

# FM Hazardous Area Approvals Fisher™ 846 Current-to-Pressure Transducer

## Hazardous Area Classifications and Special Instructions for “Safe Use” and Installation in Hazardous Locations

Certain nameplates may carry more than one approval, and each approval may have unique installation/wiring requirements and/or conditions of “safe use”. These special instructions for “safe use” are in addition to, and may override, the standard installation procedures. Special instructions are listed by approval.

### Note

This information supplements the nameplate markings affixed to the product and the 846 instruction manual ([D102005X012](#)), available from your Emerson sales office, Local Business Partner, or [Fisher.com](#).

Always refer to the nameplate itself to identify the appropriate certification.

### **▲ WARNING**

**Failure to follow these conditions of safe-use could result in personal injury or property damage from fire or explosion, and area re-classification.**

### Special Conditions of Use

#### Intrinsically Safe, Explosion-proof, Non-Incendive

1. The apparatus enclosure contains aluminum and is considered to constitute a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact or friction.

Refer to table 1 for additional approval information.

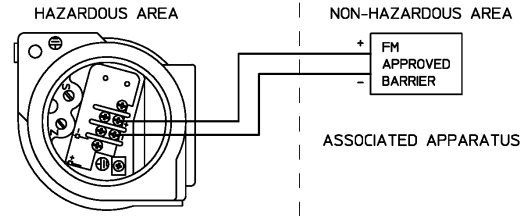
Table 1. FM Hazardous Area Classifications

Certification Body	Certification Obtained	Entity Rating	Temperature Code
FM	IS Intrinsically Safe Class I, II, III Division 1 Groups A,B,C,D,E,F,G per drawing GE59147 (see figure 1)	V <sub>max</sub> = 30 VDC I <sub>max</sub> = 100 mA P <sub>max</sub> = 1.0 W C <sub>i</sub> = 0.016 μF L <sub>i</sub> = 20 μH	T4 (T <sub>amb</sub> ≤ 60°C)
	XP Explosion-proof Class I Division 1 Groups B,C,D DIP Dust Ignition-proof Class II, III Division I Groups EFG NI Non-incendive Class I Division 2 Groups A,B,C,D	---	T4 (T <sub>amb</sub> ≤ 60°C)

Figure 1. FM Installation Drawing GE59147

## FM ENTITY CONCEPT APPROVALS

THE FISHER TYPE 846 CURRENT TO PRESSURE (I/P) TRANSDUCER IS FM APPROVED AS INTRINSICALLY SAFE FOR USE IN CLASS I, II AND III, DIVISION I, GROUPS A,B,C,D,E,F AND G HAZARDOUS LOCATIONS, WHEN CONNECTED IN ACCORDANCE WITH THIS DOCUMENT. THE TYPE 846 IS ALSO FM APPROVED AS NONINCENDIVE FOR CLASS I, DIVISION 2, GROUPS A,B,C AND D HAZARDOUS LOCATIONS.



THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS TO ASSOCIATED APPARATUS NOT SPECIFICALLY EXAMINED IN SUCH COMBINATION. THE CRITERIA FOR INTERCONNECTION IS THAT THE VOLTAGE ( $V_{max}$  OR  $U_i$ ), THE CURRENT ( $I_{max}$  OR  $I_i$ ), AND THE POWER ( $P_{max}$  OR  $P_i$ ) OF THE INTRINSICALLY SAFE APPARATUS MUST BE EQUAL TO OR GREATER THAN THE VOLTAGE ( $V_{oc}$  OR  $U_o$ ), AND THE CURRENT ( $I_{sc}$  OR  $I_o$ ), AND THE POWER ( $P_o$ ) DEFINED BY THE ASSOCIATED APPARATUS. IN ADDITION, THE SUM OF THE MAX UNPROTECTED CAPACITANCE ( $C_i$ ) AND MAX UNPROTECTED INDUCTANCE ( $L_i$ ), INCLUDING THE INTERCONNECTING CABLING CAPACITANCE, ( $C_{cable}$ ) AND CABLING INDUCTANCE ( $L_{cable}$ ), MUST BE LESS THAN THE ALLOWABLE CAPACITANCE ( $C_o$ ) AND INDUCTANCE ( $L_o$ ) DEFINED BY THE ASSOCIATED APPARATUS. IF THE ABOVE CRITERIA IS MET, THEN THE COMBINATION MAY BE CONNECTED.

$$V_{max} \text{ OR } U_i \geq V_{oc} \text{ OR } U_o \quad I_{max} \text{ OR } I_i \geq I_{sc} \text{ OR } I_o \quad P_{max} \text{ OR } P_i \geq P_o \quad C_i + C_{cable} \leq C_o \quad L_i + L_{cable} \leq L_o$$

CLASS I, II AND III, DIV I GROUPS A, B, C, D, E, F AND G

## APPARATUS PARAMETER

$V_{max}$  = 30 VDC  
 $I_{max}$  = 100mA  
 $P_i$  = 1W  
 $L_i$  = 20uH  
 $C_i$  = 0.016uF

## BARRIER PARAMETER

$V_{oc}$  MUST BE LESS THAN OR EQUAL TO 30 VDC  
 $I_{sc}$  MUST BE LESS THAN OR EQUAL TO 100mA  
 $P_o$  MUST BE LESS THAN OR EQUAL TO  $P_i$   
 $L_o$  MUST BE GREATER THAN 20 MICROHENRIES  
 $C_o$  MUST BE GREATER THAN 0.016 MICROFARADS

## NOTES:

1. THE FM APPROVED ASSOCIATED APPARATUS MUST BE A LINEAR OUTPUT DEVICE.
2. MAXIMUM SAFE AREA VOLTAGE SHOULD NOT EXCEED 250Vrms.
3. RESISTANCE BETWEEN INTRINSICALLY SAFE GROUND AND EARTH GROUND MUST BE LESS THAN ONE OHM.
4. INSTALLATION MUST BE IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE (CEC) PART 1 AND ANSI/ISA RP12.06.01  
 "INSTALLATION OF INTRINSICALLY SAFE SYSTEMS FOR HAZARDOUS (CLASSIFIED) LOCATIONS" AND THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70).
5. DUST-TIGHT CONDUIT SEAL MUST BE USED WHEN INSTALLED IN CLASS II AND CLASS III ENVIRONMENTS.
6. THE NON-INCENDIVE FIELD WIRING IS THE SAME AS THE INTRINSIC SAFETY FIELD WIRING.

WARNING: FOR INTRINSICALLY SAFE APPLICATIONS THE APPARATUS ENCLOSURE CONTAINS ALUMINUM AND IS CONSIDERED TO CONSTITUTE A POTENTIAL RISK OF IGNITION BY IMPACT AND FRICTION. AVOID IMPACT AND FRICTION DURING INSTALLATION AND USE TO PREVENT RISK OF IGNITION.

WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.

WARNING: TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING.

GE59147

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