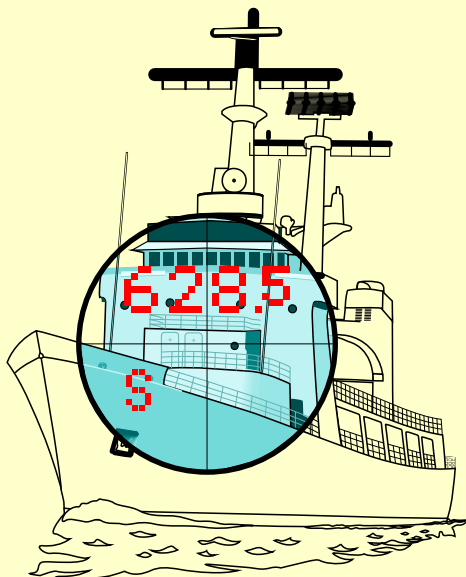


# RANGEFINDER & DISTANCE METER

## LASERTAPE FG21-HA

The **LASERTAPE FG21-HA** is two rangefinders in one. At the touch of a button, choose between highly accurate distance measurement or excellent long range performance.



*A single operator can quickly measure the relative location of any object for:*

- Aid to marine navigation
- Aid surveying in hydrography and dredging
- Map urban and remote areas
- Support collection of environmental data
- Survey of quarries and mines
- Measure the material level in tanks and silos
- Measure the height of buildings and objects

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**RIEGL**  
LASER MEASUREMENT SYSTEMS

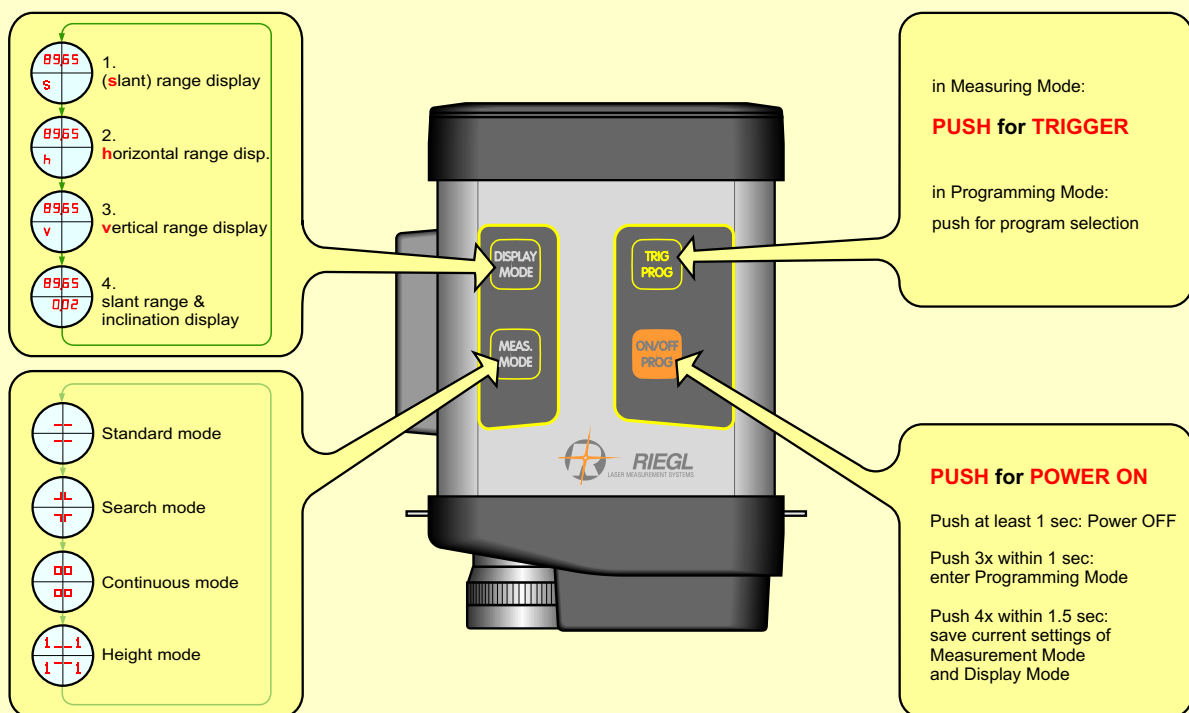
## General

The **LASERTAPE FG21-HA** is an extremely compact, durable, high performance laser rangefinder for handheld use. Protected by thick rubber, it is ideal for use in harsh environments. Look through the 6x30 sighting optics at almost any arbitrary target. At the push of the trigger button, the **LASERTAPE FG21-HA** emits pulses of eyesafe laser light toward the object. The instrument then calculates the distance to the target based on the time taken for the reflected light to return. Distance and inclination are displayed in large, easily legible digits in the sighting optics typically in less than one second. Depending on the selected operating mode, the **LASERTAPE FG21-HA** offers 5 cm accuracy over 600 meters (reflectorless) or long range capability of over 1200 meters with 10 cm accuracy. Use a reflector to increase the range by a factor of up to ten. A powerful short-range suppression feature facilitates reliable use in bad weather conditions such as heavy rain, snowfall, or fog as well as measurements through a window.

## Key Features

- Reliable semiconductor-laser rangefinder technology
- Not larger or heavier than a conventional pair of binoculars
- Range up to 1200 m “reflectorless”, up to 8000 m with retroreflectors
- Resolution 1 cm / 5 cm
- Short measuring time
- Display of the last or the strongest target selectable
- Adjustable short-range suppression for measurements under bad conditions (dust, rain, fog...)
- Built-in inclinometer for height measurement of objects and for horizontal path length calculation
- Display of the measured data within the sighting optics field-of-view
- Sighting optics' crosshair is coaligned with the measuring beam
- Built-in buzzer, which can be switched off for soundless operation
- Built-in standard batteries or rechargeable batteries “AA”-size
- External power supply 12 V DC
- External charger input
- RS232 data interface with NMEA or ASCII data string

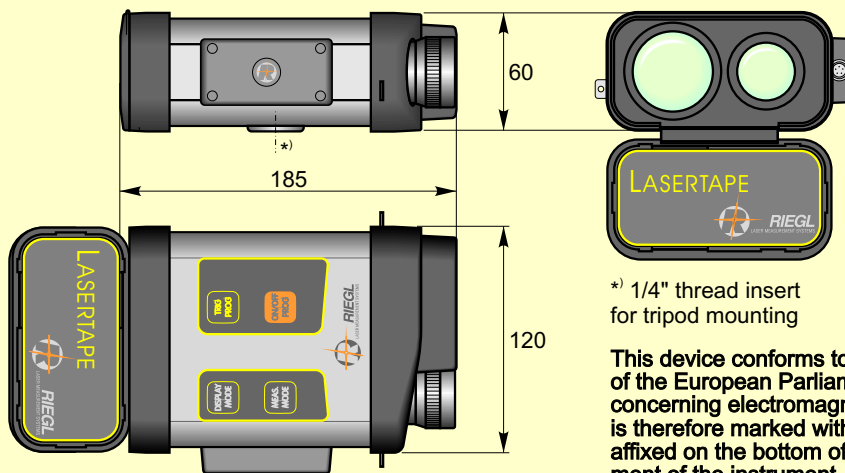
## Membrane switch pad



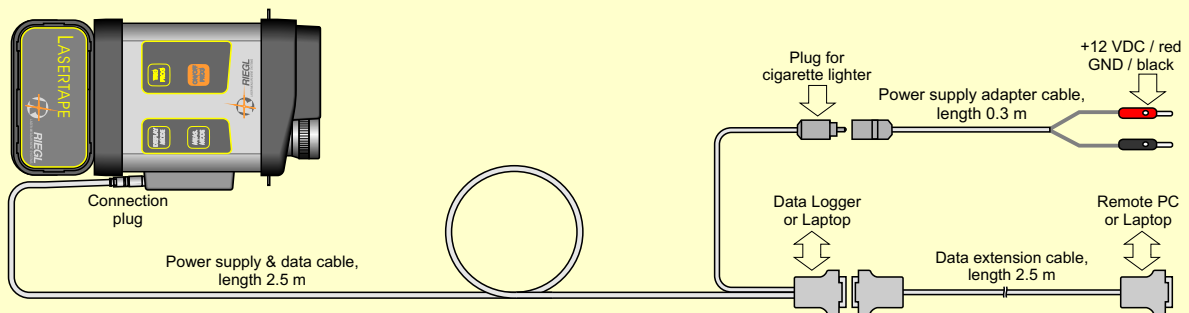
## Elements of Operation and Control



## Dimensional Drawings



## System Configuration



## Specifications Lasertape FG21-HA

Maximum operating range <sup>1) 2)</sup> depending on the reflection characteristics of the target	DISTANCE METER operating mode <sup>3)</sup>	RANGEFINDER operating mode <sup>3)</sup>
Masonry, stones etc.	600 m	1200 m
Trees, bushes etc.	400 m	800 m
Reflecting foil <sup>4)</sup>	>1000 m	>2000 m
Glass reflector prism <sup>5) 6)</sup>	6000 m	8000 m
Minimum distance <sup>6) 7)</sup>	2 m	5 m
Accuracy, typically <sup>8)</sup>	± 5 cm	± 10 cm
Resolution	1 cm	5 cm
Acquisition time	0.1 s - 0.2 s - 0.5 s - 1 s selectable or self-adapting	self-adapting
Target selection	strongest or last target	strongest target
Inclinometer	range +60° to -30°, resolution 0.1°	

- 1) Typical values at clear air, visibility 20 km, under an overcast sky
- 2) Display to be selected in meters, feet, or yards
- 3) Selectable by the programming buttons
- 4) Reflecting foil 3M DG4090 or equivalent, minimum dimensions 0.45 x 0.45 m<sup>2</sup>
- 5) Three high quality retroreflecting prisms, diameter 60 mm
- 6) For retroreflecting prisms, the minimum range is 50 m.
- 7) Additional short-range suppression adjustable in steps up to 1000 m
- 8) Standard deviation, plus distance depending error  $\leq \pm 20$  ppm

## Technical Data

### Physical data:

Weight  
approx. 1.45 kg with batteries

Dimensions  
(LxWxH) 185x120x60 mm

Temperature range  
Operation -10°C to +50°C  
Storage -25°C to +70°C

Internal power supply  
6 Alkaline-Manganese  
batteries or rechargeable  
NiMH batteries of type "AA"

Battery lifetime  
>2000 measurements  
(Alkaline-Manganese)  
>1000 measurements (NiMH)

External power supply  
10-14 V DC, 400 mA

### Sighting optics:

Magnification  
6 x 30 monocular

Field-of-view  
approx. 100 m at 1000 m

Optical quality  
all elements multi-layer coated

### Display:

2x4 digit LED display within  
the field-of-view of the  
sighting optics,  
automatic brightness control

### RS232 data interface:

ASCII-data string:  
300 ... 19200 Bd, selectable  
NMEA 0183 data string:  
4800 Bd

### Laser data:

Type  
pulsed  
semiconductor laser

Wavelength  
0.9 µm

Beam divergence  
2 mrad  
i.e. approx. 20 cm increase  
of beamwidth per 100 m  
of range

### Laser Product Classification



according to IEC60825-1:2007

The following clause applies for instruments  
delivered into the United States:  
Complies with 21 CFR 1040.10 and 1040.11  
except for deviations pursuant to Laser Notice  
No. 50, dated June 24, 2007.

Information contained herein is believed to be accurate and reliable. However, no responsibility is assumed by RIEGL for its use. Technical data are subject to change without notice. Data sheet FG21-HA, 15/04/2010



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LASER MEASUREMENT SYSTEMS  
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