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UNITED KINGDOM CONFORMITY ASSESSMENT

# UK-TYPE EXAMINATION CERTIFICATE



2 Equipment or Protective systems intended for use in Potentially Explosive Atmospheres –  
UKSI 2016:1107 (as amended) – Schedule 3A, Part 1

3 UK-Type Examination Certificate No: FM22UKEX0069X

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

5 Name of Applicant:

6 Address of Applicant: 3001 Sheldon Drive  
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 Ltd, Approved Body number 1725, in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.

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

3051777-RR233208 dated 5<sup>th</sup> December 2022

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 60079-11:2012 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 UK-Type Examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance with the Regulations. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.

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



II 1 G Ex ia IIC T4 Ga Ta = -50 to +71°C



Digitally signed by Victor Aluko-Oginni  
DN: O=FM Approvals Limited, CN=Victor Aluko-Oginni,  
E=victor.aluko-oginni@fmaprovals.com  
Foxit PhantomPDF Version: 10.1.5

**Victor Aluko-Oginni**  
Certification Manager, FM Approvals Ltd.

Issue date: 14<sup>th</sup> December 2022

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F UKEX 020 (Jan/21)



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# SCHEDULE



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## 13 Description of Equipment or Protective System:

The LP Series transmitters are used for the continuous measurement of liquid product level or its interface with other liquids and their temperatures in containers (tanks) using magnetostrictive technology. Magnetostrictive transmitters precisely sense the position of an external float by applying an interrogation pulse to a waveguide medium. This current pulse causes a magnetic field to instantly surround the waveguide. The magnet installed within the float also creates a magnetic field which is used in turn to calculate the precise location of the float.

The LP Series transmitters are offered with a number of different options including housing, lengths, mounting and connection options, but electronically the LP Series transmitters includes only two versions, the Level Plus Digital Level Transmitter and Level Plus Analog Level Transmitter. The Level Plus Digital Level Transmitter has digital outputs and converts the readings into digitally coded signals for transmission over asynchronous interfaces. The digital output is designed to work in single master-multiple slave bus system using an RS 485/EIA 485 physical layer interface.

The Level Plus Analog Level Transmitter with analog interface is a loop powered 4-20mA transmitter and converts the measurements into analog currents with the ability to communicate over a HART interface. The analog output contains up to two 4-20 mA current loops, where the device is self-powered from Loop 1. Loop 2 is galvanically isolated from Loop 1.

The enclosures have an ingress protection rating of IP65.

### ***LPabcdeghijUI3nop - Level Plus Digital Level Transmitters. (Tank Slayer, RefineME, SoClean, Chambered)***

Energy Limitation Parameters:

Supply:  $U_i = 28\text{ V}$ ,  $I_i = 100\text{ mA}$ ,  $C_i = 0$ ,  $L_i = 0$ ,  $P_i = 700\text{ mW}$

Rx/Tx-:  $U_i = 8.6\text{ V}$ ,  $I_i = 10\text{ mA}$ ,  $C_i = 0$ ,  $L_i = 0$ ,  $P_i = 21.5\text{ mW}$

Rx/Tx+:  $U_i = 8.6\text{ V}$ ,  $I_i = 10\text{ mA}$ ,  $C_i = 0$ ,  $L_i = 0$ ,  $P_i = 21.5\text{ mW}$

a = Unit: T, R, C or S

b = Output: M, D or U

c = Housing Type: A, B, C, D, E, L or Y

d = Electronics mounting: 1, 2, 3, 4, 5, 6, 7 or 8

e = Sensor Pipe: B, C, D, E, F, M, N, P, S, R, Y or X

f = Material of Construction: 1, 2, 3, A or 9

g = Process Connection Type: 1, 2, 4, 5, 6, 7, 8, A, B, C, D or X

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

i = Number of DT's: 0, 1, 5, K, M, P or X

j = DT Placement: F, C, B, E, K or X

n = Units of Measure: F, M or U

o = Length: (numeric)

p = Special: S, E, R or F

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# **SCHEDULE**



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## ***LPabcdeghijEl3nop. - Level Plus Analog Level Transmitters.***

**(Tank Slayer, RefineME, SoClean, Chambered)**

Energy Limitation Parameters:

Loop 1:  $U_i = 28\text{ V}$ ,  $I_i = 120\text{ mA}$ ,  $C_i = 0$ ,  $L_i = 5\text{ }\mu\text{H}$ ,  $P_i = 840\text{ mW}$

Loop 2:  $U_i = 28\text{ V}$ ,  $I_i = 120\text{ mA}$ ,  $C_i = 0$ ,  $L_i = 5\text{ }\mu\text{H}$ ,  $P_i = 840\text{ mW}$

a = Unit: T, R, C or S

b = Output: 1, 2, 3, 4, 5, 6 or 7

c = Housing Type: A, B, C, D, E, L or Y

d = Electronics mounting: 1, 2, 3, 4, 5, 6, 7 or 8

e = Sensor Pipe: B, C, D, E, F, M, N, P, S, R, Y or X

f = Material of Construction: 1, 2, 3, A or 9

g = Process Connection Type: 1, 2, 4, 5, 6, 7, 8, A, B, C, D or X

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

i = Number of DT's: 0, 1, 5, K, M, P or X

j = DT Placement: F, C, B, E, K or X

n = Units of Measure: F, M or U

o = Length: (numeric)

p = Special: S, E, R or F

## **LPLbcdeghijklmn. Level Plus Digital Level Transmitter (LevelLimit)**

Energy Limitation Parameters:

Supply:  $U_i = 28\text{ V}$ ,  $I_i = 100\text{ mA}$ ,  $C_i = 0\text{ }\mu\text{F}$ ,  $L_i = 0\text{ mH}$ ,  $P_i = 700\text{ mW}$

Rx/Tx-:  $U_i = 8.6\text{ V}$ ,  $I_i = 10\text{ mA}$ ,  $C_i = 0\text{ }\mu\text{F}$ ,  $L_i = 0\text{ mH}$ ,  $P_i = 21.5\text{ mW}$

Rx/Tx+:  $U_i = 8.6\text{ V}$ ,  $I_i = 10\text{ mA}$ ,  $C_i = 0\text{ }\mu\text{F}$ ,  $L_i = 0\text{ mH}$ ,  $P_i = 21.5\text{ mW}$

Switch:  $U_i = 28\text{ Vdc}$ ,  $I_i = 5\text{ mA}$ ,  $C_i = 0\text{ }\mu\text{F}$ ,  $L_i = 7.59\text{ mH}$ ,  $P_i = 140\text{ mW}$

b = Output; M

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

d = Process Connection Type; 1, 6, 7, 8, A, B, C, D, Z or 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; U

i = Protection Method; I

j = Gas Group; 3

k = Unit of Measure; F, M or U

l = Length; any 5 numerical digits

m = Special; S, E, R or F

n = HI Switch Position; any 5 numerical digits

## **LPLbcdeghijklmn. Level Plus Analog Level Transmitter (LevelLimit)**

Energy Limitation Parameters:

Loop 1:  $U_i = 28\text{ Vdc}$ ,  $I_i = 120\text{ mA}$ ,  $C_i = 0\text{ }\mu\text{F}$ ,  $L_i = 5\text{ }\mu\text{H}$ ,  $P_i = 840\text{ mW}$

Loop 2:  $U_i = 28\text{ Vdc}$ ,  $I_i = 120\text{ mA}$ ,  $C_i = 0\text{ }\mu\text{F}$ ,  $L_i = 5\text{ }\mu\text{H}$ ,  $P_i = 840\text{ mW}$

Switch:  $U_i = 28\text{ Vdc}$ ,  $I_i = 5\text{ mA}$ ,  $C_i = 0\text{ }\mu\text{F}$ ,  $L_i = 7.59\text{ mH}$ ,  $P_i = 140\text{ mW}$

b = Output; 1, 2, 5 or 7

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

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

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

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

g = DT Placement; C, F or X

h = Notified Body; U

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i = Protection Method; I  
j = Gas Group; 3  
k = Unit of Measure; F, M or U  
l = Length; any 5 numerical digits  
m = Special; S, E, R or F  
n = HI Switch Position; any 5 numerical digits

## **14 Specific Conditions of Use:**

1. The apparatus enclosure contains aluminum or titanium and is considered to constitute a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact or friction. ( When installed in a Ga Approval)
2. The maximum permitted ambient temperature of the Level Plus Digital/Analog Level Transmitter is 71 °C. To avoid the effects of process temperature and other thermal effects care shall be taken to ensure the surrounding ambient and the ambient inside the transmitter housing does not exceed 71°C
3. Some models contain non-metallic enclosure parts, to prevent the risk of electrostatic sparking the non-metallic surface should only be cleaned with a damp cloth.

## **15 Essential Health and Safety Requirements:**

In addition to the Essential Health and Safety Requirements covered by the standards listed at item 9, all other requirements are demonstrated in the confidential report identified in item 8.

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

This UK-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 UKCA Marking, FM Approvals Ltd accepts no responsibility for the compliance of the equipment against all applicable Regulations in all applications.

This Certificate has been issued in accordance with FM Approvals Ltd's UKCA 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 Approved Body.

## **18 Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
14 <sup>th</sup> December 2022	Original Issue.

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