

### Characteristics

- Optical scale with glass measuring support (grating pitch 20 µm)
- Particularly suitable for synchronized press brakes
- Reader head guided by a self-aligned and self-cleaning sliding carriage with spring system
- Resolutions up to 0.1 µm; accuracy grade up to ± 1 µm
- Adjustable cable output
- Reference indexes at coded distance or selectable 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



### Mechanical and electrical characteristics

Mechanical	Electrical																														
<ul style="list-style-type: none"> <li>• Rugged and heavy PROFILE, made of anodized aluminium. Dimensions 55x28 mm.</li> <li>• Elastic COUPLING for misalignment compensation and self-correction of mechanical hysteresis. Backlash error &lt;0.2 µm.</li> <li>• SEALING LIPS for the protection of the grating, made of special elastomer resistant to oil and wearing. Special self-blocking profile.</li> <li>• READER HEAD, consisting of tie rod and reading block, with fully protected place for electronic boards.</li> <li>• 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.</li> <li>• Die-cast TIE ROD, with nickel-plating surface treatment.</li> <li>• GLASS SCALE placed in the scale housing.</li> <li>• Elastomeric GASKETS which allow to reproduce the full protection in mechanical joints (in case of disassembling).</li> <li>• Adjustable CABLE output.</li> <li>• Various possibilities of application, with double-effect joint or steel wire. GV-PB adapter guarantees the compatibility with scale mod. PBS-HR.</li> <li>• Full possibility to disassemble and reassemble the scale.</li> <li>• Possibility of direct service.</li> </ul>	<ul style="list-style-type: none"> <li>• Reading device with an infra-red light emitter and receiving photodiodes.</li> <li>• A and B output signals with phase displacement of 90° (electrical).</li> <li>• Reference indexes at coded distance or selectable every 10 mm.</li> <li>• CABLE:                             <ul style="list-style-type: none"> <li>- 8-wire shielded cable Ø= 6.1 mm, PUR external sheath.</li> <li>- Conductors section: power supply 0.35 mm<sup>2</sup>; signals 0.14 mm<sup>2</sup>.</li> </ul> </li> </ul> <p><b>The cable's bending radius should not be lower than 80 mm.</b> <b>The cable is suitable for continuous movements.</b></p> <table border="1"> <thead> <tr> <th>line driver</th> <th>push-pull</th> <th>Conductor colour</th> </tr> </thead> <tbody> <tr> <td>+V</td> <td>+V</td> <td>red</td> </tr> <tr> <td>0 V</td> <td>0 V</td> <td>dark blue</td> </tr> <tr> <td>A</td> <td>B</td> <td>green</td> </tr> <tr> <td><math>\bar{A}</math></td> <td>NC</td> <td>orange</td> </tr> <tr> <td>B</td> <td>A</td> <td>white</td> </tr> <tr> <td><math>\bar{B}</math></td> <td>NC</td> <td>light-blue</td> </tr> <tr> <td>I<sub>0</sub></td> <td>I<sub>0</sub></td> <td>brown</td> </tr> <tr> <td>Io</td> <td>NC</td> <td>yellow</td> </tr> <tr> <td>SCH</td> <td>SCH</td> <td>shield</td> </tr> </tbody> </table>	line driver	push-pull	Conductor colour	+V	+V	red	0 V	0 V	dark 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	Io	NC	yellow	SCH	SCH	shield
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# Datasheet

Measuring support	glass scale
Grating pitch	20 $\mu\text{m}$
Thermal expansion coefficient	$8 \times 10^{-6} \text{ } ^\circ\text{C}^{-1}$
Reference indexes ( $I_0$ )	E= selectable (every 10 mm) C= coded distance
Resolution	10; 5; 1; 0,5; 0,1 $\mu\text{m}$
Accuracy	$\pm 2,5 \mu\text{m}$ standard version $\pm 1 \mu\text{m}$ high-accuracy version
Measuring length ML [mm]	170, 220, 270, 320, 370, 420, 470, 520, 570, ... 3240
Max. traversing speed	120 m/min *
Max. acceleration	30m/s <sup>2</sup>
Required moving force	$\leq 1,5 \text{ N}$
Vibration resistance (EN 60068-2-6)	100 m/s <sup>2</sup> [55-2000 Hz]
Shock resistance (EN60068-2-27)	150 m/s <sup>2</sup> [11 ms]
Protection class (EN60529)	IP 54 standard IP 64 pressurized**
Operating temperature	0 $^\circ\text{C}$ - 50 $^\circ\text{C}$
Storage temperature	-20 $^\circ\text{C}$ - 70 $^\circ\text{C}$
Relative humidity	20% - 80% (not condensed)
Carriage sliding	by ball bearings
Power supply	5 VDC $\pm 5\%$ or 10-28 VDC $\pm 5\%$
Current consumption	140 mA <sub>MAX</sub> (with R=120 $\Omega$ ) 5 VDC 100 mA <sub>MAX</sub> (with R=1200 $\Omega$ ) 10-28 VDC
A, B and $I_0$ output signals	LINE DRIVER PUSH-PULL
Max. cable length	25 m***
Electrical connections	see related table
Electrical protections	inversion of polarity and short circuits
Weight	900 g + 1850 g/m

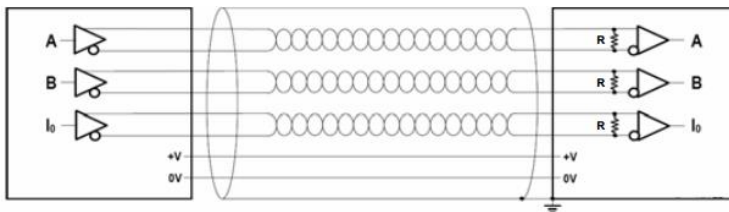
\* With a 0,1 resolution, the maximum traversing speed becomes 40 m/min

\*\* Pressurization set up on request

\*\*\* Ensuring the required power supply voltage to the transducer, the maximum cable length can be extended to 100 m.

## Cable

### GVS 200



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

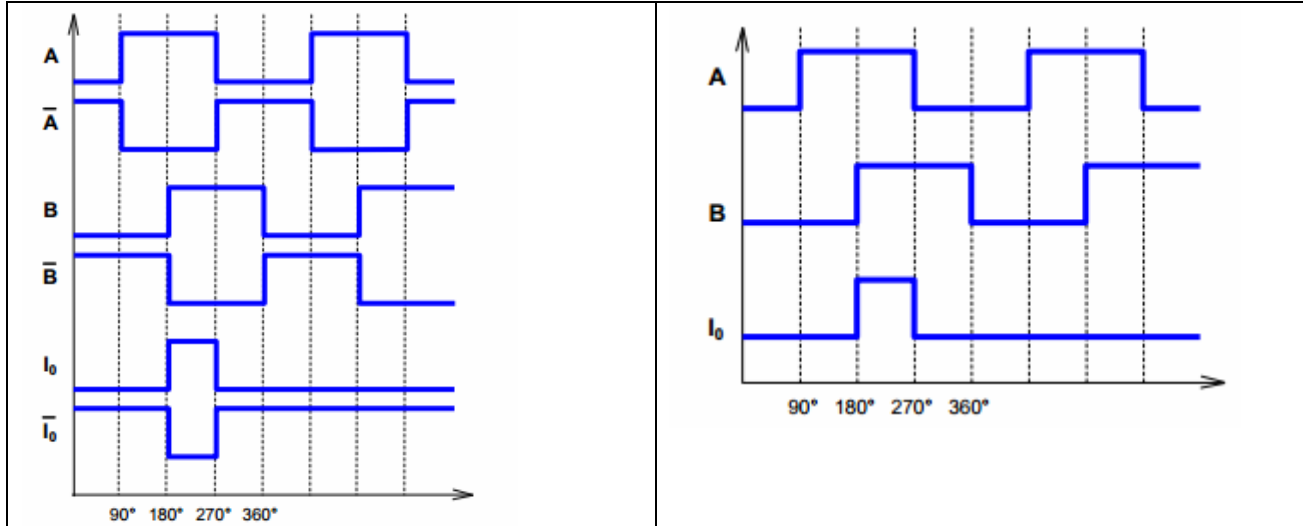
- the electrical connection between the body of the connectors and the cabled shield
- the required power supply to the transducer

Datasheet

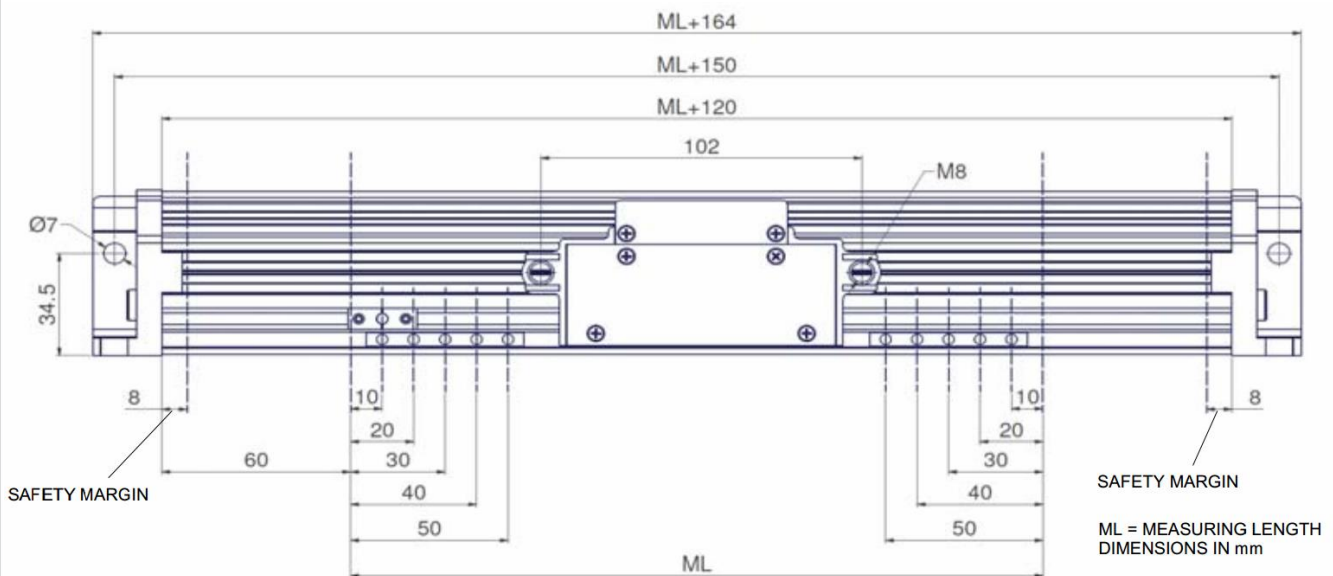
**Output signals**

Line Driver

Push-Pull



**Dimensions**



GV-PB adapter provided for the interchangeability with scale mod. PBS-HR.

**Ordering example**

**GVS 200 - T 5 E - 0270 - 05V L - M0,5/S - CG1 - A - PR**

**Type**

**GVS200**

**Scale type, resolution, index**

**T**= TTL

10= 10 µm

**5**= 5 µm

1= 1 µm

05= 0,5 µm

01= 0,1 µm

**C**= indexes at coded distance

**E**= selectable indexes

**Measuring length**

Length in mm

**0270**= 270 mm

**Power supply, output signals**

**05V**= 5 VDC

1028V= 10 - 28 VDC

**L**= Line Driver

**Q**= Push-Pull

**Cable length, cable type**

Mnn= length in m

**M0,5**= 0,5 m (standard)

100= 100 m

**S**= PUR cable for continuous movements

**Connector wiring**

**Cnn**= progressive

**Limit switch option**

No cod.= standard

**A**= OC NPN NC

**B**= OC NPN NO

**C**= OC PNP NC

**D**= OC PNP NO

**E**= TTL active low

**F**= TTL active high

**Special, pressurization**

No cod. = standard

SPnn= special nn

**PR**= pressurized

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