

Leica Nova MS60, TS60 and TM60 Equipment List

Nova



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GEOOPTIC

MultiStation and Total Stations

1 MultiStation

1.1 Models



	MS60
Angle measurement	●
Distance measurement to prism	●
Distance measurement to any surface (R1000)	-
Long Range distance measurement to any surface (R2000)	●
30000 Hz Scanning EDM	●
Horizontal and Vertical Scan	●
AutoHeight	●
Motorised	●
Automatic Target Recognition (ATRplus)	●
Lock mode	●
PowerSearch (PS)	●
Guide Light (EGL)	●
Servofocus	●
Autofocus	●
5 Megapixel imaging	●
Overview Camera	●
Telescope Camera	●
WLAN	●
Bluetooth	●
RS232/USB interface	●
Internal Flash Memory (4GB)	●
Hotshoe Interface for RadioHandle	●
LOC8 or LOC8 LTE	○
AutoPole AP20 H	○
AutoPole AP20 ID	○
AutoPole AP20 T	○
AutoPole AP20	○
CS20 Field controller connection	○
CS30/CC180/CC200 Tablet connection	○
SmartStation GS16 GNSS receiver	○

- Standard
- Optional
- Not available

1.2 Angular Accuracies

	MS60
1" (0.3mgon)	898871



MS60 MultiStations are delivered with two 5" WVGA colour touch screens, Quick Guide, documentation USB card (833146) and upright container GVP727 (817060).

2 Total Stations

2.1 Models



	TS60 I	TM60	TM60 I
Angle measurement	●	●	●
Distance measurement to prism	●	●	●
Distance measurement to any surface (R1000)	●	●	●
Long Range distance measurement to any surface (R2000)	-	-	-
30000 Hz Scanning EDM	-	-	-
Horizontal and Vertical Scan	-	-	-
Motorised	●	●	●
Automatic Target Recognition (ATRplus)	●	-	-
Long Range Automatic Target Recognition (ATRplus)	-	●	●
Lock mode	●	-	-
PowerSearch (PS)	●	-	-
Guide Light (EGL)	●	-	-
Servo-focus	●	●	●
Auto-focus	●	-	●
5 Megapixel imaging	●	-	●
Overview Camera	●	-	●
Telescope Camera	●	-	●
WLAN	●	●	●
Bluetooth	●	●	●
RS232/USB interface	●	●	●
Internal Flash Memory (4GB)	●	●	●
Hotshoe Interface for RadioHandle	●	●	●
LOC8 or LOC8 LTE	○	○	○
AutoPole AP20 H	○	○	○
AutoPole AP20 ID	○	-	-
AutoPole AP20 T	○	-	-
AutoPole AP20	○	-	-
CS20 Field controller connection	○	○	○
CS30/CC180/CC200 Tablet connection	○	○	○
SmartStation GS16 GNSS receiver	○	○	○

- Standard
- Optional
- Not available

2.2 Angular Accuracies

	TS60 I	TM60	TM60 I
0.5" (0.15mgon)	898868	822425	822427
1" (0.3mgon)	-	822426	822428

- ☞ TS60 Total Stations are delivered with two 5" WVGA colour touch screens, Quick Guide, documentation USB card (833146) and upright container GVP726 (817059).
- ☞ TM60 and TM60 I Total Stations are delivered with one 5" WVGA colour touch screen, Quick Guide, documentation USB card (833146) and upright container GVP726 (817059).

Additional Options & Accessories

3 Additional Options

3.1 Second Keyboard



879378	GTS49	2nd keyboard with full VGA colour touch screen, for TM60/TM60 I Total Stations, for telescope position 2, fitted.
308838	FOK53	Magnification eyepiece, additional eyepiece for increasing telescope magnification to 42x.  Modification ex factory. Can only be ordered with a new instrument.

3.2 Calibration and Producer Certificates



812535	Calibration Certificate "Gold", Angle
812536	Calibration Certificate "Gold", A + Dist IR
812539	Calibration Certificate "Gold", A + Dist, IR&RL
812542	Calibration Certificate "Silver", Angle
812543	Calibration Certificate "Silver", A + Dist, IR
812544	Calibration Certificate "Silver", A + Dist, IR&R

-  Calibration Certificate "Blue" (812541) is always included in initial order (myWorld download).
-  For Service Calibration Certificates see Standard Service Products (SSPs) document.

3.3 Camera Calibration



793861	Overview Camera calibration workflow. Article ensures the predelivery logistics for the calibration of the Overview Camera of the Leica Nova TPS.  3rd party fees for instrument calibration and licensing of software are not included.
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3.4 Hardware Options

874451	GTS46	LOC8 theft deterrence and location device for automated TS (TM60), fitted.
914944	GTS46	LOC8 theft deterrence and location device for automated TS (TS60/MS60), fitted.  The option can be ordered free of charge and is replacing the second face keyboard.
989209	GTS52	LOC8 (2G/3G/4G) theft deterrence and location device for automated total stations (TM60) with 2G, 3G and 4G network support, fitted. One year of subscription included.
989210	GTS52	LOC8 (2G/3G/4G) theft deterrence and location device for automated total stations and MultiStations (TS60 / MS60) with 2G, 3G and 4G network support, fitted. One year of subscription included.  The option can be ordered free of charge and is replacing the second face keyboard.

4 Leica Captivate Apps & Software Options

4.1 Leica Captivate Software for TS/MS

827646

Leica Captivate Measure & Stake for TS/MS.

4.2 Apps included in Leica Captivate for TS/MS (827 646)

Measure includes:

- Measure
- Code points
- Automatically measure points
- Remote Heights
- Target Offset calculations

Setup includes:

- Get station coordinates from GNSS, from Job or enter manually
- Orientation by known Azimuth
- Orientation by known Backsight
- Orientation & Height transfer to up to 10 target points
- Resection up to 10 target points
- Resection Helmert
- Orientation to Line
- Orientate to Object

Stake points includes:

- Navigate to point using various methods: from and behind instrument, point, base line, arrow, North
- Quality control - checking of coordinate differences before storing
- Automatically select next closest point
- Graphical selection of point from map
- Edit heights and offset heights of points
- Acoustic beep getting faster when getting closer to point

COGO includes:

- Inverse
- Traverse
- Intersections
- Angle calculations
- Line & arc calculations
- Bearing & distance calculations
- Shift, Rotate, Scale (manual & matching points)
- Triangle calculations
- Rectangle

Determine coordinate system:

- 1 step, 2 step, 3D Transformation
- All common projections

Alignment Editor:

- Horizontal alignments
- Vertical alignments
- Cross sections
- Chainage equations
- Create points and lines

Data import:

ASCII, XML, DXF, DTM, alignments

Data export:

ASCII, Custom, DXF, XML, Style Sheets, FBK, RW5, RAW and local formats

4.3 Optional Leica Captivate Software and Apps for TS/MS

 The following apps require a valid license key.

834221	Athletics
827650	Area Division
827651	Stake DTM
827648	Measure and Stake to Line
827649	Measure to Plane / Grid
827653	Check and Stake Road
827654	Check and Stake Tunnel
827655	Check and Stake Rail
827658	Sets of Angles
827652	Volume Calculation
827656	Hidden Point
827657	Traverse
827659	QuickVolume
903372	ConX 1y
903373	ConX 2y
903374	ConX 3y
923922	BricSys 24/7 1y
923925	BricSys 24/7 2y
923928	BricSys 24/7 3y

4.4 Loadable Leica Captivate applications for TS

 The following apps require a valid license key.

834218	Offset+
834224	Zenith Line
834227	Quick Setup
834229	Auto Setup
834230	Remote Monitoring
836522	Machine Control Guidance
839678	Inspect Surfaces
836669	Tunnel Profile Generator
846826	TPS Survey Streaming
850622	ESRI Shapefile Exporter
834226	Set Orientation
	 Can be used without a valid license key.
847944	Inspect Road
	 Requires 839678 Inspect Surfaces.
847945	Inspect Tunnel
	 Requires 839678 Inspect Surfaces.
847952	Inventory
865657	Compaction Control
867331	Stakeout Auto Points
869755	Structural Steel

Accessories

5 Power Supply

5.1 Internal Batteries



971703	GEB243	Lithium-Ion battery, 14.4V/6.4Ah, rechargeable, for Leica Nova TPS.
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5.2 External Batteries



905305	GEB373	External universal battery, Li Ion, 13V, 289 Wh, rechargeable.
807696	GEV270	Power supply unit for TPS/GNSS/DNA. For indoor use only. Input 100-240VAC to output 13.2VDC, with connection for power cables.  Requires a GEV219, GEV220 or GEV261 cable for Nova instruments.

5.3 Battery Chargers



799185	GKL311	Single-bay Charger Professional 3000. Charger for one Li-Ion battery (GEB211, GEB212, GEB221, GEB222, GEB241, GEB242, GEB243, GEB321, GEB331, GEB333, GEB334, GEB361, GEB363 and GEB364), including AC/DC adaptor and cigarette lighter cable.
799187	GKL341	Multi-bay Charger Professional 5000. Charges up to 4 batteries (GEB211, GEB212, GEB221, GEB222, GEB241, GEB242, GEB243, GEB321, GEB331, GEB333, GEB334, GEB361, GEB363 and GEB364), including power cable.
774437	GEV242	Charger for GEB371 / GEB373 external battery.

6 Data Storage and Data Transfer

6.1 Memory Devices



767856	MSD1000	SD memory card 1GB for Leica Viva TPS and Leica Nova instruments and CS20 field controller, industrial grade.
789139	MSD08	SD memory card 8GB for Leica Viva TPS and Leica Nova instruments and CS20 field controller, industrial grade.
765199	MS1	USB memory stick, 1GB, for Leica Viva TPS and Leica Nova instruments and CS20 field controller, industrial grade.

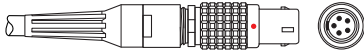
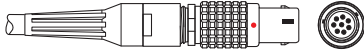
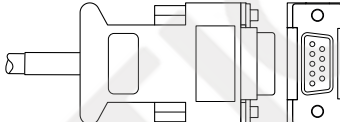
6.2 Card Reader



767895	MCR7	Card reader for SD/CF cards.
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7 Connectivity

7.1 Connector Types

Name	Used on	
Lemo1 5-pin	Battery / External power	
Lemo1 8-pin	Leica Nova TPS / Leica Viva field controllers	
Lemo1 8-pin	External TS radios	
USB A	PC / Laptop	
9-pin RS232 serial	PC / Laptop	

7.2 Cables



439038	GEV71	Car battery cable, connects 12V car battery connector to Lemo1 5-pin female.
733282	GEV162	Serial data cable for communication to PC, connects Lemo1 8-pin to 9-pin RS232 serial.
733283	GEV163	Serial data cable for communication between TS and CS, connects Lemo1 8-pin to Lemo1 8-pin.
758469	GEV219	Power cable between TS and battery, Lemo1 5-pin to Lemo1 8-pin.
759257	GEV220	Serial data Y-cable, connects Lemo1 8-pin connector to PC (9-pin RS232 serial) and external battery (Lemo1 5-pin), 2m.
767899	GEV234	USB data cable for communication to PC, Lemo1 8-pin to USB A connector.
771057	GEV236	Serial data Y-cable for TS robotic setup, Lemo1 5-pin (battery) to Lemo1 8-pin (instrument) and Lemo1 8-pin (external TS radio).
772807	GEV237	USB data cable for communication between TS and CS, Lemo1 8-pin to USB connector, Lemo1 8-pin (TS) to Lemo1 8-pin (CS).
793364	GEV261	USB data X-cable for communication to PC, connects Lemo1 8-pin to PC USB A connector (USB data) and PC 9-pin RS232 connector (serial data) and external battery (Lemo1 5-pin).
806095	GEV269	Serial data transfer cable, converter cable USB A to Lemo1 8-pin, connects TS to PC, PC driver included on CD.

8 Optical Accessories

8.1 Eyepiece



377802	FOK53	Magnification eyepiece, additional eyepiece for increasing telescope magnification to 42x.  Modification in a workshop necessary.
793979	GFZ3	Diagonal eyepiece for telescope with bayonet connection.

8.2 Autocollimation Set



199899	GOA2	Autocollimation eyepiece.
394787	GEB62	Plug-in lamp, with cable for autocollimation eyepiece.
394792	GEB63	Battery box for autocollimation eyepiece and eyepiece lamp.

8.3 Objective



743504	GVO13	Objective solar filter for TPS instruments.
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9 Instrument Height Meter



667718	GHM007	Instrument height meter.
722045	GHT196	Distance holder for height meter.
6010179		Height Meter set including GHM007 Instrument height meter and GHT196 Distance holder for height meter.

10 Tribrachs



777508	GDF321	Tribrachs Series 5000, without optical plummet.
777509	GDF322	Tribrachs Series 5000, with optical plummet.
842061	GDF311	Tribrachs Series 3000, without optical plummet.
842062	GDF312	Tribrachs Series 3000, with optical plummet.

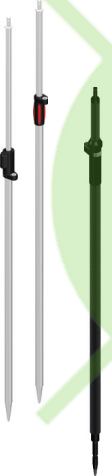
11 Tripods



296632	GST20	Heavy duty tripod, with side clamp screws, carrying strap and plumb bob.
394752	GST20-9	Heavy duty tripod, with side clamp screws and carrying strap.
667301	GST120-9	Heavy duty tripod, self-closing, with side clamp screws and carrying strap.
332200	GST4	Tripod-star, for setting up tripods on hard and slippery surfaces.

12 Reflector Poles

12.1 Standard Poles with stub



754391	GLS12	Reflector pole, telescopic to 2.00m with circular bubble, cm graduations.
754389	GLS12F	Reflector pole, telescopic to 2.00m with circular bubble, ft graduations.
766359	GLS31	Reflector carbon-fibre pole with circular bubble and twist lock. Snap-locks at 2.00m, 1.80m and 1.50m for GNSS antennas with GAD31 adapter or GRZ122 reflector (SmartPole setup).
913901	GLS51	Telescopic carbon-fibre pole with stub interface, supports AP20 AutoPole product. With circular bubble, twist lock and dedicated snap-lock positions. Minimum length 1.34m, extendable to target height 2.20m, printed scale on extendable and lower tube, graduation in cm.
913902	GLS51F	Telescopic carbon-fibre pole with stub interface, supports AP20 AutoPole product. With circular bubble, twist lock and dedicated snap-lock positions. Minimum length 4.5 ft, extendable to target height 7.0 ft, printed scale on extendable and lower tube, graduation in ft.
385500	GLS11	Reflector pole, telescopic, with circular bubble, cm and ft graduation, extends to 2.15m.
667309	GLS111	Reflector pole, with bull's-eye bubble, cm/ft graduation, extends to 2.60m, with red/white 0.20m graduations.
667310	GLS112	Reflector pole, with bull's-eye bubble, cm/ft graduation, extends to 3.65m, with red/white 0.20m graduations.
555720	GSR2	Dual-strut support for GLS11 plumbing pole.
667319	GSR111	Dual-strut support for all GLS.
403428	GZW12	Extension 1m long, for reflector pole GLS11 and carriers.

12.2 Standard Poles with 5/8" screw



913899	CRP4	Telescopic carbon-fibre pole with 5/8" screw thread interface, supports AP20 AutoPole product. With upright circular bubble and upside-down circular bubble, twist lock and dedicated snap-lock positions. Minimum length 1.37m, extendable to target height 2.20m, printed scale both on extendable tube and lower tube, graduation in cm.
913900	CRP5	Telescopic carbon-fibre pole with 5/8" screw thread interface, supports AP20 AutoPole product. With upright circular bubble and upside-down circular bubble, twist lock and dedicated snap-lock positions. Minimum length 4.55 ft, extendable to target height 7.0 ft, printed scale both on extendable tube and lower tube, graduation in ft.
 CRP4 and CRP5 only support MPR122 360° reflector with 5/8" screw adapter.		

12.3 Hidden Point Pole



742329	GMP112	Hidden Point pole extension for GMP111 (mini prism pole set). Includes mini prism with holder and 30cm adapter pole.  Additional GMP111 Mini prim (641615) required for complete Hidden Point pole set with two prisms.
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12.4 Mini Pole



403427	GLS14	Mini reflector pole, (prism/target 20cm over point), with circular bubble.
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13 Reflector Carriers



667313	GRT144	Carrier with stub.
667316	SNLL121	Precision carrier, with longitudinal bubble and zenith-nadir laser plummet.
428340	GZR3	Precision carrier, with longitudinal bubble and optical plummet.
725566	GZR103	Carrier, with longitudinal bubble and optical plummet, for reflectors and GPS antenna.
667217	GAD31	Screw-to-stub adapter for fitting GPS antenna on carriers with stub and poles with stub.

14 Reflectors

14.1 Circular Reflectors



641617	GPR121	Circular prism, with metal holder and target plate.
362830	GPR1	Circular prism, in black housing.
362820	GPH1	Single-prism holder.
362823	GZT4	Target plate, for GPH1.

14.2 Precision Reflectors



555631	GPH1P	Single-prism precision reflector.
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14.3 360° Reflectors with stub adapter



754384	GRZ122	360° reflector with 5/8" thread adapter for mounting of GPS antenna.
639985	GRZ4	360° reflector.
644327	GRZ101	360° mini prism with 1/4" thread fitting. Not supported by PowerSearch.
742006	GAD103	Adapter for attaching GRZ101 to all poles with Leica Geosystems stub.

14.4 360° Reflectors with 5/8" screw adapter



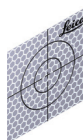
756637	MPR122	360° reflector with 5/8" thread adapter for mounting of GNSS antenna and 5/8" screw nut.
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14.5 Mini Reflectors



641662	GMP101	Mini prism, incl. bubble, target plate and spike, in bag, also suitable for GLS11/GLS12 and GRT144 (same height as GPH1, additive constant +17.5mm).
641762	GMP104	Mini prism, with L-bar, for fixed installations.

14.6 Reflector Tapes



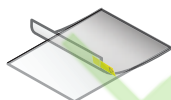
763532	GZM29	Reflective tape, 20x20mm for short range, pack of 20 pieces.
763533	GZM30	Reflective tape, 40x40mm for medium range, pack of 20 pieces.
763534	GZM31	Reflective tape, 60x60mm for long range, pack of 20 pieces.

14.7 Pen and Screen Protections Foils



Extra pen

813914	GDZ71	Pen with tether clip interface for CS20 field controller and TS16/MS60/TS60 instruments.
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Screen Protection Foil set

813781	SPF05	5" WVGA screen protection foils for CS20 field controller and TS16/MS60/TS60 instruments.
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15 Additional Containers & Accessories for Containers



727589	GVP102	Soft bag with shoulder strap, for prism station, consist of tribrach, prism carrier or laser plummet and prism.
833516	GVP716	Backpack carrying systems for all large TPS and GNSS containers.
833517	GVP717	Sidebag for container.
833518	GVP718	Basic backstrap for container.
833519	GVP719	Shoulderstrap for container.
914930	GVP738	Hard container for 2 prisms, 2 carriers/laser plummets, 2 tribrachs, CS10, CS15, CS20, CS30, CC200 and AP20. All controllers/tablets fit with attached holder.
980899	GVP750	Hard container for SmartAntenna, CS Field Controller and accessories for a SmartPole and SmartStation setup.
980900	GVP751	Small-sized hard container for 360° prism and controller for TS Robotic Pole setup.
948752	GVP761	Hard container, for CS20, CS30 and CC200 field controller/tablet including attached holders, 360° prisms and AP20.

Remote Control

16 Remote Control - CS20 Field Controller

16.1 CS20 Field Controller



971176	CS20	CS20 Basic Field Controller Ruggedized field controller with 5" WVGA touch display, 4GB eMMC Flash Memory, 1GB SDRAM, SD card slot, 5MP rear camera and LED flash. Includes internal Bluetooth/WLAN module, internal TS communication module, QWERTY keypad, stylus.
971177	CS20 LTE	CS20 LTE Field Controller Ruggedized field controller with 5" WVGA touch display, 4GB eMMC Flash Memory, 1GB SDRAM, SD card slot, 5MP rear camera and LED flash. Includes internal Bluetooth/WLAN module, 4G GSM/UMTS/LTE module, internal TS communication module, QWERTY keypad, stylus.
971178	CS20 LTE (US/CA)	CS20 LTE Field Controller (US, CA) Ruggedized field controller with 5" WVGA touch display, 4GB eMMC Flash Memory, 1GB SDRAM, SD card slot, 5MP rear camera and LED flash. Includes internal Bluetooth/WLAN module, 4G GSM/UMTS/LTE module, internal TS communication module, QWERTY keypad, stylus.
876478	CS20 LTE Disto	CS20 LTE Disto Field Controller Ruggedized field controller with 5" WVGA touch display, 4GB eMMC Flash Memory, 2GB SDRAM, SD card slot, 5MP rear camera and LED flash. Includes internal Bluetooth/WLAN module, 4G GSM/UMTS/LTE module, internal TS communication module, integrated Disto-Lasermeter QWERTY keypad, stylus.
876480	CS20 LTE Disto (US/CA)	CS20 LTE Disto Field Controller (US, CA) Ruggedized field controller with 5" WVGA touch display, 4GB eMMC Flash Memory, 2GB SDRAM, SD card slot, 5MP rear camera and LED flash. Includes internal Bluetooth/WLAN module, 4G GSM/UMTS/LTE module, internal TS communication module, integrated Disto-Lasermeter QWERTY keypad, stylus.

16.2 CTR20 TS Communication Expansion Pack



Not available in EU countries due to EN 300 328 V.1.8.1.



Recommended only for robotic applications systematically exceeding ranges beyond 400 m.



6010023		CTR20 expansion pack set TS communication expansion pack set including CTR20 module and GAT25 radio antenna.
808038	CTR20	CTR20 TS communication expansion pack CTR20 TS communication expansion pack with integrated radio module for CS20 3.75G field controller variants. Used to establish long range radio connection between CS20 3.75G field controller and TS Total Stations equipped with RH16. GAT25 radio antenna not included (frequency range 2402 - 2480 MHz). Requires a GAT25 radio antenna.
812027	GAT25	GAT25 radio antenna for CTR20 module Radio antenna for CTR20 long range TS communication module (frequency range 2402 - 2480 MHz).

17 CC200 Tablet



996657	CC200-0-Cap, Tablet, Win 10, EU	CC200-0-Cap Tablet Ruggedized Win10 Tablet PC with 10" screen, EU version, 10-point capacitive multi-touch daylight-readable screen, Intel Core i5-10310U vPro 1.7 GHz with Turbo Boost up to 4.46Hz, 500 GB SSD hard drive, 16 GB SDRAM, Intel® Wi-Fi6 AX201, Bluetooth v5.1, integrated 4G module, Integrated L1 GPS, extended battery (6300 Ah), up to 8 MP camera with autofocus with LED flash, Stylus, AC/DC adaptor and pre-loaded with Captivate.
996658	CC200-1-Cap, Tablet, Win 10, US/CA/MX	CC200-1-Cap Tablet Ruggedized Win10 Tablet PC with 10" screen, US/CA/MX version, 10-point capacitive multi-touch daylight-readable screen, Intel Core i5-10310U vPro 1.7 GHz with Turbo Boost up to 4.46Hz, 500 GB SSD hard drive, 16 GB SDRAM, Intel® Wi-Fi6 AX201, Bluetooth v5.1, integrated 4G module, Integrated L1 GPS, extended battery (6300 Ah), up to 8 MP camera with autofocus with LED flash, Stylus, AC/DC adaptor and pre-loaded with Captivate.
996659	CC200-2-Cap, Tablet, Win 10, JP	CC200-2-Cap Tablet Ruggedized Win10 Tablet PC with 10" screen, JP version, 10-point capacitive multi-touch daylight-readable screen, Intel Core i5-10310U vPro 1.7 GHz with Turbo Boost up to 4.46Hz, 500 GB SSD hard drive, 16 GB SDRAM, Intel® Wi-Fi6 AX201, Bluetooth v5.1, Integrated L1 GPS, extended battery (6300 Ah), up to 8 MP camera with autofocus with LED flash, Stylus, AC/DC adaptor and pre-loaded with Captivate.
996660	CC200-3-Cap, Tablet, Win 10, KR	CC200-3-Cap Tablet Ruggedized Win10 Tablet PC with 10" screen, KR version, 10-point capacitive multi-touch daylight-readable screen, Intel Core i5-10310U vPro 1.7 GHz with Turbo Boost up to 4.46Hz, 500 GB SSD hard drive, 16 GB SDRAM, Intel® Wi-Fi6 AX201, Bluetooth v5.1, Integrated L1 GPS, extended battery (6300 Ah), up to 8 MP camera with autofocus with LED flash, Stylus, AC/DC adaptor and pre-loaded with Captivate.
996661	CC200-4-Cap, Tablet, Win 10, CN	CC200-4-Cap Tablet Ruggedized Win10 Tablet PC with 10" screen, China version, 10-point capacitive multi-touch daylight-readable screen, Intel Core i5-10310U vPro 1.7 GHz with Turbo Boost up to 4.46Hz, 500 GB SSD hard drive, 16 GB SDRAM, Intel® Wi-Fi6 AX201, Bluetooth v5.1, Integrated L1 GPS, extended battery (6300 Ah), up to 8 MP camera with autofocus with LED flash, Stylus, AC/DC adaptor and pre-loaded with Captivate.
996662	CC200-5-Cap, Tablet, Win 10, AUS/NZ	CC200-5-Cap Tablet Ruggedized Win10 Tablet PC with 10" screen, AUS/NZ version, 10-point capacitive multi-touch daylight-readable screen, Intel Core i5-10310U vPro 1.7 GHz with Turbo Boost up to 4.46Hz, 500 GB SSD hard drive, 16 GB SDRAM, Intel® Wi-Fi6 AX201, Bluetooth v5.1, integrated 4G module, Integrated L1 GPS, extended battery (6300 Ah), up to 8 MP camera with autofocus with LED flash, Stylus, AC/DC adaptor and pre-loaded with Captivate.

18 CC180 Tablet



1008047	CC180-0 Capt, Tablet, Win 10, EU/AUS/NZ	CC180-0 Capt Tablet Ruggedized Win10 Tablet PC with 8", daylight-readable screen, 800 nits, Intel(R) Pentium(R) Gold 8500 1.0 GHz, 128 GB NVMe PCIe SSD, 8 GB SDRAM, Intel® Wi-Fi 6 AX211, Bluetooth v5.3, USB Type C (Support DP), Multicarrier 4G LTE Mobile Broadband & GPS Combo, extended battery (7200 mAh), 2.0 MP front-facing camera & 8.0 MP auto-focus rear camera with flash, Stylus, AC/DC adaptor and pre-loaded with Captivate.
1008048	CC180-1-Capt, Tablet, Win 10, US/CA	CC180-1 Capt Tablet Ruggedized Win10 Tablet PC with 8", daylight-readable screen, 800 nits, Intel(R) Pentium(R) Gold 8500 1.0 GHz, 128 GB NVMe PCIe SSD, 8 GB SDRAM, Intel® Wi-Fi 6 AX211, Bluetooth v5.3, USB Type C (Support DP), Multicarrier 4G LTE Mobile Broadband & GPS Combo, extended battery (7200 mAh), 2.0 MP front-facing camera & 8.0 MP auto-focus rear camera with flash, Stylus, AC/DC adaptor and pre-loaded with Captivate.

19 CS30 Tablet

19.1 CS30 Tablet



925660	CS30 LTE	CS30 LTE Tablet Ruggedized Win10 LTSC 64-bit Tablet Computer including: 7" touch-widescreen, 64 GB eMMC hard drive, 4 GB RAM, WLAN 802.11 b/g/n/a/ac, 3G/4G Integrated Mobile Broadband module, Bluetooth v4.2, 8MP rear camera with flash, 1x GEV228 Power Supply unit, 1x GDZ80 Capacitive Stylus. Captivate pre-loaded.
926415	CS30 LTE LRBT	CS30 LTE LRBT Tablet Ruggedized Win10 LTSC 64-bit Tablet Computer including: 7" touch-widescreen, 64 GB eMMC hard drive, 4 GB RAM, WLAN 802.11 b/g/n/a/ac, 3G/4G Integrated Mobile Broadband module, Bluetooth v4.2, 8MP Rear camera with flash, CTR30 Long-Range Bluetooth Module, 1x GEV228 Power Supply unit, 1x GDZ80 Capacitive Stylus.

19.2 GKP100 Keypad



995129	GKP100	GKP100 Keypad GKP100, Leica Captivate keypad.
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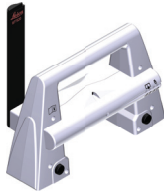


Please refer to the Leica Captivate Controller Equipment list for CS20 / CS3x and CCx related options and accessories.

Accessories for Field Controller

20 RadioHandle and TCPS Modem

20.1 RadioHandle



922840 **RH18**

RadioHandle with two integrated Bluetooth modules and radio antenna. Supports Bluetooth low energy for AP20 AutoPole with Tilt Compensation. Used as radio modem for Leica total stations running Leica Captivate field software. Establishes communication to field controller CS20/30/35 or with/without CTR20/30/35 Bluetooth stick or external radio modem TCPS29/TCPS30. Frequency range 2402 - 2480 MHz.

 fulfils EN 300 328 V.1.8.1.

20.2 TCPS Modem



818469 **TCPS30**

Bluetooth radio modem with antenna. Used as external radio modem for Leica Viva TPS and Leica Nova instruments or PCs. Frequency range 2402 - 2480 MHz.

 Fulfills EN 300 328 V.1.8.1.

20.3 TCPS Accessories



734163 **GHT43**

Adapter for mounting TCPS radio module on GST20/GST120 tripod.

20.4 Cables for TCPS Radio Modem

 For an overview of the different connector types, refer to chapter 7.1.

759257 **GEV220**

Serial data Y-cable, connects Lemo1 8-pin connector to PC (9-pin RS232 serial) and external battery (Lemo1 5pin), 2m.

771057 **GEV236**

Y-cable Lemo1 8-pin (CS20 Field Controller) to Lemo1 5-pin (battery) and Lemo1 8-pin (external TCPS radio), 1.8 m.

21 AP20 AutoPole

21.1 Models



922835	AP20 H	AutoPole AP20 H with Target Height module ensures to automatically detect and apply target height to paired field SW.
922836	AP20 ID	AutoPole AP20 ID with Target ID module ensures to find and measure your target, wirelessly connected to your automated total station.
922837	AP20 T	AutoPole AP20 T with Target Height and Tilt Compensation module ensures to automatically detect and apply target height and to compensate a tilted pole alignment, wirelessly connected to your automated total station.
922838	AP20	AutoPole AP20 with Target Height, Target ID and Tilt compensation module ensures to detect and apply target height, to find and measure your target and to compensate a tilted pole alignment, wirelessly connected to your automated total station.



AP20 AutoPole can only be attached to GLS51 / GLS51F / CRP4 / CRP5 Reflector Poles



AP20 T and AP20 require 922840 RH18 on total station side to support Tilt Compensation.

21.2 Internal Battery



898414	GEB321	Lithium-Ion battery, 7.2V/3.35Ah, rechargeable. To be used with AP20 AutoPole.
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21.3 Reflector poles for AP20



913901	GLS51	Telescopic carbon-fibre pole with stub interface, supports AP20 AutoPole. With circular bubble, twist lock and dedicated snap-lock positions. Minimum length 1.34 m, extendable to target height 2.20 m, printed scale on extendable and lower tube, graduation in cm.
913902	GLS51F	Telescopic carbon-fibre pole with stub interface, supports AP20 AutoPole. With circular bubble, twist lock and dedicated snap-lock positions. Minimum length 4.5 ft, extendable to target height 7.0 ft, printed scale on extendable and lower tube, graduation in ft.
979523	GLS54	Carbon mini pole with stub interface, supports AP20 AutoPole. Length 0.24 m. With GRZ122 and GLS51 pole tip (CRP10) a prism height of 0.228m is reached.
913899	CRP4	Telescopic carbon-fibre pole with 5/8" screw thread interface, supports AP20 AutoPole. With upright circular bubble and upside-down circular bubble, twist lock and dedicated snap-lock positions. Minimum length 1.37 m, extendable to target height 2.20 m, printed scale both on extendable tube and lower tube, graduation in cm.

21.4 AP20 Reflector poles accessories



806685	CRP10	Construction Pole Tip, hard metal, prism height 0.200 m with MPR122 and 0.228 m with GRZ122.
806687	CRP11	Construction Pole Plate, tiltable plate, prism height 0.200 m with MPR122 and 0.228 m with GRZ122.
817344	CRP12	Center Punch Tip for all CRP poles, hard metal tip. Works on concrete, metal, wood. Prism height 0.200 m with MPR122 and 0.228 m with GRZ122.
817345	CRP13	Adapter for fixing CRP10, CRP11, CRP12 to feet scale CRP and GLS poles.
820845	CRP14	Handle with circular bubble, fits all CRP / GLS poles with 5/8" thread interface. or MPR122 / GRZ122 prisms.
977379	GLS52	Carbon pole extension, length 1m, with 5/8" thread interface

SmartPole & SmartStation

22 SmartStation & Smartpole Setup using a GS16 GNSS Receiver

22.1 GS16 GNSS Receiver



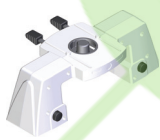
851142	GS16	Leica GS16 Basic SmartAntenna EG *
947069	GS16	Leica GS16 Basic SmartAntenna *
939764	GS16	Leica GS16 UHF Basic SmartAntenna *
939763	GS16	Leica GS16 UHF Regional SmartAntenna *
939767	GS16	Leica GS16 UHF Performance SmartAntenna
939768	GS16	Leica GS16 UHF Unlimited SmartAntenna

* Available in selected countries only.

	Leica GS16 Basic *	Leica GS16 Regional *	Leica GS16 Performance	Leica GS16 Unlimited
Supported GNSS Systems				
Multi-frequency (L1, L2, L5, L-band)	●	●	●	●
GLONASS	○	○	○	●
Galileo	○	○	○	●
BeiDou	○	○	○	●
QZSS / NavIC	○	○	○	●
RTK performance				
DGPS	●	●	●	●
RTK unlimited	○	●	●	●
Network RTK	○	●	●	●
HxGN SmartNet Global	○	○	○	○
Interference mitigation	○	○	○	○
Position update & data recording				
20 Hz positioning	●	●	●	●
Raw data logging	●	●	●	●
RINEX logging	○	○	○	●
NMEA out	○	○	○	●
Additional features				
RTK Reference Station functionality	○	●	●	●
No country limitation	●	○	●	●

● Standard
○ Optional

22.2 SmartAntenna Adapter



767802 **GAD110**

SmartAntenna adapter to mount GS16 SmartAntenna.



BT module to connect the TS to the GS16 GNSS receiver is standard on all Leica Viva TPS and Leica Nova instruments.



Please refer to the Leica Captivate GNSS Equipment list for GS16 related options and accessories.

23 SmartPole using GS18 GNSS Receiver

23.1 GS18 I GNSS Receiver



949985	GS18	Leica GS18 I LTE Basic SmartAntenna *
982453	GS18	Leica GS18 I LTE Regional SmartAntenna *
864380	GS18	Leica GS18 I LTE Performance SmartAntenna
864381	GS18	Leica GS18 I LTE Unlimited SmartAntenna
949986	GS18	Leica GS18 I LTE & UHF Basic SmartAntenna *
982454	GS18	Leica GS18 I LTE & UHF Regional SmartAntenna *
864383	GS18	Leica GS18 I LTE & UHF Performance SmartAntenna
864384	GS18	Leica GS18 I LTE & UHF Performance SmartAntenna (NAFTA)
879671	GS18	Leica GS18 I LTE & UHF Performance SmartAntenna (JP)
864385	GS18	Leica GS18 I LTE & UHF900 Performance SmartAntenna *
864386	GS18	Leica GS18 I LTE & UHF Unlimited SmartAntenna

* Available in selected countries only.

	Leica GS18 I Basic *	Leica GS18 I Regional *	Leica GS18 I Performance	Leica GS18 I Unlimited
Supported GNSS Systems				
Multi-frequency (L1, L2, L5, L-band)	●	●	●	●
GLONASS	○	○	○	●
Galileo	○	○	○	●
BeiDou	○	○	○	●
QZSS / NavIC	○	○	○	●
RTK performance				
DGPS	●	●	●	●
RTK unlimited	○	●	●	●
Network RTK	○	●	●	●
HxGN SmartNet Global	○	○	○	○
Interference mitigation	○	○	○	○
Position update & data recording				
20 Hz positioning	●	●	●	●
Raw data logging	●	●	●	●
RINEX logging	○	○	○	●
NMEA out	○	○	○	●
Additional features				
Tilt compensation	●	●	●	●
Image point measurement	●	●	●	●
RTK Reference Station functionality	○	●	●	●
No country limitation	●	○	●	●

● Standard

○ Optional

23.2 GS18 T GNSS Receiver



949983	GS18	Leica GS18 T LTE Basic SmartAntenna *
899218	GS18	Leica GS18 T LTE Regional SmartAntenna *
855300	GS18	Leica GS18 T LTE Performance SmartAntenna
855301	GS18	Leica GS18 T LTE Unlimited SmartAntenna
949984	GS18	Leica GS18 T LTE & UHF Basic SmartAntenna *
899220	GS18	Leica GS18 T LTE & UHF Regional SmartAntenna *
855303	GS18	Leica GS18 T LTE & UHF Performance SmartAntenna
855304	GS18	Leica GS18 T LTE & UHF Performance SmartAntenna (NAFTA)
865980	GS18	Leica GS18 T LTE & UHF Performance SmartAntenna (JP)
945113	GS18	Leica GS18 T LTE & UHF900 Performance SmartAntenna *
855305	GS18	Leica GS18 T LTE & UHF Unlimited SmartAntenna

* Available in selected countries only.

	Leica GS18 T Basic *	Leica GS18 T Regional *	Leica GS18 T Performance	Leica GS18 T Unlimited
Supported GNSS Systems				
Multi-frequency (L1, L2, L5, L-band)	●	●	●	●
GLONASS	○	○	○	●
Galileo	○	○	○	●
BeiDou	○	○	○	●
QZSS / NavIC	○	○	○	●
RTK performance				
DGPS	●	●	●	●
RTK unlimited	○	●	●	●
Network RTK	○	●	●	●
HxGN SmartNet Global	○	○	○	○
Interference mitigation	○	○	○	○
Position update & data recording				
20 Hz positioning	●	●	●	●
Raw data logging	●	●	●	●
RINEX logging	○	○	○	●
NMEA out	○	○	○	●
Additional features				
Tilt compensation	●	●	●	●
RTK Reference Station functionality	○	●	●	●
No country limitation	●	○	●	●

● Standard
○ Optional

23.3 GS18 GNSS Receiver



939670	GS18	Leica GS18 LTE Basic SmartAntenna *
939669	GS18	Leica GS18 LTE Regional SmartAntenna *
939671	GS18	Leica GS18 LTE Performance SmartAntenna
939672	GS18	Leica GS18 LTE Unlimited SmartAntenna
939674	GS18	Leica GS18 LTE & UHF Basic SmartAntenna *
939673	GS18	Leica GS18 LTE & UHF Regional SmartAntenna *
939675	GS18	Leica GS18 LTE & UHF Performance SmartAntenna
939677	GS18	Leica GS18 LTE & UHF Performance SmartAntenna (NAFTA)
939679	GS18	Leica GS18 LTE & UHF Performance SmartAntenna (JP)
939678	GS18	Leica GS18 LTE & UHF900 Performance SmartAntenna *
939676	GS18	Leica GS18 LTE & UHF Unlimited SmartAntenna

* Available in selected countries only.

	Leica GS18 Basic *	Leica GS18 Regional *	Leica GS18 Performance	Leica GS18 Unlimited
Supported GNSS Systems				
Multi-frequency (L1, L2, L5, L-band)	●	●	●	●
GLONASS	○	○	○	●
Galileo	○	○	○	●
BeiDou	○	○	○	●
QZSS / NavIC	○	○	○	●
RTK performance				
DGPS	●	●	●	●
RTK unlimited	○	●	●	●
Network RTK	○	●	●	●
HxGN SmartNet Global	○	○	○	○
Interference mitigation	○	○	○	○
Position update & data recording				
20 Hz positioning	●	●	●	●
Raw data logging	●	●	●	●
RINEX logging	○	○	○	●
NMEA out	○	○	○	●
Additional features				
RTK Reference Station functionality	○	●	●	●
No country limitation	●	○	●	●

● Standard

○ Optional



Please refer to the Leica Captivate GNSS Equipment list for GS18 related options and accessories.

HxGN GeoCloud

24 GeoCloud Drive



GeoCloud Drive is a data transfer and cloud storage service from the HxGN GeoCloud service suite. The GeoCloud Drive provides flexible access to your data from anywhere at any time.

979637	GeoCloud Drive Trial 30d	GeoCloud Drive Trial 30d. License to start a cloud storage Trial account within the HxGN GeoCloud portal. The Trial runs for 30 days and includes 25GB cloud storage and 5 users.
5311646	GeoCloud Drive Subscription 1yr	GeoCloud Drive Subscription 1yr. Yearly subscription for a cloud storage on the HxGN GeoCloud. The subscription includes 25GB storage and 1 user.
5311647	GeoCloud Drive add User Subscription 1yr	GeoCloud Drive add User Subscription 1yr. Yearly subscription to extend a cloud storage on the HxGN GeoCloud by 1 user and 25GB storage.
5311648	GeoCloud Drive add Data Subscription 1yr	GeoCloud Drive add Data Subscription 1yr Yearly subscription to extend a cloud storage on the HxGN GeoCloud by 100GB.

Care Packages

25 Customer Care Packages



A wide selection of comprehensive Customer Care Packages (CCPs) is available bundling Hardware Maintenance, Software Maintenance, Customer Support and Extended Warranty.

For more information about the CCP offering in your country please contact your local Leica Geosystems organization or distribution partner.



GEOOPTIC

Trademarks & Technical Data

26 Trademarks

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27 Technical Data

Laser plummet:

Laser class 2 in accordance with IEC 60825-1 resp. EN 60825-1

Guide light (EGL):

LED class 1 in accordance with IEC 60825-1 resp. EN 60825-1

Distance meter (Prism, ATRplus and PowerSearch):

Laser class 1 in accordance with IEC 60825-1 resp. EN 60825-1

Distance meter (Non-Prism):

Laser class 3R in accordance with IEC 60825-1 resp. EN 60825-1



Suggested Equipment Setups

28 Scanning using a MultiStation

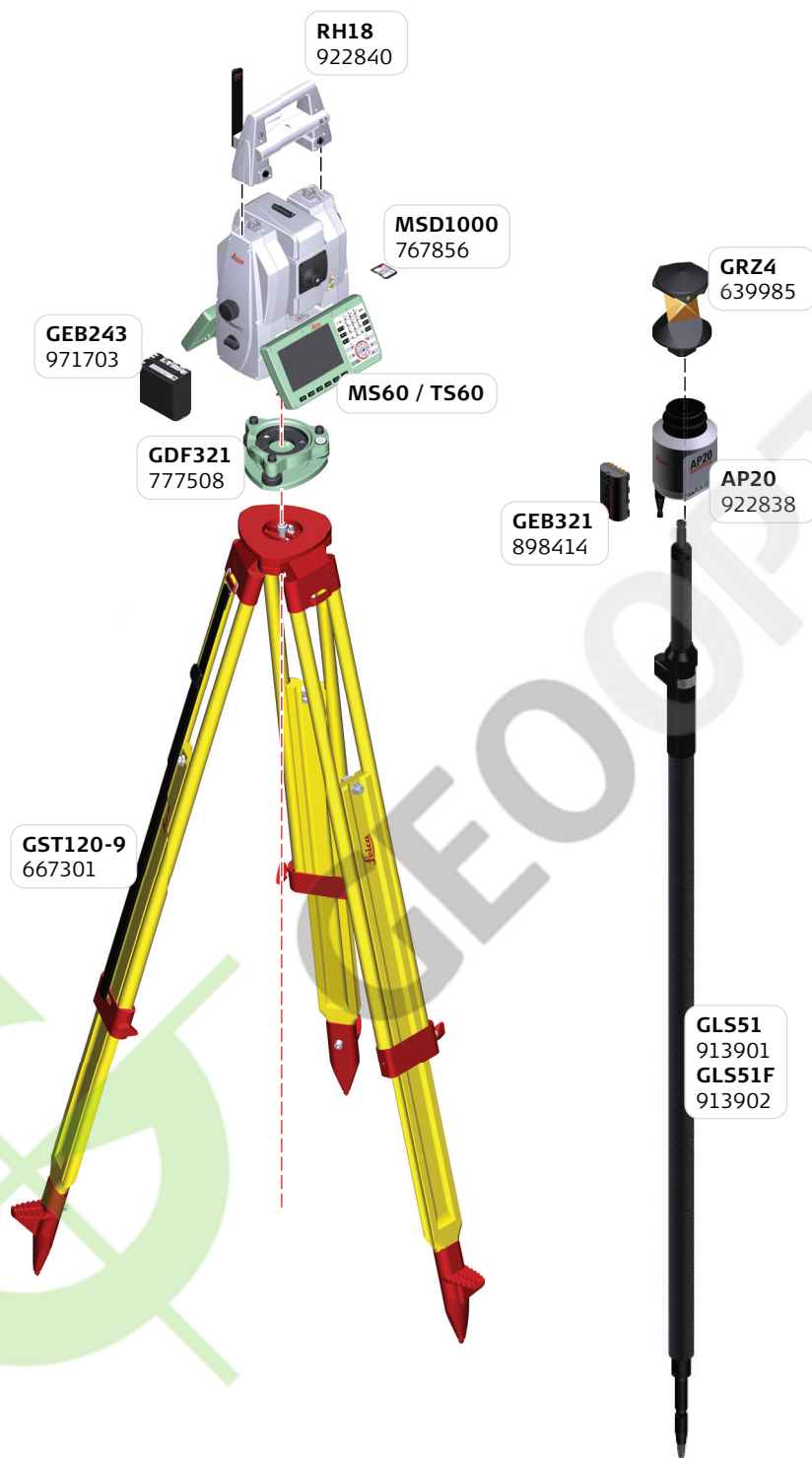


29 Conventional Surveying

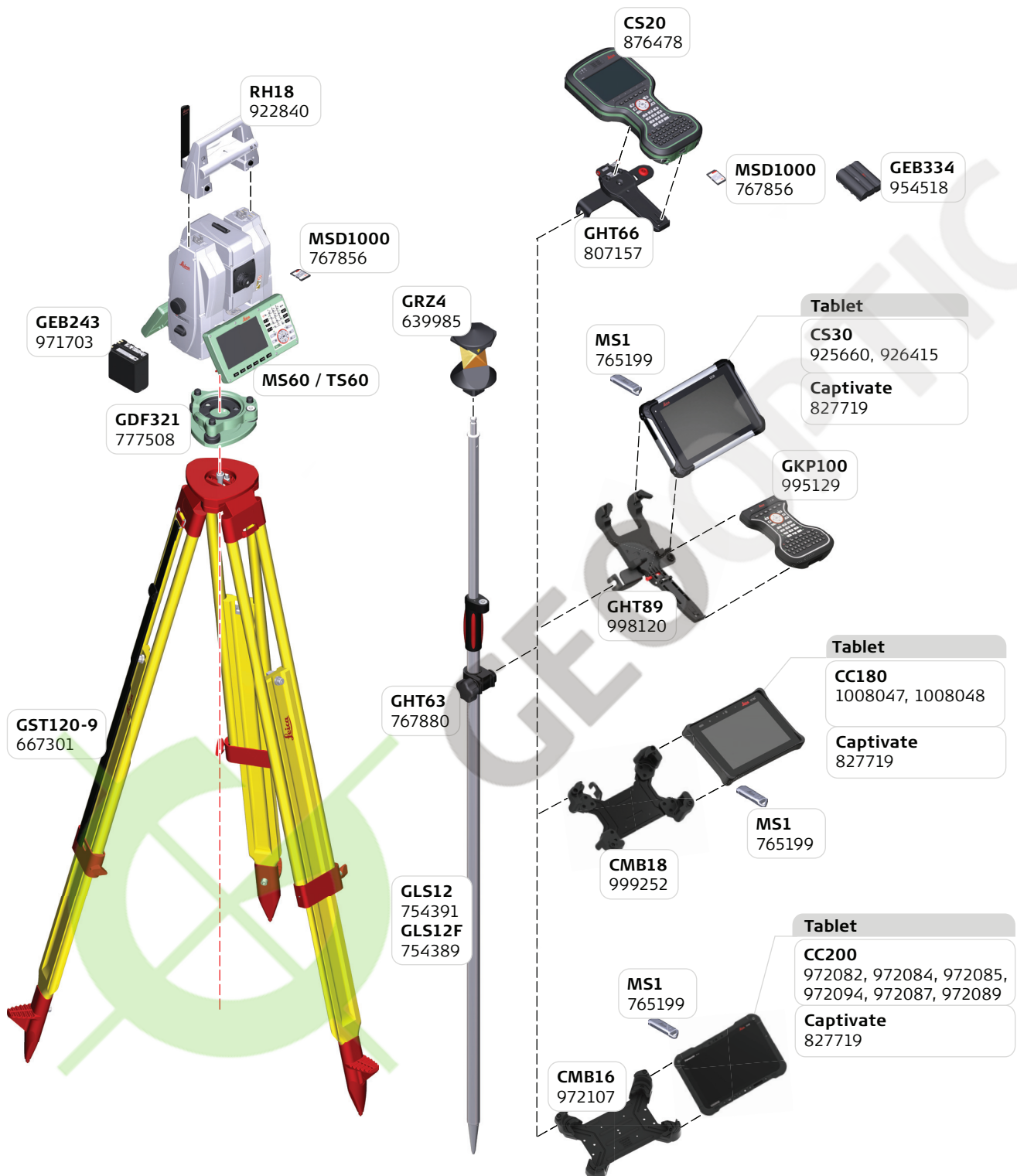
29.1 Two Person Surveying using a TS60 Total Station / MS60 MultiStation



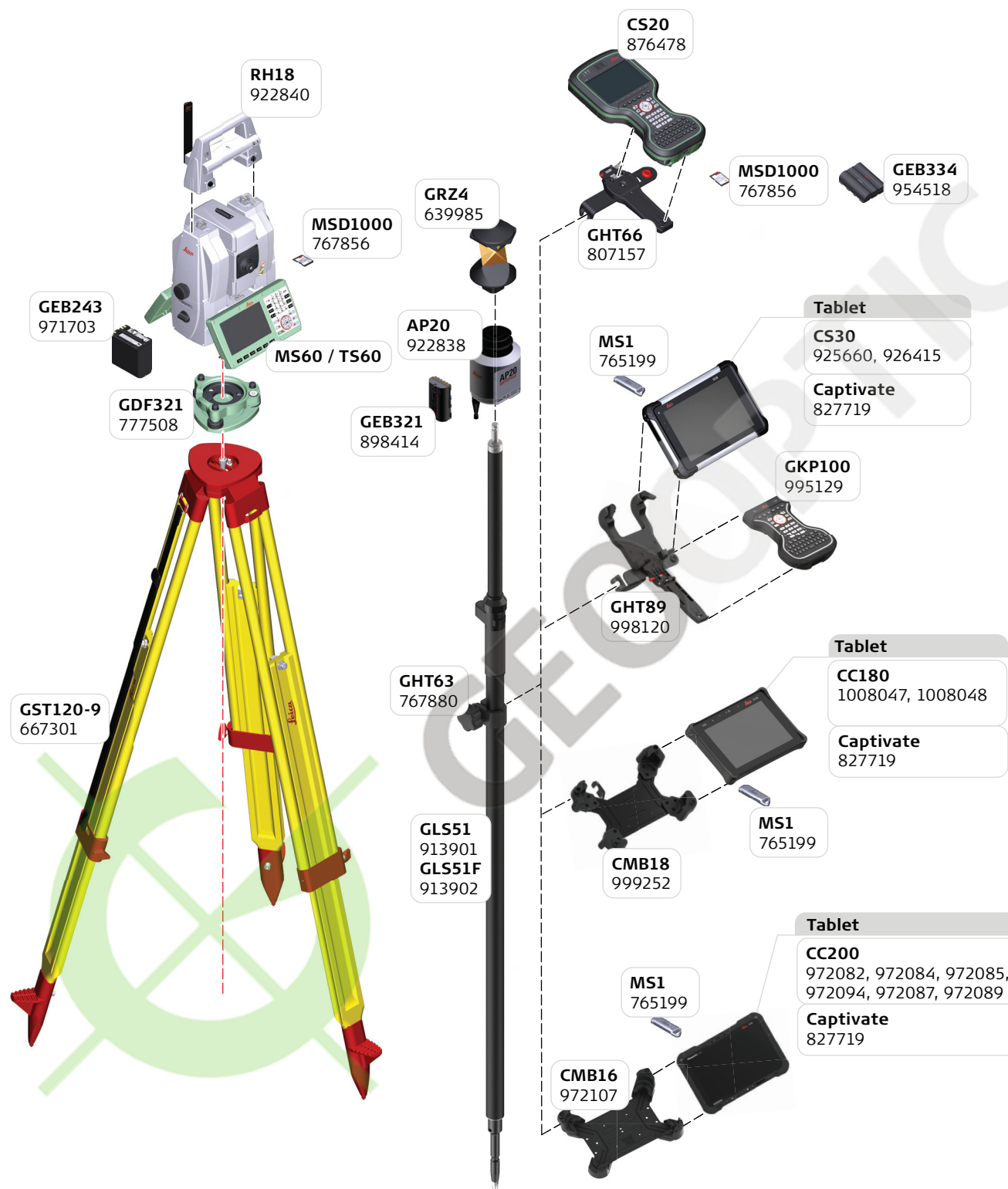
29.2 Two Person Surveying using a TS60 Total Station / MS60 MultiStation and AP20



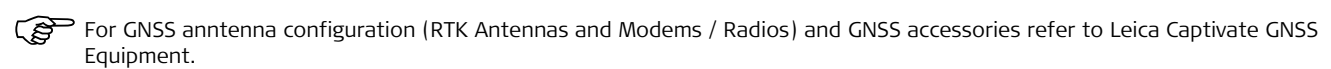
29.3 Robotic Surveying using a TS60 / MS60 and Field Controller/Tablet



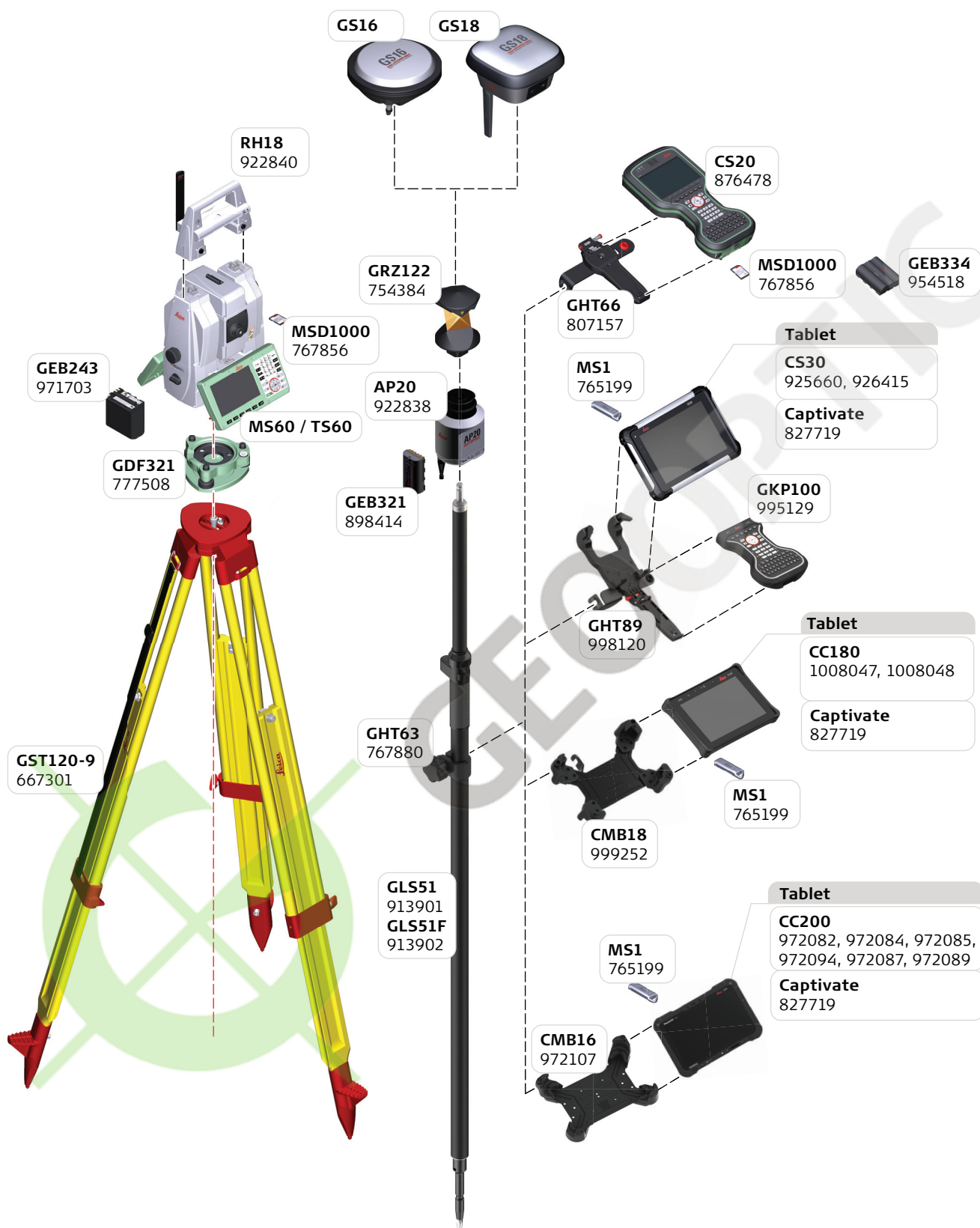
29.4 Robotic Surveying using a TS60 / MS60, AP20 and Field Controller/Tablet



30.1 SmartPole using a GS16 or GS18 GNSS Receiver and Field Controller/Tablet



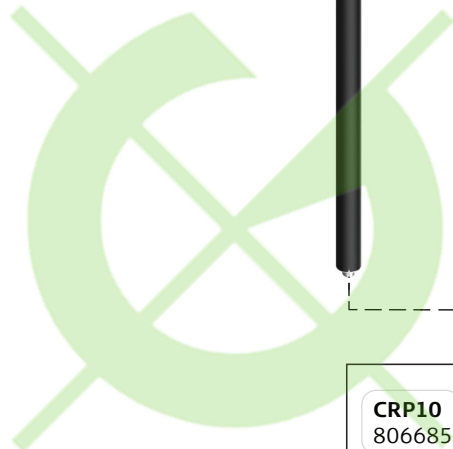
30.2 SmartPole using AP20, a GS16/GS18 GNSS Receiver and a Field Controller/Tablet



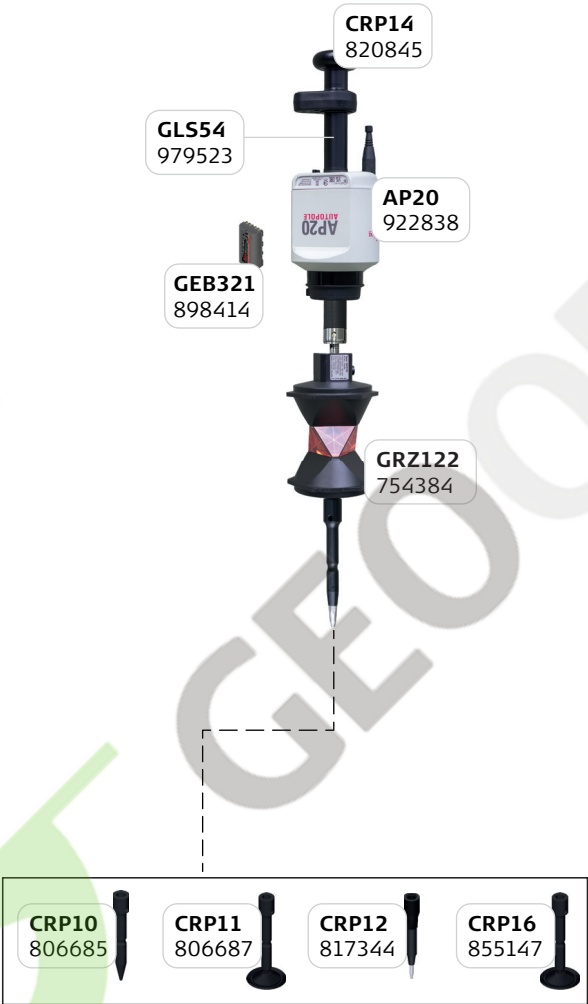
For GNSS antenna configuration (RTK Antennas and Modems / Radios) and GNSS accessories refer to Leica Captivate GNSS Equipment.

31.1 GLS51/GLS51F Setup with 1m extension and various tips

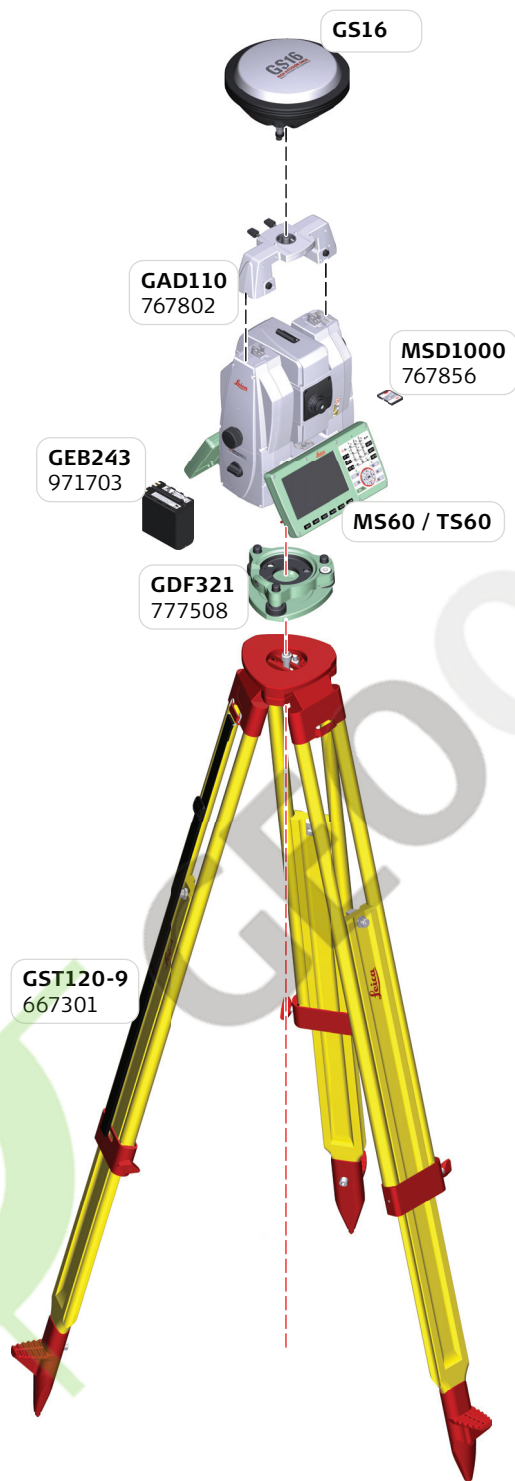
MPR122 048842 GRZ122 754384



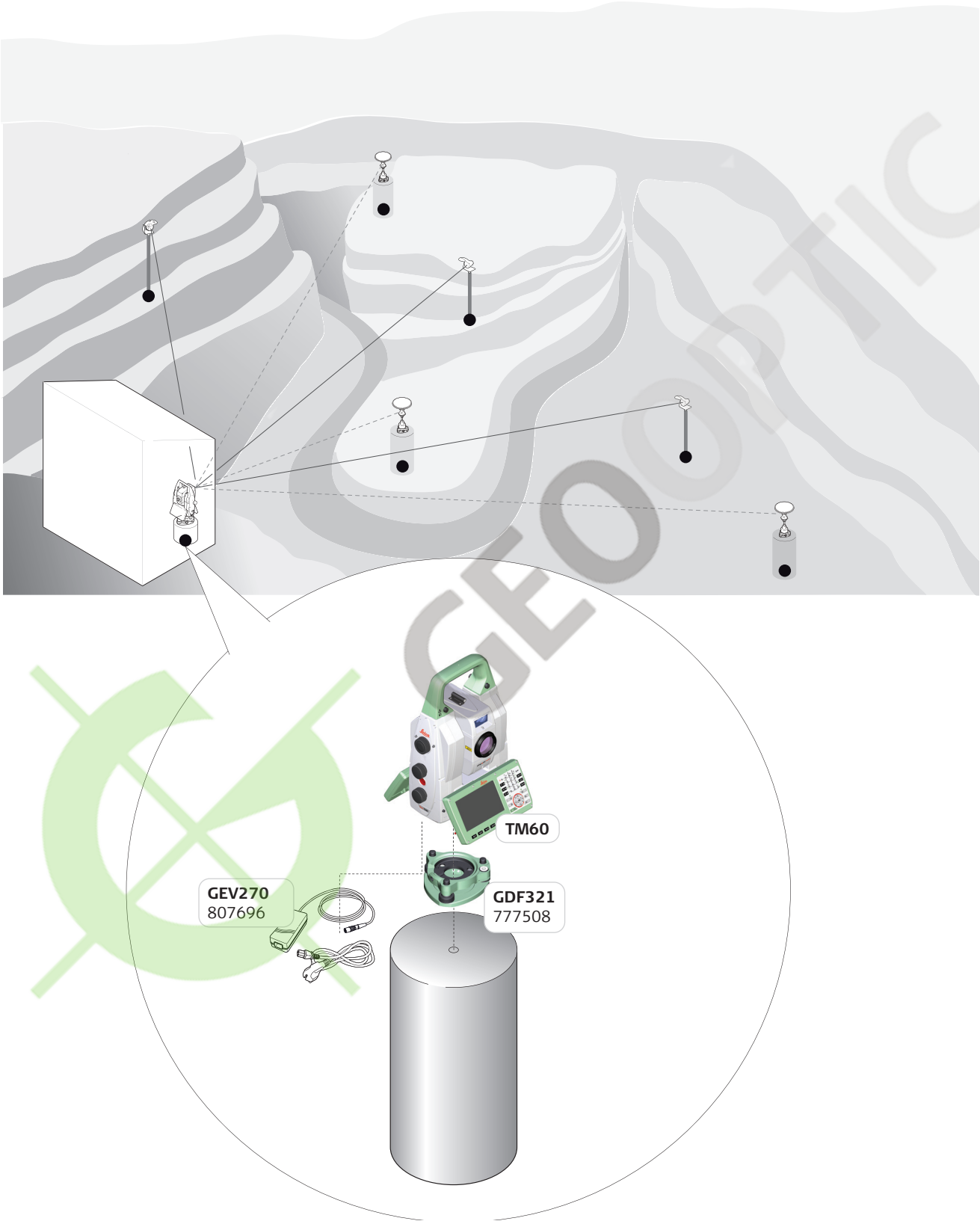
31.2 GLS54 Mini Pole Setup with various tips and holder



32 SmartStation using the GS16 GNSS Receiver



 For GNSS antenna configuration (RTK Antennas and Modems / Radios) and GNSS accessories refer to Leica Captivate GNSS Equipment.



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