

1 EC-TYPE EXAMINATION CERTIFICATE



2 **Equipment or Protective systems intended for use in Potentially Explosive Atmospheres - Directive 94/9/EC**

3 **EC-Type Examination Certificate No:** FM15ATEX0063X

4 **Equipment or protective system:** LST300 Compact ultrasonic level transmitter
(Type Reference and Name)

5 **Name of Applicant:** ABB Engineering (Shanghai) Ltd

6 **Address of Applicant:** No 4528 KangXin Highway
KangQiaoTown PudongNewDistrict, Shanghai 201319
China

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 9 of Directive 94/9/EC of 23 March 1994, 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:

3054628 dated 5th April 2016

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 60079-11:2014, and EN 60529:1992 + 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 EC-Type Examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC. 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 G Ex ia IIC T4...T6*

II 1 D Ex ia IIIC T85°C...T135°C*

*Ambient temperature dependent – See description below

Mick Gower
Certification Manager, FM Approvals Ltd.

Issue date: 12th April 2016

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

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SCHEDULE



Member of the FM Global Group

to EC-Type Examination Certificate No. FM15ATEX0063X

13 Description of Equipment or Protective System:

The LST300 is a compact ultrasonic level transmitter for the measurement of liquid levels in storage tanks or processes with a range of up to 10 m.

The level measuring system is designed as a 2-wire instrument with the supply power and the current output signal (4-20 mA) using the same pair of connection leads. A HART communication option is also available.

The LST housing is epoxy painted aluminum or stainless steel and the sensor element is in a PVDF housing. Three different display options are available. The housing is rated for IP66 and IP67.

The ambient temperature range is -40 °C to +85 °C.
Process temperature: -40 °C to +85 °C

Electrical Ratings – See Control Drawing 3KXL065035U0009

When Additional Option = L0

Temperature Class - Gas	Temperature Class - Dust	Ambient temperature limitation	Input				
			Current limitation	Voltage limitation	Power limitation	Ci	Li
T4	T135 °C	-40°C – 85°C	100 mA	30 V	0.75 W	17 nF	10 µH
T4	T135 °C	-40°C – 70°C	160 mA	30 V	1.0 W		
T5	T100 °C	-40°C – 56°C	100 mA	30 V	1.4 W		
T6	T85 °C	-40°C – 44°C	50 mA	30 V	0.4 W		

When Additional Option = L2

Temperature Class - Gas	Temperature Class - Dust	Ambient temperature limitation	Input				
			Current limitation	Voltage limitation	Power limitation	Ci	Li
T4	T135 °C	-40°C – 60°C	100 mA	30 V	0.75 W	17 nF	10 µH
T4	T135 °C	-40°C – 60°C	160 mA	30 V	1.0 W		
T5	T100 °C	-40°C – 56°C	100 mA	30 V	1.4 W		
T6	T85 °C	-40°C – 44°C	50 mA	30 V	0.4 W		

When Additional Option = L7

Temperature Class - Gas	Temperature Class - Dust	Ambient temperature limitation	Input				
			Current limitation	Voltage limitation	Power limitation	Ci	Li
T4	T135 °C	-40°C – 85°C	100 mA	30 V	0.75 W	13 nF	10 µH
T4	T135 °C	-40°C – 70°C	160 mA	30 V	1.0 W		
T5	T100 °C	-40°C – 40°C	100 mA	30 V	1.4 W		
T6	T85 °C	-40°C – 40°C	50 mA	30 V	0.4 W		

LST300abcdL1H1 Compact Ultrasonic Level Transmitter

a = Explosion Protection; E6 or E7

b = Sensor Type and Range; C10 or C06

c = Process Connection Type; U5 or U2

d = Housing material; A1, B1, S1 or T1

g = Additional options (one or more); B*, C*, F**, GS*, L0, L2, L7, M*, S1, TC*

* variable – not relevant to safety

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14 Specific Conditions of Use:

1. When the manufacturer of the equipment has not identified the type of protection on the label (option a = E7), the user shall, on installation, mark the label with the type of protection used.
2. The painted surface of the LST300 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. Guidance on protection against the risk of ignition due to electrostatic discharge can be found in IEC TR60079-32-1. Cleaning of the painted surface should only be done with a damp cloth.
3. For option d (housing material) equals A1 or B1 the enclosure contains aluminium and is considered to present a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact or friction.

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 EC-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:

Date	Description
12 th April 2016	Original Issue.

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Blueprint Report

ABB Engineering (Shanghai) Limited (135922)

Class No 3610

Original Project I.D. 3054628

Certificate I.D. FM15ATEX0063X

<u>Drawing No.</u>	<u>Revision Level</u>	<u>Drawing Title</u>	<u>Last Report</u>	<u>Electronic Drawing</u>
3KQR065003U0501	00	TRANSFORMER PUSH-PULL	3054628	Yes (pdf)
3KXL065010U0109	03	TOTAL FLOW ASSEMBLY FOR EX CERTIFICATION	3054628	Yes (pdf)
3KXL065028U0009	01	LST300 PCBA SUB-ASSEMBLY FOR EX CERTIFICATION	3054628	Yes (pdf)
3KXL065028U0022	01	2 WIRE BASED ULTRASONIC LEVEL FRONT END SCHEMATIC	3054628	Yes (pdf)
3KXL065028U0121	01	BOM for 2 WIRE BASED ULTRASONIC LEVEL FRONT END (50K)	3054628	Yes (pdf)
3KXL065028U0221	01	BOM for 2 WIRE BASED ULTRASONIC LEVEL FRONT END (75K)	3054628	Yes (pdf)
3KXL065032U0023	00	2 WIRE BASED ULTRASONIC LEVEL FRONT END LAYOUT	3054628	Yes (pdf)
3KXL065035U0009	00	LST300 CONTROL DRAWING FOR 2 WIRE BASED ULTRASONIC LEVEL	3054628	Yes (pdf)
3KXL065036U0009_00	00	LST300 ASSEMBLY FOR Ex CERTIFICATION	3054628	Yes (pdf)
3KXL065039U0009_02	02	LST300 Nameplates and labels for certification	3054628	Yes (pdf)
3KXL330001R2101	03	PRODUCT CODE LIST LST300	3054628	Yes (excel14book)
87-318-01	C	ARKT 50 THD 2IN UNIV (50 KHZ)	3054628	Yes (pdf)
97-317-01	c	ARKT 50 THD 1.5IN UNIV (75 KHZ)	3054628	Yes (pdf)
SI_LST300-EN RELEASE	12/15	SAFETY INSTRUCTION	3054628	Yes (pdf)