

Code ST08	Project A50-A	Release C	TECHNICAL DATASHEET
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ABSOLUTE MAGNETIC SCALE GVS 219

GENERAL FEATURES

- Magnetic scale with direct reading of the absolute position. Particularly suitable for synchronized press brakes.
- High-speed serial interface.
- Reader head guided by a self-aligned and self-cleaning sliding carriage with spring system.
- Resolutions up to 1 μm .
- Reading without contact.
- Adjustable cable output.
- **SYMMETRIC** mechanical mounting.
- Various possibilities of application, with double-effect joint or steel wire.
- Option: 1 Vpp analog signal.



MECHANICAL AND ELECTRICAL CHARACTERISTICS

MECHANICAL	Cod. GVS	219
<ul style="list-style-type: none"> • 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. • Absolute 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. 	Measuring support Pole pitch Thermal expansion coefficient	plastoferrite on stainless steel tape 2+2 mm  $10.6 \times 10^{-6} \text{ } ^\circ\text{C}^{-1}$
	Incremental signal	sine wave 1 Vpp (optional)
	Resolution 1 Vpp	up to 1 μm *
	Signal period	2 mm
	Repeatability	± 1 increment
	Serial interface	SSI - BiSS
	Resolution absolute measure	500 - 100 - 50 - 10 - 5 - 1 μm
	Accuracy grade	$\pm 15 \mu\text{m}$
	Measuring length ML in mm	170, 220, 270, 320, 370, 420, 470, 520, 570, 620, 720, ...
	Max. traversing speed	120 m/min **
	Max. acceleration	30 m/s ²
	Required moving force	$\leq 1.5 \text{ N}$
	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 $^\circ\text{C}$ ÷ 50 $^\circ\text{C}$
	Storage temperature	-20 $^\circ\text{C}$ ÷ 70 $^\circ\text{C}$
	Relative humidity	20% ÷ 80% (not condensed)
	Carriage sliding	without contact
	Power supply	5 ÷ 28 Vdc $\pm 5\%$
	Current consumption	150 mA _{MAX} (with R = 120 Ω) 5 Vdc 100 mA _{MAX} (with R = 1200 Ω) 24 Vdc
	Max. cable length	20 m ***
	Electrical connections	see related table
	Electrical protections	inversion of polarity and short circuits
	Weight	900 g + 1850 g/m

ELECTRICAL

- 14 Bit reading device, for absolute code.
- Option: A and B 1 Vpp output signals with phase displacement of 90° (electrical).
- Serial protocol SSI - BiSS.
- Reading through positioning sensor based on magneto resistance, with AMR effect (Magnetic Anisotropy).
- CABLE:
 - Shielded twisted pair for digital signals (SIN - COS).
 - The cable is suitable for continuous movements.

SERIAL OUTPUT VERSION

- 6-wire shielded cable $\varnothing = 5.8 \text{ mm}$, PVC external sheath, with low friction coefficient, oil resistant.
- Conductors section: power supply 0.14 mm²; signals 0.14 mm².

The cable's bending radius should not be lower than 90 mm.

ANALOG + SERIAL OUTPUT VERSION

- 10-wire shielded cable $\varnothing = 6.2 \text{ mm}$, PUR external sheath.
- Conductors section: power supply 0.29 mm²; signals 0.10 mm².

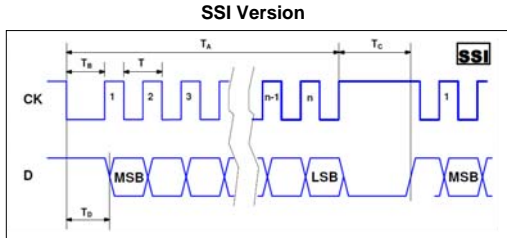
The cable's bending radius should not be lower than 90 mm.

SIGNALS	CONDUCTOR COLOR
+ V	Brown
0 V	White
CK	Green
$\overline{\text{CK}}$	Yellow
D	Pink
$\overline{\text{D}}$	Grey
SCH	Shield

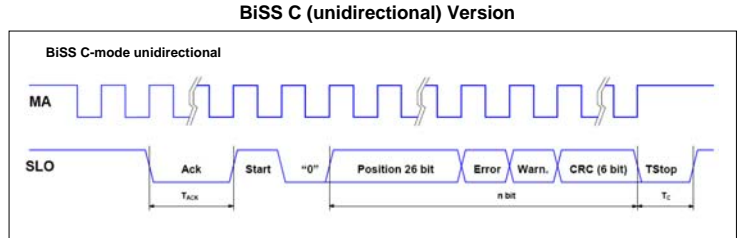
* Depending on CNC division factor.
 ** With a 1 μm resolution, the maximum traversing speed becomes 90 m/min.
 *** Ensuring the required power supply voltage to the transducer, the maximum cable length can be extended to 50 m.

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OUTPUT SIGNALS



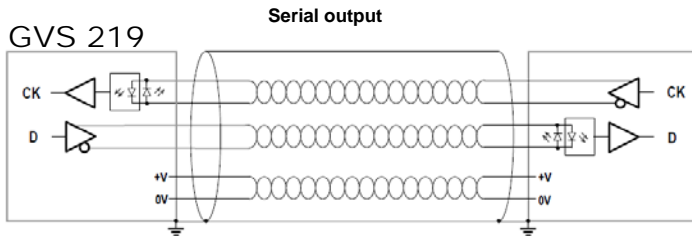
Interface	SSI Binary - Gray
Signals level	EIA RS 485
Clock frequency	0.1 ÷ 1.2 MHz *
n	Position bit
Tc	12 ÷ 45 µs



Interface	BiSS C unidirectional
Signals level	EIA RS 485
Clock frequency	0.1 ÷ 2 MHz *
n	26 + 2 + 6 bit
Tc	12 ÷ 45 µs

* The maximum frequency is guaranteed with a cable length up to 2 m.

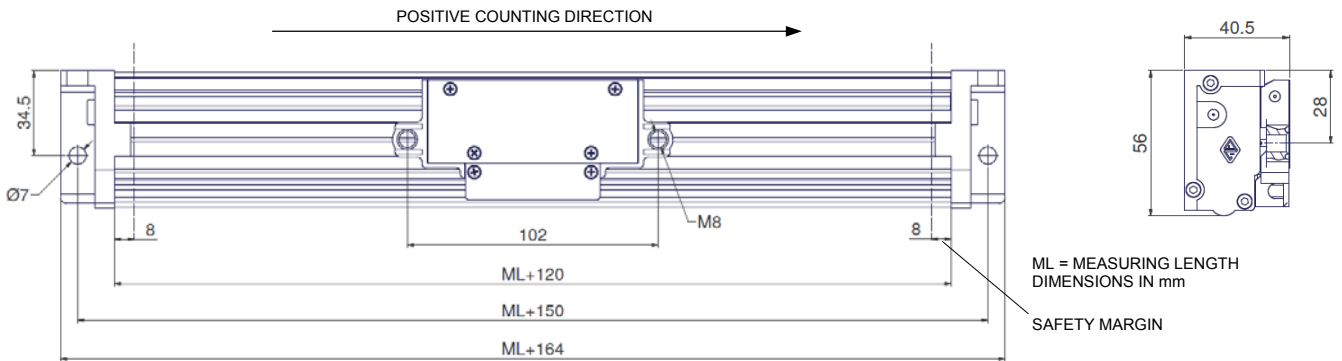
CABLE



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	RESOLUTION	MEASURING LENGTH	POWER SUPPLY	OUTPUT SIGNALS	INCREMENTAL SIGNAL	CABLE LENGTH, CABLE TYPE	CONNECTOR	SPECIAL, PRESSURIZATION
GVS 219	1	0270	528V	S0	V	M0.5 / S	SC	PR

500 = 500 µm	Length in mm	528V = 5÷28 Vdc	S0 = SSI programmable	V = + 1 Vpp	Mnn = length in m	Cnn = progressive	No cod. = standard
100 = 100 µm	0270 = 270 mm		S1 = SSI binary	No cod. = no incremental signal	M0.5 = 0.5 m (standard)	SC = without connector	SPnn = special nn
50 = 50 µm			S2 = SSI binary+even parity		50 = 50 m		PR = pressurized
10 = 10 µm			S3 = SSI binary+odd parity				
5 = 5 µm			S4 = SSI binary+error		R = 6 wires (only serial)		
1 = 1 µm			S5 = SSI binary+even parity+error		S = 10 wires (serial+analog)		
			S6 = SSI binary+odd parity+error				
			S7 = SSI Gray				
			B1 = BiSS binary				

Example **ABSOLUTE MAGNETIC SCALE GVS219 1 0270 528V S0 V M0.5/S SC PR**