



FM Approvals
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Member of the FM Global Group

CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

940-7ab-c Echotel Ultrasonic Switches

NI / I / 2 / ABCD / T4 Ta = 71°C; Type 4X, IP66

S / II,III / 2 / EFG / T4 Ta = 71°C; Type 4X, IP66

a = Process connections 11, 22, 2P, 23, 33, 43, 3T, 4T.

b = Actuation units E or M.

c = Actuation length 001 to 100 when b = E; 003 to 250 when b = M.

941-1ab-c Echotel Ultrasonic Switches

IS / I,II,III / 1 / ABCDEFG / T4 Ta = 71°C; 99-5065; Entity; Type 4X, IP66

NI / I / 2 / ABCD / T4 Ta = 71°C; Type 4X, IP66

S / II,III / 2 / EFG / T4 Ta = 71°C; Type 4X, IP66

Entity Parameters:

VMax = 30 V, IMax = 125 mA, PMax = 1 W, Ci = 15.5 nF, Li = 8.58 µH.

a = Process connections 11, 22, 2P, 23, 33, 43, 3T, 4T.

b = Actuation units E or M.

c = Actuation length 001 to 100 when b = E; 003 to 250

96a-50bc-d3e, 96a-2 or 96a-7Dbc-d3e/9fg-hij-k Echotel Ultrasonic Switches

XP / I / 1 / BCD / T6 Ta = 71°C; Type 4X, IP66

DIP / II,III / 1 / EFG / T6 Ta = 71°C; Type 4X, IP66

NI / I / 2 / ABCD / T4 Ta = 71°C; Type 4X, IP66

S / II,III / 2 / EFG / T4 Ta = 71°C; Type 4X, IP66

a = 1 single point or 2 dual point.

b = Self Test A or N.

c = Accessories 0 or 1.

d = Mounting 0 or 1.

e = Housing and conduit connection 0, 1, 2 or 3.

f = English or metric A or M.

g = Single Point 1 or Dual Point 2.

h = Material of construction A, S, B, C, R, P, N, or K.

i = Process connections 11, 21-25, 33-35, 43-45, 2P, 3T, 4T, BS, CS, DS, BN, DN, VN, VV, BA, BB, BC, CA, CB, CC, DA, DB, DD, DE.

j = Transducer options A, C, D, H.

k = Actuation length 001-130 e = "A" or 003-330 e = "M".



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96a-50bc-def / 9gh-ijk-l Echotel Ultrasonic Switches

IS / I,II,III / 1 / ABCDEFG / T4 Ta = 71°C; 99-5065; Entity; Type 4X, IP66

NI / I / 2 / ABCD / T4 Ta = 71°C; Type 4X, IP66

S / II,III / 2 / EFG / T4 Ta = 71°C; Type 4X, IP66

Entity Parameters:

VMax = 30 V, IMax = 125 mA, PMax = 1W, Ci = 15.5 nF, Li = 8.58 µH.

a = 1 single point or 2 dual point.

b = Self Test A or N.

c = Accessories 0 or 1.

d = Mounting 0 or 1.

e = Agency Approval 1 or 7

f = Housing and conduit connection 0, 1, 2, 3, 4 or 5.

g = English or metric A or M.

h = Single Point 1 or Dual Point 2.

i = Material of construction A, S, B, C, R, P, N, or K.

j = Process connections 11, 21-25, 33-35, 43-45, 2P, 3T, 4T, BS, CS, DS, BN, DN, VN, VV, BA, BB, BC, CA, CB, CC, DA, DB, DD, DE.

k = Transducer options A, C, D, H.

l = Actuation length 001-130 d = "A" or 003-330 d = "M".

96a-2 / 96a-7Dbc-d7e / 9fg-hij-k Echotel Ultrasonic Switches

NI / I / 2 / ABCD / T4 Ta = 71°C; Type 4X, IP66

S / II,III / 2 / EFG / T4 Ta = 71°C; Type 4X, IP66

a = 1 single point or 2 dual point.

b = Self Test A or N.

c = Accessories 0 or 1.

d = Mounting 0 or 1.

e = Housing and conduit connection 4 or 5.

f = English or metric A or M.

g = Single Point 1 or Dual Point 2.

h = Material of construction A, S, B, C, R, P, N or K.

i = Process connections 11, 21-25, 33-35, 43-45, 2P, 3T, 4T, BS, CS, DS, BN, DN, VN, VV, BA, BB, BC, CA, CB, CC, DA, DB, DD, DE.

j = Transducer options A, C, D, H.

k = Actuation length 001-130 e = "A" or 003-330 e = "M".

960-58Aa-0bc with probe 9d1-efg-h. Echotel Ultrasonic Switches

XP / I / 1 / BCD / T6 Ta = 71°C; Type 4X, IP66

DIP / II,III / 1 / EFG / T6 Ta = 71°C; Type 4X, IP66

NI / I / 2 / ABCD / T4 Ta = 71°C; IP67

S / II,III / 2 / FG / T4 Ta = 71°C; IP67

a = Option 0 or 1.

b = Agency Approval 3 or 7 (3 for XP/DIP/4X/IP67, 7 for NI/S/IP67)

c = Housing and conduit connection 0, 1, 4 or 5 (0 or 1 for b=3; 4 or 5 when b=7).

d = English or metric A or M.

e = Material of construction A, S, B, C, R, P, N, or K.

f = Process connections 11, 21-25, 33-35, 43-45, 2P, 3T, 4T, BS, CS, DS, BN, DN, VN, VV, BA, BB, BC, CA, CB, CC, DA, DB, DD, DE.

g = Transducer options A or C.

h = Actuation length 001-130 (for d = A, or 003-330 for d = M).

Equipment Ratings:



940-7ab-c Echotel Ultrasonic Switches Nonincendive for Class I, Division 2, Groups A,B,C and D suitable for Class II E,F and G, Class III hazardous (classified) indoor and outdoor (Type 4X IP66) locations

941--1ab-c Echotel Ultrasonic Switches, 96a-50b0-c1d / 9e f-ghi-j Echotel Ultrasonic Switches Intrinsically safe for Class I, Division 1; Groups A,B,C,D,E,F and G non-incendive for Class I, Division 2, Group A, B, C and D; suitable for Class II groups E, F and G, Class III hazardous (classified) indoor and outdoor (Type 4X, IP66) locations

96a-50bc-d3e, 96a-2 or 96a-7Dbc-d3e/9fg-hij-k Echotel Ultrasonic Switches Explosionproof for Class I, Division 1; Groups B,C and D, Dust Ignitionproof E,F and G, Class III; non-incendive for Class I, Division 2, Group A, B, C and D; suitable for Class II groups E, F and G, Class III hazardous (classified) indoor and outdoor (Type 4X, IP66) locations

96a-50bc-def / 9gh-ijk-l Echotel Ultrasonic Switches Explosionproof for Class I, Division 1; Groups B,C and D, Dust Ignitionproof E,F and G, Class III; non-incendive for Class I, Division 2, Group A, B, C and D; suitable for Class II Groups F and G, Class III hazardous (classified) indoor and outdoor (Type 4X, IP66) locations

96a-2 / 96a-7Dbc-d7e / 9fg-hij-k Echotel Ultrasonic Switches Non-Incendive for Class I, Division 2, Group A, B, C and D; suitable for Class II groups E, F and G, Class III hazardous (classified) indoor and outdoor (Type 4X, IP66) locations

960-58Aa-0bc with probe 9d1-efg-h. Echotel Ultrasonic Switches Explosionproof for Class I, Division 1; Groups B, C and D, Dust Ignitionproof E, F and G, Class III; non-incendive for Class I, Division 2, Group A, B, C and D; suitable for Class II Groups F and G, Class III hazardous (classified) indoor and outdoor (Type 4X, IP66) locations

FM Approved for:

Magnetrol International / STI
5300 Belmont Road
Downers Grov, IL 60515-4499



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

Class 3600	1998
Class 3610	1999
Class 3810	2005
Class 3615	1989
Class 3611	2004
ANSI/NEMA 250	1991

Original Project ID: 3024356

Approval Granted: February 6, 2006

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
061808	January 18, 2007		
3031032	May 28, 2008		
091008	October 29, 2009		

FM Approvals LLC



J. E. Marquedant
Group Manager, Electrical

29 October 2009
Date