

# 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:** FM20ATEX0005X

4 **Equipment or protective system:** Echotel 910 Ultrasonic Level Switch  
(Type Reference and Name)

5 **Name of Applicant:** Magnetrol International Inc.

6 **Address of Applicant:** 705 Enterprise Street  
Aurora, IL 60504  
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 the 26<sup>th</sup> 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:

1Q9A9AE dated 17<sup>th</sup> November 2020


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 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 2 G Ex db IIC T6 Gb \*Ta = -40°C to +70°C  
\*Probes > 60 inches Ta = -20°C ≤ Ta ≤ 70°C

*Damien McArdle*

**Damien Mc Ardle**  
Certification Manager, FM Approvals Europe Ltd.

Issue date: 17<sup>th</sup> November 2020

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

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# SCHEDULE



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## 13 Description of Equipment or Protective System:

Echotel Model 910 Level Switches utilize ultrasonic contact technology for measuring level in clean liquid applications. The dual conduit electronics houses an 8-amp DPDT gold flash relay that is field selectable for high or low level fail-safe applications. There are no moving parts that come in contact with the medium. The Echotel Model 910 is an integrally mounted system, comprised of surface mount electronics and a 316 stainless steel transducer.

The Model 910 Level Switch uses ultrasonic energy to detect the presence or absence of liquid in a 316 stainless steel tip sensitive transducer gap. The basic principle behind ultrasonic contact technology is that high-frequency sound waves are easily transmitted across a transducer gap in the presence of a liquid medium, but are severely attenuated when the gap is dry. The Model 910 uses an ultrasonic frequency of 3 MHz to perform this liquid level measurement in a wide variety of process media and application conditions. The transducer uses a pair of piezoelectric crystals that are encapsulated in epoxy at the tip of the transducer. The crystals are made of a ceramic material, such as lead zirconate. The transmit crystal converts an electrical signal from the Model 910 electronics into an ultrasonic signal. When liquid is present in the gap, the receive crystal is able to sense the ultrasonic signal from the transmit crystal and convert it back to an electrical signal. This signal is sent to the electronics to indicate the presence of liquid in the transducer gap. When there is no liquid present, the ultrasonic signal is attenuated, and the receive crystal is not able to sense the sound waves from the transmit crystal.

This apparatus consists of:

- One single or dual entry aluminum alloy or 316 stainless-steel housing containing the electrical and electronic devices complying with the kind of protection "db".
- One probe / transducer assembly with a welded-on adapter fitting containing potting which is screwed directly to the housing. The probe extension tube connects between the adapter fitting and transducer end and can vary in length for a max over all probe length of 100 inches. The probe / transducer assembly complies with the kinds of protection "db". The interface between the probe adapter, extension tube and transducer end are all welded and made of 316 stainless steel

### Model Code Structure:

Current model code for ATEX listing

910-abcd-e. ECHOTEL Ultrasonic Level Control.

a = Housing A, V, Y, P or 5.

b = Type unit 1 or M.

c = Process connection material A, C, D, E, F, G, H, J, K, L, M, N, P, Q, R, S, T, U, V, W, X, Y, Z, 1, 2, 3, 4, 5, 6, 7, 8 or 9.

d = Input power H, J, K, 0, 1 or 2.

e = Actuation length 001 through 254

## 14 Specific Conditions of Use:

1. The Echotel 910 Level Transmitter is only for use with the Echotel 910 Probe.
2. To maintain the T6 temperature code care shall be taken to ensure the "Enclosure Temperature" does not exceed 70°C.
3. The risk of electrostatic discharge shall be minimized at installation, following the direction given in the Instruction.
4. For Installation with ambient temperature of 70°C, refer to the manufacturer's instructions for guidance on proper selection of conductors.
5. The flamepaths of the equipment are not intended to be repaired. Consult the manufacturer if repair of the flamepath joints is necessary.

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**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
17 <sup>th</sup> November 2020	Original Issue.

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# Blueprint Report

**Magnetrol International Inc (1000000020)**

**Class No 3615**

**Original Project I.D. 1Q9A9AE**

**Certificate I.D. FM20ATEX0005X**

<u>Drawing No.</u>	<u>Revision Level</u>	<u>Drawing Title</u>	<u>Last Report</u>
009-4327	J	RELAY, HERMETICALLY SEALED	06/27/12
02-6205	N	ULTRASONIC PROBE BASE CAST.	PR454942
02-6207	F	ULTRASONIC PROBE COVER CAST.	RR218022
02-6214	C	HOUSING CASTING	RR218022
04-4982	C	COUPLING	01/25/13
04-9105	N	PROBE HOUSING COVER (MACHINED)	RR200791
04-9140	T	ULTRASONIC PROBE BASE	RR200791
04-9142	B	PROBR COVER HOUSING MACHINED	0D4A2AE
04-9182	N	HOUSING MACHINED	PR454942
09-4611	L	MINIATURE FUSE P.C. MOUNTING	PR454942
09-6218	AE	POWER TRANSFORMER	PR454942
09-6225	H	TRANSFORMER	0V8A2AE
11-2542	W	PIPE PLUG	RR200791
32-7809	P	ECHOTEL III WELDING ASSEMBLY	PR454942
51-604.21	November 2020	ECHOTEL MODEL 910 INSTALLATION AND OPERATING MANUAL	PR454942
58-01XX	Y	TRANSDUCER ASS.	PR454942
94-1108	Q	SCEMATIC	PR454942
99-6578	A	MODEL 910, ECHOTEL ULTRASONIC CONTACT, SINGLE POINT, 3 MHZ	PR454942