Leica Viva GNSS
Equipment List

- when it has to be **right**

Leica Geosystems

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Table of Contents

GS15 GNSS Receiver 5

1 GS15 GNSS Receiver 5
1.1 Producer Certificates for GS15 Receiver 5
2 Additional GS15 Receiver Options 6
3 RTK Modems 6
4 External RTK Antennas 7
4.1 External RTK Antennas 7
4.2 Accessories for Mounting External RTK Antenna on Second Tripod (Base) 7
5 Accessories for Using External Radios with GS15 Receiver 8
6 Additional Accessories for GS15 Pole Setups - GNSS Rover 8
6.1 Survey Poles 8
6.2 Holder and Clamp for Poles 8
6.3 QuickStand 8
7 Additional Accessories for GS15 Tripod Setups - GNSS Base 9
7.1 Tribrachs 9
7.2 Tripods 9
7.3 Carriers 9
7.4 Height Hook 9
8 Containers for GS15 Receiver 9

GS10 GNSS Receiver 10

9 GS10 GNSS Receiver 10
9.1 Producer Certificates for GS10 Receiver 10
10 Additional GS10 Receiver Options 11
11 GNSS Antennas 11
11.1 GNSS Single and Triple Frequency Antennas 11
11.2 Choke Ring Antennas 11
12 GNSS Antenna Cables for GS10 Receiver 12
12.1 GNSS Antenna Cables for GS10 using as Rover 12
12.2 GNSS Antenna Cables for GS10 Base Setup 12
13 RTK Modems 12
13.1 Satelline Radio Modems 12
13.2 Pacific Crest Radio Modems 13
13.3 Mobile Phones 13
14 RTK Antennas 13
14.1 External RTK Antennas 13
14.2 Accessories for Mounting RTK Antenna on the AS05/AS10 Antenna 13
14.3 Accessories for Mounting RTK Antenna on Second Tripod (Base) 13
15 Additional Accessories for GS10 Pole Setups - GNSS Rover 14
15.1 Survey Poles 14
15.2 Minipack Setup 14
15.3 All on the Pole Setup 14
15.4 QuickStand 15
16 Additional Accessories for GS10 Tripod Setups - GNSS Base 15
16.1 Tribrachs 15
16.2 Tripods 15
16.3 Carriers 15
16.4 Height Hook 15
17 Container for GS10 Receiver 15

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Additional Accessories GS15/GS10 16

18 Power Supply 16
18.1 Internal Batteries for GS15 Receiver 16
18.2 Internal Batteries for GS10 Receiver 16
18.3 External Power Supply 16
18.4 Battery Chargers 16

19 Data Storage and Data Transfer 17
19.1 Memory Devices 17
19.2 Card Reader 17
19.3 Data Transfer Cables 17

20 Cables to connect GS10/GS15 to CS Controller 17

Field Controller 18

21 Field Controller 18
21.1 CS10/CS15 Field Controller 18

22 Connector Modules for CS10/CS15 Field Controller 18

23 Accessories for Field Controller 18
23.1 Internal Batteries 18
23.2 Docking Station 19
23.3 Additional Power Accessories 19
23.4 Memory Devices 19
23.5 Card Reader & Adapter 19
23.6 Pole Accessories for CS10/CS15 Field Controller 19
23.7 Softbags and Hand Strap for CS10/CS15 Field Controller 19

SmartWorx Viva 20

24 SmartWorx Viva Software and Application Programs 20
24.1 SmartWorx Viva Software for CS10/CS15 Field Controller 20
24.2 Applications Included with SmartWorx Viva 20
24.3 Additional SmartWorx Viva Software Packages 21
24.4 Optional Applications for SmartWorx Viva 21

Care Packages 22

25 Customer Care Packages 22

System Viva GNSS Cables Overview 23

Suggested GNSS Setups 26

26 GS10 Real Time Rover- Pole plus Minipack 26

27 GS10 Real Time Reference - Tripod Setup 27
27.1 Using One Tripod 27
27.2 Using Two Tripods 28

28 GS15 Real Time Rover 29

29 GS15 GNSS Real Time Reference - Tripod Setup 30
29.1 Using One Tripod 30
29.2 Using Two Tripods 31

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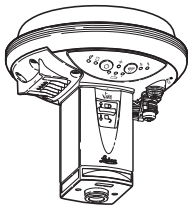
GS15 GNSS Receiver

1 GS15 GNSS Receiver



771 501	**GS15**	**Leica GS15 Single Frequency SmartAntenna**
767 789	**GS15**	**Leica GS15 Basic SmartAntenna**
771 502	**GS15**	**Leica GS15 Limited SmartAntenna**
771 503	**GS15**	**Leica GS15 Performance SmartAntenna**
771 504	**GS15**	**Leica GS15 Professional SmartAntenna**

	Leica GS15 Single Frequency	Leica GS15 Basic	Leica GS15 Limited	Leica GS15 Perform-ance	Leica GS15 Profes-sional
Supported GNSS Systems					
GPS L2	○	●	●	●	●
GPS L5	○	○	○	○	●
GLONASS	○	○	○	○	●
Galileo	○	○	○	○	●
RTK performance					
DGPS/RTCM	○	○	●	●	●
RTK up to 5km	○	○	●	●	●
RTK unlimited	○	○	○	●	●
Network RTK	○	○	○	●	●
Leica Lite RTK	○	○	○	○	●
Position update & data recording					
5 Hz positioning	●	○	●	●	●
20 Hz positioning	○	○	○	●	●
Raw data logging	●	○	●	●	●
RINEX logging	○	○	○	○	●
NMEA out	○	○	○	○	●
Additional features					
RTK Reference Station functionality	○	○	○	●	●

● Standard
○ Optional

1.1 Producer Certificates for GS15 Receiver

366 358	**GDI33**	Producer Certificate O.

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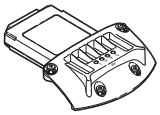
2 Additional GS15 Receiver Options

GNSS software options		
771 500	**LOP19**	GPS L2 option, enables GPS L2 and GPS L2C tracking on a GS10 or GS15 receiver.
767 804	**LOP1**	GPS L5 option, enables GPS L5 tracking on a GS10 or GS15 receiver.
767 805	**LOP2**	GLONASS option, enables GLONASS tracking on a GS10 or GS15 receiver.
767 806	**LOP3**	Galileo option, enables Galileo tracking on GS10 or GS15 receiver.
Position rate and data recording options		
767 807	**LOP4**	5Hz option, enables to compute positions with an update rate up to 5Hz.
767 808	**LOP5**	20Hz option, enables to compute positions with an update rate up to 20Hz.
767 809	**LOP6**	Upgrade option from 5Hz to 20Hz. (LOP4 to LOP5)
767 810	**LOP7**	Raw data option, allows logging of GNSS raw data on GS10 or GS15 receiver or on a CS10/CS15 field controller.
767 811	**LOP8**	RINEX option, allows logging of RINEX data on GS10 or GS15 receiver.
767 818	**LOP15**	NMEA out option, enables NMEA to be streamed from GS10 or GS15 receivers.
RTK performance options		
771 497	**LOP16**	DGPS/RTCM input/output option for GS10 and GS15 receivers, enables a receiver to receive RTCM 1, 2 and 9 messages.
767 812	**LOP9**	5km RTK option, enables RTK positions to be computed up to a distance of 5km from a single base station.
767 813	**LOP10**	Unlimited RTK option, enables RTK positions to be computed from a single base station with no limit of distance.
767 814	**LOP11**	Upgrade from 5km RTK to unlimited RTK. (LOP9 to LOP10)
767 815	**LOP12**	Unlimited RTK and Network RTK, enables RTK position to be computed from a single base station and within a RTK network.
767 817	**LOP14**	Upgrade option for GS10 or GS15 receivers from RTK unlimited only to RTK unlimited including RTK Network. (LOP10 to LOP12)
771 971	**LOP20**	Leica Lite option, to receive System 900 RTK data on the GS10, GS15 receivers.
Other options		
767 816	**LOP13**	RTK Reference station option, allows a GS10 or GS15 receiver to transmit RTK data.

3 RTK Modems



Satelline radio modules		
767 819	**SLR1**	Satelline 3AS 403-470 MHz TXO radio. RTK transmitting only UHF radio module to be easily plugged into the GS15 GNSS receiver.
767 820	**SLR2**	Satelline 3AS 403-470 MHz RXO radio. RTK receive only UHF radio module to be easily plugged into the GS15 GNSS receiver.
Pacific Crest radio modules		
767 821	**SLR3-1**	Pacific Crest ADL RX/TX radio 390-430Mhz. RTK receive and transmit UHF radio module to be easily plugged into the GS15 GNSS receiver.
767 822	**SLR3-2**	Pacific Crest ADL RX/TX radio 430-470Mhz. RTK receive and transmit UHF radio module to be easily plugged into the GS15 GNSS receiver.
6002544		Configuration tool kit for programming Satelline and Pacific Crest SLR RTK radio modules; includes programming cable GEV231 and configuration software CD ROM. ☞ SLR radios will be delivered pre-configured according to country-specific radio regulations. In countries where radios need to be configured locally, the configuration tool kit is to be used.

☞ External high power radios such as Satelline Epic Pro (10, 35W), Pacific Crest (2, 35W) or GFU radios can be used for RTK communication instead of the slot-in RTK modems.

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Mobile phone modules		
767 823	**SLG1**	5-Band (850/900/1800/1900/2100MHz) Telit GSM/GPRS/UMTS module. Provides full flexibility due to 5-band technology and is globally compatible to all GSM, GPRS, EDGE and UMTS network providers. Can be easily plugged into the GS15 GNSS receiver.
774 689	**SLG2**	4-Band (850/900/1800/1900MHz) Siemens MC75i GSM/GPRS module. Universal 4-band technology supports GSM, GPRS, and EDGE network providers. Can be easily plugged into the GS15 GNSS receiver.
767 824	**SLC1**	Dual band Telit CDMA 1xRTT module for US. Supports Sprint (US) network provider and can be easily plugged into the GS15 GNSS receiver.

4 External RTK Antennas

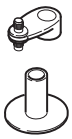
4.1 External RTK Antennas

The GS15 receiver is equipped with internal GSM/GPRS/UMTS antenna and internal UHF antenna as standard. In areas of poor GSM/GPRS/UMTS or UHF reception, the use of an external RTK antenna may improve reception.

RTK antenna arm		
767 790	**GAD108**	Arm to mount external UHF/GSM antenna to GS15 SmartAntenna, useful in areas of poor radio or GSM network receiption.
Gainflex radio antennas		
639 964	**GAT1**	Gainflex radio antenna (frequence range 400-435MHz).
667 243	**GAT2**	Gainflex radio antenna (frequence range 435-470MHz).
Antennas for mobiles phones		
667 237	**GAT3**	Antenna for 900/1800MHz mobile network.
734 756	**GAT5**	Antenna for US mobile network (850/1900MHz).

4.2 Accessories for Mounting External RTK Antenna on Second Tripod (Base)

Adapter		
767 791	**GAD109**	Transition adapter from external UHF/GSM antenna connector of a GS15 Smart-Antenna to standard TNC connector. Allows to connect an external GSM/UHF antenna via gainflex cable to the GS15 SmartAntenna using the receiver as a Reference Station.
RTK antenna cables		
636 959	**GEV120**	2.8m antenna cable.
667 201	**GEV142**	1.6m extension antenna cable.
Telescopic rod, antenna arm and base for telescopic rod		
667 228	**GAD32**	Telescopic rod with 5/8'' screw. Fits in base 667 236.
667 220	**GAD34**	Arm 3cm long, screws on telescopic rod. Gainflex antenna fits on arm. Antenna cable connects to arm.
667 236	**GHT36**	Base with 5/8'' screw, for setting up telescopic rod on tripod.



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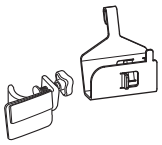
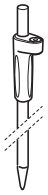
5 Accessories for Using External Radios with GS15 Receiver



Radio cables to GFU radios		
767 897	**GEV232**	Radio cable, 2.8m, connects GS15 receiver to System1200 GFU devices.
767 898	**GEV233**	Radio cable, 0.8m, connects GS15 receiver to System1200 GFU devices.
Brackets and holders for GFU radios		
748 417	**GHT58**	Bracket to mount a radio built into the Leica GFU radio housing on a tripod.
767 896	**GHT64**	Holder for GFU radios. Attaches to all GPS poles.
Cables for external radios		
762 026	**GEV221**	Y-cable, connects Satelline 3AS Epic Pro (10W) to GS10/GS15 receiver and 12V car battery.
733 297	**GEV171**	1.8m Y-cable to program the Satelline 3AS radio modem inside the GFU14 housing.
639 968	**GEV125**	Cable for Satelline radios without GFU housing to be connected to GS10/GS15 receivers.
748 418	**GEV205**	Y-cable for RTK reference setup, connects GS15 receiver to a GEB171 external battery and a Leica GFU radio.

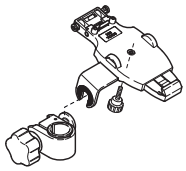
6 Additional Accessories for GS15 Pole Setups - GNSS Rover

6.1 Survey Poles



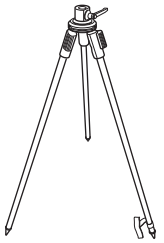
Poles with 5/8" screw		
768 226	**GLS13**	Telescopic aluminium GNSS pole with 5/8" screw. Snap locks at 1.80m and 2.00m. Includes circular bubble.
752 292	**GLS30**	Telescopic carbon GNSS pole with 5/8" screw. Snap locks at 1.80m and 2.00m. Includes circular bubble.
Poles with stub		
Requires GAD31 screw to stub adapter for GS15 receiver to be mounted on these poles.		
754 391	**GLS12**	Telescopic aluminium total station reflector pole with stub. Snap locks at 2.00m for GNSS antennas.
766 359	**GLS31**	Telescopic carbon total station reflector pole with stub. Snap locks at 2.00m for GNSS antennas.
667 217	**GAD31**	Screw to stub adapter.

6.2 Holder and Clamp for Poles



767 879	**GHT62**	Pole holder base plate for CS10 and CS15 field controller.
767 880	**GHT63**	Clamp arrangement for attaching the GHT62 to all poles.

6.3 QuickStand



560 138	**GST6**	Quickstand with 3 telescopic legs, for aluminium or carbon fibre poles.
667 319	**GSR111**	Dual-strut support, for all GLS poles.

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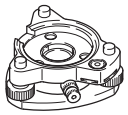
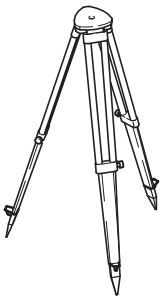
7 Additional Accessories for GS15 Tripod Setups - GNSS Base

7.1 Tribrachs



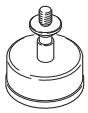
667 304	**GDF121**	PRO tribrach, without optical plummet, pale green.
667 307	**GDF122**	PRO tribrach, with optical plummet, pale green.
667 308	**GDF112**	BASIC tribrach, with optical plummet, pale green/red.

7.2 Tripods



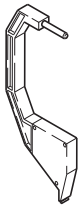
399 244	**GST05**	Wooden tripod with polymer coating, with accessories.
563 630	**GST05L**	Aluminium tripod, telescopic, with accessories.
667 301	**GST120-9**	Tripod, telescopic, selfclosing, with accessories, without pouch.

7.3 Carriers



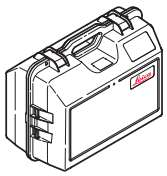
770 715	**GRT247**	Carrier with 5/8" screw for GS15 SmartAntenna.

7.4 Height Hook



667 244	**GZS4-1**	Height hook with integrated tape measure. Supplied with additional tape graduated in feet and inches.

8 Containers for GS15 Receiver



All GS15 need to be ordered with at least one container.

767 827	**GVP641**	Hard container for 2x GS15 GNSS SmartAntenna and CS10/CS15 field controller. The container allows a GS15 base station and GS15 rover with all accessories to be transported.
767 828	**GVP642**	Hard container for GS15 SmartAntenna and CS10/CS15 field controller. The container allows a GS15 rover, and all accessories for a SmartStation and SmartPole to be transported.

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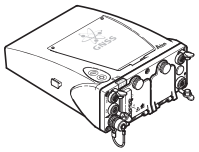
GS10 GNSS Receiver

9 GS10 GNSS Receiver



771 508	**GS10**	**Leica GS10 Single Frequency receiver**
770 704	**GS10**	**Leica GS10 Basic receiver**
771 509	**GS10**	**Leica GS10 Limited receiver**
771 510	**GS10**	**Leica GS10 Performance receiver**
771 511	**GS10**	**Leica GS10 Professional receiver**

	Leica GS10 Single Frequency	Leica GS10 Basic	Leica GS10 Limited	Leica GS10 Perform-ance	Leica GS10 Profes-sional
Supported GNSS Systems					
GPS L2	○	●	●	●	●
GPS L5	○	○	○	○	●
GLONASS	○	○	○	○	●
Galileo	○	○	○	○	●
RTK performance					
DGPS/RTCM	○	○	●	●	●
RTK up to 5km	○	○	●	●	●
RTK unlimited	○	○	○	●	●
Network RTK	○	○	○	●	●
Leica Lite RTK	○	○	○	○	●
Position update & data recording					
5 Hz positioning	●	○	●	●	●
20 Hz positioning	○	○	○	●	●
Raw data logging	●	○	●	●	●
RINEX logging	○	○	○	○	●
NMEA out	○	○	○	○	●
Additional features					
RTK Reference Station functionality	○	○	○	●	●

● Standard
○ Optional

9.1 Producer Certificates for GS10 Receiver

366 358	**GDI33**	Producer Certificate O.

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10 Additional GS10 Receiver Options

GNSS software options		
771 500	**LOP19**	GPS L2 option, enables GPS L2 and GPS L2C tracking on a GS10 or GS15 receiver.
767 804	**LOP1**	GPS L5 option, enables GPS L5 tracking on a GS10 or GS15 receiver.
767 805	**LOP2**	GLONASS option, enables GLONASS tracking on a GS10 or GS15 receiver.
767 806	**LOP3**	Galileo option, enables Galileo tracking on GS10 or GS15 receiver.
Position rate and data recording options		
767 807	**LOP4**	5Hz option, enables to compute positions with an update rate up to 5Hz.
767 808	**LOP5**	20Hz option, enables to compute positions with an update rate up to 20Hz.
767 809	**LOP6**	Upgrade option from 5Hz to 20Hz. (LOP4 to LOP5)
767 810	**LOP7**	Raw data option, allows logging of GNSS raw data on GS10 or GS15 receiver or on a CS10/CS15 field controller.
767 811	**LOP8**	RINEX option, allows logging of RINEX data on GS10 or GS15 receiver.
767 818	**LOP15**	NMEA out option, enables NMEA to be streamed from GS10 or GS15 receivers.
RTK performance options		
771 497	**LOP16**	DGPS/RTCM input/output option for GS10 and GS15 receivers, enables a receiver to receive RTCM 1, 2 and 9 messages.
767 812	**LOP9**	5km RTK option, enables RTK positions to be computed up to a distance of 5 km from a single base station.
767 813	**LOP10**	Unlimited RTK option, enables RTK positions to be computed from a single base station with no limit of distance.
767 814	**LOP11**	Upgrade from 5km RTK to unlimited RTK. (LOP9 to LOP10)
767 815	**LOP12**	Unlimited RTK and Network RTK, enables RTK position to be computed from a single base station and within a RTK network.
767 817	**LOP14**	Upgrade option for GS10 or GS15 receivers from RTK unlimited only to RTK unlimited including RTK Network. (LOP10 to LOP12)
771 971	**LOP20**	Leica Lite option, to receive System 900 RTK data on the GS10, GS15 receivers.
Other options		
767 816	**LOP13**	RTK Reference station option, allows a GS10 or GS15 receiver to transmit RTK data.

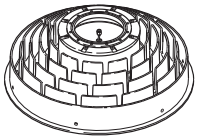
11 GNSS Antennas

Select the antenna for GS10 receiver.
Choke ring antennas are only required for special applications such as when using a GS10 receiver as a permanent reference station receiver.

11.1 GNSS Single and Triple Frequency Antennas

770 708	**AS05**	GPS/GLONASS single frequency antenna.
770 701	**AS10**	GPS/GLONASS/Gallileo triple frequency antenna.

11.2 Choke Ring Antennas



755 267	**AT504GG**	Dual-frequency antenna for GNSS receivers. Dorne-Margolin antenna element, JPL design. Conforms to IGS Typ T specification for GPS antennas.
765 733	**AR25**	GNSS choke-ring antenna for GNSS receivers. Includes L-Band signals.
667 140	**GVP601**	Weather protection radome for AT504GG antenna.
765 734	**GVP653**	Weather protection radome for AR25 antenna.

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12 GNSS Antenna Cables for GS10 Receiver

12.1 GNSS Antenna Cables for GS10 using as Rover

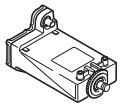
667 200	**GEV141**	1.2m antenna cable.
667 201	**GEV142**	1.6m extension for antenna cable.
724 969	**GEV194**	1.8m antenna cable.

12.2 GNSS Antenna Cables for GS10 Base Setup

Short cables		
667 200	**GEV141**	1.2m antenna cable.
724 969	**GEV194**	1.8m antenna cable.
Medium cables		
636 959	**GEV120**	2.8m antenna cable.
632 372	**GEV119**	10m antenna cable.
Extra long cables		
632 390	**GEV108**	30m antenna cable.
664 813	**GEV134**	50m antenna cable.

13 RTK Modems

13.1 Satelline Radio Modems



Satelline modems		
733 275	**GFU14-0**	Satelline 3AS radio modem (433.525MHz, 25.0kHz channel spacing, 0.5W) already intergrated into housing, fits on side of GPS receiver. User manual and CE Declaration of Conformity included.
733 276	**GFU14-1**	Satelline 3AS radio modem (406.425MHz, 25.0kHz channel spacing, 1.0W) already intergrated into housing, fits on side of GPS receiver. User manual and CE Declaration of Conformity included.
738 272	**GFU14-2**	Satelline 3AS radio modem (445.000MHz, 12.5kHz channel spacing, 1.0W) already intergrated into housing, fits on side of GPS receiver. User manual and CE Declaration of Conformity included.
738 273	**GFU14-3**	Satelline 3AS radio modem (443.000MHz, 12.5kHz channel spacing, 1.0W) already intergrated into housing, fits on side of GPS receiver. User manual and CE Declaration of Conformity included.
738 274	**GFU14-4**	Satelline 3AS radio modem (440.550MHz, 25.0kHz channel spacing, 0.5W) already intergrated into housing, fits on side of GPS receiver. User manual and CE Declaration of Conformity included.
738 275	**GFU14-5**	Satelline 3AS radio modem (458.150MHz, 12.5kHz channel spacing, 1.0W) already intergrated into housing, fits on side of GPS receiver. User manual and CE Declaration of Conformity included.
738 276	**GFU14-6**	Satelline 3AS radio modem (439.8625MHz, 12.5kHz channel spacing, 1.0W) already intergrated into housing, fits on side of GPS receiver. User manual and CE Declaration of Conformity included.
753 928	**GFU14-7**	Satelline 3AS radio modem (464.5000MHz, 25.0kHz channel spacing, 1.0W) already intergrated into housing, fits on side of GPS receiver. User manual and CE Declaration of Conformity included.
756 623	**GFU14-8**	Satelline 3AS radio modem (458.6000MHz, 25.0kHz channel spacing, 0.5W) already intergrated into housing, fits on side of GPS receiver. User manual and CE Declaration of Conformity included.
Cables for Satelline modems		
733 297	**GEV171**	1.8m Y-cable to program the Satelline 3AS radio modem inside the GFU14 housing.
762 026	**GEV221**	Y-cable, connects Satelline 3AS Epic Pro (10W) to GS10/GS15 and 12V car battery.
639 968	**GEV125**	Cable for Satelline radios without GFU housing to be connected to GS10/GS15.

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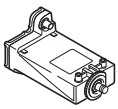
13.2 Pacific Crest Radio Modems

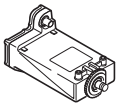
Pacific Crest radio modems must be ordered directly from your local Pacific Crest office or representative.



PDL receive only modems built into the Leica GFU radio housing with 12.5 or 25kHz channel spacing within the following frequency bands are available:

- 410 - 430MHz
- 430 - 450MHz
- 450 - 470MHz

13.3 Mobile Phones



750 242	**GFU24**	Housing with Siemens MC75 GSM/GPRS module (Quad-Band GSM 850/900/1800/1900MHz), fits on side of GS10 receiver.
750 243	**GFU25**	CDMA cellular phone for Canada, Multitech MTMMC-C-N12 for Bell mobility network, integrated into housing, fits on side of GS10 receiver.
744 754	**GFU19**	US CDMA cellular phone Multitech MTMMC-C-N3 for Verizon network, integrated into housing, fits on side of GS10 receiver.

14 RTK Antennas

14.1 External RTK Antennas

Gainflex radio antennas		
639 964	**GAT1**	Gainflex radio antenna (frequence range 400-435MHz).
667 243	**GAT2**	Gainflex radio antenna (frequence range 435-470MHz).
Antennas for mobile phones		
667 237	**GAT3**	Antenna for 900/1800MHz mobile network.
734 756	**GAT5**	Antenna for US mobile network (850/1900MHz).

14.2 Accessories for Mounting RTK Antenna on the AS05/AS10 Antenna

Antenna cables		
667 200	**GEV141**	1.2m antenna cable.
667 201	**GEV142**	1.6m extension for antenna cable.
724 969	**GEV194**	1.8m antenna cable.
636 959	**GEV120**	2.8m antenna cable.
RTK antenna arm		
667 219	**GAD33**	15cm, attaches to GNSS antenna. Gainflex antenna fits on arm. Antenna cable connects to arm.

14.3 Accessories for Mounting RTK Antenna on Second Tripod (Base)

RTK antenna cables		
636 959	**GEV120**	2.8m antenna cable.
667 201	**GEV142**	1.6m extension for antenna cable.
Telescopic rod, antenna arm and base for telescopic rod		
667 228	**GAD32**	Telescopic rod with 5/8'' screw. Fits in base 667 236.
667 220	**GAD34**	Arm 3cm long, screws on telescopic rod. Gainflex antenna fits on arm. Antenna cable connects to arm.
667 236	**GHT36**	Base with 5/8'' screw, for setting up telescopic rod on tripod.

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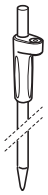
15 Additional Accessories for GS10 Pole Setups - GNSS Rover

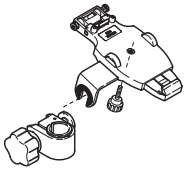
15.1 Survey Poles



Poles with 5/8" screw		
768 226	**GLS13**	Telescopic aluminium GNSS pole with 5/8" screw. Snap locks at 1.80m and 2.00m. Includes circular bubble.
752 292	**GLS30**	Telescopic carbon GNSS pole with 5/8" screw. Snap locks at 1.80m and 2.00m. Includes circular bubble.
Poles with stub		
☞ Requires GAD31 screw to stub adapter for GS15 receiver to be mounted on these poles.		
754 391	**GLS12**	Telescopic aluminium total station reflector pole with stub. Snap locks at 2.00m for GNSS antennas.
766 359	**GLS31**	Telescopic carbon total station reflector pole with stub. Snap locks at 2.00m for GNSS antennas.
667 217	**GAD31**	Screw to stub adapter.

15.2 Minipack Setup

Backpack		
667 137	**GVP603**	Minipack, holds GS10 GNSS Receiver.

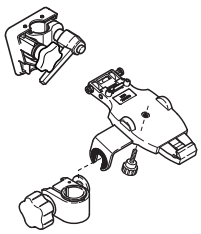


Holders		
767 879	**GHT62**	Pole holder base plate for CS10 and CS15 field controller.
767 880	**GHT63**	Clamp arrangement for attaching the GHT62 to all poles (except mini reflector poles).
Antenna cables		
667 200	**GEV141**	1.2m antenna cable.
667 201	**GEV142**	1.6m extension antenna cable.
636 959	**GEV120**	2.8m antenna cable.

Telescopic rod and RTK antenna arm		
667 228	**GAD32**	Telescopic rod with 5/8'' screw. Fits in Minipack 667 137. Fits in base 667 236.
667 220	**GAD34**	Arm 3cm long, screws on telescopic rod. Gainflex antenna fits on arm. Antenna cable connects to arm.
734 388	**GAD46**	Double arm adapter, screws on telescopic rod. Allows to connect up to 2 mobile phone/radio antennas and up to 2 antenna cables on arm.

15.3 All on the Pole Setup

☞ Only possible when using GLS12/GLS13 poles.



Holders		
733 265	**GHT40**	Holder for all variants of GS10 for balanced all-on-the-pole setup.
767 879	**GHT62**	Pole holder base plate for CS10 and CS15 field controller.
767 880	**GHT63**	Clamp arrangement for attaching the GHT62 to all poles (except mini reflector poles).
Antenna cable for GNSS antenna and RTK antenna		
724 969	**GEV194**	1.8m antenna cable.

RTK antenna arm		
667 219	**GAD33**	15cm, attaches to GNSS antenna. Gainflex antenna fits on arm. Antenna cable connects to arm.

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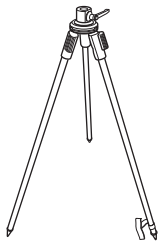
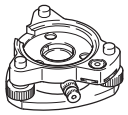
15.4 QuickStand



560 138	**GST6**	Quickstand with 3 telescopic legs, for aluminium or carbon fibre poles.
667 319	**GSR111**	Dual-strut support, for all GLS poles.

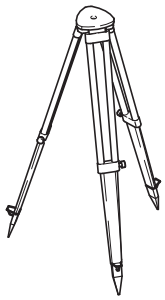
16 Additional Accessories for GS10 Tripod Setups - GNSS Base

16.1 Tribrachs



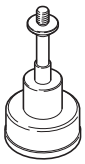
667 304	**GDF121**	PRO tribrach, without optical plummet, pale green.
667 307	**GDF122**	PRO tribrach, with optical plummet, pale green.
667 308	**GDF112**	BASIC tribrach, with optical plummet, pale green/red.

16.2 Tripods



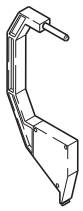
399 244	**GST05**	Wooden tripod with polymer coating, with accessories.
563 630	**GST05L**	Aluminium tripod, telescopic, with accessories.
667 301	**GST120-9**	Tripod, telescopic, selfclosing, with accessories, without pouch.

16.3 Carriers



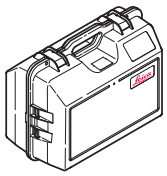
Carriers with 5/8" screw		
667 216	**GRT146**	Carrier with 5/8 inch screw, GNSS antenna screws on directly.
Carriers with stub		
667 313	**GRT144**	Carrier with stub, pale green.
667 217	**GAD31**	Screw-to-stub adapter for fitting GPS antenna on carriers with stub and poles with stub.

16.4 Height Hook



667 244	**GZS4-1**	Height hook with integrated tape measure. Supplied with additional tape graduated in feet and inches.

17 Container for GS10 Receiver



All GS10 need to be ordered with at least one container.

770 706	**GVP646**	Hard container for GS10 receiver, antenna and CS15/CS10 field controller. The container allows a GS10 receiver, and all accessories for a base station to be transported.

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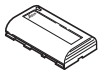
Additional Accessories GS15/GS10

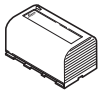
18 Power Supply

18.1 Internal Batteries for GS15 Receiver



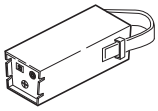
733 269	**GEB211**	Lithium-Ion battery, 7.4V/2.2Ah, rechargeable. To be used with CS10/CS15 field controller and GS09 or GS15 receiver.
772 806	**GEB212**	Lithium-Ion battery, 7.4V/2.6Ah, rechargeable. To be used with CS10/CS15 field controller and GS09 or GS15 receiver.

18.2 Internal Batteries for GS10 Receiver



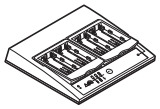
733 270	**GEB221**	Lithium-Ion battery, 7.4V/4.4Ah, rechargeable. To be used with GS10 receiver.

18.3 External Power Supply



Battery for GS10/GS15		
727 367	**GEB171**	External universal battery, NiMH, 12V/9Ah, rechargeable.
Power cables for GS10/GS15		
758 469	**GEV219**	Power cable, 1.8m, connects GS10/GS15 receiver to external GEB171 battery.
439 038	**GEV71**	4m car battery cable, connects all battery cables to 12V car battery.
Cables for GS10		
560 130	**GEV97**	Power cable, 1.8m, connects GS10 receiver to external GEB171 battery.
733 298	**GEV172**	Power cable, 2.8m, connects GS10 receiver to 2 external GEB171 batteries.

18.4 Battery Chargers



733 271	**GKL221**	Charger PRO. To be used with up to two charging adapters GDI221 or GDI222, charger cable and net adapter included.
733 323	**GDI221**	Adapter for GKL221 for charging 2 Li-Ion batteries GEB241, GEB221, GEB211 or GEB212.
734 389	**GDC221**	Car adapter for the GKL221 charger. Allows the use of the GKL221 with a cigarette lighter; 12V/24V DC/DC converter. Can also be used to power CS10/CS15 field controller directly from a cigarette lighter.
734 752	**GKL211**	Charger BASIC, for Li-Ion batteries GEB221, GEB211 and GEB212, car adapter cable and net adapter included.

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19 Data Storage and Data Transfer

19.1 Memory Devices

767 856	**MSD1000**	SD memory card 1GB for GS10 and GS15 receiver and CS10 and CS15 field controller.

19.2 Card Reader

767 895	**MCR7**	Card reader for SD/CF cards.

19.3 Data Transfer Cables

Serial cables

733 280	**GEV160**	Serial data transfer cable, 2.8m, connects GS10/GS15 receiver (port 2) to PC. (Lemo to 9pin RS232)
733 282	**GEV162**	Serial data transfer cable, 2.8m, connects GS10/GS15 receiver (port 1) or CS10/CS15 controller to PC. (Lemo to 9pin RS232)
723 755	**GEV195**	Serial data transfer cable, converter cable USB to serial (Lemo to USB connector), 2.0m, connects GS10/GS15 receiver (port 2) to PC. PC driver included on CD.
758 468	**GEV218**	Serial data transfer cable, converter cable USB to serial (Lemo to USB connector), 2.0m, connects GS10/GS15 receiver (port 1) or CS10/CS15 controller to PC. PC driver included on CD.

USB cable

767 899	**GEV234**	USB cable, 1.65m, connects GS10/GS15 receiver or CS10/CS15 controller to USB port of a PC or connects GS10/GS15 receiver to CS10/CS15 controller. (Lemo to USB)

20 Cables to connect GS10/GS15 to CS Controller

In cases where high data speed communication is required between GS10/GS15 and CS controller, cables should be used instead of a Bluetooth connection.

USB cables

767 899	**GEV234**	USB cable, 1.65m, connects GS10/GS15 receiver or CS10/CS15 controller to USB port of a PC or connects GS10/GS15 receiver to CS10/CS15 controller. (Lemo to USB)
772 807	**GEV237**	USB cable, 1.65m, connects GS10/GS15 receiver to CS10/CS15 controller. (Lemo to Lemo)

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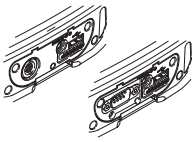
Field Controller

21 Field Controller

21.1 CS10/CS15 Field Controller

Field Controller		
767 866	**CS10 Radio Field Controller**	**CS10 Radio Field Controller.** Ruggedized WinCE field controller with full VGA touch display, 1GB NAND flash memory, 512MB SDRAM, CF/SD card slot and 2MP camera. Includes Bluetooth, internal WLAN module, internal TPS radio module, numeric keypad, stylus. Available with either Lemo connector (CBC01) or DSUB connector module (CBC02).
767 863	**CS10 Field Controller**	**CS10 Field Controller.** Ruggedized WinCE field controller with full VGA touch display, 1GB NAND flash memory, 512MB SDRAM, CF/SD card slot and 2MP camera. Includes Bluetooth, numeric keypad, stylus. Available with either Lemo connector (CBC01) or DSUB connector module (CBC02).
767 871	**CS15 Radio Field Controller**	**CS15 Radio Field Controller.** Ruggedized WinCE field controller with full VGA touch display, 1GB NAND flash memory, 512MB SDRAM, CF/SD card slot and 2MP camera. Includes Bluetooth, internal WLAN module, internal TPS radio module, QWERTY keypad, stylus. Available with either Lemo connector (CBC01) or DSUB connector module (CBC02).
767 869	**CS15 Field Controller**	**CS15 Field Controller.** Ruggedized WinCE field controller with full VGA touch display, 1GB NAND flash memory, 512MB SDRAM, CF/SD card slot and 2MP camera. Includes Bluetooth, QWERTY keypad, stylus. Available with either Lemo connector (CBC01) or DSUB connector module (CBC02).
Extra pen		
767 876	**GDZ68**	Extra pen with screw driver for CS10 and CS15 field controller.
Anti-glare display foils		
767 907	**SPF01**	Anti-glare display foils for CS10 and CS15 field controller.

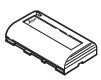
22 Connector Modules for CS10/CS15 Field Controller



767 874	**CBC01**	Lemo connector module with power jack, Lemo (USB and Serial) and USB A host for CS10 and CS15 field controller. ☞ Can only be ordered with CS10/CS15 field controller.
767 875	**CBC02**	DSUB connector module with power jack, DSUB 9-pin, USB A host and USB mini AB for CS10 and CS15 field controller. ☞ Can only be ordered with CS10/CS15 field controller.

23 Accessories for Field Controller

23.1 Internal Batteries



733 269	**GEB211**	Lithium-Ion battery, 7.4V/2.2Ah, rechargeable. To be used with CS10/CS15 field controller or GS15 receiver.
772 806	**GEB212**	Lithium-Ion battery, 7.4V/2.6Ah, rechargeable. To be used with CS10/CS15 field controller or GS15 receiver.

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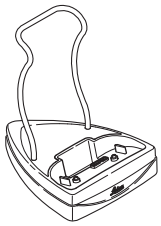
23.2 Docking Station



767 906	**CCS01**	Docking station for CS10 and CS15 field controller for charging and data transfer to PC, includes: GEV223 (USB A to USB mini data transfer cable).

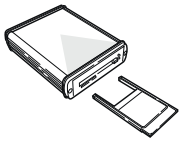
23.3 Additional Power Accessories

767 900	**GEV235**	1.5m power cable. Allows CS10/CS15 controller to be externally powered via the power jack. Usable in the EU.
773 753	**GEV235-1**	1.5m power cable. Allows CS10/CS15 controller to be externally powered via the power jack. Usable in the US.
773 754	**GEV235-2**	1.5m power cable. Allows CS10/CS15 controller to be externally powered via the power jack. Usable in Japan.
773 755	**GEV235-3**	1.5m power cable. Allows CS10/CS15 controller to be externally powered via the power jack. Usable in the UK.
773 756	**GEV235-4**	1.5m power cable. Allows CS10/CS15 controller to be externally powered via the power jack. Usable in Australia.
734 389	**GDC221**	Car adapter for the GKL221 charger. Allows the use of the GKL221 with a cigarette lighter; 12V/24V DC/DC converter. Can also be used to power CS10/CS15 field controller directly from a cigarette lighter.

23.4 Memory Devices

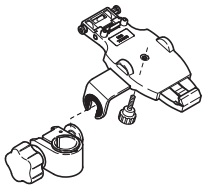
767 856	**MSD1000**	SD memory card 1GB for GS10/GS15 receiver and CS10/CS15 field controller.
733 257	**MCF256**	CompactFlash card 256MB for TPS instruments and CS10/CS15 field controller.
745 995	**MCF1000**	CompactFlash card 1GB for TPS instruments and CS10/CS15 field controller.
765 199	**MS1**	USB memory stick, 1GB, industrial grade.

23.5 Card Reader & Adapter



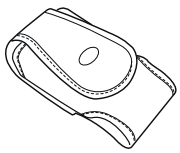
767 895	**MCR7**	Card reader for SD/CF cards.
733 258	**MCFAD1**	CompactFlash PC card adapter.

23.6 Pole Accessories for CS10/CS15 Field Controller



767 879	**GHT62**	Pole holder base plate for CS10 and CS15 field controller.
767 880	**GHT63**	Clamp arrangement for attaching the GHT62 to all poles.

23.7 Softbags and Hand Strap for CS10/CS15 Field Controller



Soft bags		
767 904	**GVP643**	Soft bag for CS10 field controller for transportation and protection against dirt. Including belt loop.
767 905	**GVP644**	Soft bag for CS15 field controller for transportation and protection against dirt. Including belt loop.
Hand strap		
767 877	**GHT61**	Hand strap for CS10 and CS15 field controller with utility hook for attaching to belt or tripod.

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SmartWorx Viva

24 SmartWorx Viva Software and Application Programs

24.1 SmartWorx Viva Software for CS10/CS15 Field Controller

767 908	SmartWorx Viva software and DVD.
767 910	SmartWorx Viva LT licence key. ☞ Requires 767 908 SmartWorx Viva software.
767 909	SmartWorx Viva licence key. ☞ Requires 767 908 SmartWorx Viva software.
767 911	SmartWorx Viva LT to SmartWorx Viva upgrade option.

24.2 Applications Included with SmartWorx Viva

	SmartWorx Viva	SmartWorx Viva LT
Survey includes:		
• Survey	●	●
• Code Points	●	●
• Auto points recording	●	○
• Hidden Points	●	-
RTK Base Setup includes:		
• Over known point	●	●
• Over last setup	●	●
• Over any point	●	●
☞ Requires RTK Reference option 767 816 LOP13 on GS10 or GS15.		
Stakeout includes:		
• Navigate to point using various methods: North, sun, point and line	●	○
• Quality control - checking of coordinate differences before storing	●	-
• Automatic selection of next closest point to stake	●	-
• Graphical selection of point from map	●	●
• Edit heights and offset heights of points	●	-
• Acoustic "reversing beep" when getting closer to point	●	-
COGO includes:		
• Inverse	●	●
• Traverse	●	●
• Intersections	●	●
• Line calculations	●	●
• Arc calculations	●	●
• Shift, Rotate & Scale (manual)	●	●
• Shift, Rotate & Scale (match Points)	●	●
Determine coordinate system:		
• 1 step, 2 step, 3D Transformation	●	●
• All common projections	●	●
Alignment Tool Kit:		
• Horizontal alignments	●	●
• Vertical alignments	●	●
• Cross sections	●	●
• Chainage equations	●	●
Data import: ASCII, DXF	●	●
Data export: Custom ASCII, DXF, LandXML, FBK, RW5, RAW	●	●

● All options and functionality available
○ Limited options and functionality
- Not available

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24.3 Additional SmartWorx Viva Software Packages

		SmartWorx Viva	SmartWorx Viva LT
767 913	**Worksite+ includes:** • DTM Stakeout application (767 919) • Reference Line application (767 915) • Survey Surface & Volumes application (767 920)	● ● ●	● ○ ●

● All options and functionality available
○ Limited options and functionality
- Not available

24.4 Optional Applications for SmartWorx Viva

		SmartWorx Viva	SmartWorx Viva LT
767 917	**COGO Area Division** Requires COGO application.	●	●
767 919	**DTM Stakeout** Requires Stakeout application.	●	●
767 915	**Reference Line**	●	○
767 916	**Reference Plane and Face Scan**	●	-
767 921	**RoadRunner**	●	○
767 923	**RoadRunner Rail**	●	-
770 640	**Seismic Stakeout**	●	-
767 918	**Survey Cross Section**	●	-
767 920	**Surface and Volumes**	●	●

● All options and functionality available
○ Limited options and functionality
- Not available

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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.

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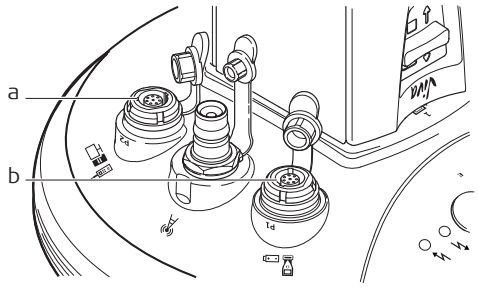
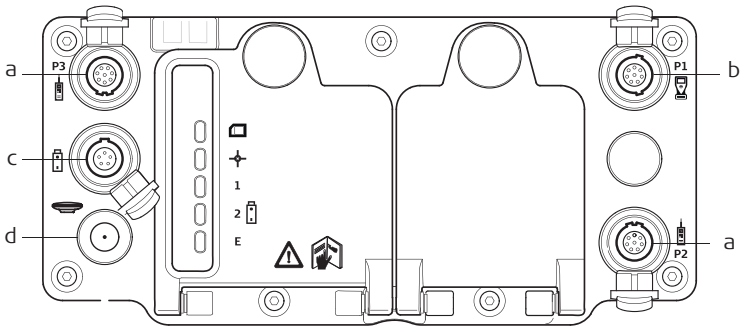
System Viva GNSS Cables Overview

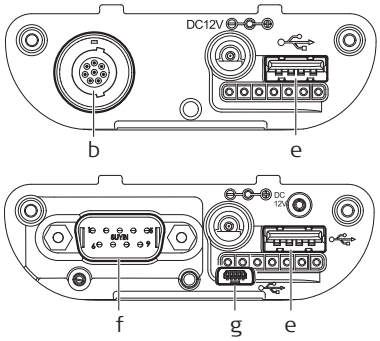
GS15 receiver



GS10 receiver



CS10/CS15 controller



a) Lemo1, 8pin, 30°
b) Lemo1, 8pin, 135°
c) Lemo1, 5pin, 30°
d) TNC connector
e) USB type A
f) RS232 serial, 9pin
g) Mini USB AB

Power cables

Art. no	Name	Connector 1	Connector 2	Description
560 130	GEV97	Lemo1, 5pin, 30°	Lemo1, 5pin, 30°	Length 1.8 m Allows GS10 (power port) to be externally powered.
758 469	GEV219	Lemo1, 8pin, 135°	Lemo1, 5pin, 30°	Length 1.8 m 1. Allows CS10/CS15 (with Lemo CBC01 connector module) to be externally powered via the Lemo port. 2. Allows GS10/GS15 (port 1) to be externally powered.
767 900	GEV235	Wall adapter	3mm barrel connector	Length 1.5 m Allows CS10/CS15 (with either connector modules) to be externally powered via the power jack. AC/DC wall adapter type is country specific.
439 038	GEV71	Crocodile clips	Lemo1, 5pin , 30° (female)	Length 4.0 m Allows powering of any device from car battery.

Y - power cables

Art. no	Name	Connector 1	Connector 2	Connector 3	Description
733 298	GEV172	Lemo1, 5pin	Lemo1, 5pin, 30°	Lemo1, 5pin, 30°	Length 2.8 m Allows GS10 (power port) to be externally powered by 2 external batteries.
756 365	GEV215	Lemo1, 8pin, 135°	Lemo1, 8pin, 135°	Lemo1, 5pin, 30°	Length 2.0 m Allows connection between CS10/CS15 (with Lemo CBC01 connector module) and GS10/GS15 (port 1) while being powered from the GEB171.
748 418	GEV205	Lemo1, 8pin, 135°	Lemo1, 8pin, 135° (female)	Lemo1, 5pin	Length 1.8 m Allows connection between GS10/GS15 (port 1), external radio in GFU1200 housing and GEB171 with GS and radio being externally powered.

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Radio programming cables

Art. no	Name	Connector 1	Connector 2	Connector 3	Description
767 803	GEV231	15pin (GS15 slot-in port) (female)	RS232 serial, 9pin	Lemo1, 5pin	Length 1.8 m Allows an SLR radio device to be externally powered and programmed by a PC.
733 297	GEV171	Lemo1, 8pin, 135° (female)	RS232 serial, 9pin	Lemo1, 5pin	Length 1.8 m Allows a radio within a GFU1200 device to be externally powered and programmed by a PC.

Radio cables

Art. no	Name	Connector 1	Connector 2	Description
767 897	GEV232	Lemo1, 8pin, 30°	Lemo1, 8pin, 30° (female)	Length 2.8 m Allows Sytem1200 GFU housings to be connected to a GS10 (port 2 and 3), or GS15 (port 2).
767 898	GEV233	Lemo1, 8pin, 30°	Lemo1, 8pin, 30° (female)	Length 0.8 m Allows Sytem1200 GFU housings to be connected to a GS10 (port 2 and 3), or GS15 (port 2).
639 968	GEV125	Lemo1, 8pin, 30°	15 pin, RS232 serial	Length 1.8 m Allows a Satelline modem (not inside housing) to be connected to a GS10 (port 2 and 3), or GS15 (port 2).

Serial data transfer cables

Art. no	Name	Connector 1	Connector 2	Description
733 280	GEV160	Lemo1, 8pin, 30°	RS232 serial, 9pin	Length 2.8 m Allows serial connection between GS10 (port 2 and 3), or GS15 (port 2) to PC to stream NMEA or RTK data.
733 282	GEV162	Lemo1, 8pin, 135°	RS232 serial, 9pin	Length 2.8 m 1. Allows serial connection between GS10/GS15 (port 1) to PC to stream NMEA or RTK data. 2. Allows serial connection between CS10/CS15 (with Lemo CBC01 connector module) and hidden point device, ASCII input device, PC etc.
733 283	GEV163	Lemo1, 8pin, 135°	Lemo1, 8pin, 135°	Length 1.8 m Allows serial connection between CS10/CS15 (with Lemo CBC01 connector module) and GS10/GS15 port 1.

USB to serial converter cables

Art. no	Name	Connector 1	Connector 2	Description
723 755	GEV195	Lemo1, 8pin, 30°	USB type A	Length 2.0 m Allows GS10 (port 2 and 3) or GS15 (port 2) to be connected to a PC where a serial connection is required, but no 9pin RS232 port physically exists on the PC. This cable allows a serial connection through the USB port of the PC to the CS or GS hardware.
758 468	GEV218	Lemo1, 8pin, 135°	USB type A	Length 2.0 m Allows CS10/CS15 (with Lemo CBC01 connector module) and GS10/GS15 port 1 to be connected to a PC where a serial connection is required, but no 9pin RS232 port physically exists on the PC. This cable allows a serial connection through the USB port of the PC to the GS hardware.

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USB data transfer cables

Art. no	Name	Connector 1	Connector 2	Description
767 899	GEV234	Lemo1, 8pin, 135°	USB type A	Length 1.65 m This cable replaces the older GEV161 cable. 1. Allows a CS10/CS15 (with 9pin serial CBC02 connector module) to connect to a GS10/GS15 (port 1). This is the cable needed for a cable connection needed between CS and GS when the CS is using the CBC02 connector module. 2. Allows a USB connection between the USB port of a PC to a GS10/GS15 (port 1). 3. Allows a USB connection between the USB port of a PC to a CS10/CS15 (with Lemo CBC01 connector module).
764 700	GEV223	USB type A	Mini USB type B	Length 1.8 m Allows USB data transfer between CS10/CS15 (both connector modules) and a PC.
772 807	GEV237	Lemo1, 8pin, 135°	Lemo1, 8pin, 135°	Length 1.65 m This cable replaces the older GEV173 cable. Allows a CS10/CS15 (with Lemo CBC01 connector module) to connect to a GS10/GS15 (port 1). This is the cable needed for a cable connection between CS and GS when the CS is using the CBC01 connector module.

Antenna cables for connecting GNSS antennas or RTK antennas

Art. no	Name	Connector 1	Connector 2	Description
667 200	GEV141	TNC connector	TNC connector	Length 1.2 m
667 201	GEV142	TNC connector	TNC connector (male)	Length 1.6 m Extension cable.
636 959	GEV120	TNC connector	TNC connector	Length 2.8 m
632 372	GEV119	TNC connector	TNC connector	Length 10 m
632 390	GEV108	TNC connector	TNC connector	Length 30 m
664 813	GEV134	TNC connector	TNC connector	Length 50 m

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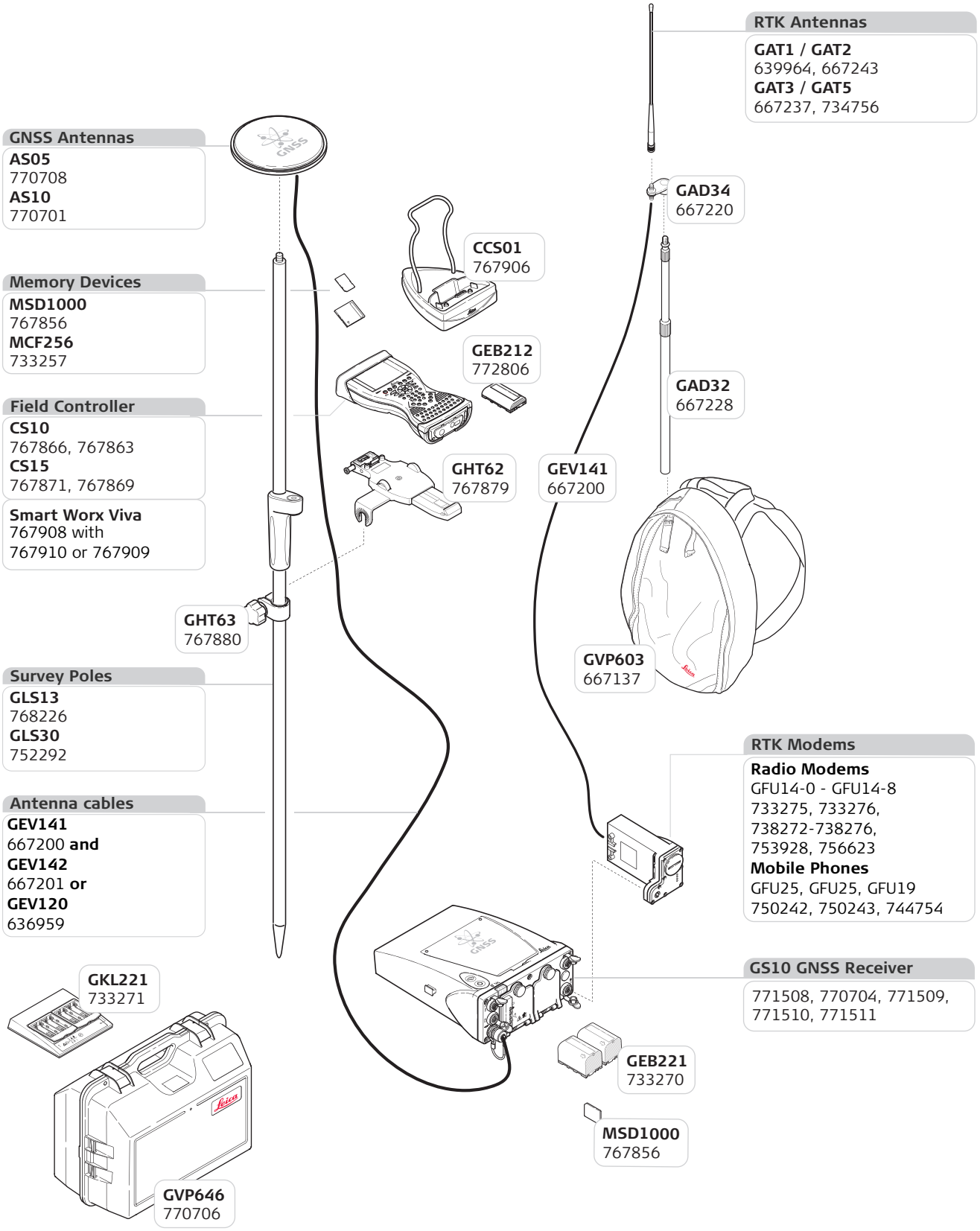
Suggested GNSS Setups

26 GS10 Real Time Rover- Pole plus Minipack



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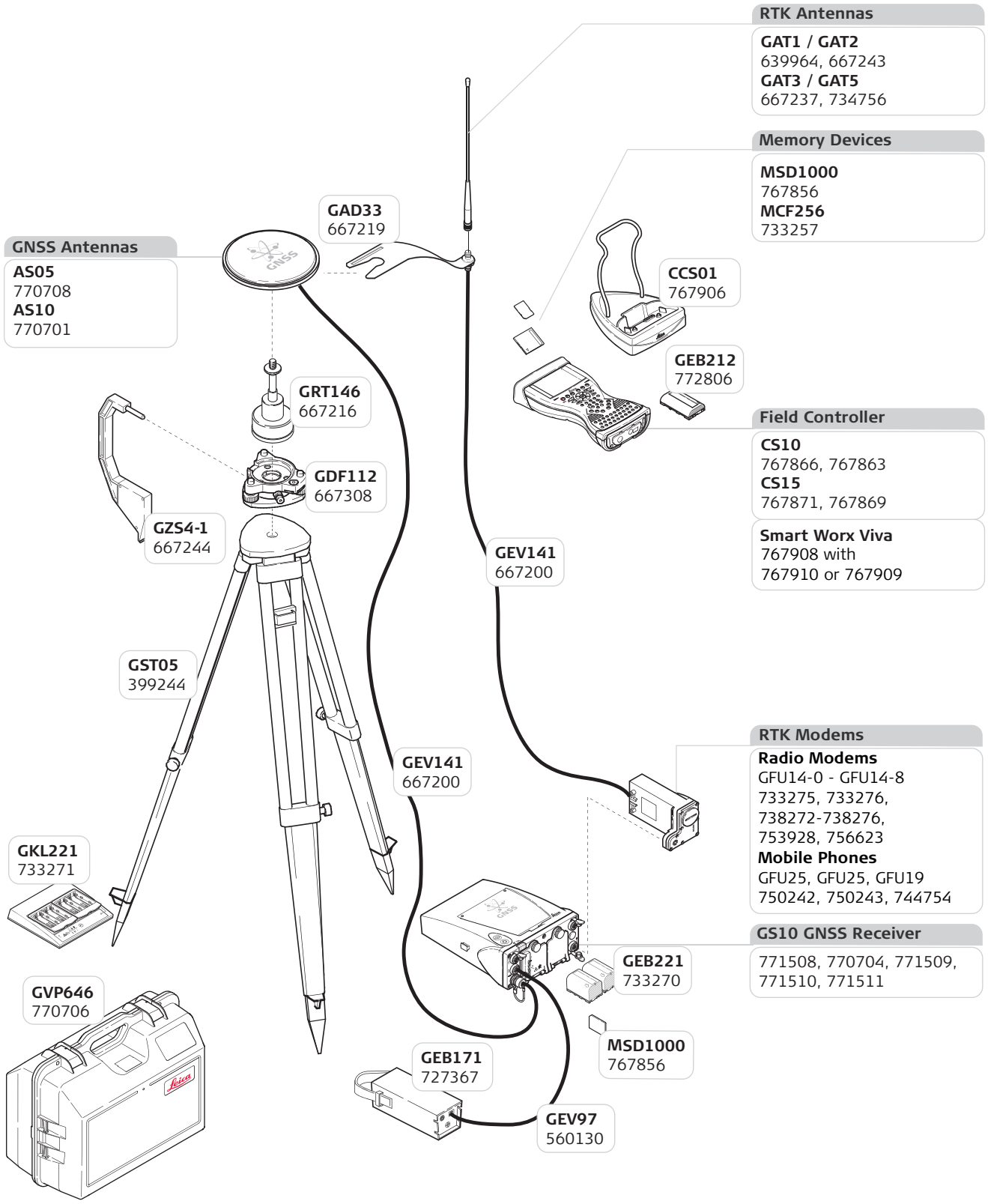
27 GS10 Real Time Reference - Tripod Setup

27.1 Using One Tripod



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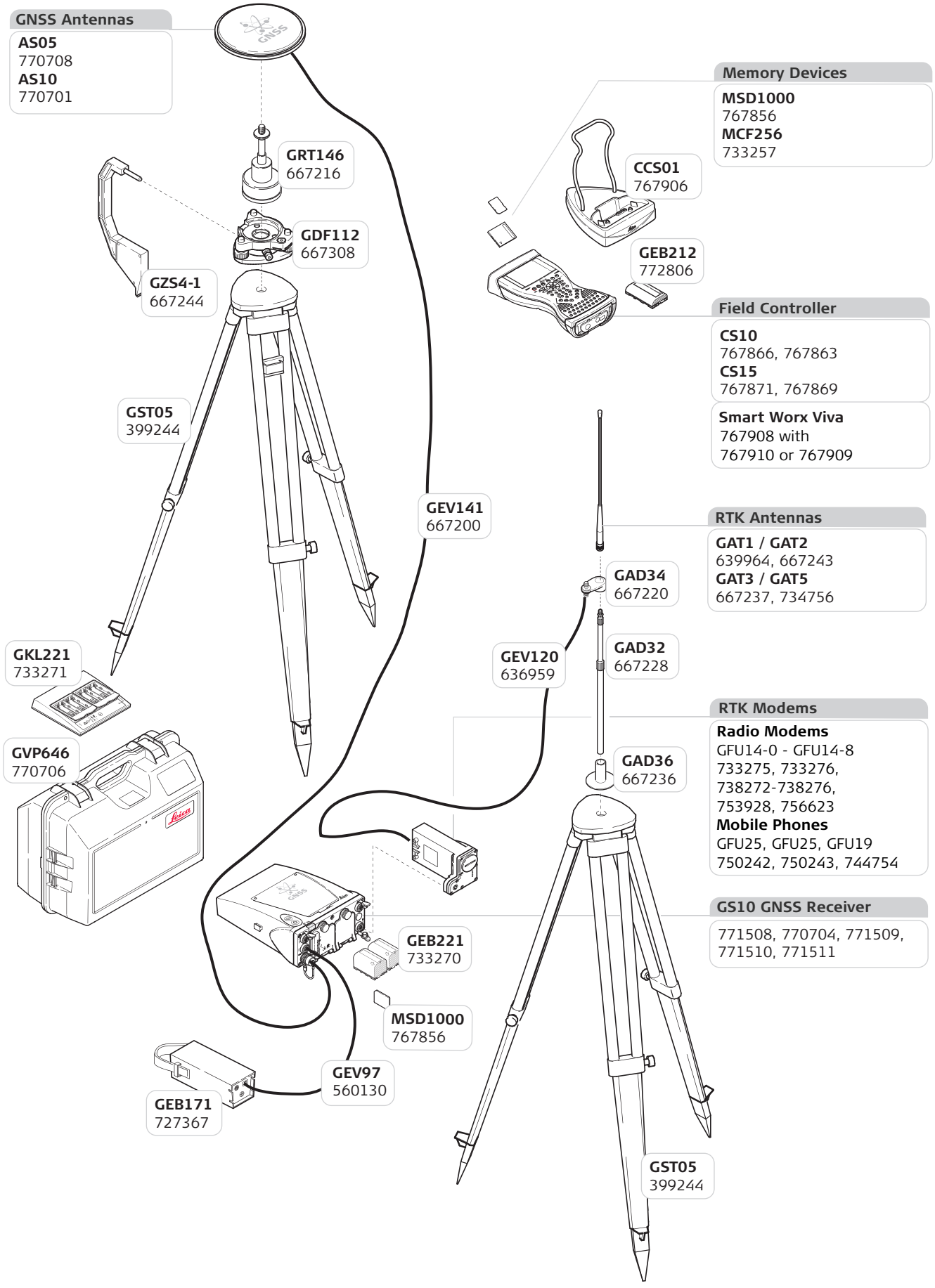
27.2 Using Two Tripods



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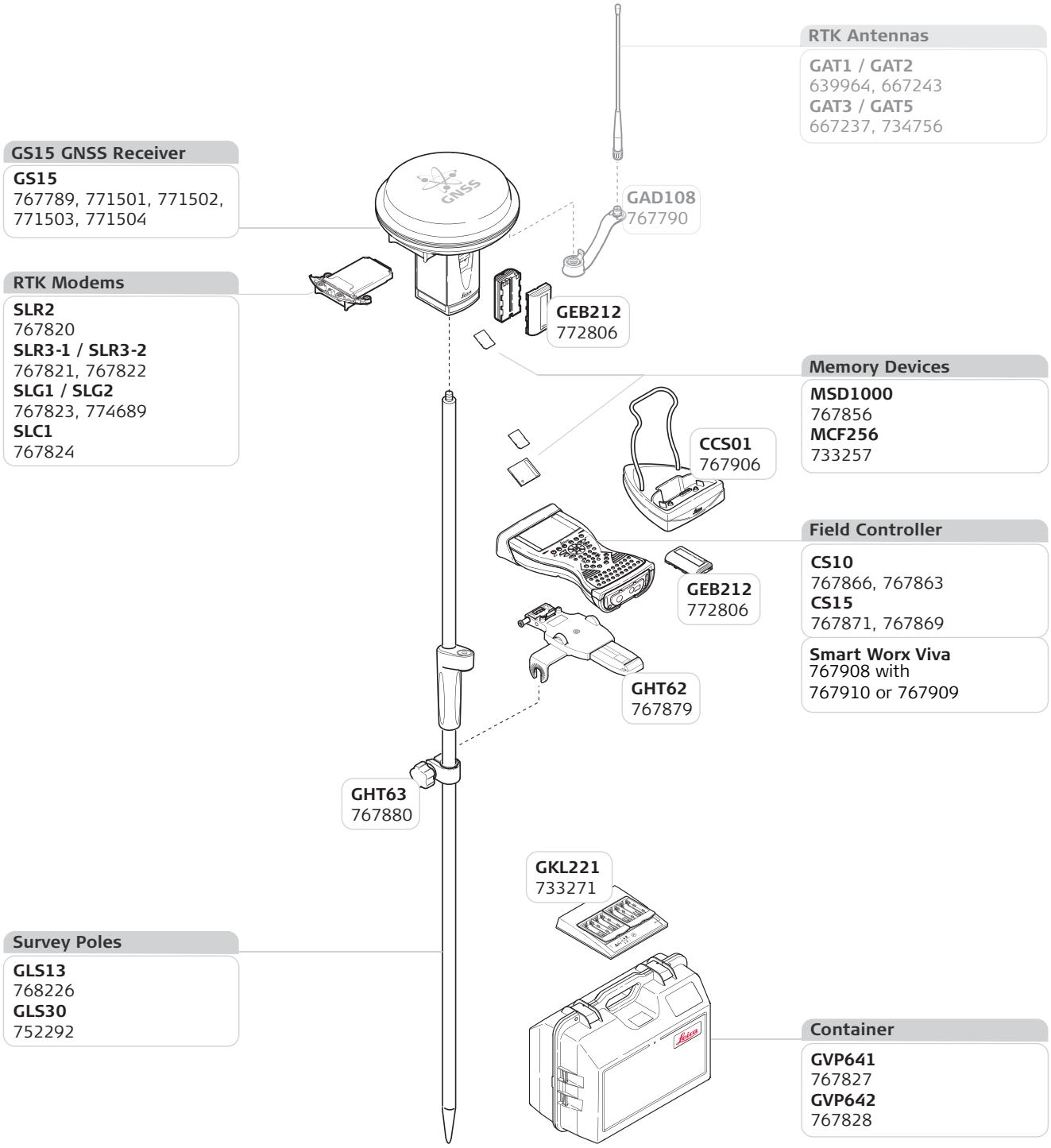
28 GS15 Real Time Rover



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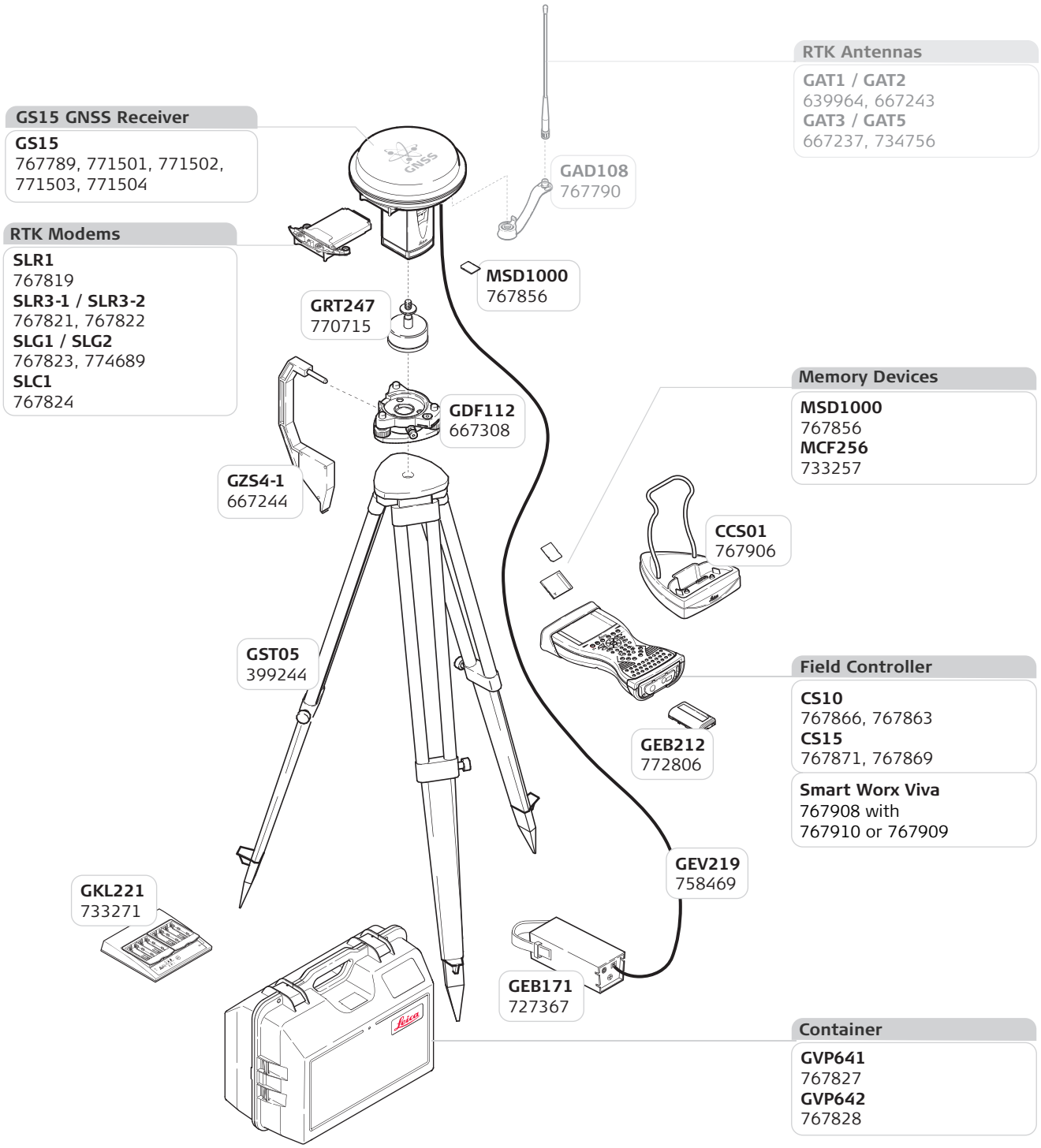
29 GS15 GNSS Real Time Reference - Tripod Setup

29.1 Using One Tripod



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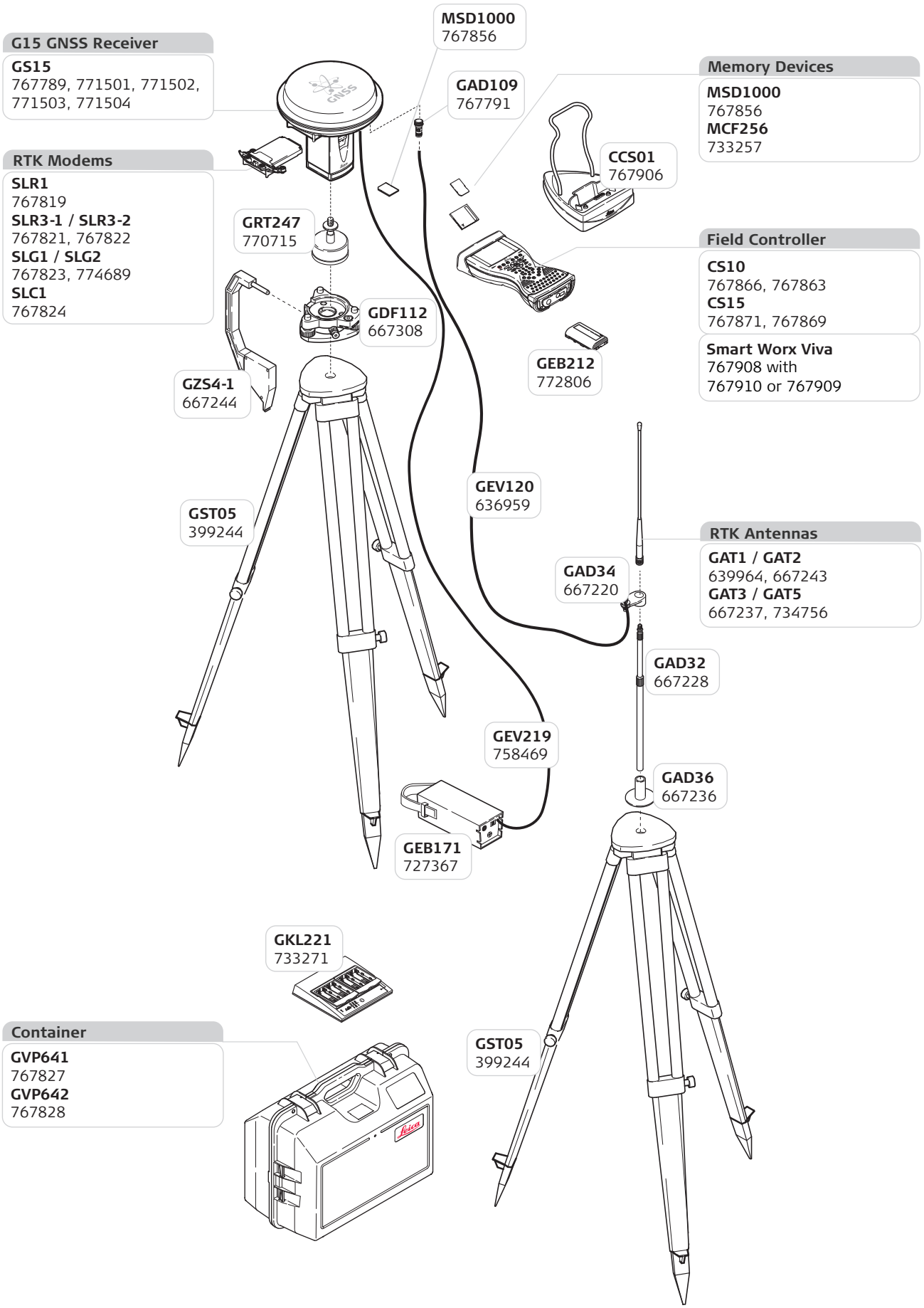
29.2 Using Two Tripods



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