



# INSTALLATION INSTRUCTIONS FOR MAGNETIC SPEED SENSORS

Page 1 is for Document Control Only and is not included.

**EC COMPLIANCE:**

This device conforms to the requirements of EN 60079-0 & EN 60079-1 for use in a Group II category 2G, Zone 1 hazardous environment. The safety of operation is assured by the design and construction of the unit. Its operating circuitry features low energy capability, very low capacitance and inductance and is mounted in a fully encapsulated, stainless steel housing with no significant amount of light metal. It has a very low temperature rise, <10°C over the ambient or mounting temperature. The minimum wall thickness at the conduit entry is .098" (2.5mm).

**MANUFACTURER:**

AI-TEK Instruments, LLC.  
152 Knotter Drive  
Cheshire, CT 06410 USA  
Models: 70085-1010-005, -327, -328, -330, -411, -412, -413, -414

**MARKING:**

<p>Ex II 2G Ex db IIC T4 Gb -65°C ≤ Tamb ≤ 95°C ITS16ATEX101472X</p>	<p>Ex db IIC T4 Gb -65°C ≤ Tamb ≤ 95°C IECEXETL16.0039 X</p>
--	--

70085-1010-nnn xxx ← Date Code (Two Digit Year, Single Digit Month Code)  
└─── Model Number

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

UL/CSA Required Marking

**TEMPERATURE RATING:**

Operating/Mounting temperature: -65°C to 95°C

SIZE <b>A</b>	CODE IDENT. NUMBER <b>1XP56</b>	DWG NO. <b>960-0135-001</b>	REV <b>B</b>
			SHEET 2

**MECHANICAL SENSOR INSTALLATION SEE FIGURE #1:**

NOTE: Models 70085-1010-330, -411 & -412 have 5/8-18 UNF mounting threads  
 Models 70085-1010-005, -327, -328, -413, -414 have a 3/4-20 UNEF mounting threads

1. If a feeler gauge can be used, select the gauge with the proper thickness and place it over the highest point on the target. Thread the sensor into the mounting bracket until it touches the selected gauge, then tighten the locknut. We suggest that the air gap be set at .030" (.76mm).
2. If a feeler gauge cannot be used, thread the sensor into the threaded hole finger tight against a tooth or the largest diameter of the stationary target. Back the sensor out of contact until the desired air gap is set, then tighten the locknut. A full CCW revolution results in an air gap of: one divided by the number of threads per inch. When using this method, we suggest that the air gap be set at 1/2 turn.

EXAMPLE: 5/8 - 18 THREAD = 1/18" = .056" (1.42mm)

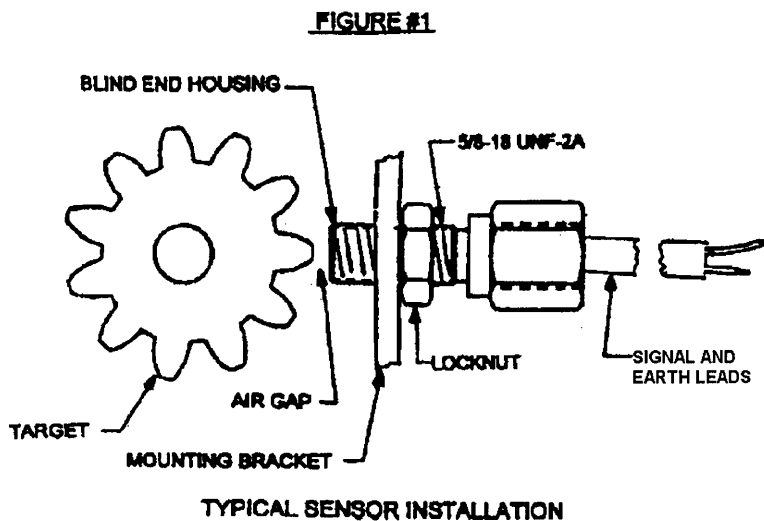
**DO NOT EXCEED 100 POUND-INCHES LOCKNUT TORQUE FOR 5/8" OR 3/4" HOUSINGS.**

**ELECTRICAL INSTALLATION (US & CANADA):**

1. All electrical wiring must be done in accordance with all applicable local and national codes.
2. Conduit runs must have a sealing fitting installed within 18 inches of the sensor housing.
3. Instrument or installation must limit generated voltage to 95Vrms (270V pk-pk).
4. DO NOT connect this device to an external power source.
5. To prevent ignition of Hazardous atmospheres, verify that there is no voltage at the instrument terminals before opening.

**INSTALLATION OF CONDUIT FITTINGS:**

Install the conduit fitting into the sensor egress internal thread and finger tighten. While holding the sensor hex body with a 1" wrench, tighten the conduit fitting. Install a conduit seal no more than 18" from the sensor body.



SIZE <b>A</b>	CODE IDENT. NUMBER <b>1XP56</b>	DWG NO. <b>960-0135-001</b>	REV A
			SHEET 3

**ATEX/IECEX INSTALLATION:**

1. When used in an ATEX / IECEx zoned installation, an Ex d certified sealing device with a 1/2NPT thread, such as a conduit seal with setting compound shall be installed at the lead exit of the speed sensor. The setting compound must be rated for at least 120°C.
2. The conduit seal must be made-up wrench tight. (Ref. Installation of Conduit fittings, above)
3. The White & Black signal leads and the Green/Yellow earthing lead must be routed through an appropriate conduit from the sealing fitting to its termination.
4. The White & Black signal leads and the Green/Yellow earthing lead must be connected to an appropriately certified terminal block when in a Zoned area. The Earth terminal shall be connected to a system (common) ground.
5. Instrument or installation must limit generated voltage to 95Vrms (270V pk-pk)
6. DO NOT connect this device to an external power source
7. To prevent ignition of Hazardous atmospheres, verify that there is no voltage at the instrument terminals before opening

**MAINTENANCE:**

This unit contains no user serviceable or repairable components. This unit requires no maintenance or recalibration other than periodic checks to ensure that it is relatively clean and secure (no loose locknut(s)).

**USER PRECAUTIONS:**

1. Contact between the sensor and a rotating target may cause damage to the sensor. Always adjust the air gap between the sensor tip and the target while the target is motionless with its largest diametrical feature in front of the sensor. After the adjustment, slowly rotate the target by hand, if possible, to ensure that there is no contact due to run out.
2. DO NOT connect this device to an external power source.
3. To prevent ignition of Hazardous atmospheres, verify that there is no voltage at the instrument terminals before opening

SIZE <b>A</b>	CODE IDENT. NUMBER <b>1XP56</b>	DWG NO. <b>960-0135-001</b>	REV <b>A</b>
			SHEET 4