Leica
GEOSYSTEMS

Leica TS20

Quick Guide

English
Version 1.0
Model: TPS1

HEXAGON

1 Important Information about your Instrument

Do not use the product before you have studied the Quick Guide and the User Manual. If you have no such manual, or it is in the wrong language, please use the QR code to download.

- This Quick Start Guide contains first use directions as well as initial, basic instructions for setting up the product and operating it.
- Keep all documentation for future reference!

Intended use

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

Laser products

The TS20 instrument contains the following laser products:

Laser product	Laser class
EDM (Electronic Distance Measurement) module	
• measurements with reflectors	Class 1
• measurements without reflectors	Class 2 (R800)
	Class 3R (R1600)
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, Laser Guide and Laser plummet is in accordance with IEC 60825-1 (2014-05).
- The classification for the EGL is in accordance with IEC 62471 (2006-07).

⚠CAUTION

Class 2 laser product

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

Precautions:

- Avoid staring into the beam or viewing it through optical instruments.
- Avoid pointing the beam at other people or at animals.

⚠CAUTION

Class 3R laser products

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

Precautions:

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

⚠ CAUTION

Reflected beams aimed at reflecting surfaces

Potential hazards are not only related to direct beams but also to reflected beams aimed at reflecting surfaces such as prisms, windows, mirrors, metallic surfaces, etc.

Precautions:

- Do not aim at areas that are essentially reflective, such as a mirror, or which could emit unwanted reflections.
- Do not look through or beside the optical sight at prisms or reflecting objects when the laser is switched on, in laser pointer or distance measurement mode. Aiming at prisms is only permitted when looking through the telescope.

The product must not be disposed with household waste.

Labelling

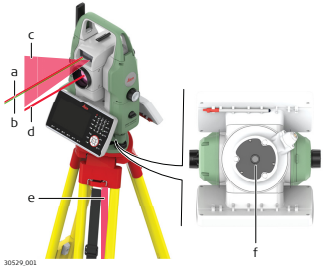
29899_001

29901_001

Labelling

29969_001

Locations of laser apertures



a	LED beam red (EGL)
b	LED beam green (EGL)
c	Laser beam (PS)
d	Laser beam (EDM, ATR)
e	Laser beam (Laser plummet)
f	Exit for laser beam (Laser plummet)

EU

Hereby, Leica Geosystems AG declares that the radio equipment type TPS1 is in compliance with Directive 2014/53/EU and other applicable European Directives.
The full text of the EU declaration of conformity is available at the following Internet address: http://www.leica-geosystems.com/ce.

UK

Hereby, Leica Geosystems AG declares that the radio equipment type TPS1 is following the provisions of the applicable relevant statutory requirement S.I. 2017 No. 1206 Radio Equipment Regulations 2017.

USA	FCC ID: RFD-BELUGA Part 2, 15 B/C/E, 22, 24, 27, 90
	Changes or modifications not expressly approved by Leica Geosystems for compliance could void the user's authority to operate the equipment.
Canada	CAN ICES-003(B)/NMB-003(B) IC: 3177A-BELUGA
Others	The conformity for countries with other national regulations has to be approved prior to use and operation.

2 Instrument Components

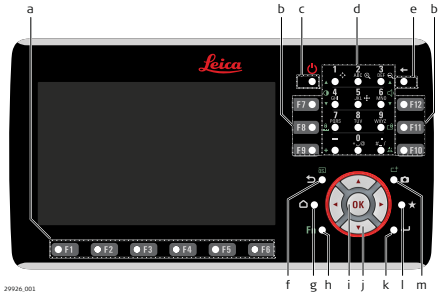
Instrument components part 1 of 2

a	Carry handle
b	Optical sight
c	Telescope, integrating EDM, ATR, EGL, PS, overview camera
d	EGL flashing diode - green and red
e	Overview camera
f	PowerSearch, transmitter
g	PowerSearch, receiver
h	Coaxial optics for angle and distance measurement, exit port of visible laser beam for distance measurements
i	Loudspeaker
j	USB stick compartment
k	6 pin LEMO for power, communication and data transfer
l	Tribrach securing screw
m	Horizontal drive with user defineable key
n	Focus drive with Autofocus button
o	Second keyboard (optional)

Instrument components part 2 of 2

a	Vertical drive with user defineable key
b	Interchangeable eyepiece
c	Circular level
d	Battery compartment
e	Tribrach footscrew
f	Touch screen
g	Stylus for touch screen
h	Keyboard

Keyboard



a	Function keys F1-F6
b	Function keys F7-F12
c	ON/OFF
d	Alphanumeric keys
e	Backspace
f	Esc
g	Home
h	Fn
i	OK
j	Arrow keys
k	Enter
l	Favourites
m	Camera

For more information on the key functions and key combinations refer to the User Manual.

3 Technical Data

Environmental specifications

Temperature

Type	Operating temperature [°C]	Storage temperature [°C]
All instruments*	–20 to +50	–40 to +70
Leica USB-C stick	–40 to +85	–40 to +85
Battery internal	–20 to +60	–40 to +70
All chargers	0 to +50	-40 to +55

* For Arctic variant: Operation of instrument tested at –35°C

Protection against water, dust and sand

Type	Protection
All instruments	IP66 (IEC 60529) Designed for outdoor use. Allowed to use the instrument temporarily in damp or wet locations.
All chargers	Only operate in dry environments, for example in buildings and vehicles.

Pollution degree

Type	Pollution
All instruments	4 Electrical equipment for outdoor use
All chargers	2 Electrical equipment for office environment

Humidity

Type	Protection
All instruments	100% condensing (ISO 9022-13-01-2, MIL-STD-810H Method 507.6) The effects of condensation are to be effectively counteracted by periodically drying out the instrument.
All chargers	Only operate in dry environments, for example in buildings and vehicles.

Altitude

Type	Protection
All instruments	Unrestricted
All chargers	≤ 2000 m above sea level

4 Care and Transport

Transport in the field

When transporting the equipment in the field, follow one of these options:

- Carry the instrument in its original container
- Carry the tripod with its legs splayed across your shoulder, keeping the attached instrument upright
- Remove instrument from tripod and carry it by its handle

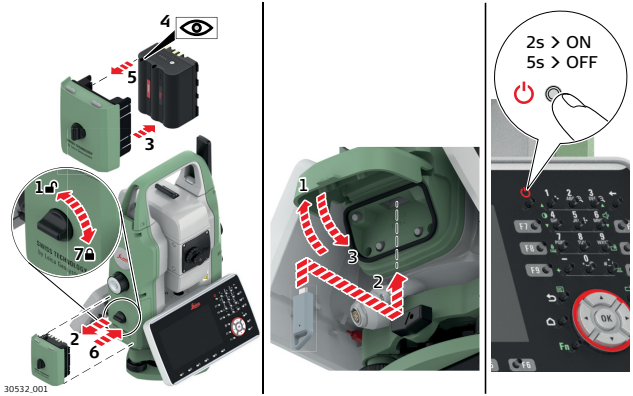
Field adjustment

Exposing the product to high mechanical forces, for example through frequent transport or rough handling, or storing the product for a long time may cause deviations and a decrease in the measurement accuracy. Periodically carry out test measurements and perform the field adjustments indicated in the User Manual before using the product.

5 Operation

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

Turning on and off the instrument



Licence Update on TS20

Upon delivery, all TS20 total stations come with an activated entitlement containing the ordered options and applications.

If any additional licence is added or needs updating after initial delivery, select one of these options:

1. If the instrument is connected to the Internet:
   - Automatic licence update within the EID during the TS20 booting process.
   - Manual check for licence update in the settings and tools menu.
2. If no Internet connection is available:
   - Pending updates of licencing can be done via an offline licence update. Refer to the Leica Captivate Technical Reference Manual.

6 EU Declaration of Conformity

EU Declaration of Conformity

CE

This corresponds to EN ISO/IEC 17050-1

The product **TPS1**

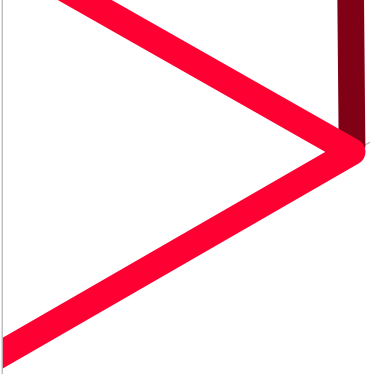
following the provisions of Directive(s)

- **2014/53/EU Radio equipment (RED)** (in accordance with annex II)
- **2006/42/EC Machinery (MD)**
- **2011/65/EU Restriction of hazardous substances (RoHS)** (incl. delegated directive 2015/863 amending Annex II to Directive 2011/65/EU)

to which this declaration relates, is in compliance with the following standards:

- **EN 61010-1:2010**
- **EN 61010-1:2010/AMD1:2016**
- **EN 62311:2008**
- **EN 300 328 V2.2.2**
- **EN 301 489-1 V2.2.3**
- **EN 301 489-17 V3.3.1**
- **EN 301 489-19 V2.2.1**
- **EN 301 489-52 V1.2.1**

For translations into the official EU languages please refer to:
http://www.leica-geosystems.com/ce



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