



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.:	<b>IECEX EXV 20.0044X</b>	Page 1 of 4	<u>Certificate history:</u>
Status:	<b>Current</b>	Issue No: 3	Issue 2 (2021-08-24)
Date of Issue:	2023-08-25		Issue 1 (2021-05-17)
Applicant:	<b>SMARTECH MANAGEMENT LTD</b> Unit 8, Gransden Park, Potton Road, Abbotsley St Noets PE19 6TY <b>United Kingdom</b>		Issue 0 (2020-10-20)
Equipment:	<b>Flarephase 250, Flarephase Cryo, Flarephase 350, FlarePhase 250 Bias-90, FlarePhase Cryo Bias-90, FlarePhase 350 Bias-90 Fluenta ultrasonic transducers</b>		
Optional accessory:			
Type of Protection:	<b>Equipment protection by intrinsic safety "i"</b>		
Marking:	Ex ia IIC T* Ga (Ta = -40°C to +60°C) (* Refer to description)		

Approved for issue on behalf of the IECEx  
Certification Body:

**Sean Clarke CEng MSc FIET**

Position:

**Certification Manager**

Signature:  
(for printed version)

Date:  
(for printed version)

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Certificate issued by:

**ExVeritas Limited**  
Units 16-18 Abenbury Way  
Wrexham Ind. Est.  
Wrexham LL 139UZ  
**United Kingdom**





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Certificate No.: **IECEX EXV 20.0044X**

Page 2 of 4

Date of issue: 2023-08-25

Issue No: 3

Manufacturer: **FLUENTA AS**  
Haraldsgate 90 P.O. Box 420  
N-5501 Haugesund  
NORWAY  
**Norway**

Manufacturing locations: **Nordic Services Sp. Z.o.o.**  
Leborska 3b  
PO-80-386 Gdansk  
**Poland**

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

## STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

[IEC 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements  
Edition:7.0

[IEC 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"  
Edition:6.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

## TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

[GB/EXV/ExTR20.0069/00](#)  
[GB/EXV/ExTR23.0081/00](#)

[GB/EXV/ExTR21.0041/00](#)

[GB/EXV/ExTR21.0082/00](#)

Quality Assessment Report:

[NO/NEM/QAR09.0001/10](#)



# IECEX Certificate of Conformity

Certificate No.: **IECEX EXV 20.0044X**

Page 3 of 4

Date of issue: 2023-08-25

Issue No: 3

## **EQUIPMENT:**

Equipment and systems covered by this Certificate are as follows:

The Fluenta *Flarephase 250, Flarephase Cryo, Flarephase 350, FlarePhase 250 Bias-90, FlarePhase Cryo Bias-90 and FlarePhase 350 Bias-90* ultrasonic transducers comprises an enclosure made in titanium where three galvanic insulated piezoelectric crystals are installed. The transducer is partially encapsulated where a limiting circuit is included.

*(refer to attachments)*

## **SPECIFIC CONDITIONS OF USE: YES as shown below:**

- Enclosure is manufactured in titanium alloy and must be protected against impacts during the installation and use.
- FlarePhase ultrasonic transducers require connection to a FlareAmp and FlareAmp Controller.



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Certificate No.: **IECEX EXV 20.0044X**

Page 4 of 4

Date of issue: 2023-08-25

Issue No: 3

**DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)**

Additional manufacturing location - Nordic services. No technical changes have been made.

**Annex:**

[FO-CB-34 - IECEx Certificate Annex Template.pdf](#)

**Description Continued:**

The internal piezoelectric crystals circuits are infallibly segregated between themselves, hence the following entity parameters apply to each of the three circuits:

$$U_i = 5 \text{ V}$$

$$I_i = 0.81 \text{ A}$$

$$P_i = 1.01 \text{ W}$$

$$C_i = 2 \text{ nF}$$

$$L_i = 0 \text{ H (negligible)}$$

The models *Flarephase 250*, *Flarephase Cryo*, *FlarePhase 250 Bias-90* and *FlarePhase Cryo Bias-90* are identical regarding the internal parts, while the model *Flarephase 350* and *FlarePhase 350 Bias-90* provide different insulating materials for the segregation of the internal circuits.

The models *Fluenta Flarephase 250*, *Flarephase Cryo* and *Flarephase 350* provide enclosures that are inserted in the process at 180° bias and the models *FlarePhase 250 Bias-90*, *FlarePhase Cryo Bias-90* and *FlarePhase 350 Bias-90* are inserted in the process at 90° bias.

The temperature class is in function of the ambient and process temperature, the following table shall be considered by the end user to determine the temperature class.

<i>Flarephase 250, Flarephase Cryo, FlarePhase 250 Bias-90 and FlarePhase Cryo Bias-90</i>	
Temperature class	Process temperature range (Tp)
T5	$-200^{\circ}\text{C} \leq T \text{ process} \leq +90^{\circ}\text{C}$
T4	$-200^{\circ}\text{C} \leq T \text{ process} \leq +125^{\circ}\text{C}$
T3	$-200^{\circ}\text{C} < T \text{ process} \leq +190^{\circ}\text{C}$
T2	$-200^{\circ}\text{C} < T \text{ process} \leq +260^{\circ}\text{C}$

Approved process temperature range:  $-200^{\circ}\text{C}$  to  $+260^{\circ}\text{C}$ .

<i>Flarephase 350 and FlarePhase 350 Bias-90</i>	
Temperature class	Process temperature range (Tp)
T5	$-40^{\circ}\text{C} \leq T \text{ process} \leq +90^{\circ}\text{C}$
T4	$-40^{\circ}\text{C} \leq T \text{ process} \leq +125^{\circ}\text{C}$
T3	$-40^{\circ}\text{C} < T \text{ process} \leq +190^{\circ}\text{C}$
T2	$-40^{\circ}\text{C} < T \text{ process} \leq +285^{\circ}\text{C}$
T1	$-40^{\circ}\text{C} < T \text{ process} \leq +435^{\circ}\text{C}$
$T^* = T_p + 15 \text{ K}$	$+435^{\circ}\text{C} < T \text{ process} \leq +450^{\circ}\text{C}$

Approved process temperature range:  $-40^{\circ}\text{C}$  to  $+450^{\circ}\text{C}$ .

*NOTE: The marked process temperature is related to the safety requirements. The probe is operational for a temperature range from  $-40^{\circ}\text{C}$  to  $+350^{\circ}\text{C}$ .*

**Routine Tests:**

1. None.

**Issue 0**

Title:	Drawing No.:	Rev. Level:	Date:
FlarePhase Transducer Head GA	77.190.001	A	14/07/2020
FlarePhase Transducer Welding Drawing	77.190.002	A	05/05/2020
Vent Holder	77.190.005	A	06/05/2020
Breather Bolt	77.190.007	A	06/05/2020
Match PCB and casting potting resin	77.190.009	A	10/08/2020
FlarePhase Transducer Extension Rod	77.190.025	A	29/11/2019
FlarePhase ATEX and IECEx Label	77.190.212	A	20/09/2020
Breather Vent Assembly	77.190.353	A	06/05/2020
FlarePhase Transducer Assembly - GA Drawing	77.190.362	A	04/05/2020
FlarePhase Match PCB Schematic	77.190.800	A	19/09/2020
FlarePhase Match PCB Layout - 19-Sep-2020	63.190.300	A	19/09/2020
FlarePhase Match PCB BOM	74.190.101	A	19/09/2020
FlarePhase General, Safety and Maintenance Manual	62.190.027	A	20/09/2020

**Issue 1**

Title:	Drawing No.:	Rev. Level:	Date:
FlarePhase Transducer Head GA	77.190.001	A	14/07/2020
FlarePhase Transducer Welding Drawing	77.190.002	A	05/05/2020
Vent Holder	77.190.005	A	06/05/2020
Breather Bolt	77.190.007	A	06/05/2020
Match PCB and casting potting resin	77.190.009	A	10/08/2020
FlarePhase Transducer Extension Rod	77.190.025	A	29/11/2019
FlarePhase 250 ATEX and IECEx Tag Plate	77.190.212 (*)	B	29/03/2021
FlarePhase Cryo ATEX and IECEx Tag Plate	77.190.213 (*)	A	29/03/2021
FlarePhase 350 ATEX and IECEx Tag Plate	77.191.212 (*)	A	29/03/2021
Breather Vent Assembly	77.190.353	A	06/05/2020
FlarePhase Transducer Assembly - GA Drawing	77.190.362	A	04/05/2020
Fluenta FGM Flare Gas Meter FlarePhase 350 Transducer Assembly	77.191.362 (*)	A	29/03/2021
FlarePhase Match PCB Schematic	77.190.800	A	19/09/2020
FlarePhase Match PCB Layout - 19-Sep-2020	63.190.300	A	19/09/2020
FlarePhase Match PCB BOM	74.190.101	A	19/09/2020
FlarePhase General, Safety and Maintenance Manual	62.190.027 (*)	B	29/03/2021
1A - HS Flare Gas Meter Transducer Protection Concept Description 005	72.190.300 (*)	A	08/04/2021

(\*) Drawings changed or included on this issue.

**Issue 2**

Title:	Drawing No.:	Rev. Level:	Date:
FlarePhase Transducer Head GA (*)	77.190.001	B	14/07/2020
FlarePhase Transducer Welding Drawing	77.190.002	A	05/05/2020
FlarePhase Bias-90 Transducer Assembly – Welding Instruction and Specification (*)	77.192.002	A	11/08/2021
Vent Holder	77.190.005	A	06/05/2020
Breather Bolt	77.190.007	A	06/05/2020
Match PCB and casting potting resin	77.190.009	A	10/08/2020
FlarePhase Transducer Extension Rod	77.190.025	A	29/11/2019
FlarePhase Bias-90 Extension Rod (*)	77.192.025	A	11/08/2021
FlarePhase 250 ATEX and IECEx Tag Plate	77.190.212	B	29/03/2021
FlarePhase 250 Bias 90 ATEX and IECEx Tag Plate (*)	77.192.212	A	11/08/2021
FlarePhase Cryo ATEX and IECEx Tag Plate	77.190.213	A	29/03/2021
FlarePhase Cryo Bias 90 ATEX and IECEx Tag Plate (*)	77.192.213	A	11/08/2021
FlarePhase 350 ATEX and IECEx Tag Plate	77.191.212	A	29/03/2021
FlarePhase 350 Bias 90 ATEX and IECEx Tag Plate (*)	77.192.214	A	11/08/2021
Breather Vent Assembly	77.190.353	A	06/05/2020
FlarePhase Transducer Assembly - GA Drawing	77.190.362	A	04/05/2020
Fluenta FGM Flare Gas Meter FlarePhase 350 Transducer Assembly (*)	77.191.362	A	29/03/2021

Title:	Drawing No.:	Rev. Level:	Date:
FlarePhase Bias-90 Transducer Assembly - GA Drawing (*)	77.192.362	A	11/08/2021
FlarePhase 350 Bias-90 Transducer Assembly - GA Drawing (*)	77.192.364	A	11/08/2021
FlarePhase Match PCB Schematic	77.190.800	A	19/09/2020
FlarePhase Match PCB Layout - 19-Sep-2020	63.190.300	A	19/09/2020
FlarePhase Match PCB BOM	74.190.101	A	19/09/2020
FlarePhase & FlarePhase Bias-90: General, Safety and Maintenance Manual	62.190.027	C	16/08/2021
1A - HS Flare Gas Meter Transducer Protection Concept Description 005	72.190.300	A	08/04/2021

(\*) Drawings changed or included on this issue.

