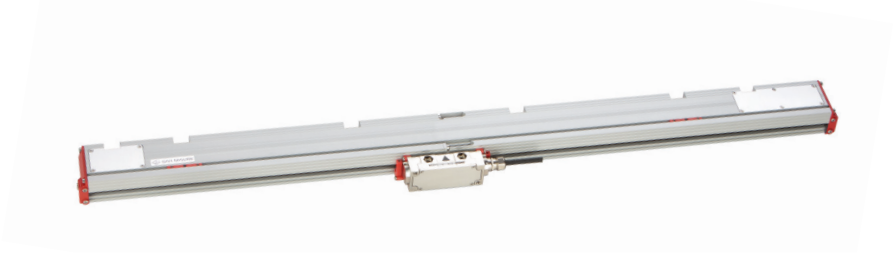
code **ST02** | project **A66-A** | release **B**



GENERAL FEATURES

- Incremental 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 with stainless steel support, integral with the machine guide, for an excellent accuracy at any temperature.
- Resolutions up to 0.5 µm. Accuracy grade ± 10 µm.
- Rigidly bound modules, for a perfect seal against liquids and environmental dirty, unaltered over time.
- Reference indexes at coded distance, at constant step, or selectable every 50 mm along the entire measuring length, with Zero Magneto Set device.
- Adjustable cable output, through double connector.
- Wide alignment tolerances.
- Pressurization from both sides of the scale and/or of the transducer.

Cod. GVS 915	V
Measuring support - Pole pitch - Linear thermal expansion coefficient	plastoferrite on stainless steel tape 2+2 mm P 10.6 x 10^{-6} °C^{-1}
Reference indexes (I_0)	**C** = at coded distance **P** = at constant step (every 50 mm) **E** = selectable (every 50 mm)
Resolution	up to 0.5 µm *
Repeatability	± 0.5 µm
Hysteresis	2 µm
Accuracy grade	± 10 µm **
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/s²
Required moving force	≤ 15 N
Vibration resistance (EN 60068-2-6)	≤ 100 m/s² [55 ÷ 2000 Hz]
Shock resistance (EN 60068-2-27)	≤ 300 m/s² [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	by ball bearings
Power supply	5 Vdc ± 5%
Current consumption	160 mA_{MAX} (with R = 120 Ω)
A, B and I_0 output signals **Period**	1 Vpp 2 mm
Max. cable length	45 m ****
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

* Depending on CNC division factor.
** The declared accuracy grade of ± X µm is referred to a measuring length of 1 m.
*** Longer measuring lengths are available on request.
**** 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).
- A and B output signals with phase displacement of 90° (electrical).
- Reference indexes at coded distance, at constant step or selectable.
- CABLE:
  - 8-wire shielded cable Ø = 6.1 mm, PUR external sheath.
  - Conductors section: power supply 0.35 mm²; signals 0.14 mm².

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

SIGNALS	CONDUCTOR COLOR
+ V	Red
0 V	Blue
A	Green
$\overline{A}$	Orange
B	White
$\overline{B}$	Light-blue
I_0	Brown
$\overline{I_0}$	Yellow
SCH	Shield

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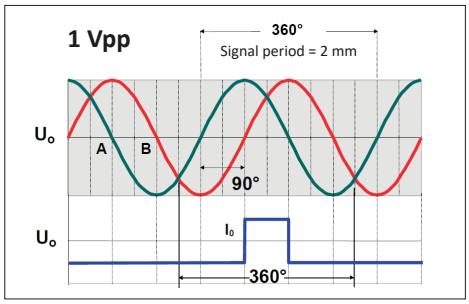
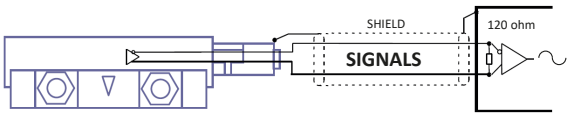
OUTPUT SIGNALS



A and B amplitude	0.8 Vpp ÷ 1.2 Vpp typical 1 Vpp
I_0 amplitude	0.25 V ÷ 0.8 V (usable component)
A and B phase displacement	90° ± 10° electrical
Reference voltage U_0	≈ 2.2 V

Signal amplitude is referred to a differential measurement made with 120 Ω impedance and power supply voltage to the transducer of 5 V ± 5%.

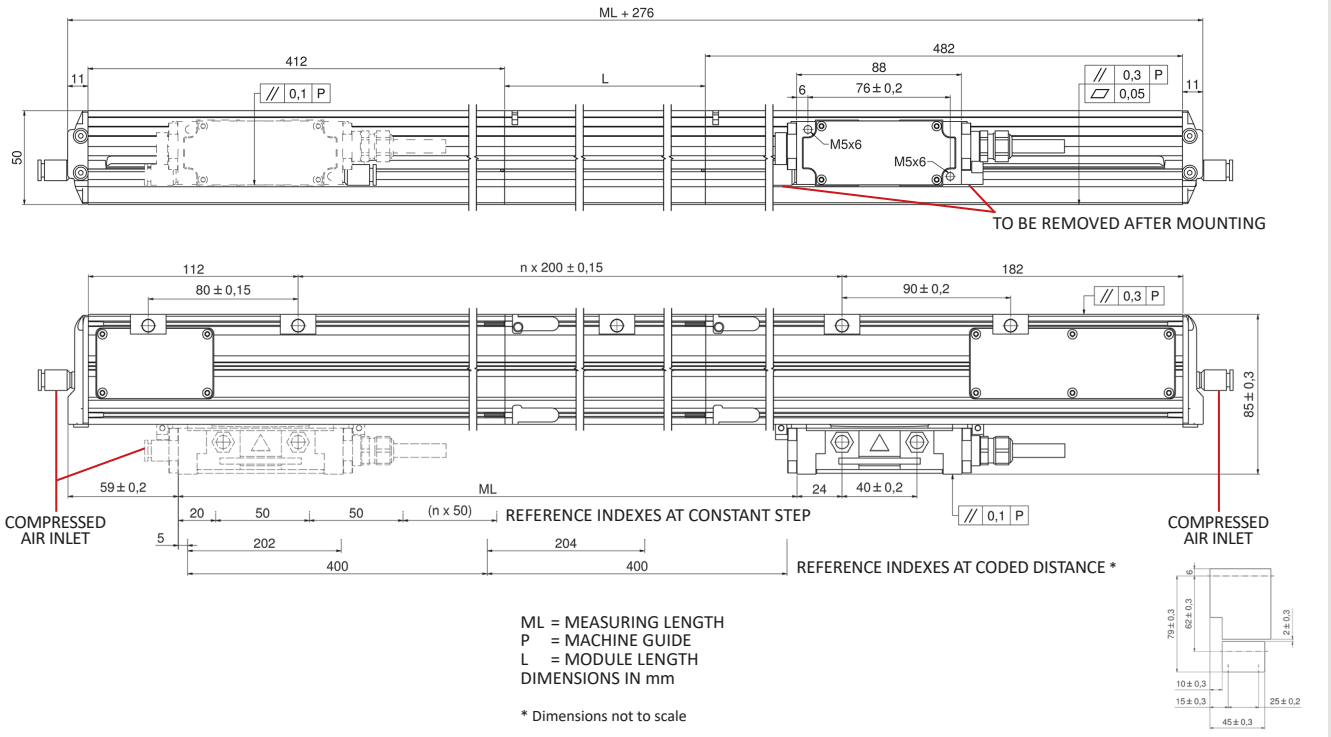
CABLE



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 915 V2KE 03240 05VS M04/S C35 PR**

Model	Scale type, signal period, indexes	Measuring length	Power supply, output signals	Cable length, cable type	Connector, wiring	Special, pressurization
GVS 915	V = 1 Vpp 2K = 2 mm C = indexes at coded distance P = indexes at constant step E = selectable indexes	Measuring length in mm 03240 = ML 30040 = ML$_{MAX}$	05V = 5 V S = sine wave	Mnn = length in m M04 = 4 m M10 = 10 m S = PUR cable T = tubeflex	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.

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