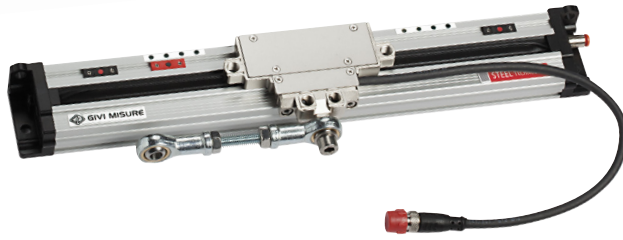




code **ST12** | project **A50** | release **B**



## GENERAL FEATURES

- Incremental optical scale with stainless steel grating. High mechanical resistance and thermal expansion suitable for the application, for a constant accuracy at any temperature.
- Particularly suitable for synchronized press brakes.
- Reader head guided by a self-aligned and self-cleaning sliding carriage with spring system.
- No contact reader head. No friction: high duration and tolerance against environmental dirty.
- Resolution up to 0.1  $\mu\text{m}$ . Accuracy grade up to  $\pm 3 \mu\text{m}$ .
- Selectable reference indexes every 10 mm along the entire measuring length, with Zero Magneto Set device.
- The adjustable cable output and the selectable zero references make the scale symmetric and applicable, in the same version, to both columns of the press brake.
- Various possibilities of application, with double-effect joint or steel wire.
- Option: safety limit switches, positionable at both ends.

## Cod. GVS 202 S

<b>Measuring support</b>	stainless steel grating
- Grating pitch	250 $\mu\text{m}$
- Linear thermal expansion coefficient	10.6 x 10 <sup>-6</sup> °C <sup>-1</sup> 
<b>Resolution</b>	10 - 5 - 1 - 0.5 - 0.1 $\mu\text{m}$
<b>Accuracy grade</b>	$\pm 5 \mu\text{m}$ standard version * $\pm 3 \mu\text{m}$ high-accuracy version *
<b>Measuring length ML in mm</b>	70 - 120 - 170 - 220 - 270 - 320 - 370 - 420 - 470 - ... max. 30000 mm in modular version
<b>Reference indexes (I<sub>0</sub>)</b>	E = selectable (every 10 mm)
<b>Max. traversing speed</b>	up to 120 m/min **
<b>Max. acceleration</b>	30 m/s <sup>2</sup>
<b>Required moving force</b>	$\leq 2.5 \text{ N}$
<b>Vibration resistance (EN 60068-2-6)</b>	$\leq 100 \text{ m/s}^2$ [55 ÷ 2000 Hz]
<b>Shock resistance (EN 60068-2-27)</b>	$\leq 150 \text{ m/s}^2$ [11 ms]
<b>Protection class (EN 60529)</b>	IP 54 standard IP 64 pressurized ***
<b>Operating temperature</b>	0 °C ÷ 50 °C (-10 °C ÷ 60 °C on request)
<b>Storage temperature</b>	-20 °C ÷ 80 °C
<b>Relative humidity</b>	20% ÷ 80% (not condensed)
<b>Reading block sliding</b>	without contact
<b>Power supply</b>	5 Vdc $\pm 5\%$ or 10 ÷ 28 Vdc $\pm 5\%$
<b>Current consumption</b>	140 mA <sub>MAX</sub> (with R = 120 $\Omega$ ) 5 Vdc 100 mA <sub>MAX</sub> (with R = 1200 $\Omega$ ) 10 ÷ 28 Vdc
<b>A, B and I<sub>0</sub> output signals</b>	LINE DRIVER  PUSH-PULL
<b>Max. cable length</b>	25 m ****
<b>Electrical connections</b>	see related table
<b>Electrical protections</b>	inversion of polarity and short circuits
<b>Weight</b>	850 g + 1800 g/m

\* The declared accuracy grade of  $\pm X \mu\text{m}$  is referred to a measuring length of 1 m.  
 \*\* With 0.5  $\mu\text{m}$  resolution, the maximum traversing speed becomes 60 m/min.  
 \*\*\* With 0.1  $\mu\text{m}$  resolution, the maximum traversing speed becomes 40 m/min.  
 \*\*\*\* Pressurization set up on request.  
 \*\*\*\*\* Ensuring the required power supply voltage to the transducer, the maximum cable length can be extended to 100 m.

## MECHANICAL CHARACTERISTICS

- Rugged and heavy **PROFILE**, made of anodized aluminum. Dimensions 55x28 mm.
- Elastic **COUPLING** for misalignment compensation and self-correction of mechanical hysteresis.
- **SEALING LIPS** for the protection of the grating, made of special elastomer resistant to oil and wearing. Special self-blocking profile.
- Pressurizable **READER HEAD**, consisting of tie rod and reading block, with fully-protected place for electronic boards.
- **CARRIAGE** guided by ball bearings with gothic arch profile sliding on tempered and grinded guides, to guarantee the system accuracy and the absence of wearing.
- No contact **READER HEAD**.
- Die-cast **TIE ROD**, with nickel surface treatment.
- Stainless steel **GRATING**. High mechanical resistance and linear thermal expansion suitable for the application.
- Elastomeric **GASKETS** which allow to reproduce the full protection in mechanical joints (in case of disassembling).
- Adjustable **CABLE** output.
- Various possibilities of application, with **DOUBLE-EFFECT JOINT** or **STEEL WIRE**.

## ELECTRICAL CHARACTERISTICS

- Reading device with high-efficiency light emitter and single-field photodiode.
- A and B output signals with phase displacement of 90° (electrical).
- Reference indexes selectable every 10 mm.
- **CABLE**:
  - 8-wire shielded cable  $\varnothing = 6.1 \text{ mm}$ , PUR external sheath.
  - Conductors section: power supply 0.35 mm<sup>2</sup>; signals 0.14 mm<sup>2</sup>.

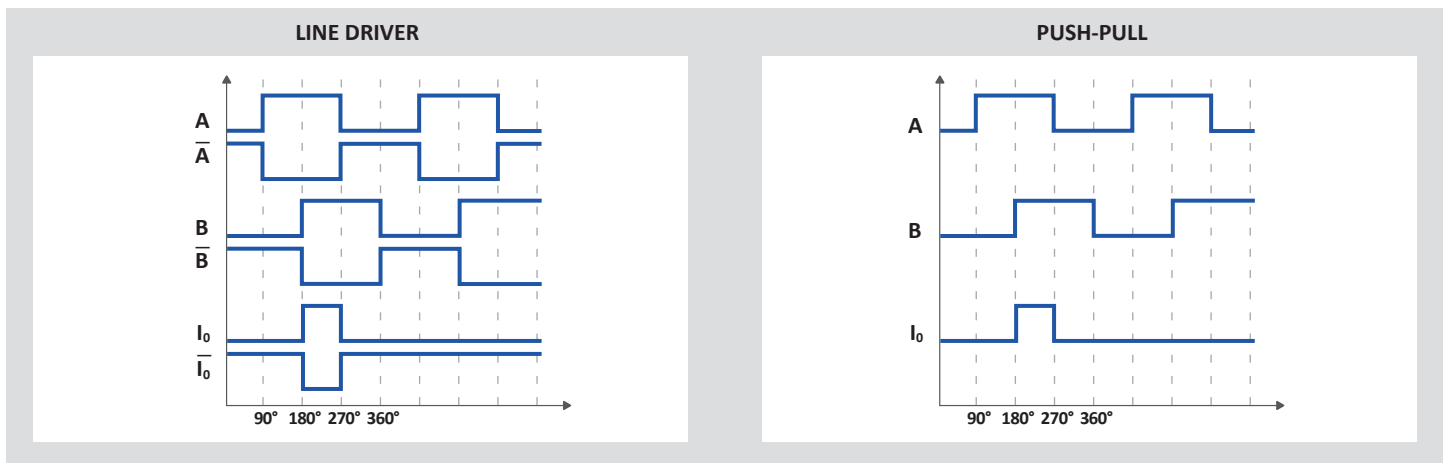
**The cable's bending radius should not be lower than 80 mm.**

The cable is suitable for continuous movements.

LINE DRIVER	PUSH-PULL	CONDUCTOR COLOR
+ V	+ V	Red
0 V	0 V	Blue
A	B	Green
$\bar{A}$	NC	Orange
B	A	White
$\bar{B}$	NC	Light-blue
I <sub>0</sub>	I <sub>0</sub>	Brown
$\bar{I}_0$	NC	Yellow
SCH	SCH	Shield

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## OUTPUT SIGNALS

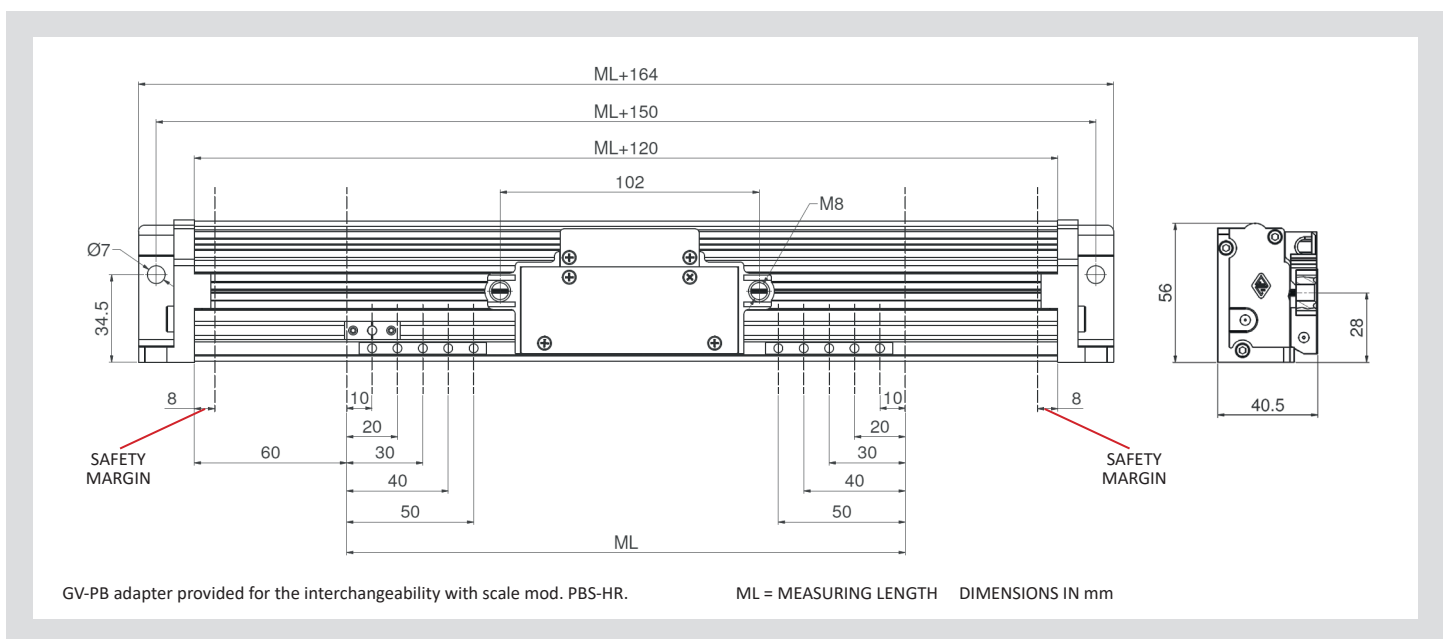


## CABLE

In case of cable extension, it is necessary to guarantee:

- the electrical connection between the body of the connectors and the cables shield;
- a minimum power supply voltage of 5 V to the transducer.

## DIMENSIONS



## ORDERING CODE

Example OPTICAL SCALE **GVS 202 S T5E 0270 05VL M0.5/S CG1 A PR**

Model	Scale type, resolution, indexes	Measuring length	Power supply, output signals	Cable length, cable type	Connector, wiring	Limit switch option	Special, pressurization
GVS 202 S	T = TTL 10 = 10 μm 5 = 5 μm 1 = 1 μm 05 = 0.5 μm 01 = 0.1 μm E = selectable indexes	Measuring length in mm 0270 = 270 mm	05V = 5 Vdc 1028V = 10 ÷ 28 Vdc L = LINE DRIVER Q = PUSH-PULL	Mnn = length in m M0.5 = 0.5 m (standard) M25 = 25 m S = PUR cable	Cnn = progressive	No cod. = standard A = OC NPN NC B = OC NPN NA C = OC PNP NC D = OC PNP NA E = TTL active low F = TTL active high	No cod. = standard SPnn = special nn PR = pressurized

Without prior notice, the products may be subject to modifications that the Manufacturer reserves to introduce as deemed necessary for their improvement.