

CERTIFICATE OF CONFORMITY




- HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
- Certificate No:** FM19US0091X
- Equipment:** 705-Eclipse Level Transmitter/Eclipse Level Probe.
(Type Reference and Name)
- Name of Listing Company:** Magnetrol International Inc.
- Address of Listing Company:** 705 Enterprise Street
Aurora, IL 60504
USA
- The examination and test results are recorded in confidential report number:

3D0A2.AX dated 2nd March 1998
- FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

FM Class 3600:2018, FM Class 3610:2010, FM Class 3611:2018, FM Class 3615:2018,
FM Class 3810:2018, ANSI/ISA 61010-1:2012, ANSI/UL 60079-0:2019, ANSI/UL 60079-1:2015,
ANSI/UL 60079-11:2014, ANSI/UL 60079-26:2017, ANSI/UL 121201:2017
ANSI/NEMA 250:1991, ANSI/IEC 60529:2004
- If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.
- This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

Certificate issued by:



J.E. Marquedant
VP, Manager, Electrical Systems

3 June 2020

Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

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FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
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US Certificate Of Conformity No: FM19US0091X

10. Equipment Ratings:

705-5abc-def/7gh-ijkl-m. Eclipse Level Transmitter/Eclipse Level Probe.

705-5abc-def/7gh-AjkN-m. Eclipse Level Transmitter/Eclipse Level Probe.

705-5abc-def/7EK-ijkA-mn. Eclipse Level Transmitter/Eclipse Level Probe.

Intrinsically Safe for use in Class I, II, III, Division 1, Groups A, B, C, D, E, F and G in accordance with manufacturer's control drawing no. 99-5055 and Class I, Zone 0, AEx ia IIC T4 Ga indoor/outdoor hazardous (Classified) locations with Type 4X, IP66 with an ambient temperature rating of -40°C to +70°C.

705-5abc-3ef/7gh-ijkl-m. Eclipse Level Transmitter/Eclipse Level Probe.

705-5abc-3ef/7gh-AjkN-m. Eclipse Level Transmitter/Eclipse Level Probe.

705-5abc-3ef/7EK-ijkA-mn. Eclipse Level Transmitter/Eclipse Level Probe.

Explosion-proof with intrinsically safe electronics and probe for use in Class I, Division 1, Groups B, C and D T4; Dust-ignition proof with intrinsically safe probe electronics and probes for use in Class II and III, Division 1, Groups F and G T4; Flameproof with intrinsically safe probe electronics and probe for use in Class I, Zone 0, 1, AEx ia/db IIC T4 Ga/Gb indoor/outdoor hazardous (Classified) locations with Type 4X, IP66 with an ambient temperature rating of -40°C to +70°C.

705-5abc-4ef/7gh-ijkl-m. Eclipse Level Transmitter

705-5abc-4ef/7gh-AjkN-m. Eclipse Level Transmitter

705-5abc-4ef/7EK-ijkA-mn. Eclipse Level Transmitter

Explosion-proof with intrinsically safe connections for use in Class I, Division 1, Groups B, C and D T4; Dust-ignition proof with intrinsically safe connections for use in Class II and III, Division 1, Groups F and G T4; Flameproof for use in Class I, Zone 1, AEx db IIC T4 Gb with intrinsically safe connections to Class I, Zone 0, AEx ia IIC T4 Ga indoor/outdoor hazardous (Classified) locations with Type 4X, IP66 with an ambient temperature rating of -40°C to +70°C.

705-5abc-5ef/7gh-ijkl-m. Eclipse Level Transmitter/Eclipse Level Probe.

705-5abc-5ef/7gh-AjkN-m. Eclipse Level Transmitter/Eclipse Level Probe.

705-5abc-5ef/7EK-ijkA-mn. Eclipse Level Transmitter/Eclipse Level Probe.

Nonincendive for use in Class I, II, III, Division 2, Groups A, B, C, D, E, F and G; Intrinsically Safe for use in Class I, Zone 2, AEx ic IIC T4 Gc indoor/outdoor hazardous (Classified) locations with Type 4X, IP66 with an ambient temperature rating of -40°C to +70°C.

705-5abc-6ef/7gh-ijkl-m. Eclipse Level Transmitter

705-5abc-6ef/7gh-AjkN-m. Eclipse Level Transmitter

705-5abc-6ef/7EK-ijkA-mn. Eclipse Level Transmitter

Nonincendive for use in Class I, II, III, Division 2, Groups A, B, C, D, E, F and G with intrinsically safe connection to Class I, II, III, Division 1, Groups A, B, C, D, E, F and G; Associated Intrinsically Safe outputs for Class I, II, III, Division 1 Groups A, B, C, D, E, F and G; Intrinsically Safe for use in Class I, Zone 2, AEx ic IIC T4 Gc with connections to Class I, Zone 0, AEx [ia Ga] IIC indoor/outdoor hazardous (Classified) locations with Type 4X, IP66 with an ambient temperature rating of -40°C to +70°C.

7gh-ijkl-m. Eclipse Level Probe.

7gh-AjkN-m. Eclipse Level Probe.

7EK-ijkA-mn. Eclipse Level Probe.

Intrinsically Safe for use in Class I, II, III, Division 1, Groups A, B, C, D, E, F and G T4; Class I, Zone 0, AEx ia IIC T4 Ga indoor/outdoor hazardous (Classified) locations with Type 4X, IP66 with an ambient temperature rating of -40°C to +70°C.

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11. The marking of the equipment shall include:

705-5abc-def/7gh-ijkl-m. Eclipse Level Transmitter/Eclipse Level Probe.

705-5abc-def/7gh-AjkN-m. Eclipse Level Transmitter/Eclipse Level Probe.

705-5abc-def/7EK-ijkA-mn. Eclipse Level Transmitter/Eclipse Level Probe.

IS, Class I, II, III, Division 1, Groups A, B, C, D, E, F, G; T4 Ta = -40°C to +70°C – Entity, FISCO 99-5055
Class I, Zone 0, AEx ia IIC T4 Ga Ta = -40°C to +70°C – Entity, FISCO 99-5055
Type 4X, IP66

Entity : $U_i = 28.4 \text{ V}$; $I_i = 124 \text{ mA}$; $P_i = 0.84 \text{ W}$; $C_i = 3 \text{ nF}$; $L_i = 3 \text{ } \mu\text{H}$.

FISCO : $U_i = 17.5 \text{ V}$; $I_i = 380 \text{ mA}$; $P_i = 5.32 \text{ W}$; $C_i = 3 \text{ nF}$; $L_i = 3 \text{ } \mu\text{H}$. a = Digital Output 0, 1

705-5abc-3ef/7gh-ijkl-m. Eclipse Level Transmitter/Eclipse Level Probe.

705-5abc-3ef/7gh-AjkN-m. Eclipse Level Transmitter/Eclipse Level Probe.

705-5abc-3ef/7EK-ijkA-mn. Eclipse Level Transmitter/Eclipse Level Probe.

XP with Intrinsically Safe Outputs*** Class I, Division 1, Groups B, C, D; T4 Ta = -40°C to +70°C; Type 4X, IP66

DIP with Intrinsically Safe Outputs*** for Class II, Division 1, Groups E, F, G, Class III, Division 1; T4 Ta = -40°C to +70°C; Type 4X, IP66

Class I, Zone 0, 1, AEx ia/db IIIC T4 Gb Ta = -40°C to +70°C, Type 4X, IP66

***For e = Housing Material = 3, not available.

705-5abc-4ef/7gh-ijkl-m. Eclipse Level Transmitter

705-5abc-4ef/7gh-AjkN-m. Eclipse Level Transmitter

705-5abc-4ef/7EK-ijkA-mn. Eclipse Level Transmitter

XP with Intrinsically Safe Outputs*** for Class I, Division 1, Groups B, C, D; T4 Ta = -40°C to +70°C; Type 4X, IP66

DIP with Intrinsically Safe Outputs*** for Class II, Division 1, Groups E, F, G, Class III, Division 1; T4 Ta = -40°C to +70°C; Type 4X, IP66

Class I, Zone 1, AEx db [ia Ga] IIC T4 Gb Ta = -40°C to +70°C, Type 4X, IP66

***For e = Housing Material = 3, not available.

705-5abc-5ef/7gh-ijkl-m. Eclipse Level Transmitter/Eclipse Level Probe.

705-5abc-5ef/7gh-AjkN-m. Eclipse Level Transmitter/Eclipse Level Probe.

705-5abc-5ef/7EK-ijkA-mn. Eclipse Level Transmitter/Eclipse Level Probe.

NI, Class I, II, III, Division 2, Groups A, B, C, D, E, F and G; T4 Ta = -40°C to +70°C -NIFW 99-5055; Type 4X, IP66

Class I, Zone 2, AEx ic IIC Gc T4 Ta = -40°C to +70°C – Entity, FISCO 99-5055; Type 4X, IP66

Entity/NIFW : $U_i = 28.4 \text{ V}$; $I_i = 124 \text{ mA}$; $P_i = 0.84 \text{ W}$; $C_i = 3 \text{ nF}$; $L_i = 3 \text{ } \mu\text{H}$.

FISCO : $U_i = 17.5 \text{ V}$; $I_i = 380 \text{ mA}$; $P_i = 5.32 \text{ W}$; $C_i = 3 \text{ nF}$; $L_i = 3 \text{ } \mu\text{H}$. a = Digital Output 0, 1

705-5abc-6ef/7gh-ijkl-m. Eclipse Level Transmitter

705-5abc-6ef/7gh-AjkN-m. Eclipse Level Transmitter

705-5abc-6ef/7EK-ijkA-mn. Eclipse Level Transmitter

NI, Class I, II, III, Division 2, Groups A, B, C, D, E, F and G; T4 – NIFW 99-5055 Ta = -40°C to +70°C; Type 4X, IP66

Associated Apparatus with Intrinsically Safe Outputs for Class I, II, III/1/ABCDEFG Ta = -40°C to +70°C; Type 4X, IP66

Class I, Zone 2, AEx ic [ia Ga] IIC Gc T4 Ta = -40°C to +70°C – Entity, FISCO 99-5055; Type 4X, IP66

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Entity/NIFW : $U_i = 28.4 \text{ V}$; $I_i = 124 \text{ mA}$; $P_i = 0.84 \text{ W}$; $C_i = 3 \text{ nF}$; $L_i = 3 \text{ }\mu\text{H}$.
FISCO : $U_i = 17.5 \text{ V}$; $I_i = 380 \text{ mA}$; $P_i = 5.32 \text{ W}$; $C_i = 3 \text{ nF}$; $L_i = 3 \text{ }\mu\text{H}$. a = Digital Output 0, 1

7gh-ijkl-m. Eclipse Level Probe.

7gh-AjkN-m. Eclipse Level Probe.

7EK-ijkA-mn. Eclipse Level Probe

IS, Class I, II, III, Division 1, Groups A, B, C, D, E, F, G; T4 Ta = -40°C to $+70^\circ\text{C}$

Class I, Zone 0, AEx ia IIC T4 Ga Ta = -40°C to $+70^\circ\text{C}$

Type 4X, IP66

12. Description of Equipment:

General: Eclipse Level Transmitter/Probe Model 705 Series are used for liquid level detection. The level information is determined by using Time Domain Reflectometry and Micro power Impulse Radar technology (TDR/MIR). Electromagnetic energy pulses are transmitted from the end of the probe which acts as a waveguide. When the transmitted energy down the probe encounters a discontinuity (a change in dielectric due to material level), a reflection is generated. The transmitter receives the reflected energy and determines material level using MIR distance techniques to determine the material level. The transmitter is available as explosionproof/flameproof with intrinsically safe probe electronics and probe, and as entirely intrinsically safe. For both product configurations, a wiring compartment contains a conformally coated printed circuit terminal board. For explosionproof/flameproof configurations, a capacitive barrier circuit provides intrinsically safe connections to the integral or remote probe. For all configurations, the electronics compartment contains two conformally coated printed circuit boards and an optional LCD display module. One of the circuit boards is the digital board with keypad and the other is the analog board. A short coaxial cable inside the electronics compartment connects the analog circuitry to probe. The Transmitter is powered from 24V dc at 4-20mA and the operating ambient temperature range is specified at -40°C to 70°C (-40°F to 160°F).

Construction: The Transmitter's enclosure assembly consists of two electronics compartments and an integral probe assembly. The electronics housing is constructed of A360/A413 aluminum alloy or 316 stainless steel and has a total free internal volume of 472 cm³ with components installed. The wiring compartment houses field wire terminations while the electronics compartment houses the instrument's probe electronics and provides mounting for the integral probe assembly. An optional potted tunnel between compartments provides a channel for interconnecting the circuit boards in the two compartments and provides "explosion proof isolation" between the two compartments. This potting is optional, since the combination of the two chambers without the isolating potting was explosion tested. The enclosure is made of cast aluminum coated with chromate conversion and powder coat with Tiger Drylac Series 49 Polyester TGIC and is rated for outdoor locations, TYPE 4X and IP66. The tunnel between the two electronic compartments is optionally filled with Stycast 2850FT-FR, or CHICO A2 or Sauerisen 30. Each compartment is covered by a screw-on cover, one cover is blind the other has a glass window. The blind cover is used to cover the wiring compartment. The window cover is used to cover the electronics compartment when the instrument includes the LCD display. There are a series of probes available based off of two common configurations. One is a coaxial assembly constructed of stainless steel with a 1 inch diameter outer tube and a 3/4 inch diameter un-insulated solid inner rod. The other configuration is a twin rod or single assembly constructed of stainless steel or hastelloy or monel and consisting of small coaxial section and the remainder dual parallel rods. Both probe configurations have the same process seal construction consisting of Stycast 2651 – 40FR with Catalyst 9 (Divisions and Zones) and Stycast ES 2505 CAT 9-EN (Division rating only). The probe assembly is either integral or remote to the transmitter assembly and the maximum length of the attached probe is 240 inches and a process pressure rating of 750 psi.

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Electrical Data:

4-20 mA current with HART signal:

Supply/output circuit: 12-30 Vdc, 4-20 mA.

Digital Fieldbus signal:

Supply/output circuit: 12-30 Vdc, 15 mA.

The Transmitter shall be connected to a safety extra low-voltage circuit (SELV) with a $U_m \leq 30$ V.

Intrinsic Safety and Nonincendive Field Wiring parameters:

Entity/NIFW : $U_i = 28.4$ V; $I_i = 124$ mA; $P_i = 0.84$ W; $C_i = 3$ nF; $L_i = 3$ μ H.

FISCO : $U_i = 17.5$ V; $I_i = 380$ mA; $P_i = 5.32$ W; $C_i = 3$ nF; $L_i = 3$ μ H.

Model Code structure and relevant parameters:

705-5abc-def/7gh-ijkl-m. Eclipse Level Transmitter/Eclipse Level Probe.

a = Digital Output: 1, 2 or 3.

b = Options: 0 or A.

c = Accessories: 0 or A.

d = Mounting/Classification: 1 or 2.

e = Housing Material: 1, 2, 3, 7, 8 or 9. (refer to drawing 099-6526 for details)

f = Conduit: 0, 1 or 4 (4 only when e = 3 or 9).

g = Measurement: E or M.

h = Configuration / Style: 1, 2, 5, 7, A, B, E, F, G, H, J, L, M, N, Q, R, S, T.

i = Material: 1, 4, A, B, C, D, E, F, G, H, J, K, L, N, P, R, Y, Z.

j = Process connection size: 1, 2, 3, 4, 5, 6, 9, B, C, D, E, F, T, U.

k = Process connection type: 1, 2, 3, 4, 5, 6, 7, 8, T, U, K, L, M, N, P, R, S, V, W, A, B, C, D, E, F, G. (refer to drawing 099-6526 for details)

l = Options: 0, 1, 2, 3, 4, 5, 6, 7, 8, A, or N.

m = Probe Length: 240 inch or 610 cm maximum (In 1 inch or 1 cm increments).

705-5abc-3ef/7gh-ijkl-m. Eclipse Level Transmitter/Eclipse Level Probe.

a = Digital Output: 1, 2 or 3.

b = Options: 0 or A.

c = Accessories: 0 or A.

e = Housing Material: 1, 2, 3, 4, 5, 6, 7, 8, 9 (refer to drawing 099-6526 for details).

f = Conduit: 0, 1, or 4 (4 only when e = 3 or 9).

g = Measurement: E or M.

h = Configuration / Style: A, B, E, F, G, H, J, L, M, N, Q, R, S, T, 1 (only when i = A), 2, 5, or 7 (only when i = A).

i = Material: A, B, C, D, E, F, G, H, J, K, L, N, P, R, Y, Z, 1 or 4.

j = Process connection size: 1, 2, 3, 4, 5, 6, 9, B, C, D, E, F, T, U.

k = Process connection type: 1, 2, 3, 4, 5, 6, 7, 8, A, B, C, D, E, F, G, K, L, M, N, P, R, S, T, U, V or W (refer to drawing 099-6526 for details).

l = Options: 0, 1, 2, 3, 4, 5, 6, 7, 8, A, or N.

m = Probe Length: 240 inch or 610 cm maximum (In 1 inch or 1 cm increments).

When h = F, j = 2 and k = P: 72 inch or 30 cm maximum (In 1 inch or 1 cm increments).

When h = 5, 1 or 2: 75 ft or 22 m maximum (In 1 foot or 1 meter increments).

When h = 7: 50 ft or 15 m (In 1 foot or 1 meter increments).

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705-5abc-4ef/7gh-ijkl-m. Eclipse Level Transmitter

a = Digital Output: 1, 2 or 3.

b = Options: 0 or A.

c = Accessories: 0 or A.

e = Housing Material: 1, 2, 3, 4, 5, 6, 7, 8, 9 (refer to drawing 099-6526 for details).

f = Conduit: 0, 1, or 4 (4 only when e = 3 or 9).

g = Measurement: E or M.

h = Configuration / Style: A, B, E, F, G, H, J, L, M, N, Q, R, S, T, 1 (only when i = A), 2, 5, or 7 (only when i = A).

i = Material: A, B, C, D, E, F, G, H, J, K, L, N, P, R, Y, Z, 1 or 4.

j = Process connection size: 1, 2, 3, 4, 5, 6, 9, B, C, D, E, F, T, U.

k = Process connection type: 1, 2, 3, 4, 5, 6, 7, 8, A, B, C, D, E, F, G, K, L, M, N, P, R, S, T, U, V or W (refer to drawing 099-6526 for details).

l = Options: 0, 1, 2, 3, 4, 5, 6, 7, 8, A, or N.

m = Probe Length: 240 inch or 610 cm maximum (In 1 inch or 1 cm increments).

When h = F, j = 2 and k = P: 72 inch or 30 cm maximum (In 1 inch or 1 cm increments).

When h = 5, 1 or 2: 75 ft or 22 m maximum (In 1 foot or 1 meter increments).

When h = 7: 50 ft or 15 m (In 1 foot or 1 meter increments).

705-5abc-5ef/7gh-ijkl-m. Eclipse Level Transmitter/Eclipse Level Probe.

a = Digital Output: 1, 2 or 3.

b = Options: 0 or A.

c = Accessories: 0 or A.

e = Housing Material: 1, 2, 3, 4, 5, 6, 7, 8, 9 (refer to drawing 099-6526 for details).

f = Conduit: 0, 1, or 4 (4 only when e = 3 or 9).

g = Measurement: E or M.

h = Configuration / Style: A, B, E, F, G, H, J, L, M, N, Q, R, S, T, 1 (only when i = A), 2, 5, or 7 (only when i = A).

i = Material: A, B, C, D, E, F, G, H, J, K, L, N, P, R, Y, Z, 1 or 4.

j = Process connection size: 1, 2, 3, 4, 5, 6, 9, B, C, D, E, F, T, U.

k = Process connection type: 1, 2, 3, 4, 5, 6, 7, 8, A, B, C, D, E, F, G, K, L, M, N, P, R, S, T, U, V or W (refer to drawing 099-6526 for details).

l = Options: 0, 1, 2, 3, 4, 5, 6, 7, 8, A, or N.

m = Probe Length: 240 inch or 610 cm maximum (In 1 inch or 1 cm increments).

When h = F, j = 2 and k = P: 72 inch or 30 cm maximum (In 1 inch or 1 cm increments).

When h = 5, 1 or 2: 75 ft or 22 m maximum (In 1 foot or 1 meter increments).

When h = 7: 50 ft or 15 m (In 1 foot or 1 meter increments).

705-5abc-6ef/7gh-ijkl-m. Eclipse Level Transmitter

a = Digital Output: 1, 2 or 3.

b = Options: 0 or A.

c = Accessories: 0 or A.

e = Housing Material: 1, 2, 3, 4, 5, 6, 7, 8, 9 (refer to drawing 099-6526 for details).

f = Conduit: 0, 1, or 4 (4 only when e = 3 or 9).

g = Measurement: E or M.

h = Configuration / Style: A, B, E, F, G, H, J, L, M, N, Q, R, S, T, 1 (only when i = A), 2, 5, or 7 (only when i = A).

i = Material: A, B, C, D, E, F, G, H, J, K, L, N, P, R, Y, Z, 1 or 4.

j = Process connection size: 1, 2, 3, 4, 5, 6, 9, B, C, D, E, F, T, U.

k = Process connection type: 1, 2, 3, 4, 5, 6, 7, 8, A, B, C, D, E, F, G, K, L, M, N, P, R, S, T, U, V or W (refer to

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drawing 099-6526 for details).

l = Options: 0, 1, 2, 3, 4, 5, 6, 7, 8, A, or N.

m = Probe Length: 240 inch or 610 cm maximum (In 1 inch or 1 cm increments).

When h = F, j = 2 and k = P: 72 inch or 30 cm maximum (In 1 inch or 1 cm increments).

When h = 5, 1 or 2: 75 ft or 22 m maximum (In 1 foot or 1 meter increments).

When h = 7: 50 ft or 15 m (In 1 foot or 1 meter increments).

705-5abc-def/7gh-AjkN-m. Eclipse Level Transmitter/Eclipse Level Probe.

a = Digital Output: 1, 2 or 3.

b = Options: 0 or A.

c = Accessories: 0 or A.

d = Mounting/Classification: 1 or 2.

e = Housing Material: 1, 2, 3, 7, 8 or 9. (refer to drawing 099-6526 for details)

f = Conduit: 0, 1 or 4 (4 only when e = 3 or 9).

g = Measurement: E or M.

h = Configuration / Style: D or P.

j = Process connection size: 1, 2, 3, 4, 5, 6, B, C, D, E, F, T.

k = Process connection type: 1, 3, 4, 5, 6, 7, 8, K, L, M, N, T, U, A, B, C, D, E, F, G, H, I, J. (refer to drawing 099-6526 for details)

m = Probe Length: 240 inch or 610 cm maximum (In 1 inch or 1 cm increments).

705-5abc-3ef/7gh-AjkN-m. Eclipse Level Transmitter/Eclipse Level Probe.

a = Digital Output: 1, 2 or 3.

b = Options: 0 or A.

c = Accessories: 0 or A.

e = Housing Material: 1, 2, 3, 7, 8 or 9. (refer to drawing 099-6526 for details)

f = Conduit: 0, 1 or 4 (4 only when e = 3 or 9).

g = Measurement: E or M.

h = Configuration / Style: D or P.

j = Process connection size: 1, 2, 3, 4, 5, 6, B, C, D, E, F, T.

k = Process connection type: 1, 3, 4, 5, 6, 7, 8, K, L, M, N, T, U, A, B, C, D, E, F, G, H, I, J. (refer to drawing 099-6526 for details)

m = Probe Length: 240 inch or 610 cm maximum (In 1 inch or 1 cm increments).

705-5abc-4ef/7gh-AjkN-m. Eclipse Level Transmitter

a = Digital Output: 1, 2 or 3.

b = Options: 0 or A.

c = Accessories: 0 or A.

e = Housing Material: 1, 2, 3, 7, 8 or 9. (refer to drawing 099-6526 for details)

f = Conduit: 0, 1 or 4 (4 only when e = 3 or 9).

g = Measurement: E or M.

h = Configuration / Style: D or P.

j = Process connection size: 1, 2, 3, 4, 5, 6, B, C, D, E, F, T.

k = Process connection type: 1, 3, 4, 5, 6, 7, 8, K, L, M, N, T, U, A, B, C, D, E, F, G, H, I, J. (refer to drawing 099-6526 for details)

m = Probe Length: 240 inch or 610 cm maximum (In 1 inch or 1 cm increments).

705-5abc-5ef/7gh-AjkN-m. Eclipse Level Transmitter/Eclipse Level Probe.

a = Digital Output: 1, 2 or 3.

b = Options: 0 or A.

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- c = Accessories: 0 or A.
- e = Housing Material: 1, 2, 3, 7, 8 or 9. (refer to drawing 099-6526 for details)
- f = Conduit: 0, 1 or 4 (4 only when e = 3 or 9).
- g = Measurement: E or M.
- h = Configuration / Style: D or P.
- j = Process connection size: 1, 2, 3, 4, 5, 6, B, C, D, E, F, T.
- k = Process connection type: 1, 3, 4, 5, 6, 7, 8, K, L, M, N, T, U, A, B, C, D, E, F, G, H, I, J. (refer to drawing 099-6526 for details)
- m = Probe Length: 240 inch or 610 cm maximum (In 1 inch or 1 cm increments).

705-5abc-6ef/7gh-AjkN-m. Eclipse Level Transmitter

- a = Digital Output: 1, 2 or 3.
- b = Options: 0 or A.
- c = Accessories: 0 or A.
- e = Housing Material: 1, 2, 3, 7, 8 or 9. (refer to drawing 099-6526 for details)
- f = Conduit: 0, 1 or 4 (4 only when e = 3 or 9).
- g = Measurement: E or M.
- h = Configuration / Style: D or P.
- j = Process connection size: 1, 2, 3, 4, 5, 6, B, C, D, E, F, T.
- k = Process connection type: 1, 3, 4, 5, 6, 7, 8, K, L, M, N, T, U, A, B, C, D, E, F, G, H, I, J. (refer to drawing 099-6526 for details)
- m = Probe Length: 240 inch or 610 cm maximum (In 1 inch or 1 cm increments).

705-5abc-def/7EK-ijkA-mn. Eclipse Level Transmitter/Eclipse Level Probe.

- b = Options: 0 or A.
- c = Accessories: 0 or A.
- d = Mounting/Classification: 1 or 2.
- e = Housing Material: 1, 2, 3, 7, 8 or 9. (refer to drawing 099-6526 for details)
- f = Conduit: 0, 1 or 4 (4 only when e = 3 or 9).
- i = Material: K, L, M.
- j = Process connection size: 3 or 4.
- k = Process connection type / Configuration: 1, 3, 4, 5, 9. (refer to drawing 099-6526 for details)
- m = Temperature Range: 1 or 2.
- n = Chamber Type: 1, 2 or 3.

705-5abc-3ef/7EK-ijkA-mn. Eclipse Level Transmitter/Eclipse Level Probe.

- a = Digital Output: 1, 2 or 3.
- b = Options: 0 or A.
- c = Accessories: 0 or A.
- e = Housing Material: 1, 2, 3, 7, 8 or 9. (refer to drawing 099-6526 for details)
- f = Conduit: 0, 1 or 4 (4 only when e = 3 or 9).
- i = Material: K, L, M.
- j = Process connection size: 3 or 4.
- k = Process connection type / Configuration: 1, 3, 4, 5, 9. (refer to drawing 099-6526 for details)
- m = Temperature Range: 1 or 2.
- n = Chamber Type: 1, 2 or 3.

705-5abc-4ef/7EK-ijkA-mn. Eclipse Level Transmitter

- a = Digital Output: 1, 2 or 3.
- b = Options: 0 or A.

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- c = Accessories: 0 or A.
- e = Housing Material: 1, 2, 3, 7, 8 or 9. (refer to drawing 099-6526 for details)
- f = Conduit: 0, 1 or 4 (4 only when e = 3 or 9).
- i = Material: K, L, M.
- j = Process connection size: 3 or 4.
- k = Process connection type / Configuration: 1, 3, 4, 5, 9. (refer to drawing 099-6526 for details)
- m = Temperature Range: 1 or 2.
- n = Chamber Type: 1, 2 or 3.

705-5abc-5ef/7EK-ijkA-mn. Eclipse Level Transmitter/Eclipse Level Probe.

- a = Digital Output: 1, 2 or 3.
- b = Options: 0 or A.
- c = Accessories: 0 or A.
- e = Housing Material: 1, 2, 3, 7, 8 or 9. (refer to drawing 099-6526 for details)
- f = Conduit: 0, 1 or 4 (4 only when e = 3 or 9).
- i = Material: K, L, M.
- j = Process connection size: 3 or 4.
- k = Process connection type / Configuration: 1, 3, 4, 5, 9. (refer to drawing 099-6526 for details)
- m = Temperature Range: 1 or 2.
- n = Chamber Type: 1, 2 or 3.

705-5abc-6ef/7EK-ijkA-mn. Eclipse Level Transmitter

- a = Digital Output: 1, 2 or 3.
- b = Options: 0 or A.
- c = Accessories: 0 or A.
- e = Housing Material: 1, 2, 3, 7, 8 or 9. (refer to drawing 099-6526 for details)
- f = Conduit: 0, 1 or 4 (4 only when e = 3 or 9).
- i = Material: K, L, M.
- j = Process connection size: 3 or 4.
- k = Process connection type / Configuration: 1, 3, 4, 5, 9. (refer to drawing 099-6526 for details)
- m = Temperature Range: 1 or 2.
- n = Chamber Type: 1, 2 or 3.

7gh-ijkl-m. Eclipse Level Probe.

- g = Measurement: E or M.
- h = Configuration / Style: A, B, E, F, G, H, J, L, M, N, Q, R, S, T, 1 (only when i = A), 2, 5, or 7 (only when i = A).
- i = Material: A, B, C, D, E, F, G, H, J, K, L, N, P, R, Y, Z, 1 or 4.
- j = Process connection size: 1, 2, 3, 4, 5, 6, 9, B, C, D, E, F, T, U.
- k = Process connection type: 1, 2, 3, 4, 5, 6, 7, 8, A, B, C, D, E, F, G, K, L, M, N, P, R, S, T, U, V or W (refer to drawing 099-6526 for details).
- l = Options: 0, 1, 2, 3, 4, 5, 6, 7, 8, A, or N.
- m = Probe Length: 240 inch or 610 cm maximum (In 1 inch or 1 cm increments).
 - When h = F, j = 2 and k = P: 72 inch or 30 cm maximum (In 1 inch or 1 cm increments).
 - When h = 5, 1 or 2: 75 ft or 22 m maximum (In 1 foot or 1 meter increments).
 - When h = 7: 50 ft or 15 m (In 1 foot or 1 meter increments).

7gh-AjkN-m. Eclipse Level Probe.

- g = Measurement: E or M.
- h = Configuration / Style: D or P.
- j = Process connection size: 1, 2, 3, 4, 5, 6, B, C, D, E, F, T.

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k = Process connection type: 1, 3, 4, 5, 6, 7, 8, K, L, M, N, T, U, A, B, C, D, E, F, G, H, I, J. (refer to drawing 099-6526 for details)

m = Probe Length: 240 inch or 610 cm maximum (In 1 inch or 1 cm increments).

7EK-ijkA-mn. Eclipse Level Probe.

i = Material: K, L, M.

j = Process connection size: 3 or 4.

k = Process connection type / Configuration: 1, 3, 4, 5, 9. (refer to drawing 099-6526 for details)

m = Temperature Range: 1 or 2.

n = Chamber Type: 1, 2 or 3.

13. Specific Conditions of Use:

705-5abc-4ef/7gh-ijkl-m. Eclipse Level Transmitter

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1. The Eclipse Level Transmitter is only for use with the Eclipse Level Probe.
2. The flamepaths of the equipment are not intended to be repaired. Consult the manufacturer if repair of the flamepath joints is necessary.
3. Refer to the manufacturer's instructions to reduce the potential of an electrostatic charging hazard on the equipment enclosure.
4. To maintain the T4 temperature code care shall be taken to ensure the "Enclosure Temperature" does not exceed 70°C.
5. The Transmitter shall be connected to a safety extra low-voltage circuit (SELV) with a $U_m \leq 30$ V.

705-5abc-6ef/7gh-ijkl-m. Eclipse Level Transmitter

705-5abc-6ef/7gh-AjkN-m. Eclipse Level Transmitter

705-5abc-6ef/7EK-ijkA-mn. Eclipse Level Transmitter

1. The Eclipse Level Transmitter is only for use with the Eclipse Level Probe.
2. Refer to the manufacturer's instructions to reduce the potential of an electrostatic charging hazard on the equipment enclosure.
3. To maintain the T4 temperature code care shall be taken to ensure the "Enclosure Temperature" does not exceed 70°C.

705-5abc-3ef/7gh-ijkl-m. Eclipse Level Transmitter/Eclipse Level Probe.

705-5abc-3ef/7gh-AjkN-m. Eclipse Level Transmitter/Eclipse Level Probe.

705-5abc-3ef/7EK-ijkA-mn. Eclipse Level Transmitter/Eclipse Level Probe.

1. The flamepaths of the equipment are not intended to be repaired. Consult the manufacturer if repair of the flamepath joints is necessary.
2. Refer to the manufacturer's instructions to reduce the potential of an electrostatic charging hazard on the equipment enclosure.
3. To maintain the T4 temperature code care shall be taken to ensure the "Enclosure Temperature" does not exceed 70°C.
4. The Transmitter shall be connected to a safety extra low-voltage circuit (SELV) with $U_m \leq 30$ V.

705-5abc-5ef/7gh-ijkl-m. Eclipse Level Transmitter/Eclipse Level Probe.

705-5abc-5ef/7gh-AjkN-m. Eclipse Level Transmitter/Eclipse Level Probe.

705-5abc-5ef/7EK-ijkA-mn. Eclipse Level Transmitter/Eclipse Level Probe.

1. Refer to the manufacturer's instructions to reduce the potential of an electrostatic charging hazard

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- on the equipment enclosure.*
2. *To maintain the T4 temperature code care shall be taken to ensure the “Enclosure Temperature” does not exceed 70°C.*

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705-5abc-def/7gh-AjkN-m. Eclipse Level Transmitter/Eclipse Level Probe.

705-5abc-def/7EK-ijkA-mn. Eclipse Level Transmitter/Eclipse Level Probe.

1. *Refer to the manufacturer’s instructions to reduce the potential of an electrostatic charging hazard on the equipment enclosure.*
2. *To maintain the T4 temperature code care shall be taken to ensure the “Enclosure Temperature” does not exceed 70°C.*

7gh-ijkl-m. Eclipse Level Probe.

7gh-AjkN-m. Eclipse Level Probe.

7EK-ijkA-mn. Eclipse Level Probe.

1. *The Eclipse Level Probe is only for use with the Eclipse Level Transmitter*

14. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

15. Schedule Drawings

A copy of the technical documentation has been kept by FM Approvals.

16. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
2 nd March 1998	Original Issue.
18 th December 2019	<u>Supplement 18:</u> Report Reference: – PR452105 dated 18 th December 2019. Description of the Change: Addition of epoxy material options used in the construction for the feed-through assembly. Certificate issued with new format.
3 rd June 2020	<u>Supplement 19:</u> Report Reference: – PR452813 dated 3 rd June 2020. Description of the Change: Addition of new product options related to the addition of Zone ratings. The 052-1304 electronics assembly was removed per RR223855.

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