

Characteristics

- Optical 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 0.1 μm ; accuracy grade up to $\pm 1 \mu\text{m}$
- 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	Electrical																
<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. Backlash error <math><0.2 \mu\text{m}</math>. • SEALING LIPS for the protection of the grating, made of special elastomer resistant to oil and wearing. Special self-blocking profile. • 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. • Die-cast TIE ROD, with nickel-plating surface treatment. • Absolute GLASS SCALE 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. 	<ul style="list-style-type: none"> • Reading device with an infra-red light emitter and receiving photodiodes. • Option: A and B 1 Vpp output signals with phase displacement of 90° (electrical). • Serial protocol SSI-BiSS • CABLE: <ul style="list-style-type: none"> - Shielded twisted pair for digital signals (SSI-BiSS) - The cable is suitable for continuous movements <p>SERIAL OUTPUT VERSION</p> <ul style="list-style-type: none"> - 6-wire shielded cable $\varnothing = 5,1 \text{ mm}$, PVC external sheath, with low friction coefficient, oil resistant - Conductors section: power supply 0.14 mm^2; signals 0.14 mm^2. <p>The cable's bending radius should not be lower than 90 mm.</p> <p>ANALOG+SERIAL OUTPUT VERSION</p> <ul style="list-style-type: none"> - 10-wire shielded cable $\varnothing = 6,1 \text{ mm}$, PUR external sheath - Conductors section: power supply 0.29 mm^2; signals 0.14 mm^2. <p>The cable's bending radius should not be lower than 70 mm.</p> <table border="1"> <thead> <tr> <th>Signals</th> <th>Conductor colour</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 colour	+V	brown	0 V	white	CK	green	$\overline{\text{CK}}$	yellow	D	pink	$\overline{\text{D}}$	grey	SCH	shield
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Measuring support	glass scale
Grating pitch	20 μm
Thermal expansion coefficient	$8 \times 10^{-6} \text{ } ^\circ\text{C}^{-1}$
Incremental signal	sine wave 1 Vpp (optional)
Resolution 1 Vpp	up to 0,1 μm^*
Signal period	20 μm
Serial interface	SSI-BISS
Resolution absolute measure	1 μm - 0,1 μm
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 ²
Required moving force	$\leq 1,5 \text{ N}$
Vibration resistance (EN 60068-2-6)	100 m/s ² [55-2000 Hz]
Shock resistance (EN60068-2-27)	150 m/s ² [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 $\pm 5\%$
Current consumption	180 mA _{MAX} (with R=120 Ω) 5 VDC
Max. cable length	25 m****
Electrical connections	see related tables
Electrical protections	inversion of polarity and short circuits
Weight	900 g + 1850 g/m

* Depending on CNC division factor

** With a 0,1 resolution, the maximum traversing speed becomes 25 m/min

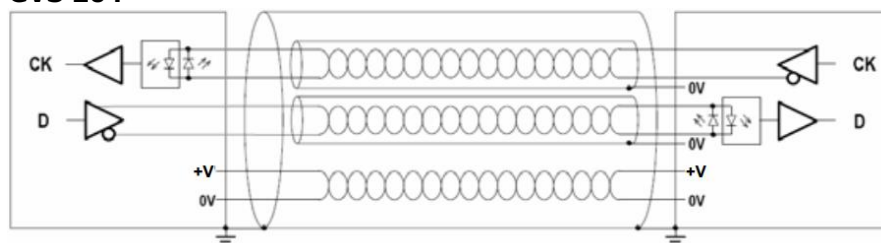
*** Pressurization set up on request

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

Cable

Serial output

GVS 204



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

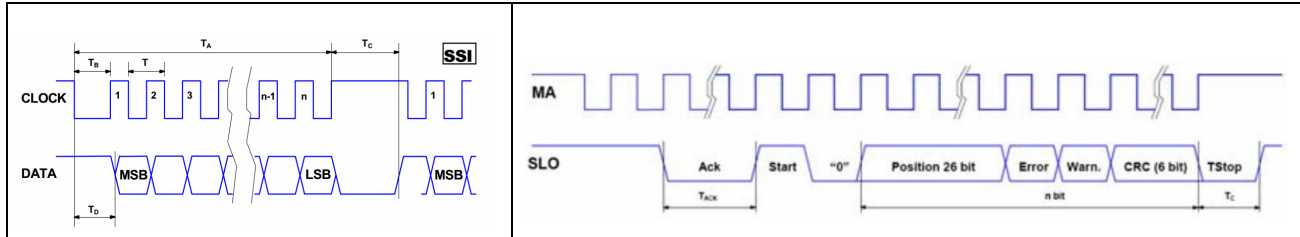
- the electrical connection between the body of the connectors and the cabled shield
- the required power supply to the transducer

Datasheet

Output signals

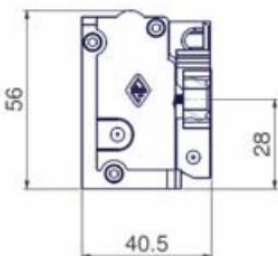
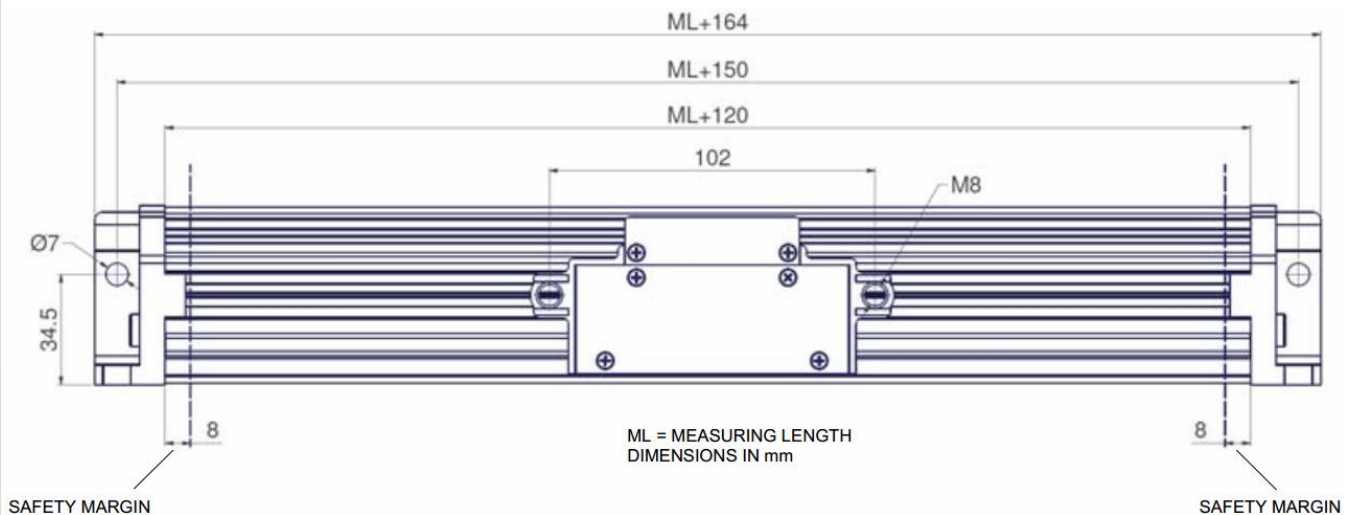
SSI version

BiSS C (unidirectional) version



Interface	SSI binary-gray	Interface	BiSS C unidirectional
Signals level	EIA RS 485	Signal level	EIA RS 485
Clock frequency	0,1 - 1,2 MHz	Clock frequency	0,1 - 4 MHz
n	Position bit	n	26+2+6 Bit
T _c	10 - 20 μs	T _c	12 - 20 μs

Dimensions



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

Datasheet

Ordering example

GVS 204 - T 1 - 0270 - 05V - S0 - V - M0,5/S - SC - PR

Type

GVS204

Resolution

T1= 1 μm

T0,1= 0,1 μm

Measuring length

Length in mm

0270= 270 mm

Power supply,

05V= 5 VDC

Output signals

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

Incremental signal

V= +1 Vpp

No cod.= no incremental signal

Cable length, cable type

Mnn= length in m

M0,5= 0,5 m (standard)

100= 100 m

R= 6 wires (only serial)

S= 10 wires (serial+analog)

Connector

Cnn= progressive

SC= without connector

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.