

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:** FM15ATEX0058X

4 **Equipment or protective system:** Pulsar R96 Radar Level Transmitter/Pulsar Radar Level Probe.
(Type Reference and Name)

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

6 **Address of Applicant:** 705 Enterprise Street
Aurora, IL 60504 USA

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:

3054552 dated 22nd January 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 60079-1:2014, EN 60079-11:2012,
EN 60079-26:2015, EN 60079-31:2014 and EN 60529:2002

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...T1 Ga Ta = -40°C to +70°C, IP67

II 1/2 G Ex db ia IIB+H₂ T4...T1 Ga/Gb Ta = -40°C to +70°C, IP67

II 2 D Ex ia tb IIIC T100°C Db Ta = -15°C to +70°C, IP67

Mick Gower
Certification Manager, FM Approvals Ltd.

Issue date: 03rd February 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. FM15ATEX0058X

13 **Description of Equipment or Protective System:**

The Pulsar Model R96 is a 24VDC loop powered, non-contact radar level transmitter, for liquid level control utilizing the engineering principle of pulse burst radar technology. The primary components are the probe assembly, and Preamp PC Board assembly, and the electronics assembly containing all other PC Boards.

Short bursts of 6GHz microwave energy is emitted and subsequently reflected from the liquid level surface. Distance is calculated by the equation $D = \text{Transit time (round trip)}/2$. Liquid level is then calculated by applying the tank height value.

The Pulsar Model R96 is housed in a dual compartment (die-cast aluminum or investment cast 316SS) enclosure with separate wiring and electronics compartments. The wiring compartment at the top of the transmitter isolates the power/signal conductors from the electronics compartment beneath it by way of an environmentally sealed feed-through. A probe coupling eases installation and allows probes to be installed without concern for their orientation to the transmitter head.

Model Code Structure:

R96-5abc-def-RAg-hij-k00. Pulsar R96 Radar Level Transmitter / Pulsar Radar Level Probe.

Entity Parameters:

Ui = 28.4V, li = 140mA, Pi = 1W, Ci = 4.4nF, Li = 2.7μH

a = Signal Out: 1 or 2.

b = Options: 0 or 1.

c = Accessories: 0 or A.

d = Classification: 1, 3 (when a = 1 or 2), 0, A, B or C.

e = Housing/Conduit Connection: 1 or 2.

f = Options: 0, 2 or 3.

g = Configuration Style: A, B, C, 3, 4, or 6.

h = Material of Construction. Antenna/ Mounting Nut: A, B, C, G, L or K.

i = Process Connection Size Type: 31, 32, 43, 44, 45, 53, 54, 55, 63, 64, 65, 73, 74, 75, 83, 84, 85, DA, DB, DD, EA, EB, ED, FA, FB, FD, GA, GB, GD, HA, HB, HD, 3P, 4P, 5P, 6P or 7P.

j = O rings: 0, 1, 2 or 8.

k = Maximum Nozzle Length: 0, 1, 2 or 3.

14 **Specific Conditions of Use:**

1. The enclosure contains aluminum and is considered to present a potential risk of ignition by impact or friction. Care must be taken during installation and use to prevent impact or friction.
2. To maintain the T4 to T1 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. Contact the original manufacturer for information in the dimensions of flameproof joints.
5. For Installation with ambient temperature of 70°C, refer to the manufacturer's instructions for guidance on proper selection of conductors.
6. Provisions shall be made to provide transient overvoltage protection to a level not to exceed 119Vdc.
7. The sensor probes maintain a Category 1G rating.

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8. Temperature codes for the ratings Ex db ia IIB+H₂ and Ex ia IIC are defined by the following table:-

Process temperature(PT)	Temperature Code-TCG (GAS)
From 0°C to 110°C	T4
From 110°C to 175°C	T3
From 175°C to 275°C	T2
From 275°C to 425°C	T1

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
03 rd February 2016	Original Issue.

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Blueprint Report

Magnetrol International Inc (1000000020)

Class No 3615

Original Project I.D. 3054552

Certificate I.D. FM15ATEX0058X

<u>Drawing No.</u>	<u>Revision Level</u>	<u>Drawing Title</u>	<u>Last Report</u>	<u>Electronic Drawing</u>
005-8096	L	Pulsar R96	3054552	Yes (pdf)
030-3623	D	PULSAR 2 6 GHz ANALOG BOARD	3054552	Yes (pdf)
030-9159	S	Hart Digital P.C. Board	3054552	Yes (pdf)
030-9162	B	DISPLAY P.C. BOARD	3054552	Yes (pdf)
030-9164	F	Foundation Fieldbus Digital PC Board	3054552	Yes (pdf)
030-9165	F	WIRING BOARD	3054552	Yes (pdf)
030-9166	D	FOUNDATION FIELDBUS WIRING BOARD	3054552	Yes (pdf)
031-2850	C	DISPLAY MODULE ASSY	3054552	Yes (pdf)
031-2890	A	POTTED MODULE ASSEMBLY (MODEL R96)	3054552	Yes (pdf)
070-2004	D	Catalyst	3054552	Yes (pdf)
070-2005	E	Epoxy Cement	3054552	Yes (pdf)
070-2015	C	UR 3001 HP2 CLEAR	3054552	Yes (pdf)
091-1313	G	Silastic RTV 732	3054552	Yes (pdf)
094-6067	L	ECLIPSE 4X DIGITAL BOARD	3054552	Yes (pdf)
094-6069	B	Schematic Pulsar 2X Analog Board 6 GHZ (R96)	3054552	Yes (pdf)
094-6070	B	Display Board "Eclipse 706"	3054552	Yes (pdf)
094-6072	D	Digital Board Foundation Fieldbus	3054552	Yes (pdf)
094-6073	D	Wiring Board "Eclipse 706"	3054552	Yes (pdf)
094-6075	D	Foundation Fieldbus Wiring Board "Eclipse 706"	3054552	Yes (pdf)
099-5061	B	System Drawing Model R95 Radar Transmitter	3054552	Yes (pdf)
099-6559	D	Model R96 Through Air Radar	3054552	Yes (pdf)
58-602	11/11/15	Pulsar R96 Radar	3054552	Yes (pdf)