

2020

Laser Measuring Tools Environmental Measuring Instruments



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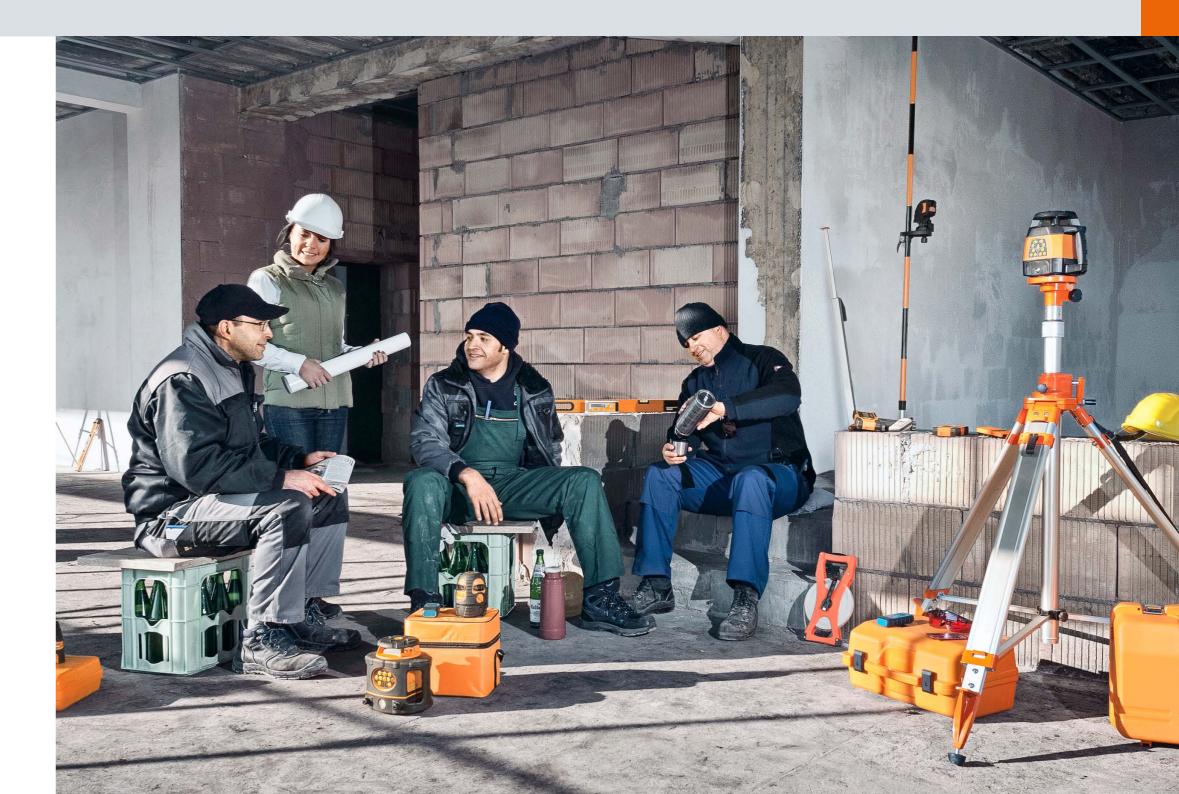
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TasksOutline of products

Here you will find fields of application of the instruments for various trades. This outline will give you support to find the ideal tool for your task. These are examples only. Of course, there are many additional fields of application for many other professional groups.

Trades

and construction Lifting and handling Interior design Carpentry, timberframe construction Civil engineering









ndscape gardening

Painting and decorating

Line Laser Point Laser Point and Line Laser Line Laser horizontal **Cross Laser Cross Laser Professional** . . . Horizontal Laser Dual Grade Laser horizontal Horizontal and Vertical Laser Pipe Laser Dry mortarless cons-Automatic Level **Laser Distance Meter**

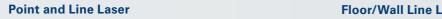
geo-FENNEL New products 2020

▶ Here it is: our geo-FENNEL catalogue 2020 and alongside its clever new products for the construction site. Some of these novelties we really want to recommend to you.

By the way: You know us as a strong partner in the surveying field. Our range of GPS systems and Totalstations can be examined in our separate Surveying Catalogue 2018/19.

More information about us and our products on our website:

www.geo-fennel.com







Horizontal dual grade Laser

Single grade horizontal Laser with vertical function

GNSS System



CROSSPOINTER5 GREEN SP



GEO6-XR GREEN Page 14





FL 245HV + Page 46



FL 155H-G Page 52



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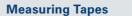
www.geo-fennel.com

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Line Laser

Page 10

Horizontal and Vertical Laser



Universal Tripods



GEO1X-360 GREEN Page 20



FL 220HV Page 44



GEOTAPE 2in1 Page 93



FS 24-M W/S Page 129

LINE LASERS

PRECISION IN EVERY ASPECT: OUR ALL-ROUNDERS

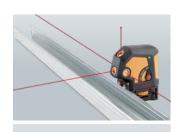
Every single device in our range of line lasers is a winner. We provide individual products that are exactly adapted to your particular needs. As different as these demands may be, one thing is true for all geo-FENNEL line lasers: They consistently impress users with a high degree of precision and guarantee you the best measurement results – in every situation.



Geo5P 5-Point Laser Five directions

5 self-levelling laser dots at right angles to each other: up, down, forward, left, right. For plumbing, alignments, levelling, transfer of points and many more applications.

Compact and handy size. Shock-resistant design suitable for robust use on construction sites.



ECHNICAL DATA

Dust / water protection

Weight (instrument only)





Self-levelling range $\pm 3.5^{\circ}$ ± 2 mm / 10 m 30 m* Working range 635 nm / 2 Laser diode / laser class 3 x AA Alkaline Power supply 20 h Operating time -10 °C to +50 °C Temperature range IP 54

0.5 kg

* depending on room

illumination

FEATURES

5 laser dots (up, down, forward, left,

SUPPLIED WITH GEO5P

ART.-NO. 555050

Magnetic target

Multi-functional mount

3 x AA Alkaline battery

Padded carrying bag

- Out-of-level alarm
- Multi-functional mount with · strong magnets for optimal use at drywall construction rails
- can be fixed to a wall (magnetic or screw hanging)
- · strap attachment
- Transport lock
- 1/4" and 5/8" tripod thread

CrossPointer5 GREEN SP Five points plus cross

» A self-levelling GREEN line laser with outstanding line visibility up to 50 m Combination of a 5 point and cross line laser

Projects 6 reference points at 90° to each other

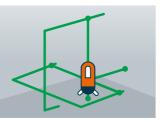
» Horizontal line with 180° fan angle intersects left/right points Vertical line with 160° fan angle (beyond the zenith point)

>> Laser points rotate 360° around vertical axis

Pulse-function to extend working range with receiver (optional)



Selection PRO







TECHNICAL DATA

В	Self-levelling range	± 3°
ij.	Accuracy	± 3 mm / 10 m
	Laser line function	
ā	Working range w/o receiver	50 m* (radius)
Ē	Working range with receiver	80 m (radius)
į,	Fan angle Hz Line	180°
1	Fan angle V Line	160°
×	Laser point function	5 laser dots
9	Working range without receiver	50 m
	Power supply	Li-Ion
	Operating time Li-lon	
	All laser lines & dots	6 h
	All laser lines	8 h
	All laser dots	24 h
	Dust/water protection	IP 54
ź	Laser diode / class	green / 2
7	Temperature range	-10°C to +45°C
d	Weight (instrument with battery)	0,7 kg
		* depending on room illumination

- 2 laser lines form a green laser cross
- 5 laser points: back, left, right, ceiling, floor Laser points rotate 360° around vertical axis
- Self-levelling function can be switched off for
- Audible & visual alarm when out of level
- Use with receiver FR 75-MM / FR 55 / 55-M (optional)
- Multi-functional mount
- · height adjustable for wall-hanging with screw
- strap attachement
- strong magnets on back face
- 1/4" and 5/8" thread for use with tripods etc

SUPPLIED WITH

- ART.-NO. 531550
- · Li-lon battery
- Intelligent charger
- Magnetic target Container

Multi-functional mount



GeoSpider The tilers best friend!

- 2 high visibility laser lines at 90° to each other Ideal for laying all types of floor coverings such as tiles, laminates, carpets, etc.
- >>> Working range 40 m*
- Layout any angle between 0 and 360°
- 360° graduation and fine motion control for accurate alignment
- Circular bubble for manual levelling on uneven surfaces





TECHNICAL DATA	GEOSPIDER	
Accuracy	± 3 mm / 10 m	
90° angle accuracy	± 3 mm / 10 m	
Working range	40 m*	
Dust / water protection	IP 52	
Laser class	2	
Operating time	12 h	
Temperature range	-10°C to +45°C	
i i		
	* depending on room illumination	

innovative design Independently height adjustable legs for optimum results over the full working range Laser lines switchable separately Fine motion control for accurate alignment Fully rotatable laser head with 360° gradua-

Integrated circular bubble for manual level-

tion for optimum flexibility

ling on uneven surfaces

High visibility laser lines achieved by our new

SUPPLIED WITH GEOSPIDER

ART.-NO. 552000

· 4 x AA Alkaline battery

· 2 x Magnetic target · Padded bag



Square Liner IIAt the right angle

The angle template generates two laser lines at 90° to each other. Ideal for use on floor and all tiling!











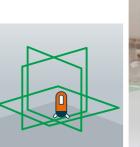


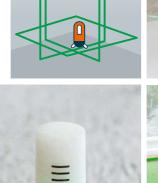
TECHNICAL DATA	SQUARE LINER II
Accuracy	± 3 mm / 10 m
Working range	max. 30 m*
Laser diodes	2 x 635 nm
Laser class	2
Power supply	2 x 1,5 V AA Alkaline
Operating time	48 h
Temperature range	0°C to +40°C
	* depending on room illumination
FEATURES	SQUARE LINER II
· Fine and clear visible laser lines	ARTNO. 551000
Timo and cloar violate lacer inte	· Batteries
· 0° to 90° graduation for setting out	Magnetic target
90°, 45° or any required angles to	· Case
floor, wall or ceiling	0000
Built-in circular and tubular vials for	
horizontal and vertical alignment	

Geo6-XR GREEN The latest innovation for installing wall and floor coverings

- A comprehensive solution for installation, refurbishment and maintenance
- 3x 360° highly visible green laser lines all perpendicular to each
- Projecting right angles everywhere at the floor for straight and diagonal laying of tiles
- Installation and verification of correct floor height
- Checking level, flatness and parallelism of walls and floors.
- >> 3 x 360° green laser lines visible up to 40 m
 - 6 mm minimum distance of the laser line to the wall
 - 8 mm minimum distance of the laser line to the floor
- Height adjustable platform with a range from 25 to 85 mm
- for precise height control when setting out floor coverings
- 20 mm fixed height adaptor with 5/8" thread
- Height adjustable wall-mount with swivel-mount support rail
- Optimise floor tile layout with free-hanging tripod mount
- Monitor and correct floor levels using the height measurement pins
- Pulse-function to extend working range with receiver (optional)

















	TECHNICAL DATA		GEO6XR GREEN
	Self-levelling range		± 3°
	Accuracy		± 2 mm / 10 m
	Laser diode / class		green / 2
	Working range without receiver		40 m* (radius)
	Working range with receiver		60 m** (radius)
	Operating time / Power supply		
		1 x 360°	15 h / Li-lon
		2 x 360°	7 h / Li-lon
		3 x 360°	5 h / Li-lon
	Dust/waterprotection		IP 54
~	Temperature range		-10°C to +45°C
	Size		115 x 96 x 118 mm
	Weight (instrument with battery)		0,8 kg
			* depending on room illumination
			** depending on direction of laser

FEATURES

- 3 x 360°-Laser lines form 6 laser crosses
- Laser lines switchable separately
- Plumbing function
- Minimum laser line distance to floor 8 mm
- Minimum laser line distance to wall 6 mm
- Height adjustable platform from 25 to 85 mm
- Wall-mount
- height and side adjustable
- can be fixed to a wall
- Attachment to magentic surfaces
- strap attachement
- Visual and audible alarm when out of level
- Self-levelling function can be locked for manual use
- 5/8" thread for use with tripods etc. (bottom / face adaptor)
- 1/4" thread for use with adaptor etc. (top side)
- Use with receiver FR 75-MM / FR 55 / FR 55-M (optional)

SUPPLIED WITH

ART.-NO. 533200

- Li-lon battery
- Intelligent Charger & USB 3.0
- Height adjustable platform
- Wall-mount
- Support rail
- 20 mm Fixed height adaptor with

Battery case for alkaline batteries

- 3x Height measurement pins
- Magnetic target
- Container





900

FL 10-Cross The universal laser for interior work

Misalignment is a thing of the past with the FL 10 cross line laser. Whatever your internal application – alignment of wall tiles, setting out for drilling holes, transfer of levels or precise positioning of doors and windows. Wherever you have something to measure - the result will convince you.

FL 10-Cross SET



TECHNICAL DATA

FL 10-CROSS

Self-levelling range

Working range without receiver

Power supply Operating time (all lines switched on) 18 h

Dust / water protection

Laser diode / class Temperature range

Weight (instrument with battery)

± 3° ± 5 mm / 10 m 10 m* (radius) 3 x AA Alkaline

IP 54 635 nm / 2

-10°C to +45°C 0,4 kg

* depending on room illumination



ART.-NO. 540100 A vertical and horizontal line com-

- bine to form a laser cross. Laser lines switchable separately
- Visual alarm when out of self-levelling range
- 1/4" tripod connection
- Multifunctional mount (magnetic and with 1/4" tripod connection)

SUPPLIED WITH FL 10-CROSS

- · 3 x AA Alkaline battery
- · Multifunctional mount · Padded carrying case

SUPPLIED WITH FL 10-CROSS SET

ART.-NO. 540110

- · 3 x AA Alkaline battery
- · Multifunctional mount
- · Tripod FS12



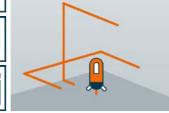
















FL 40-PowerCross Plus SP Convincing along the whole line

- >> FL 40 PowerCross Plus SP is a Selection PRO product with special features.
- Outstanding visibility of the laser lines
 - · Very long vertical line with 150° fan angle (beyond zenith)
 - · Pulse-function for use with receiver (optional)
 - · Self-levelling function can be switched off for manual use
- · Extremely rugged design for rough use at construction site
- · Product withstands drop up to 1 m





Selection PRO



















4 x AA Alkaline battery Padded bag

OPTIONAL

ART-NO. 541511

Charger

Li-lon batteries

FLG 40-PowerCross Plus GREEN SP Green is more beautiful

- FLG 40-PowerCross Plus GREEN SP is a Selection PRO product with special features.
- Outstanding visibility of the laser lines
 - · Very long vertical line with 150° fan angle (beyond zenith)
 - · Pulse-function for use with receiver (optional)
 - · Self-levelling function can be switched off for manual use
 - · Extremely rugged design for rough use at construction site: product withstands drop up to 1 m







1 Keypad



SUPPLIED WITH FLG 40-POWERCROSS PLUS GREEN SP ART.-NO. 541560

ART-NO. 541561

· Multi-functional mount · 4 x AA Alkaline battery Padded bag

Charger

Li-lon batteries

OPTIONAL

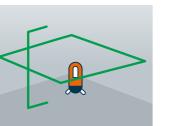
Geo1X-360 GREEN A self-levelling GREEN line laser with outstanding line visibility

- Self-levelling function can be switched off for manual use
- Pulse-function to extend working range with receiver (optional)













TECHNICAL DATA	GEO1X-360 GREEN	F
Self-levelling range	± 3°	· 11
Accuracy	± 3 mm / 10 m	+ 10
Working range w/o receiver	30 m* (radius)	· La
Working range with receiver	50 m** (radius)	- TI
Fan angle Hz Line	360°	· Vis
Fan angle V Line	135°	· Us
Power supply	4 x AA Alkaline	· M
Operating time (all lines switched on)	10 h	
Dust / water protection	IP 54	
Laser diode / class	green / 2	
Temperature range	-10°C to +45°C	
Weight (instrument with battery)	0.65 kg	· 1,
	*depending on room illumination	
	**depending on direction of the laser	

- Laser cross
- x 360° horizontal laser line
- aser lines switchable separately
- TLT function for manual use
- /isual alarm when out of level
- Use with receiver FR 75-MM / FR 55 / 55-M (optional)
- Aulti-functional mount
- height adjustable
- for wall-hanging with screw
- strap attachment
- strong magnet on back side
- 1/4" and 5/8" thread for use with tripods etc.

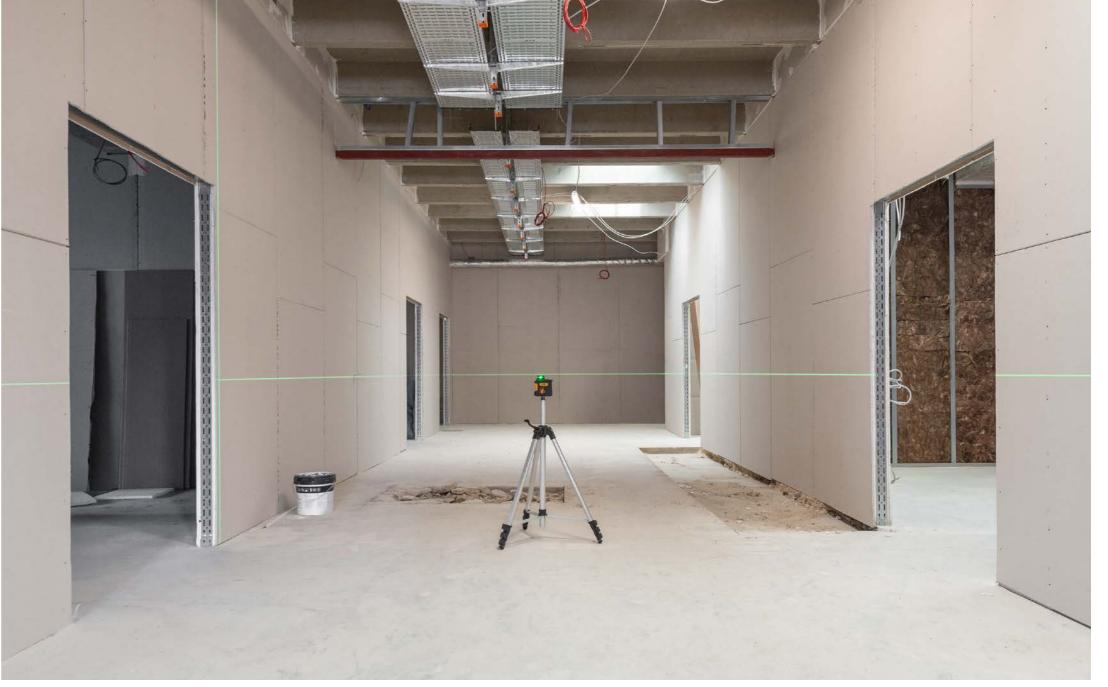
SUPPLIED WITH

ART-NO. 533100

· Multi-functional mount · 4x AA Alkaline battery

Padded bag





Geo6X SP & Geo6X SP KIT 3 x 360° in red

GEO6X SP

± 2 mm / 10 m

30 m* (radius)

60 m (radius)

16 h / alkaline

8 h / alkaline

5 h / alkaline

-10 °C to +45 °C

14 x 13 x 8 cm

IP 54

0,8 kg

± 3°

red / 2

GEO6X SP KIT

± 2 mm / 10 m

30 m* (radius)

60 m (radius)

20 h / Li-lon

12 h / Li-lon

8 h / Li-lon

-10 °C to +45 °C

14 x 13 x 8 cm

IP 54

0,8 kg

±3°

red / 2



Multi-functional for versatile levelling jobs at indoor construction sites.

Simple outfit with alkaline batteries and bag

Battery compartment 2

GEO6X SP GREEN KIT

±3°

± 2 mm / 10 m

40 m* (radius)

70 m (radius)

14 h / Li-lon

7 h / Li-lon

5 h / Li-lon

-10 °C to +45 °C

14 x 13 x 8 cm

IP 54

0,8 kg

green / 2



· 3 x 360°-laser lines form 6 laser

Multi-functional mount 1

Laser lines switchable separately
Plumbing function
Laser plane distance to wall/ceiling min. 12 mm

Magnets at the front and side for connection to dry wall track
 Use with receiver (optional)
 Self-levelling function can be locked for manual use
 5/8* & 1/4* connection

ADDITIONAL WITH GEO6X SP KIT UND GREEN KIT

at the instruments bottom

- Multi-functional mount

 magnets on the back
- strap attachement
 beight adjustable
- height adjustable5/8" tripod connection











SUPPLIED WITH GEO6X SP

ART-N0. 534000

- · 4 x Alkaline batteries
- · Magnetic target

tteries

- Li-ion battery, chargerCharger with USB 3.0 cable
 - · Magnetic target

· Multi-functional mount

Battery case for alkaline batteries
 Container

SUPPLIED WITH GEO6X SP KIT

ART-N0. 534100



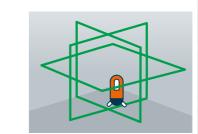
Geo6X SP GREEN KIT Like red, even better in green





Multi-functional for versatile levelling jobs at indoor construction sites.

Full kit with Li-Ion batteries, charger, wallmount, container, offering the benefits of an innovative tool for the professional user.



SUPPLIED WITH GEO6X SP GREEN KIT

ART-N0. 534500

- · Multi-functional mount
- · Li-ion battery, charger
- Charger with USB 3.0 cable
- · Magnetic target
- Battery case for alkaline batteriesContainer



OPTIONAL

ART.-NO. 500520

· Receiver FR 55-M page 72

ART.-NO. 500510

· Receiver FR 55 page 72

ART.-NO. 257200

Receiver FR 75-MM page 72

ART.-NO. 290560

Walltrack Adapter WS 1
 page 124



depending on room illumination

Weight (instrument with battery)

TECHNICAL DATA

Self-levelling range

Laser diode / class

Working range* (radius)

Dust / water protection

Temperature range

Working range with receiver

Operating time / power supply

1 x 360°

2 x 360°

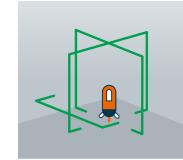
3 x 360°

FLG 64 GREEN HP Green laser lines for exceptional visibility

- » High efficiency green beam diodes generate clean precise lines.
- 360° circle with slow motion screw for accurate alignment
 - · Li-lon batteries and charger
 - · Pulse-function for use with receiver (optional)







ECHNICAL DATA	FLG 64-GREEN HP
elf-levelling range	± 3°
ccuracy	± 2 mm / 10 m
Vorking range (radius)	
-without receiver	30 m*
-with receiver (optional)	60 m
ower supply	Li-lon
perating time (all lines switched on)	7 h
harger can be used as power supply	yes
ust / water protection	IP 54
aser class	2
emperature range	-5°C to +50°C
Veight (instrument with battery)	1,3 kg

* depending on room illumination

FEATURES

- 4 vertical lines at 90° to each other
- 1 horizontal line 130°
- Plumb down beam (red)
- Laser lines switchable separately
- Plumbing function
- Self-levelling function can be locked for manual use (inclined applications)
- Audible and visual alarm when out of level
- Use with receiver FR 55 / 55-M (optional) Integrated floor tripod
- Slow motion screw for horizontal alignment
- 5/8" thread for use with tripods etc.



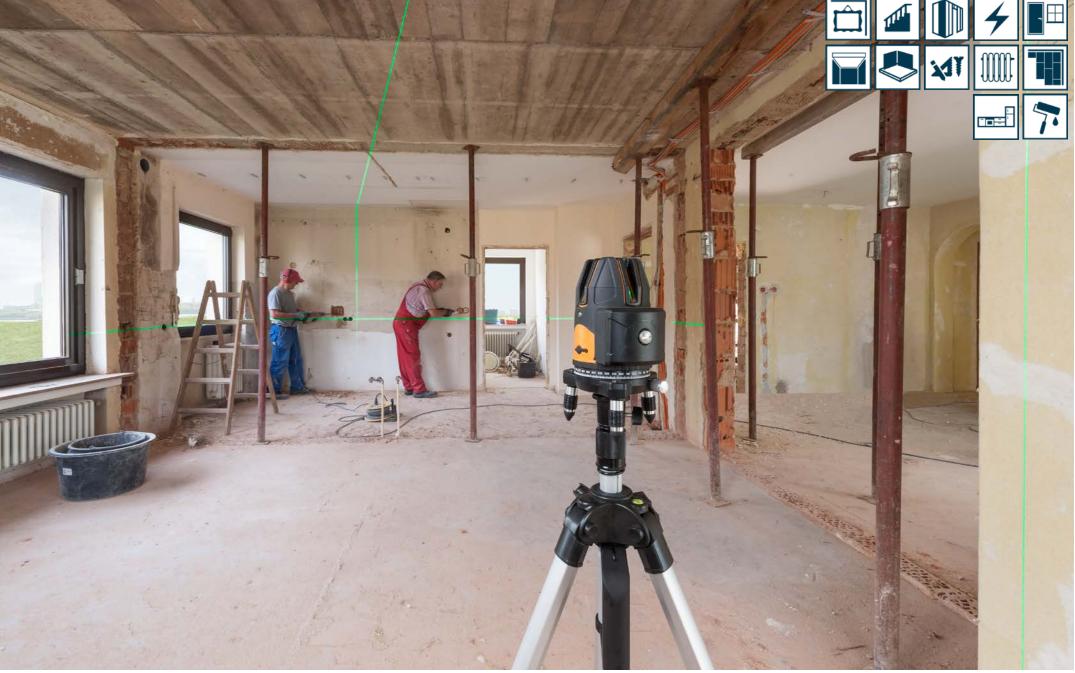


SUPPLIED WITH FLG 64-GREEN HP

ART.-NO. 580400

- Li-lon batteries
- Charger
- Alkaline battery box
- Laser intensive glasses
- Magnetic target
- Container







FLG 66-Xtreme GREEN SP The toughest

Selection PRO

- >> FLG 66-Xtreme GREEN SP is a Selection PRO product with special features.
- The new Selection PRO GREENLASER-Technology the FLG 66-Xtreme GREEN SP
 - · Outstanding visibility of the laser line up to 40 m
 - · A clear narrow laser line
- This new generation of cross laser withstand adverse conditions and rough handling on construction sites.
 - Rugged technical design: Stable internal components assure function and accuracy
 Perfect sealing assures dust and water protection according to IP 65

 - · Batteries are a thing of the past as the FLG 66-Xtreme GREEN SP utilises the latest Li-lon battery technology



TECHNICAL DATA	FLG 66-Xtreme GREEN	FEATURES	SUPPLIED WITH FLG 66-XTREME GREEN SP
Self-levelling range Accuracy Working range without receiver Working range with receiver Laser diode / class Operating time (all lines switched on) Power supply	± 2° ± 2 mm / 10 m 40 m* (radius) 100 m* (radius) - / 2 15 h Li-lon	4 vertical lines at 90° to each other 1 horizontal line 130° Plumb down beam Laser lines switchable separately Plumbing function Self-levelling function can be locked for manual use (inclined applications) Audible and visible alarm when out of level Integrated floor tripod Slow motion screw for horizontal alignment Use with receiver (optional)	Li-lon batteriesChargerAlkaline battery boxLaser intensive glassesMagnetic target
Charger can be used as power supply Dust / water protection Temperature range Weight (instrument with battery)	Alkaline batteries (optional) no IP 65 0 °C to +40 °C 1.4 kg * depending on room illumination		





FL 70 Premium-Liner SP Technology at its best

- FL 70 SP is a Selection PRO product with special features.
- Outstanding visibility of the laser line
 - Li-lon battery technology
 - · High accuracy of +/- 1 mm / 10 m
 - · Motorized self-levelling cross line laser
 - · 4 vertical lines at 90° to each other, 360° horizontal line, plumb up cross, plumb down beam
 - · Quick self-levelling and extremly stable performance.
 - · Slope function: laserplane can be tilted by using the remote control



Selection PRO









Remote control 2









. 70 PREMIUM-LINER SP WITHOUT FR 55

i-lon batteries and battery charger

Adapter for tripod connection Compartment for alkaline batteries

ntegrated floor tripod Remote control

TECHNICAL DATA	FL 70 PREMIUM-LINER SP	FEATURES	SUPPLIED WITH FL 70 PREMIUM-LINE
			ARTNO. 582010
Self-levelling range	± 3°	· 5 laser crosses	
Accuracy	± 1 mm / 10 m	· 4 vertical lines at 90° to each other	· Integrated floor trip
Working range w/o receiver	30 m*	· 360° horizontal line	· Remote control
Working range with receiver	80 m	· Laser cross to the ceiling	· Li-Ion batteries and
Power supply	Li-lon	· Plumb down beam	· Magnetic target
Operating time	6 - 14 h	· Self-levelling function can be switched off	· Laser glasses
	depending on number of	· Use with receiver FR 55 to extend working range up to 80 m	· Adapter for tripod
	laser lines switched	· Remote control for setting slopes	· Compartment for a
Dust / water protection	IP 54	· Adjustable 360° circle	· Container
Laser diode	635 nm	· Slow motion screw	
Laser class	2	· Audible and visible alarm when out of level	
Temperature range	-10°C to +45°C	· Integrated floor tripod	
		· 5/8" thread for use with standard tripod	
	* depending on room illumination		

FL70 PREMIUM-LINER SP + FR 55

ART.-NO. 582000

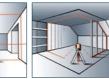




1	Remote control
	110111010 00111101

2 Hard case









FL 1000 HP State-of-the-art



With the ultimate FL 1000 HP even difficult measuring tasks become a mere child's play. Two vertical laser planes at 90° to each other formed through clearly visible laser lines – and additionally one 360° horizontal laser line projected by the rotation function.

FL 1000 HP the ultimate for interior works! Even for the most complicated and specialized applications. The whole laser plane can, for example, be tilted manually if the object to be measured does not stand level – such as in the interior construction of ships.





ECHNICAL DATA	FL 1000 HP	FEATURES	SUPPLIED WITH
			ARTNO. 585020
Self-levelling range	± 5°	· Electronic self-levelling	Combi-receiver FR 10
Power supply	NiMH / Alkaline	· Horizontal rotating laser beam, visible	Charger and batteries
Operating time	10 h	· 4 vertical laser lines at	Magnetic target
Charger = power supply	yes	90° to each other	Laser intensive glasses
Laser diode / laser class	635 nm / 2	· Laser cross to the ceiling	Remote control
Temperature range	-10 °C to +40 °C	· Plumb down beam	Hard case
Veight	2,85 kg	· TILT function	· Halu case
Dust / water protection	IP 54	· Slope setting	
Rotating laser		· Combi-receiver for rotating	
Accuracy	± 1 mm / 10 m	and line beams	
Gradual slope setting in X and Y axis	± 5° (± 9%)	· Remote control	
TILT-function	yes	· On / off remote control	
Norking range without receiver Ø	40 m*	· Adjustable 360° circle	
Norking range with receiver Ø	400 m	· Slow motion screw	
Scanning without receiver	30 m*	· Automatic shut-off / audible alarm	
Scanning range	10/30/60°	when out of level	
Rotating speed rpm	200, 500	· Integrated floor tripod	
ine laser		 5/8" thread for builders' tripod 	
Accuracy	± 2 mm / 10 m		
Norking range without receiver	20 m*		
Norking range with receiver	60 m		
	* depending on room illumination		

www.geo-fennel.com www.geo-fennel.com EasyTRACK Plus for Line Lasers
Optimum alignment the quick and easy way

- The vertical laser line automatically aligns with the on-level position of the receiver
 - Saves you time and money eliminating the need for manual alignment
- One-person operation

TECHNICAL DATA

» NEW: Including remote control for easy positioning of the vertical line to any desired point



EasyTRACK Remote Control



EasyTRACK Base



FasyTF	RACK	Receiver
Lusyii		IICCCIVCI

Centring accuracy TRACKING	± 1 mm
Working range radius	50 m (depending on laser model)
Instrument connection	5/8" and 1/4"
Power supply / operating time	4 x AA Alkaline / 15 h
Temperature range	-10°C to +50°C
Dust / water protection	IP 54

EASYTRACK BASE

TECHNICAL DATA	EASYTRACK RECEIVER
Accuracy	± 1 mm
Display	Front, back and side LED
Temperature range	-10°C to +50°C
Power supply / operating time	3 x AA Alkaline / 50 h
Tones	3 (switchable)
Automatic shut-off	yes
Dust / water protection	IP 54

FEATURES

- 360° horizontal orientation in motorised
- · Automatic axis alignment of the vertical line with on-level position of receiver (tracking)* Alignment of the vertical line to any position with the remote control**
- · Manual slow motion screw for axis
- · For line lasers with either red or green beam * Compatible with CrossPointer5 GREEN, Geo6-XR GREEN, FL 40-PowerCross Plus/ GREEN, Geo1X-360 GREEN, Geo6X/ GREEN, FLG 64-GREEN, FLG 66-Xtreme, FL 70, FL 1000
- ** Compatible with any line laser (geo-FENNEL and other brands) except FL 70



SUPPLIED WITH EASYTRACK

ART.-NO. 290900 EasyTRACK Base

- EasyTRACK Receiver
- EasyTRACK Remote control
- 4 x AA batteries (Base) 3 x AA batteries (Receiver)
- 1 x 9V battery (Remote Control) Soft bag





FPL P & FPL L Positioning Laser

Positioning lasers are especially suited for use in manufacturing industry and in trade for marking and positioning.



FPL C Positioning Cross Laser



TECHNICAL DATA	FPL L-5	FPL L-10	FPL L-20	FPL C-5	FPL C-10	FPL C-20
	ARTNO. 519005	ARTNO. 519010	ARTNO. 519020	ARTNO. 519105	ARTNO. 519110	ARTNO. 519120
Visible laser line	red	red	red	red	red	red
Laser wave length	635 nm	635 nm	635 nm	635 nm	635 nm	635 nm
Integrated laser diode	5 mW	10 mW	20 mW	5 mW	10 mW	20 mW
Laser output power	< 1 mW	< 1 mW	< 5 mW	< 1 mW	< 1 mW	< 5 mW
Laser class	2	2	3R	2	2	3R
Focusing	0 – 10 m focusable	0 – 10 m focusable	0 – 10 m focusable	10 m	10 m	10 m
Fan angle	84°	84°	84°	120°	120°	120°
Temperature range	-10 °C to +40 °C	-10 °C to +40 °C	-10 °C to +40 °C	-10 °C to +40 °C	-10 °C to +40 °C	-10 °C to +40 °C
Dust / water protection	IP 41	IP 41	IP 41	IP 43	IP 43	IP 43
Dimensions (without mount)	Ø 22,5 x 89 mm	Ø 22,5 x 89 mm	Ø 22,5 x 89 mm	Ø 41 x 55 mm	Ø 41 x 55 mm	Ø 41 x 55 mm

laser line

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	GEO5P	CROSSPOINTER5 GREEN SP	GEOSPIDER	SQUARE LINER II	GEO6-XR GREEN	FL 10-CROSS	FL 40-POWER- CROSS PLUS SP	FLG 40-POWER- CROSS PLUS GREEN SP
ARTNO.	555050	531550	552000	551000	533200	540100	541510	541560
				W				
Laser class	2	2	2	2	2	2	2	2
Scheme of projected lines				4				0
Vertical lines	-	1	-	-	4	1	1	1
Horizontal laser range / angle	-	180°	-	-	360°	135°	135°	135°
Laser points	5	5	-	-	-	-	-	-
Plumb down beam	yes	yes	yes	-		-	-	-
Accuracy / 10 m	± 2 mm	± 3 mm	± 3 mm	± 3 mm	± 2 mm	± 5 mm	± 3 mm	± 3 mm
Dust / water protection	IP 54	IP 54	IP 52	IP 52	IP 54	IP 54	IP 54	IP 54
Working range w/o receiver (radius)	30 m	50 m	20 m	10 m	40 m	10 m	30 m	40 m
Working range with receiver (radius)	-	80 m	-	-	60 m	-	80 m	100 m
Power supply	Alkaline	Li-lon	Alkaline	Alkaline	Li-lon	Alkaline	Alkaline	Alkaline
Receiver	-	optional	-	-	optional	-	optional	optional
Page	10	10	12	13	14	16	18	19

GEO1X-360 GREEN	GEO6X SP	GEO6X SP KIT	GEO6X GREEN KIT SP	FLG 64-GREEN HP	FLG 66-XTREME GREEN SP	FL 70 PREMIUM-LINER SP	FL 1000 HP	
533100	534000	534100	534500	580400	580550	582000	585020	
2	2	2	2	2	2	2	2	Laser class
								Scheme of projected lines
1	4	4	4	4	4	4	4	Vertical lines
360°	360°	360°	360°	130°	130°	360°	360°	Horizontal laser range / angle
-	-	-	-	-				Laser points
-	yes	yes	yes	yes	yes	yes	yes	Plumb down beam
± 3 mm	± 2 mm	± 2 mm	± 2 mm	± 2 mm	± 2 mm	± 1 mm	± 1 mm	Accuracy / 10 m
IP 54	IP 54	IP 54	IP 54	IP 54	IP 65	IP 54	IP 54	Dust / water protection
30 m	30 m	30 m	40 m	30 m	40 m	30 m	40 m	Working range w/o receiver (radius)
50 m	60 m	60 m	70 m	60 m	100 m	200 m	400 m	Working range with receiver (radius)
Alkaline	Alkaline	Li-lon	Li-lon	Li-lon	Li-lon	Li-lon	NiMH / Alkaline	Power supply
optional	optional	optional	optional	optional	optional	inclusive	inclusive	Receiver
20	22	22	23	24	26	28	29	Page

ROTATING LASERS

MORE PRECISELY:

EASY TO USE, ACCURATE, ROBUST AND RELIABLE.

Efficient, flexible and reliable – some of the characteristics that define all geo-FENNEL rotating lasers. Whether used for interior applications or on the most demanding outdoor construction sites, in the rain, wind, cold or hot conditions: Our robust, water and dust protected laser measuring instruments provide the precise measuring results, even under unfavourable weather conditions.



ROTATING LASER FOR INTERIOR CONSTRUCTION

These lasers are specially tailored for indoor use with specific functions and accessories (depending on model):

- · Green laser diode and PowerSwitch Technology for best visibility of laser line indoors
- · Scanning and point function
- · Remote control to use the instrument from on top of a ladder or scaffolding
- · Remote control function can be switched off to prevent other remotes from controlling the laser
- · TRACKING function for easiest axe alignment
- · Rich accessories like receiver, remote control, battery and charger, wall and floor mount, target plate and laser glasses

Areas of application:

- · All areas of interior construction
- · Building dry walls
- · Floor screed
- · etc.

FLG 190A-GREEN Outstanding laser line visibility

Perfect for interior applications with outstanding laser line visibility due to PowerSwitch-Technology.

- Incorporating a green beam laser diode for improved visibility under difficult light conditions
 - · Ideal for use in bright surroundings, over long distances and against dark measuring surfaces
 - · Instant self-levelling makes this laser ideal when applications necessitate frequent positional changes



green laser



1 Receiver FR 45

2 Receiver FR-DIST 30



	TECHNICAL DATA		F
	Self-levelling range	± 3°	
	Accuracy	± 1,5 mm / 10 m	
	Working range without receiver Ø	40 m*	
	Working range with receiver Ø	600 m	
	Rotating speed (rpm)	200, 400, 600	
	Power supply	NiMH	
	Operating time	10 h	
_	Dust / water protection	IP 54	
	Laser diode / class	635 nm / 2	-
	Temperature range	-10°C to +45°C	
	Weight (instrument with battery)	1,5 kg	
	* depending on the room illumination		

CAL DATA		FEATURES
elling range by grange without receiver Ø grange with receiver Ø g speed (rpm) supply ng time vater protection iode / class ature range (instrument with battery)	± 3° ± 1,5 mm / 10 m 40 m* 600 m 200, 400, 600 NiMH 10 h IP 54 635 nm / 2 -10°C to +45°C 1,5 kg	Instant self-levelling Horizontal fully automatic self-levelling rotating laser Vertical levelling using adjustment screw Variable rotating speed Permanent 90° beam to zenith Rechargeable NiMH batteries with intellingent charger Integrated floor / wall mount with adjust ment screw















SUPPLIED WITH FL 190A GREEN (LC 2) + FR 45

ART.-NO. 292195

- Receiver FR 45 with clamp for levelling staff NiMH batteries
- Charger
- Carrying case

SUPPLIED WITH FL 190A GREEN (LC 2) + FR-DIST 30

ART.-NO. 292198

- Receiver FR-DIST 30 with clamp for levelling staff
- NiMH batteries
- Charger

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Carrying case

FLG 245HV-GREEN

Professionally interior

FLG 245HV-GREEN (LC 2)

WITHOUT RECEIVER

Remote control

Intelligent charger

Laser glasses

Magnetic target Container

Rechargeable battery (NiMH)

Battery case for alkaline batteries

Adjustable wall and ceiling mount

ART.-NO. 244551

1		

green laser

A professional multipurpose laser for indoor applications

- Green laser for enhanced visibility
- PowerSwitch-Technology: the power of a class 3R laser in a class 2 laser
- · Long distance working range and outstanding line visibility for indoor applications

User-friendly operating concept

- For the ultimate in ease-of-use the only control functions on the instrument power on/off the laser beam and the remote control
- · All additional functions including scanning and slope setting are accessed from the remote control

» Highlights

- · Indoor use: Outstanding line visibility without using a receiver. Versatile with rotating, scanning and point functions
- · Outdoor use: IP 54 protection, long working range, TILT-Function,
- · Numerous accessories supplied as standard check them out

TECHNICAL DATA	FLG 245HV-GREEN	FEATU
Self-levelling	horizontal/vertical	· Wor
Grade	manual	dian
Self-levelling range	±5°	· Dus
Laser class	2	· Varia
Visible laser beam	green	poin
Accuracy horizontal	1,0 mm / 10 m	· Pern
Accuracy vertical	1,5 mm / 10 m	· Auto
Working range with FR 45 Ø	1000 m	· Auto
Rotating w/o receiver Ø	40 m	leve
Scanning w/o receiver / radius	60 m	· Man
Scanning	2 step	Y ax
Laserdot mode	yes	· Rem
90° plumb beam up	yes	off)
Slope setting manual X-Axis	±5° (±9%)	
Y-Axis	±5° (±9%)	
Automatic TILT function	yes	
Working range remote control	IR 100 m	
Remote control function (on/off)	yes	
Rotating speed rpm	300, 800	
Operating time	24 h NiMH	
Temperature range	-20° to +50°C	
Dust / water protection	IP 54	

ertical	· Working range up to 1000 m
	diameter
	· Dust / water protection IP 54

riable scanning and laser rmanent 90° plumb beam tomatic TILT alarm function to-shut-off when out of

anual slope setting of X and

mote control function (on/





SUPPLIED WITH FLG 245HV-GREEN (LC 2) + FR 45

ART.-NO. 244501

- Receiver FR 45 with clamp Remote control
- Rechargeable battery (NiMH)
- Intelligent charger
- Battery case for alkaline batteries Adjustable wall and ceiling mount
- Laser glasses Magnetic target
- Container

FL 245HV-GREEN (LC 2) + FR-DIST 30

ART.-NO. 244531

- · Receiver FR-DIST 30 with clamp Remote control
- Rechargeable battery (NiMH)
- Intelligent charger
- Battery case for alkaline batteries Adjustable wall and ceiling mount
 - Laser glasses
- Magnetic target
- · Container

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FLG 245HV-GREEN TRACKING The indoor alignment pro

- The ultimate solution for easy axis alignement combined with perfect laser line visibility.
- · Green laser for enhanced visibility
- PowerSwitch-Technology: the power of a class 3R laser in a class 2 laser
- TRACKING function: The laser plane is automatically centred to the receiver
- · Makes alignment jobs over long distances amazingly simple
- · Easy one-button-operation of TRACKING function with 60 m working range
- mm-indicating receiver FR 77-MM TRACKING the visible accuracy

User-friendly operating concept

- Control functions on the instrument: on/off laser beam and remote control
- · Additional functions including scanning and slope setting are accessed from remote control
- · TRACKING function operated by receiver

Highlights

- >> · TRACKING function
 - · Indoor use: Outstanding line visibility without using a receiver. Versatile with rotating, scanning and point functions
 - · Outdoor use: IP 54 protection, long working range, TILT-Function,
- · Numerous accessories supplied as standard check them out



ECHNICAL DATA	FLG 245HV-GREEN TRACKING	FEAT
Self-levelling	horizontal/vertical	- W
Grade	manual	· Du
Self-levelling range	±5°	· Va
Laser class	2	· Pe
Visible laser beam	green	· Au
Accuracy horizontal	1,0 mm / 10 m	· Au
Accuracy vertical	1,5 mm / 10 m	- M
Working range with FR 77-MM Tracking	1000 m	· Re
Rotating w/o receiver / Ø	40 m	· Flo
Scanning w/o receiver / radius	60 m	rat
Tracking function	yes	· al
Working range tracking function	60 m	
Scanning	2 step	
Laserdot mode	yes	
90° plumb beam up	yes	
Slope setting manual X-Axis	±5° (±9%)	
Y-Axis	±5° (±9%)	
Automatic TILT function	yes	
Working range remote control	IR 100 m	
Remote control function (on/off)	yes	
Rotating speed rpm	300, 800	
Operating time	24 h NiMH	
Temperature range	-20° to +50°C	
Donat Lorenta annata attan	ID E4	

- Vorking range up to 1000 m diameter Oust / water protection IP 54
- ariable scanning and laser point mode
- Permanent 90° plumb beam
- Automatic TILT alarm function Auto-shut-off when out of level
- Manual slope setting of X and Y axis Remote control function (on/off)
- loor mount with centring mark for accuate set up
- above a ground point









Case with FLG 245HV-GREEN Tracking 1

Receiver FR 77-MM Tracking 2

SUPPLIED WITH FLG 245HV-GREEN TRACKING

ART.-NO. 244701

- Receiver FR 77-MM Tracking with clamp for levelling staff Remote control
- Rechargeable batteries
- Charger
- Battery case for alkaline batteries
- Wall mount
- Floor mount
- Magnetic target
- Laser glasses
- Carrying case

ROTATING LASER FOR INTERIOR AND EXTERIOR CONSTRUCTION

Our allrounders – usable both interior and exterior with functions and accessories like (depending on model):

- · Well visible red laser diode, some lasers with Power-Switch Technology for best visibility and large range
- · Scanning and point function
- · Remote control
- · Remote control function can be switched off to prevent other remotes controlling the laser
- · Manual sloping in both axes
- · Rich accessories like receiver, remote control, battery and charger, wall and floor mount, target plate and laser glasses

Areas of application:

- · Interior construction
- · Civil construction
- Ground movement
- · Floor screeding Landscaping
- · etc.

FL 190A Instantly self-levelling

Rotating laser FL 190A is ideally suited for excavation and transferring levels. Whether you are screeding, excavation or aligning a wall, ... the instant self-levelling and extended range ensure fast and precise results.





FECHNICAL DATA	FL 190A	FE
Self-levelling range	± 3°	- 1
Accuracy	± 1,5 mm / 10 m	- 1
Norking range without receiver Ø	30 m*	f
Norking range with receiver Ø	400 m	- /
Rotating speed (rpm)	200, 400, 600	r
Power supply	NiMH	. \
Operating time	12 h	- F
Dust / water protection	IP 54	- F
_aser diode / class	635 nm / 2	- 1
Temperature range	-10°C to +45°C	
Weight (instrument with battery)	1,5 kg	
	* depending on the room illumination	

- Instant self-levelling
- Horizontal self-levelling rotating laser; vertical levelling with one
- Automatic shut-off and audible alarm when out of self-levelling
- Variable rotating speed

Permanent 90° beam to zenith Rechargeable NiMH batteries with intelligent charger Integrated floor / wall mount with adjustment screw



ART.-NO. 292190

- · Receiver FR 45 with clamp
- for levelling staff
- · NiMH batteries
- Charger
- Carrying case

FL 190A (LC 2)

ART.-NO. 292193

- Receiver FR-DIST 30 with clamp for levelling staff
- NiMH batteries
- Charger

Carrying case

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FL 220HV Straight to the point no nonsense

- Fully automatic self-levelling horizontal and vertical laser
- · A multipurpose rotating laser for indoor and outdoor applications
- 3 buttons for user-fiendly functionallity
- Just switch on and start.







TECHNICAL DATA	FL 220HV	١
		П
Self-levelling	horizontal/vertical	
Self-levelling range	±5°	
Laser class	2	
Visible laser beam	red	
Accuracy horizontal	1,0 mm / 10 m	
Accuracy vertical	1,5 mm / 10 m	
Working range with receiver FR 45 Ø	400 m	
90° plumb beam up	yes	
Automatic TILT function	yes	
Manual mode	yes	
Rotating speed rpm	600	
Battery / Operating time	NiMH / 20 h	
Temperature range	-20° to +50°C	
Protection class	IP 54	

URES

- Working range up to 400 m diameter
- Dust / water protection IP 54
 Permanent 90° plumb beam
 Automatic TILT alarm function
- · Auto-shut-off when out of level

· Manual mode



SUPPLIED WITH

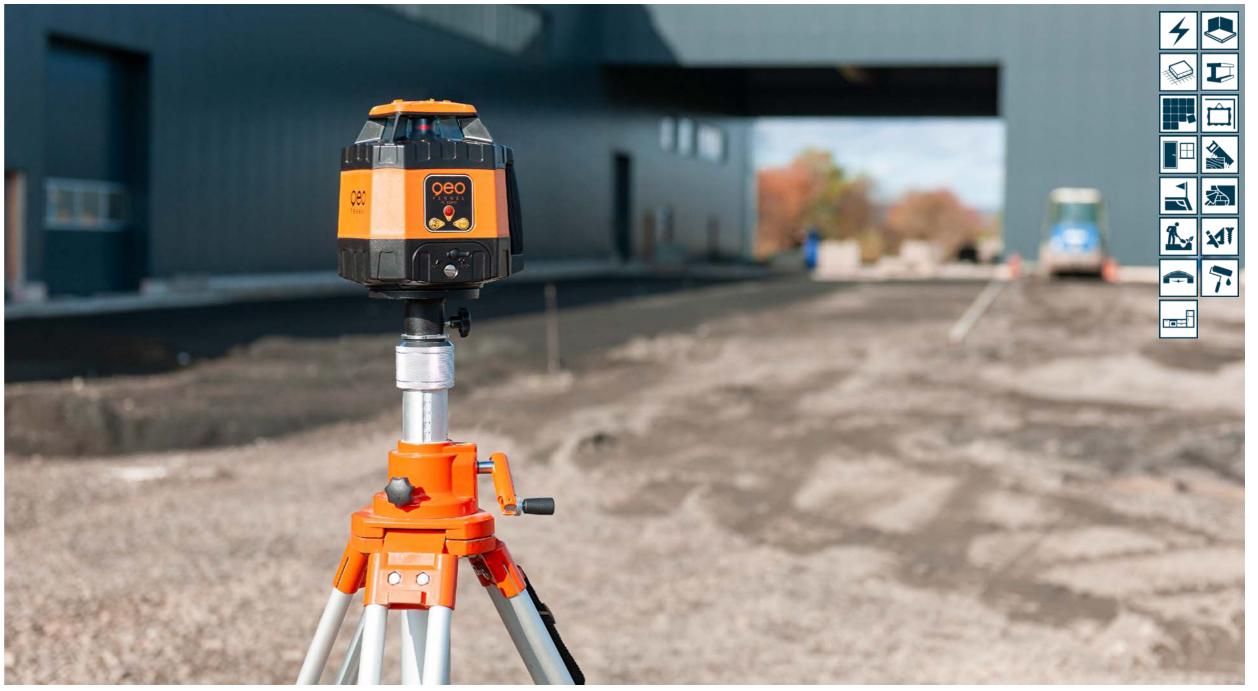
ART.-NO. 220000

· Carrying case

· Receiver FR 45 with clamp · Rechargeable battery (NiMH)

Intelligent battery charger

· Battery case for alkaline batteries



FL 245HV +

A professional multipurpose laser for indoor and outdoor applications



The latest development in our 245 Series

- · PowerSwitch-Technology: the power of a class 3R laser in a class 2 laser · Long distance working range outdoors and outstanding line visibility for
- · IP 65 Class protection for all-weather conditions
- · Now includes a floor mount for easy axis alignment in vertical/laydown mode

User-friendly operating concept

- · For the ultimate in ease-of-use the only control functions on the instrument power on/off the laser beam and the remote control
- All additional functions including scanning and slope setting are accessed from the remote control

Highlights

- · Indoor use: Outstanding line visibility without using a receiver.
- · Versatile with rotating, scanning and point functions
- · Outdoor use: IP 65 protection, long working range, TILT-Function,
- · Numerous accessories supplied as standard check them out

ECHNICAL DATA	FL 245HV +	F
Self-levelling	horizontal/vertical	
Self-levelling range	±5°	
aser class	2	
/isible laser beam	red	
Accuracy horizontal	0,75 mm / 10 m	
Accuracy vertical	1,0 m / 10 m	
Vorking range with receiver Ø		
with FR 45	1200 m	-
with FR-DIST 30	600 m	
with FR 77-MM	600 m	
without receiver	60 m	-
Scanning w/o receiver / radius	60 m	
Scanning mode	2 step	
aser point mode	yes	
90° plumb beam up	yes	
Slope setting X-Axis manual	±5° (±9%)	
Y-Axis manual	±5° (±9%)	
Axis direction vertical	yes	
Automatic TILT function	yes	
Vorking range remote control	IR 100 m	
Remote control function (on/off)	yes	
Rotating speed rpm	300, 800	
Battery / Operating time	NiMH / 26 h	
emperature range	-20° to +50°C	
Oust / water protection	IP 65	

EATURES

Working range up to 1200 m diameter (depending on receiver) Dust / water protection IP 65 Variable scanning and laser point mode Permanent 90° plumb beam Automatic TILT alarm function Auto-shut-off when out of level Manual slope setting of X and

Remote control function (on/off)



>> Container with FLG 245HV-GREEN



SUPPLIED WITH FL 245HV + (LC 2) + FR 45

ART.-NO. 244045

- Receiver FR 45 with clamp
- Remote control
- Rechargeable battery (NiMH)
- Intelligent battery charger
- Wall mount
- Floor mount
- Battery case for alkaline batteries
- Laser glasses
- Magnetic target
- Carrying case



Receiver FR 77-MM with clamp

Rechargeable battery (NiMH)

SUPPLIED WITH FL 245HV + (LC 2) + FR-DIST 30

- Receiver FR-DIST 30 with clamp
- Wall mount
- Battery case for alkaline batteries Laser glasses
- Magnetic target Carrying case



FL 245HV + (LC 2) + FR 77-MM

ART.-NO. 244050

- Remote control
- Rechargeable battery (NiMH) Intelligent battery charger
- Wall mount
 - Floor support Battery case for alkaline batteries

Charger

SUPPLIED WITH

ART.-NO. 244077

Remote control

- Laser glasses
- Magnetic target
- · Carrying case







ROTATING LASER FOR EXTERIOR CONSTRUCTION

These lasers are specially tailored for outdoor use:

- · very robust and well-protected against dust and rain
- · horizontal laser, 1 grad and dual grad laser
- · PowerSwitch Technology for great range
- · High accuracy
- · Millimeter-indicating receiver
- · Measuring safety functions like TILT and VWS
- · Zonal control / masking function to shut off areas of the circle
- · TRACKING function for easiest alignment at the scaffold
- · Rich accessories like receiver, remote control, battery and charger, telescopic viewfinder and vertical mount

Areas of application:

- Civil construction
- · Ground movement
- · Road construction
- Machine control
- · Landscaping and gardening
- · etc.

FL 105H Quick and easy to use now even better

- The latest generation construction laser for horizontal applications New innovative low friction drive mechanism and self-levelling module
 - · Accurate, robust and temperature stable

· Low friction drive for reduced noise generation

Increased battery life







TECHNICAL DATA	FL 105H	FE
Self-levelling	horizontal	Se
Self-levelling range	±5°	
aser class	2	. 3
/isible laser beam	red	- \
Accuracy horizontal	1,0 mm / 10 m	. [
Norking range with receiver Ø		. /
with FR 45	600 m	. \
with FR 77-MM	300 m	. /
Automatic TILT function	yes	
/WS function	yes	
Rotating speed rpm	800	
Operating time	36 h NiMH	
emperature range	-20° to +50°C	
Oust / water protection	IP 65	

horizontal	Self-levelling horizontal rotating laser
±5°	
2	· 3 buttons for user-friendly functionality
red	· Working range 600 m diameter
1,0 mm / 10 m	· Dust / water protection IP 65
	· Automatic TILT alarm function
600 m	· VWS function (Vibration-Wind-Security)
300 m	· Auto-shut-off when out of level
yes	
yes	
800	
26 P VIIVIT	









FL 105H (LC 2) + FR 45

ART.-NO. 212001

for levelling staff

Rechargeable battery and

SUPPLIED WITH FL 105H (LC 2) + FR 77-MM

Receiver FR 45 with clamp

Battery compartment for alkaline batteries Container

ART.-NO. 212078

Receiver FR 77-MM with clamp for levelling staff

alkaline batteries

FL 105H (LC 2) + FR-DIST 30

Battery compartment for

ART.-NO. 212031

clamp for levelling staff

Rechargeable battery and

SUPPLIED WITH

Rechargeable battery and

Container

Battery compartment for

alkaline batteries Container

SET FL 105H (LC 2) WITH FR 45 + FS 20 + TN 15

ART.-NO. 212001-S02



FL 105H (LC 2) WITH FR 77-MM + FS 20 + TN 15

ART.-NO. 212078-S01





FL 115H The new standard for horizontal laser levels

- > The latest generation premium laser for horizontal applications
 - · New innovative low friction drive mechanism and self-levelling module
 - · Accurate, robust and temperature stable
- · Low friction drive for reduced noise generation
- Improved performance
 - Extra long working range
 - · Rotating speed 800 rpm for optimal usage with machine control receivers
 - · Increased accuracy of ± 0,5 mm / 10 m
 - · Robust remote control with 100 m range

TECHNICAL DATA	FL 115H	FEA
Self-levelling	horizontal	Pre
Grade	manual	rota
Self-levelling range	±5°	
Laser class	2	· Е
Visible laser beam	red	· R
Accuracy horizontal	0,5 mm / 10 m	m
Working range with receiver Ø		. V
· with FR 45	1200 m	. D
· with FR 77-MM	900 m	• Н
· with FMR 706-M/C	900 m	10
Slope setting manual X-Axis	±5° (±9%)	· A
Slope setting manual Y-Axis	±5° (±9%)	· V
Automatic TILT function	yes	S
VWS function	yes	. A
Masking (beam screen)	yes	· E
Working range remote control	IR 100 m	· N
Rotating speed rpm	800	Y
Operating time		- Li
Temperature range	-20° to +50°C	
Dust / water protection	IP 66	

emium self-levelling horizontal tating laser

- Easy and intuitive to use
- Robust rubberised housing with metal cover
- Working range 1200 m diameter Dust / water protection IP 66 High accuracy of ± 0,5 mm /
- Automatic TILT alarm function VWS function (Vibration-Wind-Security)
- Auto-shut-off when out of level Electronic beam screen
- Manual slope setting of X and
- Li-lon battery technology

SUPPLIED WITH FL 115H (LC 2) + FR 45

ART.-NO. 211001

- Receiver FR 45 with clamp
- · Li-Ion rechargeable battery with
- · Battery case for alkaline batteries Container



SUPPLIED WITH FL 115H (LC 2) + FR 77-MM

ART.-NO. 211078

Receiver FR 77-MM with clamp

- Li-lon rechargeable battery with
 - Battery case for alkaline batteries Container



FL 115H (LC 2) + FR-DIST 30

ART.-NO. 211031

- Receiver FR-DIST 30 with clamp Li-lon rechargeable battery with
- Battery case for alkaline batteries
- Container









ART.-NO. 211078-S01



FL 155H-G Dual grade laser for beginners



The latest innovation in our Dual Grade range

- · PowerSwitch-Technology: the power of a class 3R laser in a class 2 laser
- · Robust rubberised housing for on-site protection
- · Zonal control (electronic beam screen) eliminates interference from other lasers

» High performance

- · High accuracy of ± 0,5 mm / 10 m
- · Grade setting of X and Y axis up to \pm 10% (monitored)
- · TILT and VWS-Function
- · Li-lon battery technology
- · 2-Way RF remote control

Easy operation

- · Digital setting of grade values
- · Monitored grade
- · Reduced number of buttons for ease-of-use









SUPPLIED WITH FL 155H-G + FR 45

- Receiver FR 45 with clamp
- 2-Way RF Remote control
- Li-lon battery
- Intelligent battery charger Battery case for alkaline batteries
- Carrying case



SUPPLIED WITH FL 155H-G + FR 77-MM

ART-NO. 213177

- Receiver FR 77-MM with clamp
- · 2-Way RF Remote control
- Li-lon battery
- Intelligent battery charger
- Battery case for alkaline batteries
- Carrying case



FL 275HV-TRACKING The alignment pro

The latest generation of precise tracking lasers

- New innovative low friction drive mechanism and self-levelling module
- · Accurate, robust and temperature stable
- · Low friction drive for reduced noise generation

User-friendly operating concept

- · For the ultimate in ease-of-use the only keypad functions on the instrument control power On / Off, VWS, slope selection and the remote control
- · All additional functions including scanning and slope setting are accessed from the remote control
- · TRACKING function at the receiver

>> Improved performance

· Robust remote control with 100 m range





Receiver FR 77-MM TRACKING 1

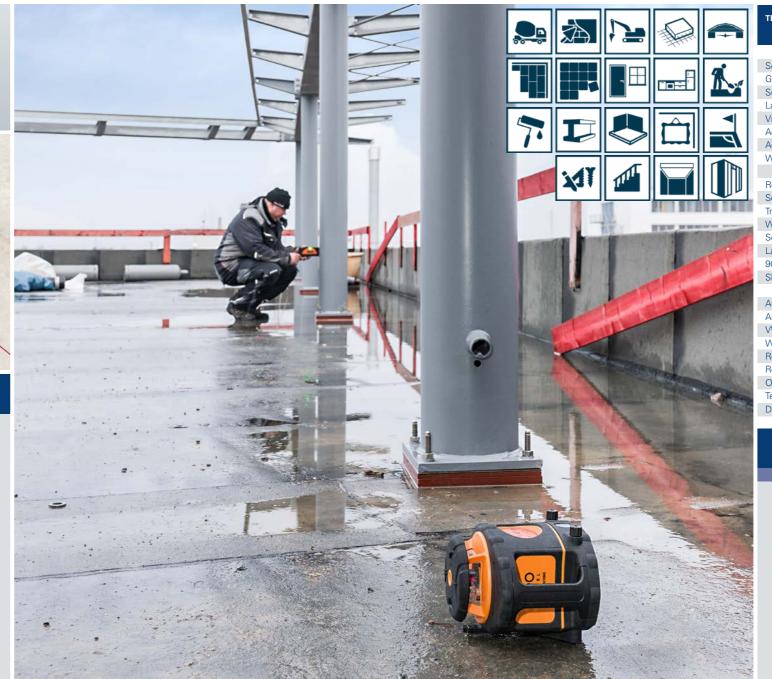


FEATURES

- TRACKING function for automatic axis alignment horizontal and vertical
- The laser plane is automatically centred to the receiver "on-grade"
- Easy one-button operation of TRACKING function
- Working range of TRACKING function 110 m
- mm-indicating Receiver FR 77-MM
 TRACKING
- Vertical: in both X and Y axis
- Horizontal: one axis X or Y, opposite axis self-levelled
- Dust / water protection IP 66
- · High accuracy of ± 0,5 mm / 10 m
- Working range 400 m diameter

- Enhanced scanning functions with small increments and a range up to 180°
 Permanent 90° beam for right
- angles

 · Automatic TILT alarm function
- VWS function (Vibration-Wind-Security)
- · Auto-shut-off when out of level
- Remote control function on/off: to avoid interference with other remote controls or mobile devices
- Manual slope setting of X and Y axis or auto self-level of opposite axis
- Floor mount with centring mark for accurate set up above a ground point
- Li-lon battery technology



FL 275HV TRACKING horizontal/vertical manual Self-levelling range Visible laser beam 0,5 mm / 10 m Accuracy horizontal 1,0 mm / 10 m Accuracy vertical Working range with receiver Ø *with FR 77-MM TRACKING 400 m 40 m Rotating w/o receiver / Ø Scanning w/o receiver / radius 40 m Tracking function 110 m Working range tracking function 4 step yes Laserdot mode 90° plumb beam up ±5° (±9%) Slope setting manual X-Axis ±5° (±9%) Auto self-level of opposite axis yes Automatic TILT function yes VWS-Function IR 100 m Working range remote control yes Remote control function (on/off) 300, 800 Rotating speed rpm 50 h Li-lon Operating time -20° to +50°C Temperature range IP 66 Dust / water protection

SUPPLIED WITH FL 275HVTRACKING + FR 77-MMTRACKING

ART.-NO. 242701

- Receiver FR 77-MM TRACKING with
- clamp for levelling staff
- Remote control
- Rechargeable batteries
- Charger
- Battery case for alkaline batteries
- Floor mount
- Magnetic target
- Laser glasses
- · Carrying case



- Many users find dual-axis grade lasers too complicated, expensive or overloaded with features. The FL 300HV-G EasyGRADE brings a new meaning to user friendly and ease-of-use!
 - · Simply press the "%" buttons on the keypad to set the desired grade of X-axis - it's as easy as that.
- · Ideal for setting-out gradients for surface drainage, paving, landscaping etc.
- The range from 0.1% to 6.9% covers the majority of on-site tasks
- 2nd axis (Y)
- · Horizontal: Self-levelled -or- manual grade setting with remote control
- Vertical: axis direction with remote control
- Highlights
- · Easy single grade setting, long working range, TILT-/VWS-Measuring security functions
- PowerSwitch-Technology: the power of a class 3R laser in a class 2 laser
- · IP 66, high accuracy, robustness, Li-Ion battery



FEATURES

HORIZONTAL

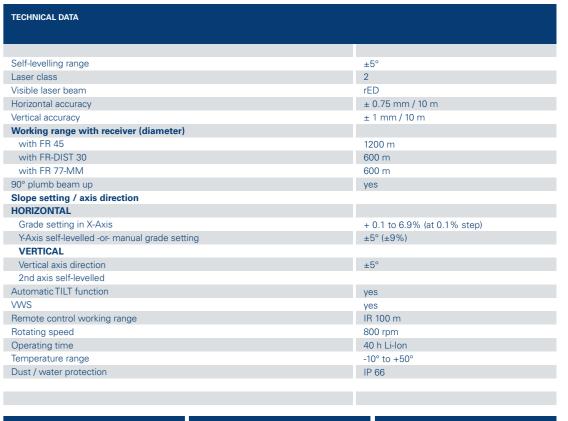
- Self-levelling
- Numerical grade setting in X-Axis
- Manual grade setting in Y-Axis with remote control
- VERTICAL
- Self-levelling
- Axis direction in Y-Axis with remote control
- TILT function
- VWS function (Vibration-Wind-Security)
- 90° beam to zenith
- Dust / water protection IP 66











SUPPLIED WITH FL 300HV-G EASYGRADE + FR 45

ART.-NO. 214045

- Receiver FR 45 with clamp
- Remote control
- Rechargeable battery (Li-Ion)
- Intelligent battery charger
- · Battery case for alkaline batteries
- · Floor mount (integrated)
- Carrying case

SUPPLIED WITH FL 300HV-G EASYGRADE + FR-DIST 30

Receiver FR-DIST 30 with clamp

Battery case for alkaline batteries

Floor / wall mount (integrated)

Rechargeable battery (Li-Ion)

Intelligent battery charger

ART.-NO. 214050

Remote control

Carrying case

- - Remote control

SUPPLIED WITH

ART.-NO. 214077

- Rechargeable battery (Li-Ion)
- Intelligent battery charger
- Battery case for alkaline batteries

FL 300HV-G EASYGRADE + FR 77-MM

Receiver FR 77-MM with clamp

- Floor / wall mount (integrated)
- Carrying case
- Floor/wall mount (integrated)







www.geo-fennel.com www.geo-fennel.com



FL 505HV-G The versatile dual grade laser

Improved performance utilising PowerSwitch-Technology: The power of a class 3R in a class 2 laser.

³² 4 mm laser beam diameter for optimised compatibility with our FMR 700/800 over long distances

Now with receiver FR 77-MM with mm-indication as standard

Fully automatic self-levelling in horizontal, vertical and grade

Slope functions horizontal: Digital grade setting of X and Y axis up to ±10 % Manual slope setting of X and Y axis

Slope functions vertical: Direction of X axis can be set up to ±10 % with Y axis self-levelled Direction of X and Z axis can be set manually

Automatic TILT function

VWS function (Vibration-Wind-Security) Rotation will not be stopped due to light ground and wind vibrations (combined with TILT function)

Fully functional 9-channel 2-way RF remote control

Li-lon battery technology



	00
TECHNICAL DATA	FL 505HV-G

	Self-levelling range	± 8°
	Accuracy horizontal	± 0.5 mm / 10 m
	Accuracy vertical	± 1 mm / 10 m
	Working range with	
	receiver Ø FR 45	1200 m
	receiver Ø FR 77-MM	400 m
	Scanning w/o receiver	60 m*
	Rotating w/o receiver Ø	60 m*
	Laser diode / Laser class	2
	Scanning ranges	0°, 10°, 45°, 90°, 180°
	Horizontal slope setting	
	X axis	± 10.000 %
	Y axis	± 10.000 %
	X and Y axis	Σ ± 14 %
	Vertical slope setting	
	X axis	± 10.000 %
	Y(Z) axis	horizontal self-levelled
	Rotating speed	300 / 600 / 1100 rpm
	Operating time	40 h
	Power supply	intelligent / Li-lon
		Alkaline batteries (optional)
	Remote control range	150 m
ole	Remote control channels	9



plied in container

With 9-channel 2-way 2 RF remote control Complete kit sup-





SUPPLIED WITH FL 505HV-G (LC 2) + FR 77-MM ART.-NO. 231025

- Receiver FR 77-MM with clamp · 2-Way RF Remote control
- Li-lon battery & charger
- Vertical mount
- Telescope
- 360° horizontal fine adjustment Container

SUPPLIED WITH FL 505HV-G (LC 2) + FR-DIST 30

ART.-NO. 231055

Receiver FR 77-DIST 30

Li-lon battery & charger

360° horizontal fine adjustment

with clamp

bracket

Container

Dual Axis Laser

FEATURES

- Horizontal and vertical
- Digital grade adjustment Monitored grade
- 2-Way RF Remote control TILT function
- VWS function Vertical mount 90° beam to zenith Telescope
 - Illuminated display 2 way RF remote control
 - Manual function
 - 4-step scanning function Operation with rechargeable

Temperature range

Dust / water protection

Weight (instrument only)

Li-lon or alkaline batteries Dust / water protection IP 66

> * depending on environmental conditions

-10 °C to +50 °C

IP 66 3.85 kg































www.geo-fennel.com

FL 510HV-G TRACKING M The ideal outdoor laser

- Improved performance utilising PowerSwitch-Technology: The power of a class 3R in a class 2 laser.
- > 4 mm laser beam diameter for optimized compatibility at use with FMR 700 / 800 at long distance.
- Including receiver FR 77-MM TRACKING with mm-indication.



Remote control channels

Temperature range

Dust / water protection Weight (instrument only)





TILT function

VWS function

Zonal control

90° beam to zenith

Illuminated display

Manual function

or alkaline batteries

2-way RF remote control

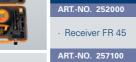
Operation with rechargeable Li-lon

Dust / water protection IP 66

vertical













· Receiver FR 77-MMTRACKING
with clamps for levelling staff and
scaffold

- · 2-way RF remote control
- Vertical mount
- · Container

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100	Min-Grane (1)
PERM	
Thou	

TECHNICAL DATA FL 510HV-GTRACKING Self-levelling range ± 8° ± 0.5 mm / 10 m Accuracy horizontal Accuracy vertical ± 1 mm / 10 m Working range with receiver FR 77-MM TRACKING Ø 400 m* Laser diode / Laser class Horizontal slope setting X-axis ± 10.000 % ± 10.000 % X and Y axis $\Sigma \pm 14 \%$ Vertical slope setting ± 10.000 % X axis Y(Z) axis horizontal self-levelled Working range tracking function 140 m* Rotating speed 300 / 600 / 1100 rpm Operating time Power supply intelligent / Li-lon Alkaline batteries (optional) Remote control range 100 m

-10 °C - +50 °C

* depending on environmental

IP 66

3.85 kg

conditions

Receiver FR 45 4

Receiver FR 77-MM 5

Receiver FR-DIST 30 6

FEATURES FL 510 HV-G TRACKING M ART.-NO. 231700 Dual Axis Laser Horizontal and vertical

Digital grade adjustment Monitored grade (also in tracking

2ND RECEIVER

- Rechargeable batteries and
- Tracking function horizontal and · Li-Ion batteries and charger
 - Telescopic viewfinder

Tracking functions:

- The laser plane is automatically centred to the receiver "on-grade"
- Vertical: in both X and Y axis
- Horizontal: one axis X or Y, other axis horizontal self-levelled
- For highest demands: exact monitoring of the tracked axis by continuous radio link between rotating laser and receiver. This application requires the use of a 2nd receiver for height checking work. Zonal control with electronic beam screen svoids spurious measurements caused by crossing laser planes and refletions - increases site safety indication of grade value in % after completion of tracking process shown on the instrument and remote control display.

Slope functions:

- Horizontal:
- Digital grade setting of X and Y axis up to ±10 %
- · Manual slope setting of X and Y axise

Vertical:

- Direction of X axis can be set up to $\pm 10\%$ with Y axis self-levelled
- Direction of X and Z axis can be set manually
- Last tracked or keyed in grade value is retained after switching off and is retrievable from the memory (both X and Y axis).
- Automatic TILT function
 - VWS function (Vibration-Wind-Security)
 - Rotation will not be stopped due to light ground and wind vibrations (combined with TILT function)
 - · Zonal control with electronic beam screen (masking)
 - · Fully functional 8-channel 2-way RF remote control
 - · Li-Ion battery technology















Rotating Lasers Outline

Rotating Lasers Outline

		INTERIOR		INTERIOR & EXTERIOR			
		horizontal / vertical					
ARTNO.	FLG 190A GREEN	FLG 245HV-GREEN	FLG 245HV-GREEN TRACKING	FL 190A FL 220HV		FL 245HV +	
	292195	244501	244701	292190	220000	244045	
Laser class	2	2	2	2	2	2	
Horizontal levelling	fully automatic	fully automatic	fully automatic	fully automatic	fully automatic	fully automatic	
Vertical levelling	manual	fully automatic	fully automatic	manual	fully automatic	fully automatic	
Accuracy / 10 m	H ± 1,5 mm	H ± 1,0 mm	± 1,0 mm	± 1,5 mm	H ± 1,0 mm	H ± 0,75 mm	
Dust / water protection	IP 54	IP 54	IP 54	IP 54	IP 54	IP 65	
Working range w/o receiver ∅	40 m	60 m	60 m	30 m	30 m	60 m	
Working range with receiver FR 45 Ø	600 m	1000 m	-	400 m	400 m	1200 m	
Working range with receiver FR 77-MM Ø	-	-	1000 m	-	-	600 m	
rpm	200, 400, 600	300, 600	300, 800	200, 400, 600	600	300, 800	
Tracking function	-	-	yes	-	-	-	
TILT function	-	yes	yes	-	yes	yes	
VWS function	-	-	-	-	-	-	
Slope function of both axis X and Y	-	± 5° (9 %)	± 5° (9 %)	-	-	± 5° (9 %)	
Slope setting	-	manual	manual	-	-	manual	
Plumb up / down beam	yes	yes	yes	yes	yes	yes	
Power supply	NiMH	NiMH	NiMH	NiMH	NiMH	NiMH	
Receiver, remote control, rechargeable battery, charger	inclusive, without remote	inclusive	inclusive	inclusive, without remote	inclusive, without remote	inclusive	
Page	36	38	40	42	44	46	

EXTERIOR							
	horizontal			horizonta			
FL 105H	FL 115H	FL 155H-G	FL 275HV-TRACKING	FL 300HV-G EASYGRADE	FL 505HV-G	FL 510HV-G TRACKING	ARTNO.
212001	211001	213145	242701	214045	231025	231700	
	999						
2	2	2	2	2	2	2	Laser class
fully automatic	fully automatic	fully automatic	fully automatic	fully automatic	fully automatic	fully automatic	Horizontal levelling
-	-	-	fully automatic	fully automatic	fully automatic	fully automatic	Vertical levelling
H ± 1,0 mm	H ± 0,5 mm	H ± 0,5 mm	± 0,5 mm	± 0,5 mm	H ± 0,5 mm	H ± 0,5 mm	Accuracy / 10 m
IP 65	IP 66	IP 65	IP 66	IP 65	IP 66	IP 66	Dust / water protection
40 m	60 m	-	40 m	-	40 m	40 m	Working range w/o receiver Ø
600 m	1200 m	1200 m	-	1200 m	-	40 m	Working range with receiver FR 45 Ø
300 m	900 m	600 m	400 m	600 m	400 m	400 m	Working range with receiver FR 77-MM Ø
800	800	500, 800	300, 800	800	300,600,1100	300,600,1100	rpm
-	-	-	yes	-	-	yes	Tracking function
yes	yes	yes	yes	yes	yes	yes	TILT function
-	yes	yes	yes	yes	yes	yes	VWS function
-	± 5° (9 %)	± 6° (10 %)	± 5° (9 %)	+ 6.9 % (X)	± 10 %	± 10 %	Slope function of both axis X and Y
-	manual	digital / controlled	manual	numeric / controlled	digital / controlled	digital / controlled	Slope setting
-	-	-	yes	yes	yes	yes	Plumb up / down beam
NiMH	Li-lon	Li-lon	Li-lon	Li-lon	Li-lon	Li-lon	Power supply
inclusive, without remote	inclusive	inclusive	inclusive	inclusive	inclusive	inclusive	Receiver, remote control, rechargeable battery, charger
48	50	52	54	56	58	60	Page

PIPE LASER

ROBUST, WATER RESISTANT, POWERFUL.

Our new generation of pipe lasers incorporate the latest technology for improved site performance.



Pipe Laser Pipe Laser



FKL 44 & FR-FKL TRACKING The handy one

- FKL 44 Pipe laser for tube diameters of 100 300 mm.
- Handy and robust all-metall housing pipe laser for for drainage work and piping in house and object construction, etc.
- OLED-Display with large figures
 - · RF-Remote control with 100 m working range
 - · Laser spot direction setting: Quick shifting by continued pressing respective button at both laser or remote control
 - · Rugged, waterproof, powerful

 - · Easy and logic operation
 - · Comprehensive range of standard accessories

» Receiver FR-FKLTRACKING (optional)

Tracking function for automatic detection of the horizontal target plate center. Saves time at next day set up.

TECHNICAL DATA	FKL 44 (LC 2)	FEATURES	SUPPLIED WITH		
			FKL 44 (LC 2)		
			ARTNO. 454000		
Laser class	2	Robust aluminium housing			
Laser diode	red	· Easy intuitive operation	· Target frame with targets		
Beam diameter	10 mm	Fully automatic self-levelling	DN 100 / 125 / 150 / 200 / 250 / 300		
Working range	120 m	Automatic beam centering	· Special target for DN 100 pipes		
Grade range	-20% to +30%	Laser start point indication	(also target frame for FR-FKL		
Self-levelling range	± 5°	· Clear easy-to-read OLED-Display	TRACKING)		
Minimum display reading	0,000 %	· RF Remote control with long	RF-Remote control Leg sets DN 125 / 150 /		
Horizontal accuracy	± 5 mm / 100 m	working range			
Left / right tracking	± 10°		200 / 250 / 300		
Operating time	24 h		· Li-lon battery and charger		
Power supply	8000 mAh Li-lon		, , ,		
RF-Remote control range					
front / back	100 m / 50 m				
Temperature range	-20°C to +50°C				
Dust / water protection	IP 68				
Dimensions	Ø 96 mm, L = 332 mm				
Weight (laser only)	2,8 kg				
TECHNICAL DATA	RECEIVER FR-FKLTRACKING	WITH FR-FKLTRACKING			
Accuracy	± 2 mm / 100 m	Tooling for the formation			
Vorking range 50 m		Tracking function for automatic detection of the horizontal target			
Power supply	2 x AAA batteries	plate center.			
Temperature range	-10°C to +45°C	piato conton			
Dust / water protection	IP 67				



>> SUPPLIED WITH

Fitting

- 1 Target frame with target DN 100-200
- 2 Container
- 3 Pipe laser
- 4 Remote control
- 5 Feet DN 125-300
- 6 Special target for DN 100 pipes (also target frame for FR-FKLTRACKING)
- 7 Target DN 250-300
- 8 Charging cable
- 9 Charger







RF remote control with digital display 4











SUPPLIED WITH

· FR-FKL Receiver · Batteries

FR-FKLTRACKING ART.-NO. 454050 Pipe Laser

» FKL 55

FKL-55 and FKL-55 GREEN Straight and advanced

- Our new generation of pipe lasers incorporate the latest technology for improved site performance.
 - Advanced mechanical engineering technology, temperature stability and grade technology
 - Extremely good visibility of OLED-Display with large figures
 - · Long-range IR remote control with 100 m working range
 - Laser spot direction setting: Quick shifting by continued pressing respective button at both laser or remote control
- Rugged, waterproof, powerful, easy-to-use and comprehensive range of standard accessories.

To the human eye a green laser dot is more visible than a red laser dot. Green laser technology of the next generation: Temperature range was increased to -20 °C.





SUPPLIED WITH

Fittings

- 1 Target frame with target DN 150–300
- 2 Container
- 3 Pipe Laser
- 4 IR remote control
- 5 Leg set DN 500
- 6 Leg set DN 400
- 7 Leg set DN 300
- 8 Leg set DN 250
- 9 Leg set DN 200
- 10 Adapter for 3-leg set up
- 11 Charger
- 12 Battery case for alkaline batteries
- 13 Target DN 400-500

Application in pipes DN 150 w/o legs

EATURES

- Robust aluminium housing
- Easy intuitive operation
- Fully automatic self-levelling
- Automatic beam centering
 Laser start point indication
- · Clear easy-to-read OLED-Display
- IR remote control with long working range
- · Integrated rechargeable batteries



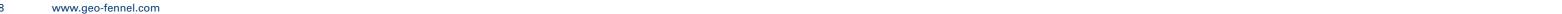
Universal Mount for FKL-55 / FKL-55 Green



UNIVERSAL MOUNT

ART.-NO. 455100

- Levelling base with height adjustable mount for use
- · in manhole
- · in or in front of pipes with large diameter · with 5/8" female thread for tripod conn-



RECEIVERS

OVERCOME DISTANCES:
WITHOUT LOSING THE DETAIL.

To quickly and easily implement the widest variety of measuring tasks, it is sometimes vital to have the appropriate solution available. Whether you are looking for laser intensive glasses, magnetic targets or the correct adapter – the versatile accessory range from geo-FENNEL makes your work noticeably more efficient.



FR 55-M & FR 55 Receiver for Line Lasers

For red and green laser.

>> Height indication by LEDs.

>> Height indication by LEDs and LCD.





FEATURES FR 55-M

ART.-NO. 500520

- · For red and green laser
- Height indication by 3 LEDs which are situated on the front, side and back
- · With clamp
- · Shut-off tone
- 2-step accuracy
- Automatic shut-off
- Supplied in case
- · Built-in magnet on top

FEATURES FR 55 ART.-NO. 500510 For red and green laser Height indication by 3 LEDs which are situated on the front side and top and with a large display on the front With clamp Shut-off tone Automatic shut-off Built-in vials

FR 75-MM Receiver for Line Lasers

For red and green laser.

with digital level indication in millimeters.

Extra long receiving window of 100 mm.

mm-indication of difference between laserplane and "0" level.



TECHNICAL DATA	FR 75-MM	-
		- 1
2-step accuracy	far & close distance	
Accuracy mm-indication	± 1 mm	
Length receiving window	100 mm	
Length receiving area		
mm-indication	50 mm	SI
Measuring units	mm	FF
Signal tones	3	FF
Display indication	front & back	Al
LED indication	front, side, back	
Power supply / operating time	4 x Alkaline / 55 h	
Temperature range	-10°C to +50°C	
Display illumination	yes	
Magnets	top, side	
Vials	top, side	
Dust / water protection	IP 65	
Dimensions	172 x 78 x 32 mm	
Weight	0,5 kg	

FEATURES

- · For line lasers using a red or green
- Extra long receiving window 100 mm mm-indication of difference between laserplane and "0" level
- Segments of display indication increase / decrease proportionally
- Illuminated display Robust clamp
- SUPPLIED WITH

RT.-NO. 257200

4 x AA Alkaline batteries

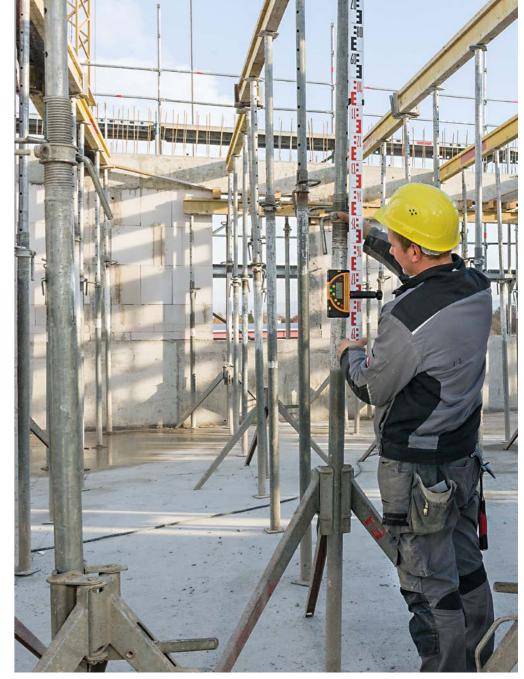
FR 45 Receiver for Rotating Lasers

For red and green laser.

>> With dual display and clamp for levelling staff, shut-off tone, automatic shut-off, illumination, built-in magnetic strips and vial. Rubberised housing for effective site protection.



TECHNICAL DATA	FR 45	FEATURES FR 45
		ARTNO. 252000
Suitable for laser diode	red	
Indication	2 x LCD	For red and green laser
3-step accuracy	± 10 mm, ± 4 mm, ± 2 mm	· Height indication by 3 LEDs which
Power supply	1 x 9 V	are situated on the front side and top
Signal tones	3	and with a large display on the front
Tone can be switched off	yes	· With clamp
Auto-shut-off	yes	· Shut-off tone
Illumination	yes	Automatic shut-off
Weight	0,2 kg	· Built-in vials
Dust / water protection	IP 66	



FR 77-MM Receiver for Rotating Lasers

For red and green laser.

With digital level indication in millimeters.

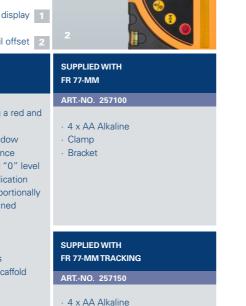
- Extra long receiving window
- · mm-indication of difference between laserplane and "0" level
- · "0" position can be defined (Offset)







Detail offset 2





TECHNICAL DATA FR 77-MM FEATURES ± 2/5/9 mn For rotating lasers using a red and Accuracy mm-indication ± 1 mm green laser beam Working range class 2-Laser 150 m* Extra-long receiving window Working range class 3R-Laser 350 m* mm-indication of difference 125 mm Length receiving window between laserplane and "0" level Length receiving area mm-indication 100 mm Segments of display indication Offset range (OSET) from base line ± 20 mm increase / decrease proportionally Measuring units mm, cm, in, fraction of in "0"-position can be defined Signal tones (offset) Display indication front, back Display illumination LED indication front, side, back Robust clamp Power supply / operating time Alkaline / 110 h Special mount for various -10 °C to +50 °C connections e.g. at the scaffold Temperature range Display illumination top, side top, side Dust / water protection IP 65 Bracket 170 x 77 x 32 mm Dimensions

FR-DIST 30 Receiver for Rotating Laser with integrated Laser Distance Meter

Innovation: AUTO-DIST function measures the distance between laser plane ("0" level of receiver) and floor, wall, object automatically

Applications

- · Makes the levelling staff unnecessary for height control works with a rotating laser
- Quick and contact-free height control
- · Easy checking of ditch depth when working with an excavator
- · Direct reading of height differences during grading work
- · Fast and safe interior alignment when working at fixed distances eliminates the need for a 2nd person holding the end of a measuring tape





mm indication 1

Measurement of area 2

be used with either red or n beam rotating lasers indication of difference ween laserplane and "0" level nsive laser distance meter cions
n beam rotating lasers indication of difference geen laserplane and "0" level nsive laser distance meter cions
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5. 2 07000
A Alkaline battery
p for levelling staff
- · · · · · · · · · · · · · · · · · · ·

RECEIVERS FOR LASERS

FMR 600 Receiver for Rotating Lasers

SUPPLIED WITH

Batteries

Container

Clamp for levelling staff

FMR 600 ART.-NO. 265000

>> Heavy duty laser receiver, ideal for mounting onto construction machines. Strong built-in magnets for connection to machines and a clamp for levelling staffs. Large receiving window (125 mm) and clear height indication (audible and visible). Ideal for use with smaller excavators.

FEATURES

Attachment to levelling staff by

use of clamp or directly to the

machine with built-in magnets

indicate heights

· Water / dust resistant

· LCD, LEDs and 3 different tones

· Memory function of last received



Set FMR 700-M/C Machine Control Receiver Set

A machine control receiver to improve the operating accuracy of your construction machinery. Used for permanent level control the FMR 700 receiver has a 360° reception range.





FEATURES



>> FRP 707

FMR 700-M/C UND 706-M/C

FMR 706-M/C SET FMR 700-M/C (MAGNET AND CLAMP) (MAGNET AND CLAMP) + FRP 707 ART.-NO. 260550

ART.-NO. 260500

FRP 707 (WITHOUT MACHINE

ART.-NO. 263000



FMR 700-M/C UND 706-M/C
± 2 mm – ± 10 mm
± 5 mm – ± 23 mm
7,2 V NiMH
2500 mAh

40 h Operating time 15 h Charging time -20°C to +50°C Temperature range Dimensions 376 x 180 x 49mm Weight 3,1 kg

Length of receiving window: 25 cm Connect to the machine with

levels of any brand

Remote display

rechargeable battery, charger, 12 / 24V-battery cable, remote display with screw clamps or with strong maconnection cable, hard case gnets (both supplied in the kit) Detects beam from rotating laser Also supplied separately:

Machine control receiver FMR 706-M / C, built-in battery, charger, 12 / 24V battery cable, hard case

Machine control receiver, built-in

Remote display with connection

CONTROL RECEIVER)

www.geo-fennel.com

TECHNICAL DATA

Accuracy fine

Accuracy coarse

Working range

Receiving window

Reception angle

Power supply

Operating time

Temperature range

Dust / water protection

FMR 600

± 5mm

200 m

50 h

0,96 kg

± 12,5mm

125 mm long

4 x AA Alkaline

-20°C to +50°C

170 x 100 x 42mm

- Machine control receiver used with construction machinery to increase accuracy and boost productivity. For continuous tilt and height control.
 - · Bulldozer: Blade tilt and height control
 - Excavator: Bucket tilt and height control
 - · RF communication link to the remote display



TECHNICAL DATA	FMR 800-M/C	MACHINE CONNECTION	FEATURES
Beam reception angle Detectable rotating laser speeds rpm Working range class 2-laser Working range class 3R-laser Battery recharging time Automatic power-off, after Dust / water protection Operating temperature Dimensions Weight (receiver only)	360° 300 - 1200 250 m 350 m 4 - 5 h 60 min. IP 66 -10 °C to +50 °C 370 x 132 x 92 mm 3.95 kg	Magnetic connection directly to the machine Clamp connection to the machine mast Mast diameter 40–50 mm	Length of receiving window: 27 cm Will detect the beam from any brand of rotating laser (red) Dust / water protected metal housing Wireless remote display with suction pad and integrated magnets
BULLDOZER MODE		EXCAVATOR MODE	

Blade tilt		Bucket tilt	
(Receiver movement left / right tilted)		(Receiver movement in longitudinal direct	tion forward / backward tilted)
Accuracy	fine / standard / coarse	Accuracy	fine / standard / coarse
	$\pm 0.5^{\circ} / \pm 1.5^{\circ} / \pm 2.5^{\circ}$		$\pm 0.5^{\circ} / \pm 1.5^{\circ} / \pm 2.5^{\circ}$
Indication LED (left / right sideways)	5	Indication LED, grouped	3
		3 signals: rapid/slow flashing, permanent	light
Height indication			
(Receiver movement up / down)		Height indication	
Accuracy	fine / standard / coarse	(Receiver movement up / down)	
	$\pm 5 / \pm 15 / \pm 30 \text{ mm}$	Accuracy	fine / standard / coarse
Indication LED (up / down)	3		$\pm 5 / \pm 15 / \pm 30 \text{ mm}$
		Indication LED, (up / down) grouped	4
		Extended upper LED for bucket dipping n	notion



FMR 800-M/C ART.-NO. 264500

SUPPLIED WITH

Machine receiver FMR 800-M / C

- with built-in rechargeable battery
- Hard carrying case
- · SET Machine receiver FMR 800-M / C with built-in rechargeable battery · Charger

SUPPLIED WITH

FMR 800-M/C SET

ART.-NO. 264550

- · Remote display FRD 807 with suction pad and batteries
- · Hard carrying case



FRD 807 Remote Display

1 Suction pad attachment





TECHNICAL DATA	FRD 807	SUPP REMO
		ART1
Wireless (RF) communication range	10 m	
Communication channels	3	· Ren
Machine connection:	· integrated magnetic pads	· Suc
	· strong suction pad for cabin	· Batt
	windscreen	
Power supply	4 x AA alkaline	
Dimensions	170 x 100 x 42 mm	
Weight	1.1 kg	

OTE DISPLAY FRD 807

emote display FRD 807

Magnetic Support for Machine Control Receiver

For connection to construction machinery. Allows the receiver to be easily aligned to the laser plane. Strong magnets ensure non-slip grip onto the machine. Quick release lever allows the magnetic support to be detached easily. Suitable for all brands of machine receivers using a clamp fixing system.



MAGNETIC SUPPORT FOR MACHINE CONTROL RECEIVER

ART.-NO. 290810

SURVEYING INSTRUMENTS

AT OUR CORE:

PRECISION AND INNOVATION.

Decades of experience – an important factor in the quality of our instruments. You can depend on geo-FENNEL surveying instruments to provide precise reliable results under all working conditions. Whether electronic or optical – our construction and engineering instruments are characterized by their intuitive ease of use, innovation and high accuracy.



You can find all of our surveying equipment in our separate catalogue, **Surveying instruments and accessories** along with GPS-controlled systems for surveying work for construction, land registry, industry and engineering.



N 32-Set **Automatic Level**



TECHNICAL DATA	N 32
ARTNO. 400 GON ARTNO. 360°	200532 200533
Mean error 1 km double levelling Telescope magnification Objective diameter Shortest focussing distance Horizontal circle Weight	± 2 mm 32 x 36 mm 0,3 m 400 gon / 360° 1,5 kg
FEATURES	SUPPLIED WITH N 32-SET (400 GON & 360°)
Robust metal housing Supplied in carton comprising N32, more more many staff and tripod for convenient storage and delivery	 N 32 level with carrying case Aluminium tripod 5 m levelling staff Carrying case

GFN 1 Automatic Level suitable for all construction sites

- 32 x Magnification
 - · Robust all-metal housing
 - · Handle for comfortable handling



CHNICAL DATA	GFN 1	FEATURES	SUPPLIED WITH GFN 1 SET
ean error for 1 km double levelling lescope magnification ojective diameter oortest focussing distance orking range of compensator velling accuracy	± 1,5 mm 32 x 36 mm 0,4 m ± 15' ± 0,3* 8' / 2 mm	Robust metal housing with handle for comfortable handling Bubble reading mirror Optical sight for quick alignment to a levelling staff	ARTNO. 400 GON ARTNO. 360° GFN 1 Level with carrying case Aluminium tripod 5 m levelling staff Set carton
orizontal circle ust / water protection eight (instrument only)	400 gon / 360° IP 54 1,2 kg	SUPPLIED WITH GFN 1 ARTNO. 400 GON 200200 ARTNO. 360° 200205	CCCC TOTAL CONTROL
		Adjustment pin Carrying case	Purity and analysis of the second

GFN 10 High-class Engineers' Level

- 32 x magnification and bright optics
 - Robust all-metal housing
 - · Wedge-shaped reticle

TECHNICAL DATA

Telescope magnification

Working range of compensator

Objective diameter

Levelling accuracy

Circular bubble

Horizontal circle

Dust / water protection

Weight (instrument only)

Mean error for 1 km double levelling ± 1,0 mm

· Internal circle and compensator test button

GFN 10

40 mm

0,6 m

± 15'

± 0,3"

1,6 kg

8' / 2 mm

400 gon / 360° IP 65

FEATURES

Robust metal housing with

Well protected internal circle

Compensator test button

Bubble reading mirror

accurate reading

handle for comfortable handling

Reticle in wedge-shape for most

Handle for comfortable handling



SUPPLIED WITH GFN 10

ART.-NO. 400 GON

Adjustment pin

Plumb bob

Carrying case

ART.-NO. 360°

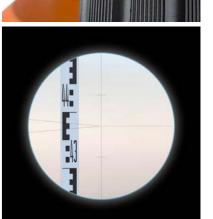












GFE 32 und GFE 32-L Engineers' Automatic Level

A high quality engineers' automatic level with the most robust compensator available on the market. Brilliant optical system for clear view at all conditions.





>>> GFE 32, 360°

>>> GFE 32-L, 360°

ENGINEERS' AUTOMATIC LEVEL GFE 32, 360°	ENGINEERS' AUTOMATIC LEVEL GFE 32-L, 360°	
210332	210333	
32 x	32 x	
45 mm	45 mm	
1°	1°	
2 m	2 m	S
±2 mm	±2 mm	
< 1 mm	< 1 mm	
100	100	
±15'	±15'	
2"	2"	
8' / 2 mm	8' / 2mm	
360°	360°	
IP 54	IP 54	
2.5 kg	2.7 kg	
280 x 160 x 140mm	280 x 160 x 140 mm	
-25 °C to +50 °C	-25 °C to +50 °C	
_	635 – 670 nm / 2	
_	2 mm	
_	120 m (during day)	
_	300 m (twilight)	
_	5"	
_	8 h / 2 x AAA	
_	yes	
	210332 32 x 45 mm 1° 2 m ±2 mm < 1 mm 100 ±15' 2" 8'/2 mm 360° IP 54 2.5 kg 280 x 160 x 140mm	LEVEL GFE 32, 360° LEVEL GFE 32-L, 360° 210332 210333 32 x 45 mm 45 mm 1° 2 m 2 m ±2 mm +2 mm < 1 mm

- Robust and temperature
- Highly accurate and free moving vertical axis
- Separate horizontal clamp Accurate tangent screw movement and focusing drive without backlash
- Optical sighting device
- Excellent image quality Service-friendly due to simple
- GFE 32-L with laser pointer
- Coaxial, focusable laser beam integrated into the telescope optics
- For advanced applications or one-person use
- Compensator function device
- displayed within the telescope field of view

construction

- Height differeces
- visible, optically
- Working in low light conditions (twilight, dark rooms)

SUPPLIED WITH

- Container
- Adjustment pin
- Dust brush
- Plumb bob

FLP 100 Laser Zenith Plummet

» A precise laser plummet incorporating a coaxial telescope for both laser and optical observations.





	12. 12.	
Magnification Clear objective aperture Chortest focusing distance .aser pointer .aser class / Wave length Cpot size Ø Max. visible distance (day) Max. visible distance (night)	26 x 36 mm 0.4 m 2M / 635 nm 3 mm / 80 m ≥ 120 m ≥ 250 m	 Easy to use with two laser plummets (up and down) Laser dot visible up to ≥ 120 m High accuracy for precision work
Deviation to optical axis Accuracy Dptical plummet	≤ 3" ± 2,5 mm / 100 m	SUPPLIED WITH FLP 100
aser class / wave length Accuracy Plate level Power supply Temperature range Dust / water protection Neight	1 / 650 nm ± 1 mm / 1,5 m 20" / 2 mm 2 x AA Alkaline -10 °C to +50 °C IP 54 2.8 kg	ART-NO. 310000 Set of alkaline batteries Target plate Container

FET 500 Construction Theodolite

ART.-NO. 400 GON 350000

ART.-NO. 360°

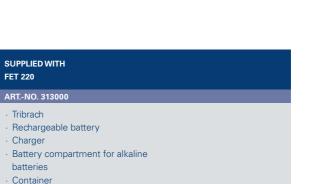
A versatile entry level optical theodolite.



TECHNICAL DATA	FET 500	FEATURES
Magnification	20 x	· Built-in optical plummet
Objective aperture	30 mm	Circular bubble, plate lev
Shortest focusing distance	1.2 m	Telescope vial
Direct reading	0.1 gon	Circle orientation device
Estimation		Available in 400 gon or 3
Temperature range	10 mgon -40 °C to +50 °C	Available in 400 gon or o
Weight	2.0 kg	
3 1		

FET 220 Electronic Theodolite easy to use

- For use in engineering, civil engineering and general
- >>> Particular attention has been paid to making the FET 220 user-friendly with a large easy-to-read display and a laser plummet for precise positioning over a ground point.



Shorte Accura

Laser Opera Tempe Dust / Weigh



NICAL DATA	FEN 132	FEATURES
aification objective diameter est focussing distance e measurement racy num reading suring units plummet: spot size plummet: laser class ating time / power supply erature range / water protection ht (instrument only)	30 x 45 mm 1,5 m absolute encoder 20" (6 mgon) 10" (3 mgon) 400 gon / 360° Ø 2 mm at 1,5 m 2 18 h / NiMH -20°C to +50°C IP 54 4,2 kg	Large easy-to-read LCD Laser plummet for easy set up over the ground point Illumination of LCD and field of view Horizontal circle: Hold-Function, 0-set at any desired position, clockwise/anti-clockwise reading Vertical circle: reading in gon / degrees / percent

Now surveying can be easy and affordable!

- The new geo-FENNEL GNSS-Antenna FGS Lite with geo-FENNEL Survey Software supports the user in a variety of simple surveying tasks.
- Whether field survey or stakeout, the data can be quickly and accurately transmitted or read from Android controllers and mobile devices such as standard tablets or mobile phones.
- The geo-FENNEL Survey Software is a simplified, android-based application software that can handle simple measurement tasks. Stake out points and lines, area calculation and the calculation of point coordinates.

Measured data can be imported or exported as ASCII or DXF.

The geo-FENNEL Survey Software supports all geo-FENNEL GNSS Antennas, whether in UHFMode or in a CORS with online transformation. Data can be picked up from a FTP-Server which is automatically created by the software.

The measurement window automatically includes an open source map, which allows the user to navigate quickly.

Switching between radio (FGS 1 and FGS 100) and NTRIP-Caster can be enabled within a short time by creating profiles.

Earth moving / road	Topo survey, measurement of original lay of land, stakeout, area calculation, batter board, determine
construction	lines, mass determination, point recording / monitoring
Mining	Mass determination, inventory, stake out of drill holes for explosions in the quarry
Contractor	Area calculation / mass determination
Garden / landscaping	Area calculation, stakeout of points and lines, implement planting plans, stake out bedding borders
Archaeologists	Measuring finds, recording and documentation of finds
Municipality	Water pipes and cable data base, inventory of GIS objects (lanterns, park bench, garbage can, etc.),
	border check, area calculation
Water management	GIS database for water supply, basic plans for development of building areas
Agriculture / forest	Border determination, staking points, area calculation
Assessor National re-	Geological survey, grab- / sondage measure, topo survey
sources	





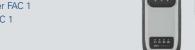
TECHNICAL DATA	FGS LITE	TECHNICAL DATA	FELDRECHNER FAC1 WITH ANDROID-BETRIEBSSYSTEM	SUP FGS
ARTNO.	740100	ARTNO.	740110	ART
Channels	352	Overview		. F
GPS	L1 C/A, L2C, L2P	Operating system	Android 6.0	. (
GLONASS	L1C/A, L1P, L2C/A, L2P	Display	4,3" Touch-Display	. F
BEIDOU	B1, B2	CPU	1,3 GHz	. (
GALILEO	E1, E2, E5	Keypad	Yes, with backlight	- 1
QZSS	reserved	Camera	8 Megapixel	
SBAS	WAAS, EGNOS, MSAS, GAGAN	Flash	LED-Flashlight	. !
File format	RTCM 2.x, 3.x, CMR, CMR+	SIM Slots	2	
Accuracy		Communication		
Static	2.5 mm + 1 ppm horizontal	WLAN	WLAN 802.11 a/b/g/n/ac	
	5.0 mm + 1 ppm vertical	SIM 1	2G – 4G	
RTK	8.0 mm + 1 ppm horizontal	SIM 2	GSM 850/900/180/1900	
	15.0 mm + 1 ppm vertical	Bluetooth	BT 4.0	
DGPS	< 0.4 m 3D RMS	USB	Micro-USB	
SBAS	1 m 3D RMS	Dimensions		
Stand-Alone	1.5 m 3D RMS	Working time	>14 h	
Communication		Standby	720 h	
Bluetooth	4.0, for Windows and Android	Working temperature	-30°C to +60°C	
Protocol	RS232	Storage temperature	-30°C to +65°C	SUI
Dimensions		Weight	520 g incl. Battery	FGS
Measurements	13.7 x 7.2 x 5.0 cm	Shock and protection	0.8 m drop to floor	
Weight	< 0.35 kg incl. rechargeable battery	Electronics		ART
Environmental properties		ROM / RAM	16 GB / 2 GB	.
Working temperature	-20°C to +60°C	Additional memory	TF-Card up to 64 GB	. (
Storage temperature	-30°C to +70°C			.
IP-protection	IP 54			. 1
Shock and protection	1.5 m drop to floor			
Power supply	·			- 1
Battery capacity	3400 mAH			
Power supply	1.6 W			
Charging time	2.5 h			
Working time	more than 9 h			

S LITE-SET OHNE FELDRECHNER FGS Lite GNSS Receiver GAT 300 GNSS Antenna Rechargeable battery for FGS Lite Charging cable for FGS Lite Bracket for FGS Lite Antenna connection cable for FGS Lite Handy hard case Survey Software

PLIED WITH LITE-SET MIT FELDRECHNER

NO. 740110

- FGS Lite GNSS Receiver
- GAT 300 GNSS Antenna
- Rechargeable battery for FGS Lite
- Charging cable for FGS Lite
- Bracket for FGS Lite
- Antenna connection cable for FGS Lite
- Handy hard case
- Survey Software
- Field Controller FAC 1
- Bracket for FAC 1





www.geo-fennel.com www.geo-fennel.com

MEASURING INSTRUMENTS

WITH AN EYE TO THE FUTURE:

PRECISION MEETS INNOVATION.

No matter how difficult the conditions you encounter on a construction site – with our products, easy and efficient measurement is possible in every situation. They set standards for measurement results and provide a high level of quality through the combination of the most modern production technologies with the care and attention provided by our technical experts.

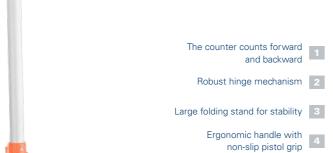




>> The compact and durable multi-purpose measuring wheel

EasyWheel M20 Measuring Wheel

- · Easy-to-read display
- · Foldable for easy storage and transportation
- · Brake and «0» reset button incorporated into handle



TECHNICAL DATA

Measuring distance

Wheel circumference

ART.-NO. 120

Extended size

SUPPLIED WITH M20

· Measuring Wheel

· Carrying case with shoulder strap

Folded size

Weight



± 0,1%

1 Meter

1,8 kg

0 - 9.999,9 m

1000 (L) x 140 mm (B)

510 (L) x 140 mm (B)



9 2 5 3 7





FEATURES

	Erg	onom	ic	handle	with	non-slip	pistol	grip
	_			_				

· Brake and «0» reset integrated into the handle for

· Smallest unit of measurement 10 cm · Counter adds when moving forward and subtracts

Movable pointer to ensure accuracy of starting

point and finishing position Large folding stand for stability

· Coated wheel for excellent traction over a variety of surfaces

Precision Measuring Wheel

ART.-NO. 110

M 10

- · Wheel circumference 1 m
- Clamp for wheel
- Robust support allows M 10 to stand upright
- Dirt remover
- Precision counter with "0" reset
- · Sturdy spokes offer low resistance to wind ensuring ease of use
- The highly visible colour of the wheel aids operator safety during use on roads Weight 2,7 kg



M 10S

ART.-NO. 141

Same as M 10, however: · Heavy model with double-disk wheel made of metal

Weight 3,4 kg

M 10K Case

M 10K CASE

ART.-NO. 011

Case for M 10 and M 10S made from high-quality materials



M 10T Bag

M 10T BAG

ART.-NO. 010

Bag for M 10 and M 10S made from high-quality materials



Rubber Tape

Standard measuring tape. Blister packed in presentation display. Conforms to CE class II.





Fast Speed Tape

3 x speed rewind. Nylon coated steel tape.
Abrasion resistant and virtually unbreakable.
Ergonomically designed to be comfortable and easy to use.



ART.-NO. 30 m M313030 ART.-NO. 50 m M313050 • Tape width: 13 mm

- Iape width: 13 mm
 Graduation in mm
- Graduation in m
- · Easy to grip
- · Accuracy: EEC class II



GeoTape 2in1 Laser Distancemeter with built-in 5m tape

- › Laser Distancemeter with built-in 5m tape
 - · Ergonomic environment-friendly design
 - · Easy to read white-on-black display with backlight
 - · Professional quality, robust and pocket-sized
 - · EC Class II tape measure accuracy
 - · Nylon coated steel blade with magnetic hook

FEATURES

- Length and area measurement
- Laser measurement reference is always at the rear
- · Independent use of Laser and Tape measure
- Magnetic end hook
- Positive toggle lock to secure blade at any length
- Metal belt clip
- Cover-protected USB port
- Concealed ON/OFF button to prevent mis-operation
- Auto switch-off to prolong battery life

TECHNICAL DATA	
ARTNO. 300710	
1	4- 20
Laser measuring range	up to 20m
Accuracy	± 2 mm
Resolution	1 mm
Tape length	5m
Tape accuracy	± 1,5 mm @ 5m
Blade width	19 mm
Auto switch-off Laser/Display	30 / 180 seconds
Laserclass / Wavelength	2 / 630-670 nm
Working temperature	0 to 40°C
Power supply / working time	Li-lon / 5 h
Battery charging	via USB connection
Dimensions	83 x 79 x 54 mm
Weight (with batteries)	275g



SUPPLIED WITH

· USB charging cable

Built-in Li-Ion battery



GeoDist® 50 Laser Distance Meter

- Outstanding quality, versatile and accurate
 - · Compact, robust and reliable
 - All class-leading features integrated
 - · Painter function
 - · Intuitive easy-to-use keypad and illuminated 4-line display
 - · Rubberised housing for protection and enhanced grip





SUPPLIED WITH GEODIST® 50

ART.-NO. 300150

Holster Batteries

OFF	TECHNICAL DATA	GEODI
	Accuracy	± 2,0
	Measuring distance	0,2 - 1
	Laser class	2
	Dust/water protection	IP 54
	Dimensions	120 x

TECHNICAL DATA	GEODIST® 50	FEATURES
Accuracy Measuring distance Laser class Dust/water protection Dimensions Temperature range Power supply Weight (with batteries)	± 2,0 mm 0,2 - to 50 m 2 IP 54 120 x 45 x 26 mm 0 - 40°C 2 x AAA alkaline batteries 120g	Single/continuous measurement Maximum/minimum measurement Area and volume Painter function Plus-/minus Pythagoras 1, partial height (2 points) Point of reference: front, rear Data storage (last 10 values) mm, ft, inch Display illuminated Acoustic signal to confirm measurement Automatic power off

GeoDist® 30 Laser Distance Meter

- >> Extremely small and lightweight
- · The tool that fits into the smallest pocket
- · Easy to use spacious keyboard with large keys





FEATURES

- Volume
- Point of reference: front, rear
- Automatic power off
- Illuminated display
- · mm, ft, inch
- Acoustic signal confirming the measurement

SUPPLIED WITH GEODIST® 30	TECHNICAL DATA	GEODIST® 30
ARTNO. 300130		
Halatas	Accuracy	± 2,0 mm
· Holster · Batteries	Measuring distance	0,05 - 30 m
	Laser class	2
	Dust/water protection	IP 54
	Temperature range	0 - 40°C
	Power supply	2 x AAA

GeoDist® 600LR Laser Distance Meter

- >> Laser distance meter for range and speed measurement
 - · Outstanding quality, robust and pocket-sized
 - Easy to use with only two buttons
 - · Built in angle sensor for height differences
 - · LCD-Display with crosshairs
 - Rubberised housing for protection and enhanced grip



TECHNICAL DATA	GEODIST® 600LR
Measuring distance	600 m
Accuracy	± 0,5 m
Scope magnification	6 x
Field of view	7°
Objective lens diameter	22 mm
Eyepiece lens diameter	16 mm
Exit pupil diameter	3,7 mm
Diopter	± 5°
Accuracy of speed measurement	± 1 km/h
Dust/water protection	IP 54
Laser class / wavelength	1 / 905 nm
Temperature range	0 - 40°C
Power supply	3V 1xCR2 for about 10.000 times
Dimensions	121 x 79 x 45 mm
Weight (with batteries)	215 g



FEATURES

- · Speed measurements up to 300 km/h
- · Single and continuous measurement
- · Built-in angle sensor
- · Measurements of horizontal distances
- Measurement of height
- differences
- · Autopower switch off
- · Flagpole scanning, perfect for
- Golf players · Golf trajectory compensation
- · Can measure in meter and yard

SUPPLIED WITH GEODIST® 600LR

ARTIKEL-NR. 300600

Holster

Battery

www.geo-fennel.com

Handy laser distance meter with integrated Bluetooth® Smart technology. Precise measurements can easily be transferred to your smart phone or tablet using the Leica DISTO™ sketch app.

DISTO D1

± 2,0 mm

0,2 - 40 m

115 x 43,5 x 23,5 mm

IP 54

87 g



SUPPLIED WITH DISTO D1 ART.-NO. 300003

Batteries

Range and accuracy test according to DIN ISO 16331-1



DISTO D110

World's smallest laser distance meter with integrated Bluetooth® Smart technology. Makes it possible to easily create floor plans and sketches using precise measurements from the Leica DISTO™ D110 quickly by connecting it with the Leica DISTO™ sketch app on your smartphone or tablet.

TECHNICAL DATA	DISTO D110	FEATURES	SUPPLIED WITH DISTO D110
			ARTNO. 300010
Accuracy	± 1.5 mm	· Permanent measurement	
Measuring distance	0.2-60 m	area	· Holster
Laser class	2	· Bluetooth® Smart	· Batteries
Dust / water protection	IP 54	 Leica Disto[™] sketch app 	
Dimensions	120 x 37 x 23 mm	· Ilumination of display	Range and accuracy test
Weight (with batteries)	92 g	· mm, ft, inch	according to DIN ISO
		· Acoustic signal confirming	16331-1
		the measurement	

DISTO D2

Multifunctional end-piece

Now with Bluetooth®, a fully integrated intelligent endpiece, a bright white display and an ISO certified measuring engine that drives 1 mm accuracy and 100 m measuring range.

1	eica	
ej ; 15 98.	399 888 139	m m
	TO**02	
100	DIST	_
+ FUNC	6	-
ī	1/6	,
C	LEAR Off	

TECHNICAL DATA	DISTO D2	SUPPLIED WITH DISTO D2
		ARTNO. 300002
Accuracy	± 1,5 mm	
Distance	100 m	· Holster
Laser class	2	· Batteries
Dust / water protection	IP 54	
Weight (with batteries)	100 g	Range and accuracy test
FEATURES		according to DIN ISO 16331-1
· Subtraction / addition	· Bluetooth® Smart	
· Minimum / maximum	· Leica Disto™ sketch App	
measurements	· Illuminated display	
· Area / volume calculation	· mm, ft, inch	
 Memory: Last 10 values 	Beep (switchable on/off)	

· Pythagoras functions

DISTO X3

The Leica DISTO™ X3 is perfect for tough construction site conditions. It is drop-tested up to 2 m in height, water jet and dust protected to IP 65 stan-

ARTNO. 300300 · Holster · Batteries Range and accuracy test according to DIN ISO
· Batteries Range and accuracy test
,
16331-1



TECHNICAL DATA	DISTO X3
Accuracy	± 1,0 mm
Distance	0,05 – 150 m
Laser class	2
Dust / water protection	IP 65
Dimensions	132 x 56 x 29 mm
Weight (with batteries)	184 g
FEATURES	

- X-Range Power Technology
- Tilt sensor
- DISTO™ transfer for Windows
- DISTO™ Plan app for iOS and Android
- Smart Room function support
- General data interface: Bluetooth® Smart
- Data interface for 3D point data: Bluetooth® Smart
- Multifunctional endpiece with automatic reference detection
- · 2 m drop tested

DISTO X4

>> The DISTO™ X4 is equipped with a pointfinder camera allowing you to easily target distant objects in bright sunlight. Even if the laser dot cannot be seen, the target appears clearly on the large colour display. The high-resolution screen ensures a crystal clear image. Distance measurements are absolutely precise over long distances.

SUPPLIED WITH DISTO X4	TECHNICAL DATA	DISTO X4	FEATURES
ARTNO. 300400			
	Precision	± 1,0 mm	· X-Range Power Technology
· Holster	Distance	0,05 – 150 m	· Tilt sensor
· Batteries	Laser class	2	· Memory of last 20 measurements
	Dust / water protection	IP 65	 DISTO™ transfer for Windows
Range and accuracy test	Dimensions	132 x 56 x 29 mm	 DISTO™ Plan app for iOS and Android
according to	Weight (with batterie)	188 g	- Smart Room function support
DIN ISO 16331-1			· Multifunctional endpiece with automatic re
			detection
			· General data interface: Bluetooth® Smart
			· Data interface for 3D point data: Bluetooth
			· 2 m drop tested



DISTO X4 SET + DST 360

Point to Point Measuring (P2P)

The DST 360 is a great addition for your Leica DISTO™ X3 and X4. It will transform your handheld tool into a real station allowing you to measure distances between any 2 points. In combination with the Leica DISTO™ Plan app you can draw scaled plans which can be used in CAD tools.

Metal design, precise aiming through fine adjustment handles, job site ready in robust case (IP 67)

DST 360





SUPPLIED WITH DISTO X4 SET + DST 360 ART.-NO. 300436

- · Disto X4
- DST 360
- Tripod
- Robuster case (IP 67)
- Holster
- Batteriens

Range and accuracy test according to

DIN ISO 16331-1

www.geo-fennel.com

TECHNICAL DATA

Measuring distance

Dust / water protection

Distance measurement

Bluetooth® Smart

mm, ft, inch

Permanent measurement

Leica Disto™ sketch app

Illumination of display

Accuracy

Laser class

Dimensions

FEATURES

Acoustic signal confirming the measurement

32.542...

DISTO D510

22 Colour display, digital pointfinder, TILT sensor: Reliable outdoor applications.

TECHNICAL DATA	DISTO D510	FEATURES	SUPPLIED WITH
Distance Accuracy Dust / water protection Weight Laser class	0.05 – 200 m ± 1.0 mm IP 65 198 g 2	Minimum / maximum Permanent measurement Plus / minus Area / volume Room function summary Indirect height measurement (Pythagoras) Measurement despite obstructions Measurement of facade areas 360° TILT sensor Bluetooth® smart	ARTNO. 300007 · Holster · Hand loop · Batteries Range and accuracy test according to DIN ISO 16331-1

DISTO D810 touch

"Large touchscreen for intuitive use, camera function, measurements inside a picture,

	TECHNICAL DATA	DISTO D810	SUPPLIED WITH
# # # P P P P P P P P P P P P P P P P P	Distance Accuracy Dust / water protection Weight Laser class FEATURES	0.05 – 200 m ± 1.0 mm IP 54 238 g	ARTNO. 300009 Holster Hand loop Batteries Range and accuracy teacording to DIN ISO 16331-1
DISTO* Deld teach	 Minimum / maximum Permanent measuremen Plus / minus Area / volume Room function summary Indirect height measurer (Pythagoras) 	Bluetooth® 360° TILT sensor for measurement of any slope (even overhead)	EXTERIOR PACKAGE ARTNO. 300013

DISTO D810 touch SET

The D810 touch SET includes a D810, a TRI70 Tripod, Leica's patented FTA360 Fine Tune Tripod Adapter and a hard case to keep it all organized.





DISTO S910 Measure anything from anywhere with P2P technology

3D Measurement

The integrated Smart Base is key to Point-to-Point (P2P) Technology. It enables distance measurements to be taken between any two points from just one location. The combination of P2P Technology and an integrated tilt sensor opens up completely new measurement possibilities, making the DISTO S910 a universal measurement tool with a wide variety of applications.

Point to Point Measurements

P2P Technology allows you to carry out complex measurement tasks quickly, accurately, and most importantly, safely - even if the area you need to measure is hard to reach.

Data Capture in CAD Format

The DISTO S910 can save all captured measurement points as a DXF file. The file is then available to download via a USB connection to a PC. This completely digitalised workflow saves time and money as it significantly reduces errors.

Measure and document

The Leica DISTO Plan app* allows you to document and visualise your measurements. In combination with the DISTO S910 it enables the 3D measurement functionality, allowing for 2D or 3D measurements to be captured. * in app purchases.

Real-Time Transfer of Point Data

Transfer measurement data directly on site via a WLAN connection to your PC and process it further in your preferred software. Create 'as-built' documentation on site or confirm a room layout in real-time by transmitting as many measurement points as required - with or without pictures.

Smart Area Measurement

Simply measure the outline of an area - clock- or counterclockwise - and immediately see the result on the display. No matter how complex the shape of an area is.

Outdoor Measurement

The DISTO S910 has a pointfinder with a 4x zoom. It allows for accurate measurements even under challenging lighting conditions, such as outdoors in bright sunlight.



FEATURES Minimum / Maximum Camera function Measure with the picture Permanent measurement Plus / minus Touch screen Area / Volume Compass Painter function Point-to-Point measurements Tilt measurement Smart angle measurement Pointfinder with 4x zoom Smart area measurement

Height profile measurements Bluetooth® SMART

DXF data capture WLAN data transmission

Sloped object measurement

Height tracking

Dust / Laser



NICAL DATA	DISTO S910	SUPPLIED WITH DISTO S910	SUPPLIED WITH DISTO S910 P2P-PACKAGE
		ARTNO. 300913	ARTNO. 300912
racy / water protection ht r class	0,05 - 300 m ± 1.0 mm IP 54 290 g 2	HolsterHandloopSmart base extensionCharger	 Holster Handloop Smart base extension Charger GZM3 Target plate FTA360-S Tripod adapter Tripod TRI 120 Hard case

Electronic Slope Measurers

- Our latest generation of inclinometers with a new enhanced TILT sensor that offers the following:
- Fast reaction time

TECHNICAL DATA

- · Zero position re-set at any position
- · A stable display for impr
- Improved thermal stability

oroved	accuracy	- 1	lluminated	C

S-DIGIT MINI +

-	Illum	inated	disp	lay

S-Digit mini +

Electronic inclinometer. Handy-size and accurate. This ensures easy measurement even in the most difficult situations.



			ARTNO. 610010
Working range	4 x 90°	· Different signal tones when	Daddad bag
Resolution	0.1° / 0.1%	approaching 0° / 90° and	Padded bag
Accuracy	± 0.1°	continuous tone at 0° / 90°	Batteries
Measuring units	°, %, mm/m, in/ft	· Inclination direction indication	
Power supply	3 x AA Alkaline	· Zero position re-set at	
Operating time	600 h	any position	
Temperature range	-10°C to +45°C	 Automatic digit inversion for 	
Weight (incl. batteries)	0.37 kg	overhead measurements	
Size	164 x 60 x 32 mm	· HOLD function to freeze	
		measurement	
		· Illuminated display	
		· Magnetic housing	
		· 1/4" thread for camera tripod	

FEATURES

SUPPLIED WITH

S-Digit multi +

Electronic inclinometer with a rotatable display for easy reading in many positions.



1 Easy reading even from above and integrated laser beam

TECHNICAL DATA	S-DIGIT MULTI +	FEATURES	SUPPLIED WITH
TECHNICAL DATA	3-DIGIT MOLITY	FEAIUNES	SUFFLIEDWITH
Working range Resolution Accuracy Measuring units Working range laser Accuracy laser Wave length / laser class Power supply	4 x 90° 0.1° / 0.1 % ± 0.1° °, %, mm/m, in/ft 20 m ± 0.5 mm / 1 m 650 nm / 2 3 x AA Alkaline	Different signal tones when approaching 0° / 90° and continuous tone at 0° / 90° Inclination direction indication Zero position re-set at any position Automatic digit inversion for overhead measurements	ARTNO. 630010 Padded bag Batteries
Operating time Temperature range Weight (incl. batteries) Size	w/o laser 50 h with laser 20 h -10 °C to +45 °C 0.67 kg 305 × 60 × 32 mm	180° rotatable display Visible laser beam to extend working range HOLD function to freeze measurement	
Size	303 X 00 X 32 MM	Illuminated display Magnetic housing 1/4" thread for camera tripod	- Walland (6

S-Digit 60 +

» Robust slope measurer. Length 60 cm. Incorporated laser beam.

» NEW: Magnetic base.



- 1 Clearly visible display standard or "overhead"
- 2 With laser beam to extend working range

TECHNICAL DATA	S-DIGIT 60 +	FEATURES
Working range	4 × 90°	Different signal tones when approaching
Resolution	0.1° / 0.1 %	0° / 90° and continuous tone at 0° / 90°
Accuracy 0° and 90°	± 0.1°	· Inclination direction indication
Accuracy 1°-89°	± 0.2°	· Zero position re-set at any position
Measuring units	°, %, mm/m, in/ft	· Automatic digit inversion for
Working range laser	20 m	overhead measurements
Accuracy laser	± 0.5 mm / 1 m	· Visible laser beam to extend
Wave length / laser class	650 nm / 2	working range
Power supply	3 x AA Alkaline	HOLD function to freeze measurement
Operating time	w/o laser 50 h	· Illuminated display
	with laser 20 h	· 1/4" thread for camera tripod
Temperature range	-10 °C to +45 °C	
Weight (incl. batteries)	0.86 kg	
Size	600 x 60 x 32 mm	SUPPLIED WITH
		S-DIGIT 60 +
		ARTNO. 620010
		· Padded bag
9		· Batteries
₽ 0.0 *	ACCUENCE OF THE PROPERTY OF TH	56.00.000 CE
(000000)	1	

S-Digit 60WL + and S-Digit 120WL +

Electronic inclinometers for everyday use.



	TECHNICAL DATA	S-DIGIT 60WL +	S-DIGIT 120WL +
İ	ARTNO.	640010	640110
	Working range	4 x 90°	4 × 90°
	Resolution	0,1° / 0,1 %	0,1° / 0,1 %
	Accuracy	0° and $90^{\circ} = \pm 0.1^{\circ}$	0° and $90^{\circ} = \pm 0.1^{\circ}$
		1° and 89° = \pm 0,2°	1° and 89° = \pm 0,2°
Ī	Measuring units / display	°, %, mm/m, in/ft	°, %, mm/m, in/ft
	Power supply	3 x AAA Alkaline	3 x AAA Alkaline
	Operating time	60 h	60 h
	Temperature range	-10 °C to +45 °C	-10 °C to +45 °C
	Weight	0,93 kg	1,2 kg
	Dimensions	600 x 60 x 27 mm	120 x 60 x 27 mm

SUPPLIED WITH S-DIGIT 60WL + / 120WL +	FEATURES	
· Padded bag · Batteries	Different signal tones when approaching 0° / 90° and continuous tone at 0° / 90° Inclination direction indication Zero position re-set at any position	 180° rotatable display HOLD function to freeze measurement Illuminated display 1 or 2 recessed hand grips for ergonomic use

Automatic digit inversion for overhead measurements

· Easy mitre angle Compound angle mode Available in length of 50 cm

and 75 cm

A-DIGIT 50 TECHNICAL DATA A-DIGIT 50 ET 75 ART.-NO. 650050 Measuring range 0° – 225° Padded bag ± 0,1° Digital angle accura Batteries 0.05° Resolution 0.057° (1 mm/m) Accuracy of vials -10 °C to + 50 °C Operation temperature Power supply 2 x AAA batteries 100 h Operation time 991 mm Length unfolded A-Digit 75 1410 mm 0.9 kg (1.1 kg) Weight A-Digit 50 (A-Digit 75) A-DIGIT 75 ART.-NO. 650075 Padded bag Batteries 45.00 § 7.50 =

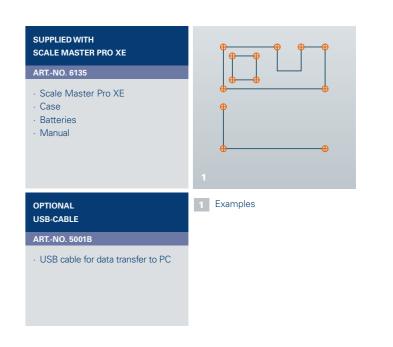
Multi-Digit Pro + All-in-one » Electronic angle measurer, electronic slope measurer and laser spirit level. Easy and accurate. For measuring angles, inclinations, sloped and plane surfaces.

TECHNICAL DATA	MULTI-DIGIT PRO +	FEATURES
Working range inclination Resolution Accuracy inclination 0° and 90° Accuracy inclination 1° – 89° Measuring units Working range angle Resolution Accuracy angle Working range laser Accuracy laser Wave length / laser class Power supply Operating time Temperature range Weight (incl. Batteries) Size	4 x 90° 0.1° / 0.1% ± 0.1° ± 0.2° °, %, mm/m, in/ft 0° -180° 0.1° / 0.1 % ± 0.1° 20 m ± 0.5 mm / 1 m 650 nm / 2 3 x AA Alkaline w/o laser 48 h with laser 20 h -10 °C to +45 °C 1.3 kg 520 x 63 x 30 mm	Displays angle and inclination simultaneously Different signal tones when approaching 0° / 90° and continuous tone at 0° / 90° Inclination direction indication Zero position re-set at any position Automatic digit inversion for overhead measurements Visible laser beam to extend working range HOLD function to freeze measurement Illuminated display Magnetic base 1/4" thread for camera tripod 180° lock to extend the unit to 1 m length Arm can be locked in any position
Unfolded length	1000 mm	
SUPPLIED WITH MULTI-DIGIT PRO + ARTNO. 600010 Padded bag		AND EXPOSURE I a
Batteries		◎ ·· · · · · · · · · · · · · · · · · ·



Scale Master Pro XE

Professional digital plan measurer. 91 architectural, engineering, map and metric blueprint scales. Perform instant linear, rectangular area and volume take-offs. Reads your measurement in feet / inches or metric. Subtract, constant and counter.



Laser EasyFix 5 m Telescopic Rule



LASER EASYFIX 5 M ART.-NO. 452

- · Telescopic rule with incorporated measuring tape
- · Each section can be clamped
- · Universal adapter for laser receiver. Receiver can be fixed with on-level mark on top of the rule. The height of the receiver (on-level mark) can be easily read at measuring display
- Maximum length 500 cm
- Retracted length 121.5 cm
- Incorporated circular bubble Weight 2.7 kg

Incl. case

EasyFix 5 m Telescopic Rule



Surveyors' Folding Rules



SURVEYORS' FOLDING RULES

ART.-NO. 412 2 m, erect

- Finest wood quality with strong joint springs
- Front side: Levelling graduations (E reading)
- 1 m black, 1 m red
- Reverse side: mm graduation in black
- Available in 2 m and 3 m lengths

www.geo-fennel.com www.geo-fennel.com

Spirit Level M-Level ALU magnetic Extremly robust for professionals

- Precision milled measuring surfaces assure high frame accuracy

 - For all areas of the craft





- reinforcing ribs
- measuring surfaces
- Top-read window maximizes readability
- 2 rubberized frame openings for optimized handling
- protect frame



- Lifetime accuracy warranty
- Powder-coated profile, 2 milled · M-version with 2 rare-earth Solid block acrylic vials won't fog, surface
 - magnets at bottom measuring
- leak or break
- Shock absorbing rubber end caps

· Ergonomic handling





- M-LEVEL ALU ART.-NO.
- M-Level 40 M ALU 40 cm 660135 M-Level 60 M ALU 60 cm 660140

M-Level 100 M ALU 100 cm 660145.



Spirit Level M-Level TPZ

Aluminium die-cast

spirit level

· Trapezium shape

fog, leak or break

» High torsional stiffness, very robust

· For all areas of construction

M-LEVEL	TPZ		ARTNO.
M-Level	40 TPZ	40 cm	660200
M-Level	60 TPZ	60 cm	660205
M-Level	80 TPZ	80 cm	660210
M-Level 1	100 TPZ	100 cm	660215

Spirit Level M-Level ECO Bamboo spirit level - strong, durable, tough and sustainable

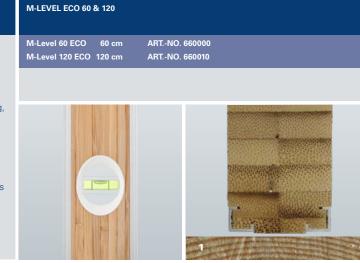
- Particularly suitable for sensitive surfaces such as window sills, marble, granite, wood, etc.
 - Despite being categorised as a "wood", bamboo is a grass making it an environmentally sustainable material for use in construction
 - Bamboo is the fastest growing plant on earth, with a tensile strength comparable to steel



Measurements are done via contact of bamboo surface to measurement area. Metallic rails are only stabilizing the spirit level and do not get in contact with the measurement area



- Strong, durable, laminated bamboo frame
- Flush mounted protective metal buildings
- Solid block acrylic vials won't fog, leak or break
- Top-read window maximizes readability
- 2 frame openings for optimized handling
- Shock absorbing rubber end caps protect frame
- Lifetime accuracy warranty



www.geo-fennel.com www.geo-fennel.com

ENVIROMENTAL INSTRUMENTS

THE DEGREE OF PROFESSIONALISM: EXTREMELY HIGH.

Suitable for a wide range of applications including electrical, food preparation, automotive, maintenance, construction, health and safety – the environmental measurement devices from geo-FENNEL are reliable partners wherever physical values such as temperature and humidity must be precisely determined. They are characterized by their ease of use and intuitive operation – taking precise measurement to achieve visible and tangible results.



FVE 100 Video Borescope



Optional accessories: Gooseneck probes of 1 m, 2 m and 4 m length

17 mm

17 mm

9 mm

Camera head Art.-No.

800750

800751

800754

800752

800753

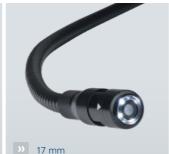
800755

Weight with probe

with standard camera head of 17 mm and with 9 mm only.

- Video borescope for inspection and survey of inaccessible areas.
- >> Trades and tasks: Sanitary, heating and ventilation, car industry, workshops, renovation.







9 mm

TECHNICAL DATA	FVE 100
Camera head	
Viewable angle	0° and 180°
Focal length	6–7 cm
Viewable distance	5–15 cm
Diameter of camera head	17 mm
Light source	LED
Display	
Display size	3"
Resolution	960 x 240 pixel
Image transmission to LCD	Flexible gooseneck
CMOS Image sensor	300.000 pixel
Video output (to TV)	PAL / NTSC
Various	
Probe length	100 cm
Bend radius of probe	6 cm
Dust/water protection	IP 67
probe and camera	
Power supply	3.7 V / 2000 mAH Li-lon
Operating time	4 h
Temperature range	-10 °C to + 50 °C
Humidity range	15 % – 85 % RH
Dimensions	240 x 160 x 100 mm

SUPPLIED WITH FVE 100

- inspection of inaccessible areas
- Immediate transfer of the colour
- of a button

- Angle mirror attachment to
- Powerful Li-Ion battery with charger

- · 1 m flexible gooseneck probe
- · USB cable
- · Charger
- Magnet
- · Hook Mirror
- · Container

FVE 150 Video Borescope

>> Video borescope for inspection and survey of inaccessible areas. Photos and videos can be stored for documentation purposes.

Weight with probe

Trades and tasks: Sanitary, heating and ventilation, car industry, workshops, renovation.

TECHNICAL DATA	FVE 150	FEATURES	SUPPLIED WITH FVE 150
Camera head Viewable angle Focal length Viewable distance Diameter of camera head Light source Display Display size Resolution Image transmission to LCD CMOS Image sensor Video output (to TV) Picture / video formats Resolution picture / video Various Internal memory Additional memory Operation languages	0° and 180° 6–7 cm 5–15 cm 17 mm LED 3.2" 320 x 240 pixel Flexible gooseneck 300.000 pixel PAL / NTSC JPG / 3 GP 320 x 240 Pixel 70 MB 4 GB SD-card supports up to 8 GB (optional) EN, FR, DE, ES, IT, FI	Water proof camera head and probe Image: Image: Note that the control of the color of the color image: Note that the color of the color image to the large LCD display Internal memory or SD-card to store images and video sequences GBSD-card included (supports up to 8 GB) Date and time indication on the display Transmission of video clips / images onto television or PC for	
Probe length Bend radius of probe Dust/water protection probe/camera Power supply Operating time Temperature range Humidity range Dimensions	100 cm 6 cm IP 67 3.7 V / 2000 mAH Li-lon 4 h -10 °C to + 50 °C 15 % - 85 % RH 240 x 160 x 100 mm	editing or documentation Multi-language menu (DE, EN, FR, ES, IT, FI) Accessories: see FVE 100	

ART.-NO. 800700 Water proof camera head and · Video borescope

> 1 m long flexible gooseneck probe with camera head for the optical · TV cable

Camera head with LED lighting

image to the large LCD display 180° image rotation at the press

Direct transfer of image to

television or notebook Accessories:

· Hook and magnet attachments for object retrieval

"view around corners"

1 With SD-card for fast transmission of the data to PC



www.geo-fennel.com

OPTIONAL FOR FVE 100 AND FVE 150

4 m

4 m

P 1-17

P 2-17

P 4-17

P 1-9

P 2-9

P 4-9



FIRT 550-Pocket and FIRT 800-Pocket Infrared Thermometer

- Small and handy infrared thermometer, easy to operate, for versatile applications. Particular feature: Measurement with dual laser to focus the target.
- Trades and tasks: Heating, ventilation and refrigeration systems, food industry, car industry, construction, building construction, fire inspection, injection molding industry, ship maintenance, isolation (heat loss), drying facility.





For non-contact measurement with laser dot. Quick measurements for: · Surfaces which are difficult to

- Moving or rotating objects
- Electrified parts
- · Chemicals

The dual laser dot to foc	cus the target 1	· Hot obje

TECHNICAL DATA	FIRT 550-POCKET	FIRT 800-POCKET	SUPPLIED WITH FIRT 550-POCKET
			ARTNO. 800001
D(istance):S(pot)	12:1	10:1	
Temperature range	-50 °C to +550 °C	-35 °C to +800 °C	· Case and battery
Ø measuring spot at 100 cm	80 mm	100 mm	
Emissivity	adjustable 0.1 – 1.0	adjustable: 0,1 - 1,0	
Laser pointer	yes, dual	yes, dual	
Auto data HOLD	yes	yes	
Illuminated display	yes	yes	CLIDDLIED WITH
Max, Min	Max only	yes	SUPPLIED WITH
High and low alarm	yes	yes	FIRT 800-POCKET
Power supply	9 V battery	9 V battery	ARTNO. 800002
Response time	< 1 sec	< 1 sec	
Resolution display	0.1 °C	0,1°C	· Case and battery
Accuracy	± 1 %	± 1 %	
Laser class	2	2	
Weight	0.178 kg	0,178 kg	
Dimensions	146 x 104 x 43 mm	160 x 82 x 42 mm	



FIRT 1000 DataVision Infrared Thermometer

- >> Infrared thermometer with a large temperature range and integrated 2.2" TFT colour LC display for monitoring and evaluation of monitored data.
- Trades and tasks: Old-building renovation, heating, ventilation construction, building construction, food control, drying facility, isolation (heat loss).

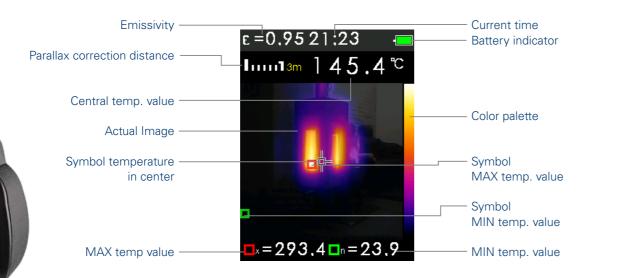
				Average temperature Wet bulb temperature
TECHNICAL DATA	FIRT 1000 DATAVISION	FEATURES	SUPPLIED WITH FIRT 1000 DATAVISION	Ambient humidity Emissivity Battery status indicator
Distance (Close)	F0.4	F	ARTNO. 800030	15:41 04-03-201
D(istance):S(pot)	50:1 -50 °C to +1000 °C	For non-contact temperature measurement with laser dot	D-#	
Temperature range	20 mm		Battery USB cable	UT 21.5 RF
Ø measuring spot at 100 cm Emissivity	adjustable 0.10 – 1.0	Short response time of 150 ms and an accuracy of ± 1,0 %	Mini tripod	TP -4.3 FM
Laser pointer	ves, dual	· 2.2" TFT colour LC display	Type-K temperature probe	120
Auto data HOLD	ves, dual	Dual laser pointer for better	· Case	109.
Illuminated display	ves	targeting	Cusc	
Max, Min, DIF, AVG record	ves	Permanent measuring		
High and low alarm	yes	Compatible with all standard		DIF 31.0 AV
Power supply	3.7 V Li-lon battery	connector Type-K thermocouples		MIN 121.2 MA
Response time	< 150 ms	· Easy transmission of		
Resolution	0.1 °C – 1000 °C	measurements to PC via USB		[122][121][121][121]
	1 °C over 1000 °C	· Memory socket for Micro-SD		
Temperature range Type-K probe	-50 °C to +1370 °C	Cards		
Accuracy (IR) (+20 °C - +400 °C)	± 1.0 % ±1 °C	· Integrated camera for images		AT 13.6 Refs.34.2 AT 13.0P - 1.8 WB 7.9
Accuracy (TK) (-50 °C to +1370 °C)	± 0.5 % ± 1.5 °C	(JEPG) and video (AVI)		DP-1,8 W8 7.9
Laser class	2	· Date / Time function		
Weight	0.45 kg	· Measurement of air humidity and		
Dimensions	205 x 62 x 155 mm	ambient temperature Determination of dewpoint		22.9°C
				2 3 4

1 Display with simultaneous 2 Video camera function indication of: 3 Data log function Date / time Ambient temperature 4 Digital camera function Dewpoint temperature Temperature of the 5 Dewpoint temperature function Maximum temperature Temperature difference AVG 140.1 MAX 152.2

Thermal imaging camera for non contact measurement of surface temperature.

>>> Trades and tasks: Heating and ventilating installations, building insulation (heat loss), plumbing, electric, electronic, electro-mechanical and mechanical engineering, routine maintenance Easy to locate hot and cold spots on electrical and

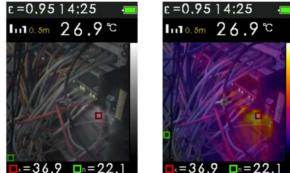
mechanical installations.



FEATURES SUPPLIED WITH FTI 300 ART.-NO. 800040 Automatic indication of hot / cold spot with configurable alarm function · Li-ion battery & charger PIP-function for blending of visible and infrared · USB-cable for data transfer and image (0-100%) for optimized orientation in the charging picture · Hard case 6 colour palettes Memory for 6000 images / data transfer to PC for subsequent analysis

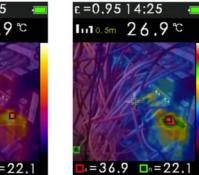




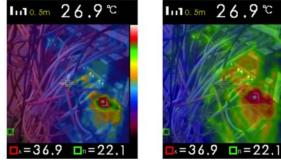


» Metal









High Contrast

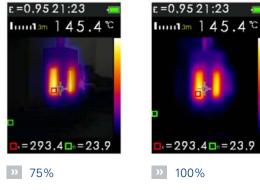


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TECHNICAL DATA	FTI 300	TECHNICAL DATA	FTI 300
Thermal imaging		Memory / Data transfer	
IR sensor resolution	32 x 31 pixel	Memory	MicroSD card 8 GB
Thermal sensitivity	<0,15°C (150 mK)	File format / memory size	.bmp / 6000 pictures
Field of view (FOV)	40° x 40°	PC interface	USB 2.0
Focusing	Fixed		
Colour palettes	6 - greyscale (white hot), greyscale (black hot), ironbow,	Other	
	rainbow, rainbow (high contrast), hot metal	Power supply	3.7 V Li-lon battery
Display	2.2"TFT colour LCD, 320 x 240 pixel	Menu languages	EN, DE, FR, ES, IT
PIP (Blending fusion)	IR image with visible image in 6 steps (0 – 100%)	Weight	410 g
		Dimensions	205 x 155 x 62 mm
Infrared temperature measurement			
Temperature range	-20°C to +300°C		
Accuracy (at 25°C)	± 2% from reading or ± 2°C		
Measurement cursors	3 (centre, max, min)		

FIRT 1600 Data Infrared Thermometer

- >>> For very high temperature measurements.
- With integrated memory for monitoring and analysis.
- Trades and tasks: Foundry, monitoring of: brake drums, discs, electric motors, exhaust systems.

FHT 70 DataLog Temperature and Humidity Data Logger



- Data logger for recording temperatures and air humidity over a longer period for check-up and analysis.
- >> Trades and tasks: Cold storage house, drying, gallery, food industry.

TECHNICAL DATA	FHT 70 DATALOG	
Function	Range	Basic accuracy
Relative humidity	0 % – 100 % RH	± 3.0 %
Temperature	-40 C to + 70 C	± 1 °C
Logging rate	1 sec to 24 h	
Operating temperature	-35 °C to +80 °C	
Power supply	3.6 V Lithium	
Size	132 x 66 x 37	
Weight	180 g	
FEATURES		SUPPLIED WITH
Measures temperature and	d air humidity	ARTNO. 800120
 Internal memory for 32.70 	· · · · · · · · · · · · · · · · · · ·	
· Selectable measurement of		· 3.6 V lithium battery
· LCD with date, time,	,	· Software
temperature, humidity,		· Clamshell
limit value		
Software for analysis		



TECHNICAL DATA

Temperature range

Fast response time

Illuminated display

Humidity range

FHT 60 and FHT 100 Humidity and Temperature Meter

>> Trades and tasks: Environmental monitoring, warehouses, production facilities, greenhouses (floristics), ventilating and air-conditioning, civil engineering, construction physics, expert report.

FHT 100

800110

± 0.5 °C

-30 °C to +100 °C

0 % - 100 % RH



FHM 10 Moisture Meter

Pocket-size moisture meter for fast and convenient measurement of moisture content

>> Trades and tasks: Building and construction: plaster, gypsum, concrete and mortar; wood construction: sawn timber; general: firewood, wood, cardboard, paper.

		· CR20
TECHNICAL DATA	FHM 10	FEATUI
Measuring range wood	6 % – 44 %	· Meas
Accuracy wood	± 1 %*	resist
Measuring range other materials	0.2 % – 2 %	· Dual o
Accuracy other materials	± 0,05 %	tion n
Power supply	3 x CR2032 batteries	· Repla
Dimensions	130 x 40 x 25 mm	· Prote
Weight	102 g	functi
		· Autor
		· Impad
* Calibrated for European wood at 20 ° C		

SUPPLIED WITH ART.-NO. 800310

2032 batteries

HNICAL DATA	FHM 10	FEATURES
asuring range wood uracy wood asuring range other materials uracy other materials ver supply ensions ght	6 % - 44 % ± 1 %* 0.2 % - 2 % ± 0,05 % 3 x CR2032 batteries 130 x 40 x 25 mm 102 g	Measurement principle: electrical resistance Dual display for wood and construction materials Replaceable 8 mm measuring pins Protective cap with integrated function and battery check Automatic power-off Impact resistant housing
ibrated for European Wood at 20 C		

D(istance):S(pot) 50:1 -50 °C to +1600 °C Temperature range Ø measuring spot at 100 cm 20 mm adjustable 0.10 – 1.0 1 % accuracy Laser pointer yes, dual Auto data HOLD

FIRT 1600 DATA

9 V battery

Less than 150 m

0.1 °C - 1000 °C

1 °C over 1000 °C

± 1.0 % ± 1 °C

0.3 kg 204 x 155 x 52 mm

-50 °C to +1370 °C

± 1.5 % of reading + 3 °C

For non-contact temperature measurement with laser dot 150 ms fast sampling with High temperature range Built-in dual laser pointers for accurate targeting Permanent measuring Compatible with all standard connector Type-K thermocouples USB interface

Memory for 99 measurements

via USB interface

Easy transmission of data to PC

FEATURES

SUPPLIED WITH

ART.-NO. 800020

Battery · USB cable

Mini tripod Type-K temperature

probe

Max HOLD yes Data HOLD yes -30 °C to +100 °C no Dewpoint temperature 0 °C to +80 °C Wet bulb temperature no Accuracies: Humidity ± 3.5 % RH ± 2 % RH ± 0.5 °C Temperature ± 2 °C ± 0.5 °C

yes

FHT 60

800100

-20 °C to +60 °C

0 % - 100 % RH

Dewpoint Wet bulb

FEATURES

Fast measurement of relati-

Dewpoint temperature

measurement for recog-

nition of mold building up

and wet bulb temperature

(evaporation temperature)

ve humidity and

measurement

SUPPLIED WITH

FHT 60 & FHT 100

temperature

www.geo-fennel.com

TECHNICAL DATA

Illuminated display

Power supply

Response time

Resolution

Laser class Weight

Dimension

Max, Min, DIF, AVG record

Temperature range Type-K probe

Accuracy (IR) (+20 °C - +400 °C)

Accuracy (TK) (-50 °C - +1370 °C)



FHM 20 Moisture Meter

FEATURES

External moisture measurement probe

External temperature probe: at measurement

Protective cap with integrated calibration check

with moisture and temperature probe the

moisture measurement is carried out with

automatic temperature compensation.

This leads to a higher accuracy.

Battery indicator

8 mm measuring pins (replaceable)

Automatic power-off (adjustable time)

Moisture meter for wood and building materials. Wood: Calibrated to 170 wood types in 8 groups. **Building materials:** Gypsum, plaster, concrete, concrete screeds, mortar, cardboard, paper.

Measurement of humidity permeation, surface humidity, determination of dry and humid areas.

1 Moisture and temperature probe

SUPPLIED WITH

ART.-NO. 800320

· Padded bag

2 x AAA Batteries

· Moisture and temperature probe

· 2 x spare measuring pins



FFM 100 Moisture Detector

Quick non-destructive measurement of surface humidity up to 40 mm measuring depth.

>> Trades and tasks: Building materials, concrete floors, walls, ceilings.

Quick measurement of humidity

in building materials without



FTA 1 Thermometer-Anemometer

A professional remote vane thermo-anemometer for measuring air velocity, air flow and temperature.

Trades and tasks: Ventilation and air-conditioning: installation of ventilation systems, measurements of air flow and temperature; agriculture: crop spraying, ventilation surveys and crop storage; environmental

FEATURES

ambient temperature Large easy-to-read LCD with switchable backlight

Simultaneous display of air flow or air velocity and

	M	
*	7	
•		

TECHNICAL DATA	FFM 100	destruction of the surface Indication of minimum / maximum values Sensor type: metal spheroid
Measuring depth	20 – 40 mm	
Measuring range	0 – 100 digits	
Resolution	1 digit	SUPPLIED WITH
HOLD function	yes	
Display illumination	yes	ARTNO. 800650
Automatic shut-off	yes	AIII. 110. 000000
Battery status indication	yes	· Set of batteries
Dimensions	80 x 45 x 45 mm	oct of battories
Weight	0.18 kg	
Power supply	Alkaline batteries	

TECHNICAL DATA	FTA 1			function 20 average readings for air
				flow and air velocity Data HOLD function
Air velocity	Measuring range	Resolution	Accuracy	
m/s	0.40 - 30.00	0.01	\pm 3 % \pm 0.20 m/s	· 16 memory locations for
ft/min	80 – 5900	1	± 3 % ± 40 ft/min	area (8 CMM, 8 CFM)
km/h	1.4 – 108.0	0.1	$\pm 3 \% \pm 0.8 \text{ km/h}$	Remote vane with low-
mph	0.9 - 67.0	0.1	± 3 % ± 0.4 mph	friction bearing (65 mm
knots	0.8 – 58.0	0.1	± 3 % ± 0.4 knots	diameter) for accurate
				results
Air flow	Measuring range	Resolution	Accuracy	
CMM (m³/min)	0 – 999,900	0.001	0 – 999.9 m²	
CFM (ft³/min)	0 – 999,900	0.001	0 - 999.9 ft ²	
				SUPPLIED WITH
Air temperature	Measuring range	Resolution	Accuracy	
°C	-10 °C to +60 °C	0.1 °C	± 2 °C	ARTNO. 800450
°F	14 °F – 140 °F	0.1 °F	± 4 °F	0 31 400 11
				Sensor with 120 cm cable
Various				9 V alkaline battery
Power supply	1 x 9 V			· Container
Operating time	80 h			
Dimensions	75 x 203 x 50 mm			
Weight	280 g			

TECHNICAL DATA FHM 20 Electrical resistance Measuring principle Measuring range wood 6 - 99.9 % ± 1 % * Accuracy wood Measuring range building materials 3–33 % ± 1 % Accuracy building materials Range temperature measurement 0 °C to +60 °C 180 mm x 50 mm x 31 mm Dimensions * Average adjustment for European wood at 20°C

OFF A C CALMS SOUND LEVEL: Lar35-100d8 HI=65-130dB Frequency, Weighting: A.C Time weighting: Size or Fast

€ 000 FSM 130+

FSM 130+ Sound Level Meter

Trades and tasks: Industry, health and safety, school, public works, environmental measurements.



FGD 1 Gas Leak Detector

- Easy-to-use gas leak detector for locating gas leaks from a safe position.
- Detects following gas types: Natural gas, propane, butane, methane, acetone, alcohol, gasoline, jet fuel, carbon monoxide, ammonia, steam, hydrogen sulfide, smoke, industrial solvents, lacquer thinner, naphta.
- Trades and tasks: Gas industry, chemical industry, laboratory, car repair shops.

SUPPLIED WITH

ART.-NO. 800470

Batteries

TECHNICAL DATA	FSM 130+	SUPPLIED WITH
		ARTNO. 800210
Low range (Lo)	35-100 dB	
High range (Hi)	65-130 dB	· Case
Frequency weighting A, C	Lo 35-100 dB	· Battery
	Hi 65-130 dB	
Max HOLD	yes	
Data HOLD	yes	
Analogue AC/DC output	yes	
to analyzer or recorder		PROPERTIES
IEC 651 Type 2 standard	yes	PROPERTIES
Built-in calibration check	yes	
Accuracy at 94 dB	1.5 dB	
Operation temperature	0 °C to +40 °C	· For quick check of sound level
Operation humidity	< 80 % RH	· Standard IEC 651 type 2

TECHNICAL DATA	FGD 1	PROPERTIES
Sensitivity	50 ppm	· 40 cm gooseneck detector
Sensor type	Low power semi-conductor	 Visual leak detection by LED
Warm-up time	approx. 60 sec	indicators
Response time	< 2 sec	· Precision sensor detects even the
Duty cycle	continuous	smallest leaks
Probe length	40 cm	· Fast response of less than two
Power supply	3 x C Alkaline	seconds
Operating time	8 h	· Includes earphone jack
Alarm	visible and audible	
Size	221 x 72 x 46 mm	
Weight	498 g	

TECHNICAL DATA

FCT 1 Data Coating Thickness Tester

Coating Thickness Tester for fast testing and measuring of non-magnetic coatings on steel or non-ferrous metals.

SUPPLIED WITH

· USB cable

Software

PROPERTIES

Case

Calibration accessories

>> Trades and tasks: Paint shops, car industry, construction.



>> Accessories for calibration

	Probe F	Probe N	· Internal memory for 80
Working principle	Magnetic induction	Eddy current principle	readings per group
Measuring range	0 – 1250 μm	0 – 1250 μm	· Easy data transfer to
	0 – 49.21 mils	0 – 49.21 mils	PC by USB
Guaranteed tolerance	0 – 850 μm (± 3 % +1 μm)	0 – 850 μm (± 3 % +1.5 μm)	· PC software
(of reading)	0 – 33.46 mils	0 – 33.46 mils	· Measures insulating coatings
	(± 3 % +0.039 mils)	(± 3 % +0.059 mils)	on non-ferrous metals
	850-1250 μm (± 5 %)	850 – 1250 μm (± 5 %)	· Automatic recognition of the
	33.46-49.21 mils (± 5 %)	33.46 - 49.21 mils (± 5 %)	material (Fe / NFe)
Resolution 0 – 50 μm	0.1 μm	0.1 µm	· Sensor with V-groove for mea-
Resolution 0 – 1.968 mils	0.001 mils	0.001 mils	surements of round objects
Diameter of minimum area	7 mm	5 mm	· Magnetic induction and eddy
Basic thickness of material	0.5 mm	0.3 mm	current measuring principle
Working temperature	0 °C to +40 °C	0 °C to +40 °C	· Single and permanent
Working relative humidity	20 % ~ 90 %	20 % ~ 90 %	measurement
Power supply	2 x AAA Alkaline	2 x AAA Alkaline	· AVG / Max / Min function
Size	113.5 x 54 x 27 mm	113.5 x 54 x 27 mm	· Alarm function
Weight	110 g	110 g	

FCT 1 DATA



FLM 400 Data Luxmeter

- Luxmeter for professional indoor measuring and monitoring of light insolation.
- Trades and tasks: Building construction, indoor construction, censor.

SUPPLIED WITH ART.-NO. 800510 9 V battery Photo detector USB cable

Software

Carrying case

TECHNICAL DATA	FLM 400 DATA
Maximum measuring range	400,000 Lux
Accuracy	± 5 % ± 10 d (< 10,000 Lux)
	± 10 % ± 10 d (> 10,000 Lux)
Resolution	0.1 Lux
Sampling rate	1.5 times / sec
Data HOLD function	yes
Automatic power-off	yes
Output	USB
Power supply	9 V NiMh
Size photo detector	115 x 60 x 27 mm
Size instrument	203 x 75 x 50 mm
Weight	390 g

	· Measuring range 0 to 400,000 l
1	Sampling rage 15 times / sec

arge LC display

easuring range 4,000 digits

analogue bargraph indication 9 values in memory for direct

ading on the meter 6,000 values can be stored in ata logger

lax / Min function

igh accuracy and short response

SB-interface

FT 1300-1 / FT 1300-2 Professional K-Type Thermometers with single and dual input

Trades and tasks: Temperature measurements of liquid construction materials like asphalt, isolation checks, measurements in the HVAC branch, energy supply, industrial and laboratory application.



TECHNICAL DATA	FT 1300-1	FT 1300-2	SUPPLIED WITH FT 1300-1 & FT 1300-2
ARTNO.	800400	800410	
			 Flexible wire probe TP-300
Scanfunction	1 measurement	2 measurements simultaneously	· Set of batteries
		or temperature difference	· Case
Sampling rate	2.5 x per second	2.5 x per second	
Accuracy	± 0,5 % / ± 1 °C	± 0,5 % / ± 1 °C	
Display resolution	0.1 °C / 1 °C	0.1 °C / 1 °C	
Temperature range	-50 °C to +1300 °C	-50 °C to +1300 °C	
Measuring units	°C/°F/K	°C/°F/K	FEATURES
Dimensions	162 x 76 x 39 mm	162 x 76 x 39 mm	
Weight	0.21 kg	0.21 kg	
Power supply	Alkaline batteries	Alkaline batteries	· Indication of maximum value
			(MAX)
			· Data HOLD function
			Large display (45 mm) with
			illumination

FT 1000-Pocket Digital Thermometer

>> Trades and tasks: Temperature measurement of liquids and soft materials.



TECHNICAL DATA

Temperature range	-20 °C to +1000 °C
Accuracy	± 3 %
HOLD function	yes
Automatic shut-off	yes
Battery status indicator	yes
Dimensions	117 x 65 x 24 mm
Weight	0.16 kg
Power supply	Alkaline batteries
FEATURES	SUPPLIED WITH
	SUPPLIED WITH ARTNO. 800420
· Handy thermometer with	ARTNO. 800420
Handy thermometer with immersion probe	ARTNO. 800420 Set of batteries
· Handy thermometer with	ARTNO. 800420
Handy thermometer with immersion probe Pocket-size, light weight, easy to	ARTNO. 800420 Set of batteries

FT 1000-POCKET

FMM 5 5-in-1 Digital Multimeter

Trades and tasks: Universal measuring device for DC and AC voltage, DC current resistance, transistor hFE diode and continuity test, light (luminosity), sound, humidity, temperature overload protection.



	ı.
SUPPLIED WITH	M Vo
ARTNO. 800600	Vo
All-purpose probe TP-500 Set of batteries	Re
Case	Er
Testing cable	Li
	So
	Н
	Te

TECHNICAL DATA	FMM 5		
Multimeter	Max. Range	Resolution	Accuracy
Voltage DC	600 V	0.1 mV	± 0.5 % ± 2*
Voltage AC	600 V	100 mV	± 1.2 % ± 10*
Current DC	10 A	0.1 μΑ	± 1.0 % ± 2*
Resistance	20 mΩ	0.1 Ω	± 0.8 % ± 2*
Environment	Max. Range	Resolution	Accuracy
Light (luminosity)	20,000 Lux	0.1 Lux	± 0.5 % ± 10*
Sound	100 dB	0.1 dB	± 3.5 dB
Humidity	95 % RH	0.1 % RH	± 5.0 % RH
Temperature	-20 °C to +200 °C	0.1 °C	± 3.0 % ± 1*
	-20 °C to +1300 °C	0.1 °C	± 3.0 % ± 5*

^{*} numerical

Accessories for Environmental Measuring Equipment

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Accessoires	Function	Length	Temperature range	suitable for	ARTNO.
TP-300	Flexible wire probe	100 cm	-50 °C to +300 °C	FT1300-1, -2, FMM5	800900
TP-500	All-purpose probe (metal tip length 7 mm)	85 cm	-50 °C to +900 °C	FT1300-1, -2, FMM5	800901
TP-550	All-purpose probe (metal tip length 15.5 cm)	94 cm	-50 °C to +900 °C	FT1300-1, -2, FMM5	800906
NR-88B	Flexible steel probe	100 cm	-50 °C to +450 °C	FT1300-1, -2, FMM5	800902
NR-31B	Surface temperature probe	12 cm	-50 °C to +450 °C	FT1300-1, -2, FMM5	800903
NR-33	Right angle surface temperature probe	34 cm	-50 °C to +450 °C	FT1300-1, -2, FMM5	800904
NR-38	Air temperature probe	21 cm	-50 °C to +800 °C	FT1300-1, -2, FMM5	800905







ACCESSORIES

OUR INVITATION: ALWAYS NEW CHALLENGES TO CONQUER.

The versatility of measuring instruments from geo-FENNEL can be increased significantly by using our wide range of precisely coordinated surveying accessories. Regardless of the profession or application, the know-how from many decades of experience in the field of measurement technology and surveying resides in our products.



LASER GLASSES RED

LASER GLASSES GREEN

ART.-NO. 253000

Laser glasses



Just set

- Adapter for clamp connection at wall track for dropped ceiling
- magnetic mount of line lasers Line laser can be moved up and
- down for correct height positioning



360° Fine adjustment bracket

ART.-NO. 290560

- Metal surface to connect with



Allows a smooth 360° rotation and fine

adjustment for rotating and line lasers.

Final position can be clamped. Aperture

for instruments with plumb down beam.

FLOOR-TO-CEILING PILLAR KS 3

ART.-NO. 520100

- Floor-to-ceiling pillar (1-leg tripod) to be fixed between floor and ceiling Solid construction
- 5 sections with metal thread Maximal length 3,40 m
- 5/8" and 1/4" adapter
- Supplied with carrying bag
- The individual poles are equipped with 5/8" threads. This enables them to be screwed onto tripods, if no ceiling surface is available.

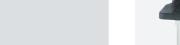
360° FINE ADJUSTMENT BRACKET

5/8" threads (bottom female.

ART.-NO. 290760

top male)

Universal mount



WH 1 / WH 2 Wall and Ceiling Mount

Robust mount for use on walls and ceilings



- Robust mount for use on walls and ceilings
- Ideal for use indoors e.g. setting out suspended ceilings

- Incl. bag

WH 2

- Cm/inch-graduation
- Precise adjustment / alignment with large slow motion wheel

ART.-NO. 290610

- - · Suitable for all geo-FENNEL-lasers

- Same as WH 1 but all metal.
 - · Especially solid
 - Platform size 150 x 95 mm for fixing
 - larger instruments

Grade Mount

GRADE MOUNT

ART.-NO. 290700

manual function

Robust construction

With bubble

ADAPTER FOR S-DIGIT MINI

holder

SH2 Scaffold clamp



Adapter for connecting S-Digit mini (see page 92) to the Grade Mount.

Allows higher accuracy to be







For rotating and line lasers with

For setting slopes between 0 - 90°

for laser levels in manual mode

ADAPTER 5814

ART.-NO. 290550

Adapter 5/8" to 1/4" Converts a standard 5/8" tripod into a 1/4" fitting



achieved.



>> Example

ADAPTER FOR S-DIGIT MINI +

ART.-NO. 290750



SH2 SCAFFOLD CLAMP HOLDER

For quick centring over the linchpin.

with FL 275/510-Trackinglasers.

· For all rotating lasers, however, with special marks for use

ART.-NO. 320610

ART.-NO. 253001 Laser intensive glasses for better visibility of laser beam

Magnetic Target LS 307



MAGNETIC TARGET LS 307 RED

ART.-NO. 290500

MAGNETIC TARGET LS 307 GREEN

ART.-NO. 290501

Magnetic Target with cm/inch graduation





Adapter FCA

Adapter to facilitate facade construction and monitoring with rotating lasers.

Adapters FCA-L for rotating lasers and FCA-E for receivers are fixed on the wall. Rotating laser plane and receiver on-level mark are to be set up at same distance to the wall by means of integrated cm / mm-graduation at both adapters.

Like this structural facings can be mounted exactly parallel.

Dedicated for use with FL 270VA-Tracking and FL 510HV-G Tracking in combination with receiver FR 77-MM Tracking.

FCA-L FOR LASER	FCA-E FOR RECIEVER
ARTNO. 290820	ARTNO. 290830



FS 10 (1.88 m) FS 12 (2.44 m) **Elevating Tripod**



ART.-NO. 302000

- Rotating head
- 67-188 cm (incl. 30 cm centre column)
- Lightweight elevating tripod made of aluminium for instruments with 5/8" thread Incorporated circular bubble
- Incl. bag

ART.-NO. 303000

- Rotating head
- 73-244 cm (incl. 30 cm centre column)
- Lightweight elevating tripod made of aluminium for instruments with 5/8" thread Incorporated circular bubble
- Incl. bag

FS 13 (2.95 m) **Elevating Tripod**

FS 13 ART.-NO. 304000 Rotating head 89-295 cm (incl. 120 cm centre column) Lightweight elevating tripod made of aluminium for instruments with 5/8" thread Wide working range for setting out 1 m datum mark and working at heights of about 3 m Adjustable range of elevating column 54 cm and of sliding column 59 cm Carrying handle Incorporated bubble Incl. bag

FS 14 (1.61m) Camera Tripod

FS 14

ART.-NO. 301000

- Rotating head
- 57-161 cm
- Lightweight elevating tripod made of aluminium for instruments with
- 1/4" thread
- Ideal as accessory for laser distance meter Incl. bag

FS 30-XS (3.00 m) Elevating Tripod



Column / Flat head

- 101 300 cm
- 5.7 kg
- Lightweight elevating tripod made of aluminium for instruments with 5/8" thread
- Adjustable range of centre column 36 cm
- Fine crank drive for exact adjustment
- Upper column length 43 cm
- Quick clamp system, shoulder carrying strap
- Struts between tripod legs
- Integrated retractable rubber pads for non-slip use
- on hard surfaces
- Retracted length 1.1 m for convenient transport
- Built-in circular bubble



TRIPOD FLOOR STAND

ART.-NO. 170

Protect your floor surface and ensure your tripod is secure. Manufactured from aluminium and foldable for easy trans-

www.geo-fennel.com www.geo-fennel.com

Adjustable range of centre column 30 cm

High quality elevating tripods designed

adverse weather conditions

to be compact and durable – a stable platform for any rotating laser, even in

- Quick clamp system
- Incl. shoulder carrying strap
- 5/8" Thread

FS 30-S ART.-NO. 155 Column / Flat head 68-138 cm 4.2 kg Short tripod ideal for cutting checks · Adjustable range of centre column 35 cm · Quick clamp system, shoulder carrying strap Robust chains between tripod legs Integrated retractable rubber pads for non-slip use on hard surfaces · Continuous opening for instruments with plumb down facility · Built-in circular bubble · 5/8" Thread FS 50-M (2.20_m)

Elevating Tripod

FS 30-S (1.38 m) FS 30-M (2.00 m) | FS 30-L (2.85 m) Elevating Tripod

FS 30-M

- ART.-NO. 158 Column / Flat head 80-200 cm
- 5.2 kg
- · Adjustable range of centre column 39 cm
- · Quick clamp system, shoulder carrying strap
- · Robust chains between tripod legs
- · Integrated retractable rubber pads for non-slip use on hard surfaces
- · Continuous opening for instruments with plumb down facility
- · Built-in circular bubble
- 5/8" Thread

Elevating Tripod

FS 30-L ART.-NO. 156 · Column / Flat head 95-285 cm · 8.2 kg

· Adjustable range of centre column 40 cm · Quick clamp system, shoulder carrying strap

- Robust chains between tripod legs
- · Integrated retractable rubber pads for non-slip use on hard surfaces
- · Built-in circular bubble
- · Continuous opening for instruments with plumb
- down facility · 5/8" Thread

FS 50-L (2.90_{*}m) Elevating **Tripod**

ART.-NO. 164

FS 50-M

Tripod

Column / Flat head 80-220 cm

Elevating

- · 7.2 kg
- Adjustable range of centre column 108 cm
- · Struts between tripod legs for increased stability
- · Central clamping of the struts
- Integrated retractable rubber pads for non-slip use on hard surfaces
- · Continuous opening for instruments with plumb down facility
- · Built-in circular bubble
- 5/8" Thread

FS 50-L

ART.-NO. 166

- 114-290 cm 8.6 kg

Column / Flat head

- Adjustable range of centre column 108 cm Struts between tripod legs for increased stability
- Central clamping of the struts
- Integrated retractable rubber pads for non-slip
- use on hard surfaces Continuous opening for instruments with plumb
- down facility Side wheel for comfortable connection of
- instruments with 5/8" thread
- Built-in circular bubble

FS 30-XL (3.80₁m) Elevating **Tripod**

ART.-NO. 159

FS 30-XL

- Column / Flat head
- 166-380 cm
- 15.6 kg
- Adjustable range of centre column 104 cm Load up to 20.0 kg
- Combined guick and screw clamp system for extra stability
- Struts between tripod legs
- Retracted length 1.79 m for comfortable transport
- Made of aluminium (centre column) and fibre glass (tripod)
- Built-in circular bubble
- 5/8" Thread

FS 24 FS 24 W/S (1.70 m) Wooden Tripod



FS 24 ART.-NO. 154 Flat head

105-170 cm · 5.4 kg

ART.-NO. 154 W/S

FS 24 W/S

Same as FS 24 tripod. however, with screw clamp system

Robust wooden tripod for levels, theodolites and rotating lasers Ouick clamp system

- Flat head Shoulder carrying strap
- Diameter of tripod head 140 mm
- 5/8" Thread

FS 24-M W/S (1.70 m) Wooden tripod

>> FS 24-M W/S:



Robust wooden tripod with large diameter head of 17 cm and screw clamp system making it a secure platform for Total Stations, theodolites and lasers



ARTIKEL-NO. 162 W/S

Flat head Ø 17 cm 105 – 170 cm

5/8" Thread 5.5 kg

Robust wooden tripod for surveying instruments

- Screw clamp system
- Flat head
- Diameter of tripod head 170 mm
- Shoulder carrying strap

Builders Tripod BT (1.47 m) **Aluminium** tripod

BUILDERS TRIPOD BT

ART.-NO. 161

- Flat head
- 92-147 cm 3.2 kg
- For automatic levels Quick clamp system
- Flat head Shoulder carrying strap
- 5/8" Thread

FS 20 FS 20-D (1.65 m) **Aluminium Tripods**



FS 23, FS 23-D FS 23 W/S (1.70 m) Aluminium Tripods



ART.-NO. 152

Quick clamp system Flat head

Aluminium Tripod FS 20

as automatic levels

- Shoulder carrying strap
- Diameter of tripod head 123 mm 5/8" Thread

· For light measuring instruments such

Aluminium Tripod FS 20-D

Same as FS 20 tripod, however, with

Aluminium Tripods FS 23 · Ideal for all measuring instruments

- Quick clamp system
- Flat head Shoulder carrying strap
- Diameter of tripod head 143 mm
- 5/8" Thread

Aluminium Tripod FS 23-D

Same as FS 23 tripod, however, with domed head

Aluminiumstativ FS 23 W/S

www.geo-fennel.com

Same as FS 23 tripod, however, with screw clamp system

ART.-NO. 151 Flathead

105 – 165 cm 3,5 kg

FS 20

FS 20-D

ART.-NO. 157 Domed head

105 – 165 cm 3,5 kg

domed head

FS 23

Flat head

5.1 kg

105-170 cm

FS 23 W/S (FLATHEAD)

ART.-NO. 152 W/S

ART.-NO. 153

FS 23-D (DOMED HEAD)

- Silver anodised finish
- Front face cm-E graduation throughout total length
- Rear face graduation in mm
- for height measurements Slit to fix LR 7 Rod level
- Secure snap-in at each meter

TN15



ART.-NO. 485

TN 15

- A high quality levelling staff made of strong aluminium tubes
- available in 4 m and 5 m
- Silver anodised finish
- Front face cm-E graduation throughout total length
- Rear face graduation in mm for height measurements
- Slit to fix LR 7 Rod level
- Secure snap-in at each meter

TN 20-Kombi



TN 20-KOMBI ART.-NO. 482

- · Made of strong aluminium
- Graduation in mm Lenath 2.40 m
- · Lower part adjustable in height for zero setting
- · Including circular bubble and carrying case
- Including adjustable clamp for receiver
- Weight 0.9 kg
- · Ideal for use with rotating laser levels

Correct sign reading

BS 15-0



ART.-NO. 486 BS

A quality levelling staff for aser levels

Front face cm-E graduation Rear face graduated in mm with

"0" beginning at the bottom



TN 15-0

TN 15-0

ART.-NO. 486

High quality levelling staff similar to TN 15, except: · Rear face graduated in mm with "0" beginning at the bottom

Optional accessories

ROD LEVEL LR7 FORTN 14/15/15-0 ART.-NO. 370 Rod Level LR7 For TN 14, 15, 15-0, BS 15-0 Adjustable CASE FORTN 14/15/15-0

ART.-NO. 480

Nylon case with shoulder carrying strap (w/o picture)



RPT 1 Tripod



RP 2 Ranging Pole Metal Ranging Pole

6X RP 2

ART.-NO. 800

- Each pole consists of 2 sections of 1 m length screwed together to make one pole of 2 m
- Universal 5/8" fitting
- White / red sections
- Metal tip Supplied as a set of 6 poles in a carrying bag

1 M EXTENSION FOR RP 2

ART.-NO. 810

- Extendable tripod legs 77 - 128 cm, with secure clamps
- Weight 1.25 kg
- ball-and-socket joint Supplied with carrying case

RPT 1

ART.-NO. 820

- 1 m section for extending the
- Clamp with adjustable

- ranging pole as required White / red colour
- 5/8" thread

Marking Spray For permanent wall / floor marking.

- Professional marking for building and road construction, civil engineering, construction sites, surveying jobs.



MARKING SPRAY

- For fast, clean and precise marking of asphalt, concrete, masonry, stone pavement, wood, earth and many other substrates
- Markings remain strongly visible up to 9 months
- Marking and sticking to any surface even if it is wet
- Reliable even at sub-zero temperatures (up to -20 °C)
- Patented one-hand safety cap with easy-touch release
- Guaranteed marking without painted fingers Colour coordinated cap
- Also easy to apply with gloves
- Self-cleaning system, can be 100 % emptied by spraying
- Environmentally friendly and non-hazardous to health

COLOURS

ARTNO. fluo orange	901
ARTNO. fluo red	902
ARTNO. fluo blue	903
ARTNO. fluo yellow	904
ARTNO. fluo green	905
ARTNO. fluo pink	906
ARTNO. red	911
ARTNO. yellow	913
ARTNO. white	915

- Content 500 ml
- Sales packing 12 cans per carton

1 Patented one-hand safety cap with easy-touch release



Marking Wheel

- Marking Wheel for accurate marking with GEO-MARKER Marking Spray.
- » No need to remove safety cap for use with marking wheel.



MARKING WHEEL

ART.-NO. 940 Length 83 cm Weight 0.6 kg

130

F6 Two-way Radio

Robust and powerful PMR 446 two-way radio for professional use.





2 F6-HM hand microphone







3 Charger

0.5 W RF output power 446.000 – 446.100 MHz Frequency range Channels Audio output Accu / operating time 12 V Li-Po 1300 mAh / 12 h – 30 h -25 °C to +55 °C Temperature range Dust / water protection IP 54 MIL STD 810 C/D/E & TIA/EIA 603 Shock / vibration

OPTIONAL ACCESSORIES F6-HM MICROPHONE	OPTIONAL ACCESSORIES F6-EM EARPHONE
ARTNO. 870100	ARTNO. 870150
· F6-HM hand microphone with	· F6-EM earphone / clip microphone

· Clear audio quality

FEATURES

- Automatic noise reduction
- · TOT Time-out timer to stop transmitting automatically
- · Monitoring function
- DCS/CTCSS encoder and decoder prevents interference in the same
- Housing made of die-cast and
- high-resistant plastic Powerful lithium polymer
- rechargeable battery Battery saving mode
- Channel annunciation in English LED shows receipt, transmission
- and battery status European wide licence and tollfree usable

- PC programmable (optional):
- · Frequency, functions and settings can be set by the optional programming software

SUPPLIED WITH

ART.-NO. 870000

- Two-way radio
- Rechargeable battery
- · Charger Belt clip
- Hand strip

ART.-NO. 800810



FMD 60 Metal Detector

Easy to use metal detector.

- · Designed for the detection and localisation of manhole covers, site marks, pipes etc.
- · Perfect for site security by detecting hidden metallic objects.



I /ODTIONALL	

· For the use of FMD 60 in loud surroundings

· Padded earcups and headband



TECHNICAL DATA	FMD 60	FEATURES
Measuring depth Operating time Measuring disc Dust/water protection measuring disc Weight	60 cm 30 h Ø 24 cm IP 67 2.0 kg	 Detection of all kinds of metals Handle adjustable, length 114 – 139 cm Headphone jack
Weight	3.3 kg with case and box	SUPPLIED WITH
		ARTNO. 800800 - 8 x AA alkaline batteries - Carrying bag

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TECHNICAL DATA

Working ranges

outside, open terrain

outside, area between buildings 3 km

Mixer FM 1010 1010 W

Mixer FM 1800 and FM 1801 1800 W

Our mixers – suitable for all applications. Ergonomic design, strong performance. Powerful mixers for paint, mortar, concrete, etc. Ideally suited for construction sites.



TECHNICAL DATA	FM 1010
Power	1010 W
Over-voltage protection	yes
Weight	6 kg
Speed adjustable	150-500 rpm

Power



150-300 and 300-650



Paddles for mixers FM 1010 and FM 1800

For sticky and viscous materials: tile adhesive, bonding mortar, joint compound, ready-mixed plaster, floor screed, cement compounds, fillers, etc.

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PADDLE H2	CAPACITY	DIAMETER	LENGTH	THREAD	
H2 120G	15 – 25 kg	120 mm	600 mm	M14	ARTNO. M800590
H2 140G	30 – 50 kg	140 mm	600 mm	M14	ARTNO. M800591
H2 160G	35 – 60 kg	160 mm	600 mm	M14	ARTNO. M800592

For liquid, very viscous and fibrous materials in large quantities: wall paint, varnish, glaze, joint sealing compound, cements, lime, plaster, concrete, filler, floor screed, etc.

PADDLE H3	CAPACITY	DIAMETER	LENGTH	THREAD	
H3 L120G	15 – 25 kg	120 mm	600 mm	M14	ARTNO. M800597
H3 L140G	25 – 35 kg	140 mm	600 mm	M14	ARTNO. M800596
H3 L160G	35 - 60 kg	160 mm	600 mm	M14	ARTNO. M800599

For liquid materials: wall paint, emulsion paint, tile adhesive, glue, wallpaper paste, etc.

PADDLE H4	CAPACITY	DIAMETER	LENGTH	THREAD	
H4 114G	15 – 40 kg	120 mm	600 mm	M14	ARTNO. M80059

For liquid materials: wall paint, emulsion paint, paste, bitumen, sludge, joint sealing compound, filler, bonding agent, etc.

PADDLE H7	CAPACITY	DIAMETER	LENGTH	THREAD	
H7 100G	15 – 25 kg	100 mm	600 mm	M14	ARTNO. M800594
H7 120G	20 – 30 kg	120 mm	600 mm	M14	ARTNO. M800595

For thin-bed adhesives and for larger volumes of liquid materials.

PADDLE DD 140	CAPACITY	DIAMETER	LENGTH	THREAD	
DD 140	20 – 40 kg	140 mm	600 mm	M14	ARTNO. M800593

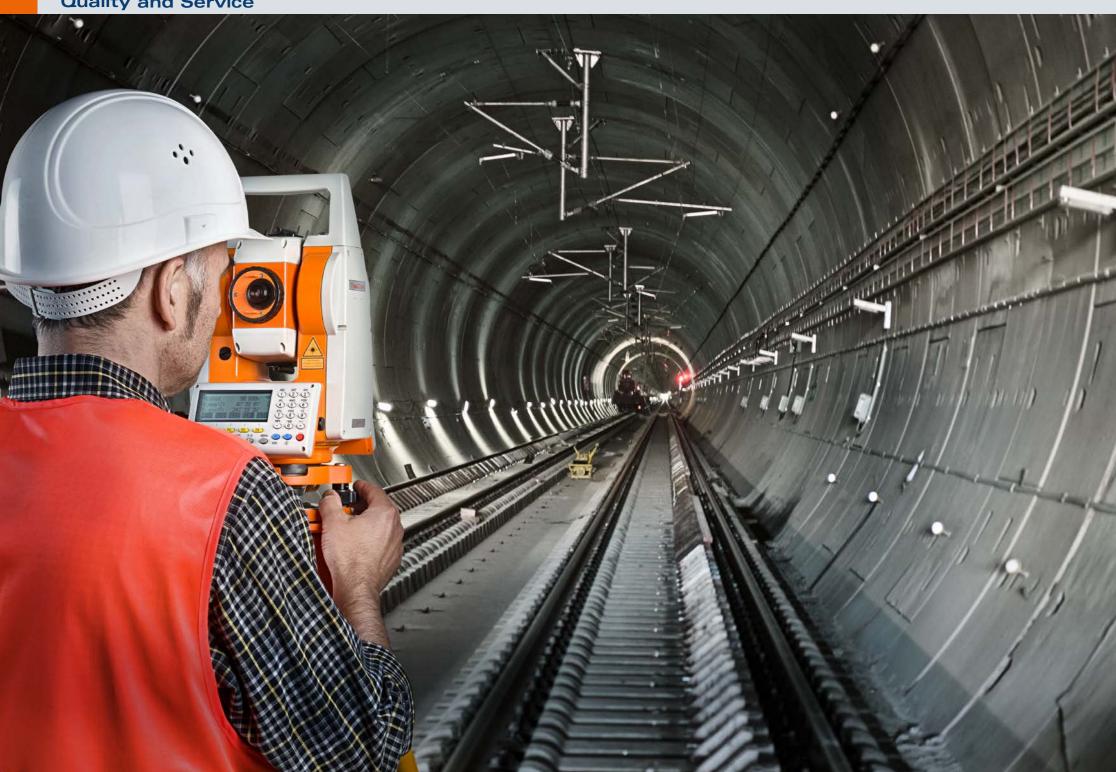


QUALITY & SERVICE

INFORMATION AND SUPPORT







Benchmark for measuring. Laser measuring tools and surveying equipment supplied by geo-FENNEL.

geo-FENNEL – a valued name in the world of surveying.

Docated in Hesse, Germany we are a mid-sized company which has gained a good reputation as a supplier for laser measuring technology and surveying equipment. Today we are in the front row when users ask for laser measuring devices. Our products are recognised all over the world and we currently deliver them to more than 70 countries worldwide. Our indispensable company philosophy is to provide our customers with innovative, precise and reliable products and to offer first class service. High quality, a good and fair price-performance ratio as well as fast delivery count among our principles. Our cooperative partnership with our customers is essential for us and our international orientation is a main strategy.

Our extensive experience has convinced customers, for many years.

Our quality standard

geo-FENNEL instruments are tested and calibrated using tools and equipment traceable through DKD* accreditation back to national standards. These test procedures conform to DIN ISO standards.

*DKD = German Calibration Office



Our product range

Our product range includes:

Laser Surveying Instruments

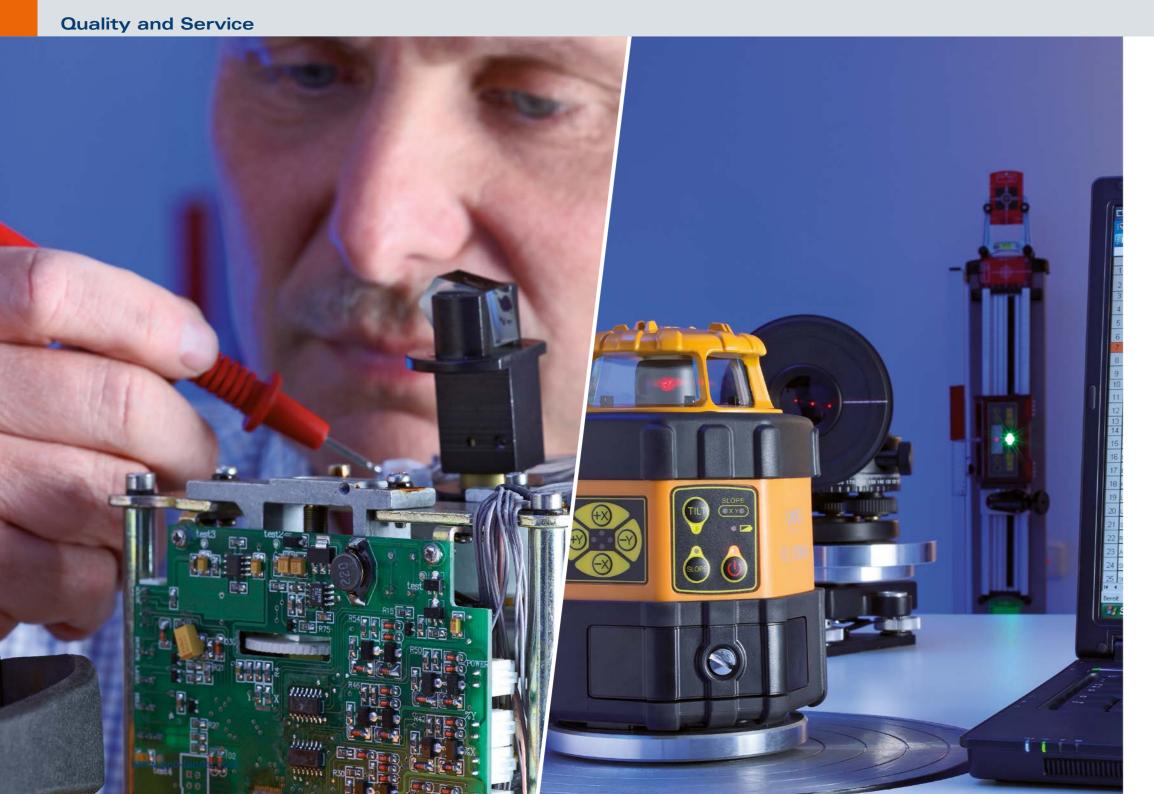
- Rotating Lasers
- Cross and Line Lasers
- Pipe Lasers
- Laser Distance Meters

Classic Surveying Instruments

- Automatic Levels
- -Theodolites
- -Total stations
- GPS Systems

Ancillary Products Measuring Instruments **Environmental Measuring Equipment**





Quality that is measurable. Enhanced by our commitment to service and support.

Service is our pledge.

Many can sell but only a few can back this up with professional advice and extensive service facilities. At geo-FENNEL, our products and services are available at all times, home and abroad and our fully trained personnel are ready to support you with advice at any time. Whether you have questions concerning application, technology or sales we are committed to provide the assistance you require.

State-of-the-art manufacturing technology, the care and continuous training of our employees and our efficient work ethic guarantee you a consistent high level of after sales service. Should a repair become necessary, our repair and spare part departments are ready to help – this applies to our complete product range.

Guaranteed First Class.

We strive to provide the user measuring instruments that offer all the advantages which characterize geo-FENNEL products: easy-to-use, cost effective, accurate measuring performance under almost all conditions with the highest reliability.

We offer 2 years guarantee on all products.

However, in the unlikely event that a problem should occur, simply contact your dealer. He will ensure that the product is quickly restored to full working order, or will replace it with a new one.

Quick and easy.





Technical Information Technical Information

Laser classification according to DIN EN 60825-1:2014

geo-FENNEL laser products are classified into either laser class 2 or 3R.

> Their laser class is specified in our technical data.

Please refer to the latest version.



IEC 60825-1:2014

P ≤ 1 mW @ 635 - 670 nm

IEC 60825-1:2014

 $P \le 5 \text{ mW } @ 635 - 670 \text{ nm}$







IEC 60825-1:2014 P ≤ 1 mW @ 515 - 530 nm









IEC 60825-1:2014 P ≤ 5 mW @ 515 - 530 nm

The laser product can be used without further safety precautions (the relevant safety instructions are described in our user manuals). The eye is protected by the normal human aversion response and the blinking reflex of the human eye to a bright radiant source.

GEO-FENNEL CROSS LINE LASERS

>> Instruments with laser class 2

The complete range is classified in laser class 2 and offered in 4 visibility classes

The complete range is diasonica in laser slass 2 and offer	ou in 4 violativy diadoco.	
Standard	e. g. Square Liner II	Working range visibility 10 m
HP (High Power)	e. g. Geo3x HP	Working range visibility 20 m
SP (Selection PRO)	e. g. Geo6X SP	Working range visibility 30 m
SP (Selection PRO) – Green	e. a. FLG 66-Xtreme Green SP	Working range visibility 40 m

GEO-FENNEL ROTATING LASERS

Our complete range is available within the laser class 2 classification.

varies from country to country. The user is responsible for compliance to the national standards and regulations. The use of laser class 3R products may require registration with a local authority and the appointment of a health and safety operative.

Special protection measures may be necessary as laser

Instruments with laser class 3R

The legal requirement for using laser class 3R products

class 3R products have a higher laser output power. The positive effect of this is to increase the performance of the products for long range reception with receivers and improved visibility when using without a receiver. geo-FENNEL offers various rotating and pipe lasers with laser class 3R.

geo-FENNEL - Product functions

many features which help to carry out safe and comfortable work on construction sites. Some of these features are explained below.



Automatic TILT Function

This is a measurement safety function. If the level of the instrument is disturbed it will re-level itself (within the self-levelling range of 5°). If the level is disturbed at a large range (for example if a tripod leg has moved) a height offset can be caused. This will be avoided by the TILT function. The instrument will shut off even within the self-levelling range. This function is activated automatically after the self-levelling procedure is completed.



Vibration-Wind-Security (VWS)

This is also a measurement safety function. It allows continuous operation during periods of vibration and wind. If a significant movement occurs the laser stops rotating and the laser beam is flashing. The VWS-Mode is combined with the automatic TILT Function.



Remote control function

The remote control function can be switched off to avoid interference from other instruments that are being used on the same construction site.



Zonal control

Zonal control with electronic beam screen avoids spurious measurements caused by crossing laser planes and reflections. Furthermore it greatly increases site safety.



Li-lon battery technology

This technology has great advantages when compared against alkaline and NiMH rechargeable batteries:

- · 100 % power until fully discharged
- Top-up charging possible as no memory effect will occur
- Low self discharge then not in use



PowerSwitch Technology

Rotating lasers with our unique PowerSwitch technology have the power of a class 3R laser but in a certified class 2 laser. The result is no output loss of working range or visibility of the laser line.



Tracking Function

The laser plane of the rotating laser is automatically centered to the receiver "on-grade" position. This makes alignment tasks over long distances extremely easy, e.g. while doing scaffolding work.

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www.geo-fennel.com www.geo-fennel.com **Technical Information Technical Information**

geo-FENNEL knowledge base useful information about laser measuring technology

As specialists in the field of laser measuring equipment we would like our customers to benefit from our many years of experience, providing you with useful explanations relating to various topics in the field of laser technology. This will make using our instruments easier, safer and a more profitable experience.

IP Protection class according to DIN EN 60529

- The degree of protection of an instrument's housing is defined by the indicator "IP" (Ingress Protection) followed by a two-digit code.
 - First digit: Protection against solid particles
 - Second digit: Protection against water



FIRST DIGIT – PROTECTION AGAINST SOLID PARTICLES	SECOND DIGIT – PROTECTION AGAINST WATER
0 No protection	0 No protection
1 Protected against solid particles with a diameter greater than 50 mm	1 Protected against dripping water
2 Protected against solid particles with diameter greater than 12 mm	2 Protected against dripping water, when the housing
3 Protected against solid particles with diameter greater than 2.5 mm	is tilted at an angle of up to 15°
4 Protected against solid particles with diameter greater than 1 mm	3 Protected against sprayed water up to an angle of 60°
5 Protected against dust that would interfere with the operation of	4 Protected against splashed water from any direction
the equipment	5 Protected against water projected from a nozzle
6 Dust tight	6 Protected against water projected from powerful jets
	from any direction
	7 Protected against temporary immersion
	8 Protected against permanent submersion in water

geo-FENNEL F6 Two-way Radio

- The F6 is a PMR 446 channel (Private Mobile Radio) licence free Two-way Radio and works between the frequency band 446-446.1 MHz. The PMR (Private Mobile Radio) 446 service has been introduced following the adoption by the CEPT/ERC1 of the Decisions ERC/DEC/(98) 25, 26 and 27.
- This type of radio can be used by anyone anywhere in the EU registration area totally fee free. They can have a maximum RF Output power of 500 mW and have an approx. maximum range of 5 km.

SET ASIDE THE BAND 446.0 - 446.1 MHZ FOR A PMR 446 SERVICE. WITH A CHANNEL PLAN BASED ON 12.5 KHZ SPACING:

Channel 1 = 446.00625 MHz Channel 2 = 446.01875 MHz Channel 3 = 446.03125 MHz

Channel 5 = 446.05625 MHz Channel 6 = 446.06875 MHz Channel 7 = 446.08125 MHz Channel 8 = 446,09375 MHz

Channel 4 = 446,04375 MHz

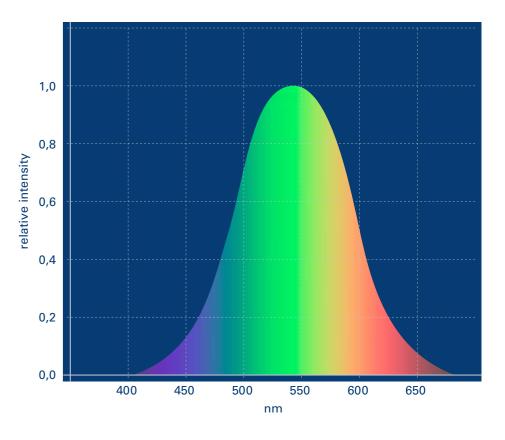
Lasers with red or green laser diode

- The human eye can see the different wavelengths (measuring unit 'nm') of the visible colour spectrum in different intensities. The optimum is at 555 nm. Green light is situated in the middle of this range and can be perceived much higher compared to red light.
- Therefore green lasers have benefits when used without a receiver. The visibility is much better when working in a bright environment, over long distances or on dark surfaces.

Previously the disadvantages of green lasers were a limited temperature range, shorter battery life, the laser class classification, as well as the significantly higher price.

geo-FENNEL have now introduced an innovation in the field of rotating lasers: The rotating lasers FLG 245HV-Green and FLG 245HV-GREEN TRACKING are equipped with advanced laser diode technology offering the following advantages:

- Fully usable temperature range of -20 °C to +50 °C (the same as red laser diode)
- Classification in laser class 2 due to special control electronics
- Equal or slightly better visibility compared to the previous laser class 3R version.
- Due to the laser class 2 classification the laser can be used without any regulatory complications on all construction sites.



Sales Displays Presentation Systems



maxi Sales Display



mini Sales Display

MINI								
ARTNO. 1100	00							
Dimensions		Metal Housing On wooden presentation area						
· Width	50 cm	3 products can be fixed with 5/8" tripod screw						
· Depth	40 cm	· Display with slideable glass door for arrange-						
· Height	50 cm	ment of further products						
		Lockable for security against thiefery						
		Can be integrated in existing Tegometall shelving system						

basicSales Display

www.geo-fennel.com



OCOURT 30'

Presentation Systems

- With geo-FENNEL's new "Target Group Product Presentation System" you can achieve even more success at the point-of-sale!
- Why? Because the presentation system lets you address your target groups on the basis of their individual technical requirements in combination with an attractive presentation of geo-FENNEL products.
 - Product labels give end users the most important product data and information thus promoting independent sale of the devices.
 - With selected product accessories you can achieve cross-selling effects within the various target group presentation systems.
 - Target group presentation systems are available for the following product ranges: Generalist, Drywall Construction, Landscaping and Civil Engineering, Tiling, Painting, and Electrical Work.
 - · Of course, it is possible to combine different target group presentation systems.
- Simply talk to your geo-FENNEL sales representative for more information. He or she will be pleased to give you more details and help you select the right geo-FENNEL target group presentation systems.



Generalist



» Generalist



Dry mortarless construction