

# SERIES GSI4

Mechanically guided Incremental Linear Encoder



- Cost-effective alternative to glass scales
- High-quality guiding unit
- Max. resolution of 0.001 mm (at 4-edge triggering)
- Power supply / output levels 5 V or 10 ... 30 V
- Output channels A, A', B, B' and R, R'
- Adjustable reference pulse (channels R, R')
- Measuring lengths up to 1 meter
- Speed proportional square wave outputs
- Robust, resistant against dirt and shock

# GS14 - Mechanically guided Incremental Linear Encoder

## General:

GS14 is a guided magnetic incremental linear encoder, which consists of a sensor head, an integrated translation circuit, a guiding body and a guiding rail with magnetic tape of the series MB20-20-10-1-R-HG. The guiding rail is available in different lengths up to one meter.

The GS14 system operates with a resolution of up to 0.001 mm at 4-edge triggering. The desired resolution can be defined with the order (see type designation). The repeat accuracy is +/- 1 increment.

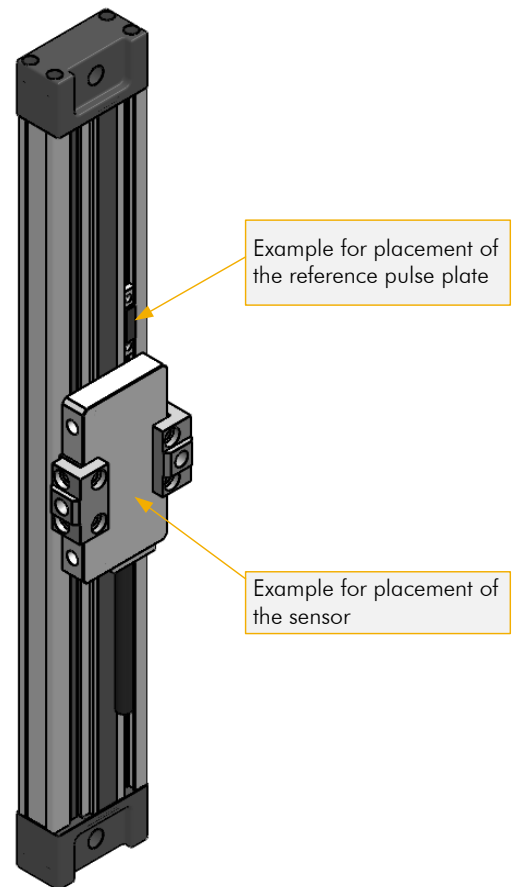
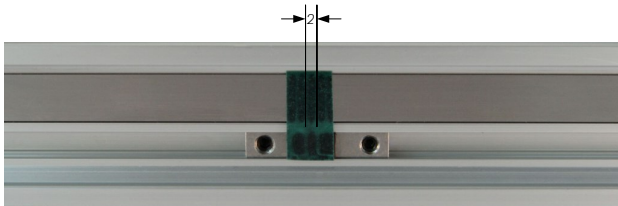
The length measuring system GS14 is conceived for dynamic applications up to 4 m/s operation speed and was specially developed for press brakes. The translation unit calculates the sinusoidal signals into speed-proportional, 90° phase shifted square waves in 5 V-TTL- line driver or 10 ... 30 V-HTL push-pull.

The sensor head is moved contactless over the magnetic tape with a distance of 0.5 mm. This is ensured by the mechanic guiding system. Thus, the system is totally maintenance free and free of wear. Due to a direct measuring, tolerances like slip or pitch are balanced.

## Essential features:

- Cost-effective alternative to glass scales
- High-quality guiding unit
- High resolutions up to 0.001 mm (at 4-edge triggering)
- Power supply / output levels 5 VDC or 10-30 VDC
- Output channels A, A', B, B' and R, R'
- Adjustable reference pulse (channels R, R')
- Measuring length up to 1 meter
- Speed-proportional square wave outputs
- Robust, resistant to dirt and shock

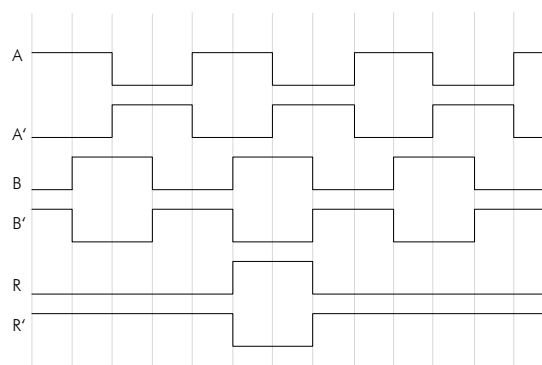
## Position of the reference pulse:



## Pin assignment:\*

Function	Colour
0 V / GND	White
10-30 VDC / 5 VDC	Brown
Channel A	Green
Channel A inverted	Violet
Channel B	Yellow
Channel B inverted	Orange
Channel R	Black
Channel R inverted	Grey

## Output pulse diagram:



The A and B channels are phase shifted by 90°

The reference pulse output channel R occurs according to the defined reference pulse position.

\*) Pin assignment with open cable ends. Optional available connector versions (see type designation) are deviating.

# GSI4 - Mechanically guided Incremental Linear Encoder

## Technical data:

Mechanical data	
Measuring principle	incremental
Repeat accuracy	+/- 1 increment (depends on order)
Distance sensor / tape	fixed by guide carriage
Pole pitch	2 mm
Guide carriage material	steel
Carriage dimensions	L x W x H = 80 x 50 x 12 mm
Magnetic tape type	MB20-20-10-1-R-HG
Measuring length	max. 1000 mm
Connection type	Open cable ends (connectors optional)
Weight	approx. 620 g with a measuring length of 330 mm
Ambient conditions	
Storage temperature	-25... +85 °C
Operation temperature	-10... +70 °C (-25... +85 °C) on request
Protection class	IP54 (sensor head)
Electrical data	
Power supply voltage	10 ... 30 VDC / 5 VDC, stabilized
Residual ripple	10 ... 30 VDC < 10%, 5 VDC +/- 25 mV
Consumption (with unloaded outputs)	10 ... 30 VDC max. 50 mA, 5 VDC max. 100 mA
Output signals	A, A', B, B' (90° phase shifted)
Output levels	HTL 10... 30 VDC Push/Pull or 5 V-TTL line driver
Resolution (at 4 edge triggering)	up to 0,001 mm (depends on order)
Reference pulse	channels R, R', position adjustable
Output current	max. 20 mA per channel
Operating speed	max. 4 m/s at 0.1 mm resolution
Sensor cable	1.5 m standard length (others on re- quest), drag chain suitable

## Type designation:

Please use the following code to order:

GSI4 -    -    -    -    -    -    -    -    -    -    -   

A A - B B . B - C - D D - E E E E - F

### A SN number

- 00 = ELGO standard
- 01 = first special version
- 02 = second special version etc.

### B Signal cable length in XX . X m

- 01.5 = 1.5 m standard length

### C Resolution

- 9 = 0.5 μm
- 1 = 0.1 mm
- 2 = 0.01 mm
- 3 = 0,005 mm
- 4 = 0,5 mm
- 5 = 0.05 mm
- 6 = 0.0025 mm
- 7 = 0.001 mm
- 8 = 0.00122 mm

### D Power supply / output levels

- 00 = 10 ... 30 VDC / 10 ... 30 VDC
- 01 = 10 ... 30 VDC / 5 V-TTL
- 11 = 5 VDC / 5 V-TTL

### E Measuring length in XXXX mm

- 0330 = 330 mm (example)  
max. 1 meter (1000 mm) available

### F Connectors

- X = open cable end (no connector)
- 1 = 12 pin M23 round connector
- 2 = 8 pin M16 round connector
- 3 = 9 pin D-SUB connector

Example:

GSI4 - 00 - 01.5 - 7 - 11 - 0330 - 1

A A - B B . B - C - D D - E E E E - F

ELGO standard GSI4 with 1.5 m signal cable, 0.001 mm resolution, 5 VDC power supply / 5 V-TTL output levels, 330 mm measuring length and M23 round connector.

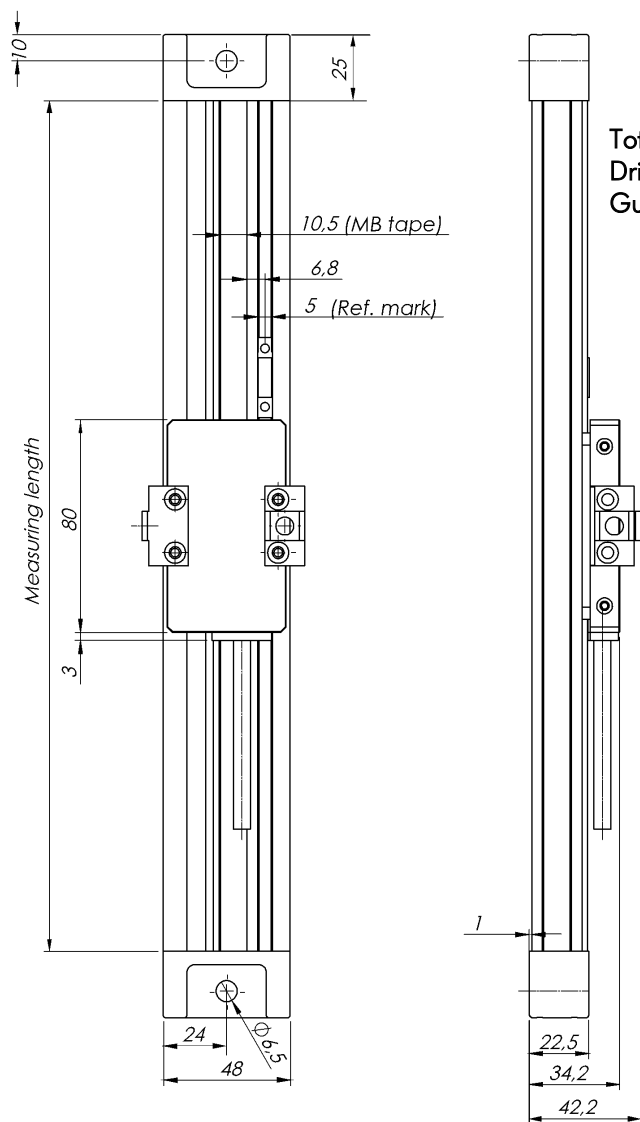
Your order:

GSI4-    -    -    -    -    -    -    -    -    -    -   

A A - B B . B - C - D D - E E E E - F

# GS14 - Mechanically guided Incremental Linear Encoder

## Dimensions of GS14:



Total length = Measuring length + 150 mm  
 Drilling distance = Measuring length + 130 mm  
 Guide carriage (L x W x H) = 80 x 50 x 12 mm

## Dimensions of the reference pulse plate:

