Leica iCON gps 100
Basic-Level
3D Machine Control

The Leica iCON gps 100 GNSS machine receiver is your first step into machine-control solutions for compact machines!
Machine efficiency is no longer a privilege reserved for the big machines. The Leica iCON gps 100 GNSS machine receiver is an ideal first step towards machine control, allowing you to increase the machine uptime and productivity of your small and medium-sized earthmoving machines. In combination with the CGA100 multifrequency antenna, compact excavators benefit from guidance functionality that reduces errors and operator fatigue while increasing machine utilisation.

Customer Benefits

- Simple and clean installation with minimal number of parts and cables, thanks to the automotive Ethernet support.
- Invest only in what you need and easily upgrade the solution with the CR50 external communication unit.
- Web interface for convenient access for software configuration.
- Seamless integration into the iCON site software enables the use of existing iCON solutions with a simple software upgrade.
- SmartLink Fill bridges RTK connection gaps for up to 10 minutes, increasing machine uptime.

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Leica Geosystems

The ideal entry to efficiency

For your compact earthmoving machines

Leica iCON gps 100 GNSS Machine Control Receiver

	SUPPORTED GNSS SYSTEMS				RTK PERFORMANCE			POSITION UPDATE & DATA RECORDING	ADDITIONAL FEATURES	
	Dual-frequency (L1, L2)	GLONASS	Galileo	BeiDou	RTK Unlimited	Network RTK	SmartLink Fill	20 Hz Positioning	NMEA out	Dual Positioning & Precise Heading
Dual GNSS	✔	✔	•	•	✔	✔	•	•	•	✔

✔ Standard / • Optional

Compact size that allows easy and flexible installation.

Web interface provides easy remote access for configuration and updates.

Seamless integration into existing iCON site software.

The optional CR50 communication unit can be used as site conditions require.

LEICA ICON GPS 100 TECHNICAL INFORMATION

MEASUREMENT PERFORMANCE & ACCURACY	
Accuracy (rms) with real-time (RTK)[1)]	
Standard of compliance	Compliance with ISO17123-8
Single baseline (< 30km)	Horizontal: 8 mm + 1 ppm (rms), Vertical: 15 mm + 1 ppm (rms)
Heading accuracy (rms)[1)]	
Dynamic RTK positioning accuracy, after initialisation	Antenna separation 1 m: < 0.18°, Antenna separation 2 m: < 0.09°, Antenna separation 5 m: < 0.05°
On-the-fly (OTF) initialisation	
RTK technology	Leica SmartCheck+ technology
Reliability of OTF initialisation	Better than 99,99%[1)]
Time for initalisation	Typically 4 sec[2)]
Network RTK	
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
GNSS PERFORMANCE	
GNSS technology	Leica patented SmartTrack+ technology: • Advanced measurement engine(s) • Jamming resistant measurements • High-precision pulse aperture multipath correlator for pseudorange measurements • Excellent low elevation tracking • Minimum acquisition time; advanced SmartHeading calculation
Number of channels	555 channels
Maximum simultaneous tracked satellites	Up to 72 Satellites simultaneously on two frequencies per antenna
Satellite signals tracking	• GPS: L1, L2P, L2C • GLONASS: L1, L2 • Galileo: E1, E5b • BeiDou B1, B2I, B2b
GNSS measurements	Fully independent code and phase measurements of all frequencies: • GPS: carrier phase full wavelength, Code (C/A, P, C Code) • GLONASS: carrier phase full wavelength, Code (C/A, P narrow Code) • Galileo: carrier phase full wavelength, Code • BeiDou: carrier phase full wavelength, Code
Reacquisition time	< 1 sec

HARDWARE	
Weight & Dimensions	
Weight	832 g (1.83 lbs)
Dimensions	150 mm x 150 mm x 40 mm (5.90 x 5.90 x 1.57 in)
Environmental specifications	
Operating temperature	–40 °C to +65 °C (–40 °F to +149 °F)
Storage temperature	–40 °C to +85 °C (–40 °F to +185 °F)
Humidity	IEC60068-2-78,+65°C; 92%, IEC60068-2-30; Test Db; Variant 1 +55°C; 95%; +25°C; 95%
Proof against: water, sand and dust	IP6K8 / 6K9K according to ISO 20653
Vibration	IEC 60068-2-6; Test Fc, 5-500 Hz; 5 g; ±15 mm MIL-STD-810G, Fig. 514.6E-1; Category 24
Shock	IEC 60068-2-27, 60 g; 6 ms
Drops	Withstands 1.0 m drop onto hard surfaces
Power & Electrical	
Supply voltage	Range 9-36 VDC
Power consumption	Dual GNSS: 7.7W typically, 24 V @ 320 mA
Certifications	Compliance to: FCC/IC, CE
MEMORY & DATA RECORDING	
Memory	
Internal memory	8 GB (Software and data storage)
Data recording	
Recording rate	up to 20 Hz
COMMUNICATION	
Communication protocols	
NMEA output	NMEA 0183 V4.00 and Leica proprietary
Communication Ports	1 x SMA for external Bluetooth antenna, 1 x USB M8, 1 x Automotive Ethernet M12 T Male Power In / Data, 1 x Automotive Ethernet M12 T Female Power Out / Data, 2 × TNC for external GNSS antennas
Bluetooth®	Bluetooth v5.0 class 2
INTERFACE	
LED status indicator	3 × LED for power, wireless and tracking status
GNSS ANTENNA	
Type	CGA100
GNSS technology	SmartTrack+
Satellite signals tracking	• GPS: L1, L2P, L2C, L5 • GLONASS: L1, L2, L3 • Galileo: E1, E5a, E5b, Alt-BOC, E6 • BeiDou B1, B2, B3
Ground plane	Built-in ground plane
Dimensions (diameter × height)	165 mm × 60 mm (6.50 × 2.36 in)
Weight	0'44 kg (0.97 lbs)
Gain	29 db
Temperature operating	-40 °C to +85 °C (–40 °F to +185 °F)
Temperature storage	–55 °C to +85 °C (–67 °F to +185 °F)
Humidity	IEC60068-2-30 98% r.H./25 °C, 93% r.H./55 °C
Protection against water, sand	IP68, IP69K
Drops & topple over	Withstands 1.5 m drop onto hard surfaces and survives topple over from a 2 m pole onto hard surfaces
Vibration	EC 60068-2-6: 5-500 Hz, 15 g, ±15 mm MIL-STD-810G: Fig.514.6E-1 Category 24 (20-2000 Hz, 7.7 grms) Withstands vibrations during operation on large civil construction machines
Shock	IEC 60068-2-27 (special): 60 g, 6 ms IEC 60068-2-27: 100 g, 2 ms Withstands vibrations during operation on large civil construction machines

[1] Measurement precision and accuracy in position, height and heading are dependent upon various factors including number of satellites, geometry, observation time, ephemeris accuracy, ionospheric conditions, multipath etc. Figures quoted assume normal to favourable conditions. Times required are dependent upon various factors, including number of satellites, geometry, ionospheric conditions, multipath etc. GPS and GLONASS can increase performance and accuracy by up to 30% relative to GPS only. A full Galileo and GPS L5 constellation will further increase measurement performance and accuracy.

[2] Might vary due to atmospheric conditions, signal multipath, obstructions, signal geometry and number of tracked signals.

intelligent CONstruction

Leica Geosystems intelligent CONstruction.
Whether you construct buildings, roads, bridges or tunnels, you benefit from intelligent CONstruction. Leica iCON is more than a new product line or software package, its a complete solution that enables you to enhance your performance and increase your profitability through perfecting your construction workflow.

Understanding construction demands outstanding solutions:
- Custom-built
- Complete
- Straightforward
- High performance

When it has to be right.

Leica iCON gps 70 Series Brochure

Leica iCON site Brochure

Leica ConX Flyer

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