

code **ST02** | project **A84** | release **A**

DRIVE-CLiQ

## GENERAL FEATURES

- Absolute optical scale with glass measuring support.
- DRIVE-CLiQ serial interface, for a direct connection to Siemens CNCs.
- Resolutions up to 10 nm. Accuracy grade up to  $\pm 2 \mu\text{m}$ .
- Fixed expansion point (**FEP**) in the middle, positionable on the right (**RT**) or on the left (**LT**), for a linear expansion consistent with the type of application.
- Direct reading of the absolute measure.
- Rugged and heavy profile of considerable section.
- Adjustable cable output, through double connector.
- Pressurization from both sides of the scale or from the transducer.

### Cod. GVS 808

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<b>Measuring support</b>	glass scale	
- Grating pitch	20 $\mu\text{m}$	
- Linear thermal expansion coefficient	$8 \times 10^{-6} \text{ } ^\circ\text{C}^{-1}$	
<b>Serial interface</b>	Siemens DRIVE-CLiQ	
<b>Resolution absolute measure</b>	0.1 - 0.01 $\mu\text{m}$	
<b>Accuracy grade</b>	$\pm 5 \mu\text{m}$ * standard version $\pm 3 \mu\text{m}$ * high-accuracy version ( $\pm 2 \mu\text{m}$ for ML up to 640 mm)	
<b>Interpolation error (SDE)</b>	$\pm 70 \text{ nm}$ **	
<b>Hysteresis</b>	90 nm **	
<b>Measuring length ML in mm</b>	140, 240, 340, 440, 540, 640, 740, 840, 940, 1040, 1140, 1240, 1340, 1440, 1540, 1640, 1740, 1840, 2040, 2240, 2440, 2640, 2840, 3040, 3240 <sub>MAX</sub>	
<b>Fixed expansion point (FEP)</b>	central or positionable on the right (RT) or on the left (LT)	
<b>Max. traversing speed</b>	180 m/min	
<b>Max. acceleration</b>	50 m/s <sup>2</sup> in measuring direction	
<b>Required moving force</b>	≈ 2.5 N	
<b>Vibration resistance (EN 60068-2-6)</b>	100 m/s <sup>2</sup> [55 ÷ 2000 Hz]	
<b>Shock resistance (EN 60068-2-27)</b>	150 m/s <sup>2</sup> [11 ms]	
<b>Protection class (EN 60529)</b>	IP 54 standard IP 64 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>Connector</b>	on the transducer, with adjustable output	
<b>Electrical protections</b>	inversion of polarity and short circuits	
<b>Weight</b>	0.55 kg + 2.8 kg/m	

\* The declared accuracy grade of  $\pm X \mu\text{m}$  is referred to a measuring length of 1 m.  
 \*\* The error declared is subject to the respect of the alignment tolerances.

## MECHANICAL CHARACTERISTICS

- Rugged and heavy **PROFILE** of considerable section, made of anodized aluminum. Dimensions 36.7x58.5 mm.
- **SPRING SYSTEM** for misalignment compensation and self-correction of mechanical hysteresis.
- Double pair of linear **SEALING LIPS** for a very high protection of the grating.
- 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.
- Absolute glass **GRATING**, placed in the scale housing.
- Elastomeric **GASKETS** which allow to reproduce the full protection in mechanical joints (in case of disassembling).
- **FULL POSSIBILITY** to disassemble and reassemble it.

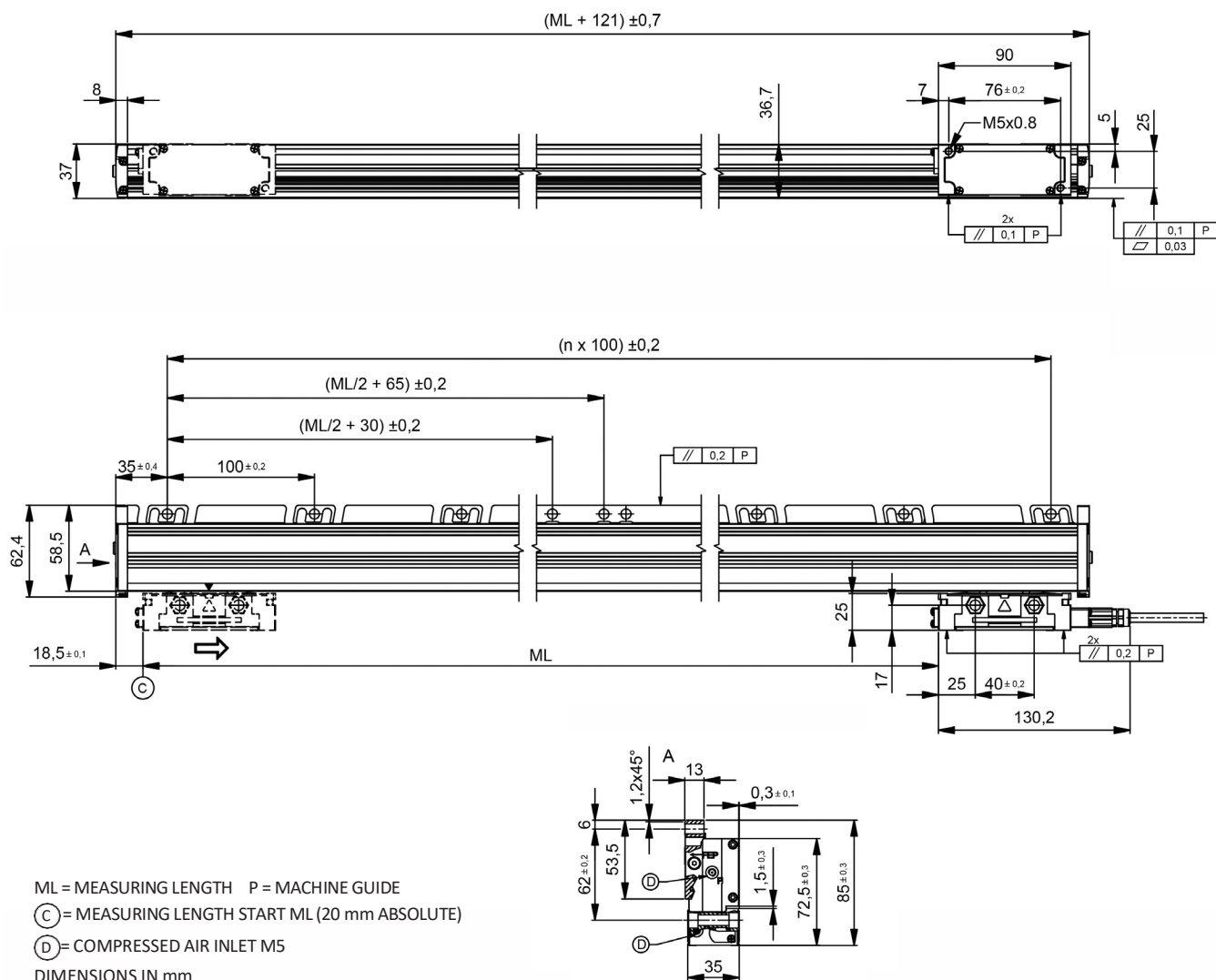
## ELECTRICAL CHARACTERISTICS

- Connector on the transducer, easily disconnectable in case of need.
- Reading device with an infra-red light emitter and receiving photodiodes.
- Serial protocol Siemens DRIVE-CLiQ.
- Electrical protection against polarity inversion and short circuits on output ports.
- **CABLE:**
  - PUR cable with low friction coefficient, resistant to oil and suitable for continuous movements, 0.5 m standard length.
  - M12 8 Pin connector.

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

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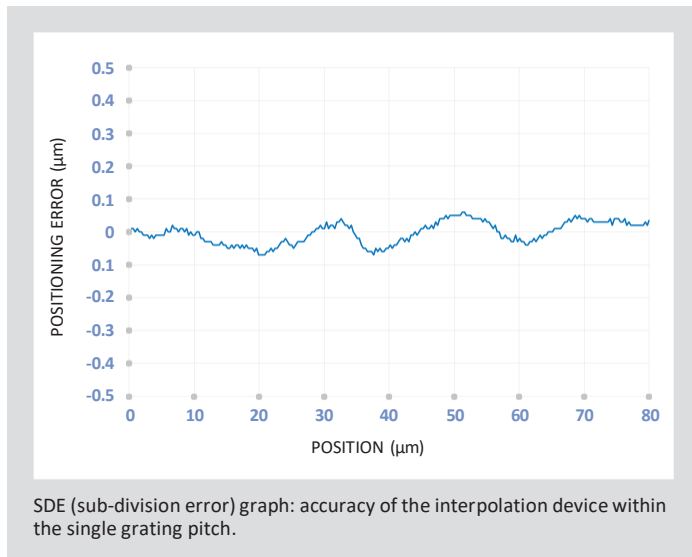
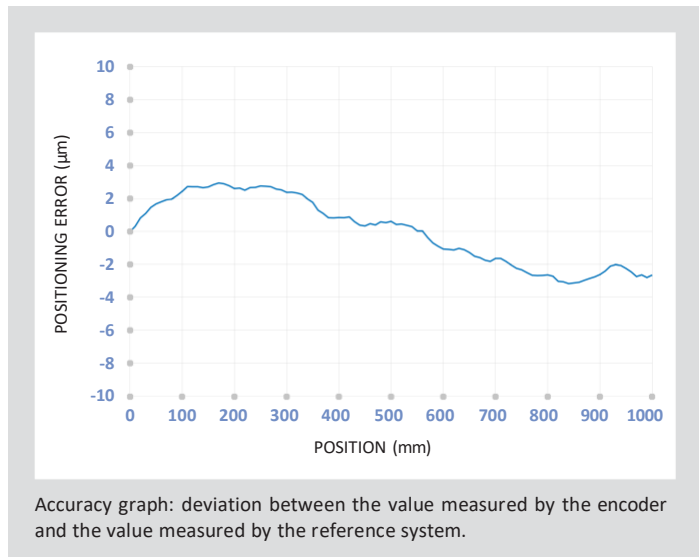
## DIMENSIONS



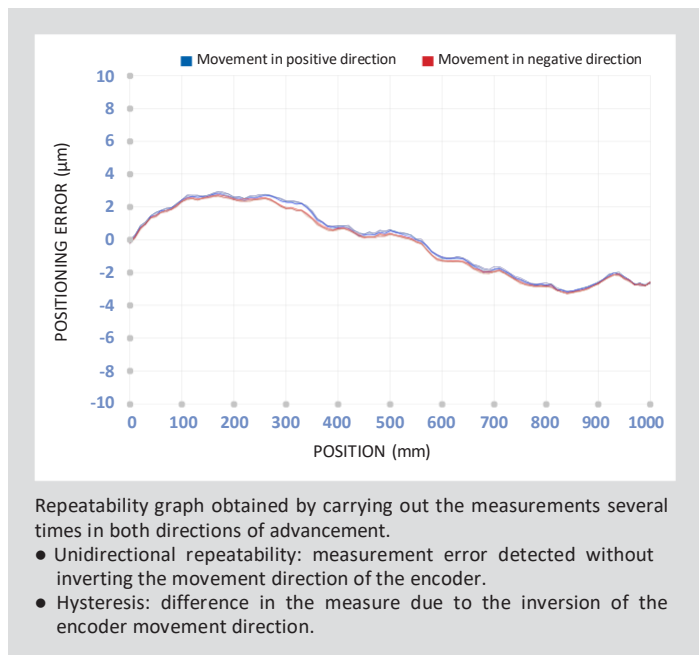
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**ACCURACY**

**INTERPOLATION - SDE**



**REPEATABILITY**



The graphs show tests carried out in a metrological room under controlled climatic conditions: T= 20 °C ± 0.1 °C and R.H.= 45 ÷ 55%. The reference system for the comparison of position measurements is interferometric with 1 nm resolution and equipped with an environmental compensation device.

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SYSTE  
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FixedExpansionPoint

GVS 808 is supplied with a Fixed Expansion Point (FEP) positioned in the middle (standard). On request it is possible to supply scales with FEP positionable on the left (LT) or on the right (RT). Based on the application, the customer can determine the linear thermal expansion direction, so as to

maximize the machining accuracy and repeatability even in the presence of significant temperature changes.

**ORDERING CODE**

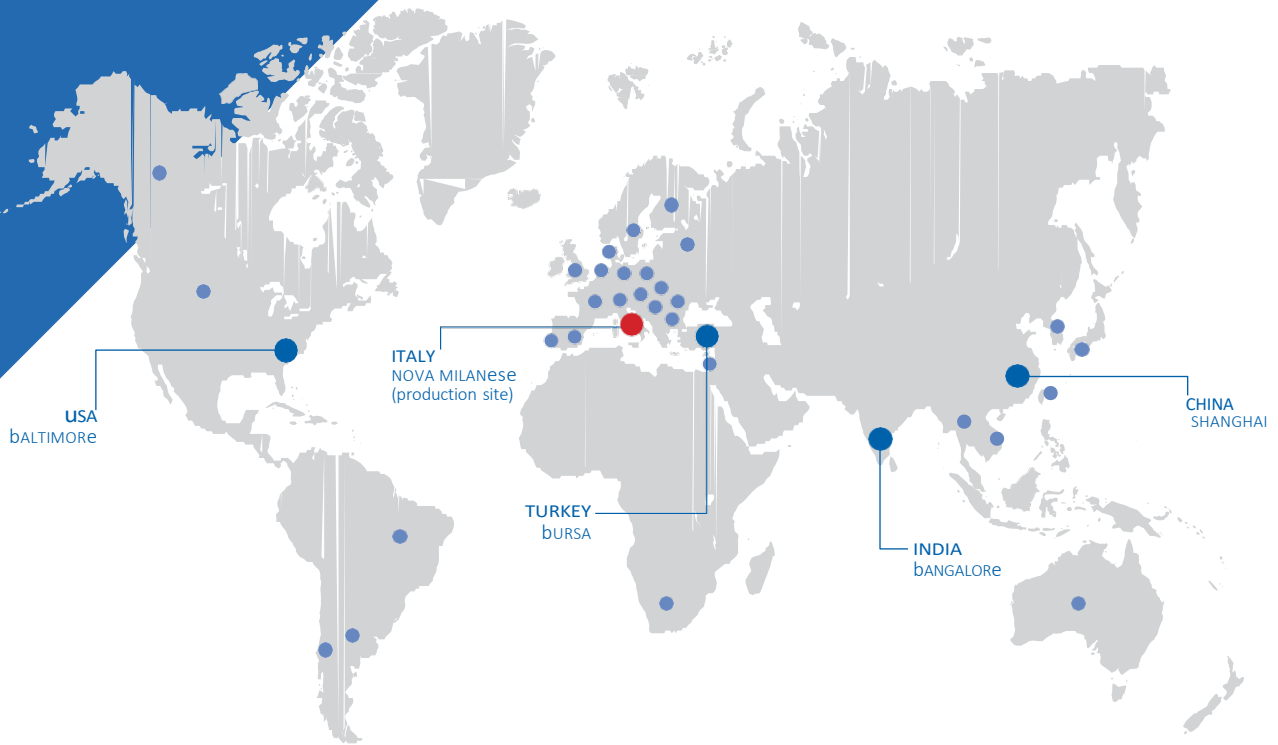
Example OPTICAL SCALE **GVS 808 D01A 03240 V D1 M0.5/S SLT PR**

Model	Scale type, resolution	Measuring length	Power supply	Output signals	Cable length, cable type	FEP (Fixed Expansion Point)	Special, pressurization
GVS 808	D01 = 0.1 µm D001 = 0.01 µm A = absolute	Measuring length in mm 03240 = ML <sub>max</sub>	V	D1 = DRIVE-CLiQ	Mnn = length in m M0.5 = 0.5 m S = PUR cable	No cod. = central FEP (standard) SLT = selectable FEP	No cod. = standard SPnn = special nn PR = pressurized



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Optical scales



Magnetic systems



Rotary encoders



Digital readouts



Position controllers



Megatron AG – Gewerbehau Ergolz, Wölferstrasse 5 4414 Füllinsdorf  
 Telefon: +41 (0)55 617 00 88  
 E-Mail: [sales@megatron.ch](mailto:sales@megatron.ch)  
[www.megatron.ch](http://www.megatron.ch)

**Applications**

- CNC machines
- Press brakes
- Traditional machines
- Automation
- Wood, glass and marble processing machines
- Renewable energies
- Special applications