

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:
(Type Reference and Name) LPT Tank SLAYER®
LPR RefineME®
LPC CHAMBERED
LPS SoClean®
LPL LevelLimit®
Level Plus Transmitters

5 Name of Applicant: Temposonics, LLC

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

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 Europe Ltd, notified body number 2809 in accordance with Article 17 of Directive 2014/34/EU of 26th 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 09th 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 IEC 60079-0:2018, 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

Ta = -40°C to 71°C

Martin Crowe
Certification Manager, FM Approvals Europe Ltd.

Issue date: 13th December 2022

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13 Description of Equipment or Protective System:

General - The LPT Tank SLAYER®, LPR RefineMe®, LPS SoCLEAN®, LPC CHAMBERED, LPL LevelLimit 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. (Excluding the LPL LevelLimit)

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 Type B 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 3/4 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) 3/4 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) 3/4 inch male to 1/2 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 pressure rating is 1000psi.

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LPTbcdefghijklmnop, Tank SLAYER Level Plus Transmitters

b = Output: 1, 2, 5, 7, M, D, U
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, X
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, U
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, X
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, U
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, 9
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, X
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)

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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, U

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, X

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)

LPLbcdefghijklmn, LevelLimit Level Plus Transmitters

a = Unit: E, D, P, L, H, Z

b = Output: 1, 2, 5, 7, M

c = Sensor Pipe: B, M, N, P or S

d = Process Connection Type: 1, 6, 7, 8, A, B, C, D, Z, X

e = Process Connection Size: A, B, D, E, F, G, H, J or X

f = Number of Digital Thermometers: 0, 1, 5, K, M, P or X

g = DT Placement: C, F or X

h = Notified Body: E

i = Protection Method: F

j = Gas Group: 4

k = Unit of Measure: F, M or U

l = Length: any 5 numerical digits

m = Special: E, F, R or S

n = HI Switch Position: any 5 numerical digits

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.

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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.
9. When EPL Ga is required, parts of the equipment containing light metals (Aluminum or Titanium) shall be protected from impact so that impact or friction sparks cannot occur, taking into account rare malfunction. Measures to prevent impact or friction sparks when using the equipment containing light metals include but are not limited to
 - Mounting the probe vertically
 - No mechanical agitation shall be used
 - Use of stilling wells to mitigate effect of agitation.
 - Limit rate of change of level to values such that friction sparks cannot occur

For LPL 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. The equipment can be installed in the boundary wall between an EPL Ga area and the less hazardous area, EPL Gb. In this configuration, the process connection is installed in EPL Ga, while the transmitter housing is installed in EPL Gb. Refer to installation instructions.
5. Flexible gauges have a minimum bend radius of 381 mm (15 in.)
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

For LPR, LPS, and 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.

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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.
8. When EPL Ga is required, parts of the equipment containing light metals (Aluminum or Titanium) shall be protected from impact so that impact or friction sparks cannot occur, taking into account rare malfunction. Measures to prevent impact or friction sparks when using the equipment containing light metals include but are not limited to
 - Mounting the probe vertically
 - No mechanical agitation shall be used
 - Use of stilling wells to mitigate effect of agitation.
 - Limit rate of change of level to values such that friction sparks cannot occur

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 Europe 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 Europe 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:

Date	Description
21 st March 2018	Original Issue.

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Date	Description
31 st October 2018	<u>Supplement 1:</u> Report Reference: – RR214697 Dated 24 th October 2018. Description of the Change: Additional options added to model coding and documentation and manuals updated.
18 th October 2019	<u>Supplement 2:</u> Report Reference: – RR219750 Dated 10 th October 2019. Description of the Change: Minor drawing modifications. Certificate transferred from FM Approvals Ltd., notified body no. 1725, to FM Approvals Europe Ltd., notified body no. 2809.
10 th March 2020	<u>Supplement 3:</u> Report Reference: – RR222336 Dated 10 th March 2020. Description of the Change: Addition of float option and updated Specific Conditions of Use.
16 th April 2020	<u>Supplement 4:</u> Report Reference: – RR223251 Dated 15 th April 2020. Description of the Change: Minor design and drawing changes not affecting compliance.
19 th April 2021	<u>Supplement 5:</u> Report Reference: – PR451872 Dated 16 th April 2021. Description of the Change: Addition of the LPL Level Limit Plus Transmitters. Clarification of Specific Conditions of Use.
03 rd September 2021	<u>Supplement 6:</u> Report Reference – RR228875 dated 2 nd September 2021. Description of the Change: Minor design and drawing changes not affecting compliance. Updated EN 60079-0 to the latest edition EN IEC 60079-0: 2018.
06 th April 2022	<u>Supplement 7:</u> Report Reference – RR231063 dated 1 st April 2022. Description of the Change: Minor design and drawing changes not affecting compliance. Company name change.
13 th December 2022	<u>Supplement 8:</u> Report Reference – RR233208 dated 5 th December 2022. Description of the Change: Revised drawings to accommodate UKEX markings.

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