Cello-IQ 30
Release Notes

Cellocator Division
Pointer Telocation Ltd.

Proprietary and Confidential

Version 1.0

Revised and Updated: April 2, 2015

POINTER

Pointer Telocation Ltd. 14 Hamelacha St., Rosh Ha'ayin 48091, Israel • Tel: 972-3-5723111 • Fax: 972-3-5723100 • www.pointer.com

Legal Notices

IMPORTANT

1. All legal terms and safety and operating instructions should be read thoroughly before the product accompanying this document is installed and operated.
2. This document should be retained for future reference.
3. Attachments, accessories or peripheral devices not supplied or recommended in writing by Pointer Telocation Ltd. may be hazardous and/or may cause damage to the product and should not, in any circumstances, be used or combined with the product.

General

The product accompanying this document is not designated for and should not be used in life support appliances, devices, machines or other systems of any sort where any malfunction of the product can reasonably be expected to result in injury or death. Customers of Pointer Telocation Ltd. using, integrating, and/or selling the product for use in such applications do so at their own risk and agree to fully indemnify Pointer Telocation Ltd. for any resulting loss or damages.

Warranty Exceptions and Disclaimers

Pointer Telocation Ltd. shall bear no responsibility and shall have no obligation under the foregoing limited warranty for any damages resulting from normal wear and tear, the cost of obtaining substitute products, or any defect that is (i) discovered by purchaser during the warranty period but purchaser does not notify Pointer Telocation Ltd. until after the end of the warranty period, (ii) caused by any accident, force majeure, misuse, abuse, handling or testing, improper installation or unauthorized repair or modification of the product, (iii) caused by use of any software not supplied by Pointer Telocation Ltd., or by use of the product other than in accordance with its documentation, or (iv) the result of electrostatic discharge, electrical surge, fire, flood or similar causes. Unless otherwise provided in a written agreement between the purchaser and Pointer Telocation Ltd., the purchaser shall be solely responsible for the proper configuration, testing and verification of the product prior to deployment in the field.

POINTER TELOCATION LTD.'S SOLE RESPONSIBILITY AND PURCHASER'S SOLE REMEDY UNDER THIS LIMITED WARRANTY SHALL BE TO REPAIR OR REPLACE THE PRODUCT HARDWARE, SOFTWARE OR SOFTWARE MEDIA (OR IF REPAIR OR REPLACEMENT IS NOT POSSIBLE, OBTAIN A REFUND OF THE PURCHASE PRICE) AS PROVIDED ABOVE. POINTER TELOCATION LTD. EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY, SATISFACTORY PERFORMANCE AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL POINTER TELOCATION LTD. BE LIABLE FOR ANY INDIRECT, SPECIAL, EXEMPLARY, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION LOSS OR INTERRUPTION OF USE, DATA, REVENUES OR PROFITS) RESULTING FROM A BREACH OF THIS WARRANTY OR BASED ON ANY OTHER LEGAL THEORY, EVEN IF POINTER TELOCATION LTD. HAS BEEN ADVISED OF THE POSSIBILITY OR LIKELIHOOD OF SUCH DAMAGES.

Intellectual Property

Table of Contents

1 Introduction

This document describes the new advanced platform for the Cello GNSS hardware platform, which supports the GLONASS positioning system. This new platform also features a number of improvements in the HW platform and Fleet Management features.

Please refer to the *What's New in FW v33u* section for further information.

A full list of related documents can be found in the *Documentation* section.

NOTE: Cello-AR and Dallas (both using 1-wire) cannot be defined in parallel.

1.1 Cello-IQ 30

The Cello-IQ 30 product is based on the Cello GNSS hardware platform and combines both Cello-F and Cello-AR capabilities and features in one unified FW version. This Firmware version supports the Fleet or AR (External Key Board) functionality as a configurable option.

This new FW version (PK 30) is the first FW that will be implemented on the same Cello GNSS platform. Subsequent FW versions will include DBM (PK 50). This FW version will include an OTA FW upgrade procedure (as and when those FWs will be released).

1.2 FW V33u

The Cello-IQ 30 was introduced with FW V33u. This version supports all available maintenance and control features of the Cello units, connects to the same evaluation tools and software, and provides full compatibility with Cello protocols.

2 What's New in FW v33u

This release introduces a new platform and additional features, as described in the following sections.

2.1 New Platform

The new Cello-IQ platform provides the following improvements over the legacy platform:

- **GPS and GLONASS Hybrid positioning engine** for reduced fix acquisition time and better accuracy.

	Cello-IQ GNSS	Cello-IQ Legacy
Sensitivity (tracking)	-162dBm	-159dBm
Acquisition (normal)	Cold <35Sec, Warm<35Sec, Hot<1Sec	Cold <42Sec, Warm<35Sec, Hot<1Sec
Number of Channels	32	20

- **Scalable cellular communication technology** ensures support of future 3G variants.
- **Support of four DS18B20 based temperature sensors:** Supports up to 4 Dallas (DS18B20) based temperature sensors on the 1-wire interface, in parallel to driver and trailer ID functionality. The unit reports on the temperature values but does not support thresholds and alerts.
- **Internal and External Antenna Switching:** Supports an external active hybrid GNSS antenna with disconnection / short notification and advanced algorithm for switching between the internal and external antennas on Ignition On.

	Cello	Cello-IQ	Cello-CANiQ
Antenna disconnection / shortage detection	No	No	Yes
Internal / external antenna automatic selection	No	Once upon Ignition On	Upon damage detection

- **Events Delivery Algorithm:** The OTA "Events Delivery Algorithm" was changed to support only one pending event waiting for Acknowledgment (in previous versions this used to support up to 16 pending events waiting for acknowledgement). This change will generate reliable sequential logged message numerators, unlike the current implementation where transmitted logged messages might be non-sequential.

  Please refer to *Section 6.1.1.1.1, Message Transit Acknowledge Timeout* of the *Programming Manual* for more details.
- **Auxiliary Satellite unit for location without cellular coverage**. Please refer to *Section 22, Auxiliary Satellite Unit* of the *Programming Manual* for more details.
- **Extended Flash Memory:** Extended 8K bytes flash memory (versus 4K in the existing platform) for the configuration memory (PL).

- **Support the latest Fleet and AR functionality** based on programmable parameters.
- **Single Hex file supports Fleet and AR applications**.

2.2 New Features

2.2.1 *1 Second Time Report*

The new release includes a high resolution 1 second Time Report interval (instead of 4 second minimum time resolution).

2.2.2 *USIM Support (LTE with 2G Fallback)*

The new release supports the USIM standard for advanced cellular networks (such as LTE) with 2G fallback.

2.2.3 *Local RPM Calibration*

The new release includes the ability to calibrate the RPM locally in the vehicle during installation without any need to communicate with the control center.

2.2.4 *Improved Jamming Detection Mechanism*

The new release includes an improved jamming detection mechanism that is supported detection condition based on ignition on/off

2.2.5 *Shock Common Discrete Input Time Filter Feature*

The new release includes an input time filter of up to 255 seconds, instead of 2.5 seconds.

2.2.6 *Supporting COM Port 19200 Baud Rate*

The new release supports COM Port 19200 baud rate.

2.2.7 *Infinite Notification to Driver, if no Dallas Swiped*

In the Ignition On state, when the 'authentication lost' timer expires, the buzzer beeping is no longer limited by time; it should continue beeping until there is identification, i.e. by a Dallas key.

2.2.8 *OTA Indication in 'Message Type 0' for different products which share the same HW Type*

The new release identifies if a product is using Cello-F or Cello-AR functionalities.

2.2.9 *Disable 1-wire while Ignition is off*

In order to save vehicle battery power, a proximity reader can be connected to the ignition power. In this case, on Ignition Off the reader is disconnected from the power and generates a GND on the 1-Wire interface, causing the Cello unit to access the reader four times per second. Since the RTC is not maintained during the 1-Wire treatment, a time drift is experienced.

2.2.10 *Output state maintain after reset and invert option*

Keep all outputs state after the reset commands as they were before the reset.

Reset commands refers to the following commands: Serial reset, OTA reset and AHR (Automatic HW Reset).

Addition, invert start/stop parameter for all inputs and keep their state after reset.

2.2.11 *Configurable pulse counter Resolution*

The resolution of Pulse Counter change from 15 min. to 15 sec.

2.3 New Unit Labelling

The firmware versions represented by PK (package) labelling are as follows:

- PK 30 – Fleet or AR
- PK 50 – Includes Advanced DBM

2.4 Cello-IQ 30 Release Package

The Release Package is a folder which includes all the SW materials (such as documents, SW applications, FW, PL, etc.) required for the evaluation and integration of the Cello-IQ 30.

3 Applicability Table

The following table lists the products to which this document applies.

Product Name	Catalog Number	Applicability
CELLO-IQ 30	CT7800122-000	YES

4 Content

The Cello-IQ 30 includes the components listed in the following sections.

4.1 Hardware

- CT7800122-000 Cellocator Cello-IQ PK30

4.2 FW Infrastructure

- F052A_PCelloHW14_TelitGE910V3_STM32F103RDT6_S8192_33u_IQ30.csf

4.3 PL File

- hw_14_fw_33u_Cello-IQ30_V2278.PL

4.4 Accessories

The same accessories used with the Cello-IQ GNSS are supported.

4.4.1 *External Antenna*

AN0048 GNSS External Active Antenna

4.4.2 *Harnesses*

- 711-00302 Full Installation, 1.2 meter, molded Harness

4.5 Evaluation Kit

Those versions include the complete Evaluation kit:

- K090-001 Cello-IQ Evaluation

4.6 Integration Package

- Integration package 2.4.3

4.7 Software Utilities

- Cellocator evaluation suite installer v3.8.1.2.msi
- Cellocator evaluation suite installer v3.8.1.2 (x64).msi

4.8 Documentation

- Cello-IQ 30 Release Notes (this document)
- Cellocator Serial Communication Protocol
- Cellocator Wireless Communication Protocol
- Cellocator Cello Programming Manual

5 Bug Fixes

The following table lists bugs and issues that were resolved during the current release project.

ALM	Description
89	Geo-fence over-speed used the idle-speed-duration parameter instead of the regular-over-speed-session parameter for session time out.
253	In PL files no option (enable/disable) for parameter "Enable IMEI transmission in type 0 message".
689	One wire Temp. Sensor periodic response – events were generated with intervals drift.
817	Renew GPRS upon drop (in hibernation).
828	Immobilizer authentication was not enforced during the first 30 seconds after ignition was turned off since the driver ID was not erased.
966	Trip type "Business" / "Privet" mode did not function correctly.
968	Authentication feedback output was activated for +/- 5 seconds.
1013	Missing configuration parameter in PL - setting a percentage of error between real speed and the dashboard speed.
1043	Over Speed feedback did not work if the interval between end of over speed and start of over speed was reached faster than the over speed filter.
1048	Filters for 'over speed filter duration' and 'filter of idle speed duration' were functionally inverted.
1073	Trip session while ignition OFF didn't close before starting another trip start session by ignition.
1383	Alert of Over speed was sent without delay, and not as defined in the parameter 'Continuous violation registration time or feedback deactivation time'.
1384	Parameter 'Create Idle Over Speed End event for open session per ignition Off' did not affect "Over speed by Geozone" event.
1630	Wrong distance calculation when VSS was Speed source.
1907	Disconnections from the Network when transmitting CellID events (type 9) and working on UDP protocol

6 Known Issues

The following table summarizes the known issues which have been encountered during applications and system tests.

ALM	Description	Comments/ Workaround
505	Sometimes unit doesn't send the 6th event of Anti flooding session.	
912	No hibernation when "Modem Off time" = 0 or "Modem On time" = 0.	
1103	The GPS doesn't turn OFF ever, while No Fix and "GPS Peeking - Max On time" = 0.	
1661	Dallas bus doesn't work with 4 temperature sensors if temperature is lower than 4 °C.	
1757	Dallas keys accepted even though 'Enable Pre-defined driver ID's list' is enabled and the keys are not in the list.	

7 Cello-IQ 30: Cello-F/AR PL Upgrade

Customers with existing Cello-F or Cello-AR PLs should copy the relevant PL parameters to the new default PL supplied with release 33u, and also pay attention to the following new PL feature values:

- Single Wire Temperature Sensors
- Internal or External GNSS Antenna Selection Mechanism
- Satellite Power Control
- External Key Board
- Jamming Detection (Advanced)

For more information, refer to the *Cellocator Cello Programming Manual*.