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| Code | Project | Release | |
|---|---|---|---|
| ***ST04*** | ***A50-A*** | ***A*** | ***TECHNICAL DATASHEET*** |

# INCREMENTAL MAGNETIC SCALE GVS 215

## GENERAL FEATURES

- Incremental magnetic scale with pole pitch 2+2 mm. Particularly suitable for synchronized press brakes.
- Reader head guided by a self-aligned and self-cleaning sliding carriage with spring system.
- Resolutions up to 1 µm.
- Adjustable cable output.
- 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.

## MECHANICAL AND ELECTRICAL CHARACTERISTICS

### MECHANICAL

- Rugged and heavy PROFILE, made of anodized aluminium. Dimensions 55x28 mm.
- Elastic COUPLING for misalignment compensation and self-correction of mechanical hysteresis.
- SEALING LIPS for the protection of the magnetic band, made of special elastomer resistant to oil and wearing. Special self-blocking profile.
- 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.
- Die-cast TIE ROD, with nickel-plating surface treatment.
- MAGNETIC BAND placed in the scale housing.
- 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. GV-PB adapter guarantees the compatibility with scale mod. PBS-HR.
- Pressurization set up on request.
- Full possibility to disassemble and reassemble the scale.
- Possibility of direct service.

### ELECTRICAL

- Reading device with positioning sensor based on magneto resistance, with AMR effect (Magnetic Anisotropy).
- A and B output signals with phase displacement of 90° (electrical).
- Selectable reference indexes every 10 mm.
- CABLE:
  - 8-wire shielded cable ∅ = 6.1 mm, PUR external sheath.
  - Conductors section: power supply 0.35 $mm^2$; signals 0.14 $mm^2$.

  **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 |
| $\overline{A}$ | NC | Orange |
| B | A | White |
| $\overline{B}$ | NC | Light-blue |
| $I_0$ | $I_0$ | Brown |
| $\overline{I_0}$ | NC | Yellow |
| SCH | SCH | Shield |

| **Cod. GVS** | **215** |
|---|---|
| **Measuring support** | plastoferrite on stainless steel tape |
| Pole pitch | 2+2 mm  |
| Thermal expansion coefficient | 10.6 x $10^{-6}$ °$C^{-1}$ |
| **Reference indexes ($I_0$)** | **E** = selectable (every 10 mm) |
| **Resolution** | 50 - 25 - 10 - 5 - 1 µm |
| **Repeatability** | ± 1 increment |
| **Accuracy grade** | ± 15 µm |
| **Measuring length ML** in mm | 170, 220, 270, 320, 370, 420, 470, 520, 570, 620, 670, … |
| **Max. traversing speed** | 120 m/min |
| **Max. acceleration** | 30 $m/s^2$ |
| **Required moving force** | ≤ 1.5 N |
| **Vibration resistance** (EN 60068-2-6) | 100 $m/s^2$ [55 ÷ 2000 Hz] |
| **Shock resistance** (EN 60068-2-27) | 150 $m/s^2$ [11 ms] |
| **Protection class** (EN 60529) | IP 64 standard IP 67 on request |
| **Operating temperature** | 0 °C ÷ 50 °C |
| **Storage temperature** | -20 °C ÷ 70 °C |
| **Relative humidity** | 20% ÷ 80% (not condensed) |
| **Carriage sliding** | without contact |
| **Power supply** | 5 Vdc ± 5% or 10 ÷ 28 Vdc ± 5% |
| **Current consumption** | 140 $mA_{MAX}$ (with R = 120 Ω) 5 Vdc<br>100 $mA_{MAX}$ (with R = 1200 Ω) 10 ÷ 28 Vdc |
| **A, B and $I_0$ output signals** | LINE DRIVER<br>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 |

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





**GIVI MISURE S.R.L.** A SOCIO UNICO
C.F. e Iscrizione al Reg. Imprese di Monza e Brianza n° 04355540156 - Cap. Soc. € 51.480,00 I.V.

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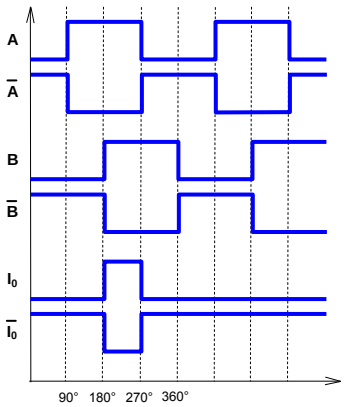
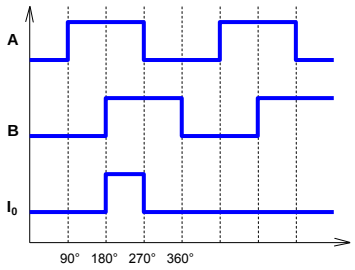
## OUTPUT SIGNALS

### LINE DRIVER

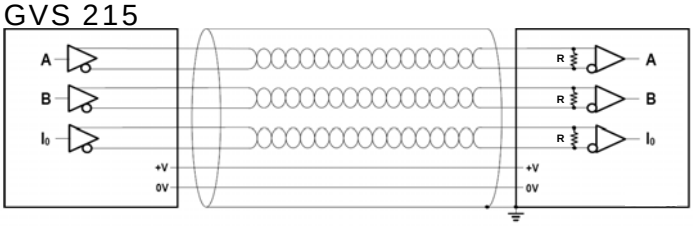



### PUSH-PULL



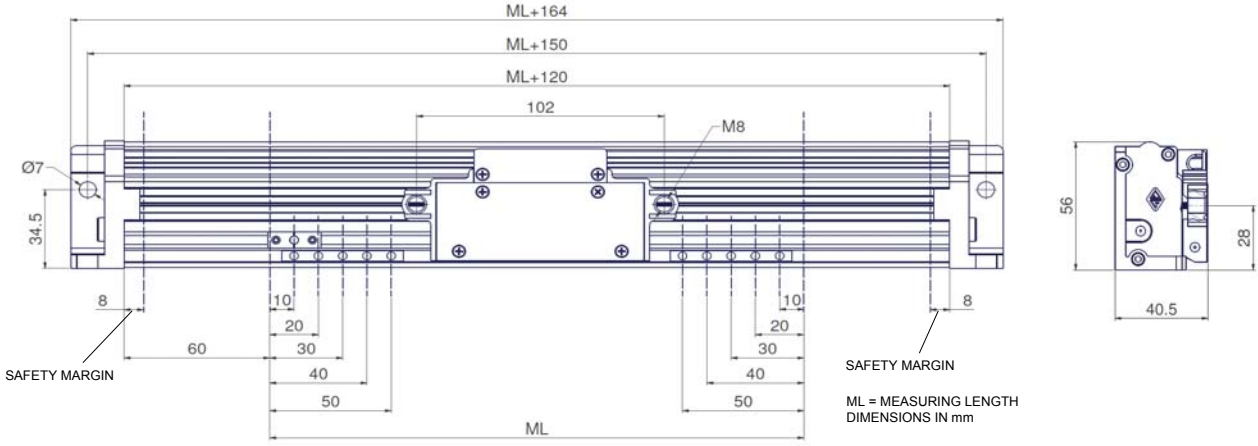

## CABLE

GVS 215




**In case of cable extension, it is necessary to guarantee:**
- **the electrical connection between the body of the connectors and the cables shield;**
- **the required power supply to the transducer.**

## DIMENSIONS




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

## ORDERING CODE

| MODEL | SCALE TYPE, RESOLUTION, INDEX | MEASURING LENGTH | POWER SUPPLY, OUTPUT SIGNALS | CABLE LENGTH, CABLE TYPE | CONNECTOR WIRING | LIMIT SWITCH OPTION | SPECIAL, PRESSURIZATION |
|---|---|---|---|---|---|---|---|
| **GVS 215** | **T 5 E** | **0270** | **05V L** | **M0.5 / S** | **CG1** | **A** | **PR** |

**T** = TTL
**50** = 50 µm
**25** = 25 µm
**10** = 10 µm
**5** = 5 µm
**1** = 1 µm
**E** = selectable indexes

Length in mm
**0270** = 270 mm

**05V** = 5 Vdc
**1028** = 10 ÷ 28 Vdc
**L** = LINE DRIVER
**Q** = PUSH-PULL

**Mnn** = length in m
**M0.5** = 0.5 m (standard)
**100** = 100 m
**S** = PUR cable for continuous movements

**Cnn** = progressive

**No cod.** = standard
**A** = NPN
**B** = NPN OC
**C** = PNP
**D** = PNP OC

**No cod.** = standard
**SPnn** = special nn
**PR** = pressurized

Example ☞ **MAGNETIC SCALE GVS215 T5E 0270 05VL M0.5/S CG1 A PR**