MPEX Series
ATEX / IECEx / UKEX
Intrinsically Safe
Magnetic Pickup

MPEX16102HSY User Guide

Introduction

The MPEX16102HSY 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 MPEX16102HSY 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 / UKEX (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.

MPEX16102HSY is terminated with a 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, 4.97V 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.

MPEX16102HSY has a solid sealed sensing face, suitable to be used immersed in fluid or in a constantly wet environment.

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.

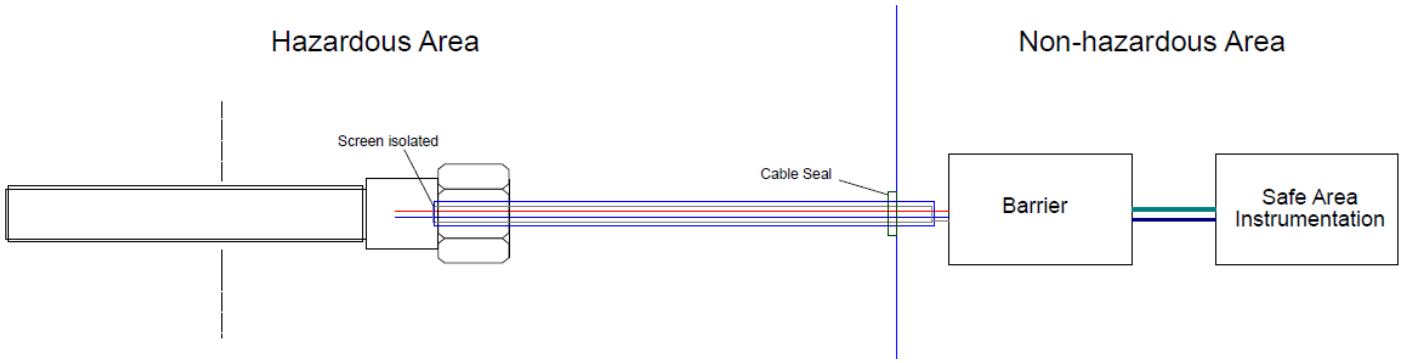


Figure 1: Typical connection arrangements

Servicing

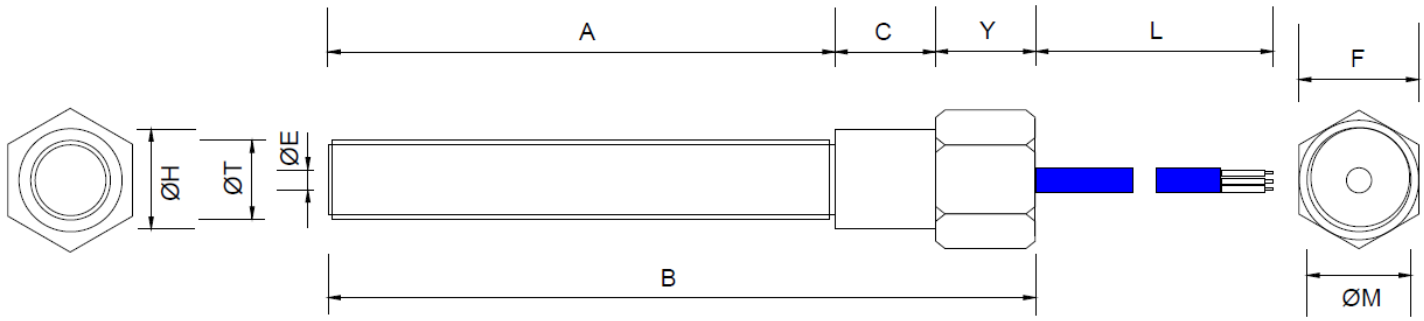
Regular periodic inspection of the equipment should be performed by suitably trained personnel in accordance with the applicable code of practice to ensure it is maintained in a satisfactory condition.

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.

MPEX Series
ATEX / IECEx / UKEX
Intrinsically Safe
Captive Cable Type
Speed Sensor

MPEX16102HSY
Magnetic Pickup



Mechanical specification

dimensions in mm unless otherwise stated

Dimension		*Part number*
A	102	
B	142 nominal	
C	20 plain area for labelling	
F	24 across flats	
L	10m cable length	
Y	20	
ØE	Internal 4 pole piece	
ØH	20	
ØM	1/2" NPT Female	
ØT	$^{5}/_{8}$" x 18 tpi UNF-2A (body thread)	**MPEX16102HSY-I**
or	M16 x 1.5 6g	**MPEX16102HSY-M**
Main body material	303 Stainless Steel	
End Bobbin face	Solid stainless steel sealed sensing face, suitable for permanent liquid immersion	
Locknut	1 off as standard	

Electrical specification

Resistance	900Ω nominal @ 20°C
Inductance	215mH nominal
Operating temperature range	-40°C to + 120°C [see note 2]
Voltage output	Clamped at 4V peak nominal, 4.97V maximum
Minimum speed	20 mm/second [see note 1]
Polarity	Red positive with respect to blue on approach of target
Termination	Raychem Type 44 22AWG 2-core (19/0.16) screened cable (44A1121-22-2/6-9) x 10m with blue sleeving Screen isolated at sensor end

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" with an air gap setting of 0.01".

2. The permitted ambient temperature range is dependent on temperature class, refer to T_a.

3. Complies with the Dielectric Strength requirements of EN60079-11, Section 10.3.

Ambient Temperature T_a

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
-40ºC to +57ºC	-40ºC to +72ºC	-40ºC to +107ºC	-40ºC to +120ºC

Entity parameters

U_i (V)	I_i (mA)	P_i (W)	C_i (nF)	L_i (µH)
30	160	0.75	22	34

Uo, Io and Po for the selected barrier must not exceed the respective Ui, Ii and Pi input parameters.

Applicable Special Conditions

None applicable.

Approval



Ex ia IIC T6...T3 Ga

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BAS21UKEX0070X

IECEx BAS 20.0002X

MPEX Series

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Certificates and user guides are available to view and download from our website:
www.logitechelectronics.com/ex/download

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Design and Manufacture of Electronic Systems and Instrumentation. Supply of Sensors and Transducers