Installation manual
Cellocator IQ30 + Garmin

Title:	Installation manual Cellocator IQ30 + Garmin
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1 Introduction

1.1 About this document

This document describes the installation of a Cellocator IQ30 in combination with a Garmin navigation for fire trucks of region Zeeland. The needed preparations on vehicle side will be described too.

This document will be separated in:

- Needed preparations on vehicle side
- Installation and position Cellocator IQ30
- Installing the wiring loom with the needed I/O inputs
- Diagram

2 Technical Specifications

Cello IQ	
GNSS Technology	STM STA8088 Chipset
GSM Frequencies	Quad band: 850, 900, 1800, 1900MHz
GSM Technology	GPRS class 10, PDU SMS
Communication protocols	TCP/IP, UDP/IP, SMS
Power supply	9-32V DC
Consumption	Normal: 45mA Economic: 16mA Hibernation: <2.1mA
Internal battery (option)	Rechargeable, 3.7V, Li-Pol, 900mAh
I/O (inputs)	4x Digital inputs (1x ignition + 3 for generic use) 2x Configurable inputs (analog & digital) 1x Communication port for Garmin integration (option)
I/O (outputs)	5x open collector up to 250mA
Measurements unit	91mm x 73mm x 23mm
Weight	110gr
Temperature	-20°C to +55°C

3 Hardware

The delivered set of hardware will include following parts:

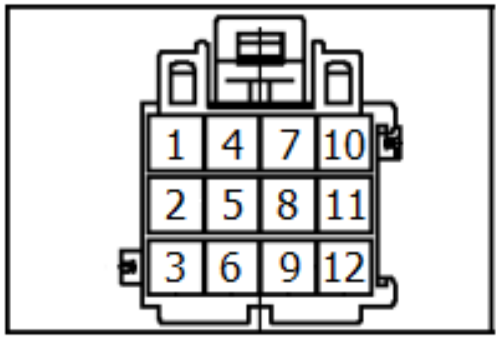
- Cellocator IQ30 with internal GSM and GPS antenna
- Optional external GPS antenna
- Garmin with FMI wiring loom for power and FMI connection
- *Custom Cellocator wiring loom with contra FMS connector, specific made for vehicles of fire department 'VRZ'*
- Short installation flyer with diagram.

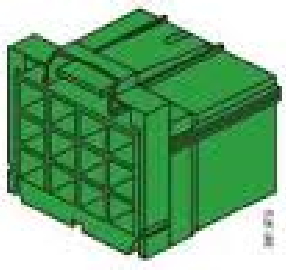
4 Vehicle side preparations

To make the installation of the Cellocator IQ a lot easier, the vehicle should provide one connector which includes al needed signals. This connector should be placed around the fuse box inside the vehicle for easy access.

Rietveld recommend a **'standard 12pin FMS connector female'** (*AMP nr: 1-967622-1)* on vehicle side with the following pin connections:

Description	Pin	Remark
-31 Ground	**1**	*System ground*
+30 Vehicle Battery 24V/12V	**12**	*System power*
+15 Contact switch	**10**	*Should remain while cranking*
Extra -31 Ground	**5**	*Reserved for Garmin FMI ground*
Extra +30 Vehicle Battery 24V	**8**	*Reserved for Garmin FMI in 24V vehicles*
Extra +15 Contact switch	**11**	*Reserved for Garmin FMI in 12V vehicles*
I/O Input: Blue light signal	**2**	Signal active to ground
I/O Input: Siren sound signal	**3**	Signal active to ground
I/O Input: Fire department commander door open	**4**	Signal active to ground





5 Installing Cellocator IQ30

5.1 *Installing position Cello IQ30*

The unit should be installed underneath the dashboard in a place that guarantees a good GPS reception because of the internal GPS antenna. Also make sure that the unit in installed correctly, the side which has the tekst **'this side up'** should always be installed facing the sky.
You can mount the unit using zip ties, screws or velcro. Make sure the unit is secured properly! Also keep in mind that the unit might have to be taken out when servicing.

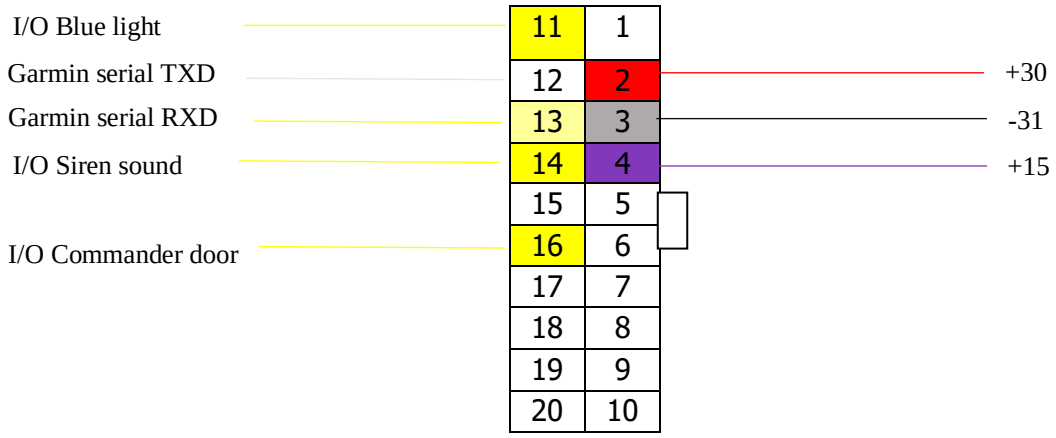
The Cello IQ unit has got an internal GSM antenna, make sure you don't install the unit too close to antenna cables, speakers, speaker cables or audio units.
In case the GPS reception is unacceptable and/or the unit can't be installed where there is a good enough GPS reception, an external GPS antenna can be connected to improve or provide with a decent GPS reception.

5.2 Connections & Wiring loom

In this chapter you can find how to make all necessary connections.

5.2.1 Wiring loom connector Cellocator IQ30

Pin	Description	Remark
1	*External Backup Battery*	*Not wired as standard*
2	**+30 Vehicle Battery**	Red with 3A fuse
3	**-31 Ground**	Black
4	**+15 Contact switch**	Purple with 3A fuse
5	*I/O Input 5*	*Not wired as standard*
6	*Led*	*Not wired as standard*
7	*Output, Immo Immobiliser*	
8	*Output, Buzzer*	
9	*Handsfree – Audio Out*	*Not wired as standard*
10	*Handsfree - Audio In*	*Not wired as standard*
11	**I/O Input: Blue light signal to ground**	Yellow
12	**RS232 TXD Garmin serial**	**White to 3p connector**
13	**RS232 RXD Garmin serial**	**Yellow to 3p connector**
14	**I/O Input: Siren sound signal to ground**	Yellow
15	*I/O Input 2 (Unlock / SHOCK or analog 2)*	
16	**I/O Input: Fire department commander door signal to ground**	Yellow
17	*Output*	*Not wired as standard*
18	*Output*	*Not wired as standard*
19	*Handsfree – Analog GND*	*Not wired as standard*
20	*ID button*	



5.2.2 Cello IQ30 Track & Trace + Garmin

For a Cellocator IQ30 Track & Trace + Garmin installation you'll need the following signals:

- A battery wire (+30)
- An ignition wire (+15) (should remain powered during cranking)
- A ground (-31, original grounding point of the vehicle)

These signals can be found inside the vehicle, in case you're not able to locate these signals you can contact your local dealer or our support helpdesk.

If the vehicle is equipped with the recommend FMS connector, these connections can be made easily with the contra FMS connector.

Both the battery wire and the ignition wire need to be fused with 3A fuses each. This fuse is already included in the wiring loom.

Connection	Cellocator IQ
Ground -31 *(FMS, pin 1)*	Black wire, pin 3
Battery +30 *(FMS, pin 12)*	Red wire, pin 2
Ignition +15 *(FMS, pin 10)*	Purple wire, pin 4

Garmin FMI cable	Cellocator IQ / FMS
Brown wire (serial ground)	Black wire, pin 3 *(3p connector in wiring loom)*
Yellow wire (TX Serial)	Yellow wire, pin 13 *(3p connector in wiring loom)*
White wire (RX Serial)	White wire, pin 12 *(3p connector in wiring loom)*
Red wire (battery +30)	Red wire, pin 2 (FMS pin 8) / *purple wire pin 4. (FMS pin 11)*
Black wire (ground)	Black wire, pin 3 (FMS pin 5)

Note: In 12V vehicles the Garmin power should be connected to the contact signal +15!

5.2.3 Connecting I/O signals

Three different I/O input signals needs to be connected to the Cellocator IQ. All inputs are **ground switched.**

- **Pin 11 → Blue light signal**, if active this inputs should switch to ground. If the vehicle is provided with the FMS connector this signal can be found on **pin 2.**
- **Pin 14 → Siren sound signal**, if active this inputs should switch to ground. If the vehicle is provided with the FMS connector this signal can be found on **pin 3.**
- **Pin 16 → Fire department commander door signal**, if the door is open this inputs should switch to ground. If the vehicle is provided with the FMS connector this signal can be found on **pin 4.**

6 Check the installation

After installation all functions have to be checked. You should check the following before contacting our helpdesk.

- Is the vehicle parked outside for good GPS reception
- Does the Garmin have power and connection with the unit

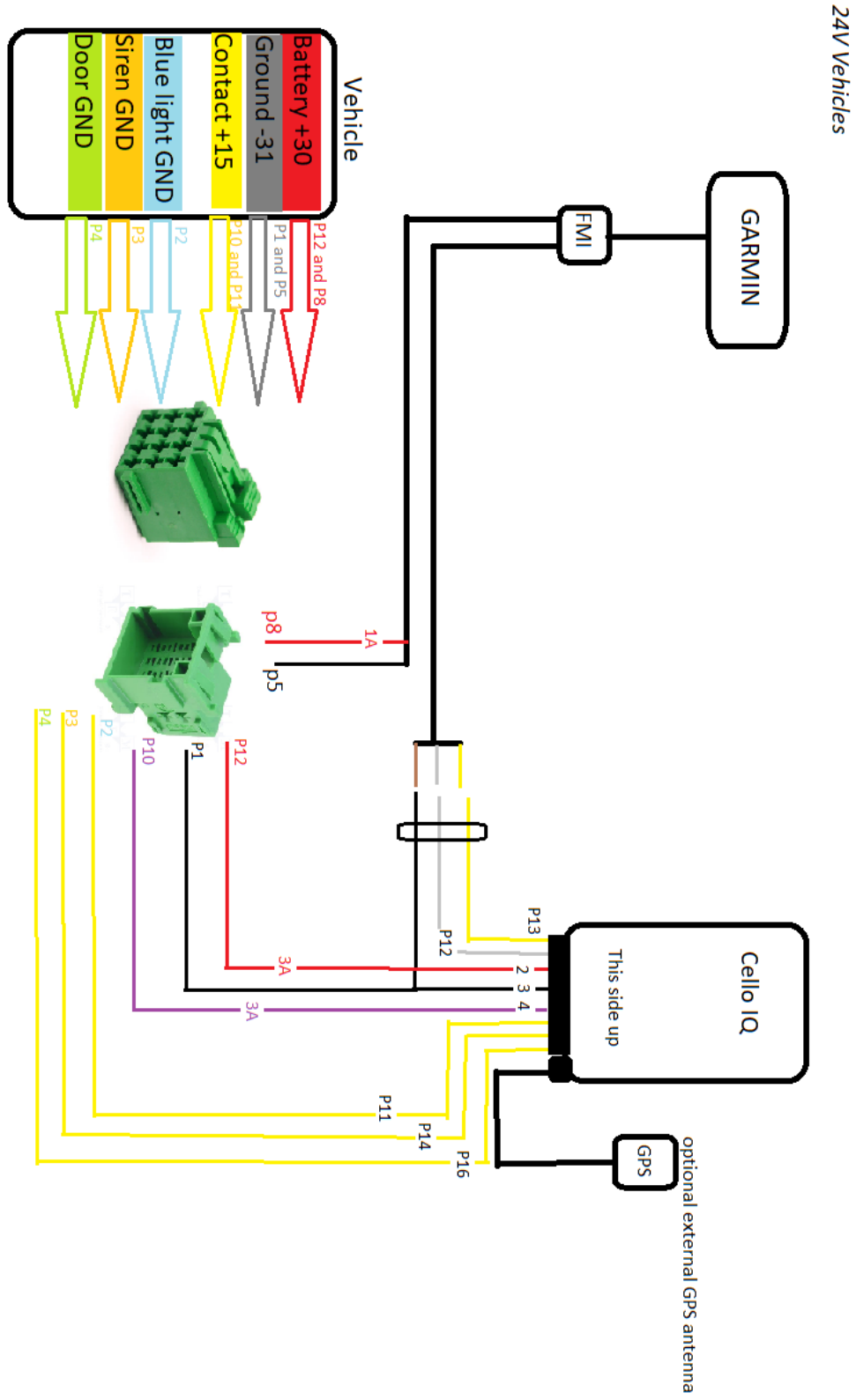
The installation needs to be tested with our helpdesk, otherwise the system will not work correctly!

7 Support

For technical support you can contact our helpdesk.

Available on working days from 8.00 AM until 5.30 PM (GMT +1) by phone +31 184 652910 or by sending an e-mail to: helpdesk@rietveld.nl.

8 Diagram


24V Vehicles
Vehicle
Battery +30
Ground -31
Contact +15
Blue light GND
Siren GND
Door GND
P4
P3
P2
P10 and P11
P1 and P5
P12 and P8
FMI
GARMIN
p8
p5
1A
P1
P2
P3
P4
P10
P12
3A
3A
P13
P12
2 3 4
Cello IQ
This side up
P11
P14
P16
GPS
optional external GPS antenna

RIETVELD

BRANDWEER
Zeeland