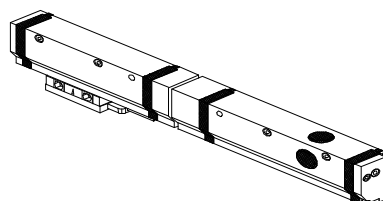


Code ST04	Project A34	Release F	Title TECHNICAL DATASHEET
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OPTICAL SCALE GMS T (TTL)

GENERAL FEATURES

- MODULAR optical scale with stainless steel grating, suitable for long strokes on CNC machine-tools (ML up to 30040 mm).
- Application in several industrial fields such as machine-tools, positioning systems, robotics, etc.
- Resolutions up to 0.5 μm
- Reference indexes at coded distance, or at constant step or selectable.



MECHANICAL AND ELECTRICAL FEATURES

MECHANICAL

- Rugged and heavy PROFILE: anodized aluminium, dimensions 50x58.5mm.
- LIP SEALS along the sliding side of the reader head.
- 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.
- STAINLESS STEEL GRATING placed in the aluminium profile.
- Elastomeric GASKETS which allow to reproduce the full protection in mechanical joints (in case of disassembly).
- Full possibility to disassemble and reassemble it.

ELECTRICAL

- Reading device with an infra-red light emitter and receiving photodiodes.
- A and B output signals with phase displacement of 90° (electrical).
- Real signal I_0 of reference index approximately equal to 0.5 V.
- Incremental reference index every 50 mm, selectable or coded.
- Cable with minimum bending radius of 50 mm.
- Cable suitable to continuous movements can be requested, with minimum cable bending radius of 33 mm.

SIGNALS	WIRE COLOUR
A	GREEN
\bar{A}	BROWN
B	RED
\bar{B}	BLACK
I_0	PINK
\bar{I}_0	GREY
Not connected	VIOLET
0V sense	BLUE
5V sense	WHITE
0V	GREEN - WHITE
5V	GREEN - YELLOW
SCH	SHIELD

Code GMS

Measuring support

Grating pitch

Reference index (I_0)

Resolution

Accuracy

Measuring length ML in mm

Max. traversing speed

Max. acceleration

Required moving force

Vibration resistance (EN 60068-2-6)

Shock resistance (EN 60068-2-27)

Protection class (EN 60529)

Operating temperature

Storage temperature

Relative humidity

Block sliding

Power supply

Current consumption

A and B output signals

Maximum cable length

Electrical connection

Electrical protections

Weight

T

stainless steel

40 μm 

C = at coded distance (80 mm)
P = at constant step (50 mm)
E = selectable (via magnet)

T10 **T5** **T2** **T1** **T05**
 10 μm 5 μm 2 μm 1 μm 0.5 μm

$\pm 10 \mu\text{m}^*$

3240 to 30040_{MAX}
 steps 200 mm
 length of each module: 1000, 1200, 1400, 1600, 1800, 2000.

120 m/min

30 m/s^2

$\leq 6 \text{ N}$ (0.6 Kgf)

$\leq 300 \text{ m/s}^2$ [50 ÷ 2000 Hz]


$\leq 300 \text{ m/s}^2$ [11 ms]

IP 53 standard - IP 64 pressurized

0° ÷ 50° C


-20° ÷ 70° C

20% ÷ 70% (not condensed)

by ball bearings 

5 V \pm 5%

150 mA_{MAX} (with R = 120 Ω)

LINE DRIVER 
 PUSH-PULL

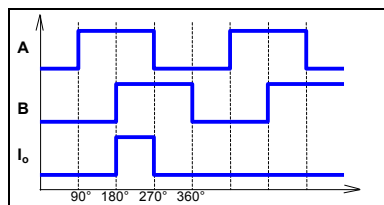
50 m

see rel. table

inversion of power supply polarity
 and short circuit on output port

1.8 kg + 3.3 kg/m

OUTPUT SIGNALS

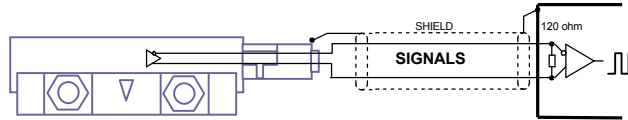


Signal amplitude	LINE DRIVER ($V_{OH} \geq 2.5 \text{ V}$ $V_{OL} \leq 0.5 \text{ V}$) TTL
Load per channel	R = 120 Ω $I_L = \pm 20 \text{ mA}_{\text{MAX}}$
A and B phase displacement	90° \pm 5° electrical

* The declared accuracy rate of $\pm X \mu\text{m}$ is referred to a measuring length of 1000 mm.

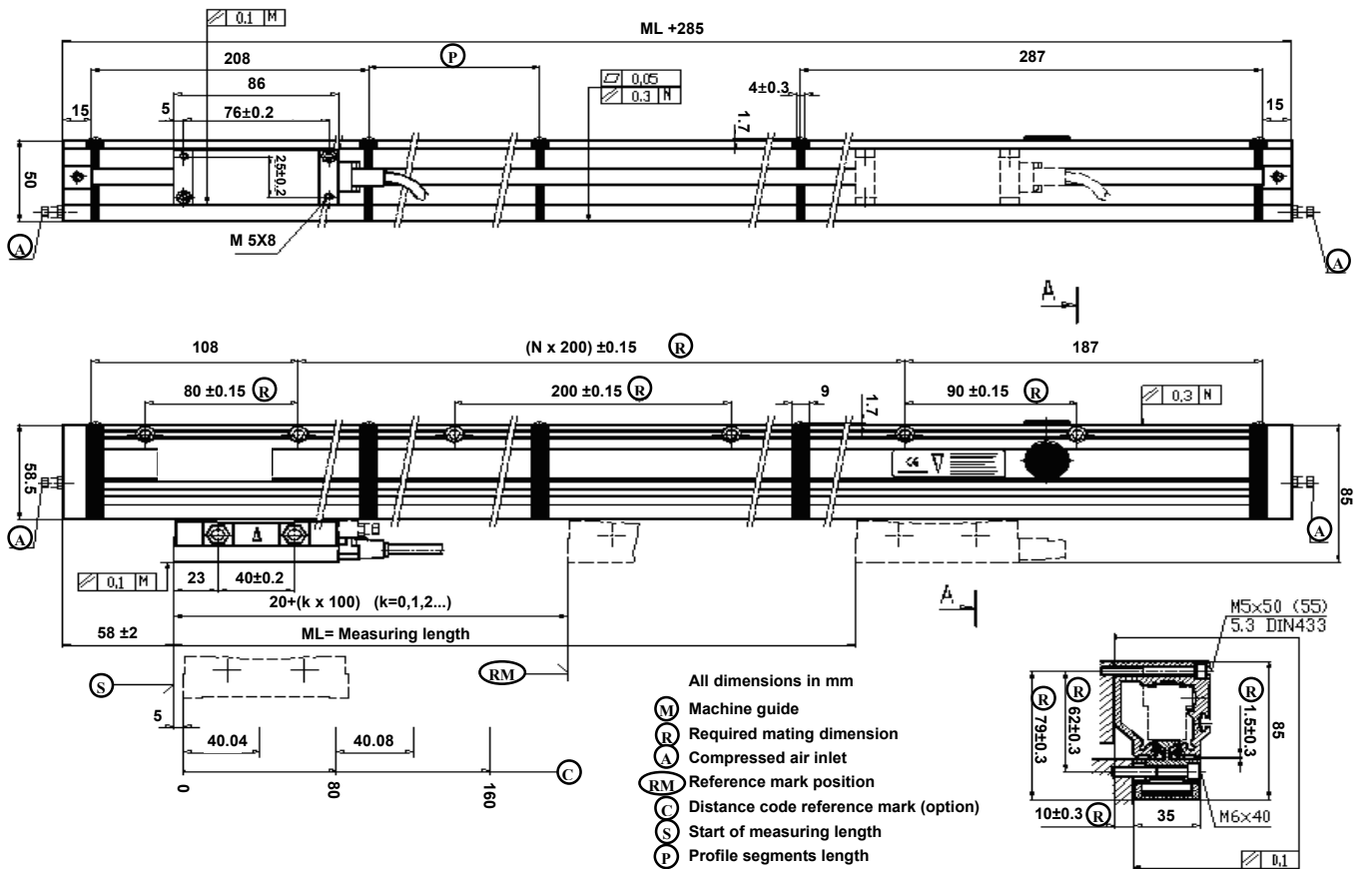
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CABLE CONNECTION



In case of cable extension, ensure the connection between the body of connectors.

DIMENSIONS



ORDERING CODE

MODEL	TYPE OF SCALE, GRATING PITCH, INDEX (OPTIONS)	MEASURING LENGTH	POWER SUPPLY, SIGNAL OUTPUT	CABLE LENGTH, CABLE TYPE	CONNECTOR, WIRING	SPECIAL, PRESSURIZED
GMS	T05C	03240	05VL	M03 / N	CV	SP10

T
 10 = 10µm
 5 = 5µm
 2 = 2µm
 1 = 1µm
 05 = 0.5µm
 C = indexes at coded distance
 P = indexes at constant step
 E = selectable indexes at constant step

Length in mm
 03240 = ML
 30040 = ML_{MAX}

05V = 5V
 L = LINE DRIVER
 Q = PUSH-PULL

Mnn = length in m
 M03 = 3m
 M04 = 4m (standard)
 M50 = 50m
 120 = 120m

Cnn = progressive
 No code = standard
 SPnn = special nn
 PR = pressurized

Example **OPTICAL SCALE GMS T05C 03240 05VL M03/N CV SP10**