1 # UK-TYPE EXAMINATION CERTIFICATE

2 **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:	**BAS21UKEX0567X**
4	Product:	**gPIMS Sensor Type R2P-**in-EX-**mm, Type M R2P-**in-EX-**mm and Type CM R2P-**in-EX-**mm**
5	Manufacturer:	**Guided Ultrasonics Limited**
6	Address:	**Wavemaker House, 3 Brentwaters Business Park, The Ham, Brentford, TW8 8HQ**

7 This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 SGS Baseefa, Approved Body number 1180, in accordance with Regulation 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 confidential Report No. **GB/BAS/ExTR21.0200/00**

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:

Ex **II 1 G Ex ia IIB T4…T3 Ga - See Certificate Schedule for full marking information**

SGS Baseefa Customer Reference No. **6979** Project File No. **21/0661**

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UKAS PRODUCT CERTIFICATION
0191

R S SINCLAIR
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 # Schedule

14 # Certificate Number BAS21UKEX0567X

15 Description of Product

The gPIMS Sensor Type R2P-**in-EX-**mm, Type M R2P-**in-EX-**mm and Type CM R2P-**in-EX-**mm (** represents numeric type number related to the size of the sensor) are permanently installed monitoring systems which utilise ultrasonic guide waves, sent along the length of a pipe, to non-destructively test pipes for defects or other pipe features by detecting changes in the cross section and/or stiffness of the pipe.

The gPIMS Sensor Type R2P-**in-EX-**mm consist of either a single band or a combination of two bands, that is placed around the pipe which houses the piezo electric crystals, and a permanently attached cable up to 50m long. The bands use piezoelectric crystals to induce ultrasonic waves in to the pipe and uses the same crystals to listen for any reflected waves. The sensor is connected to the monitoring equipment via an interface located in the safe non-hazardous area.

The gPIMS Sensor Type R2P-**in-EX-**mm has the following Temperature Classification and associated ambient temperature ranges:

⟨Ex⟩ II 1G Ex ia IIB T4 Ga (-40 °C ≤ T_a ≤ +90 °C)

⟨Ex⟩ II 1G Ex ia IIB T3 Ga (-40 °C ≤ T_a ≤ +130 °C)

gPIMS Sensor Type R2P-in-EX-**mm Input Parameters**

Signal Pins (A, B, Y, D, F, b, H, J, K, L, h, N, R, k, T, U) each w.r.t GND (W, X, r, Z, a, t, c, d, f, g, x, I, z, m, n)

U_i = ± 18 V
I_i = 127 mA
P_i = 569 mW
C_i = 34 nF
L_i = 31 µH

Logic Pins (BB, CC, DD, EE, GG, HH) combined w.r.t. GND (FF)

U_i = 5.88 V C_i = 6.7 nF
I_i = 143.4 mA L_i = 70 µH
P_i = 208 mW

The gPIMS Sensor Type M R2P-**in-EX-**mm is of a similar construction to the single band Type R2P-**in-EX-**mm but is designed to be directly connected to a certified gPIMS Sampling Module Type M or similar certified equipment in place of the integral cable. Due to the direct mounting of the gPIMS Sampling Module Ex Type M, the gPIMS Sensor Type M R2P-**in-EX-**mm has the following temperature classification and ambient temperature range:

⟨Ex⟩ II 1G Ex ia IIB T4 Ga (-40°C ≤ T_a ≤ +85°C)

gPIMS Sensor Type M R2P-in-EX-**mm Input Parameters**

Signal Pins each w.r.t GND

U_i = 8.3 V C_i = 12 nF
I_i = 503 mA L_i = 0
P_i = 1044 mW

Logic Pins combined w.r.t. GND

U_i = 5.88 V C_i = 0
I_i = 143.4 mA L_i = 0
P_i = 208 mW

The gPIMS Sensor Type CM R2P-**in-EX-**mm is of a similar construction to the Type R2P-**in-EX-**mm and may be provided in either the single band or dual band configuration. It is provided with an integral 50 m cable and is designed to be connected to a certified gPIMS Sampling Module Type CM or similar certified equipment.

The gPIMS Sensor Type CM R2P-**in-EX-**mm has the following Temperature Classification & associated ambient temperature ranges:

⟨Ex⟩ II 1G Ex ia IIB T4 Ga (-40°C ≤ T_a ≤ +90°C)

⟨Ex⟩ II 1G Ex ia IIB T3 Ga (-40°C ≤ T_a ≤ +130°C)

gPIMS Sensor Type CM R2P-in-EX-**mm Input Parameters**

Signal Pins each w.r.t GND

U_i	=	8.3 V	C_i	=	34 nF
I_i	=	503 mA	L_i	=	31 µH
P_i	=	1044 mW			

Logic Pins combined w.r.t. GND

U_i	=	5.88 V	C_i	=	6.7 nF
I_i	=	143.4 mA	L_i	=	70 µH
P_i	=	208 mW			

16 Report Number

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17 Specific Conditions of Use

1. Care must be taken when installing the gPIMS sensor to ensure that it is protected from any situations that could cause a build-up of static charge. The gPIMS sensor must not be installed into locations in which it could come into contact with, through normal or abnormal circumstances, fast moving dust laden air/gas or non-conductive fluids. The gPIMS sensor must be cleaned only with a damp cloth.
2. The locking nut on the equipment connector is manufactured from aluminium alloy, this part of the equipment must be protected from impact or abrasion if located in an area classified Zone 0 or 1.
3. The gPIMS Sensor Type R2P-**in-EX-**mm and Type CM R2P-**in-EX-** models are suitable for T4 and T3 Temperature Classifications with different ambient temperature ranges. Refer to the Certificate Schedule for the full equipment marking.

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

Number	Sheet	Issue	Date	Description
GP-0424-00	1 to 2	11	01/11/21	Connector ID Plate ATEX
GP-0653-00	1 of 1	08	01/11/21	MTS Type M – GPIMS ID Plate

For all other drawings, see Baseefa14ATEX0067 Issue 3 and IECEx BAS 14.0031X Issue 4