Sine wave output signals (1 Vpp)

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 on 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.

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 output signals with phase displacement of 90° (electrical)
- Reference indexes at coded distance, at constant step or selectable.

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Technical characteristics

Measuring support Pole pitch Linear thermal expansion coefficient	plastoferrite on stainless steel tape 2+2 mm 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	± 1 increment
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/s^2
Required moving force	≤ 15 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 °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 (per m measuring length)

* 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.

Cable

8-wire shielded cable, ∅ = 6.1 mm, PUR external sheath.

Conductors section:
- power supply: 0.35 mm^2
- signals: 0.14 mm^2

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:

Signals	Conductor colour
V+	red
V-	blue
A	green
$\overline{A}$	orange
B	white
$\overline{B}$	light-blue
I_0	brown
$\overline{I0}$	yellow
SCH	shield

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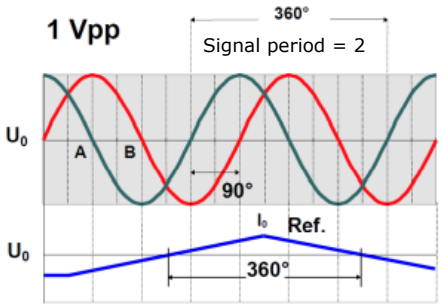
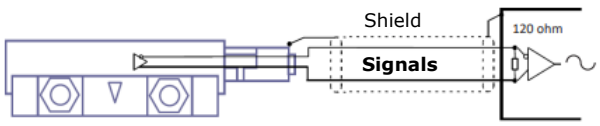
Output signals



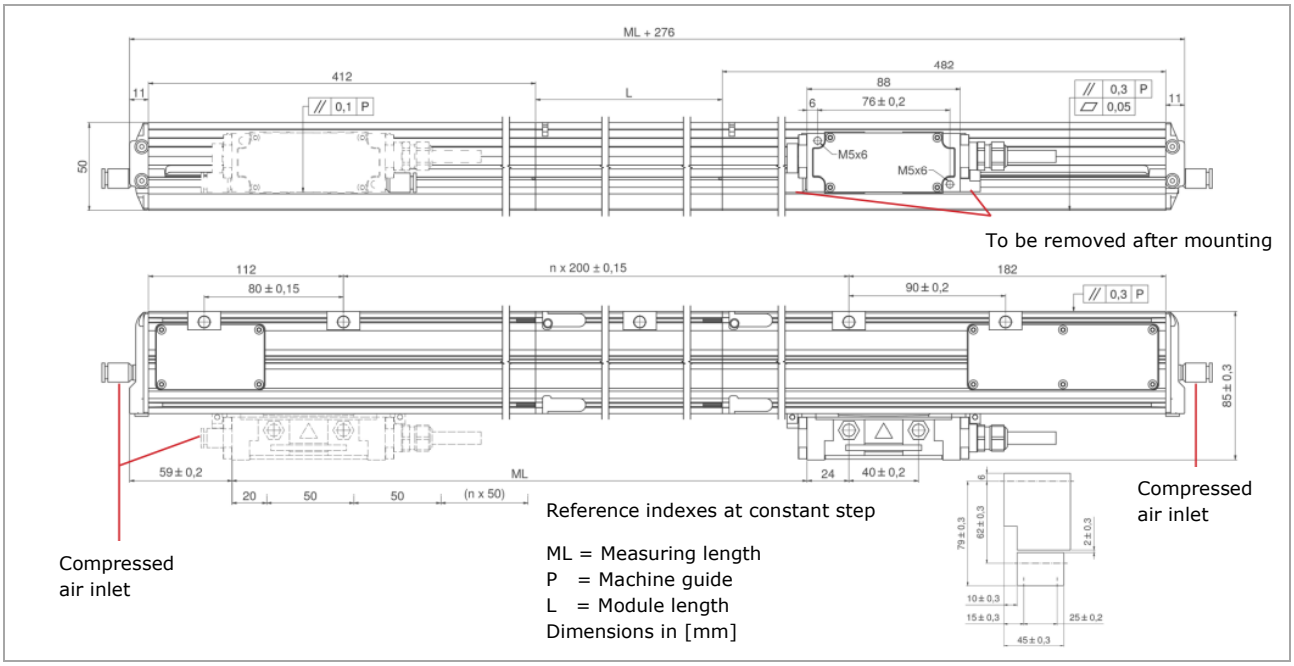
A and B amplitude	0.8 Vpp ÷ 1.2 Vpp typical 1 Vpp
I_0 amplitude	0.25 V ÷ 0.8 V (usable component)
A and B phase displacement	90° ± 10° electrical
Reference voltage U_0	≅ 2.2 V
Signal amplitude is referred to a differential measurement made with 120 Ω. Impedance and power supply voltage to the transducer of 5 V ± 5%.	

Cable



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 to the transducer

Dimensions



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Ordering example

Type	GVS 915	-	V2KE	-	03240	-	05VS	-	M04/S	-	C35	-	PR

Scale type
V = 1 Vpp

Signal period
2K = 2 mm

Indexes
C = indexes at coded distance
P = indexes at constant step
E = selectable indexes

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

Power supply
05V = 5 VDC

Output signal
S = sine wave

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

Cable type
S = PUR cable (for continuous movements)
T = tubeflex

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.

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