

# MFM610-18ADSO-L5CP13

## Single Ch-Target Tracker Gear Tooth Sensor

- Dynamic Speed Sensor
- No Orientation Required
- Load dump and EMI protection w/5k pull up
- Plastic .61" flange mount housing w/o-ring
- Integral 3-way Metri-Pack 150.2 male connector



### CUSTOMER FOCUSED ENGINEERING + MODULAR DESIGN

Part Description: **MFM610-18ADSO-L5CP13**

Housing	Sensor Type & Function	Electrical Option	Connection Type
Glass Filled Nylon Flange Mount $\varnothing.6"$ x $2"$ Long	Digital Single Output Gear Tooth Sensor	Surge Protected Input, NPN Output w/ $5k$ Pull up Resistor	Integral 3-way Metri-Pack 150.2 male

Modify, update, or enhance any sensor with our modular features and functionality.

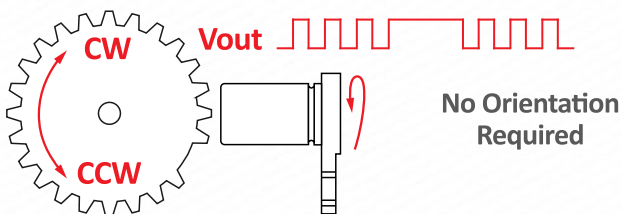
**HOUSING** - Aluminum, stainless steel, plastic, threaded, flange mount, customer specific

**ELECTRICAL** - Every sensor function available in various electrical options (NPN, PNP, TTL, etc.)

**CONNECTION** - Deutsch, Amphenol, many other brands, free end wires, pigtails, any length

Need a Custom Sensor Solution?... Send us your application specific requirements at [sensorso.com](http://sensorso.com)

### 'Target Tracker' No Orientation Required



Type - DSO

#### DESCRIPTION

- Hall Effect Technology sensor for gear/ferrous target detection
- Detects 0-32 pitch gears, bolt heads, holes in steel plates, and other ferrous targets
- Single channel digital square wave output can resolve speed or count. For directional speed sensors, contact us.
- NPN output goes low with ferrous metal present.
- Self-calibrating output reacts to both the leading and falling edge of any ferrous metal target
- Easy install Flange mount design sets gap relative to target face

#### FEATURES

- Solid State (Nothing to wear out!)
- Temperature Stable
- Near 0 Speed Operation
- Dynamic, Self-Adjusting



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### TARGET SPECIFICATIONS NOTICE

Target Specifications are for detecting an end-sensed, 14.5 pressure angle, steel spur gear. The presence of ferrous metals or strong magnetic fields near the sensor's internal magnet may invalidate the specifications. Engineers are available to assist in target design and applications with non-standard targets. Custom target specifications can only be guaranteed when the customer supplies a target along with any additional components that may affect sensor output, and the customer has validated function in the finished application.

These sensors power up with the output transistor OFF (Vout High). This transistor turns ON (Vout Low) for the first time on the approach of a tooth. After the first tooth, they will not miss a target.

Note: for NPN sensors, off is a high signal, while PNP sensors off is a low signal. Additional gear tooth sensors are available. Check our website or contact us to compare all our gear tooth and single channel speed sensor options.

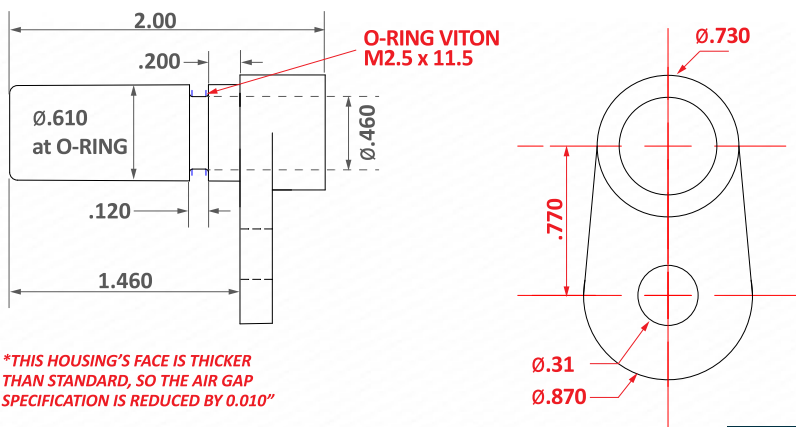
Electrical Specifications	Conditions	Min	Max	Unit
Temperature Range*	Operating	-40	+110*	Deg C
Supply Voltage, Vcc	Over temperature	+4.5	+28	Volts DC
Supply Current, Output Off	Into Vcc, Vcc = 24V	+1.5	+5	mA
Frequency Range	Near zero speed	0.1	15k	Hz
Saturation Voltage High	Vcc = 24V, Rload >100k	23.5	24	Volts
Saturation Voltage Low	Vcc = 24V, Rload >100k	0.0	0.4	Volts
Internal Pull Up Resistor	Vcc to Vout	4.9	5.1	K Ohms
Output Resistance Ro	0.25 watts	290	310	Ohms
Output Rise Time 10-90%	Co < 100pF	-	8.0	µS
Output Fall Time 90-10%	Co < 100pF	-	2.0	µS
ESD **	Nondestructive	-	2000	Volts
EMI **	20k to 1 G Hz	-	100	V / M

\* T max = 150°C is available, contact factory.

Absolute Max Limits	Min	Max	Unit
Supply Voltage, Vcc	-32	+32	Volts DC
Voltage Shorted to Output 1 Minute Max	-20	+32	Volts
Current into Output, T=25°C	-	40	mA
Load Capacitance	-	0.01	µF
Current Out of Output	-	Vcc/5k	mA
Load Dump, 100 mS Rs = 5 per ISO 7637-2 24V Truck Spec	-	200	Volts

Environmental Specifications	
Corrosion Resistance	500 hours salt spray ASTM B-117
Installation Torque	15 Foot-Pounds Maximum
Enclosure	Nema 1,3,4,6,13 & IEC IP67
Vibration	10 G's 10 to 2000 Hz Sinusoidal
Mechanical Shock	50 G's, 11 ms Half-Sine

### MFM610, Glass Filled Nylon (150°C) Flanged Housing



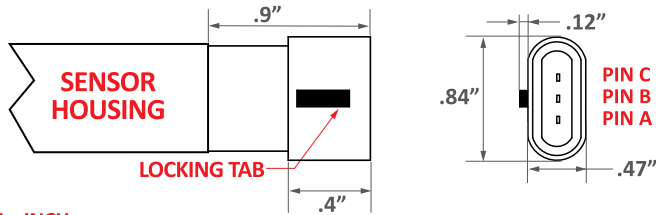
Target Performance Gear Pitch ~ (#Teeth / Dia. in Inches)	Air Gap Range	Typ. Max Gap
4 (.785") Tooth to Tooth	.000 to .120"	.150"
8 (.393") Tooth to Tooth	.000 to .085"	.110"
12 (.262") Tooth to Tooth 100% tested before shipping	.000 to .055"	.075"
16 (.196") Tooth to Tooth	.000 to .035"	.050"
20 (.157") Tooth to Tooth	.000 to .030"	.040"
24 (.131") Tooth to Tooth	.000 to .020"	.030"
32 (.098") Tooth to Tooth	.000 to .012"	.020"
Typical Output Duty Cycle	40 to 60%	
Alignment Skew Angle	360 Degrees	

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## Single Ch-Target Tracker Gear Tooth Sensor

### CP13, Integral 3-Way Metri Pack 150.2 Male Connector

CONNECTOR: METRI-PACK 150.2, 3-WAY MALE  
MATES WITH DELPHI-APTIV HOUSING 12162280 AND TERMINAL 12124075



DIM = INCH

Rev A

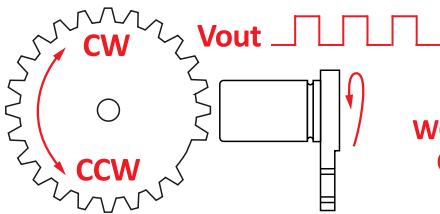
### Connections Chart

Pin A	Vcc	Pin C	Ground
Pin B	Vout		
CP13-18ADSO			

### Date Code 'YYM' YY = YEAR, M = MONTH

A JAN	D APR	H JUL	L OCT
B FEB	E MAY	J AUG	M NOV
C MAR	G JUN	K SEP	N DEC

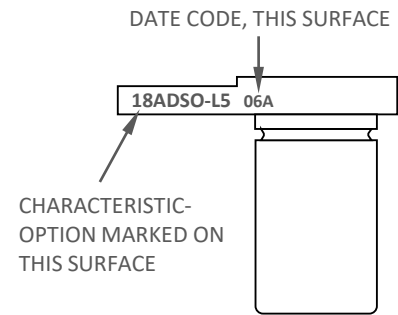
### Sensor Function



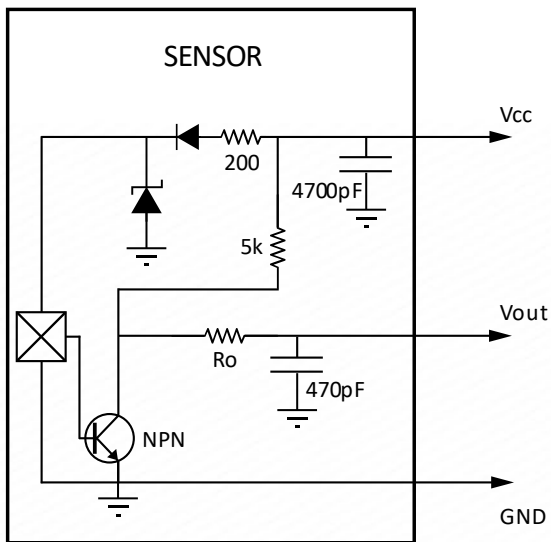
**THIS SENSOR WORKS WITH ANY ORIENTATION!**

MFM610-18ADSO

### Marking

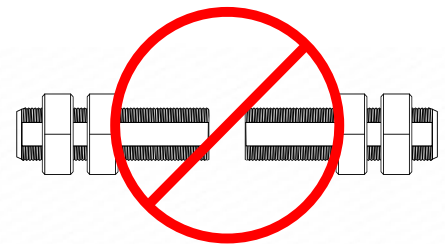


### L5, NPN with 5k Pull Up, Protection & EMI Filter



### Handling Instructions

**DO NOT CONTACT FACE TO FACE**



**CONTACT WITH OTHER MAGNETS MAY REDUCE THE MAXIMUM OPERATING GAP**

Please note: All technical specifications on this series datasheet refer to the standard product range. Modifications in the sense of technical progress are reserved. For general information only. For more specific information, please consult the product datasheet, available upon request.

This series datasheet could contain technical inaccuracies or typographical errors. Changes are periodically made to the information herein. These change will be incorporated in future revisions.

For deviating values, most current specifications and products please contact your nearest sales office.