ATEX / IECEx / UKEX
Intrinsically Safe
Magnetic Pickup

MPEX3659 User Guide

Introduction

The MPEX3659 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 MPEX3659 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.

MPEX3659 is terminated with an MS10SL-4P connector. We recommend that the mating 10SL-4S connector is fitted 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.

MPEX3659 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.

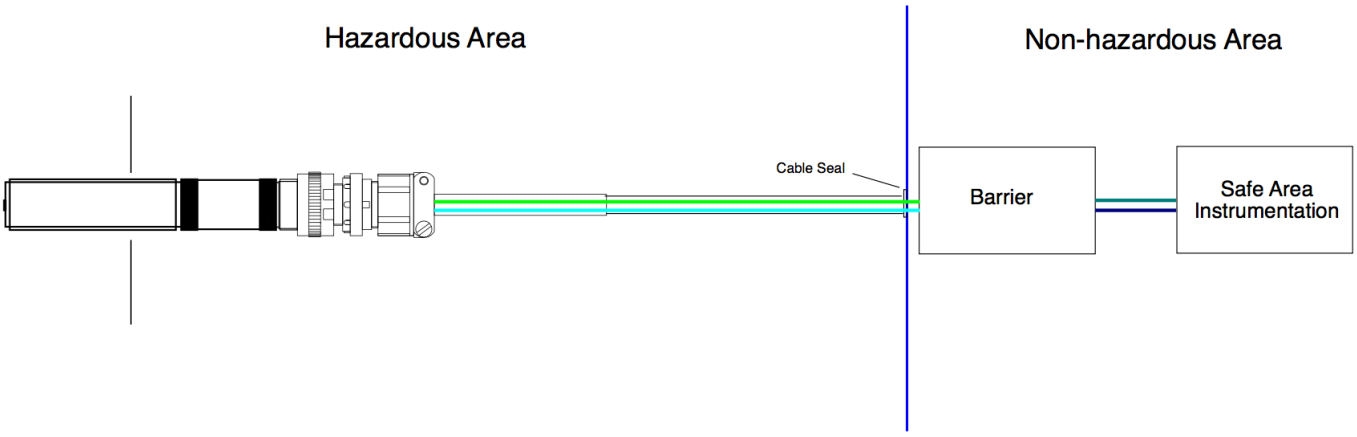


Figure 1: Typical connection arrangements

Servicing

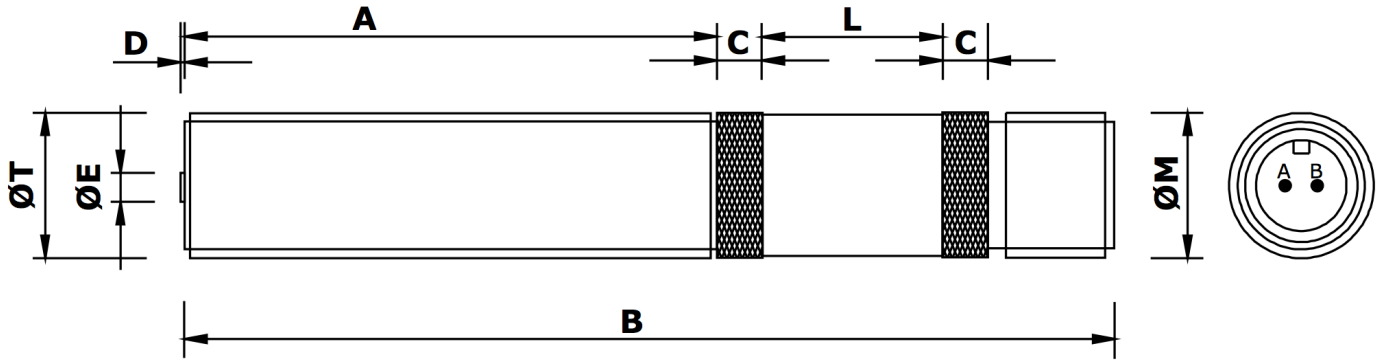
Regular periodic inspection of the equipment should be performed by suitably trained personnel in accordance with the applicable code of practice to ensure it is maintained in a satisfactory condition.

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, disconnect the MS10SL-4S connector, loosen the locknut and unscrew the MPU from the housing.

ATEX / IECEx / UKEX
Intrinsically Safe
Plug and Socket Type
Speed Sensor

MPEX3659
Magnetic Pickup



Mechanical specification

dimensions in mm unless otherwise stated

Dimension		*Part number*
A	59	
B	103 nominal	
C	5 medium diamond knurl	
D	0.4 nominal	
L	20 plain area for affixing label	
ØE	3.17 pole piece	
ØM	$^{5}/_{8}$" x 24 tpi UNEF-2A (connector thread)	
ØT	$^{5}/_{8}$" x 18 tpi UNF-2A (body thread)	**MPEX3659-I**
or	M16 x 1.5 6g	**MPEX3659-M**
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	MS (screw) 10SL4P (2-pin integral plug)
Mating connector	MS (screw) 10SL4S (2-pin line socket)

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" (152mm), with an air gap setting of 0.01" (0.25mm).

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	0	0

U_o, I_o and P_o for the selected barrier must not exceed the respective U_i, I_i and P_i input parameters.

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



II 1 G

Ex Ba 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