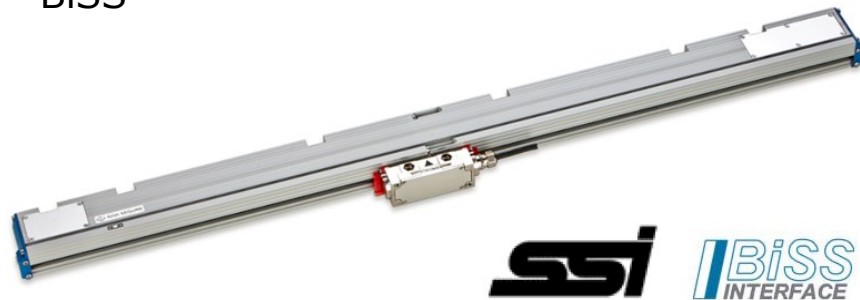


Serial interface SSI - BiSS



General features

- Absolute magnetic scale, available in a single piece or in modular version for large machines (up to 30040 mm of measuring length or higher on request).
- Application in various industrial fields such as machine tools, vertical lathes, gantry machines, laser/plasma cutting machines, robotics, automation, etc.
- Magnetic band on stainless steel support, integral with the machine guide, for an excellent accuracy at any temperature.
- SSI-BiSS C (unidirectional) serial interface. Direct reading of absolute measure.
- Resolutions up to 0.5 μm . Accuracy grade $\pm 10 \mu\text{m}$.
- Rigidly bound modules, for a perfect seal against liquids and environmental dirt, unaltered over time.
- Adjustable cable output, through double connector.
- Wide alignment tolerances. Pressurization from both sides of the scale and/or of the transducer.
- 1 Vpp analog signal (optional).


Mechanical characteristics

- Rugged and heavy enclosure profile made of anodized aluminium.
- Dimensions 50 x 58.5 mm.
- Spring system for misalignment compensation and self-correction of mechanical hysteresis.
- Non-extendible sealing lips along the sliding side of the reader head, fixed at the lateral ends.
- Pressurizable reading head, consisting of tie rod, and reading block, with fully-protected place for electronic boards.
- Reading block sliding through ball bearings.
- Die-cast tie rod, with nickel surface treatment.
- Magnetic band with stainless steel support, protected by the scale housing.
- Gaskets between modules for a full protection in mechanical joints.
- Full possibility to disassemble and reassemble it.
- Possibility of direct service.

Electrical characteristics

- Connector on the transducer, easily disconnectable in case of need.
- Reading device with positioning sensor based on magneto resistance, with AMR effect (Magnetic Anisotropy)
- A and B 1 Vpp output signals with phase displacement of 90° (electrical)
- Serial protocol SSI - BiSS C (unidirectional).

Technical characteristics

Measuring support	plastoferrite on stainless steel tape	
Pole pitch	2+2 mm	
Linear thermal expansion coefficient	$10.6 \times 10^{-6} \text{ } ^\circ\text{C}^{-1}$	
Incremental signal	sine wave 1 Vpp (optional)	
Resolution 1 Vpp	up to $0.5 \text{ } \mu\text{m}$ *	
Serial interface	SSI - BiSS C (unidirectional)	
Repeatability	± 1 increment	
Accuracy grade	$\pm 10 \text{ } \mu\text{m}$ **	
Measuring length ML in mm	from 640 mm to 30040 mm, with steps of 200 mm modules length: 1200, 1400, 1600, 1800, 2000 mm	
Max. traversing speed	120 m/min	
Max. acceleration	30 m/s^2	
Required moving force	$\leq 15 \text{ N}$	
Vibration resistance (EN 60068-2-6)	100 m/s^2 [55 ÷ 2000 Hz]	
Shock resistance (EN 60068-2-27)	300 m/s^2 [11 ms]	
Protection class (EN 60529)	IP 64 standard IP 67 on request	
Operating temperature	$0 \text{ } ^\circ\text{C} \div 50 \text{ } ^\circ\text{C}$	
Storage temperature	$-20 \text{ } ^\circ\text{C} \div 70 \text{ } ^\circ\text{C}$	
Relative humidity	20% ÷ 80% (not condensed)	
Reading block sliding	by ball bearings ©	
Power supply	5 VDC $\pm 5\%$	
Current consumption	280 mA _{MAX} (with R = 120 Ω)	
A, B and I ₀ output signals / Period	1 Vpp / 2 mm	
Max. cable length	50 m (serial + analog output) 70 m (serial output) ***	
Electrical connections	see related table	
Connector	on the transducer, with adjustable output	
Electrical protections	inversion of polarity and short circuits	
Weight	1.7 kg + 3.5 kg/m (per m measuring length)	

* Depending on CNC division factor.

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

*** Longer cable lengths are available on request.

Cable

Analog Output + Serial Output

GVS 919T absolute magnetic scale is supplied with a **10-wire shielded cable**, $\varnothing = 6,2$ 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.

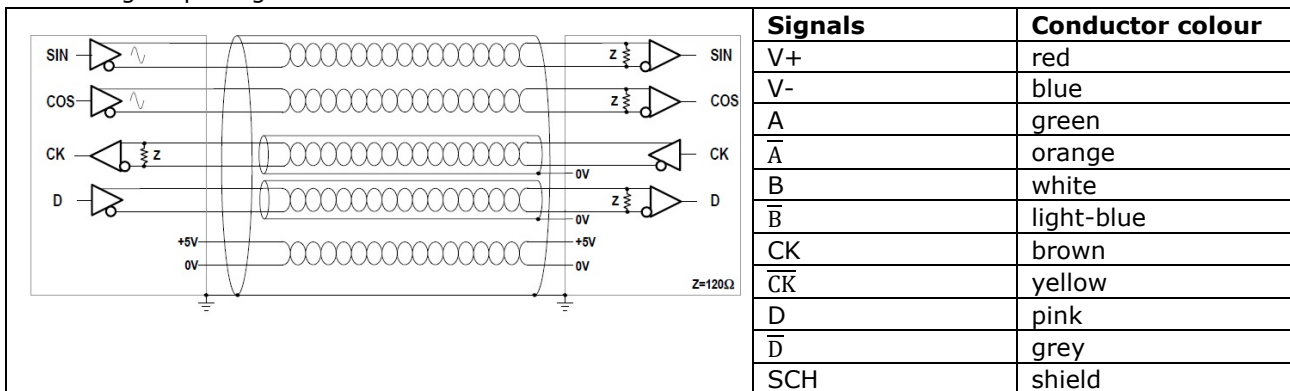
Conductors section:

- power supply: 0.35 mm²
- signals: 0.10 mm²

Notice

The cable's bending radius should not be lower than 80 mm.
 The cable is suitable for continuous movements.

The following output signals are available:



Serial Output

GVS 919T absolute magnetic scale is supplied with a **6-wire shielded cable**, $\varnothing = 6,2$ mm, PUR external sheath, with low friction coefficient, oil-resistant and suitable for continuous movements.

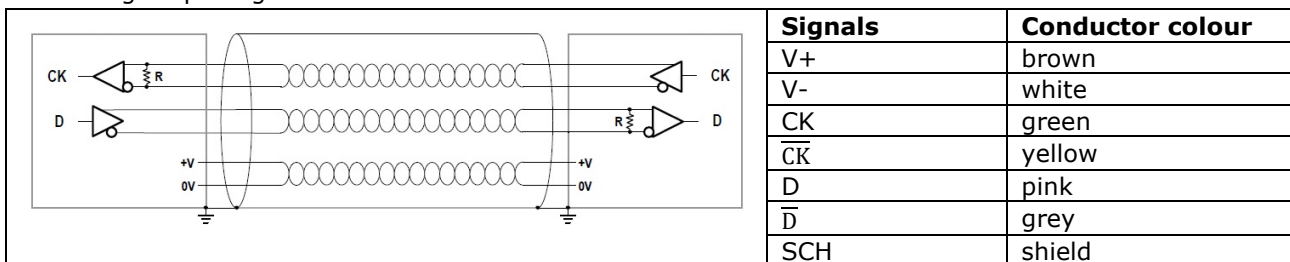
Conductors section:

- power supply: 0.25 mm²
- signals: 0.25 mm²

Notice

The cable's bending radius should not be lower than 70 mm.
 The cable is suitable for continuous movements.

The following output signals are available:



Notice

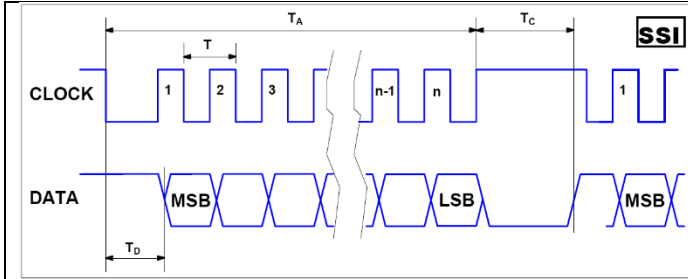
In case of cable extension, it is necessary to guarantee:

- the electrical connection between the body of the connectors and the cables shield
- a minimum power supply voltage of 5 V to the transducer

Datasheet

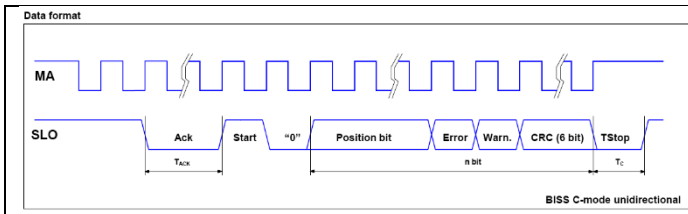
Output signals

Serial signals SSI version:



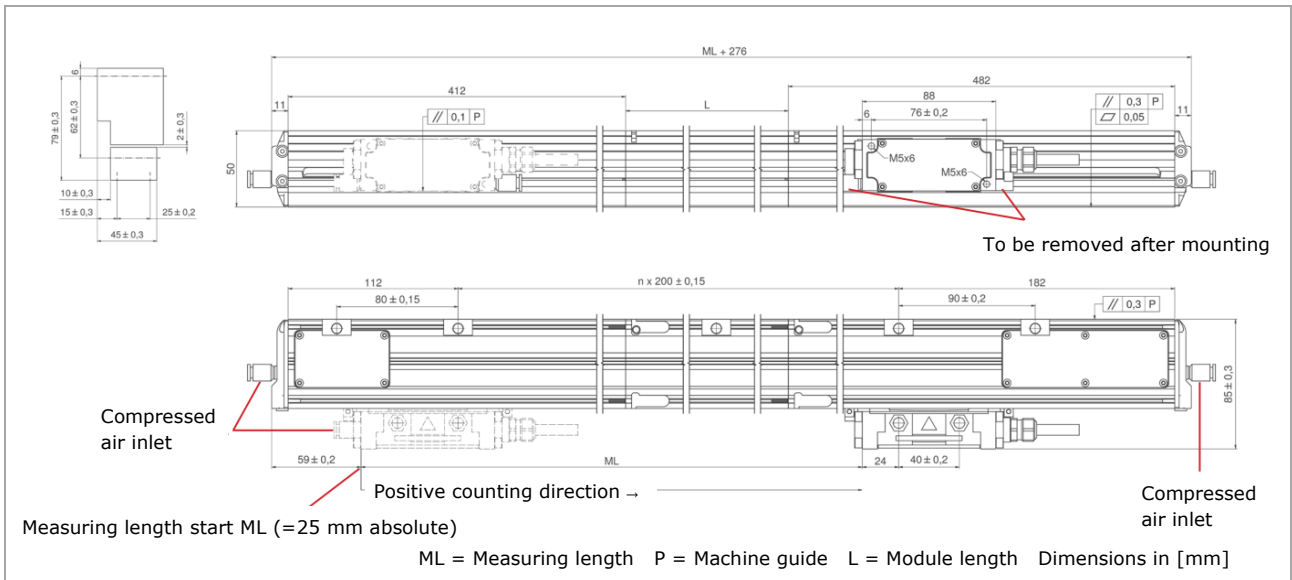
Interface	SSI Binary - Gray
Signals level	EIA RS 422
Clock frequency	0.1 + 1.2 MHz
n	30 bit
T_c	max. 22 μs
T_d	max. 6 μs

BiSS-C (unidirectional) version:



Interface	BiSS C unidirectional
Signals level	EIA RS 485 / RS 422
Clock frequency	0.1 + 8 MHz
n	32 + 2 + 6 bit
T_c	5 μs
TACK	max. 20 μs

Dimensions



Datasheet

Ordering example

Type **GVS 919** - **T1A** - **03240** - **05V** - **S0** - **V** - **M04/S** - **CG8** - **PR**

Scale type, resolution

T1 = 1 μm
T01 = 0,1 μm
A = absolute

Measuring length

03240 = 3240 mm
30040 = 30040 mm (max. measuring length)

Power supply

05V = 5 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

V = + 1 Vpp
 = no incremental signal

Cable length

Mxx = length in m
M04 = 4 m
M10 = 10 m

Cable type

R = 6-wire cable (only serial); PUR cable (for continuous movements)
S = 10-wire cable (serial and analog); PUR cable (for continuous movements)

Connector

Cxx = progressive
SC = without connector, open cable end

Option

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

Manufacturer:  **GIVI MISURE**

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