

http://gmvcast.uark.edu A Method Store for Advanced Survey and Modeling Technologies Mon, 01 Apr 2013 03:29:18 +0000 en-US hourly 1 http://wordpress.org/?v=3.5.1
http://gmvcast.uark.edu/scanning/hardware/optech-ilris-3d/setup-operations-optech-ilris-3d/optech-ilris-3d-set-up-and-basic-operation/ http://gmvcast.uark.edu/scanning/hardware/optech-ilris-3d/setup-operations-optech-ilris-3d/optech-ilris-3d-set-up-and-basic-operation/#comments Wed, 06 Feb 2013 23:44:51 +0000 caitlin http://gmvcast.uark.edu/?p=12212 [Continue reading →](#)]]>

These are basic set-up and operation instructions for operating the Optech ILRIS 3D with a laptop. See the Optech Manual that accompanies the scanner for more detailed information.

1. Set up the tripod as levelly as possible
2. Attach scanner to tripod, be sure to tighten screw securely
3. Turn on laptop and connect it to scanner using either the cable or wireless network. Depending on the desired configuration, please set up accordingly:

Ethernet/Wired Connection

- In Control Panel > Network Connections > Select Internet Protocol (TCP/IP)
- Use the following IP address: 192.9.202.1 and Subnet Mask: 255.255.255.0
- In I3dNet Software > Go to tools > Prefs > Communication > Enter 192.9.202.248
- Polyworks dongle

Wireless Connection

- In Internet Protocol (TCP/IP), enter the following IP address: 192.168.0.6 and Subnet Mask: 255.255.255.0
- In I3dNet Software > Enter IP address 192.168.0.5
- Note that to reset the IP address you can log onto the internet > In Control Panel > Network Connections > (TCP/IP) > Specify 'Obtain IP Address Automatically'

4. Connect batteries to I-Bar in a T-shape. This is the only way that they will provide power to scanner
5. Connect batteries to scanner using battery cable
6. Start the I3DNet Program
7. Go to the Communication Menu > Click 'Connect'
8. Click icon with red outline to place scanning area on screen and re-size red box to define the scan area
9. Click 'Acquire' button to obtain the distance to the object to be scanned
10. Set the parameters of the scan – **First** will return readings from the first object/surface that is encountered while **Last** will return readings from the last object/surface that is encountered. Use Last to scan 'through' objects such as trees, fences, etc.
11. Set point spacing of laser (resolution)
12. Press the apply button
13. Start scan and save the file in the desired location
14. Parse scan to check data quality

15. Continue to [Optech ILRIS Parser: Pre-Processing Scan Data](http://gmvcast.uark.edu/scanning/hardware/optech-ilris-3d/setup-operations-optech-ilris-3d/optech-ilris-3d-set-up-and-basic-operation/feed/)

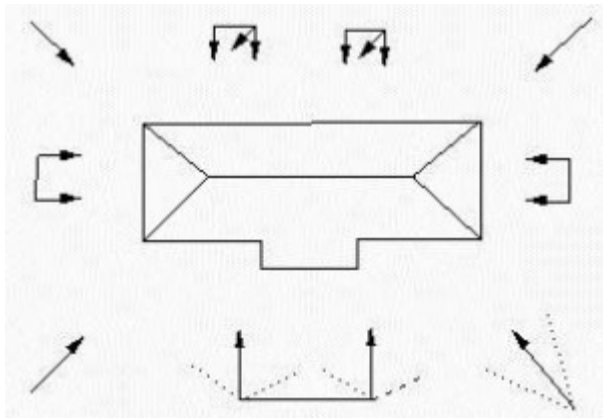
]]> <http://gmvcast.uark.edu/scanning/hardware/optech-ilris-3d/setup-operations-optech-ilris-3d/optech-ilris-3d-set-up-and-basic-operation/feed/> 0 <http://gmvcast.uark.edu/photogrammetry/hardware-photogrammetry/canon-5d-mark-ii/canon-5d-checklist/list-of-helpful-websites-and-publications-for-close-range-photogrammetry/> <http://gmvcast.uark.edu/photogrammetry/hardware-photogrammetry/canon-5d-mark-ii/canon-5d-checklist/list-of-helpful-websites-and-publications-for-close-range-photogrammetry/#comments> Thu, 19 Jul 2012 15:56:04 +0000 adam <http://gmvcast.uark.edu/?p=10756>

General Photography and Close-Range Photogrammetry Standards and Guides

Learn more about depth of field, bit depth, EXIF metadata, file formats, and more...

Glossary of terms found at Digital Photography Review website (dpreview.com)
<http://www.dpreview.com/learn/?/Glossary/>

ADS Guides to Good Practice



Learn more about the ADS Guides to Good Practice for close-range photogrammetric documentation...
Barnes, A; J. Cothren, K. Niven (2011) *Guides to Good Practice: Close-Range Photogrammetry*. Archaeology Data Service / Digital Antiquity: Guides to Good Practice.
http://guides.archaeologydataservice.ac.uk/g2gp/Photogram_Toc

Documenting Surfaces

An excellent guide for using close-range or aerial photogrammetry to document surfaces (e.g. rock art, trackways, surfaces prone to erosion).

Matthews, N. A. (2008) *Aerial and Close Range Photogrammetric Technology: Providing Resource Documentation, Interpretation, and Preservation*. Technical Note 428. National Operations Center, Denver, Colorado: U.S. Department of the Interior, Bureau of Land Management.
<http://www.blm.gov/nstc/library/pdf/TN428.pdf>

HABS/HAER/HALS

Learn more about architectural and engineering documentation for long term archival in the Heritage Documentation Programs collections in the Library of Congress.

National Park Services: Heritage Documentation Programs (HABS/HAER/HALS)

<http://www.nps.gov/history/hdp/>

Cultural Heritage Site Surveying

What makes a successful and useful survey of cultural heritage sites? Learn what to record, how to record it, and what performance indicators are important...

Bryan, P., B. Blake, J. Bedford, D. Barber, J. Mills, and D. Andrews (2009) *Metric Survey Specifications for Cultural Heritage*. English Heritage, Swindon.

<http://www.english-heritage.org.uk/publications/metric-survey-specification/>

English Heritage on Photogrammetric Survey of Historic Buildings

An extensive and detailed guide for the photogrammetric survey of historic buildings...

D'Ayala, D., and P. Smars (2003) *Minimum requirements for metric use of non-metric photographic documentation*, University of Bath.

PART 1: <http://www.english-heritage.org.uk/publications/metric-use-of-non-metric-photographic-documentation/metricextraction1.pdf/>

PART 2: <http://www.english-heritage.org.uk/content/publications/publicationsNew/metric-use-of-non-metric-photographic-documentation/metricextraction2.pdf>

Intro to Architectural Photogrammetry

A nice introduction to close-range photogrammetry and methods for architectural photogrammetry...

Hanke, K., and P. Grussenmeyer (2002) *Architectural Photogrammetry: Basic Theory, Procedures, Tools*. September 2002, ISPRS Commission 5 Tutorial, Corfu.

http://www.isprs.org/commission5/tutorial02/gruss/tut_gruss.pdf

]]> <http://gmv.cast.uark.edu/photogrammetry/hardware-photogrammetry/canon-5d-mark-ii/canon-5d-checklist/list-of-helpful-websites-and-publications-for-close-range-photogrammetry/feed/> 0

<http://gmv.cast.uark.edu/scanning/hardware/leica-c10/leica-c10-exporting-your-scan-data-2/>

<http://gmv.cast.uark.edu/scanning/hardware/leica-c10/leica-c10-exporting-your-scan-data-2/#comments>
Tue, 06 Mar 2012 21:27:24 +0000 Vance 5 meters]]> <http://gmv.cast.uark.edu/?p=4764>

This workflow will show you how export your scan data from the Leica C10 Laser Scanner.

Hint: You can click on any image to see a larger version.

Exporting data from the C10

Transferring Data from the C10

Place a USB stick in the USB Slot. **IMPORTANT: The C-10 operating system does not have virus protection. It is absolutely essential to use a clean USB stick and/or laptop anytime you are connecting to the scanner.** It is highly recommended that you dedicate a single USB stick to the scanner and that you always use a clean computer to avoid infecting the scanner. If you are using the USB stick with multiple computers, scan it for infections before inserting it into the scanner. The first time you use a new stick it will take ~30secs to recognize the new device.



The highlighted area will show you the USB Stick is ready to use. Click into the 'Tools' Menu.

Click 'Transfer'



Click 'Projects'

The project you have just been working in will be displayed. Hit 'Cont' to copy the data to the stick.



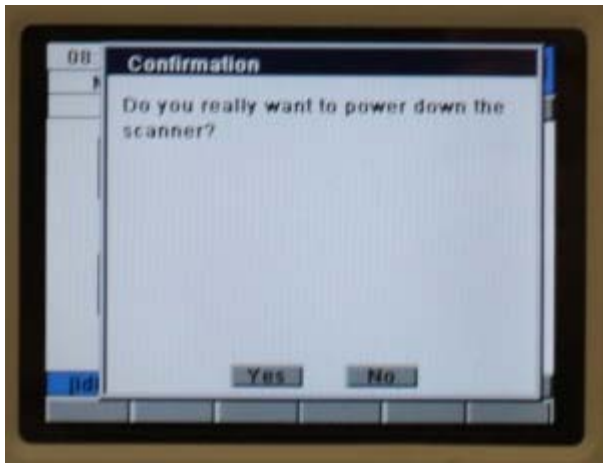
You will then see the progress bar indication time left to transfer.
Once finished click out to the Main menu using the 'x' button.

Click the 'x' button

Turning the C10 off

Click 'Yes' should you wish to turn the scanner off

The scanner will shutdown in ~5 seconds



Copying data to the server or computer

Copy data to server or local location for processing by copying the project from Scanner-Projects Folder. Confirm that the .ini files are included in this project folder. This entire project folder must be copied locally wherever you are processing the data.

Deleting Data from the C10

Once the data has been backed up/transferred to a server or localized location, delete the data from the scanner and from the USB stick. To delete project/data from the scanner, click 'Manage' at the main menu. Select project and 'Del' tab.

]]> <http://gmvcast.uark.edu/scanning/hardware/leica-c10/leica-c10-exporting-your-scan-data-2/feed/> 0

<http://gmvcast.uark.edu/scanning/hardware/leica-c10/leica-c10-starting-a-scan-2/>

<http://gmvcast.uark.edu/scanning/hardware/leica-c10/leica-c10-starting-a-scan-2/#comments> Tue, 06 Mar 2012 21:09:39 +0000 Vance 5 meters]]> <http://gmvcast.uark.edu/?p=4757>

This workflow will show you how to start a scan using the Leica C10 Laser Scanner.

Hint: You can click on any image to see a larger version.

START SCANNING!

First, choose a field of view and resolution appropriate for your project.

If you are interested in collecting scan data and RGB/images, hit 'Sc+Img.'

If you are only interested in collecting scan data, hit 'Scan' instead. You will now see the progress bar on the side of the instrument.



Once finished the scanner will return to this dialogue.

Hit 'ScWin' to view the collected scan-data.

PREVIEW THE SCAN DATA

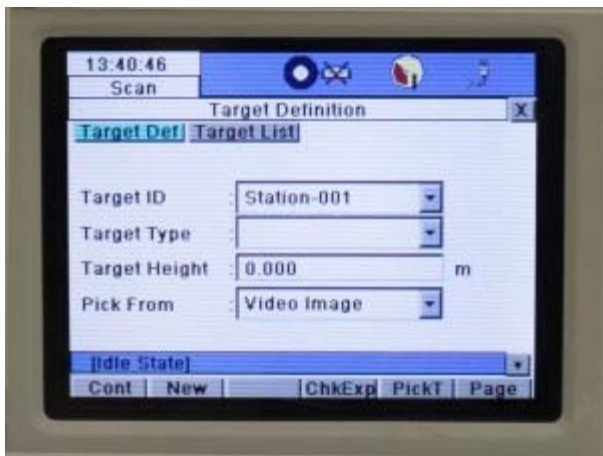
Here you can see the scan data – click the 'x' to return to the previous menu.



CREATE A TARGET IN THE SCENE

Click the button highlighted to go to the sub-menu. Click 'Target'.

Click 'New' to create a new target in the scene.



Click into the 'Target ID' box and use the keyboard to input a target name – hit 'Ent'. A recommendation would be to use 'HDS1', then 'HDS2' and so on if using more than one target in a scene.

ENTER THE TARGET HEIGHT

If you have set up the target over a known point you can enter a target height. Click 'PickT'.



LINE UP THE SCANNER WITH THE TARGET

You will now see the live video feed – move the scan-head manually to roughly line up with the target. Using the video feed use the '**SEEK**' tool to pick the centre of the target – *use the zoom buttons to try to be as accurate as possible*



Hit return, this will return you to the Targeting menu. Hit 'Cont'. The scanner will now scan the target – this should take between 10-30 seconds.



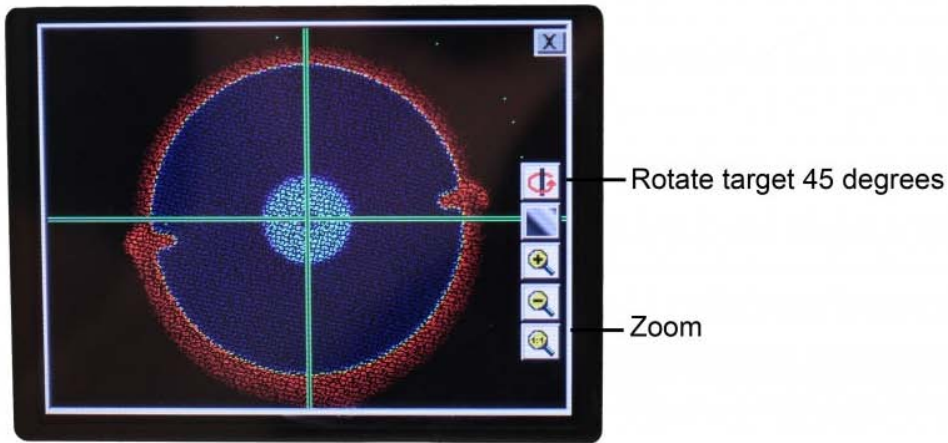
Once completed you will see the following dialogue. Click 'View' to see the target



STORE AND CHECK THE TARGET

VERY IMPORTANT: Hit 'Store' to ensure the target is copied into the database, the target list will not show the targets but it has been stored.

You can now check that the vertex is in the centre of the target. Hit 'x' to return to the previous menu



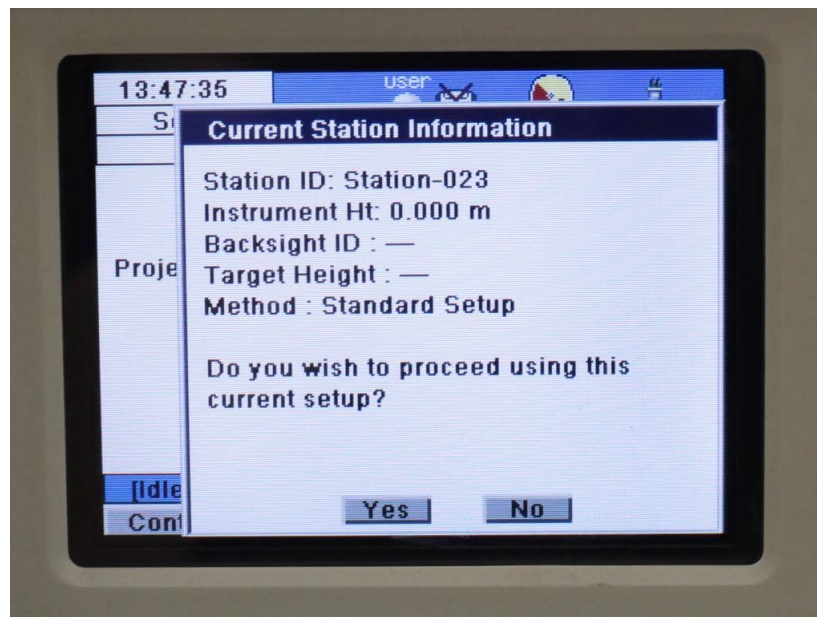
YOU'VE SCANNED STN1!

Congratulations – You have now finished scanning at STN1! Time to move to STN2.

Using the 'x' button move back to the Scan Parameter window

STARTING A SECOND SCAN STATION

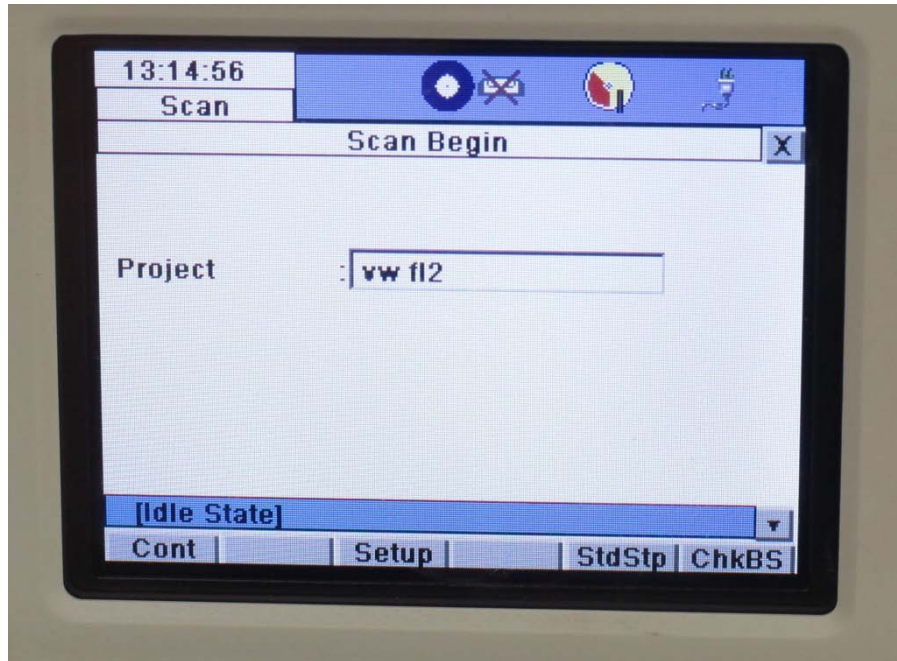
IMPORTANT: To set up STN2, click the 'StdStp' tab, which takes you to the scan parameters screen. **DO NOT click 'Cont' as this will add more data into STN1.** (If you are adding data to an existing station, a message will appear stating the Station Number and Current Station Information/Parameters – see below. Click no to avoid adding data to the previous station.)



VIEWING ALL SCAN STATIONS IN A PROJECT

Clicking the Setup tab will display the project name and will show all stations collected so far. Recording each station on the field sketch and noting the station number in the setup tabs help to avoid confusion and overwriting data.

To continue scanning and acquiring data at STN2, repeat steps starting from the 'Start Scanning,'



OR Continue to the next part in the series to transfer data to a USB Stick

CONTINUE TO...

Continue to part 4 in the series, [Leica C10: Exporting your scan data.](http://gmvcast.uark.edu/scanning/hardware/leica-c10/leica-c10-starting-a-scan-2/feed/0)

```
]]> http://gmvcast.uark.edu/scanning/hardware/leica-c10/leica-c10-starting-a-scan-2/feed/0  
http://gmvcast.uark.edu/uncategorized/leica-c10-starting-a-new-project-2/  
http://gmvcast.uark.edu/uncategorized/leica-c10-starting-a-new-project-2/#comments Tue, 06 Mar 2012  
20:44:10 +0000 Vance 5 meters]]> http://gmvcast.uark.edu/?p=4749
```

This workflow will show you how to create a new project prior to scanning with the Leica C10 Laser Scanner.

Hint: You can click on any image to see a larger version.

Start a new project

From the main menu click the 'Manage' icon.

Click 'New' to start a new project



Click into the 'Name' box and a keyboard will appear. Enter your desired project name and click 'Ent'.

Hit 'Store' to store the project folder

SET UP A NEW SCAN STATION

You will now see your project highlighted in the 'Project list'. Click 'Cont'.

This will return you to the main menu – click on the 'Scan' icon.



Click 'NewSt' to create a new station setup. Confirm your project is listed. Choose 'StdStp' (Standard Setup highlighted in magenta below).



SELECT PRESETS

Click the drop down arrow to the right of the 'Presets' menu



Select the appropriate preset or enter a custom field of view.

Preset	Horizontal FoV°	Vertical FoV°
Custom View	User defined	User Defined
Quick Scan	Defined by QS aiming	135(-45- +90)
Rectangle 60×60	60	60
Rectangle 90×90	90	90
Rectangle 360×60	360	60
Rectangle 360×90	360	90
Target all	360	270

SET RESOLUTION

Click into the 'Resolution' tab and choose the resolution desired. We are initially recommending a 7 minute 'Medium Res' Scan.

Preset	Horizontal Spacing	Vertical Spacing	Range
custom res	user defined	user defined	user defined
low res	.2m	.2m	100m
medium res	.1m	.1m	100m
high res	.05m	.05m	100m
highest res	.02m	.02m	100m

Once you have chosen your resolution you will see an indication of the level of detail of your results. (At Medium Resolution this will give you a point spacing of 10mm at 10m, 20mm at 20m and so on).



RGB DATA

If RGB data is important, it is recommended that you manually set the exposure. Click on the Image Ctrl Tab. Set Exposure to Manual. Click on ChkExp tab at bottom of screen to check the exposure. Manually

turn the scanner around the field of view, adjusting the exposure with the pull tab on the right. Once the exposure is correct, click the return key and **note the value of the Time (ms)**. Use this value for subsequent scans in the area. Adjust this number if lighting conditions or locations change.

CONTINUE TO...

Continue to part 3 in the series, [Leica C10: Starting a Scan](http://gmvcast.uark.edu/uncategorized/leica-c10-starting-a-new-project-2/feed/0)

]]> <http://gmvcast.uark.edu/uncategorized/leica-c10-starting-a-new-project-2/feed/0>

<http://gmvcast.uark.edu/scanning/hardware/leica-c10/c10-setup-operation/scanning-with-the-c10-3-2/>

<http://gmvcast.uark.edu/scanning/hardware/leica-c10/c10-setup-operation/scanning-with-the-c10-3-2/#comments> Fri, 20 May 2011 14:43:32 +0000 Angie 5 meters]]>

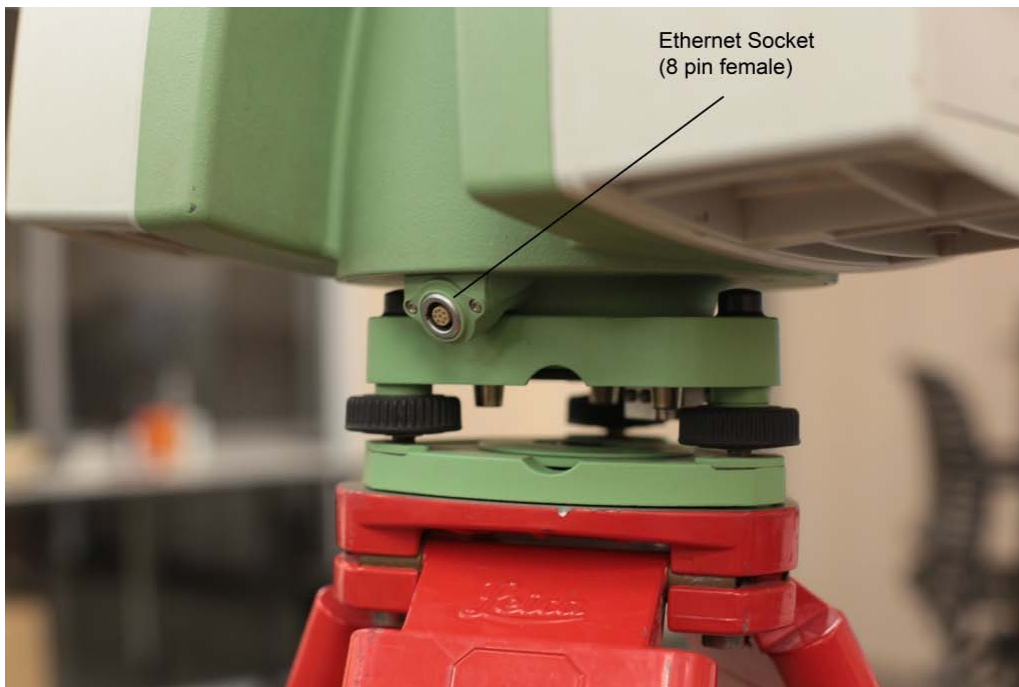
<http://gmvcast.uark.edu/1988/scanning-with-the-c10-3/>

This workflow will show you how set up the Leica C10 Laser Scanner prior to beginning your scanning project.

Hint: You can click on any image to see a larger version.

INSTRUMENT'S COMPONENTS





SUGGESTED EQUIPMENT CHECKLIST

1. Scanner and equipment as listed above
2. Tripod
3. Batteries: taking 4-6 fully-charged batteries is usually appropriate for a day's scanning while external chargers and/or extension cords are suggested for longer projects. Ensure that batteries are fully charged and healthy the day before the project begins.
4. Targets and Target numbers if applicable
5. USB stick (that is updated and cleaned of any infections/problems) if scanning onboard
6. Laptop (with updated virus protection and adequate free space), Ethernet cable, external laptop battery, and mouse if scanning to the computer or processing data

PRE-SCANNING CHECK

1. Do not scan in rain, snow or fog
2. Protect scanner from excess moisture and rain
3. If temperatures are outside the calibrated range, an error message will display. Measuring accuracy cannot be specified if scanning proceeds
4. If the scanner is taken from a cold environment into a warm, humid one, the glass window and even the optic can fog up causing measurement error as does dust, and fingerprints
5. Always check to verify that the lens is perfectly clean.

C10 SCANNER SETUP

1. Set up tripod as stable and level as possible – *Never use the scanner without the tripod*
2. Remove instrument from case with **both** hands, grasping the top with one hand on the handle and reaching under the base with the other in the space provided. Refrain from using the tribrach (base mount) to lift with as it can turn unexpectedly
3. Place instrument on tripod and secure – *Always keep one hand on the handle until the scanner is firmly attached to the tripod*
4. Level using the leveling screws and built-in bubble level

MEASURE INSTRUMENT HEIGHT

To get an accurate height measurement use the GHM008 instrument height meter in conjunction with the GHT196 distance holder which are both included with the scanner.

1. Place tripod centrally over the ground point, level instrument.
2. Click GHT196 distance holder to tribrach. It must "snap" onto the cover over an adjusting screw.
3. Unfold measuring tongue, pull out tape measure a little.
4. Insert GHM008 instrument height meter in the distance holder and attach.
5. Swivel measure in the direction of the ground point, pull out until the tip of the measuring tongue touches the point on the ground, keep under tension and do not allow to sag, clamp if necessary.
6. Read height of the instrument (ground – tilt axis) in the reading window at the red marking (in the example 1.627 m).

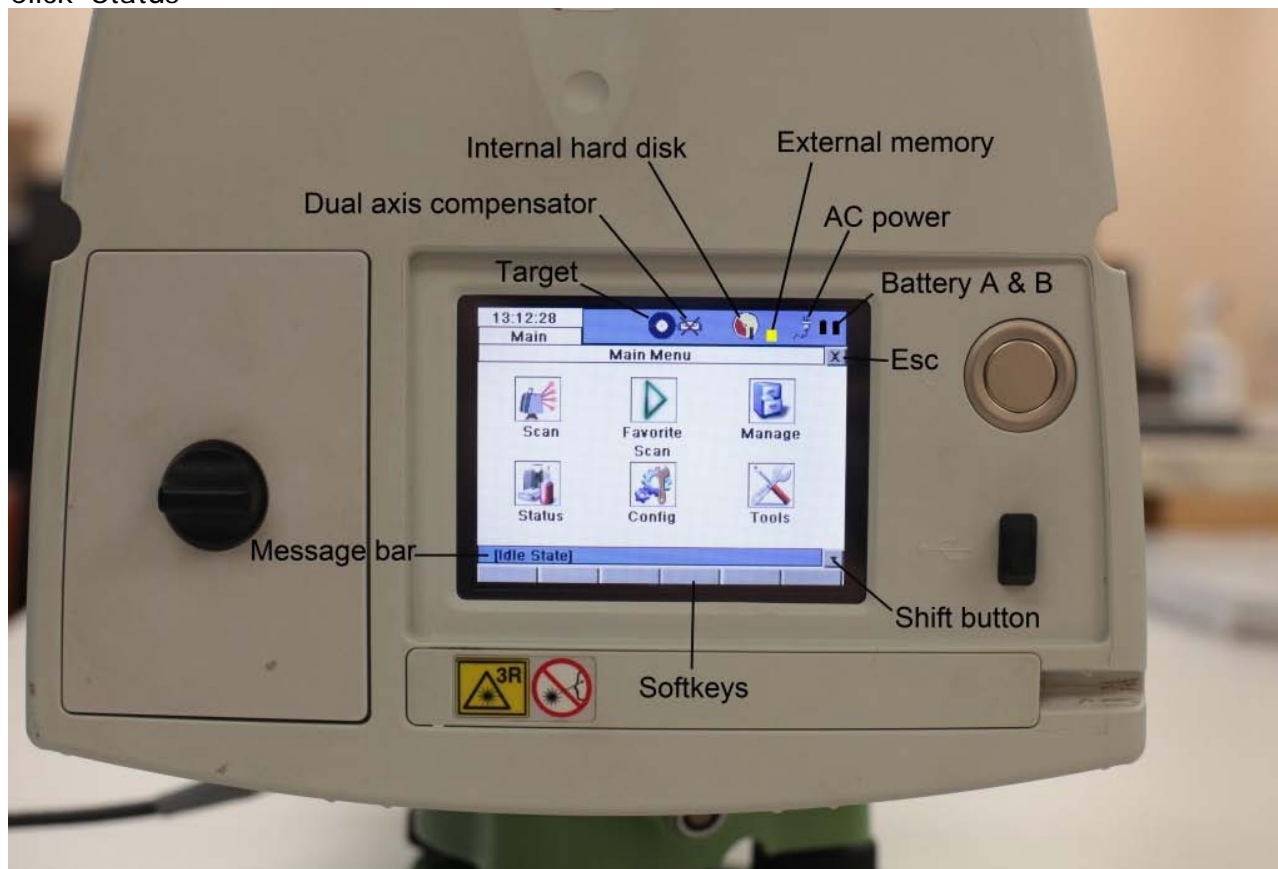
SCANNING WITHOUT A COMPUTER / 'ONBOARD'

1. Position the scanner in the center of the target field
2. Level the scanner using the physical bubble
3. Turn on the instrument by pressing the 'Big silver button' once
4. The scanner will boot in ~90 seconds.

ONCE BOOTED YOU WILL SEE THIS SCREEN...

[Idle State] should be displayed in command line

Click 'Status'



Click 'Level & Ls Plummet'

LEVEL THE SCANNER

First level the scanner using the physical bubble. Then try to level the scanner as best as possible using the



digital bubble.

Within the 'Plummet' menu you can turn the laser plummet on or off

Within the 'Compensator' menu ensure the compensator is turned on. Return to the main menu by pressing the 'x' in the top right corner. **(At this time you can remove the standard handle if data collected above the scanner is important to the project).**

CONTINUE TO...

Continue to part 2 of the series, [Leica C10: Starting a New Project](http://gmvcast.uark.edu/scanning/hardware/leica-c10/c10-setup-operation/scanning-with-the-c10-3-2/feed/0)

]]> <http://gmvcast.uark.edu/scanning/hardware/leica-c10/c10-setup-operation/scanning-with-the-c10-3-2/feed/0>