

# Leica iCON gps 60

## Smart positioning on any construction site



Leica iCON gps 60 is a versatile SmartAntenna for all construction positioning tasks. Featuring superior GNSS technology and various integrated communication options, it meets all your requirements for reliable and accurate measurements. Its intuitive display shows full status information of the instrument, simplifying operation and configuration. Leica iCON gps 60 also offers exceptional network capabilities allowing you to use RTK network services (Leica SmartNet and other networks) for highly reliable, improved GPS positions.

- Superior GNSS Technology for maximum accuracy and reliability. Features Leica SmartTrack+ and SmartCheck+ and Leica xRTK.
- Future-proof satellite tracking. Works with all existing and future satellite systems.
- SmartLink – bridges RTK communication gaps up to 10 minutes
- Multi-purpose GPS solution. Can be used as construction site GNSS Base, Rover or NetRover, in supervisor vehicle on site and entry level machine control mounted inside a machine to increase machine productivity
- Unique communication flexibility, featuring integrated radio, modem and Bluetooth®.
- System integration made easy through use of platform independent SDK (Software Development Kit) bringing swift configuration to all
- Integrated NTRIP Server and Caster for Internet based Reference Station.
- No controller required for base station set-up means you need less hardware.
- Unique flexible software licencing and feature upgrade concept. You can order packages or individual licences when you need them, investing when you need to.

[leica-geosystems.com](http://leica-geosystems.com)



- when it has to be **right**

**Leica**  
Geosystems

# Leica iCON gps 60

## One instrument for many tasks



Perform many positioning tasks yourself, easily and quickly. Check grade or cut & fill, stake-out points and lines and as built check.



Leica iCON gps 60 is the perfect mobile base station for your construction site. You don't need a controller for base station set-up. Stream corrections over the Internet without Radio.



Save time and increase your productivity monitoring the grade from your supervisor vehicle on site.



Use Leica iCON gps 60 for easy, single grade machine control applications, further increasing the value of the product and your investment.

### Leica iCON gps 60 SmartAntenna

	Leica iCG60 Entry	Leica iCG60 Vehicle	Leica iCG60 Base	Leica iCG60 Network	Leica iCG60 Performance	Leica iCG60 Advanced
<b>SUPPORTED GNSS SYSTEMS</b>						
GPS L2	•	✓	✓	✓	✓	✓
GLONASS	•	✓	•	•	✓	✓
GPS L5	•	•	•	•	•	✓
Galileo	•	•	•	•	•	✓
BeiDou	•	•	•	•	•	✓
<b>RTK PERFORMANCE</b>						
Low accuracy RTK (50/2)	•	✓	•	✓	✓	✓
High accuracy RTK	•	•	•	✓	✓	✓
RTK unlimited	•	✓	•	✓	✓	✓
Network RTK	•	✓	•	✓	✓	✓
SmartLink Fill	•	•	•	•	•	✓
<b>POSITION UPDATE &amp; DATA RECORDING</b>						
10 Hz positioning	•	✓	✓	✓	✓	✓
20 Hz positioning	•	•	•	•	•	✓
Raw data RINEX logging	•	•	✓	•	✓	✓
NMEA Output	•	•	•	•	•	✓
<b>ADDITIONAL FEATURES</b>						
RTK Reference Station functionality	•	•	✓	•	✓	✓
Leica ConX	•	•	•	•	•	•

✓ Standard / • Optional

<b>GNSS PERFORMANCE</b>	GNSS technology	Leica patented SmartTrack+ technology: • Advanced measurement engine • Jamming resistant measurements • High precision pulse aperture multipath correlator for pseudorange measurements • Minimum acquisition time
	Number of channels	555 channels
	Maximum simultaneous tracked satellites	Up to 60 satellites simultaneously on two frequencies
	Satellite signals tracking	• GPS: L1, L2, L2C, L5 • GLONASS: L1, L2 • Galileo (Test): GIOVE-A, GIOVE-B • Galileo: E1, E5a, E5b, Alt-BOC • BeiDou B1, B2
	GNSS measurements	Fully independent code and phase measurements of all frequencies: • GPS: carrier phase full wave length, Code (C/A, P, C Code) • GLONASS: carrier phase full wave length, Code (C/A, P narrow Code) • Galileo: carrier phase full wave length, Code • BeiDou: carrier phase full wave length, Code
<b>GNSS ANTENNA</b>	Reacquisition time	< 1 sec
	GNSS antenna options	• Fully integrated GNSS antenna • External GNSS antenna connector (Type TNC)
	External GNSS antenna options	• CGA60: GPS L1/L2/L5, GLONASS L1/L2, Galileo E1, E5a, E5b, Alt-BOC, BeiDou B1, B2
<b>MEASUREMENT PERFORMANCE &amp; ACCURACY</b>	<b>Accuracy (rms) with real-time (RTK)<sup>1)</sup></b>	
	Single baseline (< 30km)	Horizontal: 8 mm + 1 ppm (rms), Vertical: 15 mm + 1 ppm (rms)
	<b>Accuracy (rms) with post processing<sup>1)</sup></b>	
	Static (phase) with long observations	Horizontal: 3 mm + 0.5 ppm (rms), Vertical: 3.5 mm + 0.5 ppm (rms)
	Static and rapid static (phase)	Horizontal: 3 mm + 1 ppm (rms), Vertical: 5 mm + 1 ppm (rms)
	<b>On-the-fly (OTF) initialisation</b>	
	RTK technology	Leica SmartCheck+ technology
	Reliability of OTF initialisation	Better than 99,99%
	Time for initialisation	Typically 4 sec <sup>2)</sup>
	<b>Network RTK</b>	
	Network technology	Leica SmartRTK technology
	Supported RTK network solutions	iMAX, VRS, FKP
	Supported RTK network standards	MAC (Master Auxiliary Concept) approved by RTCM SC 104
	<b>HARDWARE</b>	<b>Weight &amp; Dimensions</b>
Weight (iCG60)		1450 g (3.19 lb)
Weight		3200g (7,05 lb) Standard RTK Network Rover, incl. iCG60, CC80 Controller with Bracket, Pole, Battery
Dimensions		197 mm x 197 mm x 130 mm (7,76 in x 7,76 in x 5,12 in)
<b>Environmental specifications</b>		
Operating temperature		-40°C to +60°C (-40°F to +140 °F)
Storage temperature		-40°C to +85°C (-40°F to +185°F)
Humidity		100%, compliance with ISO9022-12-04 and MIL STD 810F – 507.4-I
Proof against: water, sand and dust		IP67 according IEC60529 and MIL STD 810F – 506.4-I, MIL STD 810F – 510.4-I and MIL STD 810F – 512.4-I, Protected against blowing rain and dust, Protected against temporary submersion into water (max. depth 1 m)
Vibration		MIL-STD-810F, Figure 514.5C-3
Shock		40g - 6msec; compliance ISO 9022-31-06, No loss of lock to satellite signal when used on a pole set-up and submitted to pole bumps up to 150 mm
Drops		Withstands 1.2 m drop onto hard surfaces
Topple over		Withstands topple over from a 2m pole onto hard surfaces
<b>Power &amp; Electrical</b>		
Supply voltage		Nominal 24 V DC, Range 9.0 – 28 V DC
Power consumption		Typically 6 W
Internal power supply		1x recharge & removable Li-Ion battery, 2.6 Ah, 4.4 Ah or 6.0 Ah / 7.4 V, fit into receiver
Internal power supply, operation time		• 5:20 h receiving RTK data with standard radio <sup>3)</sup> • 4:40 h transmitting RTK data with standard radio <sup>3)</sup> • 5:00 h RTK via built-in HSPA connection <sup>3)</sup>
External power supply		Rechargeable external NiMh battery 9 Ah / 12 V; with voltage peak protection, Fullfils EN13309
Certifications		Compliance to: FCC/IC Class B, CE, EN13309, RCM, ARIB STD-T66, RoHS, WEEE, ACPEIP
<b>MEMORY &amp; DATA RECORDING</b>		<b>Memory</b>
	Internal memory	Built-in memory, 466 MB
	Data capacity	466 MB is typically sufficient for about GPS & GLONASS (8+4 satellites) 3'100 h raw data logging at 15 s rate
	<b>Data recording</b>	
	Type of data	Onboard recording of RINEX data
Recording rate	Up to 20 Hz	



<b>INTERFACE</b>	Buttons	• ON / OFF button • 6 function buttons (arrow keys – up/down/left/right, Enter, Esc)
	Display	High resolution, 1.8" gray scale display with adjustable backlight: • Provides full receiver status on main screen (position, satellite, radio, modem, battery, Bluetooth®, telematics, memory) • Several submenus for additional details • Various configurations in submenus, e.g. radio channel • Start Base Station with "Here" or type in coordinate • Start and configure raw data logging
	LED status indicator	1 x LED for detailed power status
	Additional functionality	BasePilot functionality (stores up to different 100 base station locations and configurations for quick daily start up without user interaction)
<b>COMMUNICATION</b>	Communication ports	1x serial RS232 Lemo, PWR in, 12V PWR out 1x USB Host 1x UART serial & USB (for removable internal RTK devices) 1x TNC for external GNSS Antenna 1x Bluetooth® port, Bluetooth® v2.00+ EDR, class 2
	Number of simultaneous data links	Up to 3 real-time output interfaces via independent ports, providing identical or different RTK/RTCM formats
	<b>Built In data links</b>	
	Radio modems	• Optional additional fully integrated, fully sealed receive / transmit radios • User exchangeable device • SATEL M3 TR4: 403 – 470 MHz; up to 1.0 W output power; Pac-crest 4FSK; GMSK & FST; Trimble T & P; Satel 3AS, 8FSK & 16FSK modulation • Intuicom; 902 – 928 MHz (license free in North America); up to 1.0 W output power
	Radio modem antenna	External antenna connector (Type QN)
	4G LTE / 3G DC-HSPA+ / HSPA+ / HSPA / UMTS (WCDMA)	• Built-in cellular modem as default • User exchangeable SIM card • 5-Band LTE: Band 1, 3, 7, 8, 20 • 6-Band DC-HSPA+ / HSPA+ / HSPA / UMTS (WCDMA): Band 1, 2, 3, 4, 5, 8 • Up to 100 mbps downlink speed
	4G LTE / 3G HSPA / UMTS / GSM cellular modem antenna	Integrated GSM / UMTS / HSPA / LTE antenna
	<b>External data links</b>	
	Radio modems	• Support of any suitable serial RS232 UHF / VHF radios
	<b>Communication protocols</b>	
	Real-time data formats for data transmission	Leica, Leica 4G, CMR, RTCM 3.1, RTCM 3.2 MSM 3 & 5
	Real-time data formats for data reception	Leica, Leica 4G, Leica Lite, CMR, CMR+, RTCM v2.3, RTCM 3.1, RTCM 3.2 MSMx 3 & 5
Web based protocol	NTRIP: receive network corrections; built-in NTRIP Server and Caster to stream local corrections to multiple RTK rovers	



**Leica iCON site/  
iCON build**  
Easy-to-use construction field software. Designed for construction workers.



**Leica iCON CC80**  
Robust, extremely lightweight tablet with multi-touchscreen and versatile communication capabilities.



**Leica iCON  
gps 70 T**  
Ultimate GNSS Rover delivering permanent tilt compensation and resistance to magnetic interferences.



**Leica iCON gps 80**  
Versatile and powerful GNSS receiver combined with CGA60 GNSS antennas for increased performance of your iCON machine control solution.