

## Introduction

The MPEX1687X magnetic pickup speed sensors provide an output signal when a ferrous target passes the tip of the sensor. For uniformly spaced targets such as gear teeth or turbine blades the output waveform is typically sinusoidal. The frequency of the output signal is proportional to the rotation speed of the target. The magnetic pickup is a passive device and does not require a power supply.

## Selection

The MPEX1687X magnetic pickup may be used in zones 0, 1, or 2 with flammable gases.

The magnetic pickup (MPU) may be used in the presence of flammable gases and vapours with apparatus groups IIC or IIB or IIA and with temperature classes T1 or T2 or T3 or T4 or T5 or T6 with ambient temperature ranges as defined in the certificate and listed on page 4 of this guide.

## Installation

The magnetic pickup is to be installed by suitably trained personnel in accordance with the applicable code of practice (typically EN 60079-14). The pickup must be connected via an ATEX / IECEx (as appropriate) certified Ex ia barrier with output not exceeding the parameters specified on the certificate and listed on page 4 of this guide. Typical connection arrangements are shown in figure 1.

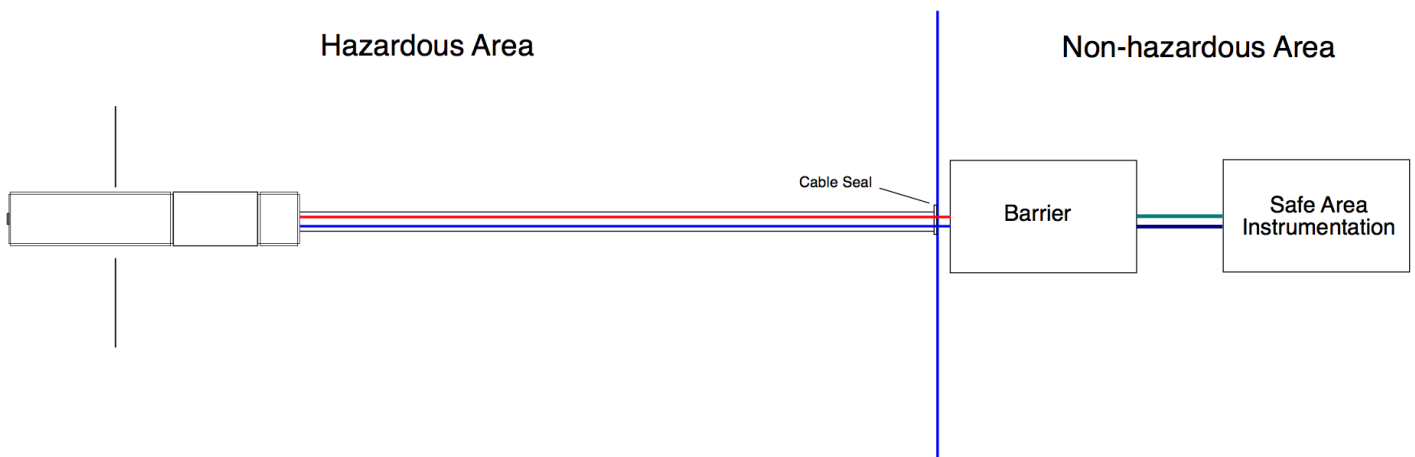
MPEX1687X is terminated with 2-core screened cable to connect to the control/monitoring instrumentation. It is advisable to route the cable away from possible sources of interference such as power cables and relays.

The output of the magnetic pickup is clamped to a nominal 4V peak, 4.97 maximum.

Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, particularly in the event of an installation in zone 0, the equipment shall not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces. Additionally the equipment shall only be cleaned with a damp cloth.

MPEX1687X has a splash-proof sensing face, which should not be used immersed in fluid or in a constantly wet environment. For these applications, a sealed sensing face version should be used instead. Please contact our sales office to discuss.

If the magnetic pickup is likely to be subjected to harsh external effects or to come into contact with aggressive substances, e.g. acidic liquids or gases that may attack metals or solvents that may affect polymeric materials, then it is the responsibility of the user to take suitable precautions that prevent it from being adversely affected, thus ensuring that the type of protection is not compromised. If unsure, please contact our sales office to discuss the suitability of the magnetic pickup for the application.



## Servicing

Regular periodic inspection of the equipment should be performed by suitably trained personnel in accordance with the applicable code of practice to ensure it is maintained in a satisfactory condition.

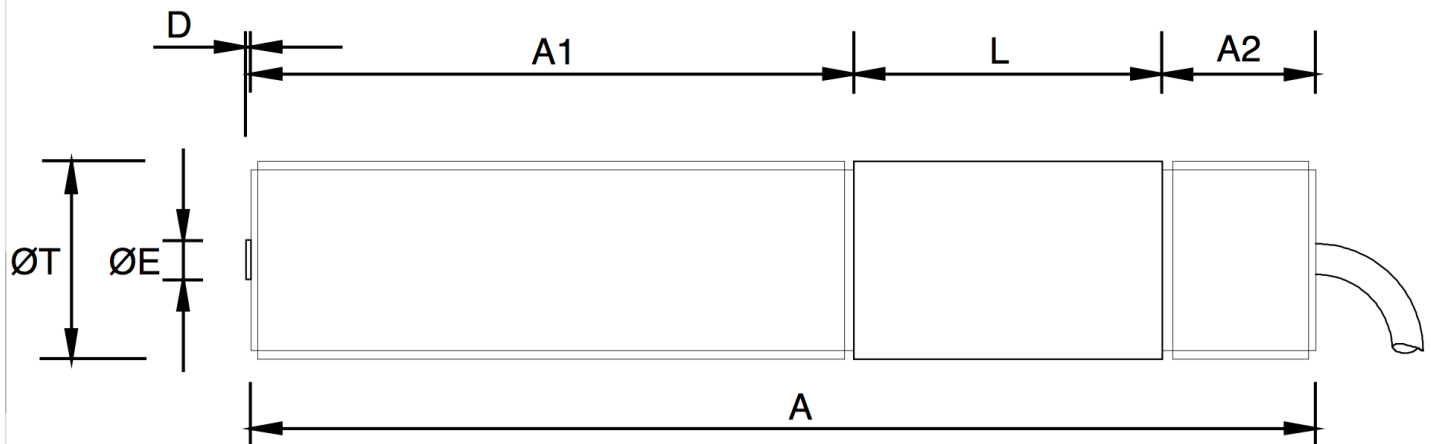
The magnetic pickup contains no serviceable parts. Should the MPU fail a replacement can be ordered from Logitech Electronics Limited or authorised distributor.

To remove the MPU, loosen the locknut and unscrew the MPU from the housing.

# Intrinsically Safe

Plug and Socket Type  
Speed Sensor

# MPEX1687X Magnetic Pickup



## Mechanical specification

dimensions in mm unless otherwise stated

<i>Dimension</i>		<i>Part number</i>
A	87	
A1	49	
ØT (A1)	5/8" x 18 tpi UNF-2A	MPEX1687X-I
or	M16 x 1.5 6g	MPEX1687X-M
L	25 plain area for affixing label	
A2	13	
ØT (A2)	M16 x 1.5 6g	
D	0.4 nominal	
ØE	3.17 pole piece	
Main body material	Stainless Steel	
End Bobbin face	Polypropylene	
Locknut	1 off as standard	

## Electrical specification

**Resistance** 450Ω nominal @ 20°C

**Inductance** 135mH nominal

**Operating temperature range** -40°C to + 120°C [see note 2]

**Voltage output** Clamped at 4V peak nominal, 4.97V maximum

**Minimum speed** 30 mm/second [see note 1]

**Polarity** Pin A negative with respect to Pin B as target approaches

**Termination** Raychem type 44 22awg 2-core (19/0.16)  
screened cable x 3m

### Notes:

1. Minimum speed in mm/second to generate 100mV peak to peak typical output measured across a 10K load using a 60 tooth mild steel gear wheel of Ø6", rotating at 1000 rpm and with an air gap setting of 0.01".
2. The permitted ambient temperature range is dependent on temperature class, refer to T<sub>a</sub>.
3. Complies with the Dielectric Strength requirements of EN60079-11, Section 10.3.

## Entity parameters

U, I and P for the selected barrier must not exceed the values below:

U <sub>i</sub> (V)	I <sub>i</sub> (mA)	P <sub>i</sub> (W)	C <sub>i</sub> (nF)	L <sub>i</sub> (μH)
30	160	0.75	22	34

## Ambient Temperature T<sub>a</sub>

The equipment is certified for use in ambient temperatures in the range of -40°C to +120°C and should not be used outside this range. The range is restricted according to temperature class as follows:

T6	T5	T4	T3
-40°C to +57°C	-40°C to +72°C	-40°C to +107°C	-40°C to +120°C

## Applicable Special Conditions

This equipment has an electrically isolated pole piece protruding from the centre of its coil, having capacitance of up to 17pF. The user must determine the suitability of the equipment for the specific application. Precaution must be taken to avoid the accumulation of electrostatic charge on this part.

## Approval

Ex ia IIC T6...T3 Ga

Baseefa19ATEX0151X

IECEX BAS 20.0002X

MPEX Series

Logitech Electronics Limited  
Lane End  
Church Aston  
Newport  
Shropshire  
TF10 9JJ  
UK



Certificates and user guides are available to view and download from our website:  
[www.logitechelectronics.com/ex/download](http://www.logitechelectronics.com/ex/download)

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*Reliability, Guaranteed*



**Logitech Electronics Limited**

e: sales@logitechelectronics.com

t: +44 (0)1952 820444

*Design and Manufacture of Electronic Systems and Instrumentation. Supply of Sensors and Transducers*  
www.logitechelectronics.com

Lane End | Church Aston | Newport | Shropshire | TF10 9JJ | UK