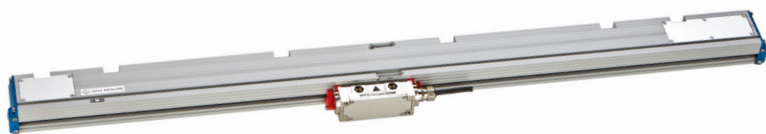


code **ST02** | project **A65-A** | release **A**

## GENERAL FEATURES

- Absolute magnetic scale, available in a single piece or in modular version for large machines (up to 30040 mm of measuring length).
- Application in various industrial fields such as machine tools, vertical lathes, gantry machines, laser/plasma cutting machines, robotics, automation, etc.
- Magnetic band with 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  $\mu\text{m}$ . Accuracy grade  $\pm 10 \mu\text{m}$ .
- Rigidly bound modules, for a perfect seal against liquids and environmental dirty, unaltered over time.
- Adjustable cable output, through double connector.
- Wide alignment tolerances.
- Pressurization from both sides of the scale and/or of the transducer.
- Option: 1 Vpp analog signal.

### Cod. GVS 919

### T

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

\* Depending on CNC division factor.

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

\*\*\* Longer cable lengths are available on request.

## MECHANICAL CHARACTERISTICS

- Rugged and heavy **PROFILE** made of anodized aluminum. Dimensions 50x58.5 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 **READER 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).
- Option: A and B 1 Vpp output signals with phase displacement of 90° (electrical).
- Serial protocol SSI - BiSS C (unidirectional).
- **CABLE:**
  - Shielded twisted pair for digital signals (SSI - BiSS).
  - PUR cable with low friction coefficient, resistant to oil and suitable for continuous movements.

### SERIAL + ANALOG OUTPUT VERSION

- 10-wire shielded cable  $\phi = 6.2 \text{ mm}$ , PUR external sheath.
- Conductors section: power supply 0.35 mm<sup>2</sup>; signals 0.10 mm<sup>2</sup>.

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

### SERIAL OUTPUT VERSION

- 6-wire shielded cable  $\phi = 6.2 \text{ mm}$ , PUR external sheath.
- Conductors section: power supply 0.25 mm<sup>2</sup>; signals 0.25 mm<sup>2</sup>.

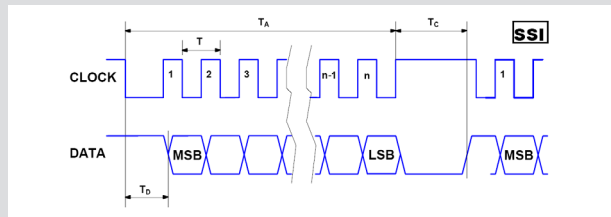
**The cable's bending radius should not be lower than 70 mm.**

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

code **ST02** | project **A65-A** | release **A**

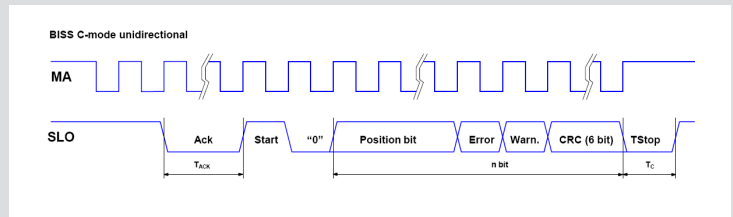
### OUTPUT SIGNALS

#### SSI Version



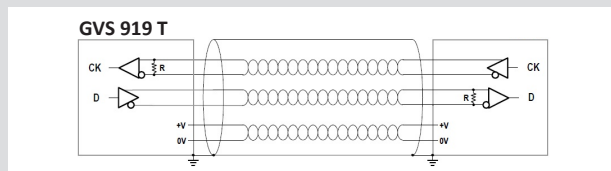
Interface	SSI Binary – Gray
Signals level	EIA RS 422
Clock frequency	0.1 ÷ 1.2 MHz
n	30 bit
T <sub>c</sub>	max. 22 µs
T <sub>D</sub>	max. 6 µs

#### 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 <sub>c</sub>	5 µs
T <sub>ACK</sub>	max. 20 µs

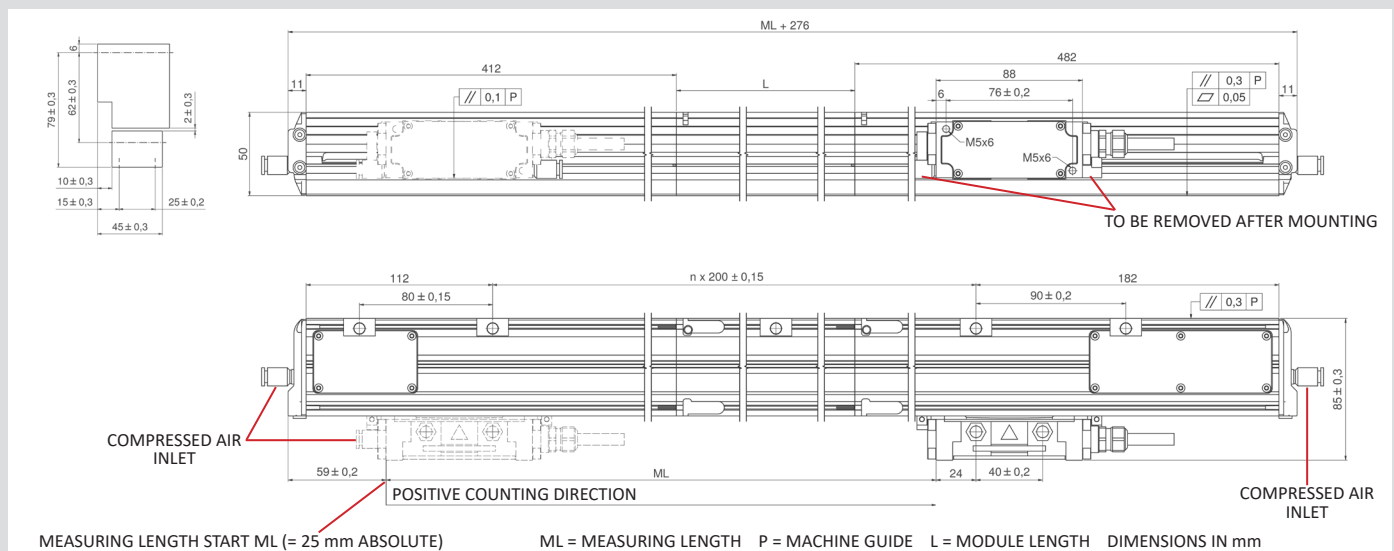
### CABLE



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.

### DIMENSIONS



### ORDERING CODE

Example MAGNETIC SCALE **GVS 919 T1A 03240 05V S0 V M04/S CG8 PR**

Model	Scale type, resolution	Measuring length	Power supply	Output signals	Incremental signal	Cable length, cable type	Connector, wiring	Special, pressurization
GVS 919	T1 = 1 µm T05 = 0.5 µm A = absolute	Measuring length in mm 03240 = ML 30040 = ML <sub>MAX</sub>	05V = 5 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 increm. signal	Mnn = length in m M04 = 4 m M10 = 10 m S = PUR cable	Cnn = progressive SC = without connector	No cod. = standard SPnn = special nn PR = pressurized

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