

Leica Geosystems Construction Tools Technical Specifications



- when it has to be **right**

Leica
Geosystems

PROTECT by Leica Geosystems

We protect your success



Lifetime Manufacturer's Warranty

Warranty coverage for the entire usage time of the product, in accordance with the Leica Geosystems International Limited Warranty. This includes free of charge repair or replacement for all products that suffer defects as a result of faults in materials or manufacturing.

No Cost Period

Guaranteed best-in-class service should your product become defective or require servicing under normal conditions of use, as described in the user manual, at no additional charge to you.

Our service includes:

- Repair or replacement of all defective parts, including labour time
- Adjustment and calibration
- Thorough functional test and safety check
- Maintenance, cleaning of product and carrying case

Your serviced product will be returned to you as good as new!

Certified Quality

Leica Geosystems runs calibration laboratories (No. SCS079) and a test laboratory (No. STS549). Both are fully accredited by the SAS, the Swiss Accreditation Service. The calibration and test certificates issued by Leica Geosystems are officially and internationally recognised for horizon, angle, distance, frequency and laser classification. This confirmation of precision guarantees the highest possible reliability for our products. All laboratories are regularly controlled by an independent national institution according to ISO 17025.

Swiss Technology

Swiss Technology creates confidence. Our worldwide operations are conducted in state-of-the-art production centres, where Swiss precision, extraordinary craftsmanship, and cutting-edge technology go hand-in-hand. Continuous and extensive tests throughout all stages of development and production ensure our products meet the highest standards for precision and quality.



Find out more information on our website:
www.leica-geosystems.com/protect

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Optical Levels



Applications	Jogger 20	Jogger 24	Jogger 28	Jogger 32	Runner 20	Runner 24	NA720	NA724	NA728	NA730	NA2	NAK2
For all daily levelling tasks on any construction site. Suitable for builders, foremen, carpenters, landscape gardeners	■	■	■	■	■	■	■	■	■	■		
For all daily levelling tasks with higher demand for product performance e.g. in road, building and railway construction or civil engineering							■	■	■	■		
For advanced levelling with higher demand for accuracy and performance e.g. for civil engineers and surveyors											■	■
Precision levelling e.g. for settlement determinations on building, deformation measurement and monitoring bridges											■	■
Technical data												
Water resistant	■	■	■	■	■	■	■	■	■	■	■	■
Waterproof (immersion) and dustproof							■	■	■	■		
Shock resistant							■	■	■	■		
Parallel-plate micrometer for precise levelling (optional)											■	■
Magnification	20x	24x	28x	32x	20x	24x	20x	24x	28x	30x	32x	32x
Angle measurement	360°	360°	360°	360°	360°	360°	360°	360°	360°	360°		360° / 400 gon
Standard deviation (per km double-run)	2.5 mm	2.0 mm	2.0 mm	2.0 mm	2.5 mm	2.0 mm	2.5 mm	2.0 mm	1.5 mm	1.2 mm	0.7 mm	0.7 mm
With parallel-plate micrometer											0.3 mm	0.3 mm
Environmental standard	IP54	IP54	IP54	IP54	IP55	IP55	IP57	IP57	IP57	IP57	IP53	IP53
Operating temperature range	-20 to +40 °C	-20 to +40 °C	-20 to +40 °C	-20 to +40 °C	-20 to +50 °C	-20 to +50 °C	-20 to +50 °C	-20 to +50 °C	-20 to +50 °C	-20 to +50 °C	-20 to +50 °C	-20 to +50 °C
Weight	1.5 kg	1.5 kg	1.5 kg	1.5 kg	2.0 kg	2.0 kg	1.6 kg	1.6 kg	1.7 kg	1.7 kg	2.4 kg	2.4 kg



Digital Levels



Applications	Sprinter 50	Sprinter 150	Sprinter 150M	Sprinter 250M
Error-free levelling for basic work on any construction site	■	■	■	■
Error-free levelling for applications supported by onboard calculations on any construction site		■	■	■
For advanced construction levelling tasks with demand for data storage and transfer e.g. civil engineering and construction surveying			■	■
For advanced construction levelling tasks with demand for higher accuracy e.g. civil engineering and construction surveying				■
Features				
Optical staff reading	■	■	■	■
Automatic staff reading	■	■	■	■
Inverse staff reading	■	■	■	■
Height & distance measurement	■	■	■	■
Delta height		■	■	■
Multilingual function		■	■	■
Tracking		■	■	■
Cut & Fill and monitoring			■	■
Data storage & USB interface			■	■
Line levelling			■	■
Technical data				
Height accuracy	Standard deviation height measurement per 1 km double run (ISO 17123-2)			
Electronic measurement*	2.0 mm	1.5 mm	1.5 mm	1.0/0.7* mm
Optical measurement	With standard aluminum E-scale/numeral staff: 2.5 mm			
Single staff reading	Standard deviation: 0.6 mm (electronic) and 1.2 mm (optical) at 30 m			
Distance measurement accuracy	Standard deviation distance measurement 10 mm for $D \leq 10$ m and (distance in m x 0.001) for $D > 10$ m			
Range	2 - 100 m (electronic)			
Measuring modes	Single and tracking			
Time for single measurement	< 3 sec			
Compensator	Magnet damped pendulum compensator (range ± 10 min)			
Telescope	Magnification (optical) 24x			
Data storage				Up to 1'000 points
Environmental standard	IP55			

* With Sprinter aluminium barcode staff, 0.7 mm can be achieved with Sprinter fibre glass barcode staff (3 m, 1 section)



Line & Dot Lasers



Technical data	Lino L360	Lino L2P5	Lino L2+	Lino L2	Lino P5	Lino P3
Range			Up to 30 m			
Range with laser receiver*	Up to 70 m	Up to 60 m	Up to 60 m			
Levelling accuracy	± 1.5 mm @ 5 m		± 1.5 mm @ 5 m			
Self-levelling range	3.5° ± 0.5	4° ± 0.5	4° ± 0.5			
Number of laser points		4			5	3
Number of laser lines	2		2			
Beam direction	Vertical, 360° horizontal	Vertical, horizontal up, down, right, left	Vertical, horizontal		Up, down, forward, right, left	Up, down, forward
Plumb dot accuracy		± 1.5 mm @ 5 m			± 1.5 mm @ 5 m	
Horizontal line accuracy	± 1.5 mm @ 5 m		± 1.5 mm @ 5 m			
Vertical accuracy	± 0.75 mm @ 3 m		± 0.75 mm @ 3 m			
Laser type	635 nm, laser class 2		635 nm, laser class 2			
Battery type	NiMH rechargeable battery pack	Type AA 4 × 1.5 V	Type AA 4 × 1.5 V	Type AA 3 × 1.5 V		
Battery life	Up to 20 hours (rechargeable)	Up to 10 hours (alkaline)	Up to 12 hours (alkaline)	Up to 8 hours (alkaline)	Up to 18 hours (alkaline)	
Environmental standard	IP65	IP54	IP54			
Dimensions (H × D × W)	131.7 × 145 × 96.2 mm	117.8 × 130.7 × 75.4 mm	117.8 × 130.7 × 75.4 mm	96 × 91 × 54 mm	99.1 × 108.1 × 59.3 mm	
Weight with batteries	1009 g	463 g	530 g	390 g	390 g	380 g
Tripod thread	1/4"		1/4"			

* Depending on lighting conditions



Interior Lasers



Technical data	Roteo 35G	Roteo 35	Roteo 20HV
Range with laser receiver* (radius)		Up to 150 m	
Levelling accuracy		± 3 mm @ 30 m	
Automatic laser levelling		Horizontal, vertical	
Self-levelling range		± 4.5°	
Rotation speed		Variable 0, 150, 300, 450, 600 rpm	
Scan angle		Variable from 2° to 36°	
Wall mount bracket	Motorised	Motorised	Manual
Laser type	532 nm, green laser beam, laser class 3R	635 nm, laser class 3R	
Battery type	2 x 1.5 V D-cells or NiMH rechargeable battery pack	2 x 1.5 V D-cells or NiMH rechargeable battery pack	2 x 1.5 V D-cells
Battery life	Up to 25 hours (rechargeable) Up to 40 hours (alkaline)	Up to 50 hours (rechargeable) Up to 160 hours (alkaline)	Up to 160 hours (alkaline)
Environmental standard		IP54	
Dimensions (H x W x D) without wall mount bracket		189 x 136 x 208 mm	
Weight with batteries		1.7 kg	
Tripod thread		5/8"	

* Depending on lighting conditions

Accessories



Technical data	RC350	RRC350	RRC350G	R250
Function	Remote control for Leica Roteo	Green beam receiver for Leica Roteo 35G	Red beam, dual mode receiver and remote control in a single unit	Red beam detector
Remote control range		Up to 30 m		
Laser receiver range		Up to 150 m		
Sensitivity (adjustable)		±1 mm / ±3 mm		
Length of reception window		35 mm	35 mm	35 mm
Environmental standard		IP54		
Battery type	Type AA 1 x 1.5 V	1 x 6LR61, 9 V		
Dimensions	96 x 55 x 21 mm	120 x 78 x 32 mm 120 mm		
Weight with batteries	46 g	228 g		

Construction Lasers



Applications	Rugby 50	Rugby 55	Rugby 100	Rugby 100LR
General construction: excavators, footing, concrete forming	■	■	■	■
Civil engineering: parking lots, runways, sports fields			■	■
Interior construction		■		
Installing ceiling grids		■		
Transferring points from floor to ceiling		■		
Machine control of excavators, graders, dozers and similar equipment	■		■	■
Agricultural applications such as land levelling or tilling			■	■
Technical data				
Environmental standard	IP55	IP55	IP56	
Co-molded rubber bumpers			■	■
Elevation alert	■	■	■	■
Scan function		■		
Remote control		■		
Manual grade capability		■	■	■
Two-year knockdown warranty			■	■
Range	300 m			750 m
Accuracy	2.6 m @ 30 m	2.6 m @ 30 m	1.5 m @ 30 m	
Self-levelling	Horizontal	Horizontal and vertical	Horizontal	
Operating temperature range	-20 to +50 °C (-4 to +122 °F)			
Laser type	780 nm (infrared), laser class 1	635 nm (bright red), laser class 2 (rotating scanning), laser class 3R (stationary beam)	635 nm (bright red), laser class 2	780 nm (infrared), laser class 1
Battery type	Two D-cells or NiMH pack	Two D-cells or NiMH pack	Four D-cells or NiMH pack	
Battery life	Alkaline: 60 hours NiMH: 35 hours	Alkaline: 50 hours NiMH: 30 hours	Alkaline: 60 hours NiMH: 35 hours	
Weight with batteries	1.85 kg (4.0 lbs)	1.85 kg (4.0 lbs)	2.5 kg (5.5 lbs)	

Pipe Laser



Technical data	Piper 100 / 200
Laser type	635 nm (red), laser class 3R
Laser output	4.75 mW maximum
Working range	200 m (650')
Grade range	-10% to +25%
Self-levelling range	-15% to +30%
Line movement	6 m at 30 m (20' at 100')
Battery type*	Lithium-Ion, 7.4 V/3.8 Ah
Operation/charge	40 h/4 h
Operating temperature range	-20 to +50 °C (-4 to +122 °F)
Dimensions (diameter x length)	96 x 267 mm (3.8 x 10.5")
Weight	2 kg (4.4 lbs)
Construction	Cast aluminium
Environmental standard	IPX8
Wireless remote	Front, up to 150 m (500') Back, up to 10 m (35')



* Battery life is dependent upon environmental conditions

Grade Lasers



Applications	Rugby 260SG	Rugby 270SG	Rugby 280DG	Rugby 320SG	Rugby 410DG	Rugby 420DG
General construction: excavators, footing, concrete forming	■	■	■	■	■	■
Civil engineering: parking lots, runways, sports fields				■	■	■
Installing septi and gravity flow pipes for drainage	■	■	■	■	■	■
Machine control of excavators, graders, dozers and similiar equipment	■	■	■	■	■	■
Agricultural applications such as land levelling or tilling				■	■	■
Technical data						
Environmental standard	IP67			IPX7		
High-impact composite housing	■	■	■	■	■	■
Elevation alert	■	■	■	■	■	■
Scan modes			■			
Remote control			■		■	■
Grade entry with display	■	■	■	■	■	■
Dual grade			■	■	■	■
Two-year knockdown warranty	■	■	■			
Operating range - diameter	600 m	700 m		900 m	800 m	1100 m
Self-levelling accuracy	±1.5 mm per 30 m*	±1.5 mm per 30 m*		±1.5 mm per 30 m*		
Self-levelling	± 5°					
Operating temperature range	-20 to +50 °C (-4 to +122 °F)					
Laser type	635 nm, laser class 2	635 nm, laser class 2	635 nm, laser class 2 (rotating scanning) laser class 3 (stationary beam)	635 nm, visible red, laser class 2	780 nm, invisible (IR), laser class 1	635 nm, visible red, laser class 2
Grade capability	Single axis ± 10%	Single axis ± 15%	Dual axis ± 15%	-5 to +25%	-5 to +25% on either axis (-5 to +15% on both axes)	
Battery type	Alkaline or rechargeable NiMH	Alkaline or rechargeable NiMH			Alkaline or NiMH	
Battery life	70 hours alkaline 40 hours rechargeable**	70 hours alkaline 40 hours rechargeable**			Up to 130 hours with alkaline Up to 100 hours with rechargeable**	
Weight	2.95 kg (6.5 lbs) with batteries	2.95 kg (6.5 lbs) with batteries			5 kg (11 lbs) without batteries	

* Accuracy is defined at +25 °C. ** Battery life is dependent upon environmental conditions.



Laser Receivers



Technical data	Rod Eye Digital	Rod Eye Plus	Rod Eye Basic
Working radius	450 m (1500')	450 m (1500')	150 m (500')
Detection height	127 mm (5")	50 mm (2")	36 mm (1.4 0")
Numeric readout height	102 mm (4")		
Detectable spectrum	610 nm to 780 nm	610 nm to 900 nm	
Detection accuracies	Ultra fine 0.5 mm (0.02")	Fine ± 1 mm (± 0.04")	
	Super fine 1.0 mm (0.05")	Medium ± 2 mm (± 0.08")	Coarse ± 3 mm (± 0.12")
	Fine 2.0 mm (0.10")	Coarse ± 3 mm (± 0.12")	
	Medium 5.0 mm (0.20")		
	Coarse 10.0 mm (0.50")		
Audio volumes	High 110 dBA Medium 95 dBA Low 65 dBA, Off	High 100 dBA Low 70 dBA Off	High Low Off
Automatic shut off	30 minutes, 24 hours, none	30 minutes	10 minutes
Digital readout	Yes (mm, cm, in, fractions, ft)	No	No
Arrow display	Twenty-one channels	Nine channels	Five channels
LED display	Yes, five channels	Yes, five channels	No
Anti-strobe protection	Yes	Yes	No
Memory, last beam strike	Yes	Yes	No
Beam finding (double beep)	Yes	Yes	No
Laser low battery indicator	Yes	Yes	No
Warranty	Three years	Two years	One year
Environmental standard	IP67	IP67	IP66
Batteries	60+ hours (2 x 1.5 V "AA")	70+ hours (2 x 1.5 V "AA")	50 hours (1 x 9 V type)
Dimensions	168 x 76 x 36 mm (6.6 x 3.0 x 1.4")	152 x 74 x 30 mm (6.0 x 2.9 x 1.2")	150 x 80 x 35 mm (5.9 x 3.1 x 1.5")
Operating temperature range	-20 to +60 °C (-4 to +140 °F)	-20 to +60 °C (-4 to +140 °F)	-20 to +50 °C (-4 to 122 °F)
Rod clamp	Yes, with reversible jaw	Yes, with reversible jaw	Yes

Machine Receivers



Technical data	LMR240	LMR360
Range	250 m / 750 ft	200 m / 650 ft
Reception	240°	360°
Capture window	15 cm / 5 in	25 cm / 9.75 in
Accuracy (fine)	1.5 - 6 mm / 1/16 to 1/4 in	6 mm / 1/4 in
Accuracy (coarse)	10 - 15 mm / 3/8 to 9/16 in	12 mm / 1/2 in
Environmental standard	IP67	IP67
Battery type	3 x AA batteries	NiMH rechargeable
Battery life	120 - 160 hours	30 hours
Weight	1.9 kg (4.8 lbs)	1.8 kg (4 lbs)
Mounting	Magnetic	Magnetic / Clamps
Remote display		Yes
Remote range		30 m / 100 ft



Cable Locators



Technical data	Digicat 500i	Digicat 550i	Digicat 600i	Digicat 650i	Digicat 500i xf	Digicat 550i xf	Digicat 600i xf	Digicat 650i xf
Power mode	50 kHz or 60 kHz			50 kHz or 60 kHz				
Radio mode	15 kHz to 60 kHz			15 kHz to 60 kHz				
Auto mode	Power + Radio mode			Power + Radio mode				
8 kHz mode	8.192 kHz			8.192 kHz				
33 kHz mode	32.768 kHz			32.768 kHz				
512 Hz mode						512 Hz		
640 Hz mode						640 Hz		
Typical detection range	Power to 3 m, Radio to 2 m			Power to 3 m, Radio to 2 m				
Typical detection range (8 kHz, 33 kHz 512 kHz, 640 kHz)	Dependant on signal transmitter or Digimouse (sonde)			Dependant on signal transmitter or Digimouse (sonde)				
Depth estimation - Line mode		0.3 m to 3 m		0.3 m to 3 m		0.3 m to 3 m		0.3 m to 3 m
Depth estimation - Sonde mode		0.3 m to 3 m		0.3 m to 3 m		0.3 m to 9 m		0.3 m to 9 m
Environmental standard	IP54			IP54				
Operating temperature range	-20 to +50 °C			-20 to +50 °C				
Bluetooth®			Enabled	Enabled				Enabled
Battery type	6 x AA alkaline (IEC LR6 supplied)			6 x AA alkaline (IEC LR6 supplied)				
Battery life	40 hours intermittent use (at 20°C)			40 hours intermittent use (at 20 °C)				
Weight	2.7 kg including batteries			2.7 kg including batteries				
Dimensions	760 mm (H) x 85 mm (D) x 250(W)			760 mm (H) x 85 mm (D) x 250(W)				
Built-in memory to record usage			32 MB memory (CSV file compatibility program)	32 MB memory (CSV file compatibility program)				32 MB memory (CSV file compatibility program)
Extended self test	■	■	■	■	■	■	■	■
Mode lock					■	■	■	■
Current measurement						■		■
GPS mapping capability			■	■			■	■



Signal Transmitters & Accessories



Technical data	Digitex 100t	Digitex 300t	Digitex 100t xf	Digitex 300t xf	Digitrace 30 / 50 / 80	Signal Clamp	Digimouse	Property Connection
8 kHz mode	8.192 kHz		8.192 kHz		■		■	
33 kHz mode	32.768 kHz		32.768 kHz		■	■	■	■
Mixed 8 / 33 kHz	8.192 kHz / 32.768 kHz		8.192 kHz / 32.768 kHz		■			
512 Hz mode			512 Hz		■			
640 Hz mode			640 Hz		■			
Induction (Watts max.)	Up to 1 W max		Up to 1 W max					
Direct connection (Watts max.)	Up to 1 W max	Up to 3 W max	Up to 1 W max	Up to 3 W max				
	When connected to a buried service with an impedance of 100 Ohms							
Environmental standard					IP54		IP68	IP54
Environmental standard with case closed	IP65		IP65					
Environmental standard with case open	IP54		IP54					
Operating temperature range	-20 to +50 °C							
Battery type	4 x D-cell alkaline (IEC LR20), supplied		4 x D-cell alkaline (IEC LR20), supplied		Not required		1 x LR6 (AA) alkaline	Not required
Battery life (Typical use at 20 °C)	30 hrs intermittent use	20 hrs intermittent use	30 hrs intermittent use	20 hrs intermittent use			40 hrs intermittent use at 20 °C (68 °F) in 8 kHz mode or 33 kHz mode	
Weight	2.4 kg including batteries		2.4 kg including batteries		3 kg / 3.25 kg / 3.5 kg	354 g	0.18 kg	150 g
Dimensions	105 mm (H) x 190 mm (D) x 235 mm (W)		105 mm (H) x 190 mm (D) x 235 mm (W)		Frame - 490 mm (H) x 210 mm (D) x 440 mm (W), 8 mm rod diameter, 13 mm tip diameter	40 mm (H) x 250 mm (D) x 142 mm (W) exc Cable Internal diameter 100 mm	38 mm (Dia) x 120 mm (W)	40 mm (H) x 80 mm (D) x 100 mm (W),
Extended self test	■	■	■	■				
Four power output levels	■	■	■	■				



Total Stations



Technical data	Builder 100	Builder 200	Builder 300	Builder 400	Builder 500
Compatible with Leica iCON build software		■	■	■	■
Accuracy up to 1.5 mm @ 100 m					■
Wireless communication					■
-30 °C ready					■
Full RedDot range					■
Prism measurement mode				■	■
Full internal memory				■	■
MEAS/REC switch key				■	■
Cell-phone style use				■	■
Extended RedDot range			■	■	■
Industrial USB memory stick			■	■	■
USB type A and mini B			■	■	■
Volumes calculation			■	■	■
Data Import/Export to USB stick			■	■	■
Call up plan data and record points			■	■	■
Direct DFX download			■	■	■
One-person operation		■	■	■	■
Serial interface		■	■	■	■
Tracking mode		■	■	■	■
Laser pointer switch key		■	■	■	■
PC/Handheld interface		■	■	■	■
Laser distance measurement		■	■	■	■
Control line set-up		■	■	■	■
Free choice set-up		■	■	■	■
Theft protection	■	■	■	■	■
Pitstop alert	■	■	■	■	■
3 languages	■	■	■	■	■
Levelling aid	■	■	■	■	■
Sector beep	■	■	■	■	■
Dual-axis compensator	■	■	■	■	■
Endless drives	■	■	■	■	■
Laser plummet	■	■	■	■	■
Display heating and illumination	■	■	■	■	■
Li-Ion batteries	■	■	■	■	■
Set delivery	■	■	■	■	■
Data storage/communication					
Internal memory (points)			15,000	50,000	50,000
Angle measurement					
Accuracy/Option	9"/6"	9"/6"	9"/6"	9"/5"	9"/5"/3"
Distance measurement					
Laser pointer		■	■		■
Reflectorless range (90% reflectivity)		80 m	120 m	15 m	250 m
To reflective tape (60 mm x 90 mm)		250 m	250 m	15 m	250 m
To glass prism				500 m (3500 m)	500 m (3500 m)
Laser dot size		At 30 m: approx. 7 mm x 10 mm, At 50 m: approx 8 mm x 20 mm			
General					
Weight incl. battery and tribrach	4.4 kg			5.1 kg	
Operating temperature		-20 to +50 °C			
Battery type / life		Li-Ion / approx. 20 hours*			
Environmental standard		IP55			
Full keyboard		Standard		Alphanumeric	
Switch key		Single function		Dual function	

* Single measurement every 30 second at 25 °C with GEB221. Battery time may be shorter if battery is not new.

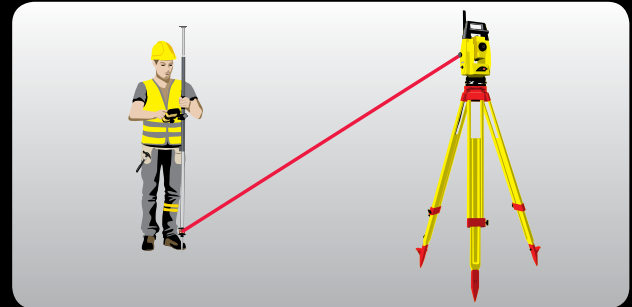
Leica iCON robot 50



Technical data

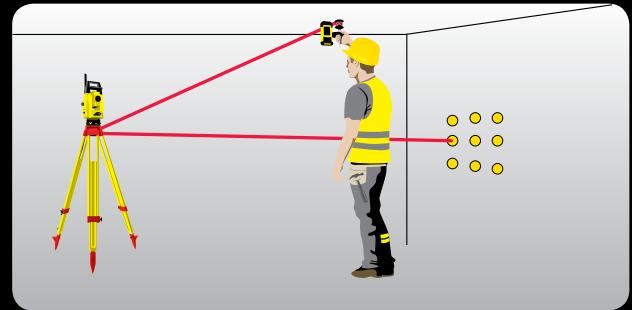
Distance measurement accuracy (ISO17123-4)	Standard 1 mm + 1.5 ppm Tracking 3 mm + 1.5 ppm
Angular accuracy (ISO17123-4)	2" (0.6 mgon) and 5" (1.5 mgon) sensors available
Level compensation	Centralised dual-axis compensation "Level and Go Functionality"
Range to single prism*	3500 m
Range in ATR mode*	1000 m
Reflectorless range	250 m
Measurement frequency	Max. 12 Hz Synchronised (0.08 s)
Prism search functionality	Power Search / ATR / EGL
Maximum rotation speed	45° per second
Maximum lock speed	5 m/s or 18 km/h at 20 m / 25 m/s or 90 km/h at 100 m
Weight	4.8 kg
Communication	Bluetooth® / RS232, optional WLAN or long range Bluetooth®
Environmental standard	IP54
Operating temperature range	-20 to +50 °C
Storage temperature range	-40 to +70 °C
Data storage	Compact-flash CFII card
Laser plummet	1 mm at 1.5 m

* All measurement specifications are to a standard Leica GRP1 prism under favourable conditions



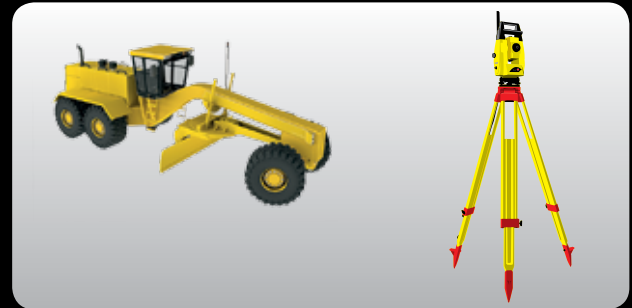
One-person robotic operation

Increase your productivity by working in one-person mode. With industry leading tracking performance and the patented PowerSearch technology, Leica iCON robot 50 allows you to finish jobs faster maintaining the highest accuracy.



Interior overhead with laser pointer

Using one of the world's most accurate laser pointers, remotely lay out points on walls for drill patterns, or on ceilings for air conditioning or other such projects.



Machine control

Work to the tightest tolerances under any site conditions. With Leica iCON robot 50 you can carry out fine grading and paving with the highest precision, speeding up your work with construction machinery.

Leica iCON gps 60



Technical data		Leica ICG60 Demo	Leica ICG60 Vehicle	Leica ICG60 Base	Leica ICG60 Network	Leica ICG60 Performance	Leica ICG60 Advanced
Supported GNSS systems	GPS L2	•	■	■	■	■	■
	GLONASS	•	•	•	•	■	■
	GPS L5	•	•	•	•	•	■
	Galileo	•	•	•	•	•	■
RTK performance	Low accuracy RTK (50/2)	•	■	•	•	•	•
	High accuracy RTK	•	•	•	■	■	■
	RTK up to 2.5 km	•	■	•	■	■	■
	RTK unlimited	•	■	•	■	■	■
	Network RTK	•	■	•	■	■	■
Positioning update & data recording	2 Hz positioning	•	•	•	■	■	■
	10 Hz positioning	•	■	•	•	■	■
	20 Hz positioning	•	•	•	•	•	■
	Raw data RINEX logging	•	•	■	•	■	■
Additional features	RTK reference station functionality	•	•	■	•	■	■

GNSS performance

GNSS technology	Leica patented SmartTrack+ technology: <ul style="list-style-type: none"> • 120 channel advanced measurement engine with jamming resistance and multipath correlator, supporting GPS L1/L2/L5, GLONASS, Galileo and Compass
GNSS antenna options	<ul style="list-style-type: none"> • Fully integrated GNSS antenna • External GNSS antenna support (via TNC-type connector)
Real-time (RTK) technology	Leica SmartCheck+ technology: <ul style="list-style-type: none"> • 99.99% reliable RTK • Initialisation time typically within 8 sec • Up to 50 km baseline length
Dynamic RTK accuracy after initialisation	Horizontal: 10 mm + 1 ppm (rms) Vertical: 20 mm + 1 ppm (rms)
Environmental standard	<ul style="list-style-type: none"> • IP67 • Vibration: MIL-STD-810F • Shock: ISO 9022-31-06, 40 g – 6 msec • Drops: 1.2 m onto hard surface • Topples over from 2 m pole onto hard surface
Battery and power supply	<ul style="list-style-type: none"> • Removable 7.4 V battery (max 6 Ah supplied) • External power supply 9 – 28 VDC • Compliance with EN13309

Interface

Communication	<ul style="list-style-type: none"> • Built-in HSPA modem (quad-band GSM/HSPA) with built-in antenna • Radio option (Satel UHF or Intuicom 900 MHz) with external antenna • Bluetooth® • Lemo serial and power in / out • USB host
External GNSS antenna options	<ul style="list-style-type: none"> • MNA1202 GG: GPS L1/L2, GLONASS

■ Standard / • Optional



Leica iCON CC50



Technical data	
Operating system	Genuine Windows Mobile® 6.1 Classic
Mobile computing processor	Marvell PXA310 806 MHz
Display	3.5" TFT LCD VGA (480 x 640) Transflective sunlight readable display Pressure sensitive touchscreen
Storage & memory	128 MB MDDR 256 MB NAND flash and 8 GB iNAND
Keypad	Alphanumeric keypad
I/O interface	1 x serial port (9-pin; D-sub), manual switch by SW with FlexiConn UART interface, USB OTG (client 2.0 and host 1.1; 5-pin; type Mini AB), 1 x microphone, 1 x speaker, 1 x DC in, 1 x 4-pin docking connector
Communication interface	WLAN 802.11 b/g, Bluetooth® (v2.0+EDR class 2), GPS (with internal antenna), Optional long-range Bluetooth®
Standard software	Microsoft Internet Explorer Mobile® Microsoft Office Mobile Applications Microsoft Office Mobile® Microsoft® Windows Media® Player 10 Mobile Microsoft ActiveSync 4.5 for data sync
Power	AC adapter (50 W, 100-240 VAC; 50/60 Hz), Li-Ion smart battery (5600 mAh), (up to 10 hours of battery life)*
Dimensions (WxDxH) & weight	8.9 x 3 x 17.8 cm (3.5" x 1.18" x 7.01") 530 g (18.69 oz)**
Field service features	GPS: SIRFstarIII, 3 megapixel auto focus camera with LED light, E-compass, Alimeter
GPS sensor specification	Chipset: SIRFstarIII, Receiver type: L1 (C / A), Channels: 20 channels all-in-view tracking, Update rate: 1 Hz, Horizontal accuracy: I) Autonomous: 5 m / 16.4 ft, II) DGPS: 1~3 m / 3.3~9.8 ft, Cold start Time: 45 sec average, Warm start time: 30 sec average, Hot start time: 1 sec average, Reacquisition: 0.1 sec average
Rugged features	MIL-STD-810G and IP67 certified, Tamper-proof plastic case, Vibration resistant, Drop resistant (26 drops from 1.22 m / 4 ft), Tumbling resistant (1,000 cycles; 0.5 m / 1.6 ft)
Environmental standard	Operating temperature range: -30 to +60 °C (-22 to +140 °F), Storage temperature range: -40 to +70 °C (-40 to 158 °F); Humidity: -95% RH, non-condensing
Alphanumeric data entry	Soft input panel (SIP) on screen keyboard, Transcriber handwriting recognition, Alphanumeric keypad, Nuance XT9 SIP
Certification	CE, FCC, UL/TUV
Accessories	AC adapter, USB-Host-Adapter, USB cable, Screen protectors, Quick start guide, Battery, Stylus, Stylus lanyard

* Battery performance will vary with software applications, wireless settings, power management settings, LCD brightness, customised modules and environmental conditions. Battery life and charge cycles vary by use and settings.

** Weight varies from configurations and optional accessories

Leica iCON CC60/61



Technical data	
Processor & memory	Ultra low power Intel® Atom™ Z530 1.6 GHz processor (w/US15W Chipset), 2 GB DDR2 RAM
Data storage	64 GB SSD solid state hard drive
Operating system	Microsoft Windows 7, Ultimate Edition
Display	7" widescreen (1024 x 600) resolution TFT LCD, MaxView™ sunlight readable resistive touchscreen display
Keyboard & buttons	Power key; Menu key (Controls Brightness, Volume, Battery status, WLAN & BT On/Off, and 3G On/Off); 4+1 Navigation keys (Left, Right, Up, Down, OK for Enter); 3 x user programmable hotkey buttons that control up to 6 functions; On-screen QWERTY soft keyboard
I/O interface	2 x USB; 1 x LAN; 1 x DC Power input; 1 x 9-pin serial RS232; Docking connector (Contact pin type); 1 x Audio Out; 1 x Microphone In; AC/DC Adapter input: 120-240 VAC, 50-60 Hz, 12 VDC Output
Integrated communication modules	Built-in GOBI 2000 3G communication module, Wireless LAN 802.11 b/g, Bluetooth® 2.0 + EDR, Integrated GPS MediaTek, Bluetooth® module* (capability to extend CC60 to LRBT via upgrade kit)
Integrated GPS	Integrated GPS Mediatek, WAAS/EGNOS capable ¹⁾ GPS real-time accuracy ²⁾ (WAAS, EGNOS): 2-5 m
Integrated camera	2 megapixel camera + LED light
Standard software	OneClick Internet from Sierra Wireless, MiniGPS from MediaTek for controlling NMEA output, Internet Explorer

¹⁾ WAAS available in North America only, EGNOS available in Europe only.
²⁾ May vary due to atmospheric conditions, multipath, obstructions, signal geometry and number of tracked satellites.
³⁾ In continuous field operation mode, may vary with temperature, battery age etc.

Batteries	Dual Li-Polymer battery pack, 5.2 Ah fast hot swappable, supports at least 6 hours of operation with default backlight level, based on battery mark test (2x 2.6 Ah batteries)*
Power	Input: 120-240 VAC, 50-60 Hz, 12 VDC output
Operating time³⁾	8 h
Dimensions	144 mm (5.56") x 242 mm (9.5") x 40 mm (1.57")
Weight	1.3 kg (2.9 lbs) including all-day batteries
Water	1.3 kg (2.9 lbs) including all-day batteries
Altitude	4572 m (15,000 ft) at 5 °C (73 °F)
Operating temperature range	-23 to +60 °C (-9.4 to +140 °F), MIL-STD-810G, Method 501.4, Procedure II, MIL-STD 810G, Method 502.4, Procedure I, II, III
Drop	MIL-STD-810G 4ft drop, Free to concrete, 26 drops from 1.22 m (4 ft) MIL-STD-810G, Method 516.5, Procedure IV
Accessories	External battery charger, Hard carry case, 12 V vehicle charger, Pole mount solution, Anti-glare screen protectors, Additional 5200 mAh battery

* Only included in the CC61 package

Leica DISTO™ Laser Distance Meters



Technical data	D210	X310	D3a BT	D5	D510	D8
Typical measuring accuracy	± 1.0 mm					
Range	0.05 – 80 m	0.05 – 80 m	0.05 – 100 m		0.05 – 200 m	
Measuring units	m, ft, in			m, ft, in, yd		
Power Range Technology™	■	■	■	■	■	■
Distance in m Ø of the laser dot in mm	10, 50, 100 m 6, 30, 60 mm					
Tilt sensor measuring range		360°	± 45°	± 45°	360°	360°
Accuracy to the laser beam		± 0.2°	± 0.3°	± 0.3°	± 0.2°	-0.1° / +0.2°
Accuracy to the housing		± 0.2°	± 0.3°	± 0.3°	± 0.2°	± 0.1°
Units in the tilt sensor		0.0°, 0.0%	0.0°, 0.0%		0.0°, 0.00%, mm/m, in/ft	
Digital Pointfinder with 4 x zoom				■	■	■
Store constant values				1		1
Recall last values	10	20		20		30
Time delay release (timer)		■	■	■	■	■
Display illumination	■	■	■	■	■	■
Free software			■		■	■
Data interface*			Bluetooth® (Class 2)		Bluetooth® Smart	Bluetooth® (Class 2)
Measurements per set of batteries	Up to 5000	Up to 5000	Up to 5000**	Up to 5000	Up to 5000**	
Multifunctional end-piece	■	■	■	■	■	■
Tripod thread		■	■	■	■	■
Battery type	Type AAA 2 × 1.5 V			Type AA 2 × 1.5 V		
Environmental standard	IP54	IP65	IP54	IP54	IP65	IP54
Dimensions	114 × 50 × 27 mm	122 × 55 × 31 mm	127 × 49 × 27.3 mm	143.5 × 55 × 30 mm	143 × 58 × 29 mm	143.5 × 55 × 30 mm
Weight with batteries	126 g	155 g	150 g	195 g	198 g	205 g

* System requirements and recommended Pocket PCs can be found at: www.disto.com

** Reduced in Bluetooth® mode



Leica 3D Disto



Technical data

Features of goniometer (Hz/V)	Range	Horizontal 360°; vertical 250°
	Accuracy	5", equates to 1.2 mm @ 50 m
Features of laser distance meter	Type	Coaxial, visible red laser
	Range	0.5–50 m
	Laser class	2
	Laser type	650 nm; < 1 mW
	Ø laser dot (at distance)	10 m: ~7 mm × 7 mm 30 m: ~9 mm × 15 mm @ 10 m @ 30 m @ 50 m Approx. 1 mm 2 mm 4 mm
Tie distance accuracy (3D) – combination of angle and distance		± 3°
Tilt sensor	Self-levelling range	± 3°
	Accuracy	10", equates to 2.5 mm @ 50 m
Digital pointfinder	Zoom (magnification)	1x, 2x, 4x, 8x
	Field of view (@ 10 m)	1x: 3.40 m × 2.14 m 2x: 1.70 m × 1.07 m 4x: 0.85 m × 0.54 m 8x: 0.42 m × 0.27 m
Circular level setting accuracy*		1"/mm
Operation	Display	High-resolution screen, 800 × 480 pixels, 4.8" TFT LCD, 16 million colours
	Keys / User interface	3D Disto: 1 On / Off button Hand-held unit : touchscreen, 1 On / Off button
	Memory	32 GB Flash
	Interfaces	3D Disto: USB type B, power supply pack, power supply to hand-held unit Hand-held unit: USB type A, power supply pack
Communication	Cable	USB: Micro-B USB and type A, WLAN
	Wireless	SD card, range: 50 m (depending on environment)
	Data format	Import DXF; export DXF, TXT, CSV, JPG
Power supply	Type	3D Disto: Li-Ion battery, voltage: 14.4 V / 63 Wh, external power supply: 24 VDC / 2.5 A, charging time 8 h Hand-held unit: Li-Ion battery, 2500 mAh, 3.7 V, external power supply: 5 VDC / 2.0 A, charging time 7 h
	Battery life	3D Disto: 8 h / Hand-held unit: 6 h
Attachment		5/8" thread
Dimensions (W×H×D)		3D Disto: Ø 186.6 × 215.5 mm Hand-held unit: 178.5 × 120 × 25.8 mm
Weight		3D Disto: 2.8 kg / Hand-held unit: 0.33 kg
Environmental standards	Operating temperature range	3D Disto: -10 to 50 °C / Hand-held unit: -10 to 50 °C
	Storage temperature	3D Disto: -25 to 70 °C / Hand-held unit: -25 to 70 °C
	Water and dust protection	3D Disto: IP54 (IEC 60529) / Hand-held unit: IP5x
	Moisture	Max. 85%, non-condensing
Remote control (IR)	Range	50 m (depending on environment)
	Communication	Infrared (IR)
	Battery type	1 x 1.5 V AA

* Accuracy is specified at 20 °C



Leica Geosystems Application Overview



1 Digital Levels

Check heights and distances and determine your delta height at the touch of a button with the Leica Sprinter family.



2 GPS

Calculate volumes of a stockpile or pit and comparisons between surfaces or to the elevation with the Leica iCON gps 60.



3 Underground Service Locators

Make locating of underground cables and pipes a simple and efficient task with the Leica Digicat, significantly increasing your safety on site.



4 Pipe Lasers

Powerful and compact, the Leica Piper provides solid performance, in the pipe, over the top or in the manhole.



5 Optical Levels

Transfer and check heights accurately and precisely with the Leica Runner and Leica Jogger family of levels.



6 Robotic Total Stations

Simply select sketched or imported points directly from the map and set-out easy and fast with the Leica iCON robot 50.



7 Grade Lasers

Whether your work requires level, single or dual grades with high accuracy over a long distance range, the Leica Rugby grade lasers' extensive features provide everything you need.



8 Total Stations

Set-out points and check positions quickly and accurately with the Leica Builder family of total stations. Simple operation allows non-surveyors to gather data with confidence.



9 Construction Rotating Lasers

The toughest rotating lasers in construction! Level, align and square with accuracy and reliability, everyday on every site with the Leica Rugby.



10 Leica DISTO™ Laser Distance Meter

Precision at the touch of a button. The Leica DISTO™ family provides the highest accuracy and versatility for any measurements on site.



11 Leica 3D Disto

Large room? No right angles? Skewed walls? Many details? Difficult to reach? No need to worry, the Leica 3D Disto makes measuring simple and precise, even in the most challenging environments.



12 Interior Rotating Lasers

Highest visibility and versatility with the Leica Roteo. Interior finishing has never been easier!



13 Line & Dot Lasers

Get perfectly aligned all around (360°) with the Leica Lino family.

Whether you have to precisely layout a construction site, perform control measurements, collect height and angle data, align concrete forms, install ceilings and partitions, lay gravity flow pipes, locate underground services or complete site preparation and earthworks – Leica Geosystems offers the right instrument, construction laser or machine control installation specifically designed for your construction application.

Easy-to-use, jobsite tough, accurate and reliable – Leica Geosystems instruments and lasers ensure the efficient use of your materials and resources. High quality products, such as optical and electronic levels, construction lasers, total stations and machine automation systems, provide fast results, keep you working and increase your profitability.

When it has to be right.

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Our commitment to total
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www.leica-geosystems.com

- when it has to be **right**

The logo features the word "Leica" in a large, red, cursive script font, with a red underline. Below it, the word "Geosystems" is written in a smaller, red, sans-serif font.