INVERS

User Manual CloudBoxx

CB1020

Rev. 08.2023-01

Welcome to CloudBoxx Ecosystem

The CloudBoxx should only be installed into a vehicle by a qualified individual. The CloudBoxx enables remote interaction between the user's app and the vehicle via Bluetooth (BLE) and cellular mobile data communication in order to make the vehicle shareable.

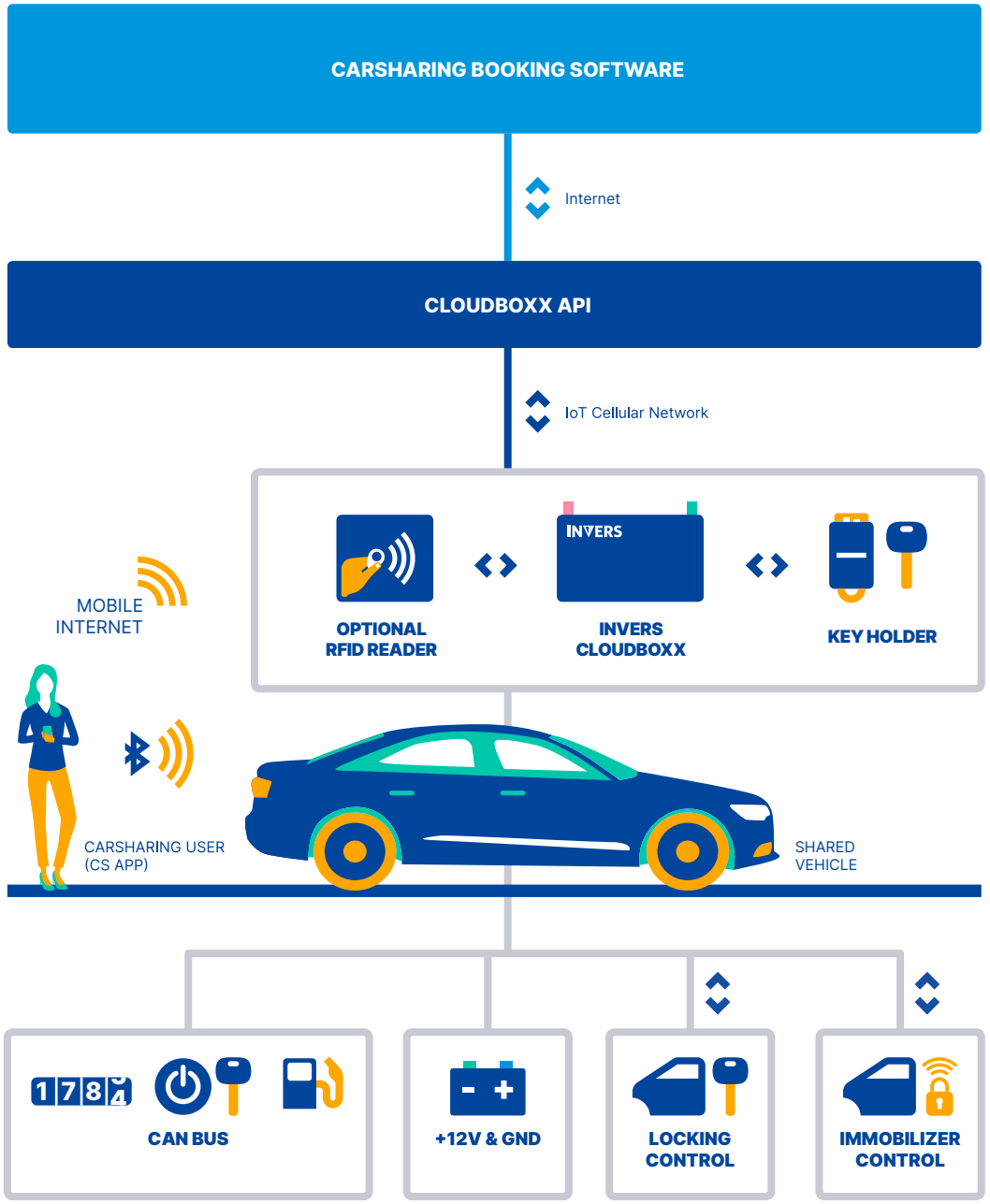
With an app, shared mobility customers can locate, reserve, and access a vehicle to use. The CloudBoxx is the interface between the booking software and the vehicle. It controls access to the vehicle, reads data from the sensors, and transmits it to the booking software.

For a detailed description of features and options, use your personal login to the CloudBoxx-API-Documentation found here:
api.cloudboxx.invers.com/api

Please note the CloudBoxx must be installed into a vehicle only by a qualified staff member!

CloudBoxx may only be installed and operated in vehicles. The respective operating model and its functional and safety features are the responsibility of the operator. Please note the following safety information!

Welcome to CloudBoxx



Technical Data & Limits

Power Supply	7 to 56 V DC; max. Peak Current 300mA
Digital and Analogue Inputs	max. 56V DC
Operating Temperature	-20 °C to +85 °C / -4 °F to + 185 °F
Cable lengths	max. 3 meters / CAN-Bus wires max. 1 meter (twisted)
Minimum distance more than 20cm of CloudBoxx and antennas to human body and sensitive electronics	

RF Frequency Ranges

RFID	TX&RX: 125kHz, 11.81 dBμA/m@10 m Distance
Bluetooth LE	TX&RX: 2402~2480MHz, 7 dBm
2.4GHz Band Wi-Fi	RX: 2412~2472MHz
GSM 900	TX: 880 MHz to 915 MHz, RX: 925 MHz to 960 MHz, 32.85 dBm
DCS 1800	TX: 1710 MHz to 1785 MHz, RX: 1805 MHz to 1880 MHz, 30.23 dBm
LTE Band 1	TX: 1920 MHz to 1980 MHz; RX: 2110 MHz to 2170 MHz, 23.26 dBm
LTE Band 3	TX: 1710 MHz to 1785 MHz; RX: 1805 MHz to 1880 MHz, 23.67 dBm
LTE Band 8	TX: 880 MHz to 915 MHz; RX: 925 MHz to 960 MHz, 23.79 dBm
LTE Band 20	TX: 832 MHz to 862 MHz; RX: 791 MHz to 821 MHz, 23.56 dBm
LTE Band 28	TX: 703 MHz to 748 MHz; RX: 758 MHz to 803 MHz, 23.67 dBm
GPS/ Galileo/ GLONASS/ BDS	RX: 1559 MHz to 1610 MHz

Safety Advice

- To immobilize the car, only interrupt power circles not needed during driving. **For security reasons, do not interrupt the ignition and fuel pump.**
- The CloudBoxx must not be installed where it obstructs the driver's view. Do not install the telematics within the collision area of the passengers (e.g. dashboard) or block the airbag system
- **Attention:** Starting with CloudBoxx the Pins 22 and 23 of the main connector are used to enable the "write" functionality for both high speed CAN buses (CAN0 and CAN1).**You must not connect any wires to these pins without specific instructions by INVERS support!** Please contact support@invers.com if you wish to utilize the CAN write functionality, or if you want to connect the CloudBoxx to a low speed CAN bus.
- Do not reboot the device if you detect any potential damage or issue. Please contact the INVERS support team for further instructions.

Installation

Important installation and safety remarks

- Installation only by qualified staff
- Installation staff is responsible for correct installation according to relevant regulations
- Disconnect the vehicle battery before starting the installation
- Use CloudBoxx standard harness or vehicle specific harness for the installation
- Connection to the vehicle supply voltage only with suitable cables and appropriate fuse
- Connection to CAN-Bus must be realized with twisted wires according to SAE J2284
- Install the wires to ensure they will not be damaged from sharp objects or ruptured
- All cable connections to the vehicle electronics must be reliably plugged, crimped or soldered
- Unused wires of the standard harness should be cut off and the ends must be insulated
- All components and cables must be fixed in such a way that under no circumstances may they block moving parts of the vehicle (pedals, steering, wheels...)
- To immobilize the vehicle, only interrupt power circles not needed during driving.
  For security reasons, do not interrupt the ignition and fuel pump.
- No assembly of components in the crash-impact area of the passengers or in the airbag inflation area
- For a good geo-position the Logo on the antenna should be aligned to the sky if possible and not be shielded by metal surfaces nearby (see instructions attached to the antenna)
- The on-board unit is prepared for a 12-volt vehicle wiring (passenger car). If you intend to do the installation in a 24-volt vehicle (heavy truck), please contact the INVERS support team
- Contact support@invers.com if you wish to utilize the CAN write functionality, or if you want to connect the CloudBoxx to a low speed CAN bus
- All work must be carried out professionally according to current technical regulations
- Please respect the local legal obligations
- Keep a record of all installation steps on the installation protocol

Installation
Configuration and test

If you intend to do the installation under different conditions, please contact the INVERS support team.

For registered customers INVERS provides vehicle specific instructions for multiple vehicles, makes and models.
Please contact
support@invers.com.

After installation, please use the SmartControl App for configuration and test.

The SmartControl App can be downloaded here:

GET IT ON Google Play

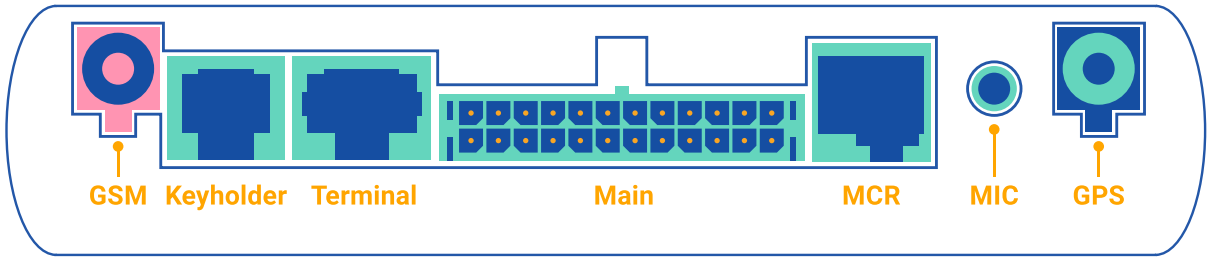
Download on the App Store

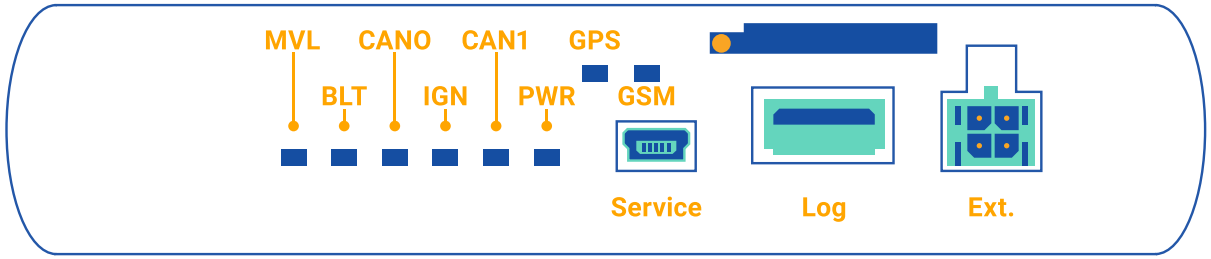
Installation

Connecting the CloudBoxx to the vehicle

Connector overview

Use CloudBoxx standard harness or vehicle specific harness for connecting the CloudBoxx to the vehicle. Please ask INVERS support for vehicle specific installation recommendations!





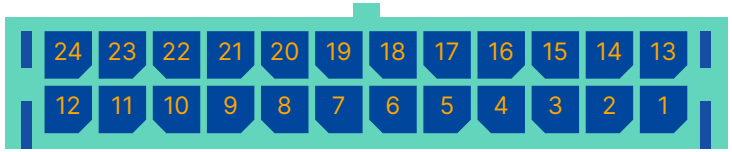
Installation

Connecting the CloudBoxx to the vehicle

Pin assignment

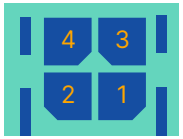
Use CloudBoxx standard harness or vehicle specific harness for connecting the CloudBoxx to the vehicle. Please ask INVERS support for vehicle specific installation recommendations!

Main



Pin	Function	Pin	Function
1	Speaker +	13	Speaker -
2	GND	14	+12V IN
3	Ignition sense IN	15	VSS IN
4	Starter-Relay +	16	Starter-Relay -
5	Code-Line	17	Code-Line
6	HS CAN1 High	18	HS CAN1 Low
7	HS CAN0 High	19	HS CAN0 Low
8	GND	20	+5V OUT
9	CL-feedback IN	21	Analog IN
10	CL-close OUT	22	HS CAN1
11	CL-open OUT	23	HS CAN0
12	GND	24	+12V OUT

Ext.



Pin	Function
1	Alarm 2
2	Alarm 1
3	GND
4	Horn

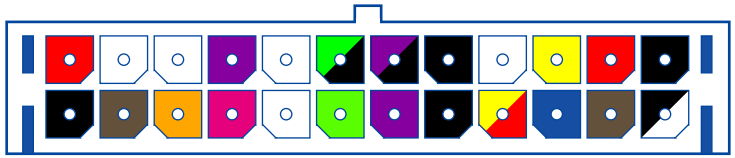
Installation

Connecting the CloudBoxx to the vehicle

Color scheme

INVERS has a large library of vehicle-specific documentation.
Please contact
support@invers.com.

Main



Color	Description
Red	+12V (clamp 30) (e.g. in radio harness), use 5 amp fuse if you connect this pin to a power supply that is not already protected by another fuse
Brown	Ground (clamp 31) (e.g. in radio harness)
Blue	Ignition sense (clamp 15) Attention! The blue wire for the ignition (Pin 3) only has to be pinned in if the ignition is not detected via CAN.
Yellow/Red & White	Relay connector: This cable pair attaches to the external relay that interrupts the starter signal. The wiring from the relay to the interface to connector 50 should be as short as possible because of high current at this location. For safety reasons, neither the fuel pump nor the ignition should ever be interrupted because both circuits are used while the vehicle is being driven.
Black	Code line interruption. This cable pair interrupts the wire from the transponder coil. Maximum current is 1A. For safety reasons, neither the fuel pump nor the ignition should ever be interrupted because both circuits are used while the vehicle is being driven
Yellow	Speedometer signal is only required if the vehicle speed is not taken directly from the CAN or via an external CAN adapter
Brown & Orange	Open/close control of vehicle central locking if the car key modification is not used. (Ground signal, max 2 A load)
Pink	Central locking response signal. (For one-button central door locking in the vehicle)
Green	Connector for CAN high. The CAN high and CAN low cables should not be extended and should, if possible, be shortened. According to the SAE J2284 specification, the CAN bus cables should be twisted when installing them. The number of twists should be from 33 to 50 per meter of cable.
Green/Black	Connector for CAN low. The CAN high and CAN low cables should not be extended and should, when possible, be shortened. According to the SAE J2284 specification, the CAN bus cables should be twisted when installing them. The number of twists should be from 33 to 50 per meter of cable.
Purple	Analogue fuel level (optional)

CAN 1 is designated for a second CAN bus connection (optional). It is only needed for some cars (see car list). Please connect two additional wires to the CloudBoxx connector. CAN bus wires should always be twisted.

Installation
External key holder

- The key holder is used to track the car key and the fuel and parking cards. The key holder is the storage place for the car key and cards while the car is not in use.
- Choose a suitable installation spot for the key holder.
- For security reasons, please choose a spot where the car key is not visible from outside.
- The key holder should be located in an easy to access spot. The key holder is illuminated to be easily found by driver.
- Common installation spots are the glove compartment or a storage compartment.
- Please make sure that the key does not hang in front of the key holder. Otherwise there could be an interference with the fuel and parking card recognition.
- Use the attached screws to fix it and connect the plug into the on-board unit.
- Attach the black data fob and car key using the provided key ring.
- Dimensions: 76 x 97 x 29mm
  with mounting plates: 98 x 97 x 29mm

Installation
Cellular GNSS Antenna

INVERS order no: 13261
Description: 955.179.003
Hirschmann LTE/GNSS Fakra 3m

Install the Cellular-GNSS-Antenna on the dashboard or on the windshield or on the dashboard below using the fastening pad. It is also possible to install more firmly on a mounting plate as long as the plate is not made of metal. Run the cable to the Cloud-Boxx and insert the blue and purple connectors. Roll up any extra cable and fasten it with some zipties. Make sure airbag functionality is not compromised. The antenna must be mounted so that the Hirschmann logo is directed skyward.

Please follow instructions provided in the documents accompanying the antenna. Respect 20cm minimum distance to CloudBoxx, human body and other antennas and electronic devices!

Installation

Final Assembly

Connect all the connectors to the CloudBoxx, reconnect the car battery, and do a final check on all the connectors. Make sure the wires are installed in the proper place.

Final Test

Please check the separate instructions by using the SmartControl App.

The SmartControl App can be downloaded here:

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Mount all plastic parts after installation was successful.

International regulations

Herby, INVERS GmbH declares under its sole responsibility that the following products comply with the essential requirements and other relevant provisions of Radio Equipment Directive (RED) 2014/53/EU and Restriction of Hazardous Substances (RoHS) Directive 2011/65/EU. Complete Declaration of Conformity available on request. This product can be used in circulation in at least one EU country, in accordance with the RED directive 2014/53/EU.

This device is approved by the German type approval authority "Kraftfahrt-Bundesamt (KBA)" as a type of electrical/electronic sub-assembly with regard to the EU/ECE Regulation No.10 including amendment No 05 supplement 01.
Approval number: **E1 10R 05 8665**
Approval number (since 2022): **E1 10R 06 8665**

FCC Part 15 Notice
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. this device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by INVERS GmbH could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To comply with FCC RF exposure compliance requirements for an uncontrolled environment, the external WWAN antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons.

Industry Canada (IC) Compliance Notice
This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:

- This device may not cause interference.
- This device must accept any interference, including interference that may cause undesired operation of the device.

To comply with ISED Canada RF exposure compliance requirements for an uncontrolled environment, the external WWAN antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Pour se conformer aux exigences d'ISED Canada en matière d'exposition aux radiofréquences dans un environnement non contrôlé, l'antenne externe du WWAN utilisée pour cet émetteur doit être installé de manière à assurer une distance de séparation d'au moins 20 cm par rapport à toutes les personnes.

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