



Leica Viva TS20

Equipment List

English
Version 1.0



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Total Station

1 TS20

1.1 Overview

	TS20 A	TS20 P	TS20 I
Angle measurement	●	●	●
Distance measurement to prism	●	●	●
Distance measurement to any surface (reflectorless)	●	●	●
Motorised (direct drives)	●	●	●
AutoHeight (automatic instrument height)	●	●	●
Automatic target aiming (AI-powered)	●	●	●
Lock mode	●	●	●
DynamicLock	-	●	●
PowerSearch (PS)	-	●	●
Overview camera (OVC)	-	-	●
AI-detect (target type detection)	-	-	●
Autofocus	●	●	●
Ethernet, power and USB-C interface	●	●	●
WLAN	●	●	●
Integrated LRBT for field controller/tablet connection	●	●	●
Internal flash memory (16 GB)	●	●	●
Guide light (EGL)	●	●	●
2nd keyboard	○	○	○
GMI01 (mobile connectivity)	○	○	○
Arctic option	-	○	-
AutoPole AP20 H	○	○	○
AutoPole AP20 ID	-	○	○
AutoPole AP20 T	○	○	○
AutoPole AP20	-	○	○
CS20 field controller connection	○	○	○
CS30/CC180/CC200 tablet connection	○	○	○

● Standard
 ○ Optional
 - Not available

1.2 Models

		1" (0.3 mgon)	2" (0.6 mgon)	3" (1 mgon)	5" (1.5 mgon)
TS20 A	PinPoint R800 (LaserClass 2)	1012251	1012252	1012253	1012254
	PinPoint R1600	1012247	1012248	1012249	1012250
TS20 P	PinPoint R800 (LaserClass 2)	1012239	1012240	1012241	1012242
	PinPoint R1600	1012235	1012236	1012237	1012238
	PinPoint R1600, arctic variant	1012243	1012244	1012245	1012246
TS20 I	PinPoint R800 (LaserClass 2)	1012231	1012232	1012233	1012234
	PinPoint R1600	1011725	1012228	1012229	1012230



All TS20 models are delivered with one 5" WVGA colour touch screen, Quick Guide and container GVP763 (948770).

Additional Options & Accessories

2 Additional Options for Total Station

2.1 Hardware Options



1014300	GTS67	2nd face keyboard with Function keys, 5" WVGA color screen, capacitive touch and stylus (GDZ72), for TS20 instruments, fitted.
1014304	GMI01	Mobile Internet device for Sensor and Data Service in TS20P, TS20I, fitted, without GeoCloud Protect subscription. 👉 GeoCloud Protect subscriptions see chapter 24 GeoCloud. 👉 GMI01 for TS20A only available as service upgrade.

2.2 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 Leica Captivate Apps & Software Options

3.1 Leica Captivate Software for TS

827719	Leica Captivate Measure & Stakeout.
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3.2 Apps included in Leica Captivate for TS (827646)

Measure includes: • Measure • Code points with linework • 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 30 target points • Resection up to 30 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 • 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
Control Data:
• Create points and lines
Data import:
ASCII, XML, DXF, DTM, alignments, Autodesk point layout projects
Data export:
ASCII, Custom, DXF, XML, Style Sheets, FBK, RW5, RAW and local formats
Reference files and background maps:
• DXF, DWG, DGN, IFC • WMS, WMTS, WFS

3.3 Optional Leica Captivate Software and Apps for TS

 The following apps require a valid entitlement ID.

827720	Leica Captivate Measure / Stake to Line
827721	Leica Captivate Measure to Plane or Grid
827722	Leica Captivate Area Division
827723	Leica Captivate DTM Stakeout
827724	Leica Captivate Volume Calculation
827725	Leica Captivate Road
827726	Leica Captivate Tunnel
827727	Leica Captivate Rail
827728	Leica Captivate TS Hidden Point
827729	Leica Captivate Traverse
827730	Leica Captivate Sets of Angles
827731	Leica Captivate QuickVolume
1014858	Leica Captivate ADSK BIM360, Bricsys24/7

 All other apps are licensed via this subscription:

5312845	Leica Captivate Loadable Apps Subscription 1y
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3.4 Loadable Leica Captivate apps for TS

 The following apps require a valid license key.

1014859	Leica Captivate Machine Control
848371	Leica Captivate TPS Monitoring

3.5 Geocom licenses for TS20

1014853	GeoCom license Perpetual. Enables all GeoCom commands (robotics, imaging, video streaming, AutoPole, virtual).
5312846	Captivate GeoCom Subscription 1y Enables all GeoCom commands (robotics, imaging, video streaming, AutoPole, virtual). Includes 1y Captivate Software Maintenance.

Accessories for Total Station

4 Power Supply

4.1 Internal Batteries



973449	GEB461	Lithium-Ion battery, 10.8V / 6.9Ah / 74.25Wh, rechargeable for TS20 and TS03/07/10.
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4.2 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 GEV306 or GEV303 cable for TS20.

4.3 Battery Chargers



799185	GKL311	Single-bay Charger Professional 3000. Charger for one Li-Ion battery (GEB211, GEB212, GEB221, GEB223, GEB241, GEB242, GEB243, GEB321, GEB331, GEB333, GEB334, GEB361, GEB363, GEB364, and GEB461), including AC/DC adaptor and cigarette lighter cable.
799187	GKL341	Multi-bay Charger Professional 5000. Charges up to 4 batteries (GEB211, GEB212, GEB221, GEB223, GEB241, GEB242, GEB243, GEB321, GEB331, GEB333, GEB334, GEB361, GEB363, GEB364, and GEB461), including power cable.
948756	GEV243	Charger for GEB371 / GEB373 external battery.

5 Data Storage and Data Transfer

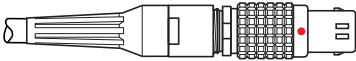
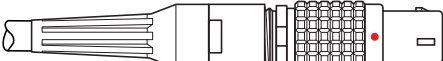
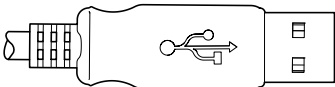
5.1 Memory Devices



948736	MS16	USB Type-C Memory Stick, 16 GB, USB 3.2, industrial grade. (not suitable for CS30 and CSX8).
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6 Connectivity

6.1 Connector Types

Name	Used on		
Lemo 16-pin type 2 30°	TS20		
Lemo1 5-pin	Battery / External power		
USB A	PC / Laptop		
USB C	TS20 / PC / Laptop		
RJ45	PC / Laptop		

6.2 Cables



996517	GEV306	Power cable, connects TS20 Lemo 16-pin (Type 2, 30°) to external battery Lemo 15-pin (1.8m).
1020502	GEV75	Car battery cable, connects 12V car battery connector to Lemo1 5-pin female.
988773	GEV303	Y-cable, connects TS20 Lemo 16-pin (Type 2, 30°) connector to PC (RJ45) and external battery Lemo 15-pin (1.8m).
101844	GEV305	3m extension cable for GEV303, connects TS20 with Power and Data to Combox.
879634	GEV278	TS20 USB-C to USB-C of PC, 1m USB 3.0, for Firmware update, Data Download.
879372	GEV284	TS20 USB-C to USB-A of PC, 1.5m USB 3.1, for Firmware update, Data Download.
 Recommended USB-C to Gigabit-Ethernet adapter, either by HP, model RTL8153-03, or by Belkin, model F2CU040btBLK, or by Lenovo, model 4X90S91831 (not provided by Leica Geosystems, must be purchased by the customer).		

7 Optical Accessories

7.1 Eyepiece



793979	GFZ3	Diagonal eyepiece for telescope with bayonet connection including counterweights (40mm & 50mm diameter).
 For TS20 counterweight (712442) with 50mm diameter is required.		

7.2 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.

7.3 Objective



952154	GVO14	Objective solar filter for TS20 (50mm diameter).
977538	GSK4	Clip-on snow & rain protection cover for ATR and PowerSearch window and objective.

8 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.

9 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.

10 Reflector Poles

10.1 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 GPS (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.
1020503	GSR120	Dual-strut support for all GLS.
403428	GZW12	Extension 1m long, for reflector pole GLS11 and carriers.

10.2 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.

10.3 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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10.4 Mini Pole



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



667313	GRT144	Carrier with stub.
874838	SNLL321	Precision carrier, with longitudinal bubble and zenith-nadir laser plummet.
428340	GZR3	Precision carrier, with longitudinal bubble and optical plummet.
981662	GZR104	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.

12 Reflectors

12.1 Circular Reflectors



641617	GPR121	Circular prism, with metal holder and target plate.
362830	GPR1	Circular prism, in black housing.
362820	GPH1	Single-prism holder.
400080	GPH3	Three-prism holder.
362823	GZT4	Target plate, for GPH1.

12.2 Precision Reflectors



555631	GPH1P	Single-prism precision reflector.
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12.3 360° Reflectors with stub adapter



754384	GRZ122	360° reflector with 5/8" thread adapter for mounting of GNSS 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.

12.4 360° Reflectors with 5/8" screw adapter



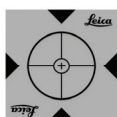
756637	MPR122	360° reflector with 5/8" thread adapter for mounting of GNSS antenna and 5/8" screw nut.
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12.5 Mini Reflectors



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.

12.6 Reflector Tapes



991598	GZM35	High reflective tape, 20x20mm for short range, pack of 10 pieces.
991597	GZM36	High reflective tape, 40x40mm for medium range, pack of 10 pieces.
966824	GZM37	High reflective tape, 60x60mm for long range, pack of 10 pieces.
 Suitable for TS20 PowerSearch and ATR.		

13 Extra Pen



1028108	GDZ72	Set including GDZ72 Stylus (880810) with tether clip interface and three additional exchangeable rubber tips for capacitive touch.
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14 Additional Containers & Accessories for Containers



1013934	GVP775	Hard shell backpack for TS20, tribrach and 360° prism.
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.
1012153	GVP764	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.
1012145	GVP770	Hard container for SmartAntenna, CS Field Controller and accessories for a SmartPole and SmartStation setup.
1012147	GVP771	Small-sized hard container for 360° prism and controller for TS Robotic Pole setup.
1012148	GVP765	Hard container, for CS20, CS30, CC180 and CC200 field controller/tablet including attached holders, 360° prisms and AP20.
1012151	GVP767	Small-sized hard container for AP20.

Remote Control

15 CS20 Field Controller

15.1 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.

15.2 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).

16 CC200 Tablet

16.1 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.

16.2 GKP100 Keypad



995129	GKP100	GKP100 Keypad GKP100, Leica Captivate keypad.
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17 CC180 Tablet

17.1 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.

17.2 GKP100 Keypad



995129	GKP100	GKP100 Keypad GKP100, Leica Captivate keypad.
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18 CS30 Tablet

18.1 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 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.

18.2 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 Remote Control

19 TCPS Modem

19.1 TCPS Modem



818469	TCPS30	Bluetooth radio modem with antenna. Used as external radio modem for PCs. Frequency range 2402 - 2480 MHz.  Fulfills EN 300 328 V.1.8.1.
 TCPS30 can not be connect to TS20. TS20 contains built-in BT for remote control.		

19.2 Cables for TCPS Radio Modem

 For an overview of the different connector types, refer to chapter 6.1.

734697	GEV186	Serial data Y-cable for TCPS30 config and setup, Lemo15-pin (battery) to Lemo0 5-pin and Lemo1 8-pin (TCPS30).
707525	GK1	Lemo Converter 30° for PC (9-pin RS232 serial).  Use GK1 in combination with GEV186 to connect TCPS with PC for configuration or communication.

20 AP20 AutoPole

20.1 Models



922835	AP20 H	AutoPole AP20 H with PoleHeight module ensures to automatically detect and apply target height to paired field SW.
922836	AP20 ID	AutoPole AP20 ID with TargetID module ensures to find and measure your target, wirelessly connected to your automated total station.
922837	AP20 T	AutoPole AP20 T with PoleHeight 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 PoleHeight, TargetID 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.

20.2 Internal Battery



898414	GEB321	Lithium-Ion battery, 7.2 V/3.35 Ah, rechargeable. To be used with AP20 AutoPole.
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20.3 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.
913900	CRP5	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 4.55 ft, extendable to target height 7.0 ft, printed scale both on extendable tube and lower tube, graduation in ft.
977380	GLS53	Carbon mini pole with 5/8" screw thread interface, supports AP20 AutoPole. Length 0.25 m. With MPR122 and CRP4 pole tip (CRP10) a prism height of 0.200 m is reached.

20.4 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

21 Smartpole Setup using a GS16 GNSS Receiver

21.1 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 SmartPole using GS18 GNSS Receiver

22.1 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

22.2 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

22.3 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

23 Smartpole Setup using a GS05 GNSS Receiver

23.1 GS05 GNSS Receiver



949989	GS05	Leica GS05 UHF Regional Rover SmartAntenna *
949993	GS05	Leica GS05 UHF Regional Base SmartAntenna *
1003096	GS05	Leica GS05 UHF Rover SmartAntenna
1003097	GS05	Leica GS05 UHF Base SmartAntenna
949990	GS05	Leica GS05 LTE Regional Rover SmartAntenna *
949991	GS05	Leica GS05 LTE Rover SmartAntenna
949992	GS05	Leica GS05 LTE SmartNet Rover SmartAntenna **

* Available in selected countries only.

** Available in countries with HxGN SmartNet NRTK coverage. Refer to: www.hxgnsmartnet.com/coverage

	Leica GS05 UHF Rover	Leica GS05 UHF Base	Leica GS05 LTE Rover	Leica GS05 LTE SmartNet Rover
Supported GNSS Systems				
GPS (L1, L2C)	●	●	●	●
GLONASS (L1, L2C)	●	●	●	●
Galileo (E1, E5b)	●	●	●	●
BeiDou (B1I, B2I)	●	●	●	●
QZSS (L1, L2C)	●	●	●	●
Positioning performance				
RTK Reference Station functionality	●	●	●	●
RTK Rover	●	○	●	●○ *
HxGN SmartNet Rover GS05	○	○	○	○
Tilt compensation (up to 30°)	○	○	○	○
Position update & data recording				
10 Hz positioning	●	●	●	●
Raw data logging	●	●	●	●
RINEX logging	○	○	○	○
NMEA out	○	○	○	○
No country limitation	●○ **	●○ **	●○ **	●

● Standard

○ Optional

***Standard** for HxGN SmartNet NRTK GS05 subscriptions and **Optional** for Single Baseline RTK and the rest of Network RTK corrections providers.

****Optional** for Regional variants.

HxGN GeoCloud

24 GeoCloud

24.1 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.

24.2 GeoCloud Protect



5312798	GeoCloud Protect Subscription 1yr	GeoCloud Protect Subscription 1 yr. Yearly subscription that allows the GeoCloud Protect service to be used on one Total Station with a GMI01 device. GeoCloud Protect is a theft deterrence service that allows for the localisation of the Total Station and the locking of the Filed Software on that Total Station.  GMI01 for TS20A only available as service upgrade.
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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.

Trademarks & Technical Data

26 Trademarks

Linux® is a registered trademark of Linus Torvalds in the U.S. and other countries.
Bluetooth® is a registered trademark of Bluetooth SIG, Inc.
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27 Technical Data

Guide light (EGL):

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

Distance meter (Prism), ATR and PowerSearch:

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

Laser plummet:

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

Distance meter (reflectorless) R800 models:

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



Distance meter (reflectorless) R1600 models:

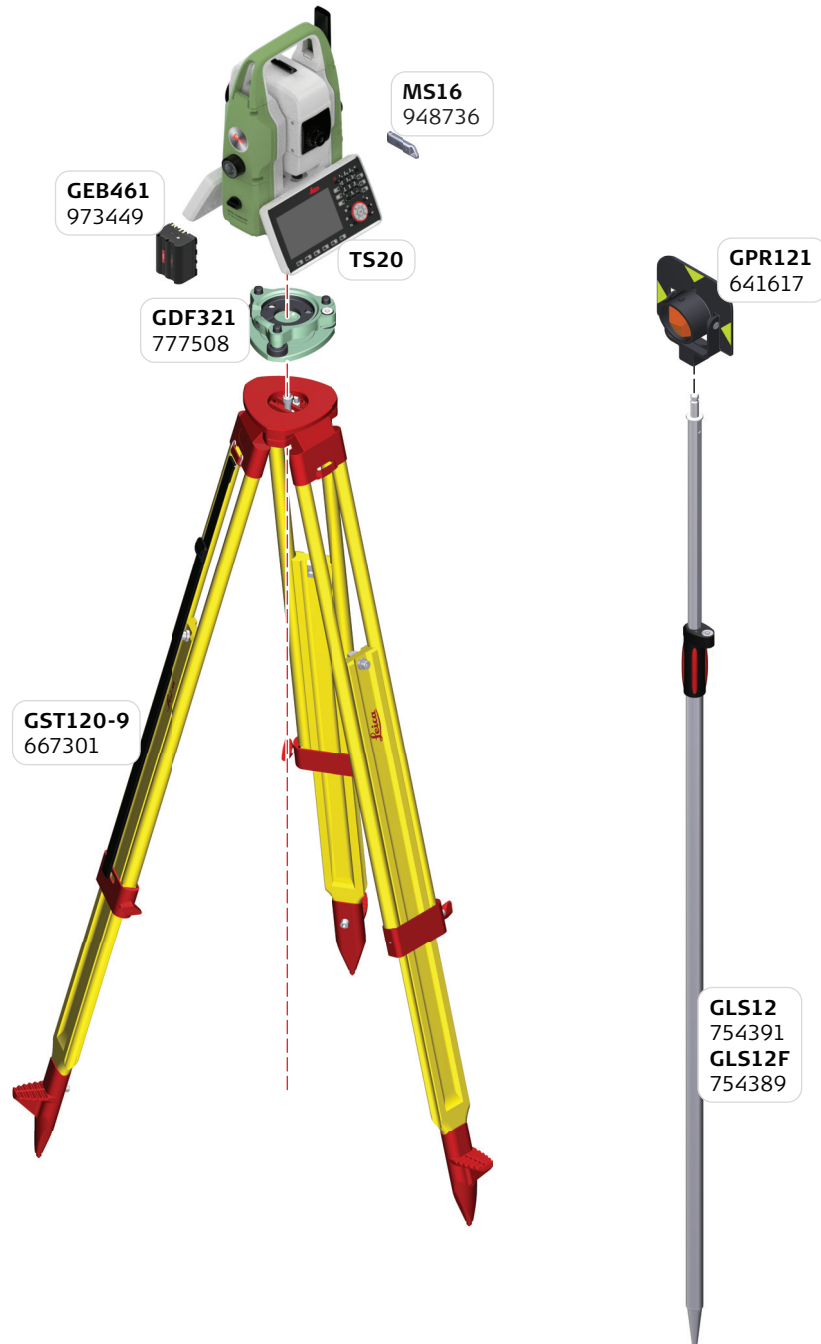
Laser class 3R in accordance with IEC 60825-1 resp. EN 60825-1



Suggested Equipment Setups

28 Conventional Surveying

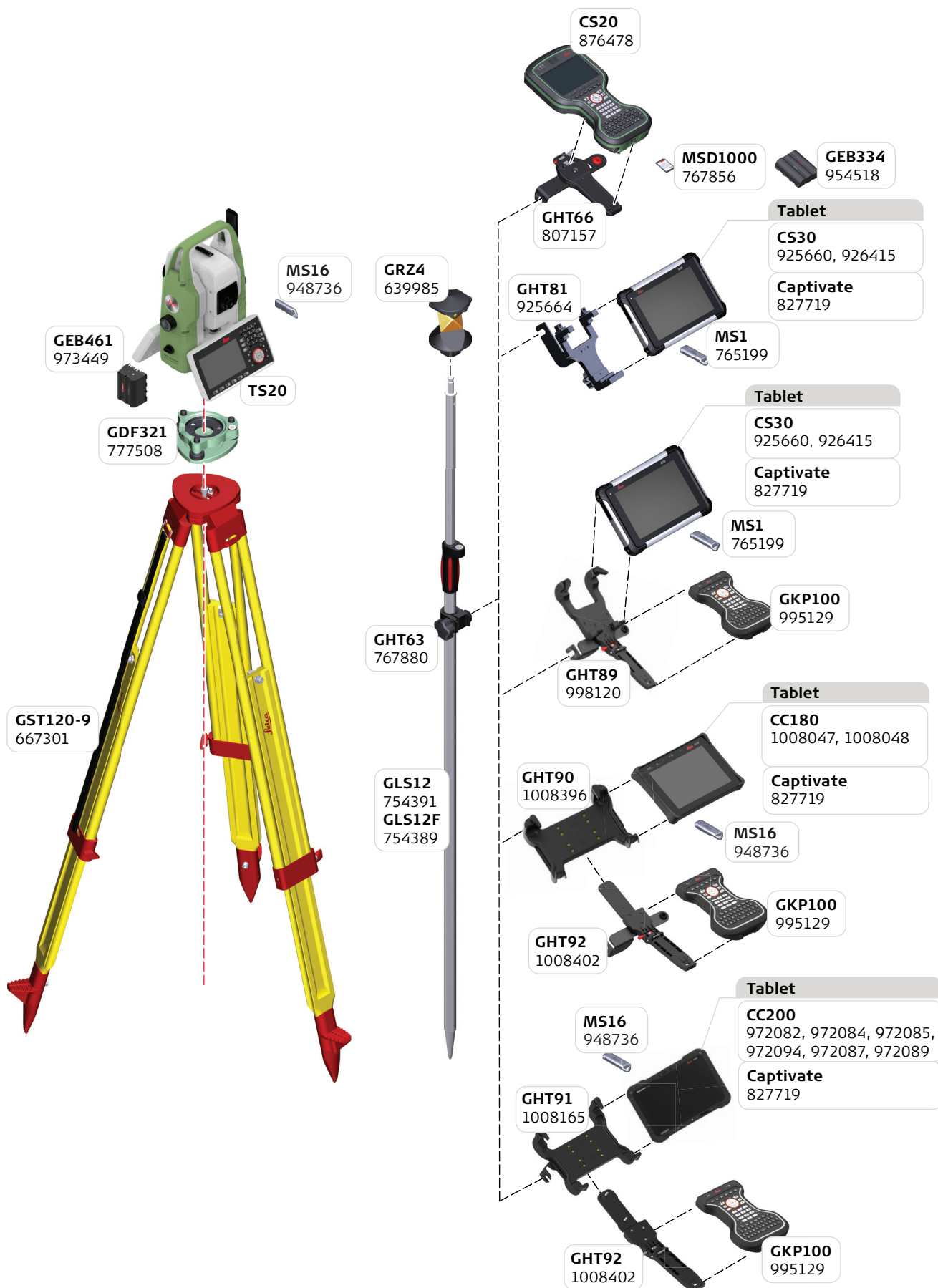
28.1 Two Person Surveying using a TS20 Total Station



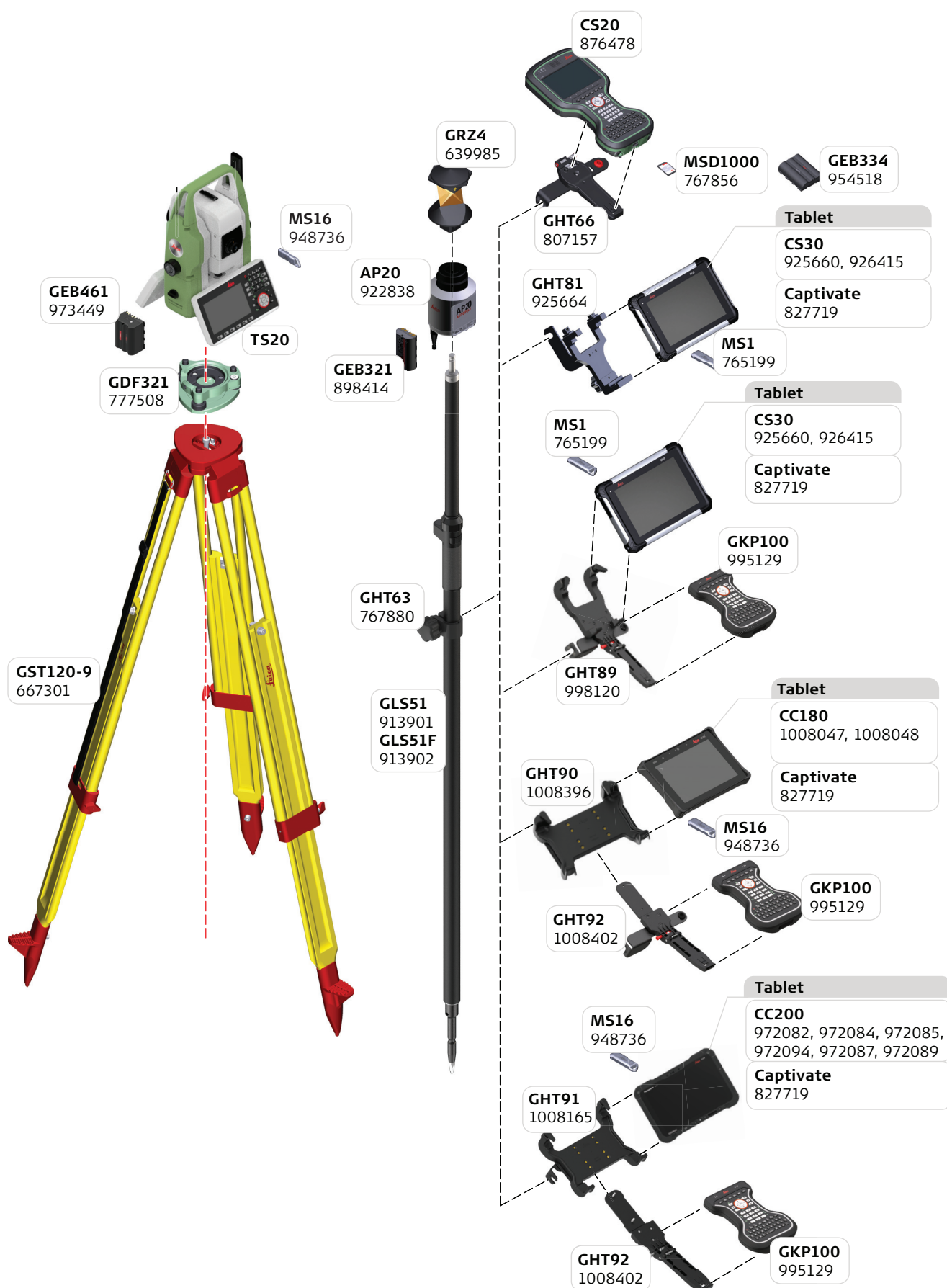
28.2 Two Person Surveying using a TS20 and AP20



28.3 Robotic Surveying using a TS20 Total Station and Field Controller/Tablet

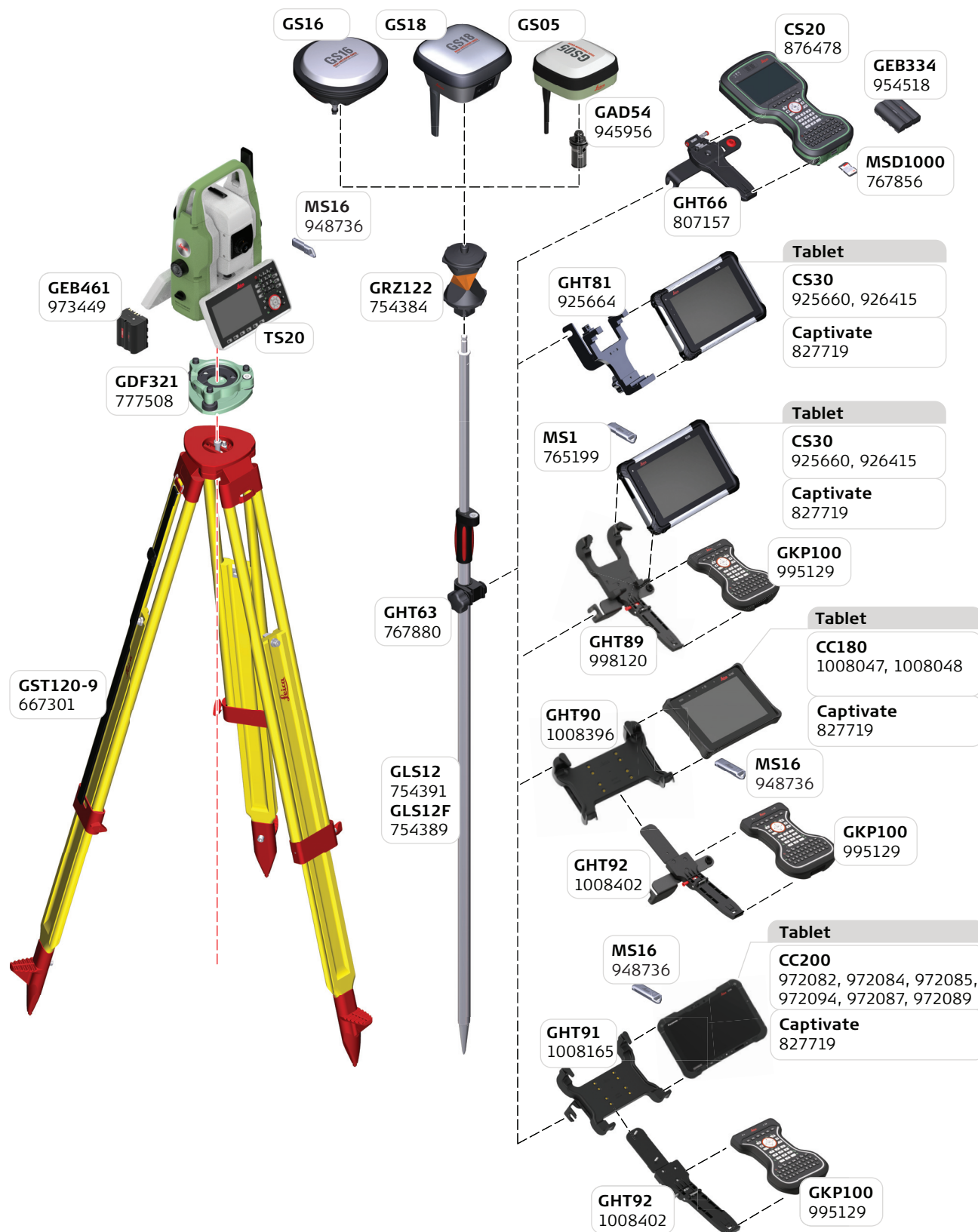


28.4 Robotic Surveying using a TS20, AP20 and Field Controller/Tablet



29 SmartPole Surveying

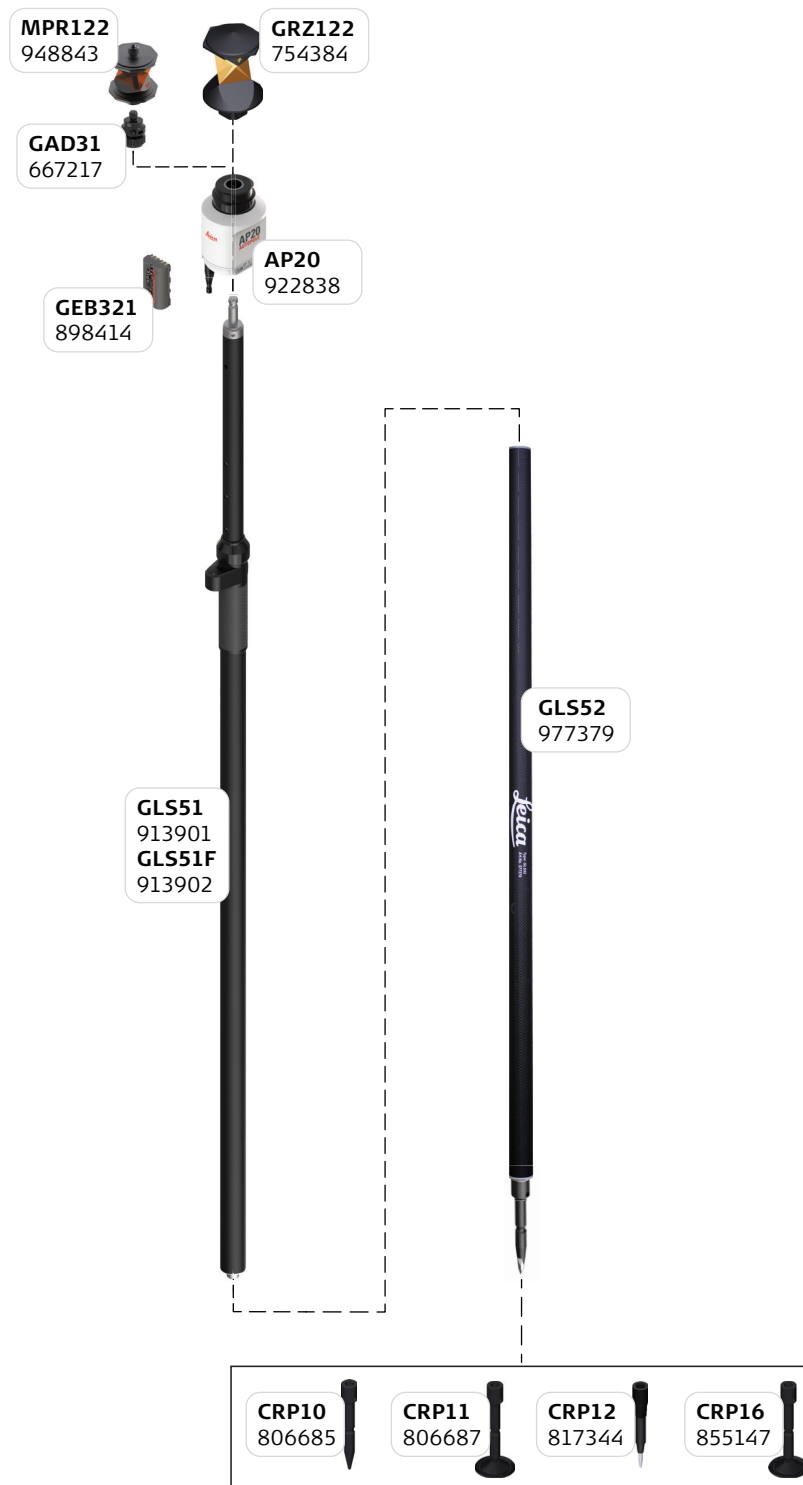
29.1 SmartPole using a GS16, GS18 or GS05 GNSS Receiver and Field Controller/Tablet



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

30 AP20 Pole configurations

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



30.2 GLS54 Mini Pole Setup with various tips and holder

