

Leica GS09 GNSS Equipment List



- when it has to be **right**

Leica
Geosystems

Table of Contents

Leica GS09 GNSS	3
1 GS09 GNSS Receiver	3
2 CS09 Controller	3
2.1 CS09 Controller	3
2.2 Controller Options	3
2.3 Standard Applications	4
2.4 Optional Applications	4
Accessories	5
3 Power Supply	5
3.1 Batteries for GS09, CS09 and GHT56	5
3.2 Reference station battery	5
3.3 Professional Charger	5
3.4 Basic Charger	5
4 Data Storage and Data Transfer	5
4.1 CF Card for CS09	5
4.2 Card Reader & Adapter	5
4.3 Data Transfer Cables	5
5 Reference Setup Cables	6
6 Transport Container	6
7 Modems and Antennas	6
7.1 Satelline Radio Modems	6
7.2 Gainflex Radio Antennas	6
7.3 Mobile Phones	6
7.4 Antennas for Mobile Phones	7
8 Modem Accessories	7
8.1 Accessories for attaching Radio Antenna to GS09	7
8.2 Accessories for attaching Radio Antenna to Tripod	7
8.3 Cables for Satelline radio modems	7
9 Pole Setup	7
9.1 Poles	7
9.2 Holders	7
10 Tripod Setup	8
10.1 Tripods	8
10.2 Tribach	8
10.3 Carrier	8
10.4 Height Hook	8
10.5 Tripod Brackets	8
11 SmartStation Setup	9
11.1 SmartAntenna Adapter	9
11.2 Antennas for Radios and Mobile Phones	9
11.3 Transport Container	9
12 Customer Care Packages	9
Suggested Setups	11
13 Raw Data Logging	11
14 RTK Reference	12
15 RTK Rover	13

Leica GS09 GNSS

1 GS09 GNSS Receiver



769 646	GS09	GS09 SmartAntenna
---------	-------------	--------------------------

2 CS09 Controller

2.1 CS09 Controller



The controller can be connected to the GS09 with Bluetooth or can be connected using a cable.

769 647	CS09	WinCE controller with colour display, touch screen, CF card slot, alphanumeric keyboard, stylus for touch screen and user manual.
---------	-------------	---

2.2 Controller Options

776 909	GS09 Limited Option
776 908	GS09 Performance Option

	GS09 SmartAntenna	GS09 Limited	GS09 Performance
Supported GNSS Systems			
GPS L2	●	●	●
GLONASS	○	○	●
RTK performance			
RTCM/CMR	○	○	●
RTK up to 5km	○	●	●
RTK unlimited	○	○	●
Network RTK	○	○	●
Leica Lite RTK	○	●	●
Position update & data recording			
1Hz positioning	●	●	-
5Hz positioning	○	○	●
Raw data logging	○	●	●
Additional features			
RTK Reference Station functionality	●	●	●
SmartStation setup	●	●	●

- Standard
- Optional
- Not available

748 999	GSW637	RTK functionality with 5km baseline length and 1sec update rate.
759 165	GSW626	RTK functionality with unlimited baseline length and 1sec update rate.
776 906	GSW815	Upgrade from 5km to unlimited baseline length.
748 997	GSW538	RTK position and display update rate 0.2sec (5Hz).
749 623	GSW559	RTCM/CMR RTK data input.
759 166	GSW627	RTK Network access (includes unlimited baseline).
776 907	GSW816	Upgrade from RTK unlimited baseline length to Network access.
759 163	GSW624	GLONASS satellite tracking. Combined GLONASS functionality for GS09 RTK reference and rover.
759164	GSW625	Raw data logging (required for each setup).
769 649	GSW714	Bluetooth functionality for CS09. Allows the CS09 controller to connect to GSM phones by bluetooth.

2.3 Standard Applications

Setup Reference
GPS Resection
Survey
Stakeout
COGO
Determine Coordinate Systems
DXF Import
DXF Export
LandXML Export

2.4 Optional Applications

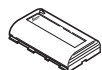
749 005	Reference Line
749 006	DTM Stakeout
754 871	RoadRunner
754 872	Volume Calculation

Accessories

3 Power Supply

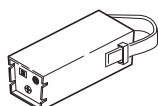
3.1 Batteries for GS09, CS09 and GHT56

One battery is required for the GS09 and one for the CS09.



733 269	GEB211	Lithium-Ion battery, 7.4V/2.2Ah, rechargeable.
772 806	GEB212	Lithium-Ion battery, 7.4V/2.6Ah, rechargeable.

3.2 Reference station battery



727 367	GEB171	External universal battery, NiMH, 12V/9.0Ah, rechargeable.
---------	---------------	--

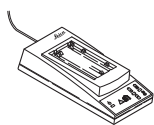
3.3 Professional Charger

Recommended model for all Leica batteries. Will charge 4 GEB211 or GEB212 plug-in batteries and 1 GEB171 external battery.



733 271	GKL221	Charger PRO. To be used with up to two charging adapters. Charger cable for GEB171 battery is included.
733 323	GDI221	Charging adapter for GKL221 for charging two Li-Ion batteries.
734 389	GDC221	Car adapter for the GKL221 charger. Allows the use of the GKL221 with a cigarette lighter; 12V/24V DC/DC converter.

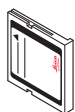
3.4 Basic Charger



734 752	GKL211	Charger BASIC, for Li-Ion batteries GEB211 and GEB212. Car adapter cable and mains adapter included.
---------	---------------	--

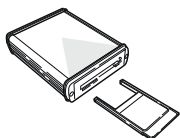
4 Data Storage and Data Transfer

4.1 CF Card for CS09



733 257	MCF256	CompactFlash card 256MB.
745 995	MCF1000	CompactFlash card 1GB.

4.2 Card Reader & Adapter



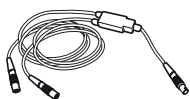
767 895	MCR7	Card reader for SD/CF cards.
733 258	MCFAD1	CompactFlash PC card adapter.

4.3 Data Transfer Cables



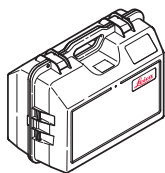
767 899	GEV234	USB Data transfer cable, 1.65m. Connects CS09 to PC for data transfer, firmware upload etc. Lemo to USB connector.
772 807	GEV237	1.65m cable to connect GS09 SmartAntenna with CS09 controller.

5 Reference Setup Cables



748 418	GEV205	Y-Cable for RTK reference setup. Connects GS09 SmartAntenna with a GEB171 external battery and a radio in a Leica GFU radio housing.
756 365	GEV215	Y-cable for raw data logging setup. Connects CS09 controller and GS09 Smart-Antenna with a GEB171 external battery.
439 038	GEV71	4m car battery cable, connects all battery cables to 12V car battery.

6 Transport Container

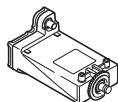


753 895	GVP639	Hard container for two GS09 antennas, CS09 controller, GHT56 holder, two GFU modems and accessories.
---------	---------------	--

7 Modems and Antennas

7.1 Satellite Radio Modems

Select one for the RTK rover or reference according to the required frequency



Satellite modems

733 275	GFU14-0	Satellite 3AS radio modem (433.525MHz, 25.0kHz channel spacing, 0.5W) already intergrated into housing.
733 276	GFU14-1	Satellite 3AS radio modem (406.425MHz, 25.0kHz channel spacing, 1.0W) already intergrated into housing.
738 272	GFU14-2	Satellite 3AS radio modem (445.000MHz, 12.5kHz channel spacing, 1.0W) already intergrated into housing.
738 273	GFU14-3	Satellite 3AS radio modem (443.000MHz, 12.5kHz channel spacing, 1.0W) already intergrated into housing.
738 274	GFU14-4	Satellite 3AS radio modem (440.550MHz, 25.0kHz channel spacing, 0.5W) already intergrated into housing.
738 275	GFU14-5	Satellite 3AS radio modem (458.150MHz, 12.5kHz channel spacing, 1.0W) already intergrated into housing.
738 276	GFU14-6	Satellite 3AS radio modem (439.8625MHz, 12.5kHz channel spacing, 1.0W) already intergrated into housing.
753 928	GFU14-7	Satellite 3AS radio modem (464.5000MHz, 25.0kHz channel spacing, 1.0W) already intergrated into housing.
756 623	GFU14-8	Satellite 3AS radio modem (458.6000MHz, 25.0kHz channel spacing, 0.5W) already intergrated into housing.

7.2 Gainflex Radio Antennas

Select according to frequency of radio modem.

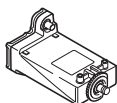


639 964	GAT1	Gainflex radio antenna, frequency range 400-435MHz.
667 243	GAT2	Gainflex radio antenna, frequency range 435-470MHz.



Intuicom, PacificCrest and IFR radio modems in GFU housings can also be used together with GS09.

7.3 Mobile Phones



750 242	GFU24	Housing with Siemens MC75 GSM/GPRS module (Quad-Band GSM 850/900/1800/1900 MHz), fits on GHT56.
750 243	GFU25	CDMA cellular phone for Canada, Multitech MTMMC-C-N12 for Bell mobility network, integrated into housing, fits on GHT56.
744 754	GFU19	US CDMA cellular phone Multitech MTMMC-C-N3 for Verizon network; intergrated into housing, fits on GHT56.

7.4 Antennas for Mobile Phones



667 237	GAT3	Antenna for 900/1800 MHz mobile network.
734 756	GAT5	Antenna for US mobile network (800/1900MHz)

8 Modem Accessories

8.1 Accessories for attaching Radio Antenna to GS09

667 200	GEV141	1.2m antenna cable.
667 219	GAD33	Arm 15cm long, attaches to GPS antenna. Gainflex antenna fits on arm. Antenna cable connects to arm.

8.2 Accessories for attaching Radio Antenna to Tripod

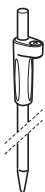
639 959	GEV120	2.8m antenna cable.
667 228	GAD32	Telescopic rod with 5/8" screw. Fits on base GHT36.
667 220	GAD34	Arm 3cm long, screws on telescopic rod. Gainflex antenna fits on arm. Antenna cable connects to arm.
667 236	GHT36	Base with 5/8" screw, for setting up telescopic rod on tripod.

8.3 Cables for Satellite radio modems

733 297	GEV171	1.8m cable to program, the Sateline 3AS radio modem inside the GFU14 housing.
762 026	GEV221	Y-cable, connects Sateline 3AS Epic Pro (10W) to GS09 and 12V car battery.

9 Pole Setup

9.1 Poles



768 226	GLS13	GPS telescopic pole, aluminium, with circular bubble, snap-locks at 2.00m and 1.80m for GNSS antennas.
752 292	GLS30	GPS telescopic carbon-fibre pole with circular bubble and 5/8" screw, snap-locks at 2.00m and 1.80m.

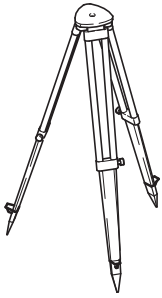
9.2 Holders



733 264	GHT39	Holder for CS09 controller.
747 096	GHT56	Holder for CS09 controller and GFU modem.
767 880	GHT63	Clamp arrangement for attaching the GHT39 or GHT56 to all GLS poles.
767 896	GHT64	Holder for GFU radios. Attaches to all GPS poles.

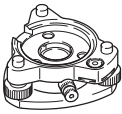
10 Tripod Setup

10.1 Tripods



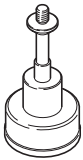
399 244	GST05	Wooden Tripod with polymer coating.
563 630	GST05L	Aluminium-Tripod.

10.2 Tribrach



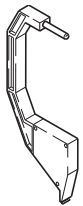
667 308	GDF112	BASIC Tribrach, with optical plummet, pale green/red.
---------	---------------	---

10.3 Carrier



667 216	GRT146	Carrier with 5/8" screw, GNSS antenna screws on directly.
---------	---------------	---

10.4 Height Hook



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

10.5 Tripod Brackets

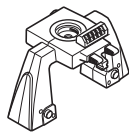


733 266	GHT41	Hand strap for CS09 controller with utility hook for attaching to belt or tripod.
748 417	GHT58	Bracket to mount a radio built into the Leica GFU radio housing on a tripod.

11 SmartStation Setup

 The GS09 antenna can be mounted on any TPS1200+ or TS30 for SmartStation operation.

11.1 SmartAntenna Adapter



741 965	GAD104	SmartAntenna Adapter. Required to attach SmartAntenna and/or radio modem in GFU housing onto TPS1200+/TS30/TM30.
		Requires communication side cover.

11.2 Antennas for Radios and Mobile Phones



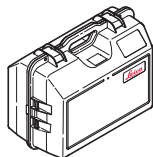
Antennas for radio modems

743 281	GAT1201	Antenna for radio modem for use with SmartStation (400-435MHz).
743 282	GAT1202	Antenna for radio modem for use with SmartStation (435-470MHz).

Antennas for mobile phones

743 283	GAT1203	Antenna for 900/1800MHz mobile network for use with SmartStation.
743 284	GAT1204	Antenna for US mobile network (800/1900MHz) for use with SmartStation.

11.3 Transport Container



754 598	GVP640	Hard container for GS09 SmartAntenna sensor in combination with TPS1200+ as SmartStation.
---------	---------------	---

Care Packages

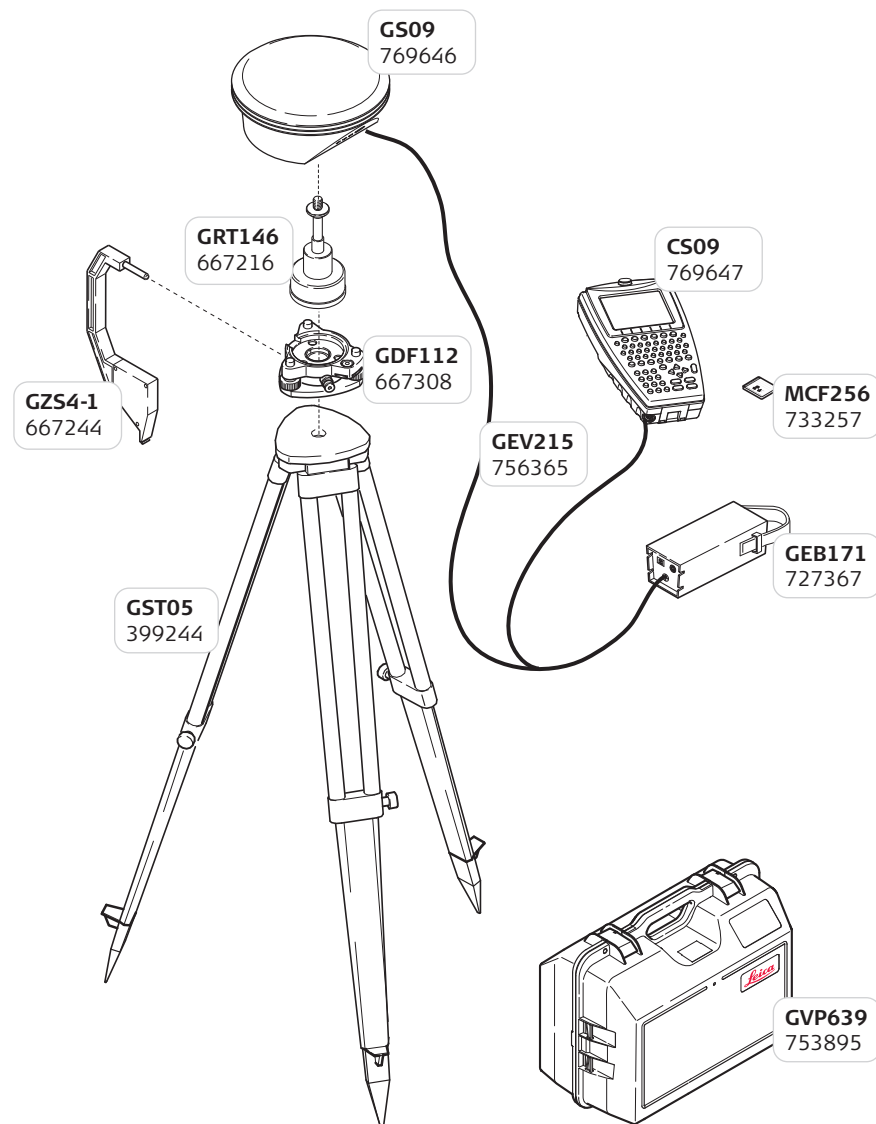
12 Customer Care Packages



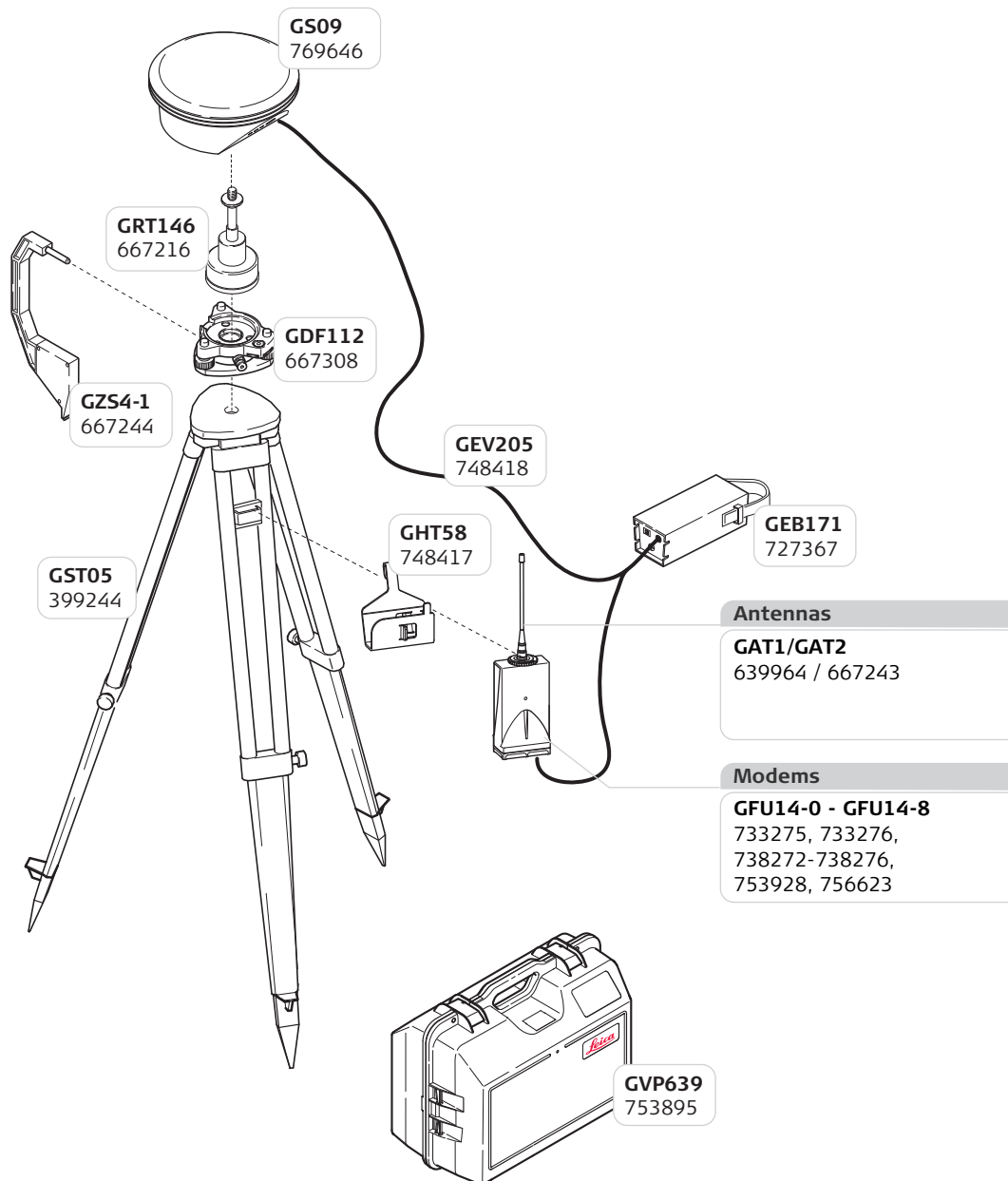
A wide selection of comprehensive Customer Care Packages (CCPs) is available bundling Hardware Maintenance, Software Maintenance, Customer Support and Extended Warranty.
For more information about the CCP offering in your country please contact your local Leica Geosystems organization or distribution partner.

Suggested Setups

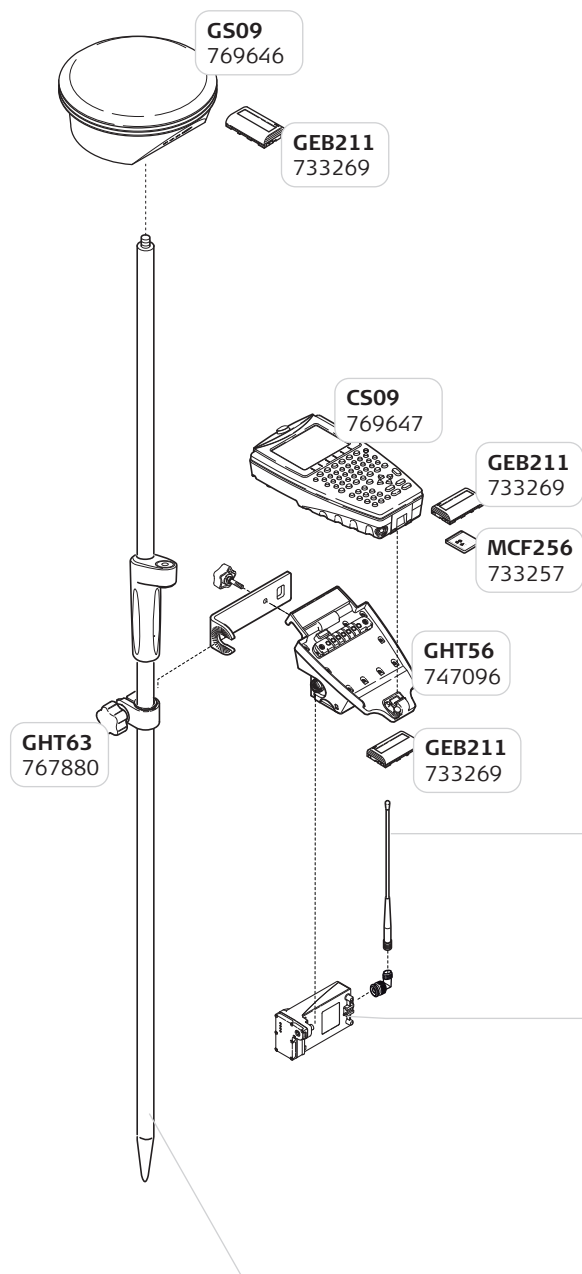
13 Raw Data Logging



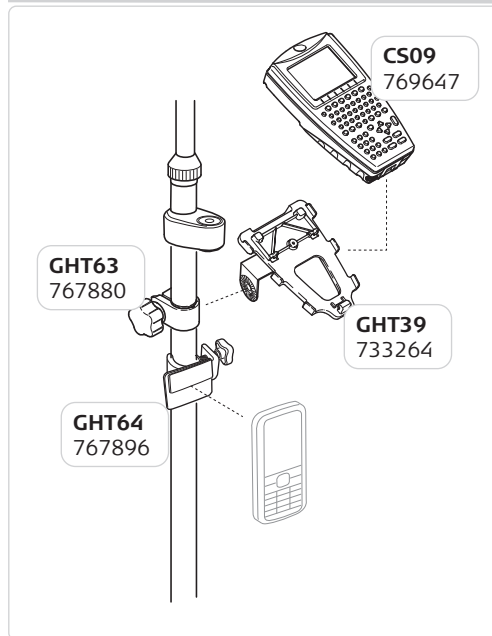
14 RTK Reference



15 RTK Rover



GSM Pole Setup



Antennas

GAT1/GAT2
639964 / 667243
GAT3/GAT5
667237 / 734756

Modems

GFU14-0 - GFU14-8
733275, 733276,
738272-738276,
753928, 756623
GFU24/GFU25/GFU19
750242 / 750243 / 744754

Poles

GLS13
768226
GLS30
752292

Whether you want to determine the area of a parcel of land or you need to stake out objects on a construction site; whether you want to capture data for infrastructure documentation or you need to carry out indoor surveys - Leica Geosystems' surveying instruments provide the right solution for every application.

Leica Geosystems' products and solutions combine user-friendly operation and reliable results. They are designed to meet your specific requirements. Modern technology enables you to work fast and productively, thanks to the clearly structured range of functions and intuitively usable onboard applications.

When it has to be right.



**Total Quality Management -
our commitment to total
customer satisfaction.**

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

The **Bluetooth®** word mark and
logos are owned by Bluetooth
SIG, Inc. and any use of such
marks by Leica Geosystems AG is
under license. Other trademarks
and trade names are those of
their respective owners.

CompactFlash and CF are
trademarks of SanDisk
Corporation.

Windows CE is a registered
trademark of Microsoft
Corporation.

Illustrations, descriptions and technical specifications are not binding and may change.
Printed in Switzerland - Copyright Leica Geosystems AG, Heerbrugg, Switzerland, 2009.
774761en - IX.09

Leica Geosystems AG
Heinrich-Wild-Strasse
CH-9435 Heerbrugg
Switzerland
Phone +41 71 727 31 31
www.leica-geosystems.com

- when it has to be **right**

Leica
Geosystems