

Code ST08	Project A50-A	Release D	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 SSI - BiSS C (unidirectional) 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.
- Measuring length up to 30000 mm in modular version.
- 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. • Full possibility to disassemble and reassemble the scale. • Possibility of direct service. 	Measuring support plastoferrite on stainless steel tape Pole pitch 2+2 mm  Linear thermal expansion coefficient 10.6 x 10 ⁻⁶ °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 C (unidirectional) Resolution absolute measure 500 - 100 - 50 - 10 - 5 - 1 μm Accuracy grade ± 15 μm ** Measuring length ML in mm 170, 220, 270, 320, 370, 420, 470, 520, 570, 620, 720, ... 30000 mm _{MAX} (in modular version) Max. traversing speed 60 m/min Max. acceleration 20 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 pressurized Operating temperature 0 °C ÷ 50 °C Storage temperature -20 °C ÷ 70 °C Relative humidity 20% ÷ 80% (not condensed) Reading block sliding without contact Power supply 5 + 28 Vdc ± 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 <ul style="list-style-type: none"> • Option: A and B 1 Vpp output signals with phase displacement of 90° (electrical). • Serial protocol SSI - BiSS C (unidirectional). • Reading through positioning sensor based on magneto resistance, with AMR effect (Magnetic Anisotropy). • CABLE: <ul style="list-style-type: none"> - Shielded twisted pair for digital signals (SSI - BiSS). - The cable is suitable for continuous movements. SERIAL OUTPUT VERSION <ul style="list-style-type: none"> - 6-wire shielded cable \varnothing = 7 mm, PVC external sheath, with low friction coefficient, oil resistant. - Conductors section: power supply 0.25 mm²; signals 0.25 mm². The cable's bending radius should not be lower than 70 mm. ANALOG + SERIAL OUTPUT VERSION <ul style="list-style-type: none"> - 10-wire shielded cable \varnothing = 7.1 mm, PUR external sheath. - Conductors section: power supply 0.35 mm²; signals 0.10 mm². The cable's bending radius should not be lower than 80 mm.																		
<table border="1"> <thead> <tr> <th>SIGNALS</th> <th>CONDUCTOR COLOR</th> </tr> </thead> <tbody> <tr> <td>+ V</td> <td>Brown</td> </tr> <tr> <td>0 V</td> <td>White</td> </tr> <tr> <td>CK</td> <td>Green</td> </tr> <tr> <td>$\overline{\text{CK}}$</td> <td>Yellow</td> </tr> <tr> <td>D</td> <td>Pink</td> </tr> <tr> <td>$\overline{\text{D}}$</td> <td>Grey</td> </tr> <tr> <td>SCH</td> <td>Shield</td> </tr> </tbody> </table>	SIGNALS	CONDUCTOR COLOR	+ V	Brown	0 V	White	CK	Green	$\overline{\text{CK}}$	Yellow	D	Pink	$\overline{\text{D}}$	Grey	SCH	Shield		
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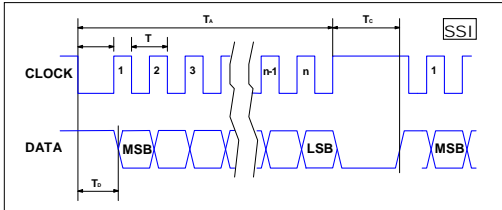
* Depending on CNC division factor.

 ** The declared accuracy grade of ± X μm is referred to a measuring length of 1 m.

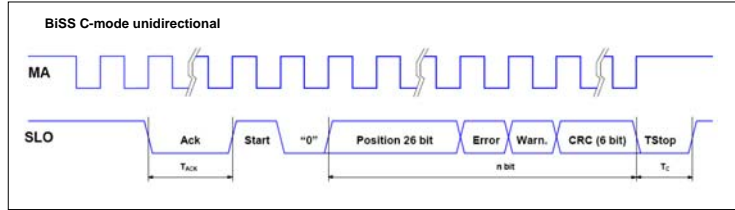
*** Ensuring the required power supply voltage to the transducer, the maximum cable length can be extended to 50 m.

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OUTPUT SIGNALS

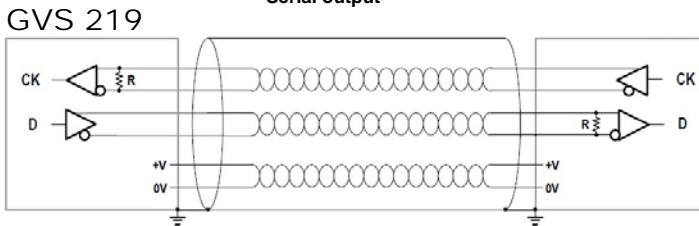
SSI Version


Interface	SSI Binary - Gray
Signals level	EIA RS 422
Clock frequency	0.1 ÷ 1.2 MHz
n	26 bit
T _C	max. 25 µs
T _D	max. 7 µs

BiSS C (unidirectional) Version


Interface	BiSS C unidirectional
Signals level	EIA RS 485 / RS 422
Clock frequency	0.1 ÷ 8 MHz
n	26 + 2 + 6 bit
T _C	8 µs
T _{ACK}	max. 28 µs

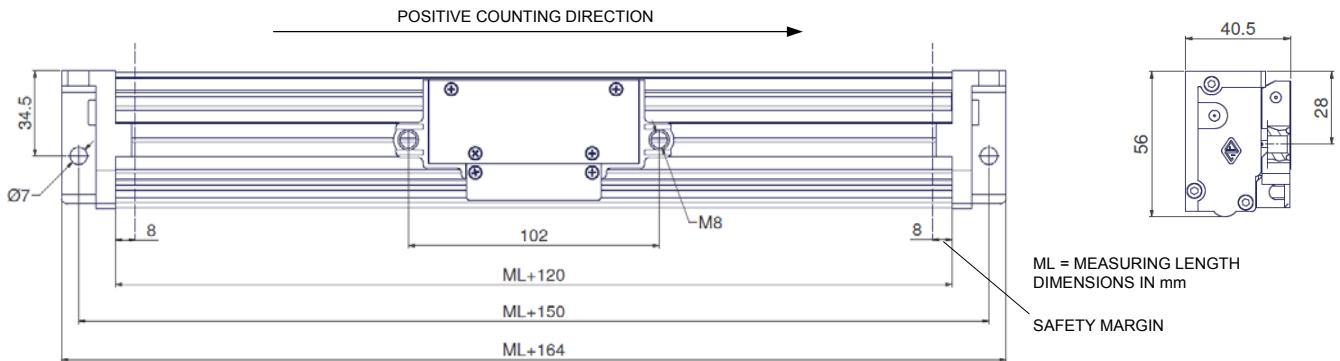
CABLE

Serial output


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
 100 = 100 µm
 50 = 50 µm
 10 = 10 µm
 5 = 5 µm
 1 = 1 µm

Length in mm
 0270 = 270 mm

528V = 5+28 Vdc

S0 = SSI programmable
 S1 = SSI binary
 S2 = SSI binary+even parity
 S3 = SSI binary+odd parity
 S4 = SSI binary+error
 S5 = SSI binary+even parity+error
 S6 = SSI binary+odd parity+error
 S7 = SSI Gray
 B1 = BiSS binary

V = +1 Vpp
 No cod. = no incremental signal

Mnn = length in m
 M0.5 = 0.5 m (standard)
 50 = 50 m
 R = 6 wires (only serial)
 S = 10 wires (serial+analog)

Cnn = progressive
 SC = without connector

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

Example **ABSOLUTE MAGNETIC SCALE GVS 219 1 0270 528V S0 V M0.5/S SC PR**