

The power of choice

The right solution for your applications

The Leica iCON gps 120 machine Smart Antenna offers scalable, flexible, and upgradable 3D machine control solutions for a wide variety of applications. The new solution morphology allows the setup of a tailor-made Leica MC1 solution that is easy to upgrade later to higher specifications. Multiple configuration and mounting possibilities are available to support different setups and meet different application requirements. The Leica iCON gps 120 is easily exchanged between MC1-ready machines, making it an ideal solution for equipment rental companies and heavy construction contractors deploying a diverse machinery fleet.



For machine control applications that require sub-meter accuracy, the iCON gps 120 can be used as single GNSS solution, supported by SBAS or SmartLink (PPP) services.



Stay flexible and control the full range of blade movement with your dozer on-cab configuration supporting a dual GNSS machine control solution.



For earthmoving and other high-demanding applications where position and heading accuracy is a must, the iCON gps 120 offers a dual GNSS RTK solution (Leica CR50 required).



With the iCON gps 120 single or dual GNSS solution, you enable great savings on snow management applications, reducing material waste and the overall operation's environmental footprint.



icon

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; it's 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

Leica Geosystems – when it has to be right

With more than 200 years of history, Leica Geosystems, part of Hexagon, is the trusted supplier of premium sensors, software and services. Delivering value every day to professionals in surveying, construction, infrastructure, mining, mapping and other geospatial content-dependent industries, Leica Geosystems leads the industry with innovative solutions to empower our autonomous future.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 24,000 employees in 50 countries and net sales of approximately 5.2bn EUR. Learn more at hexagon.com and follow us @HexagonAB.



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Intelligent Solutions Brochure



Leica iCON site Brochure



Leica ConX Flyer

Leica iCON gps 120 Smart Antenna Unlock your potential



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Discover your possibilities and unlock your heavy construction machinery potential with the Leica iCON gps 120 Machine Smart Antenna.

Don't just turn on your engine; turn on your application efficiency, with a flexible and scalable Leica MC1 3D machine control solution. Thanks to the iCON gps 120, Leica Geosystems offers you more possibilities to equip your machines with the right configuration that best meets your needs. From a single GNSS solution to a full RTK dual GNSS heading solution, we got it all - it's your choice.

Customer benefits

- Machines and applications with different levels of requirements can benefit from Leica MC1 machine control
- Easy and cost-efficient upgrade to a higher specification solution
- Multiple and easy antenna mounting and dismounting options
- Web interface for convenient access to software configuration
- Future-proof GNSS technology that supports all constellations & frequencies
- HxGN SmartNet PPP service optionally available when RTK is not used or for demanding applications in remote areas with poor network reception

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- when it has to be **right**

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Leica iCON gps 120

Scalability at its best

HxGN SmartNet PPP

Precise Point Positioning (PPP) and RTK Bridging service optionally available.

Web interface

Allows easy access to configure the iCON gps 120 Smart Antenna.

Multiple frequencies supported

For current and future application requirements.

LED status indicators

For clear information on the antenna status.

Threaded adapter plate

Required for the click and screw mounting options.



LEICA iCON GPS 120 MACHINE SMART ANTENNA

	SUPPORTED GNSS SYSTEMS					RTK PERFORMANCE			HxGN SmartNet PPP	POSITION UPDATE & DATA RECORDING	ADDITIONAL FEATURES		
	Multi-frequency (L2, L5, L-band)	GLONASS	Galileo	SBAS	BeiDou	RTK Baseline Unlimited	RTK High accuracy	RTK Low accuracy (2D)			20 Hz positioning	NMEA out	Dual positioning & precise Heading
iCON gps 120 Value	•	•	•	✓	•	✓	•	✓	•	✓	•	•	•
iCON gps 120 Performance	✓	✓	•	✓	•	✓	✓	-	•	✓	•	✓	•
iCON gps 120 Ultimate	✓	✓	✓	✓	✓	✓	✓	-	•	✓	✓	✓	•

✓ Standard / • Optional / - not available

Leica iCON gps 120 On-Machine Smart Antenna Technical Data

GNSS TECHNOLOGY

Self-learning GNSS	Adaptive on-the-fly satellite selection Bridges RTK outages up to 10 min (3 cm 2D) ¹⁾
GNSS technology	Leica-patented SmartTrack+ technology: • Advanced measurement engine • Jamming-resistant measurements • High-precision, pulse-aperture multipath correlator for pseudorange measurements • Excellent low elevation tracking • Minimum acquisition time; advanced SmartHeading calculation
Signal tracking	GPS (L1 C/A, L2P, L2C, L5), Glonass (L1 C/A, L2P, L2C, L3), Galileo (E1, E5a, E5b, Alt-BOC, E6), BeiDou (B1I, B1C, B2I, B2a, B3I), QZSS (L1, L2C, L5, L6 ²⁾), SBAS (L1, L5 ²⁾ (WAAS, EGNOS, MSAS, GAGAN), Terrastar L-band
Number of channels	555

MEASUREMENT PERFORMANCE & ACCURACY ¹⁾

Time for initialisation	Typically 4 sec
Real-time kinematic (Compliant to ISO17123-8 standard)	Single baseline: Hz 8 mm + 1 ppm / V 15 mm + 1 ppm Network RTK: Hz 8 mm + 0.5 ppm / V 15 mm + 0.5 ppm
RTK bridging	Up to 10 min bridging of RTK outages. Horizontal: 2.5cm, Vertical: 5cm
PPP	Initial convergence to full accuracy, typically 10 min, Re-convergence < 1 min Horizontal: 2.5cm, Vertical: 5cm

On-the-fly (OTF) initialisation

RTK technology	Leica SmartCheck+ technology
Reliability of OTF initialisation	Better than 99,99% ¹⁾
Time for initialisation	Typically 4 sec ¹⁾

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

HARDWARE

Weight & Dimensions

Weight	1.25 kg
Dimensions	171.6 mm x 171.6 mm x 81 mm

Environmental specifications

Ingress Protection	IP6K8/6K9K, ISO 20653
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	IEC 60068-2-30 +25°C to +55°C > 95% RH, 6 x 24 hours
Proof against: water, sand and dust	
Mechanical vibration	IEC 60068-2-6; 5-500 Hz; 5 g; ±15mm; 10 cycles MIL-STD-810G, Fig.514.7E-1; 7.7grms, 90min / axis
Mechanical shock	IEC 60068-2-27 60 g / 6 ms, ± 4000 shocks (each axis)
Drops	Withstands 1 m drop onto hard surfaces

Power & Electrical

Supply voltage	9 – 35 VDC
Power consumption	5 W Typical
Protection	Reverse Polarity Short Circuit Surge: ISO16750-2 (Load Dump: 174V, 1Ω, 100ms)
Certifications	Compliance to FCC/IC, CE, UKCA, RCM, KC, Japan Radio Law

PROCESSOR & MEMORY

Memory

Internal memory	8 GB (Software and data storage)
Data capacity	8 GB is typically sufficient for about GPS & GLONASS (8+4 satellites) 3'100 h raw data logging at a 1 s rate

Data recording

Recording rate	20 Hz
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CPU

Model	ARM i.MX8
Cores	4 x 64 bit
Speed	1.6 Ghz
RAM	1 GB, LPDDR4
Flash	8 GB, eMMC

INTERFACE

User Interface	Web interface
LED status indicator	3 x status information LEDs (Power, Internet, GNSS)

COMMUNICATION

Communication ports 1 x USB M8, 1 x Automotive Ethernet M12 T Male Power In / Data, 1 x Automotive Ethernet M12 T Female Power Out / Data

Built In data links

Bluetooth® Bluetooth v5.0 Class 2

COMMUNICATION PROTOCOLS

Real-time data formats Leica, Leica 4G, CMR, CMR+ (receive only), RTCM2.3 (receive only), RTCM 3.1, RTCM 3.2 MSM 1-7, compatible with RTCM3.3

Web based protocol NTRIP and TCP Client

¹⁾ Measurement precision and accuracy in position, reacquisition and initialisation time, height and heading are dependent upon various factors including number of satellites, tracked signals, obstructions, geometry,

observation time, ephemeris accuracy, atmospheric conditions, multipath etc. Figures quoted assume normal to favourable conditions. 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⁾ Will be available through future firmware upgrade.

Leica iCON gps 120 mounting options

■ CLICK



Once the cables are removed, the quick-release option allows you to mount and dismount the antenna with a click of a button.

■ SCREW



You can screw the iCON gps 120 into the Leica AC02 GNSS antenna carrier, which is ideal for flat roofs.

■ CUSTOMISE



You can use your own customised bracket to install the antenna using four mounting screws.



Scan to find out more about the Leica Geosystems machine control solutions!