

# Datasheet


- Particularly suitable for CNC machines.
- Innovative device inside the scale for the disposal of liquids coming from inefficient filtering systems.
- Connector incorporated into the transducer.
- Reference indexes at coded distance, or at constant step, with predetermined or selectable positions.
- Small size, to allow installation in narrow spaces.
- Reading device with an infra-red light emitter and receiving photodiodes.
- Full possibility to disassemble and reassemble the scale.
- Possibility of direct service.



## Parts

Measuring support	glass scale
Body	40x24 mm; anodized aluminium
Cable	<100 m (Line Driver)/ <50 m (Push-Pull); PUR external sheath Ø6.1 mm; 8-wire shielded cable Conductors section: 0.35 mm <sup>2</sup> ; signals 0.14 mm <sup>2</sup> The cable's bending radius should not be lower than 80 mm The cable is suitable for continuous movements
Elastic COUPLING	for misalignment compensation and self-correction of mechanical hysteresis. Backlash error <0.2 µm.
SEALING LIPS	non-extendible along the sliding side of the reader head, fixed at the lateral ends.
READER HEAD,	consisting of tie rod and reading block, with fully protected place for electronic boards.
READING BLOCK	sliding through ball bearings.
Elastomeric GASKETS	which allow to reproduce the full protection in mechanical joints (in case of disassembling).
Die-cast TIE ROD	with nickel-plating surface treatment.
Wight	435 g 1290g/m


### Mechanical Data

Grating Pitch	20 $\mu\text{m}$ 					
Resolution	T5	T1	T05	T01	T005	T001
	5 $\mu\text{m}$	1 $\mu\text{m}$	0,5 $\mu\text{m}$	0,1 $\mu\text{m}$	0,05 $\mu\text{m}$	0,01 $\mu\text{m}$
Accuracy <sup>1)</sup>	$\pm 5 \mu\text{m}$ standard $\pm 3 \mu\text{m}$ high-accuracy ( $\pm 2 \mu\text{m}$ at ML up to 720 mm)					
Measuring Length (ML)	70, 120, 170, 220, 270, 320, 370, 420, 470, 520, 570, 620, 720, 770, 820, 920, 1020, 1140, 1240, 1340, 1440, 1540, 1640, 1740, 1840, 2040, 2240, 2440, 2640, 2840, 3040, <3240 mm					
Reference Indexes (I <sub>0</sub> )	C = coded distance P = constant step (every 40 mm) E = selectable (every 10 mm)					
Movement Speed	<120 m/min <sup>2)</sup>					
Acceleration	<30m/s <sup>2</sup>					
Required Moving Force	$\leq 2,5 \text{ N}$					
Vibration Resistance (EN 60068-2-6)	100 m/s <sup>2</sup> [55-2000 Hz]					
Shock Resistance (EN60068-2-27)	150 m/s <sup>2</sup> [11 ms]					
Protection Class (EN60529)	IP 54 standard IP 64 pressurized <sup>2)</sup>					
Thermal Expansion Coefficient	$8 \times 10^{-6} \text{ } ^\circ\text{C}^{-1}$					
Relative Humidity	20% ... 80% (not condensed)					
Operating Temperature	0 $^\circ\text{C}$ ... +50 $^\circ\text{C}$					
Storage Temperature	-20 $^\circ\text{C}$ ... +70 $^\circ\text{C}$					
IP-Rating	IP54 Standard IP64 pressurized					

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

2) With a 0.1  $\mu\text{m}$  resolution, the maximum traversing speed becomes 48 m/min.  
 With a 0.05  $\mu\text{m}$  resolution, the maximum traversing speed becomes 24 m/min.  
 With a 0.01  $\mu\text{m}$  resolution, the maximum traversing speed becomes 4.8 m/min.

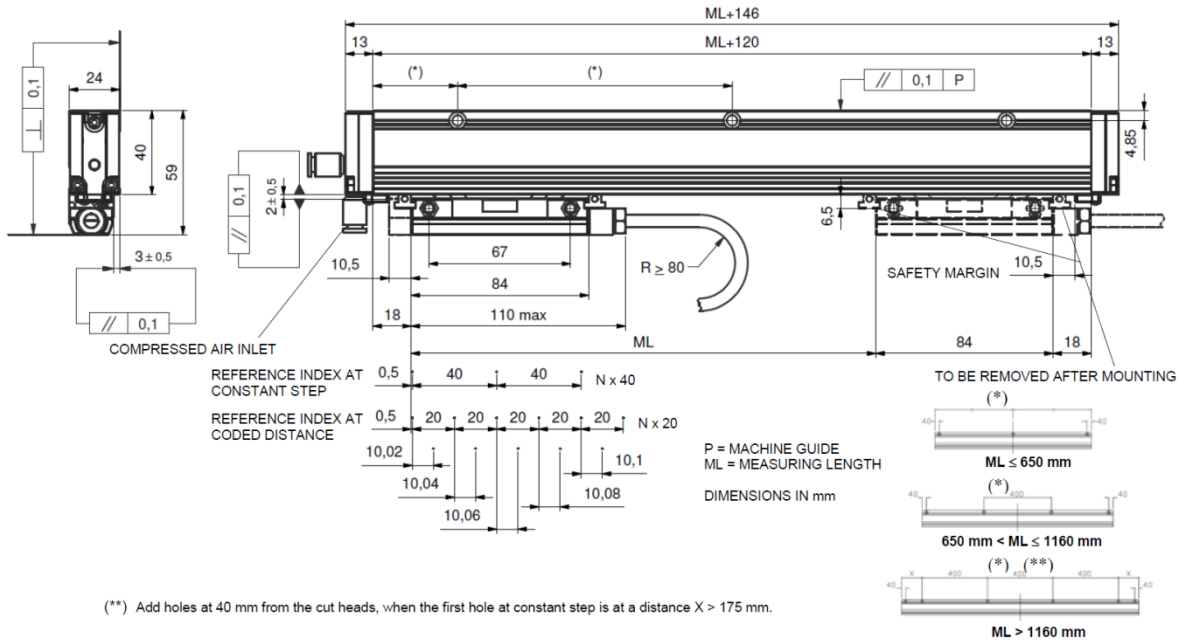
### Electrical Data

Power Supply	5 VDC $\pm 5\%$
Current Consumption	<140 mA (with R=120 $\Omega$ )
Output Signals <sup>1)</sup> (A, B and I <sub>0</sub> )	LINE DRIVER PUSH-PULL 
Signal amplitude	LINE DRIVER ( $V_{OH} \geq 2,5 \text{ V} / V_{OL} \leq 0,5 \text{ V}$ ) TTL
Load per Channel	R = 120 $\Omega$ I <sub>L</sub> = <20 mA
A and B phase displacement	90° $\pm$ 5° electrical
Electrical Protections	inversion of polarity and short circuits

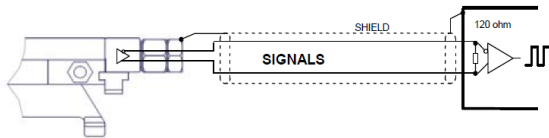


# Datasheet

## Dimensions



## Cable

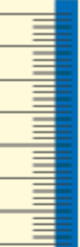


**In case of cable extension, it is necessary to guarantee:**

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

## Assignment

Pin	Linde Driver	Push-Pull
red	+V	+V
dark blue	0 V	0 V
green	A	A
orange	$\bar{A}$	$\bar{A}$
white	B	B
light-blue	$\bar{B}$	$\bar{B}$
brown	$I_0$	$I_0$
yellow	$\bar{I}_0$	$\bar{I}_0$
shield	SCH	SCH



# Datasheet

## Ordering Example

**Type**                    **GVS 600** - **T 01 C** - **03240** - **05VL** - **M04/S** - **SC** - **PR**

### Scale Type

**T**     = TTL

### Resolution

**1**     = 1  $\mu\text{m}$

**01**    = 0,1  $\mu\text{m}$

**001**   = 0,01  $\mu\text{m}$

### Index (optional)

**C**     = indexes at coded distance

**P**     = indexes at constant step

**E**     = selectable indexes

### Measuring Length [mm]

**03240** = < ML

### Power supply

**05V**   = 5 VDC

### Output Signals

**L**     = Line Driver

**Q**     = Push-Pull

### Cable Length

**Mnn**   = Length in mm

**M04**   = 4 m (standard)

**100**   = 100 m

### Cable Type

**S**     = PUR cable for continuous movements

### Connector Wiring

**Cnn**   = progressive

**SC**    = without connector

### Special, pressurization

No cod. = standard

**SPnn**   = special nn

**PR**     = pressurized