

System 1200 Newsletter – No. 37

Onboard Software v4.00 – What’s New

MORE FUNCTIONALITY THAN EVER BEFORE

The new v4.00 onboard software for System1200 instruments is released this month. This latest onboard software can be loaded onto all System1200 instruments – TPS1200, GX1200, RX1250 and GRX1200.

The new onboard software is protected which means that a valid maintenance contract is required for each instrument - if the contract is not valid then the onboard software cannot be loaded. The “release date” of the onboard software is 01.12.05 which is the same as the “release date” of the v3.00 onboard software – so if you could load v3.00 onboard software onto your instrument then you can load v4.00 software.

This newsletter describes some of the new features of the “main” software. The next newsletter will focus on the loadable application programs – this includes the new Volume Calculation application program and new features for the existing COGO and Reference Line application programs.

A complete overview of all new features can be found in the System1200 v4.00 Release Notes which are available on all System1200 v4.00 onboard software CDs. Alternatively they can be obtained from the Leica download web page when downloading the software itself: <http://downloads.leica-geosystems.com/downloads/>

NEW FEATURES COMMON TO BOTH GPS AND TPS

SUPPORT OF GLONASS

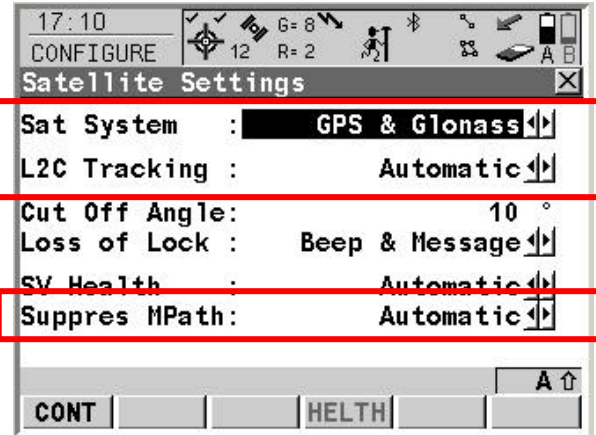
As announced on 3 April 2006 and as written in the last newsletter, the new GX1200 GG and ATX1230 GG sensors contain a 72 channel measurement engine capable of tracking all currently available GNSS satellite signals – including GLONASS and GPS L2C and of course GPS and SBAS signals.

In order to support the use of the new satellite signals, various changes are made to the v4.00 software – these can basically be grouped into non-RTK related and RTK related functionality. Of course the new functionality is only visible and available on sensors capable of tracking the relevant signals.



Non-RTK related functionality

The **CONFIGURE Satellite Settings** panel contains all non-RTK related settings.



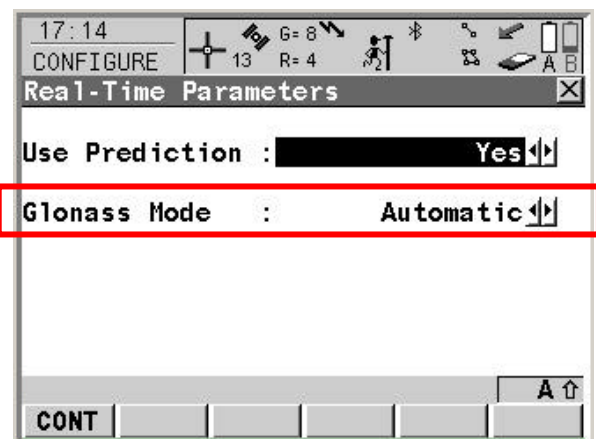
The **Sat System** setting allows the satellites to be tracked to be configured – **GPS & GLONASS** or **GPS Only**. This should be set to **GPS & GLONASS**.

The **L2C Tracking** settings allows you to define if the GPS L2C signal should be tracked. Since there is currently only 1 GPS satellite which can broadcast L2C and the benefits of L2C for a surveyor are less than 1% (see newsletter 35-2005) then this should be configured to **Automatic**.

The **Suppress MPath** setting allows the phase multipath mitigation technology to be activated. This should be set to **Automatic**.

RTK related functionality

The **CONFIGURE Real-Time Parameters** panel contains the RTK related settings.



The **GLONASS Mode** prompt allows to define if GLONASS ambiguities should be fixed. This setting should normally be set to **Automatic** and

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the sensor will then decide when GLONASS ambiguities should be fixed.

It is worth to note that if GLONASS is being used then not all RTK message formats can be used. GLONASS is not supported by RTCM 1,2 or RTCM 21,22 messages. These RTK message formats are not available if the sensor is configured to track GLONASS satellites.

New GLONASS related Status information

If GLONASS is configured to be used then additional status information can be viewed.

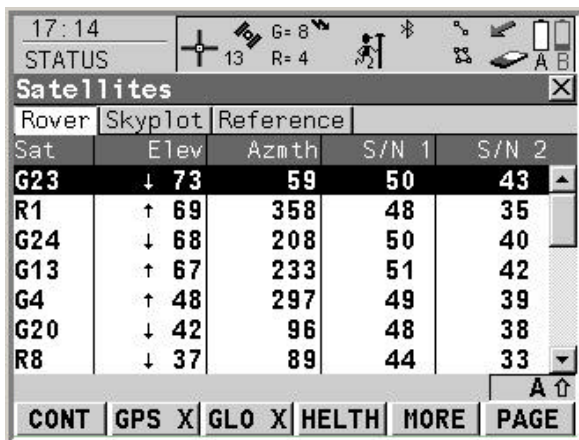
In the icon line, the number of satellites which are above the horizon are shown – this is the sum of GPS and GLONASS available satellites.



Additionally, the number of GPS and GLONASS satellites being used in the currently computed position are shown (G for GPS and R for GLONASS).



In the **STATUS Satellites** panel, the azimuth, elevation, SNR values and sky plot of the GLONASS satellites is added (GLONASS satellites shown with R).



Rover	Skypilot	Reference		
Sat	Elev	Azimuth	S/N 1	S/N 2
G23	↓ 73	59	50	43
R1	↑ 69	358	48	35
G24	↓ 68	208	50	40
G13	↑ 67	233	51	42
G4	↑ 48	297	49	39
G20	↓ 42	96	48	38
R8	↓ 37	89	44	33

The viewing of the GPS and GLONASS satellites can be turned on or off using the **F2(GPS)** and **F3(GLO)** buttons.

IMPROVED CODING AND LINEWORK FUNCTIONALITY

Onboard software v3.00 already contained many new coding and linework features – some additional features are added in v4.00 software.

Additional Linework features

The **Linework** prompt which was introduced with v3.00 onboard software can be added to display

masks and allows lines, areas, curves and splines to be easily used when measuring points.

For example when it is needed to start a line, simply choose the option **Begin Line**. When it is needed to start a 3 point curve, choose the option **3 Pt Curve**. The **Map** view will then show the lines and area objects as they are being surveyed.

With v4.00 onboard software it is now possible to choose the option **Begin Line** (or **Begin Area**) even when a line or area object is currently open. This means it is no longer necessary to close a line or area object before opening a new line or area.

It is also now possible to choose the option **Re-Open Any Line** and **Re-Open Any Area**. If this option is chosen then when the next point is stored a panel is shown which lists all lines (or areas) which are currently stored in the job. The line (or area) to be re-opened can then be selected.

If an existing line (or area) object is re-opened using the **Re-Open Any Line** and **Re-Open Any Area** or **Re-Open Last Line** and **Re-Open Last Area** then the code “related to that line” (or area) will be automatically selected. “Related to that line” means that if a line code is attached to the line then the line code will be selected or if no line code is attached to the line then the code attached to the last point in the line will be selected.

Additional Stringing Functionality

If stringing is being used (this means the **String Attrib** option in the **CONFIGURE Coding & Linework** panel is used) then it is now possible to start a new line (or area) with the same line (or area) code as the previous line (or area) by simply changing the string attribute value. Previously it also was necessary to re-select the same line (or area) code to start a new line (or area) with the same code.

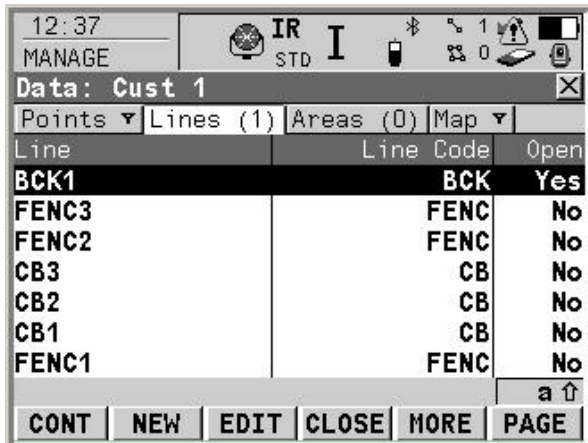
Additional Line and Area ID Templates

New **Line ID Template** and **Area ID Template** options have been added – the **Use Code & String** template.

Using this template means that the line (or area) ID will be based on the line code attached to the line or if only a point code is being used, the line ID will be based on the point code being stored.

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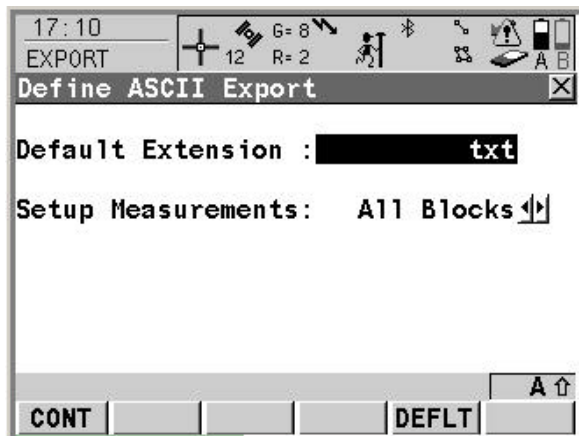
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The advantage of this is that it is now much easier to see the code related to the line – this can be especially useful when using the new **Re-Open Any Line** and **Re-Open Any Area** options.

AUTOMATIC FILE NAME SUGGESTION

On accessing the **EXPORT Export Data From Job** panel to export data from a job, the **File Name** is now automatically suggested. This name is based on the name of the job and a user-definable extension – the extension can be defined by pressing **F2(CONF)** to access the new **EXPORT Define ASCII Export** panel.



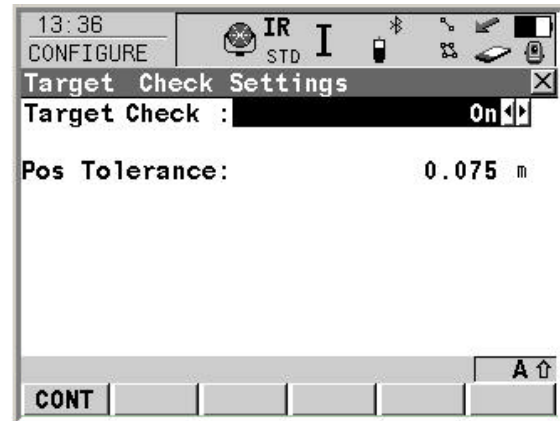
Also in the **EXPORT Define ASCII Export** panel is the **Setup Measurements** option which defines if TPS setup related measurements should be exported through all Format Manager blocks (as with previous onboard software versions) or exported only through TPS Setup related blocks.

NEW TPS1200 SPECIFIC FEATURES

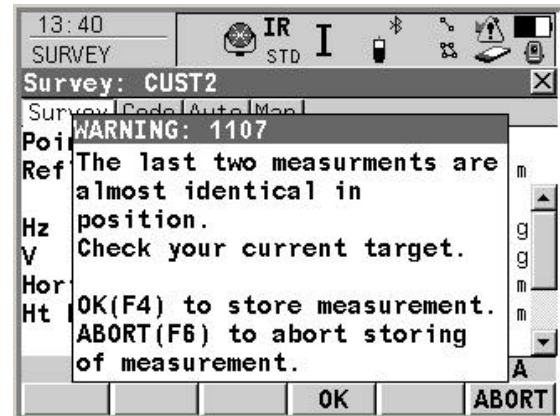
The following features are specific to the TPS1200 instruments.

TARGET CHECK FUNCTIONALITY

It is now possible to configure to use a target check – in the new **CONFIGURE Target Check Settings** panel.



This means the coordinates of the point being stored are compared to the coordinates of the previously stored point. If the coordinate difference is less than the specified tolerance then a warning is given to the user.



Similarly, the coordinates of the point being stored are compared to the coordinates of the backsight points used during the setup routine – this applied to all setup methods – Known Backsight, Set Azimuth and Resection. Again, if the coordinate difference is less than the specified tolerance then a warning is given to the user.

POINT ID SUGGESTED DURING THE SETUP ROUTINE

In previous onboard software versions, the point ID suggested for points during the setup routine were taken from the configured point ID template – this was not always useful – most users prefer to use a different point ID for their setup related points.

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Now, during the setup routine, no point ID is suggested and the user can simply type in the required point ID. If it is wished to recall a point ID from the point ID template then press **shift F5(RUN)** during the setup routine.

ADDITIONAL ATR SETTING

An additional ATR setting – the **S-Range Mode** – has been added to the **CONFIGURE EDM & ATR Settings** panel.

This new short range mode has been specifically designed to be used when working close to the TPS instrument (less than 80m) and when wearing a highly reflective jacket. With this new mode the ATR cameras are more accurately tuned to the image of the prism.

NEW GPS1200 SPECIFIC FEATURES

The following features are specific to the GPS1200 instruments.

F2(NEAR) KEY IN SURVEY

The new **F2(NEAR)** key in the Survey application allows the point ID of a point already stored to be suggested for the next point to be stored.

This can be particularly useful when points are measured more than once – maybe from 2 different RTK reference station or maybe from the same RTK reference station but with a different satellite constellation. If you cannot remember the point ID with which the point was previously stored, then simply press **F2(NEAR)** and the point ID will appear in the **Point ID** prompt.

OTHER IMPORTANT THINGS TO KNOW

The following is worth knowing when loading and using the v4.00 onboard software.

RX1210/1220 FIRMWARE

A new RX1210/1220 firmware is also available – v1.62 – this should be loaded as described in the release notes.

Remember, it is always important to use the correct RX1210/1220 firmware version with the correct instrument (GX1200 or TPS1200) onboard software version – the table below shows which versions are compatible.

TPS1200/GX1200/GRX1200	RX1210/1220
1.52	1.42
2.00	1.50
2.1x	1.52
3.xx	1.58
4.00	1.62

DISPLAY MASKS

After loading v4.00 onboard software the display masks on GPS instruments will be set to the factory default settings.

On TPS instruments, if the **Code Type** or **Line-work** display mask elements were used in any display mask then these elements are switched to **Line Space Full**.

TRANSFERRING SYSTEM RAM

It is not possible to transfer the System RAM from any System 1200 instrument with an onboard software version v3.xx or earlier to an instrument with v4.00 onboard software.

SUMMARY

The new System1200 v4.00 onboard software is now available. It is protected and therefore needs a valid maintenance contract to be used - it is available now and can be obtained from the Leica web download site.

There are improvements for both the GPS1200 and TPS1200 instruments. It is strongly recommended to read the accompanying Release Notes before loading and using the onboard software.

The next newsletter will describe the improvements made to the loadable application programs.



Please contact your local Leica representative if there are specific topics you would like covered in these newsletters.

We welcome all suggestions for TPS1200, GPS1200, specific applications or LGO. We look forward to receive your ideas.