

Leica iCON robot 50 Quick Guide



Version 2.0
English

- when it has to be **right**

Leica
Geosystems

1 Important Information about your Instrument



Read and follow the User Manual on the accompanying DVD before using the product.



Keep for future reference!

Intended use

- Measuring horizontal and vertical angles.
 - Measuring distances.
 - Recording measurements.
 - Automatic target search, recognition and -tracking.
 - Visualising the aiming direction and vertical axis.
 - Remote control of product.
 - Data communication with external appliances.
 - Computing with software.
-

Laser products

The iCON robot 50 instrument contains the following laser products:

Laser product	Laser class
EDM (Electronic Distance Measurement) module <ul style="list-style-type: none">measurements with reflectorsmeasurements without reflectors	Class 1 Class 3R
ATR (Automatic Target Aiming)*	Class 1
PS (PowerSearch)*	Class 1
EGL (Electronic Guide Light)*	Exempt Group
Laser plummet	Class 2


*optional laser product

- The classification for the EDM, ATR, PS and Laser plummet is in accordance with IEC 60825-1 (2007-03).
- The classification for the EGL is in accordance with IEC 62471 (2006-07).

 **CAUTION** From a safety perspective, class 3R laser products should be treated as potentially hazardous.

Precautions:

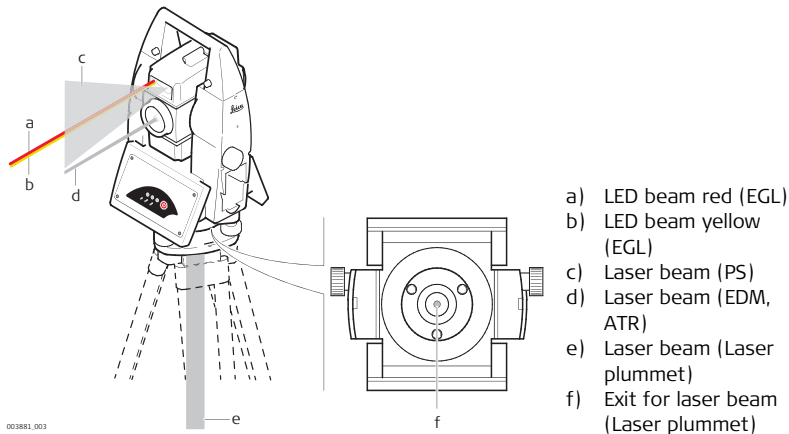
- 1) Prevent direct eye exposure to the beam.
- 2) Do not direct the beam at other people.

 **CAUTION** From a safety perspective, class 2 laser products are not inherently safe for the eyes.

Precautions:


- 1) Avoid staring into the beam.
 - 2) Avoid pointing the beam at other people.
-

Locations of laser apertures



1.1 Conformity Declaration - Communication side cover and CommunicationHandle

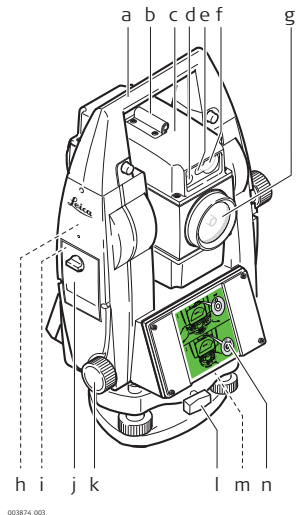
Conformity to national regulations

- FCC Part 15, 22 and 24 (applicable in US)
 - Hereby, Leica Geosystems AG, declares that the iCON robot 50 and the combination with CCD1/CCD2 or RH1200 is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. The declaration of conformity may be consulted at <http://www.leica-geosystems.com/ce>.
-  Class 1 equipment according European Directive 1999/5/EC (R&TTE) can be placed on the market and be put into service without restrictions in any EEA Member state.
- The conformity for countries with other national regulations not covered by the FCC part 15, 22 and 24 or European directive 1999/5/EC has to be approved prior to use and operation.
-

2

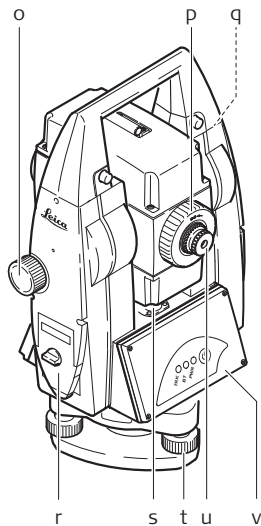
Instrument Components

Instrument components part 1 of 2



- a) Carry handle
- b) Optical sight
- c) Telescope, integrating EDM, ATR, EGL, PS
- d) EGL flashing diode yellow
- e) EGL flashing diode red
- f) PowerSearch
- g) Coaxial optics for angle and distance measurement, and exit port of visible laser beam for distance measurements
- h) Communication side cover
- i) Instrument Port 3 (BT)
- j) CompactFlash card compartment
- k) Horizontal drive
- l) Tribrach securing screw
- m) Instrument Port 1 (Cable)
- n) Label "levelling hint"

Instrument components
part 2 of 2

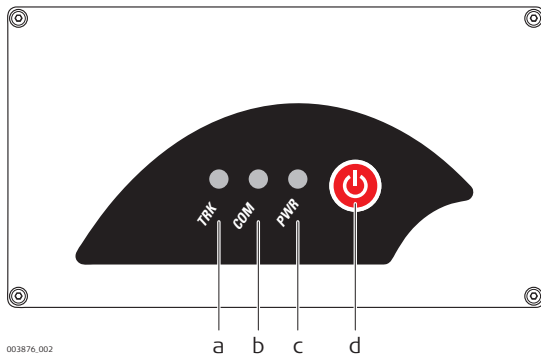


- o) Vertical drive
- p) Focusing ring
- q) Instrument Port 2 (Handle)
- r) Battery compartment
- s) Circular level
- t) Tribrach footscrew
- u) Interchangeable eyepiece
- v) Control Panel

Instrument Ports

Port	Name	Description
Port 1	Cable	<ul style="list-style-type: none">• 5 pin LEMO-0 for power, communication, data transfer.• This port is located at the base of the instrument and is always available.
Port 2	Handle	<ul style="list-style-type: none">• Hotshoe connection for CommunicationHandle.• This port is located on top of Communication side cover.
Port 3	BT	<ul style="list-style-type: none">• Bluetooth module for communication.• This port is housed within Communication side cover.

Control Panel



003876_002

- a) **TRK** Tracking LED
 - b) **COM** Communication LED
 - c) **PWR** Power LED
 - d) **ON/OFF** button
-

Description of LED indicators

IF the	is	THEN
PWR LED	off	power is off.
	green	power is okay, battery status is okay.
	flashing green	power is low. The remaining time for which enough power is available depends on the temperature and the age of the battery.
	red	power is very low. The battery should be changed.
COM LED	green	Bluetooth is in data mode and ready for connection.
	blue	Bluetooth has connected.
	red	Internal Bluetooth is off, communication on Port 2 is active to communicate with field software over a handle.
	off	Internal Bluetooth is off, Port 1 serial is active for communication with field software.
	flashing red	Firmware upload failed.

IF the	is	THEN
TRK LED	off	no prism found.
	red	instrument is in startup mode and not ready.
	flashing green	prism locked but not tracking.
	green	prism locked and tracking.
	flashing red	uploading firmware.

Turn instrument on

- 1) Press and hold ON/OFF for 2 s.
 - 2) Release when PWR LED turns green. When the red TRK LED switches off the instrument is ready.
-

Turn instrument off

- 1) Press and hold ON/OFF for 3 s. PWR LED turns red.
 - 2) Release and instrument shuts down.
-

Using the instrument with internal Bluetooth

- 1) Press and hold ON/OFF for 5 s.
 - 2) Release when the COM LED turns green. All LEDs turn to their current status.
 - 3) Internal Bluetooth is now enabled for use with a controller.
-

Using the instrument with cable

- 1) Press and hold ON/OFF for 10 s. COM LED switches off and Bluetooth is disabled.
 - 2) Release and all LEDs turn to their current status.
 - 3) RS232 mode (Port 1) is now enabled for use with a controller.
-

Using the instrument with CommunicationHandle and field software (geocom)

- 1) Press and hold ON/OFF for 15 s.
 - 2) Release when the COM LED turns red. All LEDs turn to their current status.
 - 3) CommunicationHandle (Port 2) is now enabled for use with a controller (geocom).
-

Reset instrument

- 1) Press and hold ON/OFF for 20 s.
- 2) Release when all LEDs turn red.
- 3) Instrument shuts down.
- 4) Instrument turns on again.
- 5) LEDs turn to their current status.





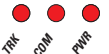


When resetting the instrument following tasks will be performed:

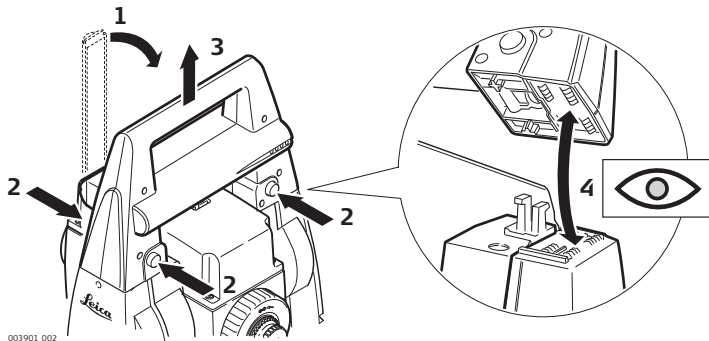
- The current job will be deleted.
 - System RAM will be formatted.
 - Factory default settings will be activated.
 - Cable mode will be activated (Baudrate 115200).
-



LED status indications

The following table gives an overview about LED indications of the control panel in different status modes.

LED indication	Status mode
 TRK COM PWR	Instrument can communicate over port 1 - cable.
 TRK COM PWR	Internal Bluetooth is ready but not connected. Instrument can communicate over port 3 - Bluetooth.
 TRK COM PWR	Internal Bluetooth is connected.
 TRK COM PWR	Instrument can communicate over port 2 - CommunicationHandle.
 TRK COM PWR	Instrument is resetting.

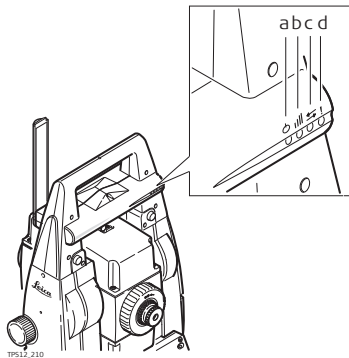
Installation of Communication- Handle step-by-step



Step	Description
1.	To install the CommunicationHandle, first make sure that the interface connection on the underside of the handle is on the same side as the Communication side cover. Then press and hold the four unlock pushbuttons and attach the handle.
2.	<p data-bbox="474 337 1359 399">Swing the CommunicationHandle into an upright position. The CommunicationHandle locks into place.</p> <p data-bbox="481 417 1367 510"> Ensure that there is a tight fit with the instrument after releasing the push buttons. If no connection can be found, re-check that handle is seated firmly.</p>
	To remove the instrument carry handle: Press and hold the four unlock push buttons and lift off the handle.

LED Indicators on Communication- Handle

Diagram of the LED Indicators






- a) Power LED
- b) Link LED
- c) Data Transfer LED
- d) Mode LED

Description of the LED Indicators

IF the	is	THEN
Power LED	off	power is off.
	green	power is on.
Link LED	off	no radio link to remote controller.
	red	radio link to remote controller.
Data Transfer LED	off	no data transfer to/from remote controller.
	green or green flashing	data transfer to/from remote controller.
Mode LED	off	data mode.
	red	configuration mode.

LED status indications

The following table gives an overview about LED indications of the Communication-Handle in different status modes.

LED indication	Status mode
	CommunicationHandle Bluetooth is configured and is in idle mode.
	CommunicationHandle WLAN is configured and is in idle mode.
	CommunicationHandle is connected to the device and communicating.

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Technical Data

Environmental specifications

Temperature

Operating temperature [°C]	Storage temperature [°C]
-20 to +50	-40 to +70

Protection against water, dust and sand

IP54 (IEC 60529)

Humidity

Max 95 % non condensing.

The effects of condensation are to be effectively counteracted by periodically drying out the instrument.

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Care and Transport

Transport in the field

When transporting the equipment in the field, always make sure that you

- either carry the product in its original transport container,
 - or carry the tripod with its legs splayed across your shoulder, keeping the attached product upright.
-

Field adjustment

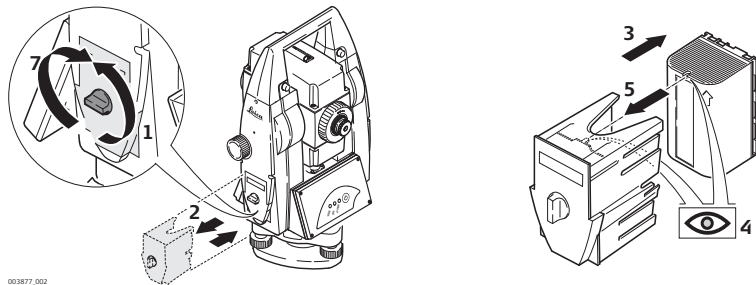
Periodically carry out test measurements and perform the field adjustments indicated in the User Manual, particularly after the product has been dropped, stored for long periods or transported.

5 Operation



The battery must be charged before using it for the first time.

Battery Installation



Step	Description
1.	Turn the knob to the vertical position to unlock the lid of the battery compartment.
2.	Pull out the battery housing.
3.	Pull the battery from the battery housing.
4.	A pictogram inside the battery housing illustrates how to insert the battery correctly.
5.	Insert the battery with the contacts facing outward.
6.	Place the battery housing into the battery compartment. Push the battery housing in until it fits completely into the battery compartment.
7.	Turn the knob to lock the battery compartment. The knob is in horizontal position now.

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Leica Geosystems AG, Heerbrugg, Switzerland, has been certified as being equipped with a quality system which meets the International Standards of Quality Management and Quality Systems (ISO standard 9001) and Environmental Management Systems (ISO standard 14001).

Ask your local Leica Geosystems dealer for more information about our TQM program.

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793705-2.0.0en

Original text
Printed in Switzerland
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