

UK-TYPE EXAMINATION CERTIFICATE

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

- 3 UK-Type Examination Certificate Number: **SGS23UKEX0205X**
- 4 Product: **9415-x0001 Radar Sensor**
- 5 Manufacturer: **Rochester Sensors, LLC**
- 6 Address: **1025 S Belt Line Road Suite 100, Texas , United States of America**
- 7 This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- 8 SGS United Kingdom Ltd. (formerly SGS Baseefa Ltd.), Approved Body number 1180, in accordance with Regulations 42 and 43 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 a confidential report identified in the revision table at item 20.
- 9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN IEC 60079-0: 2018 EN 60079-11: 2012
- except in respect of those requirements listed at item 18 of the Schedule.
- 10 If the sign “X” is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.
- 11 This UK-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. 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 product shall include the following:

 **II 1 G Ex ia IIA T3 Ga -40 °C ≤ Ta ≤ +85 °C**

SGS Customer Reference No. **8328**

Project File No. **23/0516**

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CERTIFICATION MANAGER
On behalf of SGS United Kingdom Limited

13 **Schedule**

14 **Certificate Number SGS23UKEX0205X**

15 **Description of Product**

Radar Sensor 9415-x0001 is an intrinsically safe telemetry device designed for a remote measuring of liquid level in tanks. The device is mounted on the top of the tank with use of special glued or threaded adapter. As a sensor of fluid level radar chip is used. Information related to measured level is presented on LCD display and can be read via Bluetooth interface.

The device is powered from two non-replaceable lithium primary cells or from external cable connection. All components are located on one printed board inside of plastic enclosure.

Version with primary cells has no external connectors. The second version has permanently connected cable with two circuits – power supply and for 0...5V analogue signal output.

Models

The following models are covered by this certificate:

- 9415-B0001-00 Battery powered version with no external connections as specified by the “00” suffix.
- 9415-C0001-XX Integral cable version with suffix “-xx” specifying cable length in feet to a maximum length of 50 ft

Specification

Power supply Model: 9415-B0001-00	Two (2) Primary Cells, 3.6 V
Power supply Model: 9415-C0001-XX	External, $U_m = 5.00\text{ V}$
Ambient Temperature Range	$-40\text{ °C} \leq T_a \leq +85\text{ °C}$
Radio Communication Interface	Bluetooth
Radio Frequency Range	2.4 GHz
Maximum Radio Power	$\leq 4\text{ mW}$
Data Output Interface (Model: 9415-C0001-XX Only)	Analogue Signal, 0 V to 5 V
Housing Material	Plastic
Degree of Protection	Not less than IP20 (IEC 60529)
Maximum Allowable Cable Capacitance	60 pF/ft
Maximum Allowable Cable Inductance	0.2 $\mu\text{H/ft}$

Input Parameters (Model: 9415-C0001-XX Only)

- $U_i = 6.60\text{ V}$
- $I_i = 450\text{ mA}$
- $P_i = 800\text{ mW}$
- $C_i = 430\text{ }\mu\text{F} - C_{\text{cable}}$; See Note
- $L_i = L_{\text{cable}}$; See Note

Note: The terms C_{cable} and L_{cable} apply to the cable capacitance and inductance respectively that must be considered. Only cables with a capacitance of no more than 60 pF/ft and a cable inductance of no more than 0.2 $\mu\text{H/ft}$ up to a maximum length of 50 ft. Maximum allowable cable capacitance and inductance is 3 nF and 10 μH respectively.

16 **Report Number**

See Item 20 – Certificate History

17 Specific Conditions of Use

1. The ambient temperature range of the equipment is $-40\text{ }^{\circ}\text{C} \leq T_a \leq +85\text{ }^{\circ}\text{C}$.
2. Potential electrostatic charging hazard. Refer to instructions for guidance on prevention of build up-of electrostatic charge.
3. For Model 9415-C0001-XX, the core with the white insulation is active i.e. 0 V to 5 V Data Output Interface. If the output connection is used the output parameters associated with the connection are $U_o = 5.88\text{ V}$; $I_o = 131\text{ mA}$; $P_o = 193\text{ mW}$; $L_o = 150\text{ }\mu\text{H} - L_{\text{cable}}$; $C_o = 1000\text{ }\mu\text{F} - C_{\text{cable}}$.

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject
13	LVD type requirements
14	Overloading of equipment (protection relays, etc.)
21 (1)	External effects
21 (2)	Aggressive substances, etc.

19 Drawings and Documents

Other than for Issue 0, Drawings and Documents that are introduced at a new edition of the certificate are marked with an asterisk symbol:

Number	Sheet	Issue	Date	Description
Ex_DOC01 9415-x0001-xx	1 to 28	1.0	2023-06-12	9415-x0001 – Ex Documentation
Ex_DOC02 9415-x0001-xx	1 to 7	1.0	2023-06-12	Instruction manual – minimum content
Ex_DRW01 9415-x0001	1 to 15	1.0	2023-06-12	Schematics
Ex_DRW02 9415-x0001	1 to 2	1.0	2023-06-12	Printed Boards
Ex_LST01 9415-x0001	1 to 6	1.0	2023-06-12	Components lists (BOM)
0159-01011	1 of 1	---	9/12/18	Cable , 3 Conductor, 22 AWG, .205" OD
DRW06	1 of 2	1.0	15/Dec/2023	9415-x0001 marking, version 1
DRW06	2 of 2	1.0	15/Dec/2023	9415-x0001 marking, version 2

20 Certificate History

Certificate No.	Date	Comments
BAS23UKEX0205X Issue 0	29 January 2024	Prime Certificate Report Number: 23(C)0516 Project Number: 23/0516 Original issue of the certificate

For drawings applicable to each issue, see original of that issue.