Kiwitron
SMART INDUSTRY SOLUTIONS

Edition 13th February 2026

KeyAdvanced
KeyTouch

XF01380 - XF01380D

Manual for installation, use and maintenance

Kiwitron
SMART INDUSTRY SOLUTIONS

CE

Declaration of Conformity - (DoC)

We

Manufacturer:	Kiwitron S.p.A.
Address:	Via Vizzano 44, 40037 Sasso Marconi (BO) - Italy

Declare that the DoC is issued under our sole responsibility and belongs to the following product:

KeyAdvanced XF01380;

Object of the declaration:

Immobilizer, telemetry and data logger for industrial motor vehicles

The subject of the above declaration is in accordance with the following rules:

Electromagnetic Compatibility Directive 2014/30/EU

Directive RED 2014/53/EU

and therefore complies with the following norms / standards:

UNI EN 12895:2019 Industrial trucks - Electromagnetic compatibility

and related harmonised standards / ETSI standards

Place: Sasso Marconi (BO) - Italy **Valid from:** 09/01/2020

Last update: 08/01/2025

Person authorized to compile the technical file: Daniele Parazza

Legal representative: Andrea Filippini

UKCA Declaration of Conformity - (DoC)

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Statutory Instruments: S.I. 2016:1091

Statutory Instruments: S.I. 2017:1206

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Place: Sasso Marconi (BO) - Italy **Valid from:** 02/27/2020

Last update: 08/01/2025

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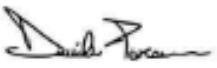

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Address:	Via Vizzano 44, 40037 Sasso Marconi (BO) - Italy

Declare that the DoC is issued under our sole responsibility and belongs to the following product:

KeyDN X400512;

Object of the declaration:

Relay control unit for industrial motor vehicles

The subject of the above declaration is in accordance with the following rules:

Electromagnetic Compatibility Directive 2014/30/EU

and therefore complies with the following norms / standards:

UNI EN 12895:2019 Industrial trucks - Electromagnetic compatibility

Place: Sasso Marconi (BO) - Italy

Valid from: 04/28/2021

Last update: 04/30/2025

Person authorized to compile the technical file: Daniele Parazza

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Valid from: 04/28/2021

Last update: 04/30/2025

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CONTENTS

REVIEWS

Version	Comments	Amended chapters
00	First release	All
01	GPS Antenna installation updated	GPS Antenna
02	General update for product rebrand	All
03	General review for change of company name and updating of technical data. End of life disposal instructions.	Declaration of Conformity, Technical data - KeyDN X400512; End of life - disposal instructions

Tab.1 - Document revisions

PURPOSE AND SCOPE

USERS	Installer; Operator of the vehicles on which it is installed; Qualified personnel authorised to maintain the device.
PURPOSE	Provide information needed for: ➢ The correct installation of the device; ➢ The correct awareness of operators to safety issues; ➢ Using the device under safe conditions.

Tab.2 - Purpose and Scope

REFERENCE

	Warning/Caution - Important safety information
	General information and suggestions
	PROHIBITION: Operations or actions NOT permitted.
	Compatible
	Incompatible

Tab.3 - Reference

SAFETY INSTRUCTIONS AND WARNINGS

The device must be operated by appropriately trained and qualified personnel.

Before installing and operating the device, please read and understand this manual carefully to avoid damaging the product and putting your own safety at risk.

The technical information in this document is provided for information purposes only and does not constitute a contractual commitment.
Kiwitron S.p.a.. reserves the right to make any graphic or functional changes to devices and/or software without prior notice.

The KeyAdvanced or KeyTouch **CANNOT** replace the safety devices of the vehicle on which it is installed.

The KeyAdvanced or KeyTouch **MUST** be installed in compliance with general safety regulations.

It is **forbidden** to install the KeyAdvanced or KeyTouch device to inhibit or alter the operation of the safety systems already on the vehicle.

It is **forbidden** to use the system to operate power contactors, as opening them while current is flowing would cause an electric arc.

WARNING THE OPERATOR of the vehicle before carrying out any remote operation (web cloud or remote connection via PC) to prevent dangerous situations.

The management of blocking (or slowing down) **MUST** respect the safety of the machine and operators. The blocking of a vehicle **MUST NOT** create potential dangerous situations.

Do not use the device in the presence of flammable gases or fumes, in the vicinity of filling stations, fuel depots, chemical plants or during blasting operations. **Avoid any potentially explosive atmosphere.**

For more details on the installation and use of the software and the installation of Key accessory devices, please refer to specific documentation.

Warnings on the emission of radio waves

The device receives and emits radio waves.

The maximum power radiated by the device is below the thresholds imposed by regulations.

The wireless modules used for GPRS and WiFi transmissions meet all security requirements for high-frequency radio wave communications.

Interference may be generated if used in the vicinity of equipment such as TV sets, radios, computers or any unshielded electrical and/or electronic equipment.

Observe the restrictions imposed on the use of electronic devices if the vehicle on which the device is installed is used:

- In hospitals or other health facilities.
- Near an airport.

In all areas where there are restrictions imposed due to the use of electronic devices.

Intended use

The KeyAdvanced or KeyTouch is designed for use only on self-propelled industrial trucks or industrial vehicles with electric, endothermic or hybrid drive that comply with the Machinery Directive 2006/42/EC.

Improper use

Any use of the KeyAdvanced or KeyTouch not expressly described in this manual is not permitted.
And in particular:

The installation of KeyAdvanced or KeyTouch in vehicles that can travel on public roads is not permitted.

On bogies crossing tracks unless a self-locking device is already fitted on the starting enabling device.

KeyAdvanced or KeyTouch and its accessories and additional sensors are service tools.

The KeyAdvanced or KeyTouch and its accessories and additional sensors are not safety devices as they are not covered by Annex IV of Directive 2006/42/EC and therefore cannot be used for residual risk reduction.

The KeyAdvanced / KeyTouch is not an explosion-proof device.

The KeyAdvanced / KeyTouch may not be installed on vehicles with two or more axles powered by an endothermic engine, such as cars, trucks, mopeds, motorbikes, and operating machines licensed for public use.

Risk assessment

It is the obligation of the operator (owner of the vehicle) to carry out an environmental risk analysis prior to installation.

During the installation phase, it is mandatory to ensure that any malfunctioning of the device does not compromise either the safety or the productivity of the operators and the plant.

It is essential to assess the situation should the device malfunction.

It is possible that the machine is not activated following a correct login, or that the slowdown is activated without a collision having occurred.

Limitations on liability

Kiwitron S.p.a. is released from any liability for damage caused by:

- Misuse of the device.
- Use by unqualified and/or trained personnel.
- Incorrect installation.
- Power supply defects.
- Improper maintenance.
- Unauthorised changes or work.
- Incorrect manoeuvres.
- Use of non-original spare parts.
- Use of accessories not provided for or not authorised in writing.
- Total or partial failure to comply with the instructions.
- Exceptional events.
- Events that do not comply with the regulations and legislation currently in force in the country of installation.

Kiwitron S.p.a. holds itself harmless from any liability in the event that the KeyAdvanced device is installed on vehicles that are also authorised for public roads.
In this case, it is the responsibility of the operator to decide to install and use the system on the vehicle.
In this case, it is **ABSOLUTELY MANDATORY** to disable the immobiliser and deceleration function in the event of a collision, in order to avoid creating situations of hindrance or danger (e.g. blocking the vehicle when crossing railway tracks).

Technical assistance and manufacturer's warranty

TECHNICAL SUPPORT

In the event of faults, please contact Kiwitron Technical Service.

Kiwitron S.p.a.
Customer service
Tel. +39 051 1889 3470
Mail: support@kiwitron.com
web site: www.kiwitron.com

WARRANTY

The warranty shall not apply to breakage and/or defects caused by:

- Misuse of the device.
- Use by unqualified and/or trained personnel.
- Incorrect installation.
- Power supply defects.
- Improper maintenance.
- Unauthorised changes or work.
- Incorrect manoeuvres.
- Use of non-original spare parts.
- Use of accessories not provided for or not authorised in writing
- Total or partial failure to comply with the instructions
- Exceptional events
- Not in accordance with the regulations and legislation currently in force in the country of installation.

The warranty does not extend to parts that wear out as a result of normal use such as:

- Electrical cables and connectors.
- Touch Pad membrane (for KeyTouch)

Please refer to the sales documentation for all contractual warranty terms.

GENERAL DESCRIPTION

Glossary

Term	Definition
Badge	Plastic card used for personal identification containing identification or access information.
CAN bus	The Controller Area Network, also known as CAN-bus, is a multicast fieldbus serial standard (mainly in the automotive environment), introduced in the 1980s by Robert Bosch GmbH, to connect different electronic control units (ECUs). CAN has been expressly designed to operate flawlessly even in highly electromagnetically disturbed environments and can use a balanced potential difference line such as RS-485 as the transmission medium.
Controller Touch pad	Control and drive interface consisting of a screen on which commands can be given by manually keying in various keys that appear on the screen.
Data logger	A datalogger, or data recorder, is a digital electronic device powered by an internal battery; it is equipped with a microprocessor, sensors and memory for data acquisition.
KeyUP	KeyUp indicates the 'top' device of the Key. It is used as a physical user interface and is installed close to the operator's control station. In the KeyAdvanced the KeyUP device consists of a badge reader. In the KeyTouch system, the KeyUP device consists of a Touch Pad controller.
KeyDN	KeyDN indicates the 'bottom' device of the KeyAdvanced or KeyTouch. This is a relay unit to which various sensors are wired and which is mounted in the battery and/or engine compartment of the vehicle on which the system is installed.
Immobilizer	It is an electronic device that, when installed on a vehicle, hinders theft and enables its location.
NFC	Near Field Communication (NFC) is a technology that provides short-range (up to 10 cm) two-way wireless (RF) connectivity.
Working Profile	Set of preset parameters for performing (or not performing) system functions.

Tab.4 - Glossary

Device description

The system consists of two parts:

- an NFC badge reader (KeyUP) and a relay unit (KeyDN) connected in CAN Bus in the KeyAdvanced version.
- a Touch Pad controller (KeyUP) and a Relay Controller (KeyDN) connected via CAN Bus in the KeyTouch version.

KeyAdvanced: KeyUP Device Overview

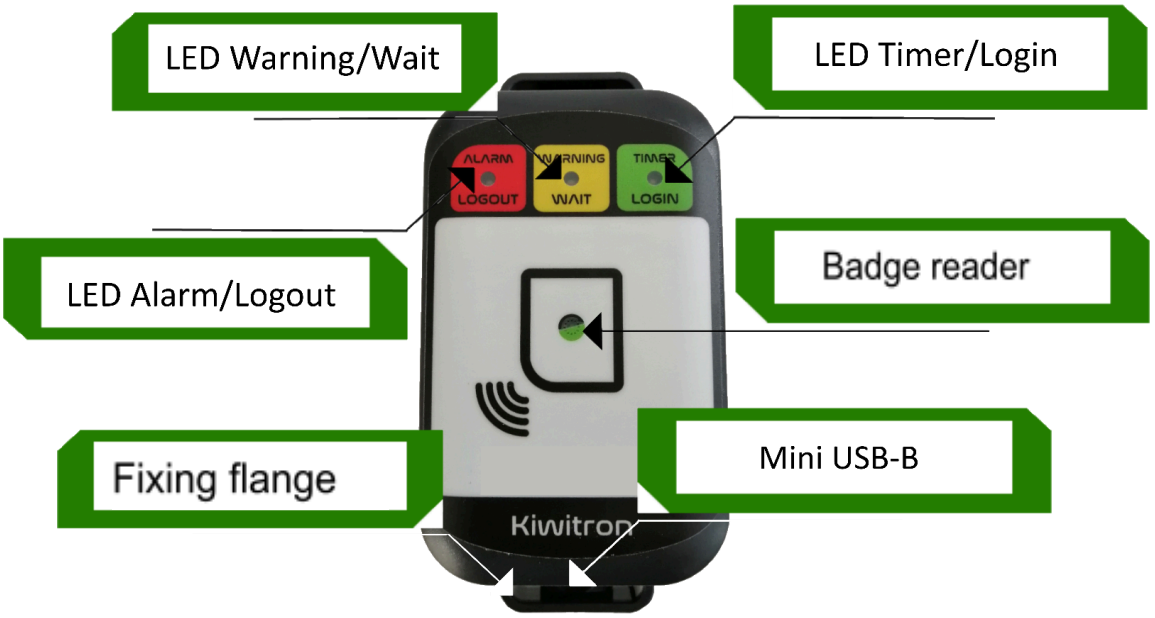


Fig.1 - KeyUP device overview - KeyAdvanced (front)

Fig.2 - KeyUP device overview - KeyAdvanced (rear)

KeyTouch: KeyUP Device Overview

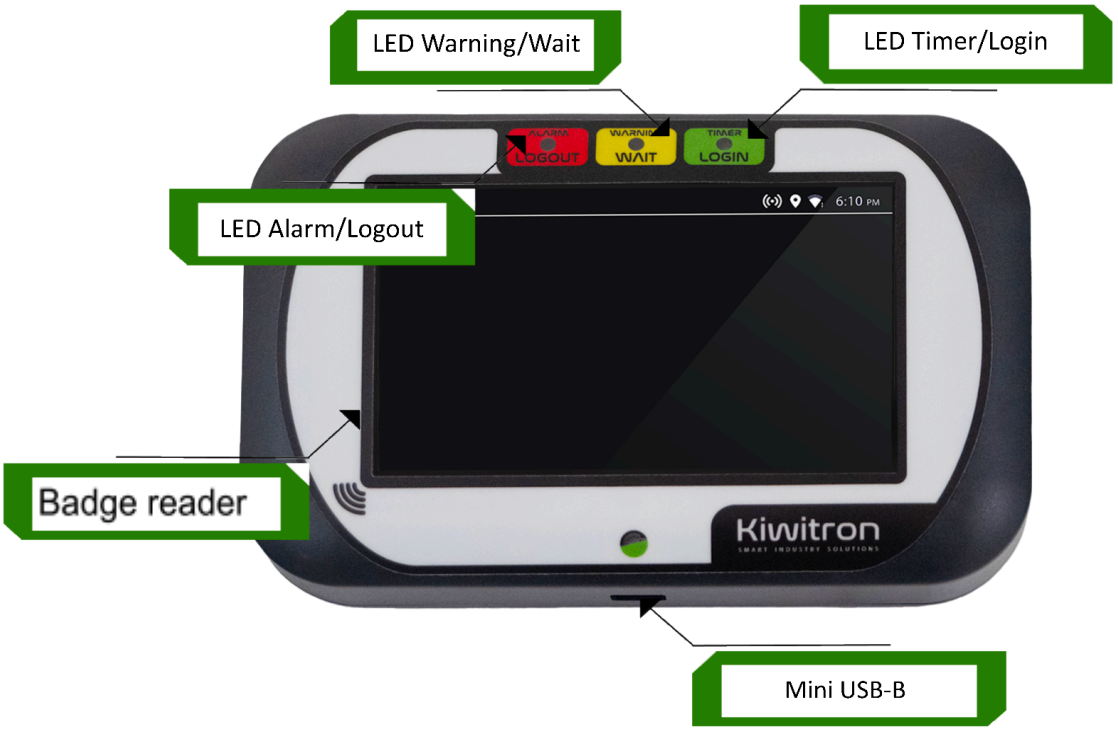


Fig.3 - KeyUP device overview - KeyTouch (front)

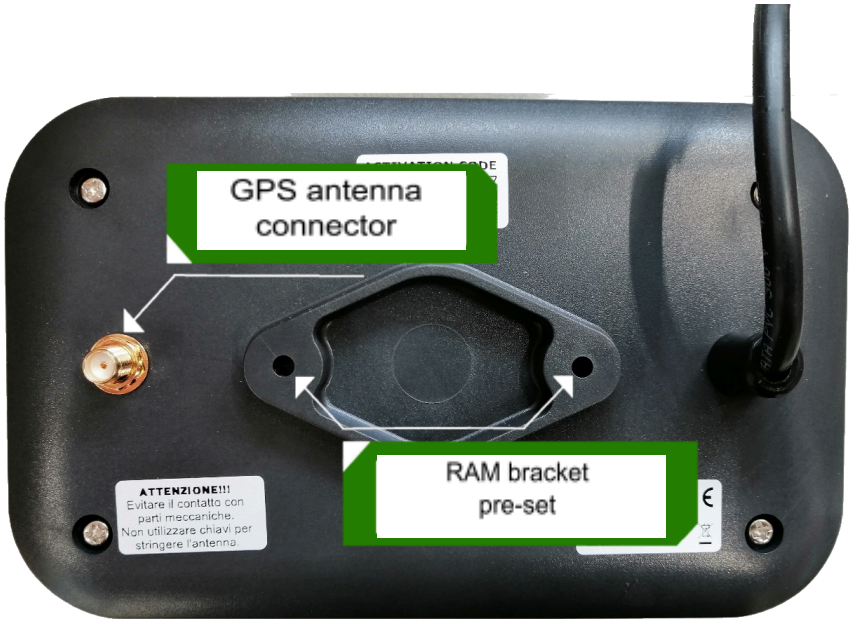


Fig.4- KeyUP device overview - KeyTouch (back)

KeyAdvanced and KeyTouch: KeyDN device overview

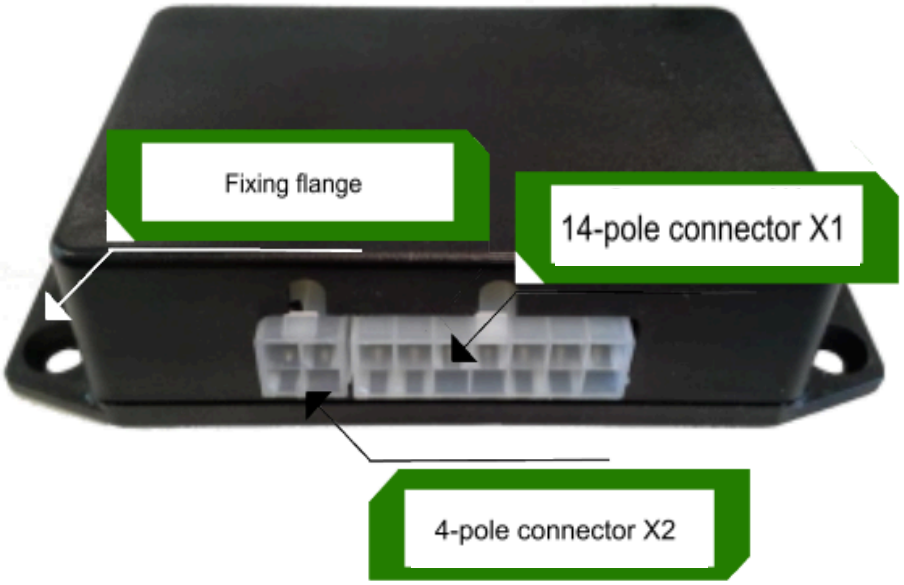


Fig.5 - KeyDN device overview

Labels

The following identification labels are attached to the back of the devices:

- Identification label (1): identifies the model, the serial number of the device and gives indications of the power supply range and power output (applies to both KeyUP and KeyDN).
- Activation Label (2): the QR Code identifies the device's activation code and enables it to send data via SIM (only applied on KeyUP devices).
- Antenna connection label (3): warns the user to AVOID contacting the connector with metal parts and NOT to use a spanner to tighten the antenna. (only applies to KeyUP devices).

Below is an example, purely for illustrative purposes, of label application on the KeyUP:

Fig.6 - Example of label application on the KeyTouch device

Accelerometers

Both systems contain accelerometers within the KeyUP and KeyDN devices.
The directional axes for each device are highlighted below.

Fig.7- Accelerometer axis directions KeyUP devices

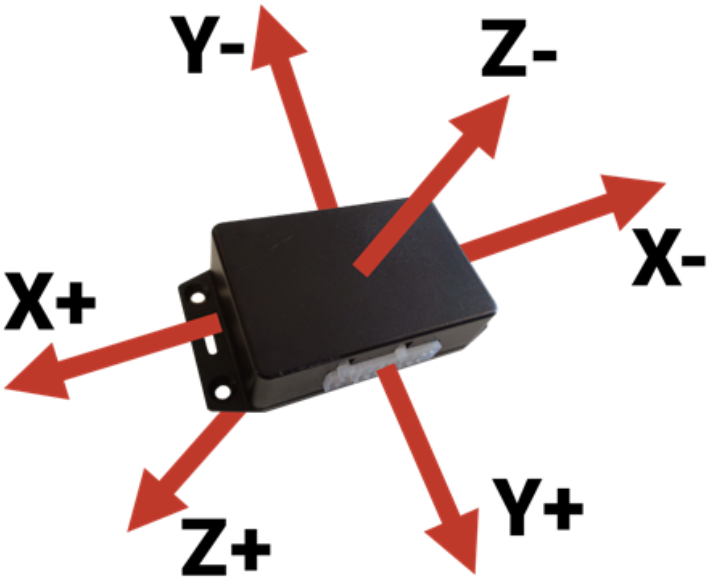


Fig.8 - KeyDN device accelerometer axis directions

When configuring the system, it must be selected whether to use the accelerometer of the KeyUP or that of the KeyDN.

Accessories

GPS Antenna

The GPS antenna (R100070) enables Key to perform the following functions:

- vehicle location
- geofencing

Fig.9 - GPS antenna

The GPS antenna should be installed by means of a special sticker on the back of the device or on the vehicle, in a position where it faces the sky as much as possible.

To check the correct positioning of the GPS antenna, make sure that the arrow drawn on the side of the device is pointing towards the sky:

Fig.10 - GPS antenna installation arrow sign

Check that there are no metal elements near the antenna that could block the signal, preventing the receiver from freely 'seeing' the entire sky.
Connect the antenna to the connector on the back of the Key device.

Fig.11 - GPS Antenna Connection

The use of spanners to tighten the antenna connector is prohibited.

The connection of the antenna on the connector must be done **MANUALLY**.

RAM bracket (only for KeyTouch)

The KeyTouch is designed to be installed on the RAM bracket (code **G006910**).

Fig.12 - Retro KeyTouch

Fig.13 - RAM bracket

The bracket rod is 9.5 cm high and has a ball diameter of TYPE 'B' 2.5 cm.

The pole is used to support monitors, GPS or components up to about 2 kg.

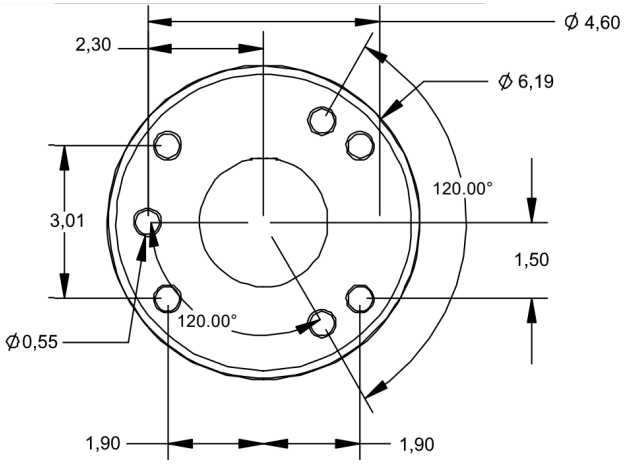


Fig.14 - Bracket dimensions (in cm) vehicle side

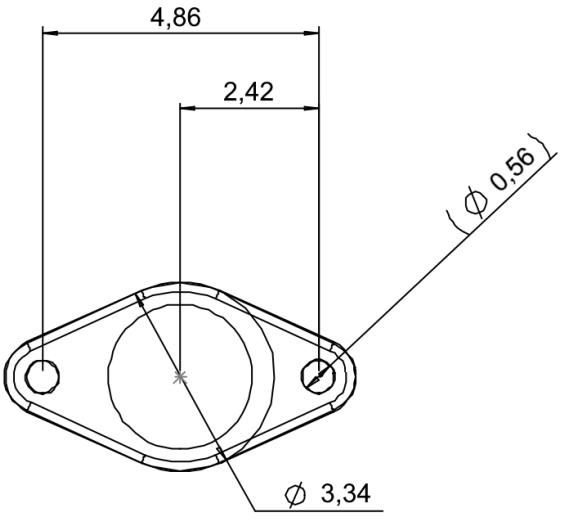


Fig.15 - Bracket dimensions (in cm) device side

Screw the RAM bracket pin onto the rear of the device using self-tapping plastic screws:

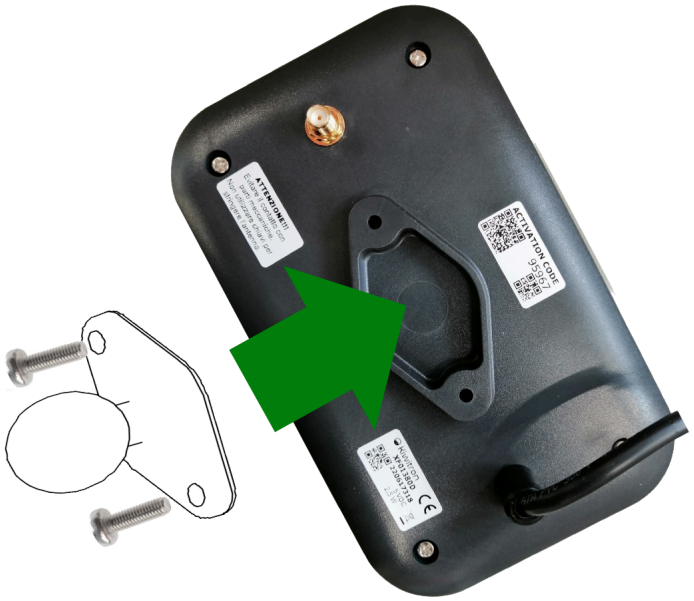


Fig.16 - Pin fastening on device

Insert the device + pin assembly into the bracket hole and tighten the grub screw by hand:

Fig.17 - Pin fastening on bracket

Attach the bracket to the vehicle (pillar or dashboard) using M5 screws and nuts on the slotted holes in the bracket:

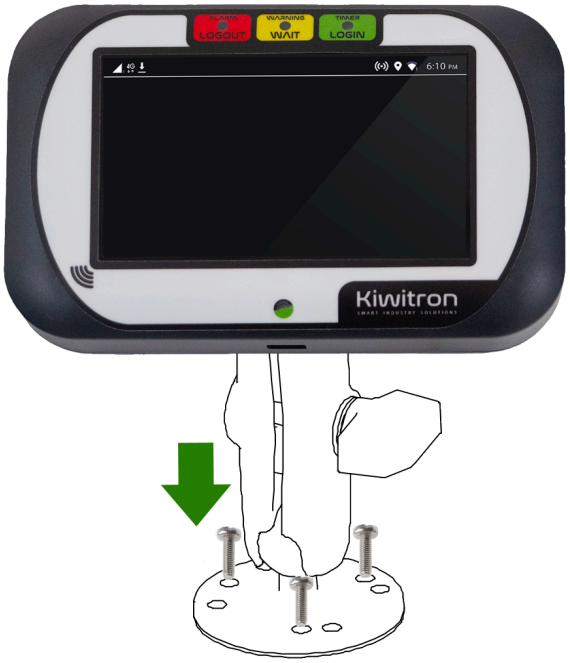


Fig.18 - Vehicle-side fastening

RFID Accessories

RFID accessories are used for access control. There are several options available:

Badge RFID - UID (R100010)

Fig.19 - Badge RFID – UID

Keyring (R000020)

Fig.20 - Keyring

RFID stickers (R000060)

Fig.21 - RFID adhesive

Bracelet (R000030)

Fig.22 - Bracelet

To gain access, simply place the RFID accessory on the badge reader of the KeyUP device.

In the KeyTouch device, access can also be carried out by entering a PIN directly from the device's Touch Pad.

Cables for standalone system installation

As these systems are fully customisable, there may be cables that are currently not included in this version of the document.

Please refer to the wiring diagram for more details on connections

C000301 + C100401 + C002090

This is the connecting cable between the KeyDN and the vehicle:

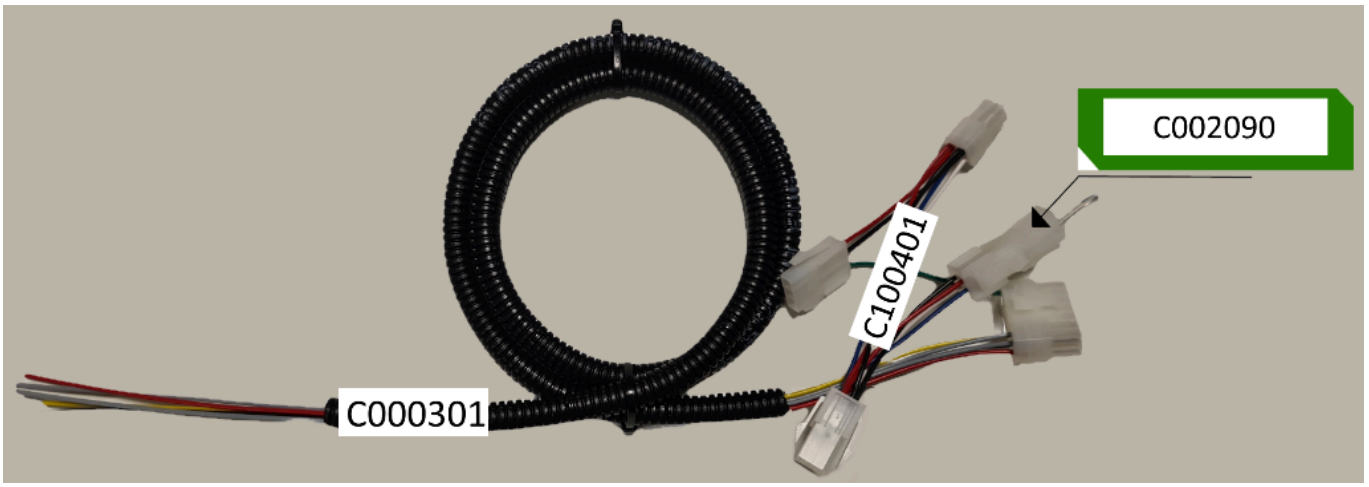


Fig.23 - KeyDN cable - Machine: C000301 + C100401 + C002090

C002190

This is a coil of purple cables to be connected (optionally) between the KeyDN and the vehicle:

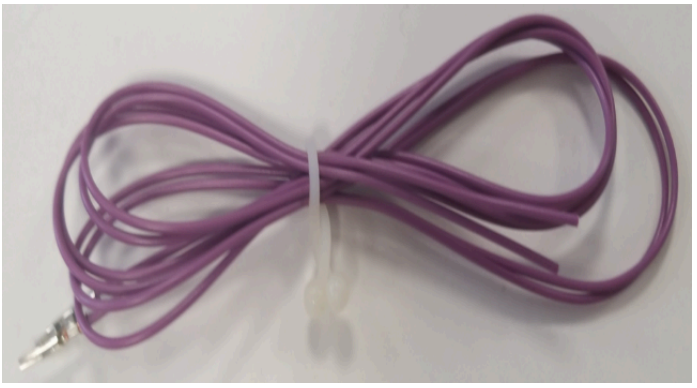


Fig.24 - Cable C002190 (optional)

C002080

This is the connecting cable between KeyDN and KeyUP:

Fig.25 - KeyDN- KeyUP cable: C002080

Cables for installation of accessory devices and/or sensors

To extend the range of device functionality, it is possible to connect the KeyAdvanced or KeyTouch to additional devices and/or sensors with chain connections through the provision of appropriate wiring.

Please refer to the Accessory Installation Procedure for more details.

Principle of operation

The system is installed on the vehicle, connected to a power source, connected to sensors and/or accessory devices and configured using special software.

Being remote control systems, the KeyAdvanced and KeyTouch record data continuously during operation.

KeyAdvanced and KeyTouch can be used:

- for the automatic and computerised management of the names of vehicle users;
- as an immobiliser on any vehicle with a voltage of 10-120 VDC;
- as vehicle tracking devices.

All system settings can be made through the PC configuration software (downloadable from www.kiwitron.com in the download section) or via the web via Kiwisat, Kiwitron's cloud portal.

From the Kiwisat portal, you can, via PC or smartphone, manage your fleet by obtaining various information, such as:

- real-time display of vehicle position;
- fleet maintenance status.

From the Kiwisat portal, for each connected vehicle:

- real-time' data are displayed with operating graphs, battery monitoring and full point-by-point views of vehicle routes;
- there is a complete visualisation of the efficiency of the means;
- different alarm thresholds can be set for each medium.

KeyAdvanced and KeyTouch functionality

Since these systems are fully customisable, there may be functionalities that are not currently included in this version of the document.

The KeyAdvanced and KeyTouch systems are remote control systems (immobiliser, telemetry and datalogger) that are installed on trucks and industrial vehicles with drivers on board and/or land or driverless vehicles such as:

- Counterbalanced and warehouse forklifts (steered and reach trucks), electric or with heat engines
- Earth-moving machinery
- Other vehicles there (caddy, motor brushes, tractors, industrial trains, etc.).
- Vehicles or machinery of any kind, the operating status and use of which is to be monitored, even remotely.

Standalone functionality

KeyAdvanced and KeyTouch, installed in vehicles, perform the following functions:

Function	Description	KeyAdvanced	Key Touch
Satellite localisation	The system is able to locate the vehicle on which it is installed. (GPS/GPRS option).		
Shock detector	The system is able to detect shocks thanks to the KeyDN and KeyUP's internal accelerometers.		
Access control/ Operator auto-logout	The system is connected in such a way that the machine can only be started by authentication via RFID badge or pin code. When the start consent signal fails (e.g. operator absent, vehicle shutdown, etc.), the device automatically logs the user out after a preset time.		
Immobilizer	The system, appropriately configured, blocks the use of the vehicle on which it is installed under certain conditions.		
Battery analysis	The system detects and analyses the battery voltage.		
Sending data via SIM and/or WiFi	The data recorded by the system are sent via SIM and/or WiFi to the data management portal.		
Performance limitation for inexperienced operators	If foreseen by the vehicle manufacturer, it is possible to connect an input of the machine used for performance limitation to one of the Key relays. Subsequently, during the initialisation phase, it is possible to assign the limitation in question to specific operators.		

Function	Description	KeyAdvanced	Key Touch
Checklist	The checklist function supports the operator during pre-use checks on machines. It is possible to decide on the conditions for requesting a check list (every start of the vehicle, every change of operator, fixed times).		
Fault Reporting	KeyTouch shows any faults on the display while the vehicle is in use		
Messaging with the driver	KeyTouch displays messages such as unloading requests from production lines on the display. (Additional device required).		

Tab.5 - Device functionality

Key functionality + sensors

KeyAdvanced and KeyTouch, have additional functionality when integrated in a system consisting of:

- enter the machine;
- electrolyte sensor;
- current sensor;

Function	Description	Electrolyte sensor	Current sensor
Battery utilisation analysis	The system is able to acquire data to monitor battery utilisation (Ah input and output). The current sensor (optional, plug and play cod. X200600 or X000701) should be installed as close as possible to the battery, no mechanical fastening is required.		
Presence of battery fluid	The system is able to signal the battery electrolyte level to the operator. It is possible to connect the sensor to a digital input in order to limit the use of the machine if the electrolyte level is not sufficient. The electrolyte sensor (optional, Art. G006320), has a green or red LED operator interface depending on whether the level is sufficient or insufficient.		

Tab.6 - Key Device Functionality + Sensors

Key functionality + accessory devices

As these systems are fully customisable, there may be functionalities that are not currently included in this version of the document.
For more details, please contact Kiwitron Technical Support.

TECHNICAL SUPPORT

Kiwitron S.p.a.
Customer service
Tel. +39 051 1889 3470
Mail: support@kiwitron.com

web site: www.kiwitron.com

KeyAdvanced and KeyTouch have additional functionality when integrated in a system consisting of:

- enter the machine;
- CANGateway;
- obstacle detection devices (e.g. KiwiEye, Radar, Anticollision);
- display devices (e.g. light column);
- Anticollision TAG device;
- production line call device (e.g. KiwiCall).

Function	CANGateway	KiwiEye	Radar	Anticollision Anchor	Anticollision TAG	Tower	KiwiCall	KiwiSafe
Electrical isolation between CAN Key network and vehicle CAN network	👍	👎	👎	👎	👎	👎	👎	👎
Communication between CAN networks with different bit rates	👍	👎	👎	👎	👎	👎	👎	👎

Function	CANGateway	KiwiEye	Radar	Anticollision Anchor	Anticollision TAG	Tower	KiwiCall	KiwiSafe
Translation of messages between different protocols								
Read-only canbus data acquisition from the machine network (physical disabling via internal jumper of transmission channel)								
Obstacle Detection (Persons, Carts, Signs, ArUco Codes) up to 25m								
General obstacle detection up to 8m								
Vehicle signalling (anticollision) up to 8m								
Signalling subject wearing Anticollision TAG up to 8m								
Additional light and acoustic signalling with obstacle detection								
Production line call signalling (only for KeyTouch)								

Tab.7 - Key device functionality + accessory devices

Technical Data

Technical data - KeyAdvanced XF01380			
Mechanical specifications			
Sizes	100/121 x 62 x 30 mm 3,9/4,8 x 2,4 x 1,2 in	Material	ABS
Weight	300 g 10,6 oz		
Electrical specifications			
Power supply (Vdc)	**min** **typ.** **max** 4,5 5 5,5	Consumption(W)	**typ.** **max** 1 2,5
Int. battery 1C Lipo 3,7V	550 mAh	Batteria RTC	40 mAh
Micro memory slot SD (FAT, FAT16, FAT32)			
Slot for SIM card			
Triaxial accelerometer			
Int. battery charger with maintenance function			
NFC reader			
MTTFd **Values indicated per device and per system (KeyAdvanced and KeyDN)**			
MTTFd Device	39 years	MTTFd System	15,5 years
Interfaces			
CAN BUS (2A & 2B)			
USB (Device)			
GPRS/LTE - GPS/GNSS Module			
Power output from 1 to 2 W			
2G 850/900/1800/1900 Mhz			

Technical data - KeyAdvanced XF01380			
	4G	2100/1900/1800/AWS 1700/850/900/700/800/850/700 Mhz	
Wi-Fi Module			
FCC/CE/IC Certified 2.4-Ghz IEEE 802.11b/g Transceiver			
Channels Receive Sensitivity from 1 to 14 -83 dBm			
Operational indicators/principles			
Logout	Steady red LED	Authentication in progress	Steady yellow LED
Alarm	Flashing red LED	Warning	Flashing yellow LED
Login/Operational	Steady green LED	Auto-logout	Flashing green LED Steady yellow LED
RFID authentication	Steady blue central LED	RFID correctly detected	Steady central green LED
Bootloader	Steady red, yellow, green LEDs	Buzzer	Intermittent on alarms or warnings Prolonged sound (1 s) when powering up for the first time

Technical data - KeyTouch XF01380D

Mechanical specifications			
Sizes	150 x 93 x 35 mm 5,9 x 3,7 x 1,4 in	Material	ABS
Weight	400 g 14 oz		

Electrical specifications					
Power supply (Vdc)	**min**	**typ.**	**max**	Consumption(W)	**typ.** **max**
	4,5	5	5,3		1 2,5
Int. battery 1C Lipo 3,7V	550 mAh			Batteria RTC	40 mAh

Micro memory slot SD (FAT, FAT16, FAT32)
Slot for SIM card
Triaxial accelerometer
Int. battery charger with maintenance function
NFC reader

MTTFd

Values indicated per device and per system (KeyAdvanced and KeyDN)

MTTFd Device	37 years	MTTFd System	15 years

Interfaces
CAN BUS (2A & 2B)
USB (Device)

GPRS/LTE - GPS/GNSS Module	
Power output from 1 to 2 W	
2G	850/900/1800/1900 Mhz
4G	2100/1900/1800/AWS 1700/850/900/700/800/850/700 Mhz

Wi-Fi Module

Technical data - KeyTouch XF01380D

FCC/CE/IC Certified 2.4-Ghz IEEE 802.11b/g Transceiver			
Channels Receive Sensitivity from 1 to 14 -83 dBm			
Display			
Sizes	109 mm 4,3 in	Number of dots	480 x 272
Surface treatment Surface luminance	Anti-Glare 500 Cd/m^2	Touch panel	Capacitive
Operational indicators/principles			
Logout	Steady red LED	Authentication in progress	Steady yellow LED
Alarm	Flashing red LED	Warning	Flashing yellow LED
Login/Operational	Steady green LED	Auto-logout	Flashing green LED Steady yellow LED
RFID authentication	Steady blue central LED	RFID correctly detected	Steady central green LED
Bootloader	Steady red, yellow, green LEDs	Buzzer	Intermittent on alarms or warnings Prolonged sound (1 s) when powering up for the first time

Technical data - KeyDN X400512

Mechanical specifications

Sizes	85/110 x 56 x 21 mm 3,3/4,3 x 2,2 x 0,8 in	Material	ABS
Weight	210 g 7,4 oz		

Electrical specifications

	min	**typ.**	**max**		
Power supply (Vdc)	10	24	120	Consumption (W)	**typ.** 3 **max** 12

MTTFd

Values indicated per device and per system (KeyAdvanced/KeyTouch e KeyDN)

MTTFd Device	26 years	MTTFd System (KeyAdvanced)	15,5 years
		MTTFd System (KeyTouch)	15 years

Input/Output

2 x Positive Inputs (Activation threshold > 1,7 V, Max 150 V)
1 x Positive Input (Range 0 - 5 V)
1 x Positive Input (Range 0 - 10 V)
2 x Negative Inputs (Activation threshold < 0,5 V, Max 150 V)
3 x Relè NO (Max 10 W)

Memory/Processor

Flash	256 KB	RAM	64 KB
Eeprom	128 KB	Processor frequency	from 0,032 to 120 MHz

Tab.8 - Technical Data

INSTALLATION

Electrical diagram

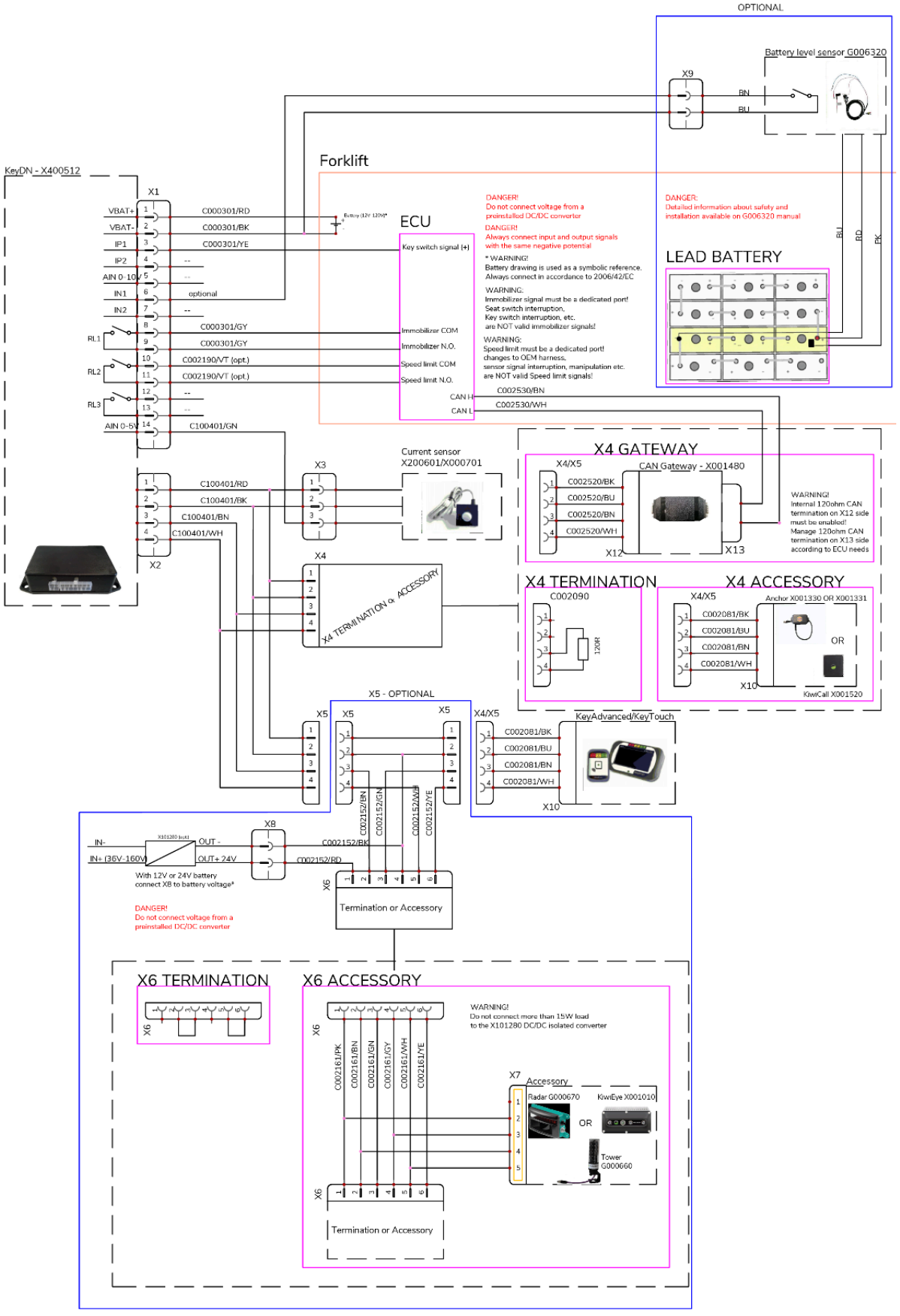


Fig.26 - Circuit diagram

Installation zones

The KeyUP and KeyDN devices must be installed on the vehicle in zones A and B shown in the figure.

- **A**: Installation area for KeyUP device, Badge Reader: driver's seat side or vehicle dashboard/panel.
- **B**: Installation area for KeyDN device, relay controller: plant room.

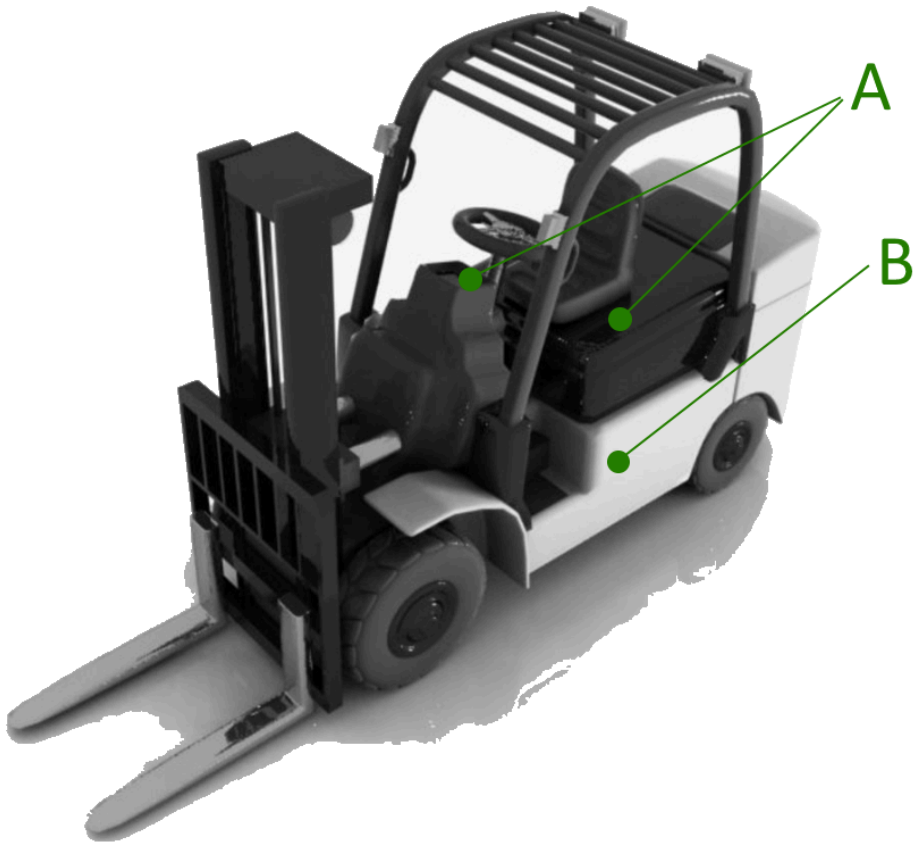


Fig.27 - KeyUP and KeyDN installation zones

KeyUP installation

The badge reader (in the case of KeyAdvanced) or the Touch pad controller (in the case of KeyTouch) must be installed in a position that is easy for the driver to reach, as they must be used each time to unlock the vehicle before use.

Stand installation (for KeyTouch)

To install the KeyTouch with RAM Bracket see the special section 'RAM Bracket'.

Make sure that there is no electrical voltage before carrying out the assembly steps.

For installation, special Velcro-type adhesives are available on request, allowing for simple, fast and non-invasive installation.

To protect the health of operators, place the KeyUP at least half a metre away from the driver's seat to limit exposure to electromagnetic waves emitted by wireless devices.

When installing or using the device by personnel with medical devices (e.g. pacemakers, etc.), follow the instructions of the medical device manufacturer.

In versions equipped with one or more antenna connectors, this MUST ABSOLUTELY NOT TOUCH or be placed near METALLIC PARTS (WITH ELECTRICAL POTENTIAL) LIKE THE FRAME, as this could adversely affect the system.

It is forbidden to place the devices near sources of strong heat or exposed to the weather.

It is forbidden to install the KeyUP device in positions that affect or restrict the safety and visibility of the driver.

Avoid placing the KeyUP device with metal parts covering its top, this could lead to malfunctioning of the wireless devices.

It is strictly forbidden to drill fastening holes in vehicle structures in order to install Key devices. Only use brackets or fastening systems that do not compromise the vehicle structure.

Fig.28 - Installation examples - KeyAdvanced

Fig.29 - Installation examples - KeyTouch

KeyDN installation

We recommend mounting the relay unit (KeyDN) in contact with the vehicle chassis and at right angles to the direction of travel and the force of gravity.
This allows the accelerometer to work under optimal conditions when detecting acceleration and possible shocks.
The ideal installation position for the KeyDN is, for example, in the battery compartment.

Example of KeyDN installations

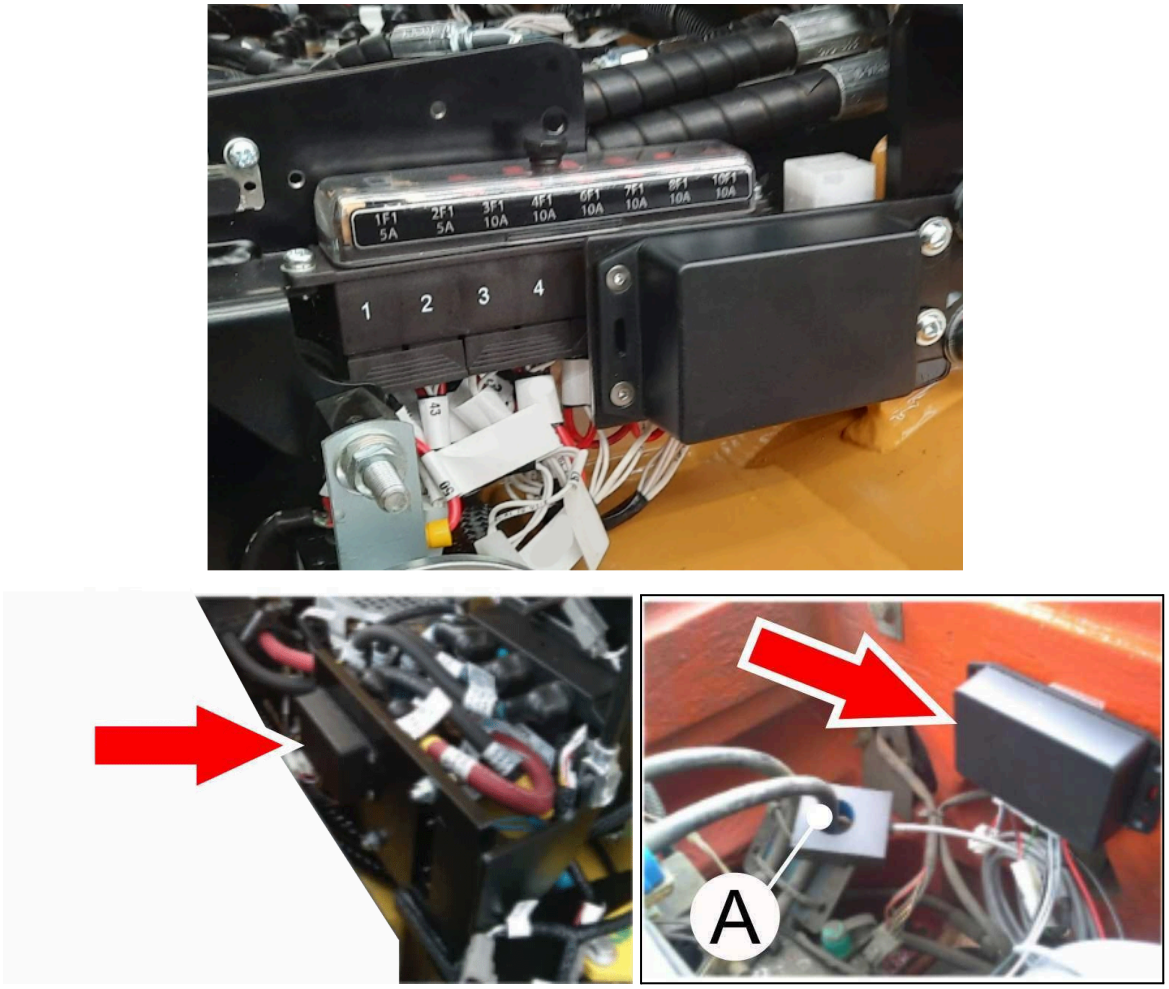


Fig.30- KeyDN installation example

The current sensor (A, Figure 29), where fitted, must be positioned directly on one of the two battery connector cables.

Pinout

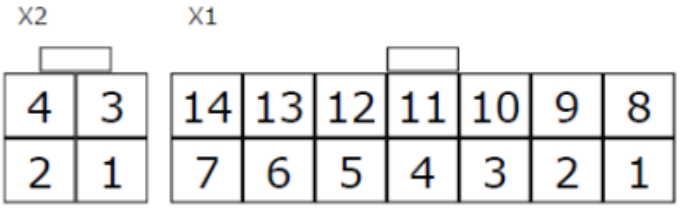
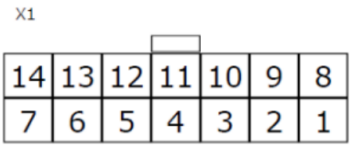


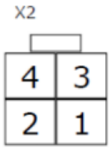
Fig.31 - Pinout KeyDN

X1 pinout



Location	Function
1	Power supply positive (10 - 120 V dc)
2	Power supply negative
3	IP1 positive digital input (activation threshold > 1.7V MAX 150V)
4	IP2 positive digital input (activation threshold > 1.7V MAX 150V)
5	Analogue input 2 (range 0-10 V)
6	IN1 negative input (activation threshold < 0.5V MAX 150V)
7	IN2 negative input (activation threshold < 0.5V MAX 150V)
8	Contact Photo 1 (Common)
9	Photo Relay Contact 1 (NO 6 A Max)
10	Photo Relay Contact 2 (Common)
11	Photo Relay Contact 2 (NO 6 A Max)

Location	Function
12	Photo Relay Contact 3 (Common)
13	Photo Relay Contact 3 (NO 6 A Max)
14	Analogue Input 1 (0-5 V) (Current Sensor)

X2 pinout 

Location	Function
1	KeyUP Power Supply Positive / Accessories (5 V dc)
2	Power supply negative GND KeyUP / Accessories
3	CAN H signal
4	CAN L signal

Connections

Minimum connections

To function, the Key requires only the power supply (11-120 VDC).
In this case, the functions of:

- Access control,
- Battery analysis,
- Impacts,
- Location and analysis of sensors within the system in general;

The operator must take care to authenticate himself (by badge or pin code) at the start of the job, and log out in the same way.

Recommended connections

It is recommended to interface the system with the machine using the device's connections and output relays in order to:

- detect the activation of the key input;
- detect the presence of the operator;
- prevent or interrupt the operation of the machine;
- signalling a problem to the operator (acoustic or light signal);
- reduce performance (e.g. speed limitation).

By adding two wires (relay contact) to the connection, the immobiliser and auto-logout functions can be added.

It is forbidden to carry out installations and/or configurations that may cause the introduction of new risks on the machine.
If this condition is not met, an additional risk assessment must be carried out.

Activating the key input enables the operation of the 'state' device: the system is able to distinguish different states of the machine, thus functioning optimally.

Examples:

- *If the machine is idle and not in use, the system knows that it can devote itself to internal operations, such as synchronising data and configurations or updating functions.*
- *If the key input is activated, the device prepares for use by interrupting the internal operations described above.*
- *When an operator authenticates himself by activating the machine, the KeyAdvanced /KeyTouch concentrates all its resources on sensor analysis and, in general, on the datalogger function.*

1. Connect connector X1 of cable C000301 to connector X1 of the KeyDN device

Fig.32 - KeyDN - X1

2. Connect the X2 connector of cable C100401 to the X2 connector of the KeyDN device

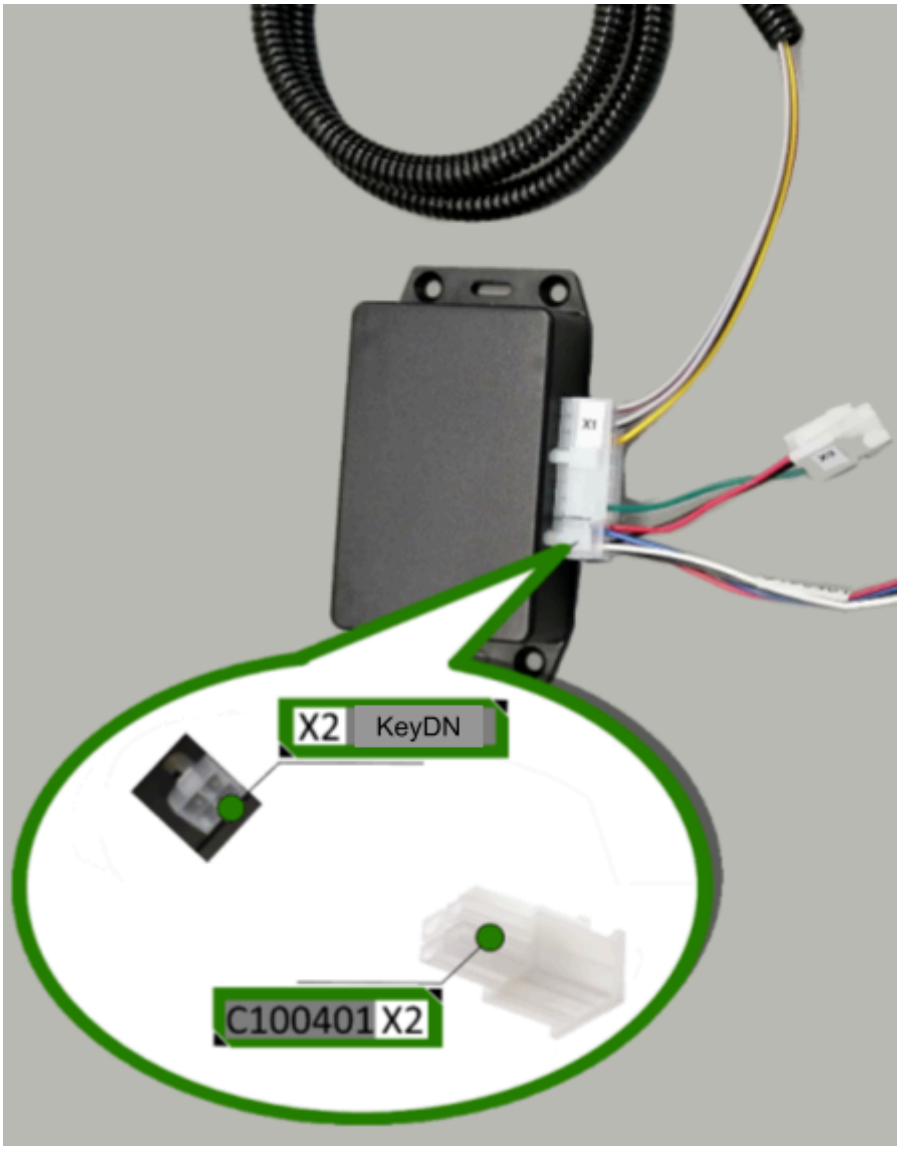


Fig.33- KeyDN - X2

3. Connect the X4 connector of cable C100401 to the CAN connector (C002090)

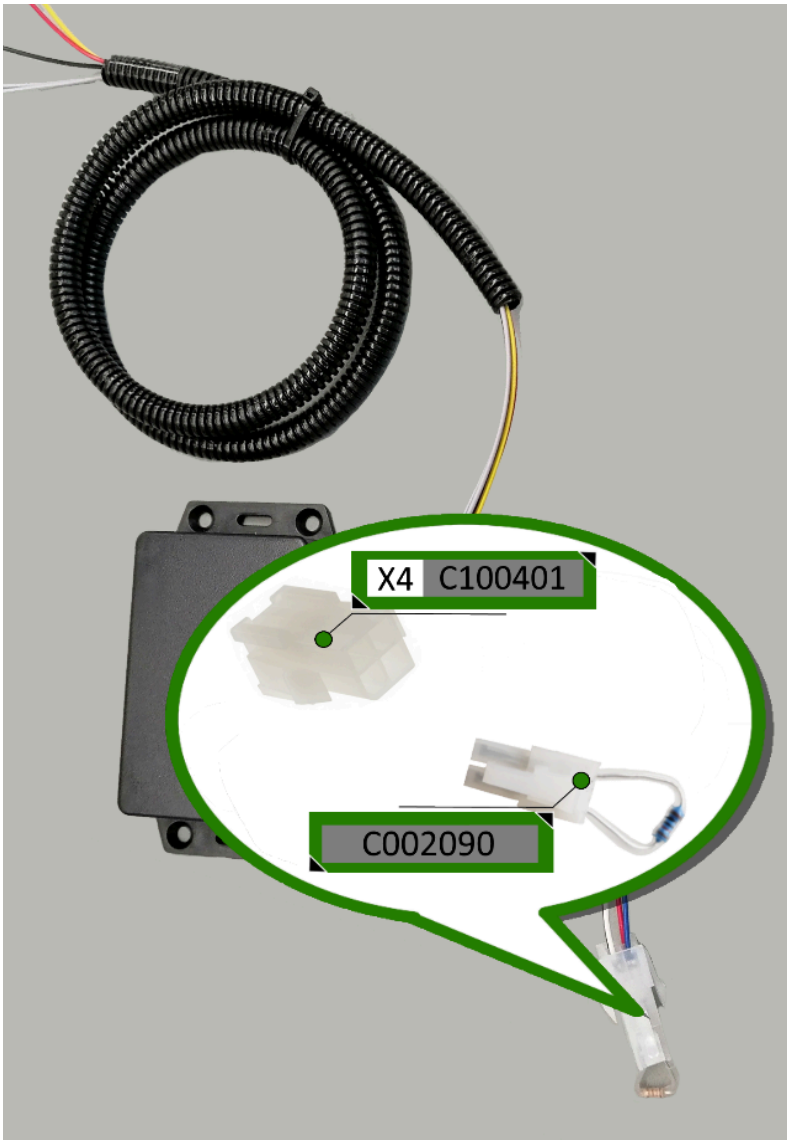


Fig.34 - CAN closure

4. Connect the X5 connector of cable C100401 to the X4/X5 connector of cable C002080

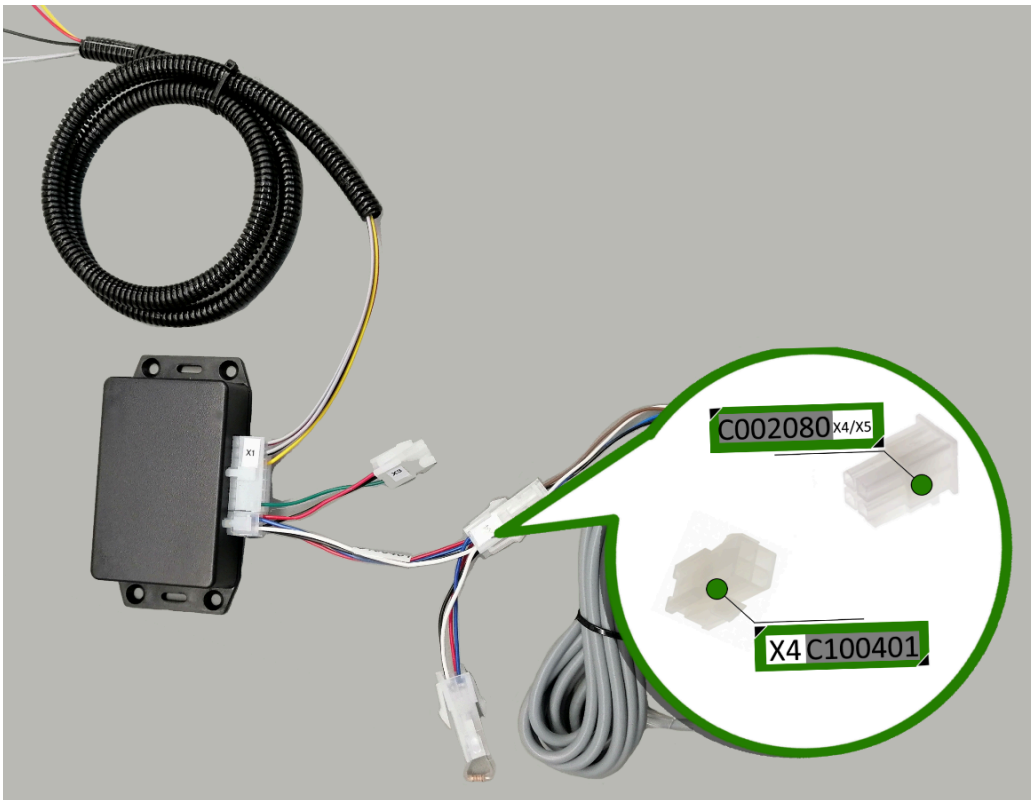


Fig.35- C002080 - X5

5. Connect the X10 connector of cable C002080 to the KeyAdvanced or KeyTouch

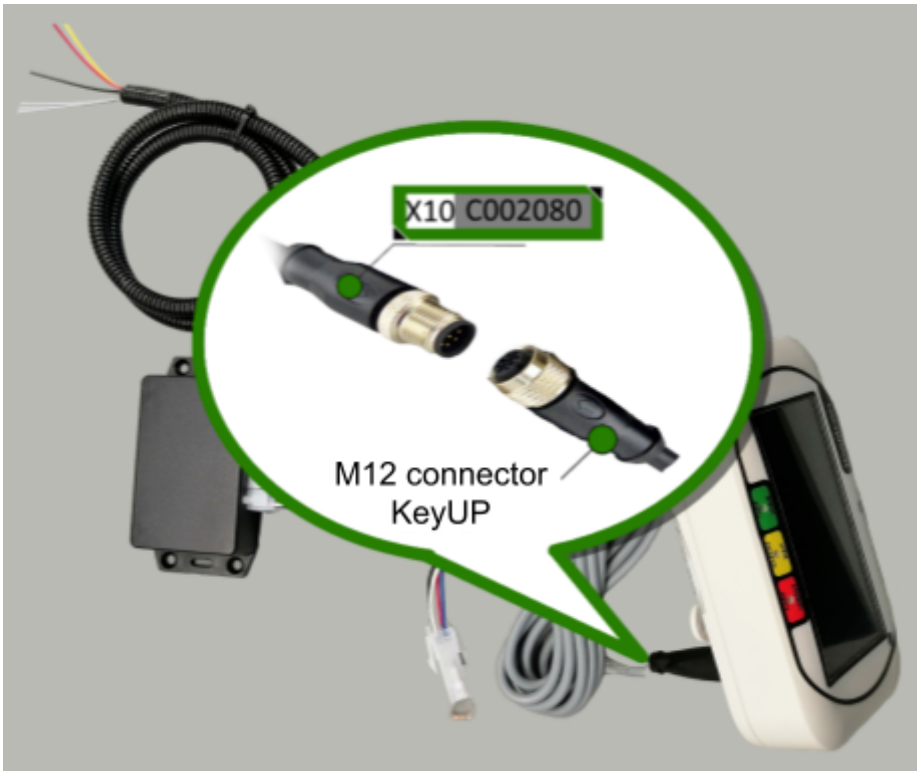


Fig.36- C002080 - X10

Overall, the following wiring will result:

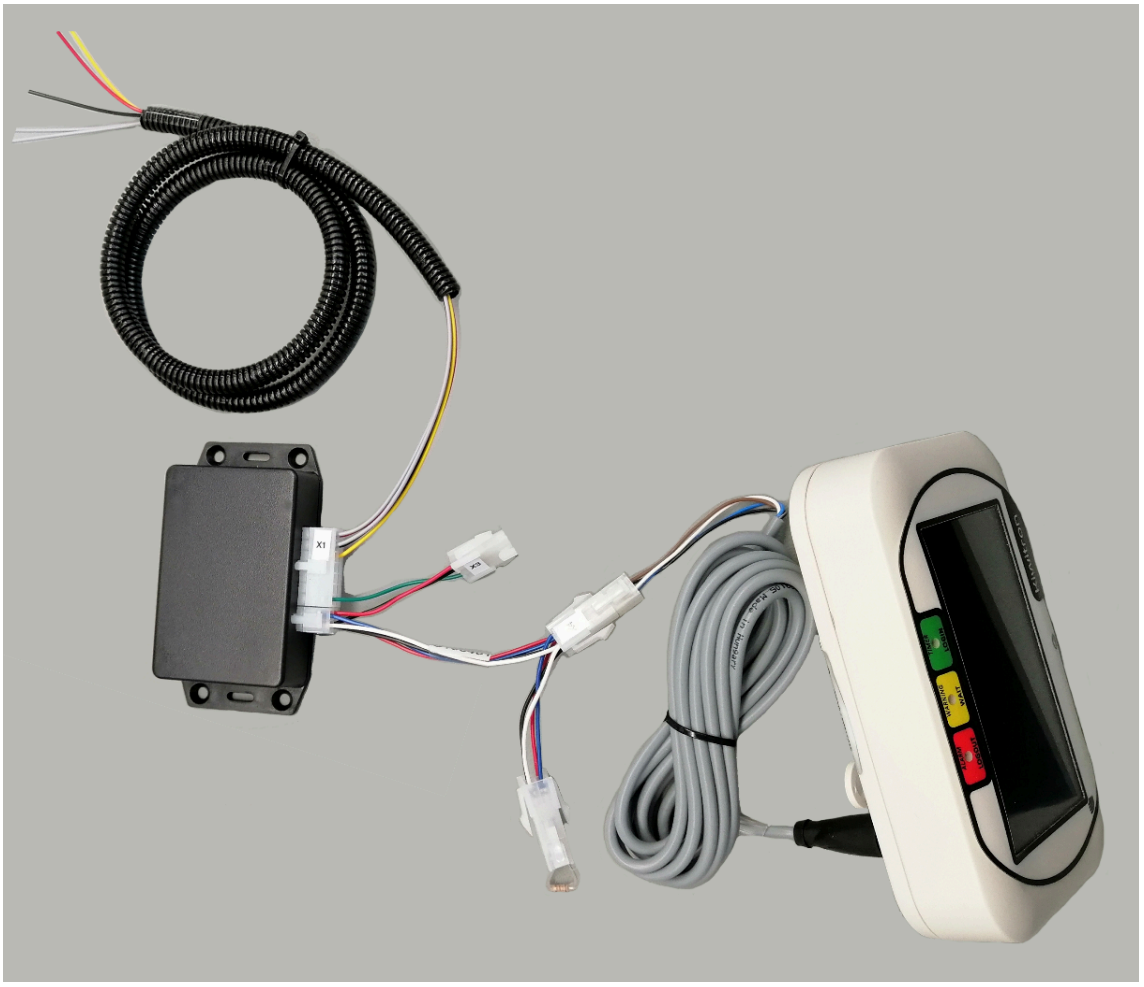


Fig.37- Minimum connections (example with KeyTouch)

6. Connect the power supply as indicated in the following sections:

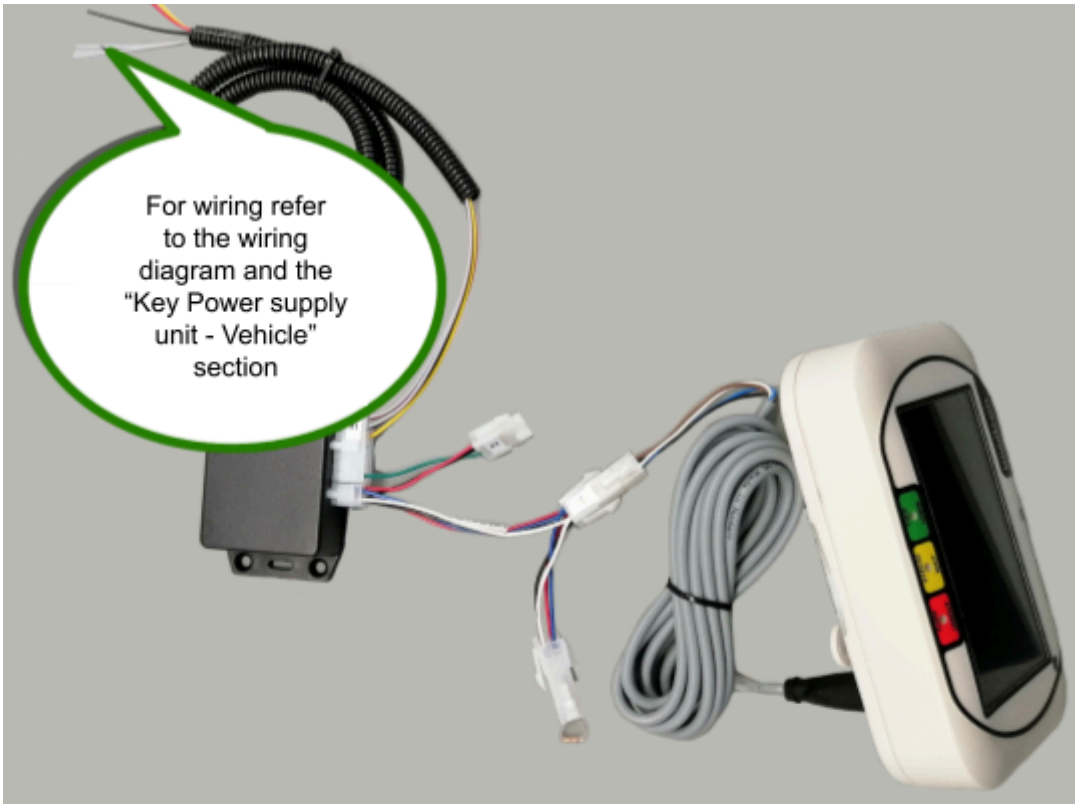


Fig.38- Power connection

Key power supply unit - vehicle

Electric Vehicles

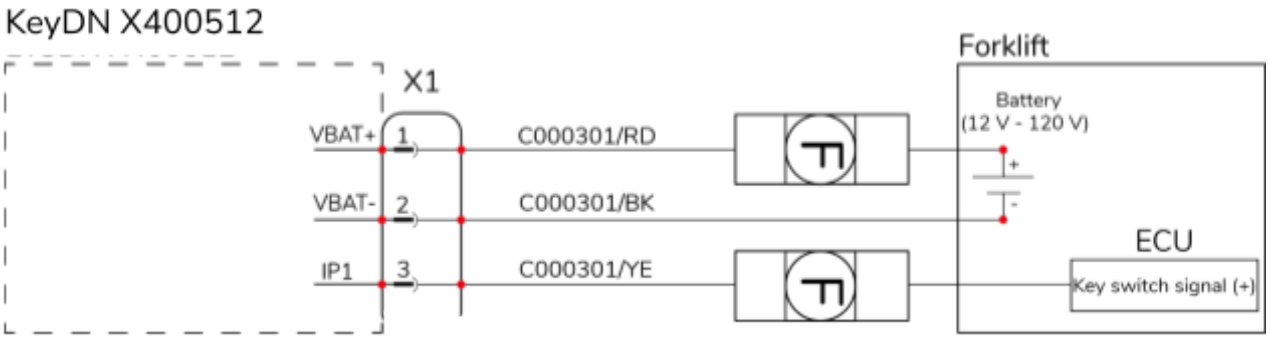


Fig.39- Electric Vehicle power connection

Endothermic Vehicles: with battery detacher G007130

If the system is fitted on endothermic engine vehicles, due to the reduced autonomy of the vehicle's batteries and in order to preserve their intact condition during periods when the vehicle is stationary and/or idle (engine off), the use of an automatic 'battery cut-off' device (available on request) is recommended.

Fig.40- Battery disconnect (G007130)

The battery disconnect is connected to the KeyAdvanced /KeyTouch as shown in the following diagram:

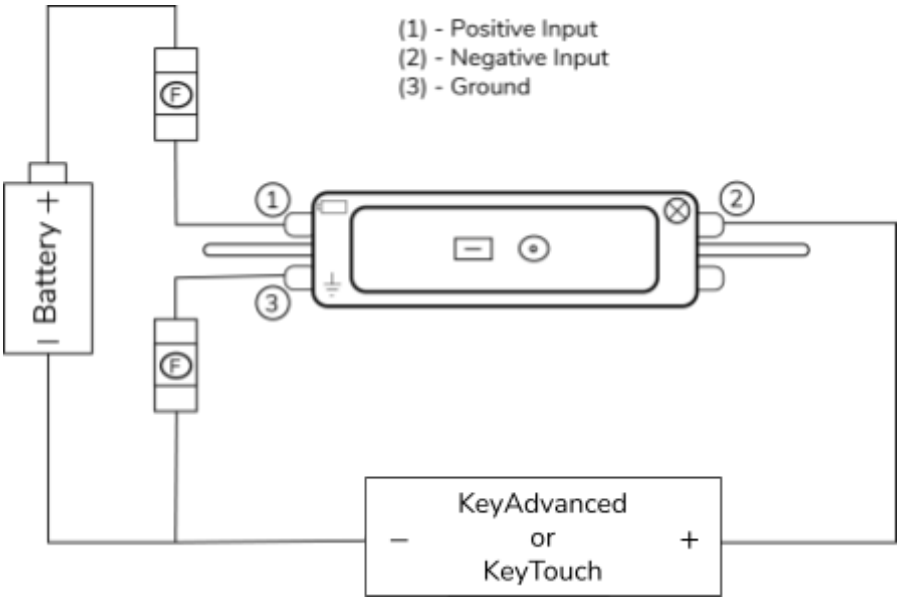


Fig.41- Endothermic Vehicle power connection

Connections with accessories

Accessory power supply

Connection for 12-24V powered accessories: power supply X101280 (optional)

For vehicles whose battery voltage is greater than 24 V DC, Kiwitron supplies a DC/DC power supply (X101280). The power supply has an input of 36V to 160V and an output of 24V with a maximum power of 15W and is required to power accessories (e.g: KiwiEye, Radar) requiring a 12-24 V supply voltage.

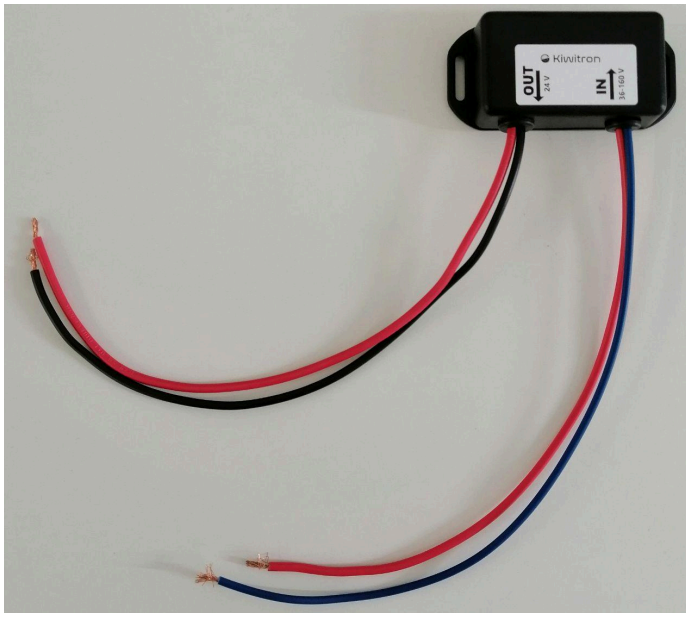


Fig.42- DC/DC power supply unit (X101280)

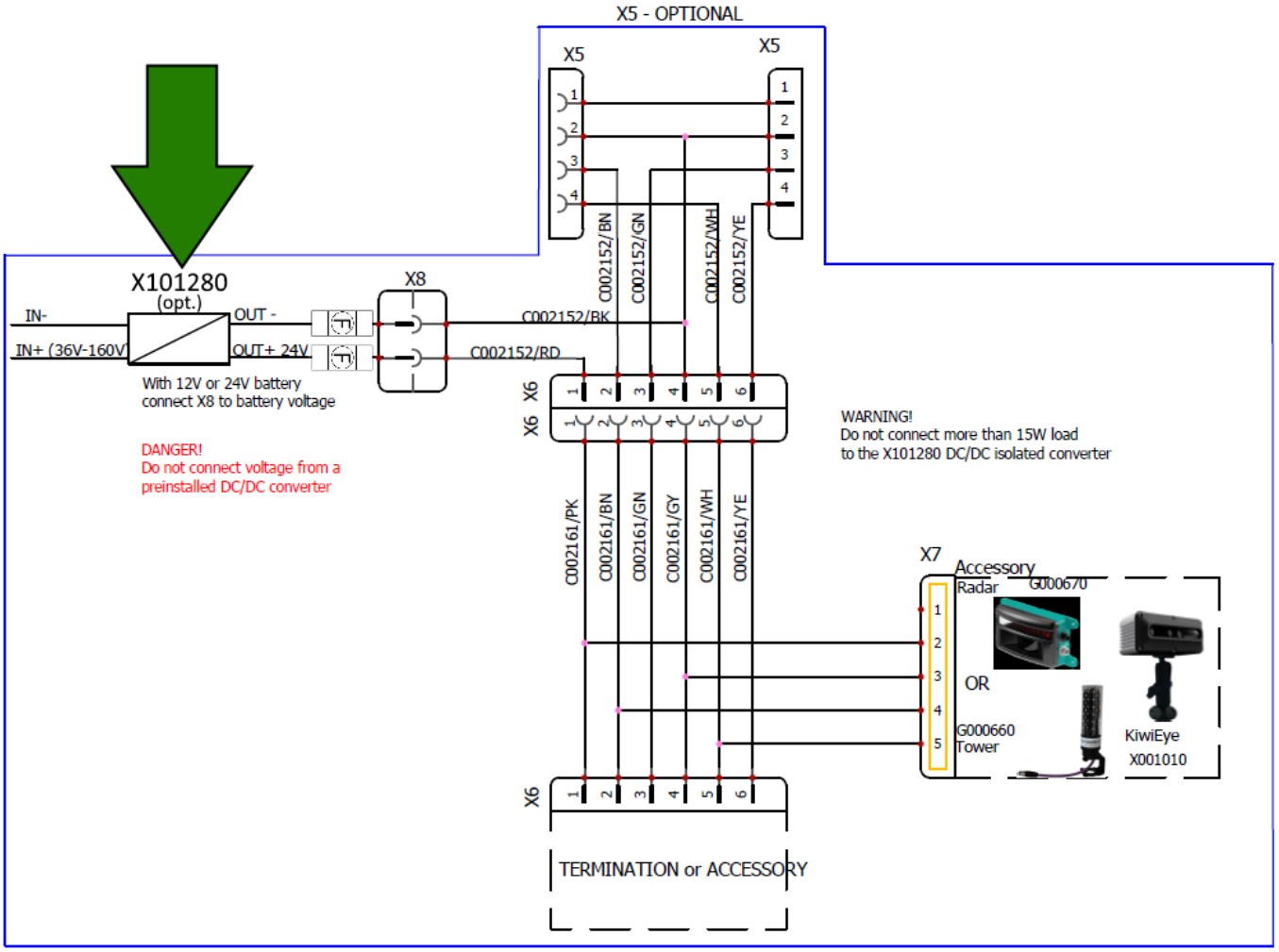


Fig.43 - Accessory power supply with DC/DC power supply unit (X101280)

The connection of X101280 consists of connecting the red and blue cables to the power source (36 - 120 V), and the red and black cables to cable C002152.

For illustrative purposes only, this is described below:

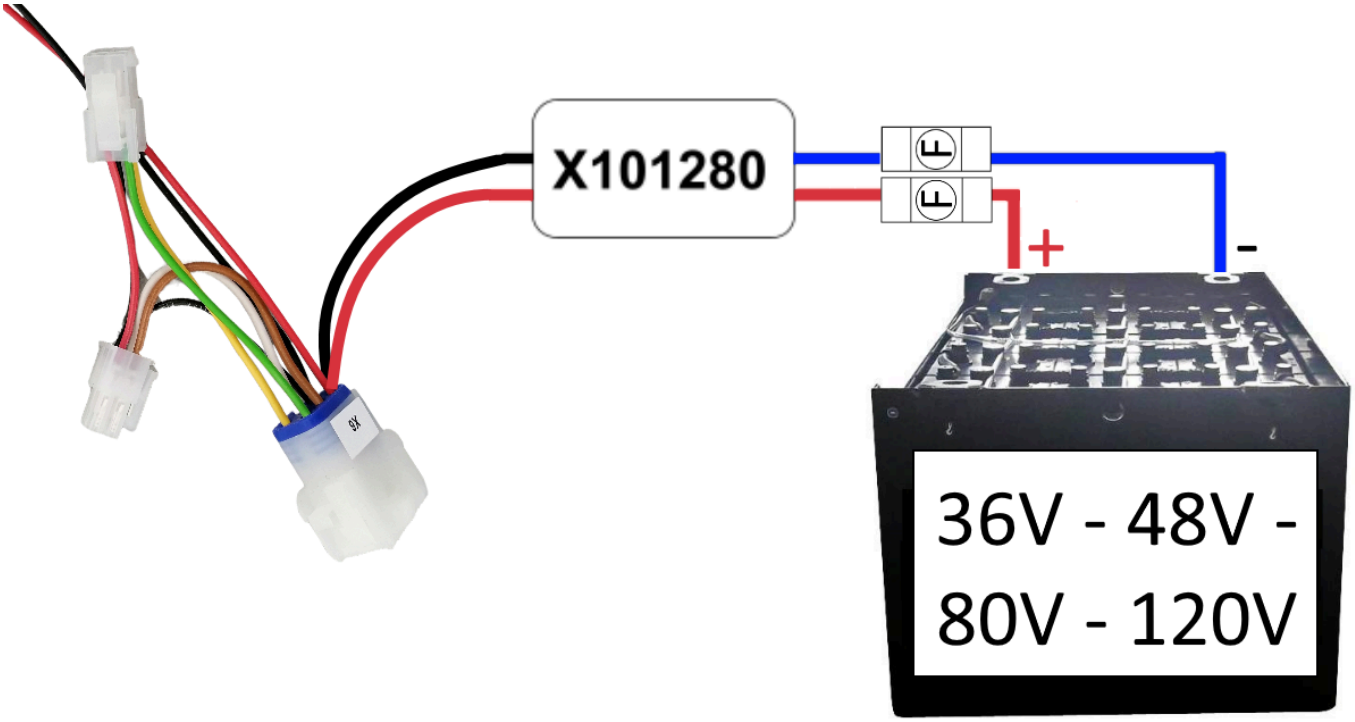


Fig.44 - DC/DC converter connection (X101280)

It is forbidden to draw voltage directly from the battery. The one in the figure is a conceptual diagram.

It is forbidden to use a DC/DC converter other than the one recommended in this manual. Any damage resulting from incorrect installation will not be the fault of Kiwitron.

Connections with sensors and accessory devices

Please refer to the 'Accessories Installation Procedure' for more details.

USE AND MAINTENANCE

Use of the system

After installing, connecting and configuring the system, operators will be able to activate or deactivate it as described below.

Activation

The operator gets into the vehicle by getting into the driving position and operates the start key

The KeyUP device 'wakes up' and is ready to accept a login.

The operator accesses the system via authentication (badge, pin code or keyless, if the operator is wearing a collision avoidance tag).

The system gives start-up consent (if the user is enabled) by activating a 'Working Profile' or 'Use'.
The system starts to monitor the utilisation of the machine, which will be associated with the start (and possibly end) date and time.

The vehicle can be activated by means of a badge type ISO/IEC 14443A (previously stored with the user's data), read and recognised by the NFC reader.

Up to 1500 badges/users can be programmed.

Badge activation is achieved in wireless mode by bringing the badge close to the reader (KeyUP).

It is possible to monitor the date and time of any use of the vehicle.

It is possible to analyse the graphs or any alarms that have been generated while using the vehicle.

Deactivation

When the job is finished, the operator switches off the machine and gets out of the vehicle.

After a time interval of 5 seconds (configurable), the system automatically logs the user out and removes start-up consent.

When the Working profile is missing (which is normally kept active by the key input signal), the device will go into a quiet state during which it periodically analyses the sensors.

Each time it is switched on, at regular intervals, the system performs an instantaneous check (check) of all internal and external sensors.

If one of the sensors has been configured as an 'Alarm' sensor, the system will analyse it and if it is outside the preset values, it will generate a warning that will be recorded on its internal memory and then sent to the web portal.

The difference between the two operation profiles is the sampling frequency associated with the two profiles: in the Work profile, sensor sampling is normally more frequent than in the Quiet profile.

The signals that can be analysed are more than 50 and include 4 digital and 2 analogue inputs to which external sensors can be connected.

The users authorised to use the vehicle will be stored in the device; for each one it will be possible to associate dates, times or days of the week during which the badge will be valid.

Each user is associated with an operating profile that characterises the behaviour of the vehicle's relay outputs.

The device also updates its internal software remotely.

Visual signals

KeyAdvanced and KeyTouch have a visual signalling system consisting of 3 colours of LEDs (with flashing option) integrated in the reader.
In the case of the KeyTouch system, in addition to the coloured LEDs, texts, buttons and indications on the status of the system or an alarm appear on the screen.

Fig.45- KeyTouch screen text example

If you wish to use an external detector in the system, simply connect it via the contact of a Key relay.

Table 8 describes the visual warnings when using KeyAdvanced or KeyTouch:

Visual signalling	Device Status	Meaning
Red LED Permanently lit	-	The device is in the idle state (logout)
Red LED Flashing	-	Active Alarm
Yellow LED Permanently lit	-	Authentication in progress
Yellow LED Flashing	-	Warning active
Green LED Permanently lit	Login	The device is in a working state (login/work)
Green LED Flashing + Steady Yellow	Login	The auto-logout timer is active, the green LED flashes with a frequency as high as the time is almost finished
Central Blue LED Permanently lit	Logout/Login	The device accepts authentication via RFID badges. (Using the PIN or keyless tag is however possible to log in)
Central Green LED Permanently lit	-	RFID media authentication device detected correctly
Red, Yellow, Green LEDs Steadily lit	Bootloader	Device software update in progress: during this phase the device is not able to operate correctly, wait for the LEDs to go out.

Tab.9 - Visual signals

Acoustic signals

KeyAdvanced beeps when it registers any type of alarm (or warning); the sound emitted is intermittent for the duration of the event (settable).

Configuration

For more details on how to configure the device and use the relevant software, please refer to the document 'Configuration Procedure'.

Firmware Update

To update the device's firmware, you must be connected to the device.

Depending on the firmware to be loaded (boot or main) and the target device (KeyUP or KeyDN), a USB cable connection may be required.

ATTENTION:
This procedure is relatively delicate and risky, so it is recommended to always update devices via USB connection.

Go to Settings → Advanced → Firmware Update → Update now

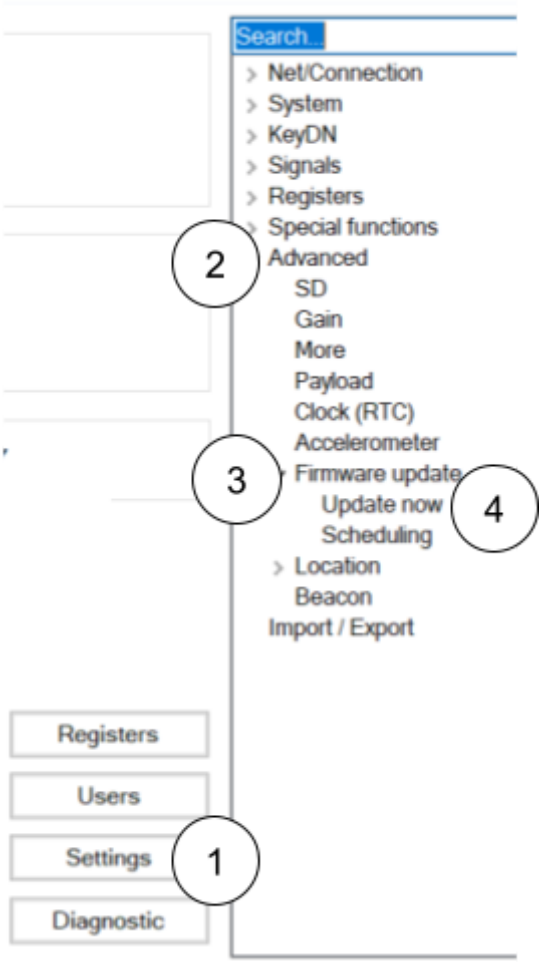
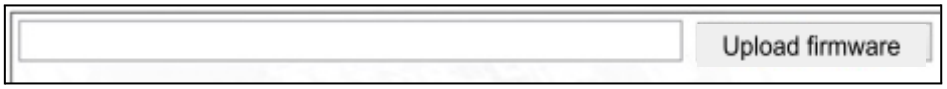


Fig.46

Click inside the text field to select the firmware file you want to upload, the software will automatically detect the firmware type and the target device. If you do not have any firmware to load, see the next section.



The automatic update procedure will start, follow the on-screen instructions to continue.

Downloading updates

Automatic Update

As of software version 3.11F, an automatic download function for updates via Internet connection is available.

If updates or updated manuals are available for the connected device, these are automatically notified when the device is connected.

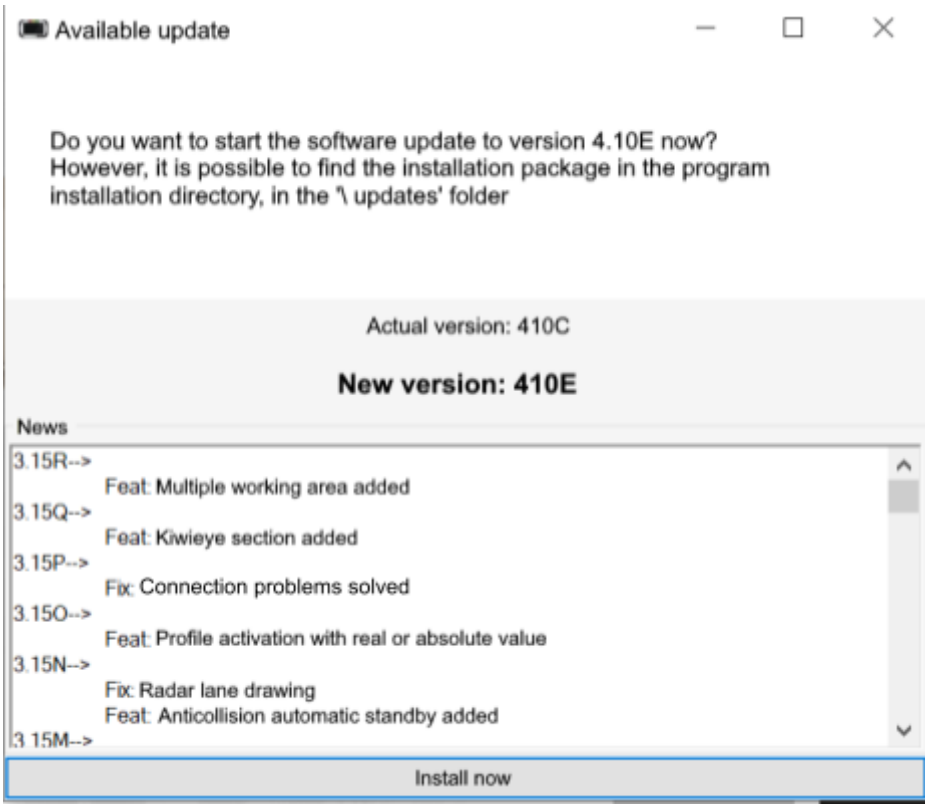


Fig.47- Update notification available

Software and firmware updates are downloaded automatically in the background.

Manual Update

If you want to manually start the search for updates:

1. In the top bar, click on Help → Search for updates

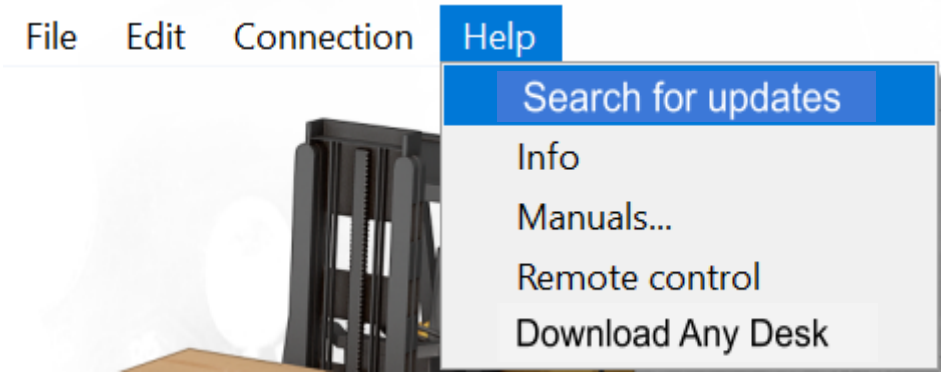


Fig.48- Manual search for updates

2. If a newer version than the one installed is found, a window will open that will download new versions of the software and firmware for the devices

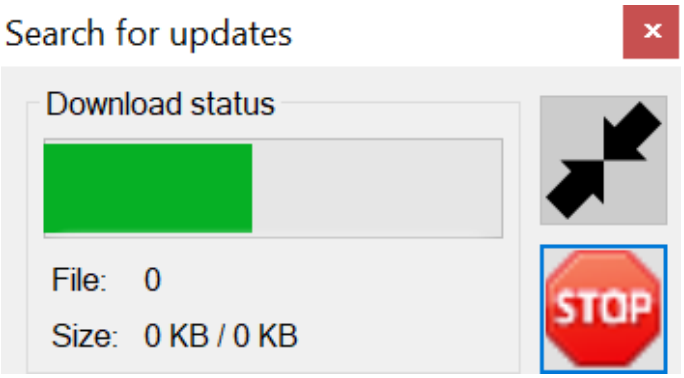


Fig.49- Downloading updates

3. A notification confirming installation of the update will appear when the operation is complete

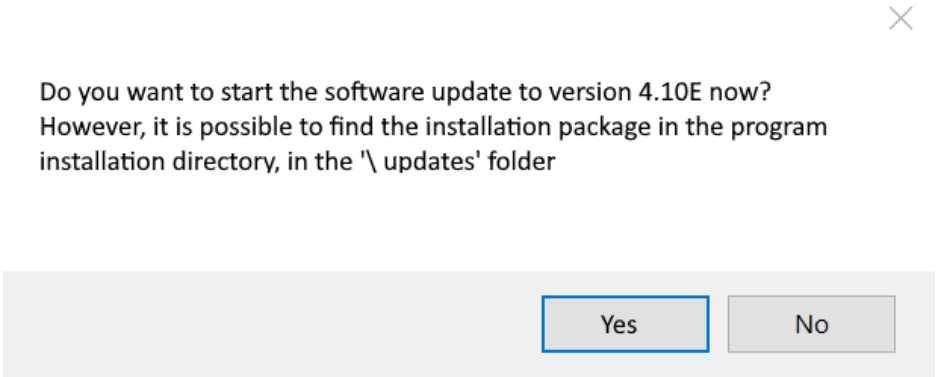


Fig.50- Update installation confirmation

4. Click on Yes and follow the steps indicated

The files just downloaded are still saved in the installation directory of the program

Maintenance

It is advisable to clean the device periodically, using a soft, lint-free cloth.

It is advisable to periodically check the physical condition of the various components such as control units, connection cables and external sensors.

Do not use abrasive cloths, towels, paper towels or similar.

Do not rub surfaces excessively

Do not use alcohol, solvents or chemicals.

Do not spray cleaning agents directly onto the product

Do not allow moisture to penetrate the openings

Do not wash with water jets or pressurised water jets

End of life - disposal instructions

The devices manufactured by Kiwitron Spa are professional electronic devices intended exclusively for commercial use (B2B). Unlike devices designed for domestic use (B2C), they cannot be disposed of through public collection centers for household waste, such as landfills or municipal recycling centers. At the end of their useful life, disposal must be managed directly by the customer, in accordance with current regulations on the management of professional electronic waste.

To facilitate proper disposal, please note that some components of the product may contain substances identified as SVHC (Substances of Very High Concern) under the REACH Regulation.

All information regarding the presence of these substances in our devices is published in our SCIP declaration, available in the technical documentation section of the Kiwitron website.

Please consult this page if you wish to know the detailed composition of the materials for the purposes of proper disposal or recycling of the device.

What to do if

Since these systems are fully customisable, there may be issues not currently reported in this version of the document.
For more details, please contact Kiwitron Technical Support.

TECHNICAL SUPPORT

Kiwitron S.p.a.
Customer service
Tel. +39 051 1889 3470
Mail: support@kiwitron.com
web site: www.kiwitron.com

Problem	Possible cause	What to do
The device does not switch on (14-pin connector)	No or insufficient power supply, incorrect configuration.	Check with a multimeter that a DC voltage of at least 10 V is present on the supply pins of the KeyDN control unit. Check the correct configuration of the Quadro ON profile activation.
The device does not switch on (4-pin connector)	Faulty control unit power supply	Check that there is 5 V on the power supply pins at the output of the KeyDN control unit. If this is not the case, ask the seller to replace the relay unit
The device does not recognise cards or key rings	NFC reader switched off (central blue light off)	Check the device settings. Usually the reader is switched on when the key input is activated and during connection with the PC software
Device does not recognise cards or key rings (orange light flashes)	User not authorised	Verify user settings
The device does not recognise cards or key rings (the central light remains blue)	Card or key ring type not supported	Ensure that the cards or key rings used are 13.56Mhz technology
The device does not recognise cards or key rings (the central light remains blue)	Broken card or keyring	Replace support

Problem	Possible cause	What to do
The device does not recognise cards or key rings (the central light remains blue)	Disturbance on the working frequency of the reader	Insert the appropriate filter in series with the device power supply (contact your supplier)
SIM card not detected	Dirty or oxidised contacts	Contact Kiwitron Support
MicroSD card not detected	Incorrect entry	Contact Kiwitron Support
A relay is not switched	Conditions for switching not fulfilled	Check user profile settings
The machine does not activate (user login correctly)	Wrong machine connection	Check the connection. Simulate relay closure by bridging
The machine does not activate (user login correctly)	No relay associated with activated user profile	Check user profile settings
The device does not see the digital inputs (PC software diagnosis section)	Incorrect Connection	Check the connection. For low active signals use the negative inputs, for high active signals use the positive inputs
The device does not see the digital inputs (Diagnosis section of the PC software)	KeyDN control unit not connected or faulty	Check the connection (4-pole cable) and, via the software, ensure that the control unit is correctly detected
The device does not see the digital inputs (Diagnosis section of the PC software)	Non-associated KeyDN control unit	Check the connection (4-pole cable) and, via the software, ensure that the control unit is associated. If the illustrated error is displayed, double-click on the icon to make the association.
Device does not see inputs (PC software diagnosis section)	Voltage thresholds not reached	To activate a positive input, a voltage of 1.7V must be exceeded. A voltage below 0.5V is required to activate a negative input
The machine does not start (red light flashes)	A stored alarm blocks the activation of the machine	A user enabled to remove alarms must login
The machine activates, but soon after deactivates	Incorrect user deactivation settings	Check user retention conditions and auto-logout time. (e.g. key input absent)

Problem	Possible cause	What to do
After a period of use, removing power from the device immediately shuts it down	Internal battery disconnected	Contact Kiwitron Support
After a period of use, removing power from the device, it goes off immediately	Internal device battery flat or in need of replacement	Contact Kiwitron Support
Device does not transmit (GPRS)	SIM not present or not enabled for data traffic	Check with your SIM provider about the possibility of accessing the Internet
Device does not transmit (GPRS)	PIN code not entered or wrong	Correct settings (see Configuration Procedure, section 'PIN Code')
Device does not transmit (GPRS)	Wrong APN, http, FTP, etc. connection settings	Check connection settings
Device does not transmit (WiFi)	Device not connected to WiFi network	Check connection settings and on-site coverage
The device clock does not stay synchronised	Buffer battery low	Contact the technical support centre
After an update, the device froze	--	Disconnect the device from all power sources including the USB cable and the battery inside the device, wait 5 seconds and reconnect everything. If the problem persists, contact the technical support
Usage is not recorded (machine is switched on)	Incorrect profile configuration	Via Key SW: Setting -> States -> Profile Activation ensure that the Work profile is activated with the presence of the user (tick USER)
RFID reader does not switch on (central LED off)	Incorrect user profile configuration	Via Key SW: Setting -> States -> User Profiles check that the RFID line is set correctly
RFID reader does not switch on (central LED off, correct user profile configuration)	Hardware Failure	Check, by connecting to the software, that the central LED lights up. If this is not the case, contact after-sales
The device is not recognised by the software	Faulty USB cable	Try another cable
	COM port occupied	Close all other running software, if the problem persists restart the PC

Problem	Possible cause	What to do
	COM port absent	Check that the drivers are correctly installed
	Hardware fault	Check that the red light at the top of the badge reader is lit, if not contact service

Tab.10 - Possible faults

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