- when it has to be **right**

Leica Geosystems
Release Notes

Product	Leica BLK360 Imaging Laser Scanner
Date	28th September 2022
From	Björn Beutelspacher, Gian-Philipp Patri

Leica BLK360 Imaging Laser Scanner – Firmware v1.2.0

Leica Geosystems AG
Heinrich-Wild-Strasse
CH-9435 Heerbrugg
Switzerland
www.leica-geosystems.com

The all-new Leica BLK360

The all-new Leica BLK360 is the world's fastest, smallest, and easiest to use laser scanner that speeds up and simplifies reality capture workflows. It captures complete scans within 20 seconds and even tracks its own location with a VIS system that automatically combines your scans in the field.

Leica BLK360 Key Features

- Ultra-fast scanning and accuracy
- Full-dome LiDAR scan with LDR imagery in under 20 seconds
- VIS (Visual Inertial System) technology to combine scans automatically in the field
- LiDAR sensor captures 680,000 points per second
- Four 5-bracket HDR cameras for quick capture of detailed photospheres
- 20% smaller than the Leica BLK360 G1
- Rapid data transfer with USB-C

These release notes contain important information about the all-new Leica BLK360 firmware v1.2.0 With immediate effect, the new firmware can be downloaded from myWorld @ Leica Geosystems customer portal: https://myworld.leica-geosystems.com and the Leica BLK360 website: https://shop.leica-geosystems.com/leica-blk/blk360.

WHAT`s NEW in version 1.2.0

The firmware v1.2.0 provides general fixes and stabilisation as well as improvements and features.

GENERAL FIXES AND STABILISATION

In few occasions the all-new BLK360 went into yellow LED warning state during or after data capturing, and in rare cases, the red LED error state was prominent at startup or while data capturing.

These issues have been identified and consequently be fixed, improving the overall system performance and making it significantly more stable.

IMPROVED WIFI STABILITY

In especially challenging and wifi polluted environments the BLK360 lost sometimes the connection to mobile devices.

Improvements have been made in this area, leading to a more stable WiFi connection to mobile devices where the apps BLK Live or Leica Cyclone FIELD 360 are running.

IMPROVED VIS ROBUSTNESS

Although the VIS in the small but powerful system performs already well in typical environments, the VIS is tuned with FW 1.2.0 to be more robust even in some challenging scenarios, without reducing the responsiveness when sensor movement is shown in BLK Live or Leica Cyclone FIELD 360.
Robustness has been increased by tracking more features used for trajectory calculation.

SENSOR IS PREPARED TO TURN VIS ON/OFF

In some special usecases like dark environments or measuring on moving and vibrating undergrounds, like ships, it is recommended to turn off VIS in order to be able to use the all-new BLK360.

If VIS is enabled in dark conditions, the device might go into warning state because not enough visual features can be reliably detected.
In the other usecase of measuring on vibrating undergrounds, VIS could interprate this as an active movement of the device and could calculate a wrong sensor position.

The feature to turn on/off VIS will be supported by the next official release for BLK Live in v1.0.3 and Leicy Cyclone Field 360 in v4.0.3.

FIRMWARE COMPATIBILITY

- Compatibility with mobile device apps:
  - Leica Cyclone FIELD 360 version 4.0 or higher is required.

    Download android version here
    https://play.google.com/store/apps/details?id=com.leicageosystems.cyclone.field360

    Download iOS version here
    https://apps.apple.com/us/app/leica-cyclone-field-360/id1376463007

  - Leica BLK Live version 1.0 or higher is required

    Download android version here
    https://play.google.com/store/apps/details?id=com.leicageosystems.cyclone.blknow

    Download iOS version here
    https://apps.apple.com/app/blk-live/id1608854881

- Compatibility with Cyclone REGISTER 360 and Cyclone REGISTER 360 (BLK Edition):
  - v2022.1.0 or higher is required
  - BLK Data Manager v2022.1.0 or higher is required

For more general information on the all-new BLK360 please refer as well to User Manual which is available on myWorld @ Leica Geosystems customer portal: https://myworld.leica-geosystems.com and the Leica BLK360 website: https://shop.leica-geosystems.com/leica-blk/blk360.

On the slides to come is the content of the v1.0.0 Release Notes.
The content has not changed from the v1.0.0 Release Notes.

It is highly recommended to read the upcoming slides if the first Release Notes haven`t been read yet.

KEY FUNCTIONALITIES

VIS SCAN ALIGNMENT SYSTEM

Leica Geosystems' patented Visual Inertial System (VIS) technology, is now built into the all-new BLK360 to automatically combine your scans.

Each captured scan in the field is combined with your previous scan. You'll spend less time aligning data and more time creating valuable deliverables.

Once the BLK360 is moved after the first scan, the LED ring will start blinking green, indicating that cameras and IMU are tracking its position. After the imaging laser scanner is placed on the ground, the LED will switch to constant, non blinking green, indicating that it is ready for capturing the next scan.

The imaging laser scanner knows its relative position to the previous scan which enables a very fast pre-registration directly on site with Leica Cyclone FIELD 360.

The pre-registration information is synched back to the BLK360, so all information is stored on the imaging laser scanner when downloading the data directly from the device to Leica Cyclone REGISTER 360 and Cyclone REGISTER 360 (BLK Edition).

HIGH-SPEED DATA TRANSFER

Enjoy real-time data synchronisation between your devices with the BLK360's onboard wireless connection, then transfer data with speed and stability via WiFI or its USB-C port.

The transfer speeds are:

- up to 450 Mbit/s over USB-C and
- up to 100 Mbit/s over WiFi

There are 2 different data transfer modes available for USB-C:

- **High power mode**
  In high power mode the maximum data transfer speed of up to 450 Mbit/s is available.

  To start the high power mode, the BLK360 needs to be started up before connecting to the cable.

  In this mode, the BLK360 is powered by the internal battery.
  Data transfer will stop once the battery is empty.

- **Low power mode**
  In low power mode, the data transfer speed is approximately 10% lower as in high power mode.

  To start the low power mode, plug the USB-C cable in the turned off BLK360.
  The device will automatically be turned on.

In this mode, the BLK360 is powered by the connected computing device and at the same time, the battery gets charger.

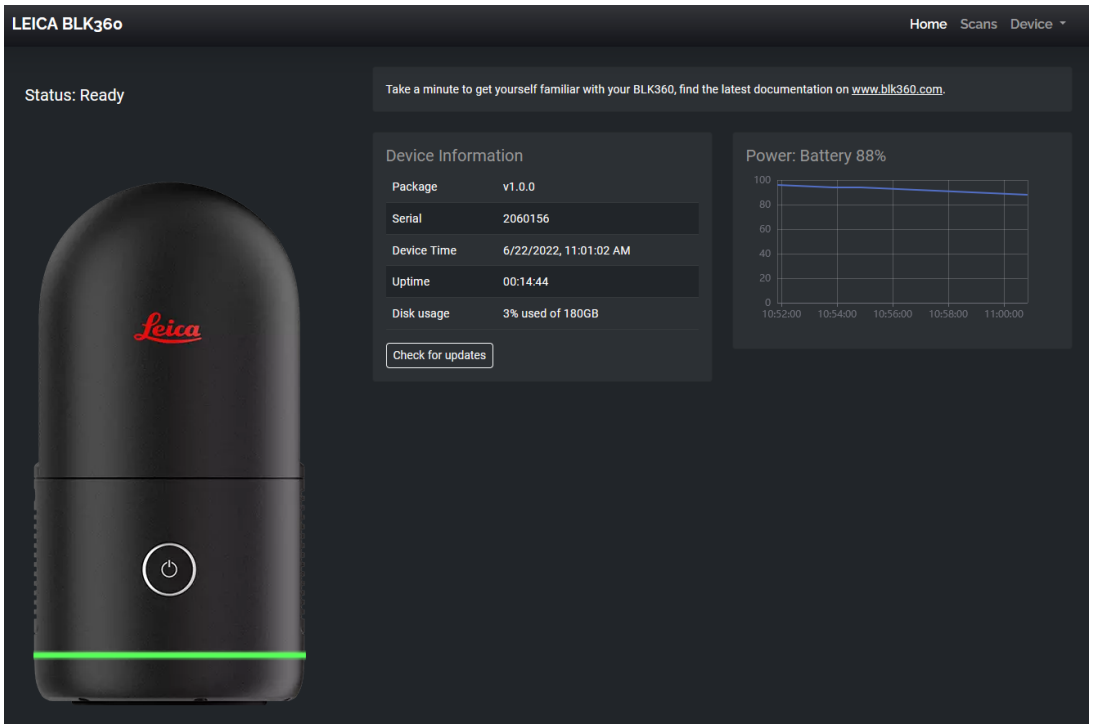
The low power mode is not timely limited by the internal battery and therefore the ideal mode to transfer a huge amount of data.

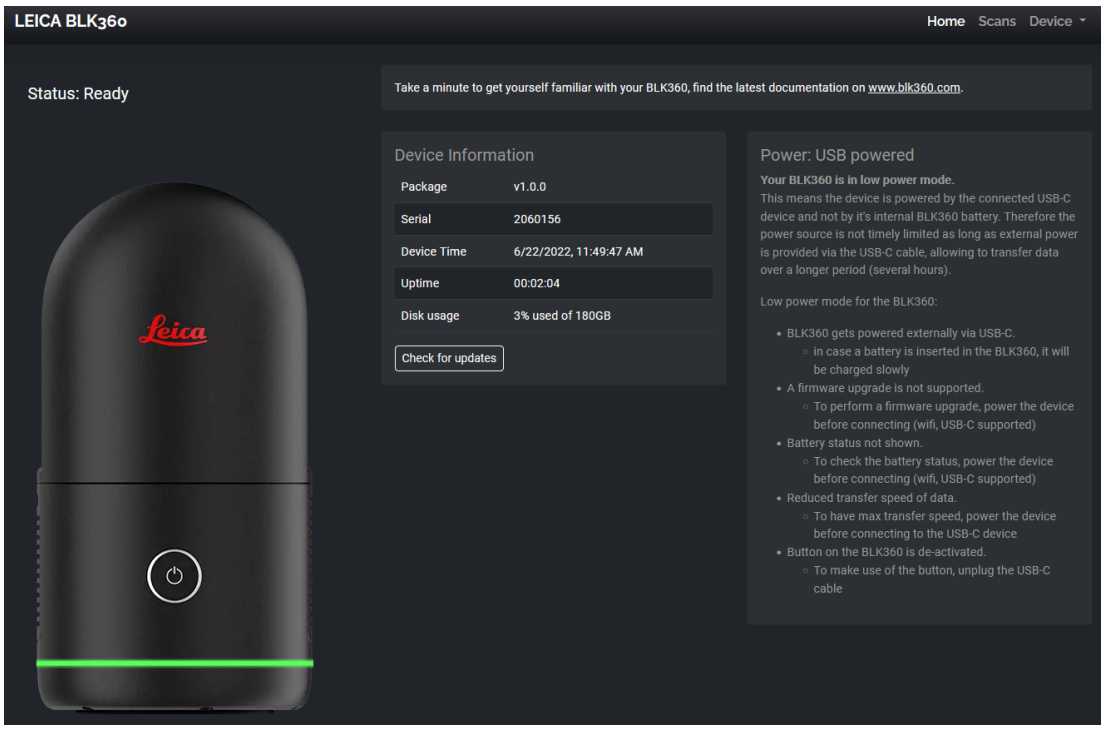
Note:
A direct USB-C cable must be used like the one included in the starter package of the BLK360.
Data capture is not possible when the BLK360 is connected via USB-C.

The cable setup for BLK360 G1, which includes a USB-C to Ethernet adapter, does not work with the all-new BLK360.

WEBSERVER
The webserver is a useful tool to perform the following functions

- Update the firmware (Device menu)
- Download service reports (Device menu) and scan raw data (Scans menu) if required for a support case
- Check free disc space
- Indicate if the BLK360 is in low power mode and the related benefits as well as limitations





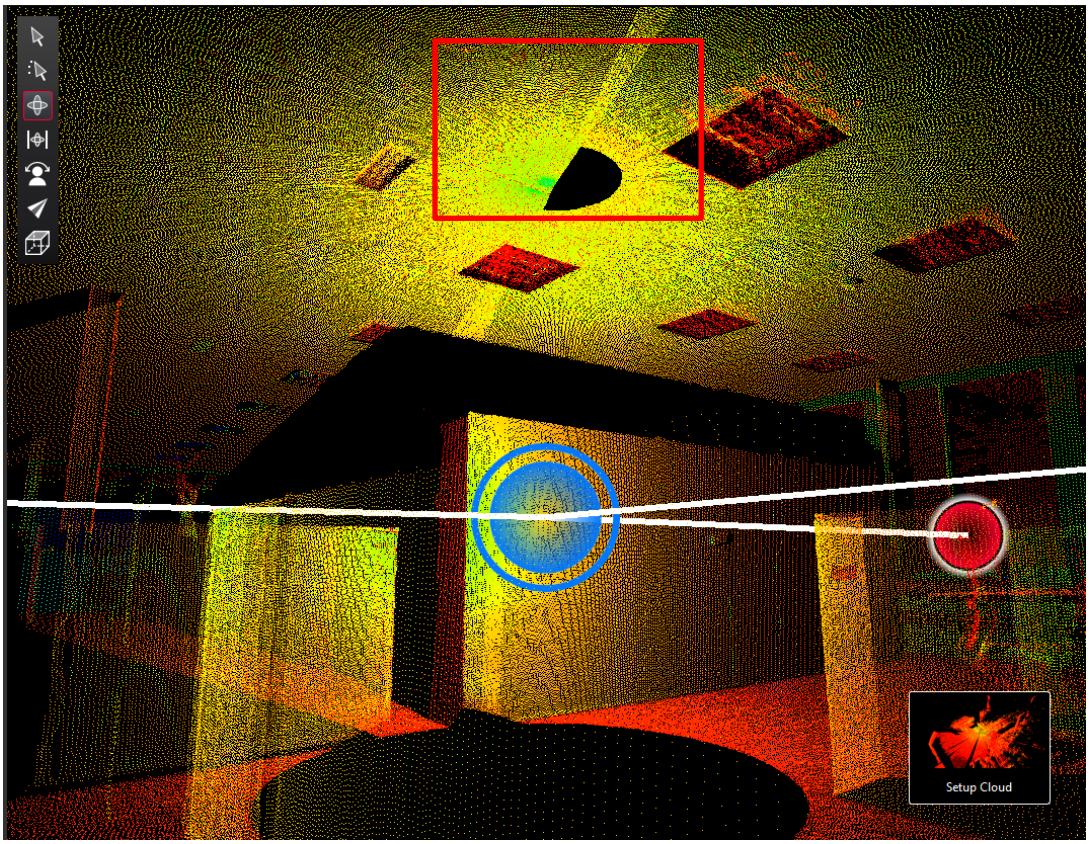
Webserver access:

When connected via WiFi to the BLK360, enter 10.10.1.1 in the browser.
When connected via USB-C to the BLK360, enter 192.168.42.1 in the browser

MISCELLANEOUS

A small half circle in the zenith of the imaging laser scanner will be present in the captured scan data, this is related to the characteristics of the ultra fast LiDAR sensor.

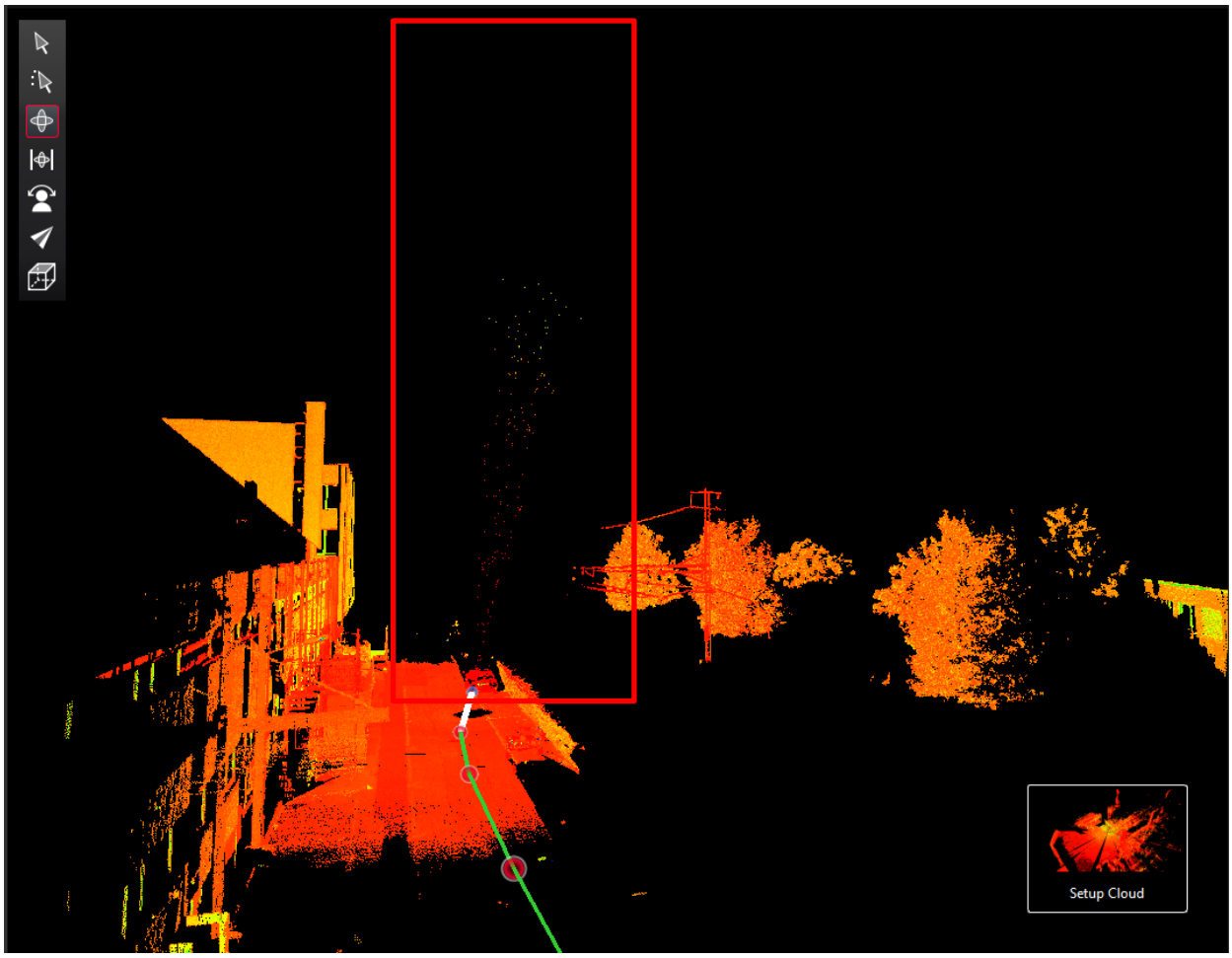
If required, this gap can fast and easily be closed by another scan nearby that covers that area.



KNOWN ISSUE

Occasionally in sunny outdoor conditions, the point cloud of the BLK360 might contain ghost points which are directed towards the sun.

If required, these ghost points can easily be deleted by using the “delete” function in Cyclone REGISTER 360.



This known issue is adressed and expected to be solved soon in an upcoming release.