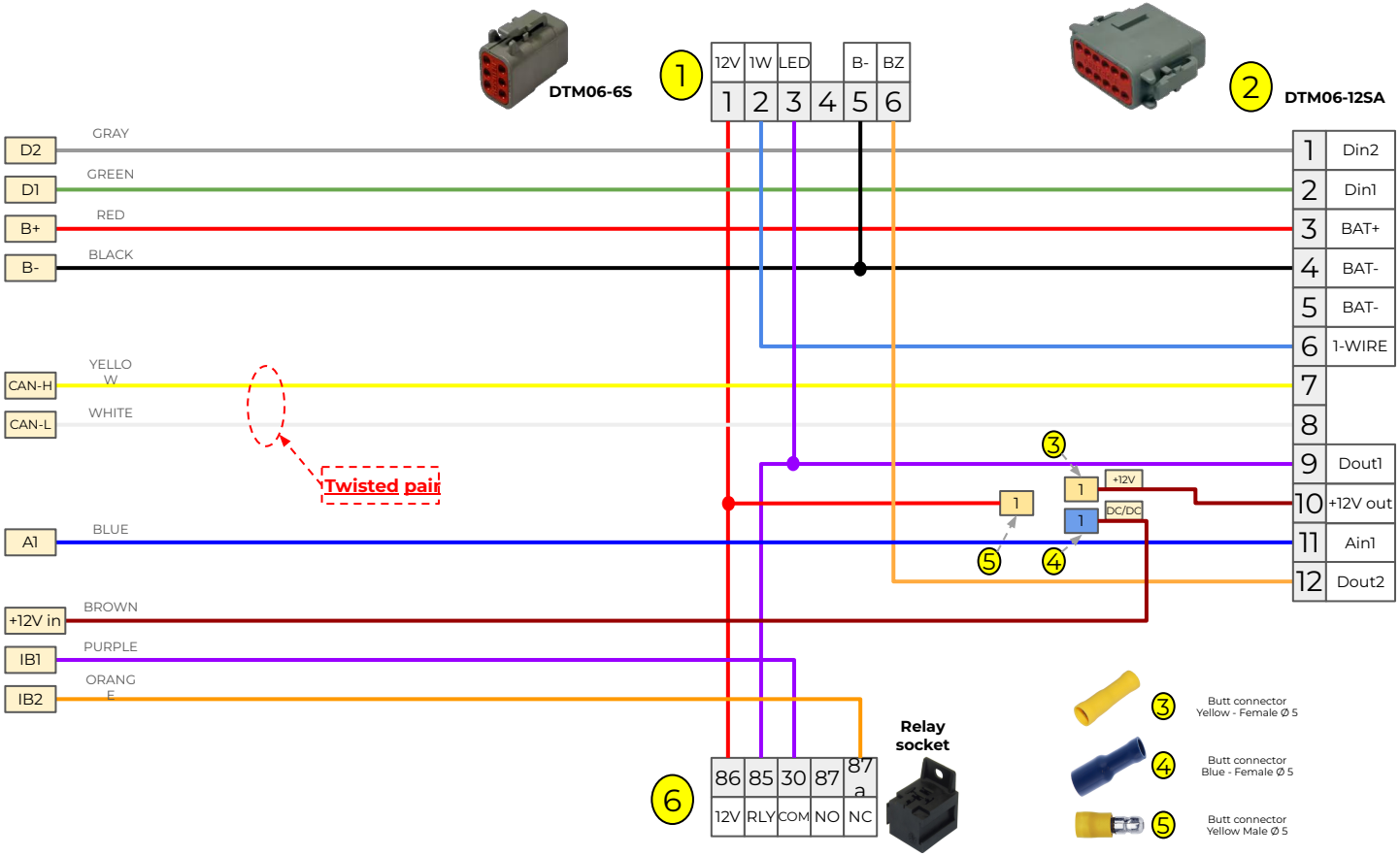


Connect Yellow ↔ Yellow

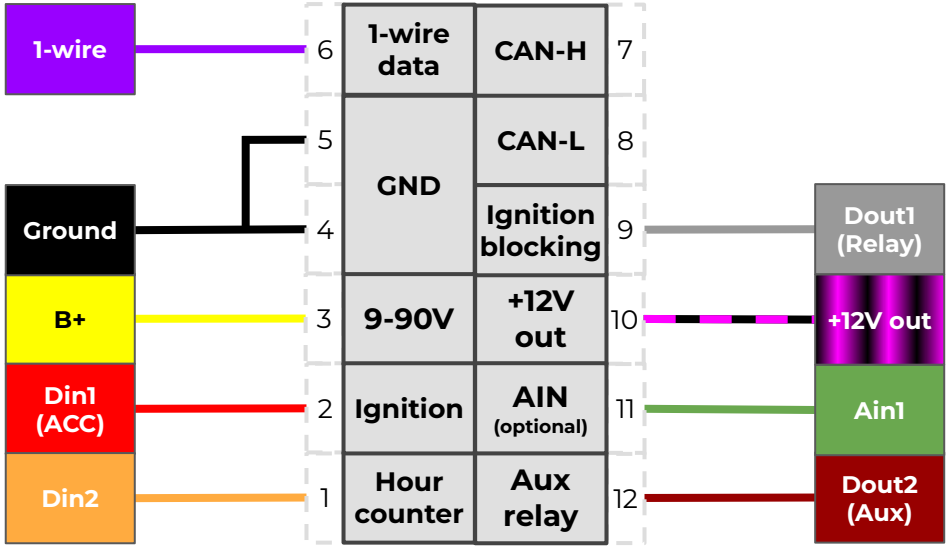
Minimum <u>mandatory</u>: connecting Key Switch signal and making the interruption



OX-G Access Control Kit wiring diagram



OX-GE / OX-GU connector pinout



OX-GE / OX-GU connector pinout

PIN	Machine functionality	GEM-OX-G wiring	GEM-OX-Gx colours
1	Optional Hour counter input	DIN2	Orange
2	Mandatory Ignition input	DIN1	Red
3	Mandatory 7-90V (permanent)	7-90V	Yellow
4	Ground	GND	Black
5	Ground	GND	Black
6	Optional access control RFID keypad	1-wire data	Purple
7	Optional CAN bus (CAN-H)	Not connected	Not connected
8	Optional CAN bus (CAN-L)	Not connected	Not connected
9	Optional access control digital output 1 (relay)	DOUT1	Grey
10	Telematics +12V output (accessories)	+12V out	Pink / Black
11	Optional analog input 1	AIN1	Green
12	Optional access control digital output 1 (aux, feedback)	DOUT2	Brown

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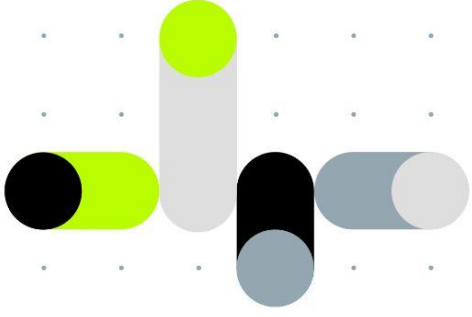
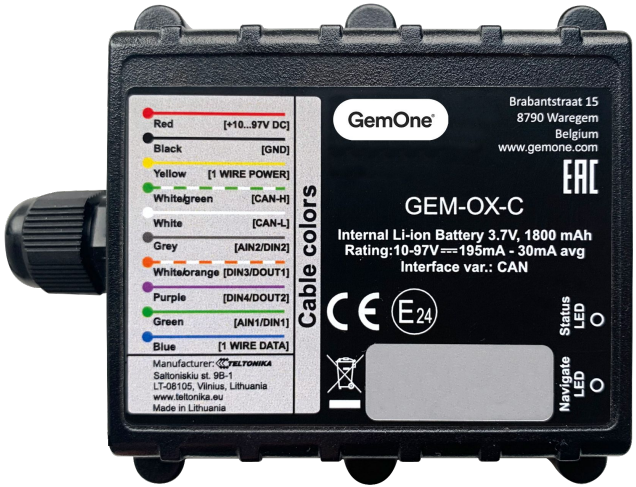


#UnleashYourFleet

OX-C


Red [+10...97V DC]
Black [GND]
Yellow [1 WIRE POWER]
White/green [CAN-H]
White [CAN-L]
Grey [AIN2/DIN2]
White/orange [DIN3/DOUT1]
Purple [DIN4/DOUT2]
Green [AIN1/DIN1]
Blue [1 WIRE DATA]
Cable colors
Manufacturer: TELTONIKA
Saltoniskiu st. 9B-1
LT-08105, Vilnius, Lithuania
www.teltonika.eu
Made in Lithuania
GemOne
Brabantstraat 15
8790 Waregem
Belgium
www.gemone.com
GEM-OX-C
Internal Li-ion Battery 3.7V, 1800 mAh
Rating:10-97V ⎓195mA - 30mA avg
Interface var.: CAN
E24
Status LED
Navigate LED

Onyx Access Control Kit

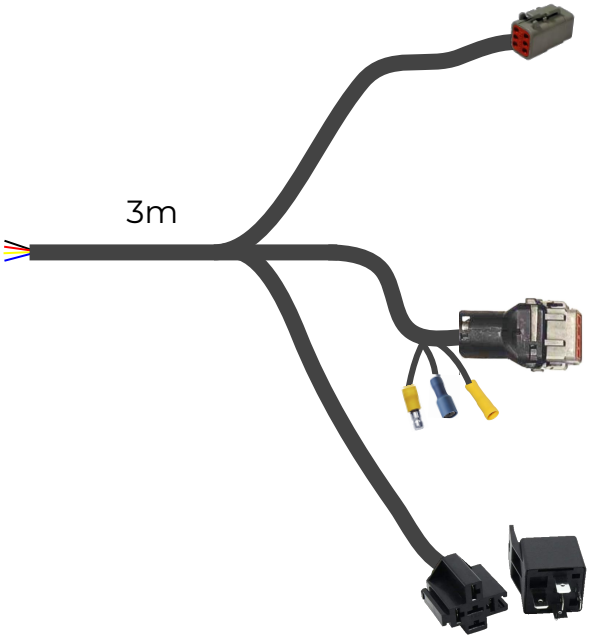
- **Kit contains:**
  - 1 x ACC-RFIDKP-DEUTSCHC
  - 1 x ACC-MS-AC-DEUTSCHC-3.0
  - 1 x COM-12VRELAY
  - 1 x COM-24VRELAY

- **Purchased separately:**
  - 1 x OX-C-GBL-DeutschC

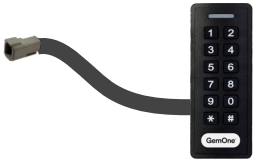
Onyx Access Control Kit

Machine

Machine side cable with access control wiring



ACC-KP with connector



OX-C with connector

OX-C RFID keypad & relay voltage selection

The wiring harness allows **2 different configurations** to power the RFID keypad and relay circuit:

1. Single Bat+ power supply (maximum 48V) - Yellow ↔ Yellow

If your machine has a battery voltage from 12V up to 48V you can use a single power supply to power the telematics unit, relay and RFID keypad.
To use this configuration, connect the yellow butt with the yellow socket. Please make sure the selected relay has a flyback diode built-in and matches the battery voltage of your machine. If the relay doesn't match the battery voltage of your machine, use a separate power supply (see config 2) or select an appropriate relay.

In this configuration, 2 wires are connected to power the complete setup:

- Bat+ (red)
- Ground (black)

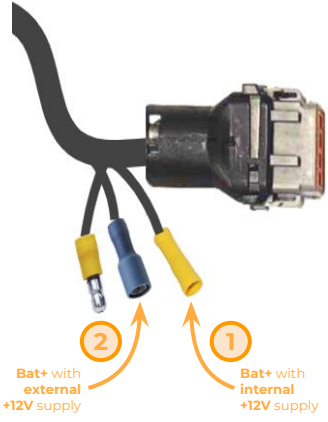
2. Bat+ with external 12V power supply - Yellow ↔ Blue

Attention! – Make sure the device power supply and the 12V power supply have a common ground.
If these 2 different supplies have a separate ground, the device will be damaged.

If your machine has a battery voltage above 48V you always need to provide a lower voltage to power the relay and RFID keypad separately. This is also the case if your selected relay doesn't match the battery voltage.
This additional voltage must be applied to the brown +12V wire and can be selected b
y connecting the yellow butt with the blue socket. The external power supply needs to have a common ground with Bat+

In this configuration 3 wires are connected to power the complete setup:

- Bat+ (red)
- Ground (black)
- +12V (brown)



Label	Color	Description
B+	Red	Attach to permanent 9-97V DC (max) supply via a 1A fuse (mandatory).
B-	Black	Attach to the ground or '-' pole of your machine or battery (mandatory)
+12V in	Brown	Attach to a +12V power supply with a common ground to B- (mandatory for OX-C) This connection is used to power the RFID keypad and relay (+12V or +24V). Make sure you use a matching relay. Use the yellow and blue but connectors to select the power source for the relay and keypad: - Blue butt connector: Using 12V/24V from the machine (mandatory for the OX-C) - Yellow butt connector: Do NOT use with the OX-G. This connector provides BAT+ instead of +12V
D1	Green	Digital input 1: Ignition input (mandatory) - 0 up to 150V tolerance max - Din1 0-8.5V is logic '0', ACC off - Din1 8.5-150V is logic '1', ACC on
D2	Grey	Digital input 2: Hour counter (optional) - 0 up to 150V tolerance (max) - Din2 0-8.5V is logic '0' - Din2 8.5-150V is logic '1'
A1	Blue	Analog input 1 (not available on the OX-C)
CAN_H	Yellow	CAN interface - CAN High (without internal 120 Ohm termination)
CAN_L	White	CAN interface - CAN Low (without internal 120 Ohm termination)
IB1 / IB2	Purple Orange	Normally open contact used to immobilize the machine. Use IB1 and IB2 contacts to interrupt one of these connections in the machine: · Coil of the starter engine · Driver seat or seat belt switch · Charging switch/input · ... Make sure to never circumvent the safety features of the machine; always consult the vehicle's technical manual.

Basics: connecting the power

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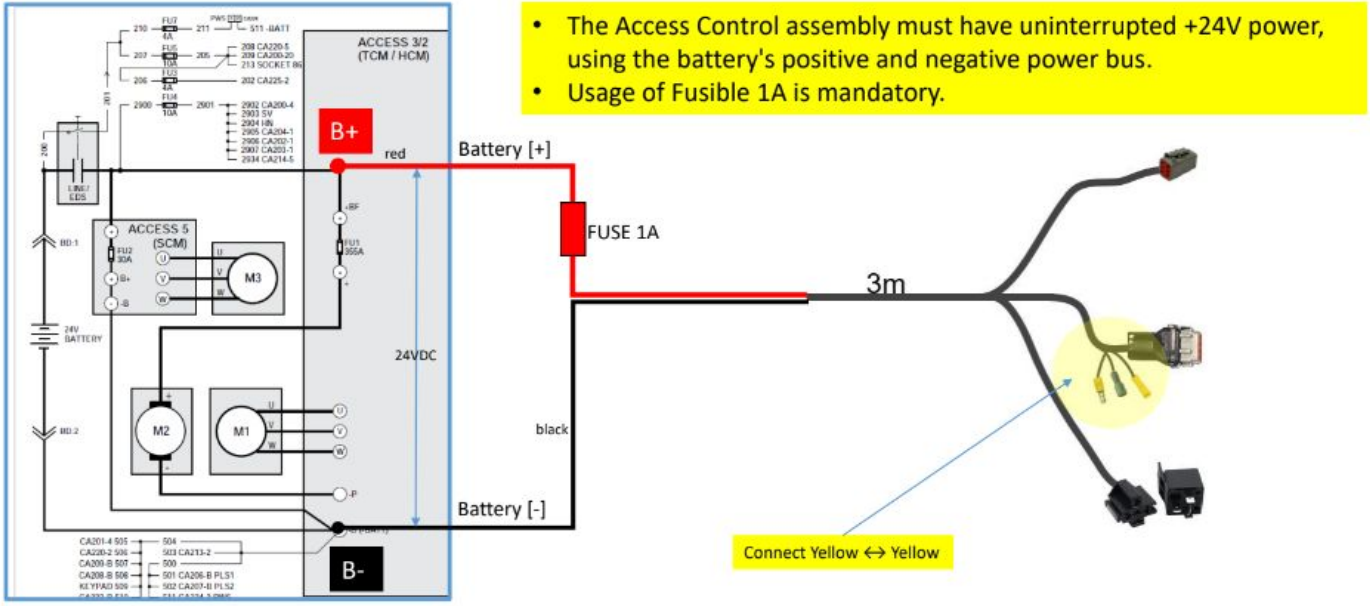
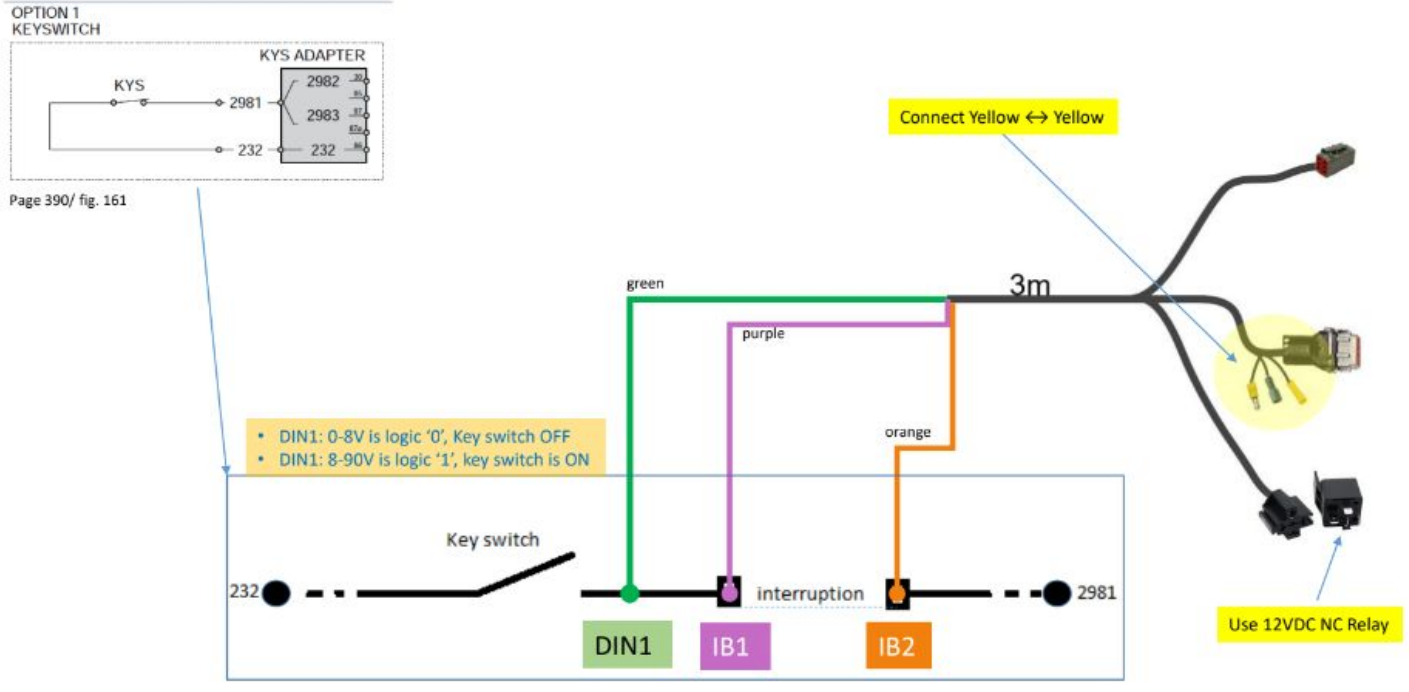
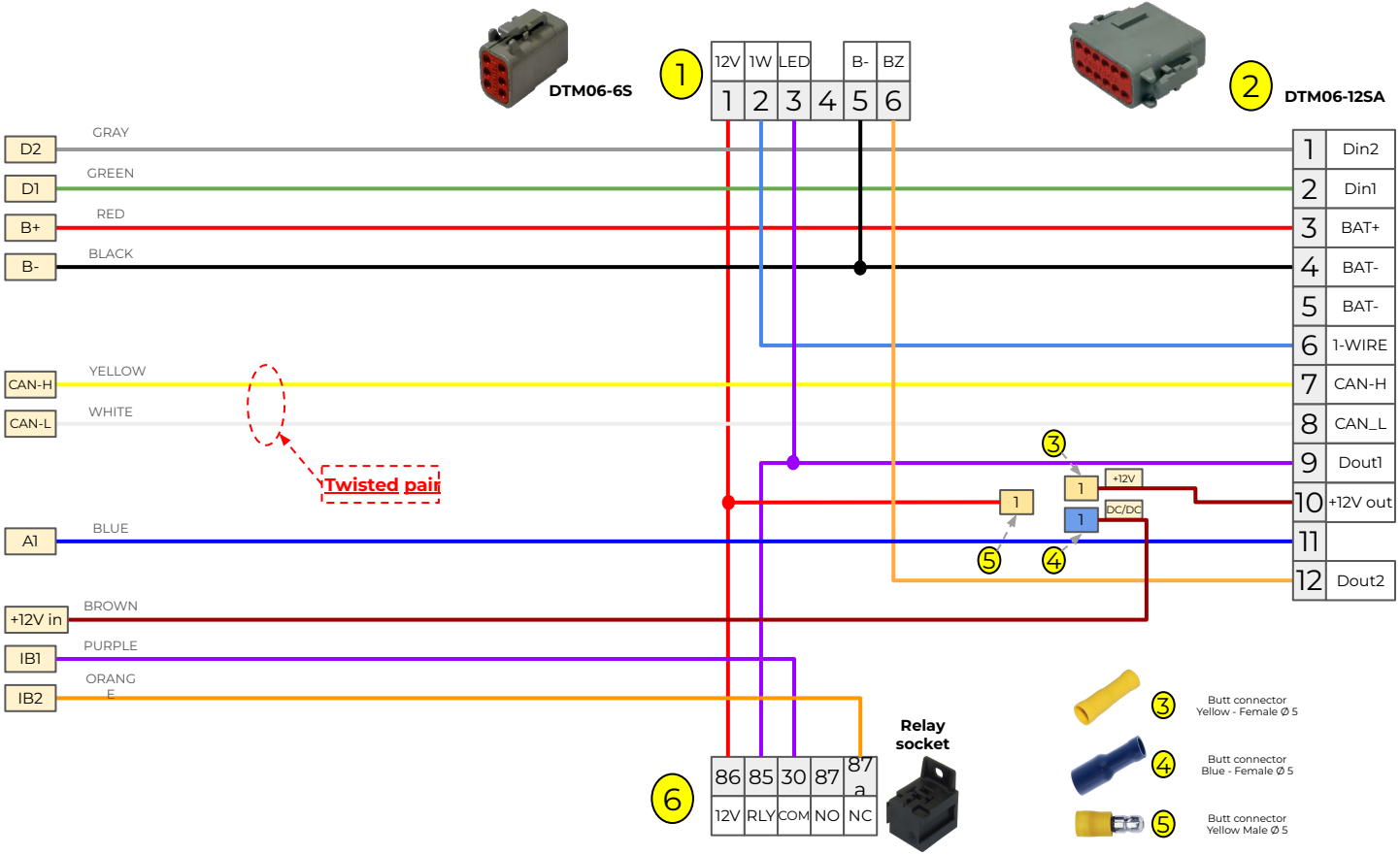


- The Access Control assembly must have uninterrupted +24V power, using the battery's positive and negative power bus.
- Usage of Fusible 1A is mandatory.

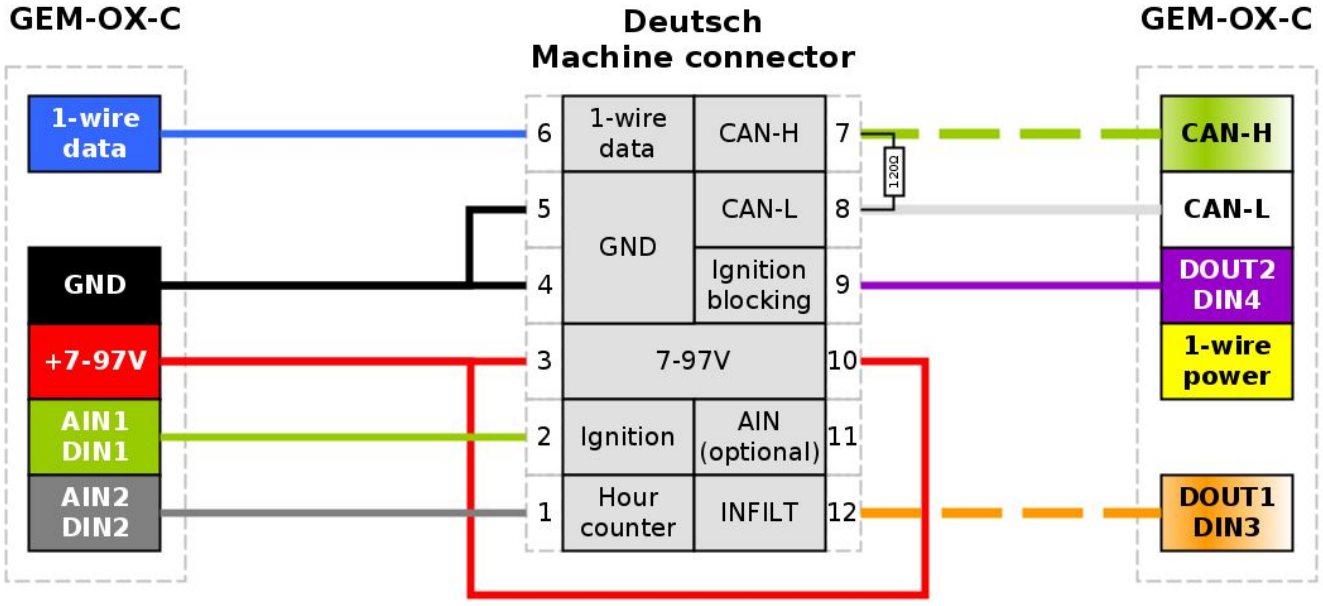
Minimum <u>mandatory</u>: connecting Key Switch signal and making the interruption



OX-C Access Control Kit wiring diagram



OX-C DTM04-12PA connector pinout



OX-C DTM04-12PA connector pinout

PIN	Machine functionality	GEM-OX-C wiring	GEM-OX-C colours
1	Optional Hour counter input	DIN2	Grey
2	Mandatory Ignition input	DIN1	Green
3	Mandatory 7-97V (permanent), same as PIN 10	7-97V	Red
4	Ground	GND	Black
5	Ground	GND	Black
6	Optional access control RFID keypad	1-wire data	Blue
7	Optional CAN bus (CAN-H)	CAN-H (120Ω terminated)	White/Green
8	Optional CAN bus (CAN-L)	CAN-L (120Ω terminated)	White
9	Optional digital input 4	DIN4	Purple
10	Mandatory 7-97V (permanent), same as PIN 3	7-97V	Red
11	Not connected	Not connected	Not connected
12	Optional digital input 3 - Chassis for INFILT functionality.	DIN3	White/Orange

Support

EMEA

+32 56 93 01 08

support_emea@gemone.com

EMEA Spinnerijstraat 99/23
8500 Kortrijk
Belgium

US

+1 (844) 656-1156

techservice@gemone.com

US 16355 South Elm Rd
Olathe, Kansas 66062
USA

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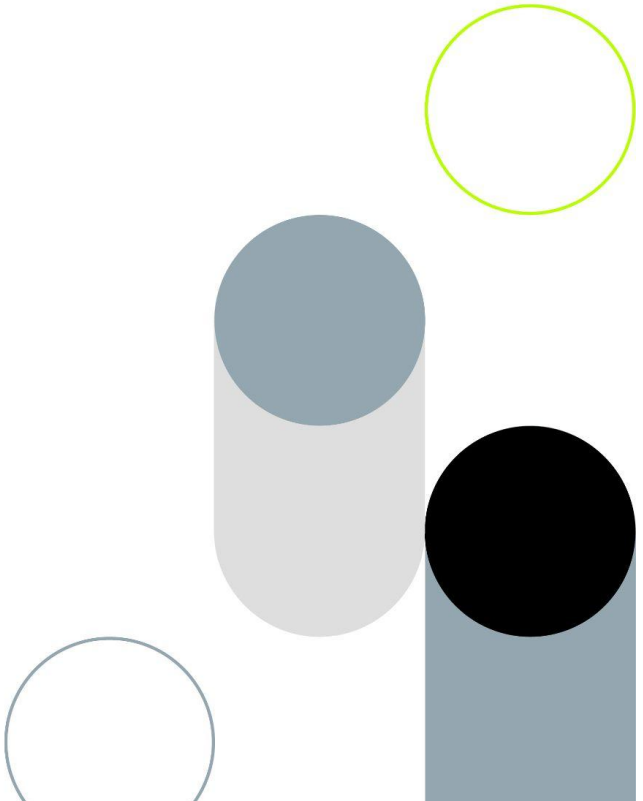
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