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:** **FM14ATEX0048X**

4 **Equipment or protective system: (Type Reference and Name)** **NAR300 Oil Leak Detector System**

5 **Name of Applicant:** Endress & Hauser Yamanashi Co., Ltd.

6 **Address of Applicant:** 882-1 Mitsukunugi Sakaigawa-cho
Fuefuki-shi, Yamanashi-Ken 406-0846
Japan

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:

3049525 dated 4th August 2015

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, EN 60079-1: 2007, EN 60079-11: 2012, EN 60079-25: 2010

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:

NAR300 Float Sensor and Transmitter for Oil Leak Detector System.
II 1 G Ex ia IIB T5 Ta = 60°C - IP67 (Float Sensor)
II 1/2 G Ex ia [ia] IIB T4 Ta = 60°C - IP67 (Transmitter)

NRR261 Converter and Transmitter for Oil Leak Detector System.
II 1/2 G Ex d ia [ia] IIB T4 Ta = 60°C - IP67 (a = A)
II 2 G Ex d [ia] IIB T6 Ta = 60°C - IP67 (a = D)

NRR262 Converter for Oil Leak Detector System.
II 2 G [Ex ia] IIB Ta 60°C

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Mick Gower
Certification Manager, FM Approvals Ltd.

Issue date: 13th April 2016

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

SCHEDULE

to EC-Type Examination Certificate No. FM14ATEX0048X

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

The NAR300 Oil Leak Detector System is designed to detect the presence of hydrocarbon liquid in a dry pit or floating on the surface of water. The system consist of three major components, a sensor a transmitter and a converter. There are three configurations of the system for different installation variations.

NRR261 Converter – The NRR261 converter is installed in a flameproof housing. The converter provides intrinsically safe circuits to the transmitter via an intrinsically safe shunt diode barrier. The circuits exit the flameproof compartment via a flameproof feed through into the intrinsically safe compartment. The intrinsically safe compartment is mounted directly to the flameproof converter compartment. The intrinsically safe compartment contains the transmitter electronics in one configuration or for the remote configuration the compartment provides connections to a remote transmitter housing. The converter receives the current signal from the transmitter indicating the sensor status.

NRR262 Converter – The NRR262 converter is associated intrinsically safe apparatus installed in the non-hazardous area for DIN rail mounting or installation in another enclosure suitable for the end use. The converter provides intrinsically safe circuits to the transmitter via an intrinsically safe shunt diode barrier and receives the current signal from the transmitter indicating the sensor status.

NRR300 Float Sensor – The float sensor is a unit to detect an oil leak. The detector consists of a conductive sensor, a vibrating sensor and electronics. The two sensors are mounted on a stainless steel float which contacts fluid. The electronics are potted in a stainless steel housing. The vibronic sensor detects presence of liquid the conductivity sensor detects non-conductive material and differentiates air or oil. The sensor electronics receives signals from the sensors and is connected to the transmitter electronics. The high temperature version does not implement vibrating sensor.

Ambient temperature rating: -20°C to +60°C.

Electrical ratings:
Converter
Um = 90-250Vac, 250Vdc
Uo = 28V, Io = 93mA, Po = 0.65W, Co = 0.083uF, Lo = 3.05mH

Transmitter
Ui = 28V, Ii = 93mA, Pi = 650mW, Ci = 0uF, Li = 48uH
Uo = 13V, Io = 38mA, Po = 123.5W, Co = 0.56uF, Lo = 96.8mH

Sensor
Ui =16 V, Ii = 52 mA, Pi = 169 mW, Ci = 0, Li =0

SCHEDULE

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14 **Specific Conditions of Use:**

1. Contact manufacturer for flamepath joint details if repair is required.
2. Potential Electrostatic Discharge hazard, clean surfaces with a damp cloth

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
05th August 2015	Original Issue.
13th April 2016	Supplement 1: Report Reference: - RR204657 dated 11th April 2016 Description of the Change: CPU change on CPU Board, Circuit diagram and correction to date of standard EN 60079-25: 2010.

Blueprint Report

Endress & Hauser Yamanashi Co Ltd (1000004450)

Class No 7745

Original Project I.D. 3049525

Certificate I.D. FM14ATEX0048X

Drawing No.	Revision Level	Drawing Title	Last Report	Electronic Drawing
960374-0032A	01.30.2013	Uebertrager RM6 1000nH Transformer	3049525	Yes (pdf)
960392-0111A	04.07.2014	Survey Exi LPHT M uncoated sensor	3049525	Yes (pdf)
BA00402G/08/EN	07.17.2015	OPERATING INSTRUCTIONS NAR300 SYSTEM	3049525	Yes (pdf)
BA00403G/08/EN	07.17.2015	OPERATING INSTRUCTIONS NAR300 SYSTEM High Temperature	3049525	Yes (pdf)
D13-01-401	1	Technical Description (general)	3049525	Yes (pdf)
D14-03-403	27.03.2014	Software Description	3049525	Yes (pdf)
Ex1087-1156	03.27.2014	NAR300 system Oil leak detector	3049525	Yes (pdf)
Ex1087-1157	01.30.2013	NAR300 system Transmitter outline	3049525	Yes (pdf)
Ex1087-1159	01.30.2013	NAR300 system Transmitter explosion	3049525	Yes (pdf)
Ex1087-1160	01.30.2013	NAR300 system Float assembly outline	3049525	Yes (pdf)
Ex1087-1161	07.31.2014	NAR300 system Float assembly explosion	3049525	Yes (pdf)
Ex1087-1162	01.30.2013	NAR300 system Conductive sensor construction	3049525	Yes (pdf)
Ex1087-1163	06.26.2014	NAR300 system Block diagram	3049525	Yes (pdf)
Ex1087-1164	01.30.2013	NAR300 system Terminal board circuit diagram	3049525	Yes (pdf)
Ex1087-1165	06.30.2014	NAR300 system Terminal board component layout and layout	3049525	Yes (pdf)
Ex1087-1166	01.21.2014	NAR300 system Power board circuit diagram	3049525	Yes (pdf)
Ex1087-1167	06.30.2014	NAR300 system Power board Component layout cs	3049525	Yes (pdf)
Ex1087-1168	06.30.2014	NAR300 system Power board Component layout ss	3049525	Yes (pdf)
Ex1087-1169	01.30.2013	NAR300 system Power board conductive pattern cs	3049525	Yes (pdf)
Ex1087-1170	01.30.2013	NAR300 system Power board conductive pattern ss	3049525	Yes (pdf)
Ex1087-1171	1	NAR300 system CPU board Circuit diagram	RR204657	Yes (pdf)
Ex1087-1172	06.30.2014	NAR300 system CPU board Component layout cs	3049525	Yes (pdf)
Ex1087-1173	06.30.2014	NAR300 system CPU board Component layout ss	3049525	Yes (pdf)
Ex1087-1174	01.30.2013	NAR300 system CPU board Layout layer 1 and 4	3049525	Yes (pdf)
Ex1087-1175	01.30.2013	NAR300 system CPU board Layout layer 2 and 3	3049525	Yes (pdf)
Ex1087-1176	01.30.2013	NAR300 system Sheath cable	3049525	Yes (pdf)
Ex1087-1179	07.28.2014	NAR300 system Name plate for ATEX	3049525	Yes (pdf)
Ex1087-1180	06.26.2014	NAR300 system Name plate for IECEx	3049525	Yes (pdf)
Ex1087-1226	04.07.2014	Oil Leak Detector Systems over view	3049525	Yes (pdf)
Ex1087-1245	04.07.2014	NAR300 system Software control drawing	3049525	Yes (pdf)
Ex1087-1246	04.07.2014	NAR300 FTL50 outline	3049525	Yes (pdf)
Ex1087-1247	04.07.2014	NAR300 Float sensor cross-section	3049525	Yes (pdf)
Ex1087-1248	07.31.2014	NAR300 nameplate for Float sensor	3049525	Yes (pdf)
Ex1088-1182	01.30.2013	NRR261 Converter Outline	3049525	Yes (pdf)
Ex1088-1183	01.30.2013	NRR261 Converter Construction of NRR261-D/E/F**	3049525	Yes (pdf)
Ex1088-1184	01.30.2013	NRR261 Converter Enclosure Ex d	3049525	Yes (pdf)
Ex1088-1185	01.30.2013	NRR261 Converter Cover Ex d	3049525	Yes (pdf)
Ex1088-1186	02.17.2015	NRR261 Converter Threaded adapter NPT1/2	3049525	Yes (pdf)
Ex1088-1187	01.30.2013	NRR261 Converter Sleeve Ex d	3049525	Yes (pdf)
Ex1088-1188	06.06.2014	NRR261 Converter Block diagram	3049525	Yes (pdf)
Ex1088-1189	01.30.2013	NRR261 Converter Terminal board component layout	3049525	Yes (pdf)
Ex1088-1190	01.30.2013	NRR261 Converter Terminal board conductive pattern CS	3049525	Yes (pdf)
Ex1088-1191	01.30.2013	NRR261 Converter Terminal board conductive pattern SS	3049525	Yes (pdf)
Ex1088-1194	07.17.2015	NRR261 Converter Name plate for ATEX/IECEx	3049525	Yes (pdf)
Ex1088-1225	02.19.2014	NRR261 Converter with transmitter Construction of NRR261-A/B/C**	3049525	Yes (pdf)

Ex1088-1227	02.17.2015	NRR261 Converter Threaded adapter M20	3049525	Yes (pdf)
Ex1088-1229	02.17.2015	NRR261 Converter Threaded adapter NPT3/4	3049525	Yes (pdf)
Ex1088-1230	02.17.2015	NRR261 Converter Threaded adapter M25	3049525	Yes (pdf)
Ex1089-1195	01.30.2013	NRR262 Converter Outline	3049525	Yes (pdf)
Ex1089-1196	06.06.2014	NRR262 Converter Block diagram	3049525	Yes (pdf)
Ex1089-1197	01.30.2013	NRR262 Converter Construction(screw terminal)	3049525	Yes (pdf)
Ex1089-1198	01.30.2013	NRR262Converter Terminal board component layout(screw terminal)	3049525	Yes (pdf)
Ex1089-1199	01.30.2013	NRR262 Converter Terminal board conductive pattern CS(Screw terminal)	3049525	Yes (pdf)
Ex1089-1200	01.30.2013	NRR262 Converter Terminal board conductive pattern SS(Screw terminal)	3049525	Yes (pdf)
Ex1089-1201	01.30.2013	NRR262 Converter Construction(DIN terminal)	3049525	Yes (pdf)
Ex1089-1202	01.30.2013	NRR262 Converter Terminal board component layout(DIN terminal)	3049525	Yes (pdf)
Ex1089-1203	01.30.2013	NRR262 Converter Terminal board conductive pattern CS(DIN terminal)	3049525	Yes (pdf)
Ex1089-1204	01.30.2013	NRR262 Converter Terminal board conductive pattern SS (DIN terminal)	3049525	Yes (pdf)
Ex1089-1207	07.28.2014	NRR262 Converter Name plate for IEX/IECEx	3049525	Yes (pdf)
SK6091-X0XXB00	07.30.2013	Reduction	3049525	Yes (pdf)
XA01098G-	A	Safety Instructions: Oil Leak Detector NAR300	3049525	Yes (pdf)
XA01103G-	A	Safety Instructions: Converter NRR261 for Oil Leak Detector	3049525	Yes (pdf)
XA01106G-	A	Safety Instructions: Converter NRR262 for Oil Leak Detector	3049525	Yes (pdf)
YW3-50018	27.03.2014	Converter board schematic	3049525	Yes (pdf)
YW4-50048	27.03.2014	Power supply board schematic (AC)	3049525	Yes (pdf)
YW4-5050	27.03.2014	Power supply board schematic (DC)	3049525	Yes (pdf)
YW4-5051	27.03.2014	Power supply board schematic (DC)	3049525	Yes (pdf)