
GENERAL DESCRIPTION:

The TMS120 is designed for measuring gear wheel speeds and the relative angle of gear wheel rotation.

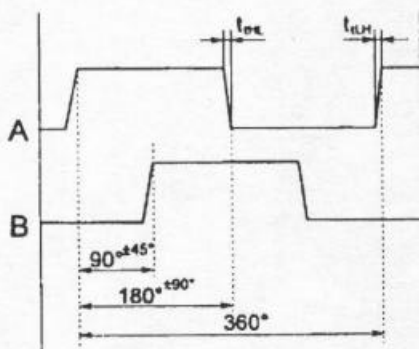
The outputs are square wave signals A and B. The phase shift between signals depends on the gear wheel module. For nominal module, it is 1/4 of the output signal period. There are four optional nominal modules: 0.5, 1.0, 1.5 and 2.0.

The TMS120 is equipped with LED whose purpose is to simplify the control of installation and operation. The LED intensity shows the stage of the output signals.

The TMS120 is capable of operating only with gear wheels made of ferromagnetic materials.

MECHANICAL DATA:

Degree of mechanical protection	IP 67
Operating temperature	0°C to 50°C
Storage temperature	-20°C to 70°C
Weight	<200g (including cable and connector)

ELECTRICAL DATA:
OUTPUT SIGNALS:

DS OUTPUT SIGNALS:

Differential digital in accordance with RS 422 EIA standard
A, B, RI, A, B, RI

Signal level: at $I_{\text{sink}} = 20 \text{ mA}$ $U_{\text{OL}} \leq 0,5 \text{ V}$
at $I_{\text{source}} = -20 \text{ mA}$ $U_{\text{OH}} \geq 2,5 \text{ V}$

Transition times: $t_{\text{LH}} = t_{\text{FL}} \leq 30 \text{ ns}$ (without load)

Cable length: max 50 m

Supply voltage: $5 \text{ V} \pm 5\%$

OC OUTPUT SIGNALS:

Open collector outputs (without internal pull-up resistors)

Supply voltage: $5 \text{ V} - 24 \text{ V}$

Output sink current: max 20 mA

MAGNET FIELD SENSOR

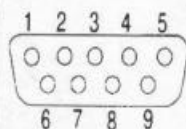
TMS120

OUTPUTS



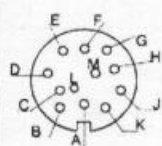
9 pole connector (Contact) square-wave output signals (DS, OC):

Signal	A	\overline{A}	+V	0V	B	\overline{B}	Shield
Pin DS outputs	1	2	3	4	5	6	9
Pin OC outputs	1		3	4	5		9



9 pole connector (D-Sub) square-wave output signals (DS, OC):

Signal	A	\overline{A}	+V	0V	B	\overline{B}	Shield
Pin DS outputs	8	4	5	9	7	3	1
Pin OC outputs	8		5	9	7		1



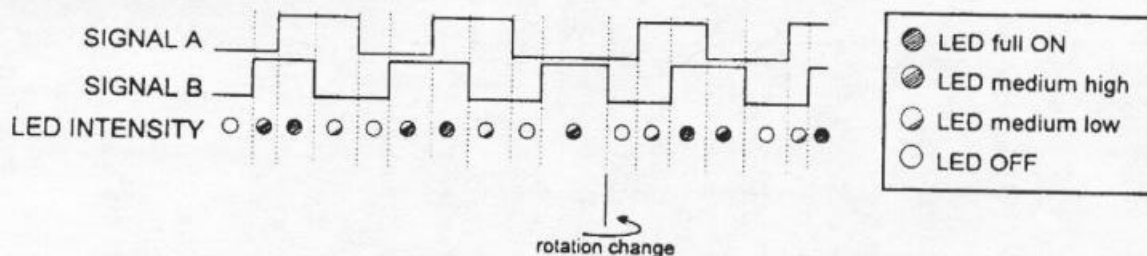
12 pole connector (Amphenol) square-wave output signals (DS, OC):

Signal	A	\overline{A}	+V	0V	B	\overline{B}	Shield
Pin DS outputs	C	D	K	B	E	L	A
Pin OC outputs	C		K	B	E		A

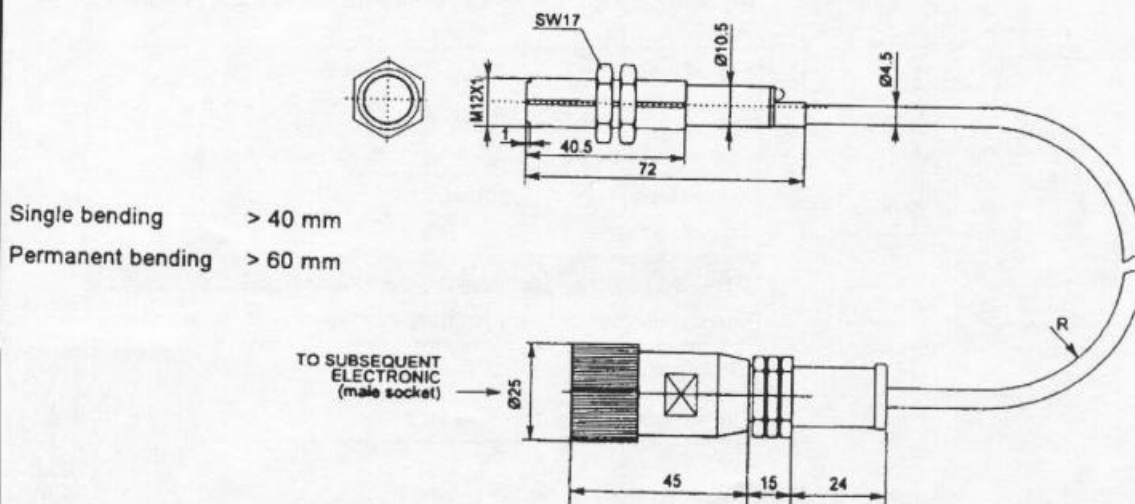
WIRES:

Signal	A	\overline{A}	+V	0V	B	\overline{B}	Shield
Colors DS	red	pink	blue	white	yellow	green	orange
Colors OC	red		blue	white		green	orange

LED SIGNALIZATOR



Dimensions:



INSTALLATION EXAMPLE:

Diagram 1:
Max. sensing distance (d)
versus gear wheel module (m)

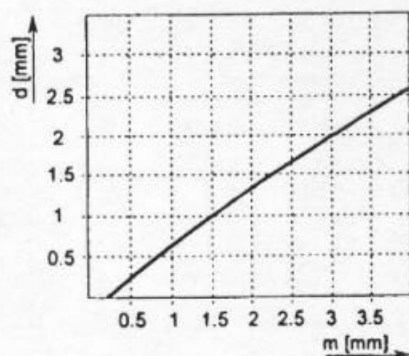


Diagram 2:
Phase shift of output signals (φ) versus gear
wheel module (m/m_n)

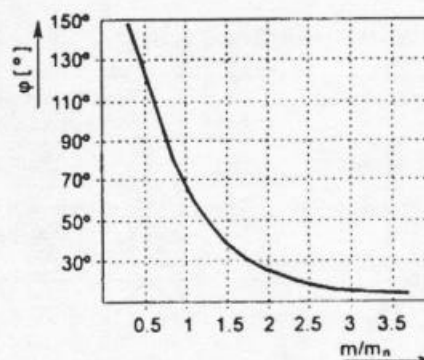


Diagram 3:
Shift influence (y direction) on
sensing distance

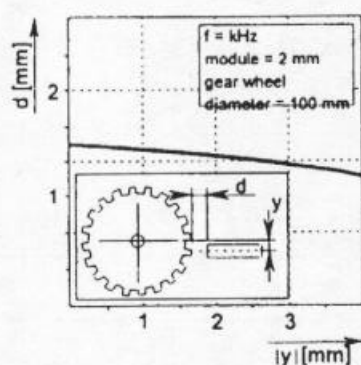


Diagram 4:
Shift influence (x direction) on
sensing distance

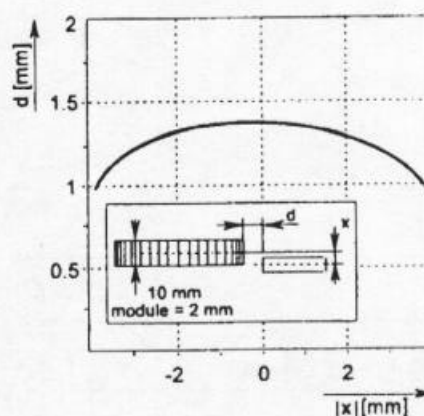


Diagram 5:
Angle shift (θ) influence on
sensing distance

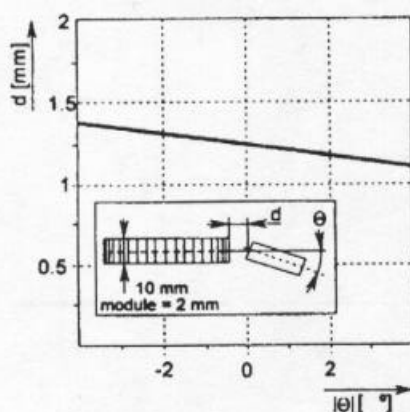
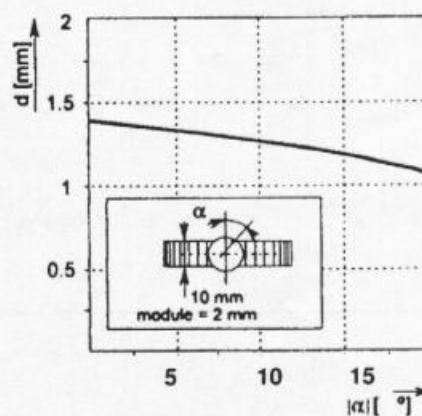


Diagram 6:
Angle shift (α) influence on
sensing distance



MAGNET FIELD SENSOR

TMS120

INSTALLATION EXAMPLE:

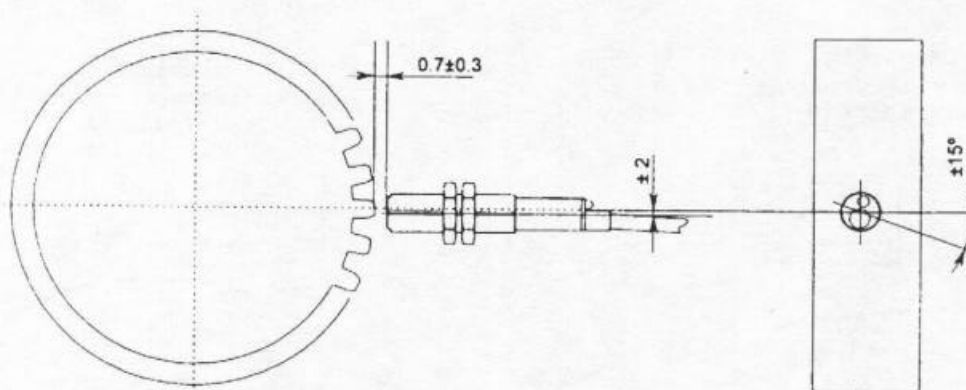
Gear wheel diameter 108.5

Gear wheel module 1.75

This data required use of TMS for nominal module 1.5

Installation tolerances:

Sensing distance	Max sensing distance (from diagram 1)	1.0mm
	Min sensing distance (security)	0.4mm
Y shift tolerances	From diagram 3 (sens. distance change = $\pm 10\%$)	$\pm 2\text{mm}$
Angular tolerances	From diagram 5 (sens. distance change = $\pm 10\%$)	$\pm 2^\circ$
	From diagram 6 (sens. distance change = $\pm 10\%$)	± 15



ORDERING DATA:

TMS120	- XX -	XX -	X
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Connectors:

- 1... Amphenol 12 pole
- 3... Contact 9 pole
- 7... D-sub 9 pole
- 9... other (specify)
- W... wire's output
- 0...without connector

Nominal Gear Module:

- 05... 0.5mm
- 10... 1.0mm
- 15... 1.5mm
- 20... 2.0mm

Type of output signals:

- DS... RS232C
- OC... Open Collector