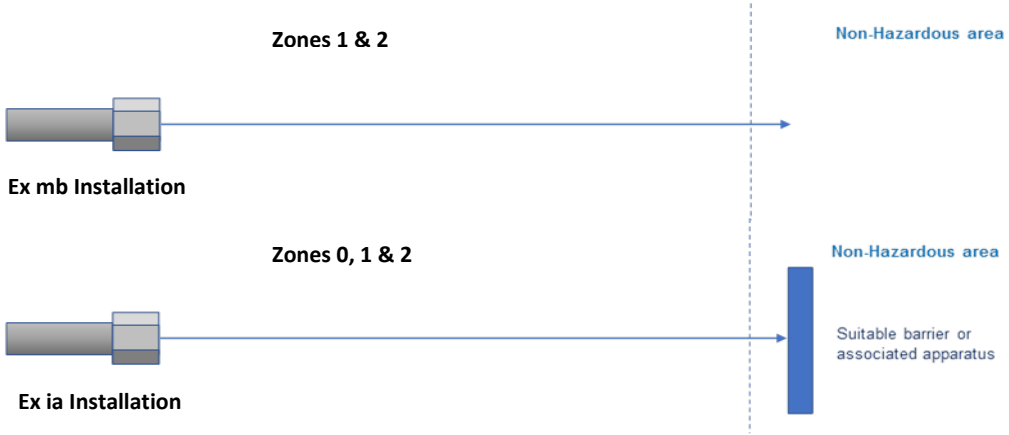
Read carefully before installing or testing the Hazardous location M920 Pickup.

M920 is a blind end, intrinsically safe and/or encapsulated magnetic pickup can be mounted in hazardous area as shown in figure 1.



Figure#1: Hazardous area – safe area layout

Specifications: (Refer to drawing number #800-0920 for more details.)

- **Temperature Range:** -40°F to +176°F (-40°C to +80°C) for intrinsically safe (Ex ia) installations.
  -40°F to +194°F (-40°C to +90°C) for encapsulation (Ex mb) installations.
- **Input Voltage:** "Ex mb" Config. = 4.5 to 18 VDC
  "Ex ia" Config. = 4.5 to 14 VDC
- **Output Voltage:** Square Wave 50±15% Duty Cycle.
- **M920-1 configurations:** Fanout to 10 TTL Inputs
  - Logic 0: +0.4 VDC Max AT 15mA Max.
  - Logic 1: >2.8 TO 5.0 VDC with 2KΩ Pull Up Resistor.
- **M920-2 Configurations:**
  - Logic 0: +0.4 VDC Max at 15mA Max.
  - Logic 1: Vo = (Vin-0.7) x R_L / (R_L+2.0k)

  Where Vin = Source Voltage; R_L = Load Resistance
- **Wire Output Leads:** 18 AWG
- **Insulation Resistance at 500 VDC:** 100 MΩ minimum.
  *Refer sales drawing for more information.
- **Construction:** Wetted Material: 303 Stainless Steel

- **M920 is fully encapsulated (potted) and impervious to dust and foreign material.**

Warning:

System design considerations, installation instructions, and all local and national safety requirements must be observed by qualified personnel and carefully followed in accordance with the regulations for conformity to EN IEC 60079-0:2018, EN 60079-11:2012 and EN 60079-18:2017.

Condition of Use:

1. Models supplied with an integral connector (-P suffix) shall be installed in intrinsically safe installations only. These models are supplied with a separate certification label and the user shall ensure that the label is attached to the installation, close to the equipment, after installation.
2. The equipment may be supplied with an integral cable of variable length with a capacitance of 200pF/m and inductance of 1µH/m or 30µH/Ω. The user shall consider these parameters in conjunction with any additional cabling during the installation of the equipment in intrinsically safe installations.

Installation:

For Ex ia:

M920 must be connected to an Intrinsically Safe barrier in order for Ex ia protection.

Ex ia: Ui = 14 V, Ii = 85 mA, Pi = 0.3 W;

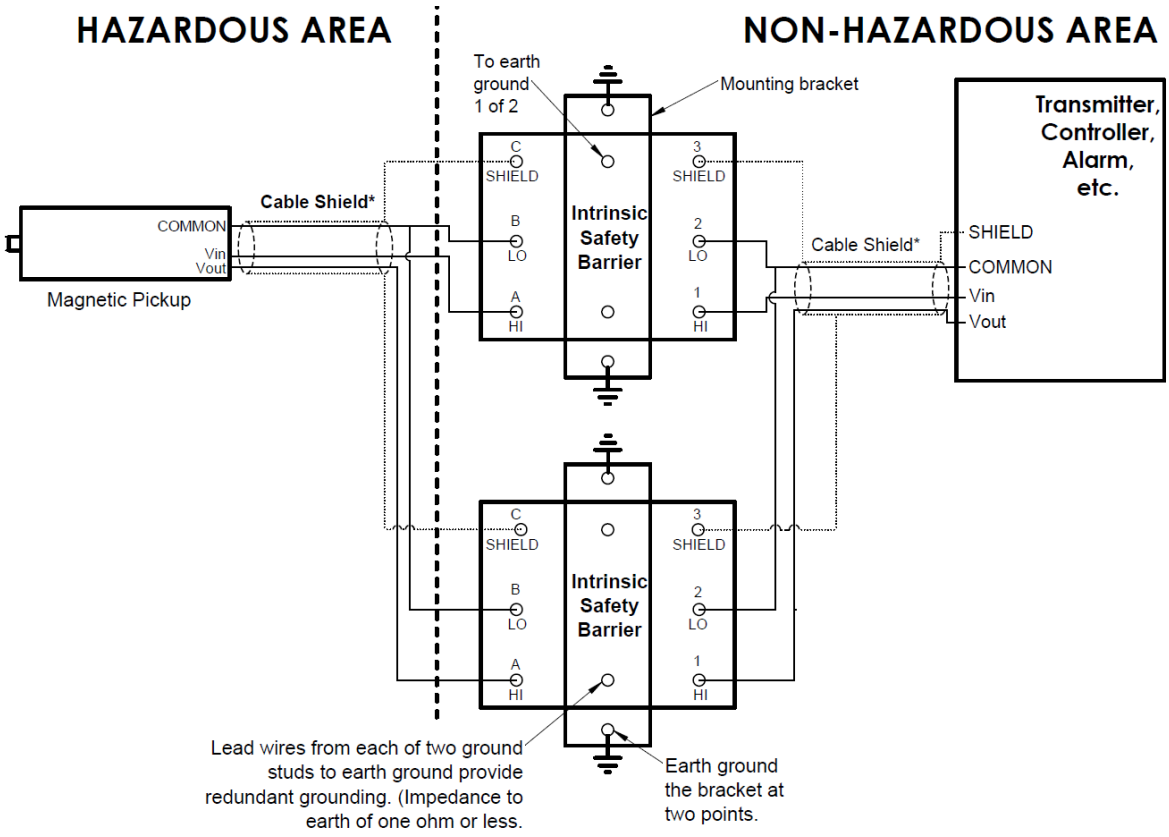


Figure2: Intrinsic Safety Barrier connection layout

Entity Parameters:

Entity Parameters for Ex ia installation for 'Vin' and 'Vout'		
Vmax / Ui	Maximum Input Voltage =	14 V
Imax / Ii	Maximum Short Circuit Current =	85 mA
Li	Maximum Unprotected Inductance =	0 H
Ci	Maximum Unprotected Capacitance =	110 nF
Pi max	Maximum Input Power =	0.3 W

For Ex mb: Vin: U = 18 V; Vout: U = 18 V, I = 10 mA

Mounting Instructions:

General diagram for Pickup mounting shown in figure3:

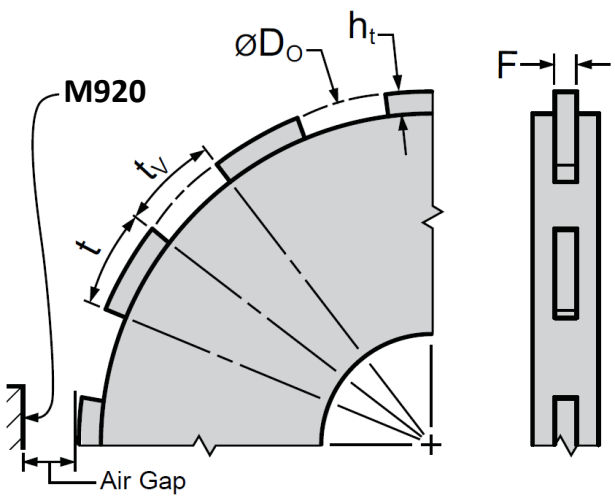
Locking Nut is provided to tighten the pickup at the required location.

The recommended optimum air gap between blind surface of the pickup and the gear tooth is .020 to .100 inches to achieve correct output voltage. The rule of thumb is to screw the pickup until it touches the tallest tooth, then unscrew it back ¼ to ½ turn. Lock the position of the pickup using jam nut.

Figure#3: Pickup mounting example
(Pickup probe is collinear with radius of the gear)

Note that Refer below table while selecting a gear or gear tooth dimensions.

Characteristic	Symbol	Description	Typical Dimension mm[in]
Outside Diameter	Do	Outside diameter of target	120 [4.724]
Face Width	F	Breadth of tooth	23.6 [0.929]
Circular Tooth Length	t	Length of tooth, measured at Do	23.6 [0.929]
Circular Valley Length	tv	Length of valley, measured at Do	23.6 [0.929]
Tooth Whole Depth	ht		5 [0.197]
Air Gap			0.5 [0.02] - 2.5 [0.10]



Warning:

For 'Ex mb' & 'Ex ia' certification, the 'Vout' pin shall only be connected to equipment with a maximum open circuit voltage of 18V and a maximum short circuit current of 10mA.

The customer equipment connected to Vout must have an input impedance greater than 2000 ohms. Note that most customer equipment have an input impedance > 2k ohm usually in the 10k to 50k range.

Agency Approval:

ATEX/IECEx CERTIFIED

CE 0081

II 1 G
Ex ia IIC T4 Ga
-40°C≤Tamb≤+80°C

II 2 G
Ex mb IIC T4 Gb
-40°C≤Tamb≤+90°C

CML 19ATEX2489X
IECEx CML 19.0181X

Return Request / Inquiries:

Direct all warranty and repair requests/inquiries to Barksdale, Inc. Customer Service Department.
Call 323-589-6181, FAX: 323-589-3463
Before returning any product(s) to Barksdale, you must obtain a returned merchandise authorization from our customer service department (in order to avoid processing delays).

For warranty returns, please have the following information available BEFORE contacting Barksdale:

1. P.O. number under which the product was PURCHASED.
2. Model number of the product under warranty.
3. Repair instructions and/or specific problems you are having with the product.
4. Application information.