Kiwitron
SMART INDUSTRY SOLUTIONS

Edition 09.04.2025

KiwiOrion

K007240

Manual for installation, use and maintenance

Kiwitron
SMART INDUSTRY SOLUTIONS

CE

Declaration of Conformity - (DoC)

We

Manufacturer:	Kiwitron S.R.L.
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:

KiwiOrion X007240;

Object of the declaration:

Anti-collision device for industrial 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 standards / ETSI standards

Place: Sasso Marconi (BO) - Italy **Valid from:** 04/04/2025

Last update: 04/04/2025

Person authorized to compile the technical file: Daniele Parazza

Legal representative: Andrea Filippini

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UK CA

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Statutory Instruments: S.I. 2016:1091

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Revisions

Version	Comments	Chapters edited
00	First issue	Everyone

Tab.1 - Document revisions

Purpose and field of use

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 field of use

Key

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

Tab.3 - Key

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.r.l. reserves the right to make any graphic or functional changes to devices and/or software without prior notice.

The Kiwitron device **cannot** replace the safety devices of the vehicle on which it is installed.

The Kiwitron device **must** be installed in compliance with general safety regulations.

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

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

Warn the operator of the vehicle before carrying out any remote operation (web cloud or remote connection via PC) for preventing dangerous situations.

Where the device is installed in such a way that a maximum/minimum performance limit can be activated dynamically, the safety of the machine and the operators **must** be respected. In any case **it is forbidden** to command the complete stop of the vehicle but only a reduction of its speed. Any change in the operating parameters of the vehicle **shall not** create potential danger situations. In any case, connection and calibration operations external to the systems provided by Kiwitron are the sole and complete responsibility of the installer, including any risk analysis that may be necessary.

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.**

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 the regulations.

The wireless modules used for GPRS and Wi-Fi transmissions meet all the security requirements required in the field of high frequency radio wave communications.

Interference may be generated if used in the vicinity of equipment such as TVs, 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) or near an airport. In all areas where there are restrictions imposed due to the use of electronic devices.

Intended use

The device is designed for use only on self-propelled forklifts or industrial vehicles with electric, endothermic or hybrid drive that comply with the Machinery Directive 2006/42/EC.
It is also designed for use on agricultural and forestry machinery.

Use not permitted

Any use of device not expressly described in this manual is not permitted.
And in particular:

It is not permitted to install Kiwitron device on vehicles that can travel on public roads.

On forklifts crossing tracks unless a vehicle restraint system is already fitted on the starting consent.

Kiwitron device and its accessories and additional sensors are assistance systems.

Kiwitron device 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.

Kiwitron device is not an explosion-proof device.

Kiwitron device cannot be installed on two- or more-axle vehicles with electric traction, with an endothermic engine, such as cars, trucks, mopeds, motorcycles and public-service operating machines.

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 be malfunctioning.

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.r.l. disclaims 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 interventions.
- Incorrect manoeuvres.
- Use of non-original spare parts.
- Use of accessories not foreseen or not authorized in writing.
- Total or partial non-compliance with the instructions.
- Unusual cases.
- Cases not in accordance with the regulations and legislation currently in force in the country of installation.

Kiwitron s.r.l. is not aware of the specific ways in which its buyer will use the sold device and is therefore not able to know whether such use may violate the rights of third parties. In addition, the sold device is not usable in a single mode but can be configured according to customer needs. Therefore, Kiwitron s.r.l. is not liable in any way for any unlawful use of the sold device that violates the rights of third parties resulting from patent rights or other industrial property titles.

Kiwitron s.r.l. is relieved of any responsibility in the case of installation of the device on vehicles also authorised for use on public roads: it is in fact the responsibility of the operator to decide on the installation and use of the device on the vehicle. In this case it is absolutely mandatory to disable the blocking function of the vehicle (immobilizer) and slowing down in the event of a collision, to avoid creating situations of hindrance or danger (for example blocking the vehicle while crossing railway tracks).

Technical assistance and manufacturer's warranty

Technical assistance
In the event of faults, please contact Kiwitron technical assistance department.

Kiwitron s.r.l.

Customer service

Tel. +39 051 1889 3470

Mail: support@kiwitron.it

web site: www.kiwitron.it

Warranty

The warranty is not applicable following breakages 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 interventions.
- Incorrect manoeuvres.
- Use of non-original spare parts.
- Use of accessories not foreseen or not authorized in writing.
- Total or partial non-compliance with the instructions.
- Unusual cases.
- Cases 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 following normal use such as:

- Electrical cables and connectors.
- Membrana Touch Pad

Refer to the sales documentation to find out all the contractual warranty terms.

General description

Glossary

Term	Definition
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.

Tab.4 - Glossary

Device description

The device is a perimeter protection system designed for integration with forklifts and other industrial vehicles.

Uses advanced VCSEL ToF (Time of Flight) technology to detect obstacles and improve operational safety.

Device overview

Fig.1 - Device overview

Accessories

Bracket (M003070)

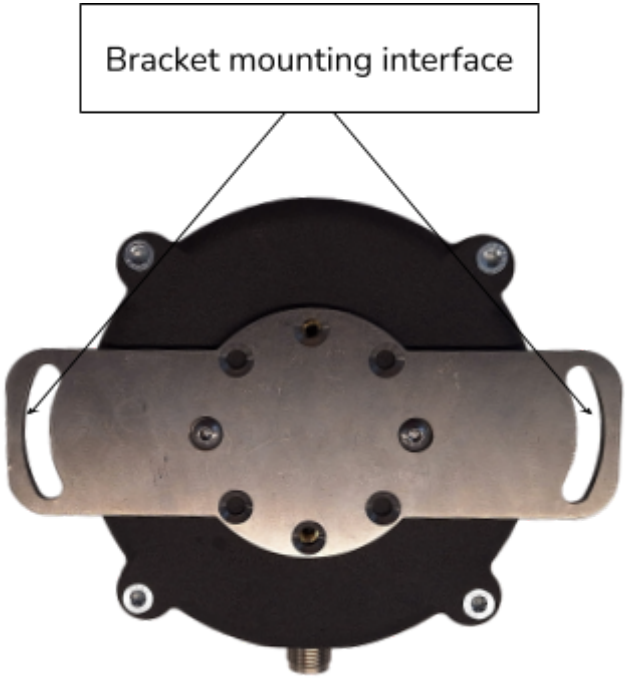

Fig.2 - Bracket

Bracket 90° (M003070)

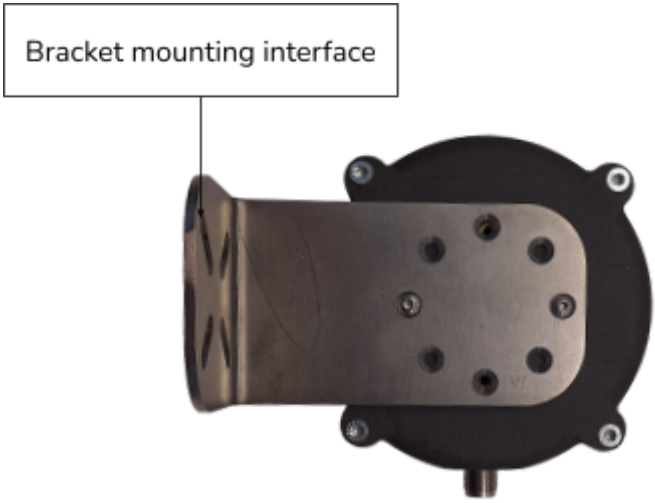

Fig.3 - Bracket 90°

Wiring

The wiring included in the kit is the most up-to-date version. It may differ from the one shown in this manual, but it is fully compatible and can be used as is.

C002161

It is the cable that allows the connection of the KiwiOrion with Kiwitron master devices (Key or KiwiSafe).

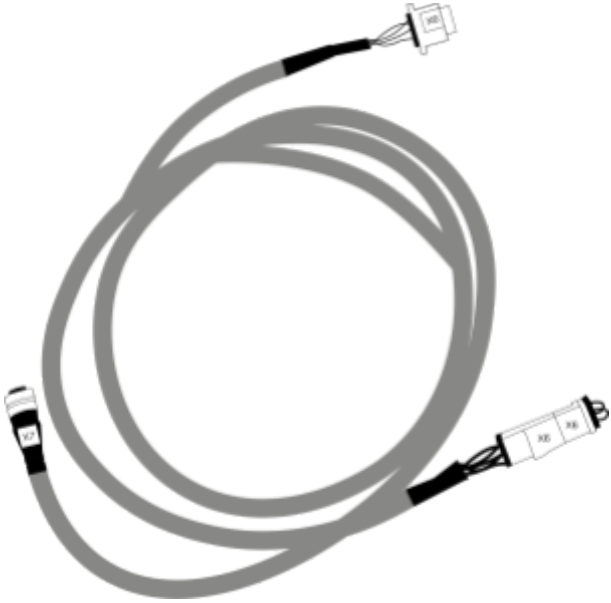

Fig.4 - Wiring C002161

Operating principle

The device, installed on a vehicle, is able to detect the direction and the distance to which other machines with a compatible system are located.

The device can be configured to alert the driver to the presence of another machine in the immediate vicinity.

It is possible to interface the device to the vehicle through contact outputs to activate speed limitation functions of the vehicle (if provided by the manufacturer of the machine).

Technical data

Mechanical specifications			
Sizes	110 x 110 x 85 mm 4.33 x 4.33 x 3.35 in	Material	Nylon 12

Electrical specifications				
Power supply (Vdc)	**typ.** 12/24	Consumption (W)	**typ.** 2W	**max** 5W

UWB Module
Transceiver Channel 5 (6.5 GHz) / 6.8 Mbps data rate

Interfaces
CAN BUS

Tab.5 - Technical data

Installation

Installation

Ensure that the device has a clear line of sight to the area where it needs to communicate or detect.

The device must be installed as horizontally as possible on the vehicle and in the area that needs to be detected

Fig.5 - Installation side

Installation scheme

The connection diagram available on the Kiwitron website shows the currently supported accessories for Key.
The device described in this manual connects in the same way as the listed accessories (KiwiEye, Radar, Stacklight).

The following installation diagram is provided for illustrative purposes only.

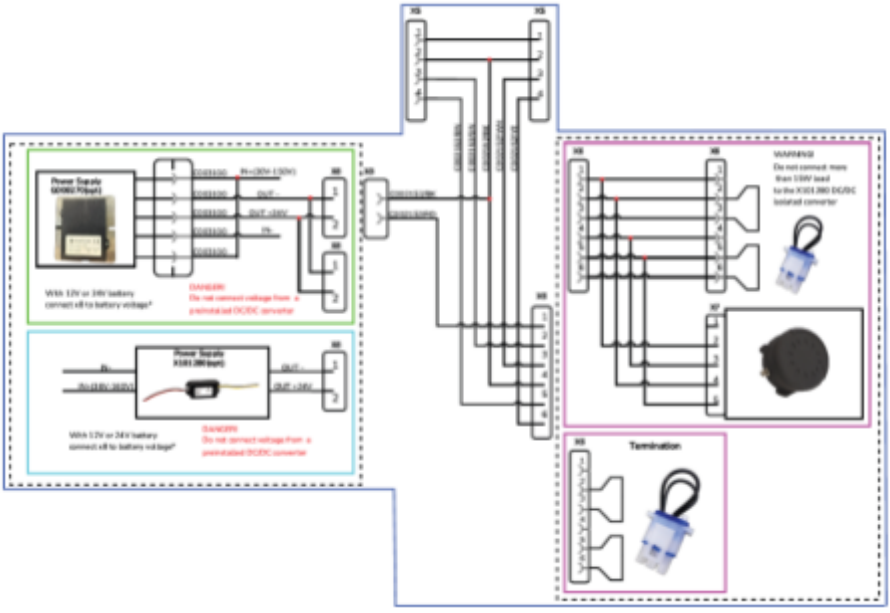

Fig.6 - Installation scheme with Key

The connection diagram available on the Kiwitron website shows the currently supported accessories for Key.
The device described in this manual connects in the same way as the listed accessories (KiwiEye, Radar, Stacklight).

The following installation diagram is provided for illustrative purposes only.

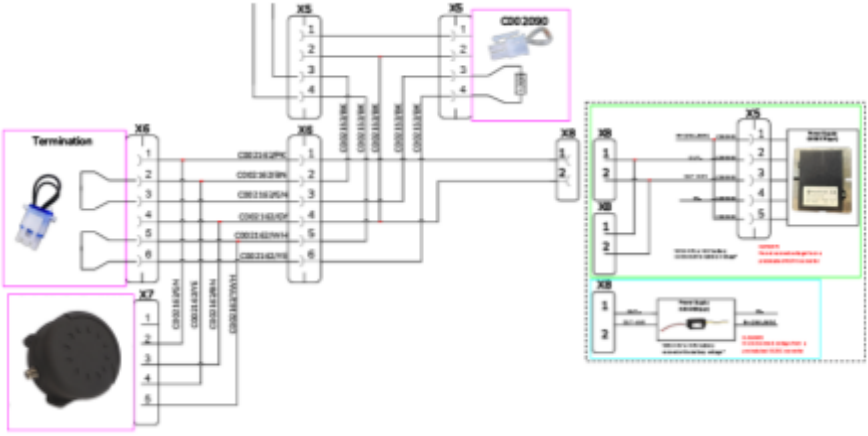

Fig.7 - Installation scheme with KiwiSafe

Installation on bracket

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

In case of installation or use of device by personnel equipped with medical devices (e.g. pacemakers, etc...) follow the instructions of the medical device manufacturer.

It is forbidden to place device near sources of strong heat or exposed to bad weather.

It is forbidden to install the device in positions that influence or limit the safety and visibility of the driver.

Do not use pressure washers; in case of sanitization or cleaning interventions inside the cabin that require the use of water and detergents, it is recommended to protect the wiring, disconnect, and remove the device during the operations. Reconnect it once the cleaning is completed.

It is forbidden to make fixing holes on the vehicle structures in order to install the device. Use brackets or fastening systems that do not compromise the structure of the vehicle.

The device must be installed as horizontally as possible using, if applicable, the bracket provided.

If an alternative bracket is used, make sure it provides a wide and stable mounting surface.

RAM-type mounts are not recommended, as they may allow excessive tilting with respect to the horizontal plane, potentially compromising the accuracy of the device's measurements.

Fig.8 - Installation on bracket examples

Connections with Key system

The device connection steps follow the same procedure described in the accessory installation guide of the relevant master unit, available on the Kiwitron website.

In general, the overall connection with Key is as follows:

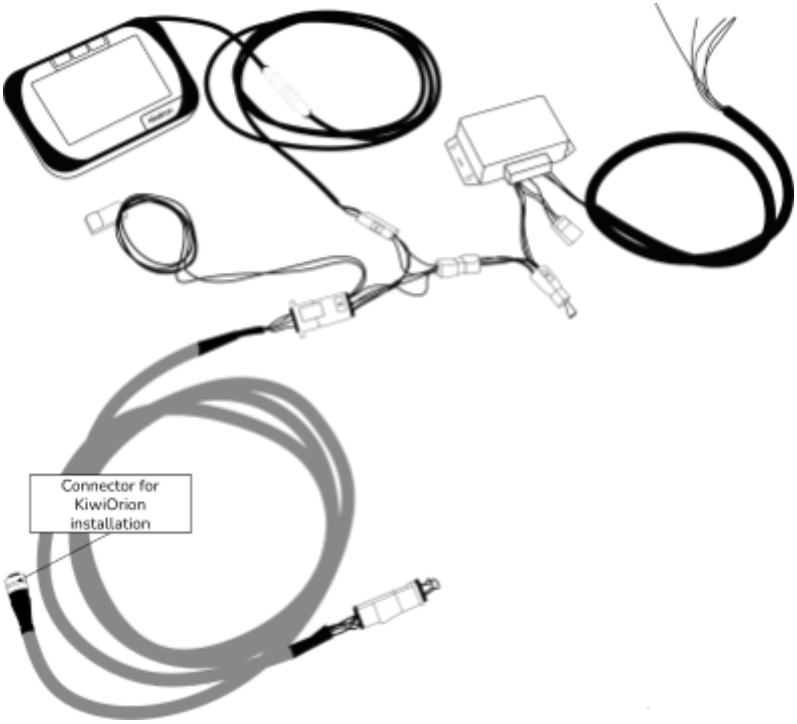

Fig.9 - Overall wiring Key + 1 Accessory

Use and maintenance

Configuration

The KiwiOrion device is configured via SW Key (for more details see the SW Key configuration procedure available on the Kiwitron website).

Special functions → KiwiOrion → General

Gives the user the ability to configure general device parameters such as Node ID, activation conditions and mounting offset.

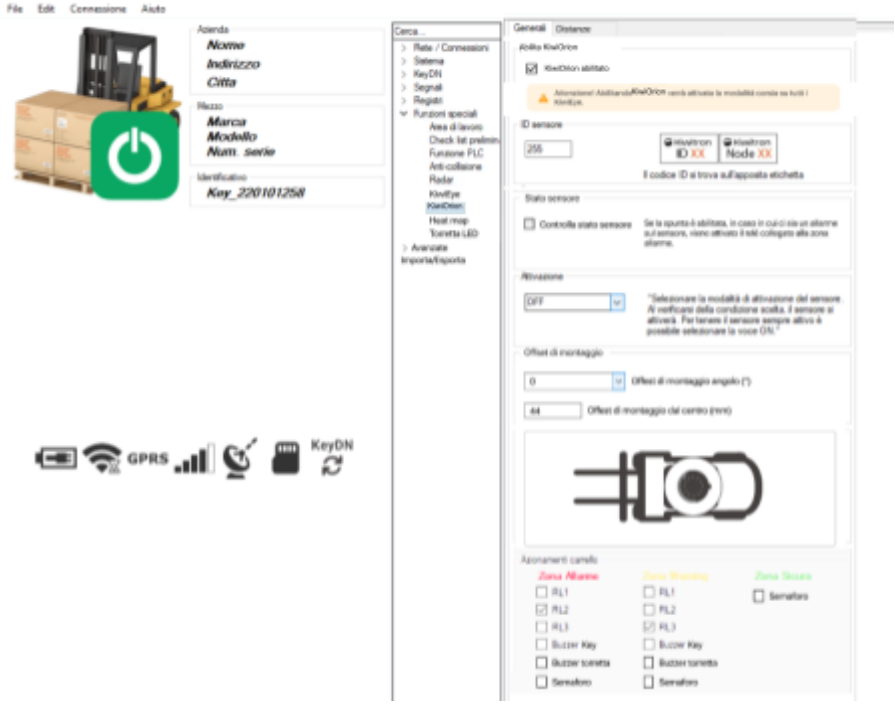

Fig.10 - KiwiOrion configuration - General

Special functions → KiwiOrion → Distances

It enables the user to set the distances and the signal used to detect the vehicle's direction of movement.

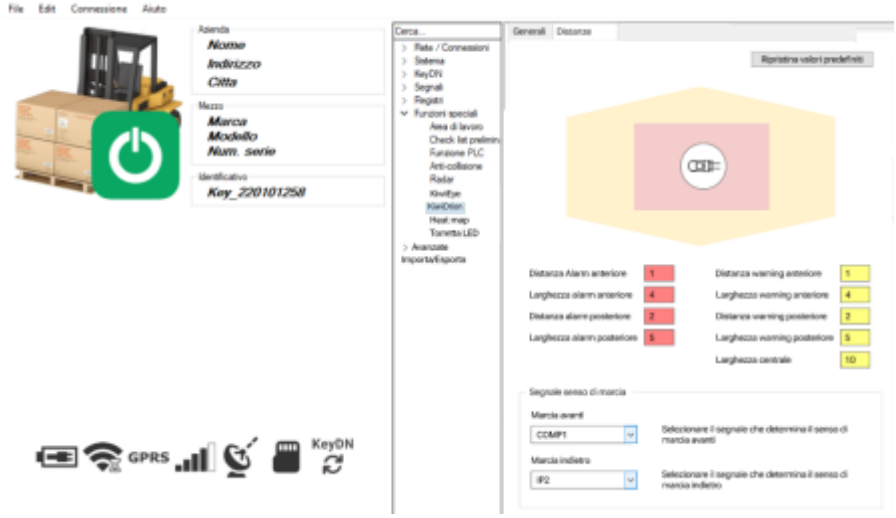

Fig.11 - KiwiOrion configuration - Distances

Maintenance

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

It is advisable to periodically check the physical state 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 enter the openings

Do not wash with water jets or pressurized water jets

What to do if

Since this is a fully customizable system, there may be installation examples not currently included in this version of the document.

For further details you can contact the Kiwitron technical assistance service.

Technical assistance

Kiwitron s.r.l.

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Mail: support@kiwitron.it

web site: www.kiwitron.it

Via Vizzano 44 - 40037
Sasso Marconi (BO)
+39 05118893470
info@kiwitron.it
www.kiwitron.it