FM Approvals
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CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

Pulsar dl-aa-bbb-c-ddd-e-0-H-N-f Series of Protected by Encapsulation Ultrasonic Transducers
S / I,II,III / 1 / ABCDEFG / T4 Tamb = -40°C to +64°C; Drawing # D-804-1035-A, Type 4X

dl = dBi series HART transducers
aa = Measurement range in meters: 03, 06, 10 or 15;
bbb = cable length in meters: 005, 010, 020, 030, 040, 050, 060, 070, 080, 090 or 100;
c = Configuration options:
- 0 = standard
- 1 = submersible shield
- 2 = flange standard
- 3 = flange sanitary
- 4 = mach3 horn and shield
- 5 = front nose thread (options indicated by ddd)
- 6 = drip shield

ddd = Flange or nose thread:
- 000 = no flange or front thread
- 002 = 2” ANSI
- 003 = 3” ANSI
- 004 = 4” ANSI
- 006 = 6” ANSI
- 008 = 8” ANSI
- 100 = 100 DIN
- 150 = 150 DIN
- 200 = 200 DIN
- 015 = 1.5” front nose thread (dbi3 or dBi6 only)
- 020 = 2” front nose thread (dBi10 only)

e = Option for material fitted to the face of the transducer:
- 0 = standard
- 1 = foam
- 2 = PTFE (0.25 mm thick)
- 4 = PVDF
- 5 = Thick PTFE (0.5 mm thick)

f = Name of seller on the label
- P = Pulsar

Special Conditions of Use:

1. *The enclosure of the transducer is considered to constitute an electrostatic discharge hazard. Clean only with a damp cloth.*
2. *The transducer shall be connected to a source incorporating a 100 mA fuse which provides a minimum interrupt capacity of at least 1500A.*
3. *The transducer is not suitable for use in the presence of Ketones, Aliphatic Hydrocarbons, Alcohols, Esters, and Acids.*

Pulsar dl-aa-bbb-c-ddd-e-1-H-N-f Series of Intrinsically Safe Ultrasonic Transducers
IS / I,II,III / 1 / ABCDEFG / T4 Tamb = -40°C to +80°C; Drawing #D-804-1035-A, Type 4X
Ui = 28V, Ii = 162 mA, Pi = 1.03W, Ci = 0, Li = 0

dl = dBi series HART transducers
aa = Measurement range in meters: 03, 06, 10 or 15;
bbb = cable length in meters: 005, 010, 020, 030, 040, 050, 060, 070, 080, 090 or 100;
c = Configuration options:
- 0 = standard
- 1 = submersible shield
- 2 = flange standard
- 3 = flange sanitary
- 4 = mach3 horn and shield
- 5 = front nose thread (options indicated by ddd)
- 6 = drip shield

ddd = Flange or nose thread:
- 000 = no flange or front thread
- 002 = 2” ANSI
- 003 = 3” ANSI
- 004 = 4” ANSI
- 006 = 6” ANSI
- 008 = 8” ANSI
- 100 = 100 DIN
- 150 = 150 DIN
- 200 = 200 DIN
- 015 = 1.5” front nose thread (dbi3 or dBi6 only)
- 020 = 2” front nose thread (dBi10 only)

e = Option for material fitted to the face of the transducer:
- 0 = standard
- 1 = foam
- 2 = PTFE (0.25 mm thick)
- 4 = PVDF
- 5 = Thick PTFE (0.5 mm thick)

f = Name of seller on the label
- P = Pulsar

Special Conditions of Use:

1. *The enclosure of the transducer is considered to constitute an electrostatic discharge hazard. Clean only with a damp cloth.*
2. *The transducer is not suitable for use in the presence of Aliphatic Hydrocarbons and Alcohols.*

Equipment Ratings:

Intrinsically Safe (Entity) for use in Class I, II, and III, Division 1, Groups A, B, C, D, E, F, and G indoor and outdoor Hazardous (Classified) Locations in accordance with Control Drawing #D-804-1035-A, Temperature Class T4 for an ambient temperature range of -40°C to +80°C;
Special Protection for use in Class I, II, and III, Division 1, Groups A, B, C, D, E, F, and G indoor and outdoor Hazardous (Classified) Locations in accordance with Control Drawing #D-804-1035-A, Temperature Class T4 for an ambient temperature range of -40°C to +64°C;
Type 4X.

FM Approved for:

Pulsar Process Management Ltd
Malvern, Worcestershire, UK

This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

FM 3600	2011
FM 3610	2010
FM 3615	2006
FM 3810	2005
ANSI/NEMA 250	2008

Original Project ID: 3047911 Approval Granted: April 7, 2014

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date

FM Approvals LLC

J. E. Marquedant
Group Manager, Electrical

7 April 2014
Date