

General Features

Optical scale with stainless steel grating and direct reading of the absolute position. High mechanical resistance and thermal expansion suitable for the application, for a constant accuracy at any temperature.

- High-speed SSI-BiSS C (unidirectional) serial interface.
- Transducer guided by a self-aligned and self-cleaning sliding carriage with spring system.
- No contact reader head. No friction: high duration and tolerance against environmental dirty.
- 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: Line Driver digital signal.



Technical Characteristics



Measuring support	stainless steel grating	
Grating pitch	204.8 μm	
Linear thermal expansion coefficient	$10.6 \times 10^{-6} \text{ } ^\circ\text{C}^{-1}$	
Incremental signal	TTL Line Driver (optional)	
Resolution Line Driver	5 μm – 1 μm	
Serial interface	SSI-BiSS C (unidirectional)	
Resolution absolute measure	1 μm - 0.1 μm	
Accuracy grade	$\pm 2.5 \mu\text{m}^*$ standard version $\pm 1 \mu\text{m}^*$ high-accuracy version	
Measuring length ML in mm	170, 220, 270, 320, 370, 420, 470, 520, 570, 620, 720, ... mm max. 6000 mm in modular version	
Max. traversing speed	60 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 54	standard
	IP 64	pressurized
Operating temperature	0 $^\circ\text{C}$ ÷ 50 $^\circ\text{C}$	
Storage temperature	-20 $^\circ\text{C}$ ÷ 80 $^\circ\text{C}$	
Relative humidity	20% ÷ 80% (not condensed)	
Reading block sliding	without contact	
Power supply	5 VDC $\pm 5\%$ or 10 ÷ 28 VDC $\pm 5\%$	
Current consumption (with R = 120 Ω)	200 mA_{MAX} 50 mA_{MAX}	140 mA_{TYP} 30 mA_{TYP}
		5 VDC 10 ÷ 28 VDC
Max. cable length	20 m **	
Electrical connections	see related table	
Connector	inside the transducer	
Electrical protections	inversion of polarity and short circuits	
Weight	850 g + 1800 g/m (per m measuring length)	

* The declared accuracy grade of $\pm X \mu\text{m}$ is referred to a measuring length of 1 m.

** Ensuring a minimum power supply voltage of 5 V to the transducer, the maximum length can be extended to 50 m.

Electrical Characteristics

Analog Output + Serial Output

GVS 206S absolute optical scale is supplied with a 10-wire shielded cable, $\varnothing = 7.1$ mm, PUR external sheath, with low friction coefficient, oil-resistant and suitable for continuous movements.

Inside the cable, a further shield for the twisted pair of the digital signals (SSI-BiSS) is present.

Conductors section:

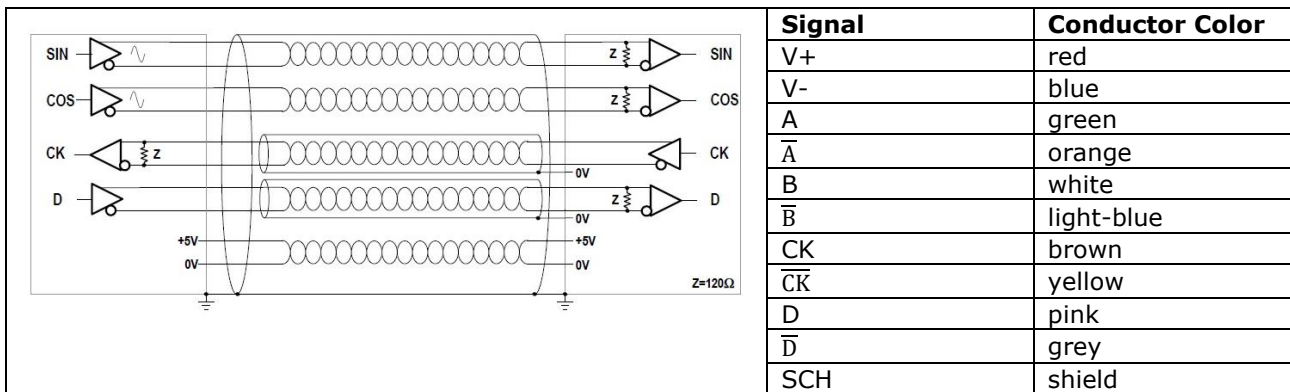
- power supply: 0.35 mm²
- signals: 0.10 mm²

Notice

The cable's bending radius should not be lower than 80 mm.

Analog Output + Serial Output 10-wire cable

The following output signals are available:



Serial Output

GVS 206S absolute optical scale is supplied with a 6-wire shielded cable, $\varnothing = 7$ mm, PUR external sheath, with low friction coefficient, oil-resistant and suitable for continuous movements.

Conductors section:

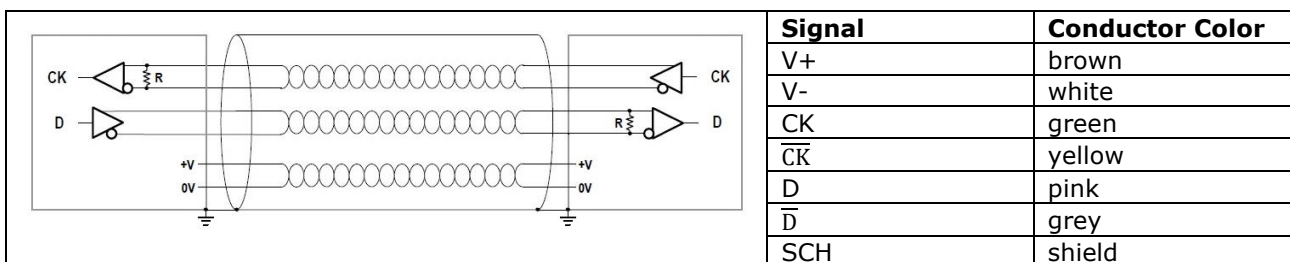
- power supply: 0.25 mm²
- signals: 0.25 mm²

Notice

The cable's bending radius should not be lower than 70 mm.

Serial Output 6-wire cable

The following output signals are available:



Complying to DIN 47100

Datasheet

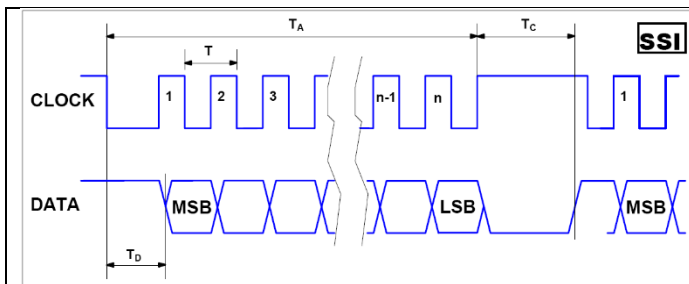
Notice

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

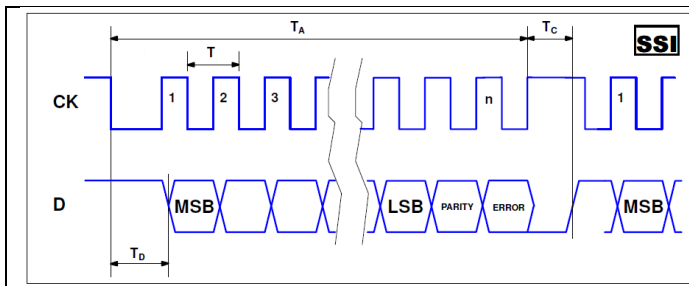
Output Signals

Serial signals SSI version:

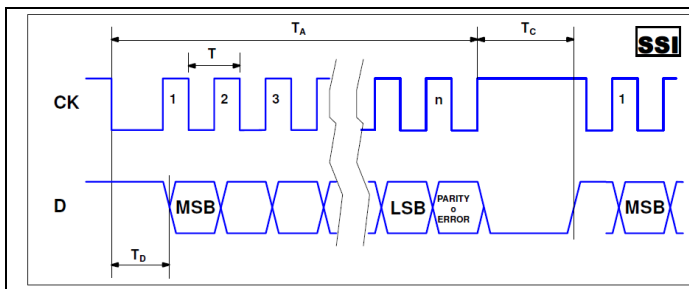


Interface	SSI (Synchronous Serial Interface) Binary - Gray
Signals level	EIA RS 422
Clock frequency	0.1 + 1.2 MHz*
n	26 bit
T_C	max. 20 μs
T₀	max. 5 μs

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

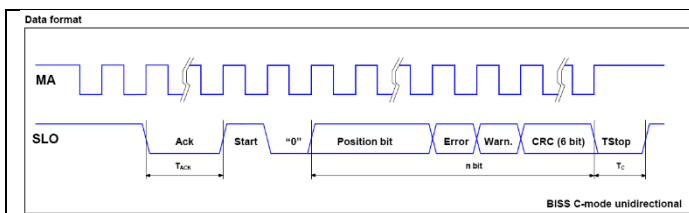


Interface	SSI (Synchronous Serial Interface) Binary
n	Position bit + Parity + Error



Interface	SSI (Synchronous Serial Interface) Binary
n	Position bit + Parity Position bit + Error

BiSS-C (unidirectional) version:



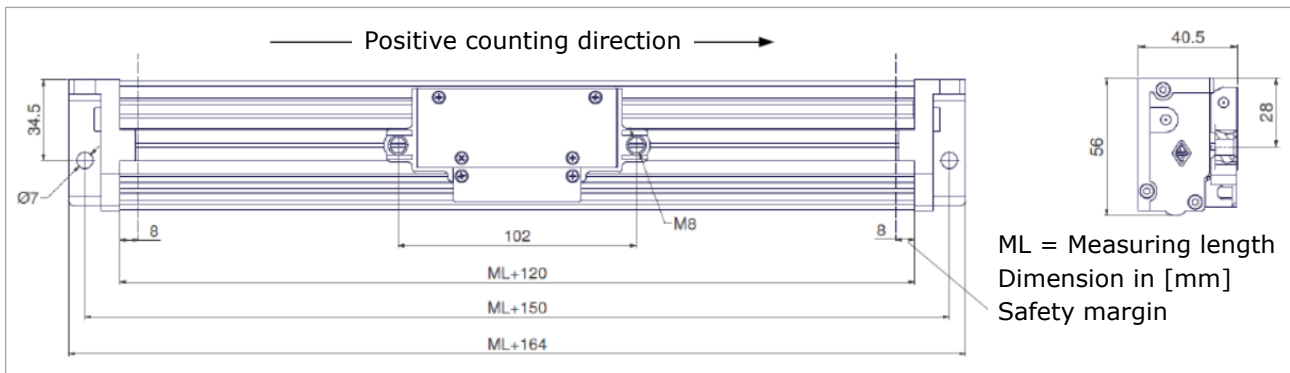
Interface	BiSS-C unidirectional
Signals level	EIA RS 485 / RS 422
Clock frequency	0.1 + 8 MHz*
n	26 + 2 + 6 bit
T_C	6 μs
T_{ACK}	max. 22 μs

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

Mechanical Characteristics

- Rugged and heavy PROFILE, made of anodized aluminum. Dimensions 55 x 28 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.
- No contact READER HEAD.
- Die-cast TIE ROD, with nickel-plating surface treatment.
- Absolute stainless steel GRATING.
- Elastomeric GASKETS which allow to reproduce the full protection in mechanical joints (in case of disassembling).
- Adjustable CABLE output.
- Various possibilities of application.

Dimensions



Datasheet

Ordering Code



Type **GVS 206 S** - **T1** - **6000** - **05V** - **S0** - **T5** - **M05/S** - **SC** - **PR**

Resolution

T1 = 1 μ m
T01 = 0,1 μ m

Measuring length [mm]

6000 = 6000 mm max. measuring length

Power supply

05V = 5 VDC
1028V = 10 \div 28 VDC

Output signal

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

Incremental signal

T5 = Line Driver resolution 5 μ m
T1 = Line Driver resolution 1 μ m
X = No cod. = no incremental signal

Cable length

Mxx = length in m
M05 = 0.5 m (standard)
50 = 50 m

Cable type

R = 6-wire cable (only serial)
S = 10-wire cable (serial and analog)

Connector

SC = without connector, open cable end
Cxx = connector

Option

X = no specifications (standard)
SPxx = special version (on request)
PR = pressurized

Manufacturer: 

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