

1 EU-TYPE EXAMINATION CERTIFICATE



2 **Equipment or Protective systems intended for use in Potentially Explosive Atmospheres - Directive 2014/34/EU**

3 **EU-Type Examination Certificate No:** FM16ATEX0068X

4 **Equipment or protective system:** LPT Tank SLAYER®
(Type Reference and Name) LPR RefineME®
LPC CHAMBERED
LPS SoClean®
Level Plus Transmitters

5 **Name of Applicant:** MTS Systems Corporation, Sensors Division

6 **Address of Applicant:** 3001 Sheldon Dr
Cary, NC 27513 United States

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and documents therein referred to.

8 FM Approvals Ltd, notified body number 1725 in accordance with Article 17 of Directive 2014/34/EU of 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report number:

3053206 dated 9th March 2018

9 Compliance with the Essential Health and Safety Requirements, with the exception of those identified in item 15 of the schedule to this certificate, has been assessed by compliance with the following documents:

EN 60079-0:2012 + A11:2013, EN 60079-1:2014, EN 60079-26:2015, and
EN 60529:1991 + A1:2000 + A2:2013

10 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.

11 This EU-Type Examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include:



II 1/2 G Ex db IIB+H₂ T6...T3 Ga/Gb

T_a = -40 °C to 71 °C; IP65



Member of the FM Global Group

Digitally signed by Nicholas Ludlam
DN: cn=Nicholas Ludlam, o=FM Approvals,
ou,
email=nicholas.ludlam@fmaprovals.com,
c=GB
Date: 2018.03.21 11:42:58 Z

Nicholas Ludlam
Deputy Certification Manager, FM Approvals Ltd.

Issue date: 21st March 2018

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals Ltd. 1 Windsor Dials, Windsor, Berkshire, UK. SL4 1RS
T: +44 (0) 1753 750 000 F: +44 (0) 1753 868 700 E-mail: atex@fmaprovals.com www.fmaprovals.com

SCHEDULE

to EU-Type Examination Certificate No. FM16ATEX0068X

13 Description of Equipment or Protective System:

General - The LPT Tank SLAYER®, LPR RefineMe®, LPS SoCLEAN®, LPC CHAMBERED Level Plus Transmitters (LP Transmitters) are a continuous multi-functional magnetostrictive transmitter that provides product level, interface level, and temperature to the user via 4 to 20 mA current loops, HART, Modbus, or DDA for use in Hazardous Locations.

The LP Transmitters can be configured with three different enclosure offerings as described below.

Housing Types	Description
D	Cast Aluminum Single Cavity with Display Option
E	Cast Aluminum Dual Cavity with Display Option
L	Stainless Steel Single Cavity with Display Option

The LP Transmitters can be configured with 11 different sensor pipe probe offerings as described below.

Sensor Types	Description
B	Industrial end plug w/stop collar (5/8" OD)
C	Sanitary, T-bar, TB
D	Sanitary, drain-in-place, DP
E	Sanitary, clean-in-place, CP
F	Sanitary, drain-in-place, no hole, DN
M	Flexible, 7/8" OD tube w/ bottom fixing eye
N	Flexible, 7/8" OD tube w/ bottom fixing weight
P	Flexible, 7/8" OD tube w/ bottom fixing magnet
S	Flexible, 7/8" OD tube w/o bottom fixing hardware
R	Rigid, 1/2" OD
Y	10 mm OD Pipe

*Note - For the RefineME Model only, Sensor Types B, R, or Y can be optionally coated with PTFE

Construction – All LP Transmitters are configured with a purchased component housing (single or dual compartment type) and custom probe arrangement with stainless steel or Hastelloy float(s). The probe and housing are separated with a potted feedthrough for separating the electronics housing compartment(s) from the probe compartment. The probe(s) offered, depending on product equipment builds, come in Stainless Steel or Hastelloy materials, or PTFE coated probes (RefineME only) varying in lengths depending on ridged or flexible type arrangement (where Rigid sensor pipe (12 to 300 in), (1 to 25 ft), (305 to 7620 mm), and Flexible sensor pipe (62 to 999 in), (5 to 98.5 ft), (1575 to 30000 mm). All of the enclosures offered are available with field wiring entries of ¾ inch NPT thread form or Metric Thread form (M20 sized).

Only for the case for LPC CHAMBERED single cavity housing builds with 90 degree electronic mountings (Model Code d = 3, 4, 5, or 6), the instrument enclosure is fitted with (3) ¾ inch NPT openings; (1) which is populated with the 90 degree electronics mount (90 degree elbow), (1) entry fitted with a blanking plug and the remaining entry can be optionally fitted with (1) ¾ inch male to ½ inch female NPT threaded adapter which is suitable for cable / conduit connection.

Ratings - The LP Transmitters are for use with internal electronics rated 28 Vdc (120mA max), with an Analog 4 to 20mA output or Digital RS485 output. The ambient operating temperature range of the LP Transmitters are -40 °C to 71 °C. The process temperature range of the LP Transmitters are -40 °C to 150 °C. The equipment has an ingress protection rating of IP65. The flexible probe has a maximum working pressure rating of 435psi and for the ridged type probe, the maximum working

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

SCHEDULE

to EU-Type Examination Certificate No. FM16ATEX0068X

pressure rating is 1000psi.

LPTbcdefghijklmnop, Tank SLAYER Level Plus Transmitters

b = Output: 1, 2, 5, 7, M, D
c = Housing Type: D, E, L
d = Electronics Mounting: 1
e = Sensor Pipe: M, N, P, S
f = Materials of Construction (Wetted Parts): 1
g = Process Connection Type: 1, 2, 6, 7, 8, A, B, C, D, E, X
h = Process Connection Size: B, C, D, E, F, G, H, J, X
i = Number of DT's (Digital Thermometer): 0, 1, 5, K, M, P, X
j = DT Placement: F, C, B
k = Notified Body: E
l = Protection Method: F
m = Gas Group: 4
n = Unit of Measure: F, M, U
o = Length: (XXX.XX in), (XXX.XX ft), (XXXXX mm), Flexible sensor pipe (62 to 999 in), (5 to 98.5 ft), (1575 to 30000 mm).
p = Special: S (Standard Product), E (Engineering Special (not affecting agency controlled parts or features), R (Reverse Measurement), F (Flexible Sensing Element with Rigid Pipe)

LPRbcdefghijklmnop, RefineME Level Plus Transmitters

b = Output: 1, 2, 5, 7, M, D
c = Housing Type: D, E, L
d = Electronics Mounting: 1
e = Sensor Pipe: B, R, Y
f = Materials of Construction (Wetted Parts): 1, 3, A
g = Process Connection Type: 1, 2, 6, 7, 8, A, B, C, D, X, Z
h = Process Connection Size: A, C, D, E, F, G, H, J, X
i = Number of DT's (Digital Thermometer): 0, 1, 5, K, M, P, X
j = DT Placement: F, C, B
k = Notified Body: E
l = Protection Method: F
m = Gas Group: 4
n = Unit of Measure: F, M, U
o = Length: (XXX.XX in), (XXX.XX ft), (XXXXX mm), Rigid sensor pipe (12 to 300 in), (1 to 25 ft), (305 to 7620 mm)
p = Special: S (Standard Product), E (Engineering Special (not affecting agency controlled parts or features), R (Reverse Measurement), F (Flexible Sensing Element with Rigid Pipe)

LPSbcdefghijklmnop, SoCLEAN Level Plus Transmitters

b = Output: 1, 2, 5, 7, M, D
c = Housing Type: D, E, L
d = Electronics Mounting: 1
e = Sensor Pipe: C, D, E, F
f = Materials of Construction (Wetted Parts): 1, 2, 3
g = Process Connection Type: 1, 2, 4, 5, 6, 7, 8, A, B, C, D, X, Z
h = Process Connection Size: A, C, D, E, F, G, J, X
i = Number of DT's (Digital Thermometer): 0, 1, 5, K, M, P, X
j = DT Placement: F, C, B
k = Notified Body: E
l = Protection Method: F
m = Gas Group: 4
n = Unit of Measure: F, M, U

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

SCHEDULE



to EU-Type Examination Certificate No. FM16ATEX0068X

o = Length: (XXX.XX in), (XXX.XX ft), (XXXXX mm), Rigid sensor pipe (12 to 300 in), (1 to 25 ft), (305 to 7620 mm)
p = Special: S (Standard Product), E (Engineering Special (not affecting agency controlled parts or features), R (Reverse Measurement), F (Flexible Sensing Element with Rigid Pipe)

LPCbcdefghijklmnop, CHAMBERED Level Plus Transmitters

b = Output: 3, 4, 6, D, M
c = Housing Type: D, E, L
d = Electronics Mounting: 3, 4, 5, 6, 7, 8
e = Sensor Pipe: B, R, Y
f = Materials of Construction (Wetted Parts): 1, 3
g = Process Connection Type: X (None)
h = Process Connection Size: X (None)
i = Number of DT's (Digital Thermometer): 0, 1, 5, K, M, P, X
j = DT Placement: F, C, B
k = Notified Body: E
l = Protection Method: F
m = Gas Group: 4
n = Unit of Measure: F, M, U
o = Length: (XXX.XX in), (XXX.XX ft), (XXXXX mm), Rigid sensor pipe (12 to 300 in), (1 to 25 ft), (305 to 7620 mm)
p = Special: S (Standard Product), E (Engineering Special (not affecting agency controlled parts or features), R (Reverse Measurement), F (Flexible Sensing Element with Rigid Pipe)

14 Specific Conditions of Use:

For LPT Transmitters –

1. Warning: The equipment contains non-metallic enclosure and process parts. To prevent the risk of electrostatic sparking, the non-metallic surface should only be cleaned with a damp cloth. Painted surface of the equipment may store electrostatic charge and become a source of ignition in applications with a low relative humidity <~30% relative humidity where the painted surface is relatively free of surface contamination such as dirt, dust or oil. Cleaning of the painted surface should only be done with a damp cloth.
2. Cables shall be rated > 5 °C above maximum ambient temperature.
3. To maintain the ingress protection rating of IP65, Teflon tape (3 wraps) or pipe dope shall be used. Refer to Installation Instructions.
4. Equipment can be installed in a boundary wall configuration where the process connection is installed as Category 1G equipment while the transmitter housing is installed as Category 2G equipment. Refer to installation instructions.
5. Flexible gauges have a minimum bend diameter of 381mm (15 inches).
6. Flamepaths not for repair.
7. The applicable temperature class, process temperature range and ambient temperature range of the equipment is as follows;
T3 with Process Temperature Range of -40 °C to 150 °C
T4 with Process Temperature Range of -40 °C to 135 °C
T5 with Process Temperature Range of -40 °C to 100 °C
T6 with Process Temperature Range of -40 °C to 85 °C
-40 °C ≤ Ta ≤ 71 °C
8. When mounting on a MLG (magnetic level gauge) make sure the electronic head and pressure barrier have a minimum spacing of 5 inches. See Installation Manual for detail.

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals Ltd. 1 Windsor Dials, Windsor, Berkshire, UK. SL4 1RS
T: +44 (0) 1753 750 000 F: +44 (0) 1753 868 700 E-mail: atex@fmapprovals.com www.fmapprovals.com

SCHEDULE

to EU-Type Examination Certificate No. FM16ATEX0068X

For LPR, LPS, LPC Transmitters –

1. Warning: The equipment contains non-metallic enclosure and process parts. To prevent the risk of electrostatic sparking, the non-metallic surface should only be cleaned with a damp cloth. Painted surface of the equipment may store electrostatic charge and become a source of ignition in applications with a low relative humidity <~30% relative humidity where the painted surface is relatively free of surface contamination such as dirt, dust or oil. Cleaning of the painted surface should only be done with a damp cloth.
2. Cables shall be rated > 5 °C above maximum ambient temperature.
3. To maintain the ingress protection rating of IP65, Teflon tape (3 wraps) or pipe dope shall be used. Refer to Installation Instructions.
4. Equipment can be installed in a boundary wall configuration where the process connection is installed as Category 1G equipment while the transmitter housing is installed as Category 2G equipment. Refer to installation instructions.
5. Flamepaths not for repair.
6. The applicable temperature class, process temperature range and ambient temperature range of the equipment is as follows;
 - T3 with Process Temperature Range of -40 °C to 150 °C
 - T4 with Process Temperature Range of -40 °C to 135 °C
 - T5 with Process Temperature Range of -40 °C to 100 °C
 - T6 with Process Temperature Range of -40 °C to 85 °C
 - 40 °C ≤ Ta ≤ 71 °C
7. When mounting on a MLG (magnetic level gauge) make sure the electronic head and pressure barrier have a minimum spacing of 5 inches. See Installation Manual for detail.

15 **Essential Health and Safety Requirements:**

The relevant EHSRs that have not been addressed by the standards listed in this certificate have been identified and assessed in the confidential report identified in item 8.

16 **Test and Assessment Procedure and Conditions:**

This EU-Type Examination Certificate is the result of testing of a sample of the product submitted, in accordance with the provisions of the relevant specific standard(s), and assessment of supporting documentation. It does not imply an assessment of the whole production.

Whilst this certificate may be used in support of a manufacturer's claim for CE Marking, FM Approvals Ltd accepts no responsibility for the compliance of the equipment against all applicable Directives in all applications.

This Certificate has been issued in accordance with FM Approvals Ltd's ATEX Certification Scheme.

17 **Schedule Drawings**

A list of the significant parts of the technical documentation is annexed to this certificate and a copy has been kept by the Notified Body.

18 **Certificate History**

Details of the supplements to this certificate are described below:

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

SCHEDULE



to EU-Type Examination Certificate No. FM16ATEX0068X

Date	Description
21 st March 2018	Original Issue.



THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals Ltd. 1 Windsor Dials, Windsor, Berkshire, UK. SL4 1RS
T: +44 (0) 1753 750 000 F: +44 (0) 1753 868 700 E-mail: atex@fmapprovals.com www.fmapprovals.com