UNITED KINGDOM CONFORMITY ASSESSMENT

1 **UK TYPE EXAMINATION CERTIFICATE**

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

3 Certificate Number: **CSAE 23UKEX1069X** Issue: **0**

4 Product: **Modular Pulse Amplifier model Tabc Series**

5 Manufacturer: **KEM Küppers Elektromechanik GmbH**

6 Address: Liebigstraße 5
Karlsfeld Bavaria 85757
Germany

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

8 CSA Group Testing UK Limited, Approved Body number 0518, in accordance with Regulation 42 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 the confidential reports listed in Section 14.2.

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 Section 16 of the schedule to this certificate. The above standards may not appear on the UKAS Scope of Accreditation, but have been added through flexible scope of accreditation, which is available on request.

10 If the sign 'X' is placed after the certificate number, it indicates that the product is subject to Specific Conditions of Use identified 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 this product shall be in accordance with Regulation 41 and include the following:

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Name: Michelle Halliwell
Title: Director of Operations

SCHEDULE

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Issue 0

13 **DESCRIPTION OF PRODUCT**

The Tabc model is used as a pulse amplifier for mechanical positive displacement meters (PD meters). The rotation in these displacement meters of, for example, a gear wheel, turbine wheel or spindle is detected, processed and output. The measuring principle based on the detection of magnetic field lines which are manipulated from the gears, turbine wheels or spindles. The pulse amplifier can be mounted on all KEM mechanical meters. The pulse amplifiers detect the rotation without any contact to the medium.

The Tabc model is a 4-20mA transmitter with 28Vdc input(Power circuit) and with two frequency outputs circuits 28V and 2.4mA (each) in normal operation.

Each pulse amplifier includes a housing, a connector and one or two sensor tips.

The housing can be stainless-steel or aluminum and includes four circuit boards.

A 5-pole M12 or M16 connector is installed in hole in the wall of the housing.

Different stainless-steel sensor tips are available which thread into the housing as follows:

- flush mount single or dual sensor tips are for a Tmedium (process) of -40°C to +60°C
- long/short sensor tip are for a Tmedium (process) of -40°C to +80°C (electronics installed above the mechanical meter) or a Tmedium (process) of -40°C to +95°C (electronics installed beside the mechanical meter)

Each sensor tip contains the mounted Hall sensor, temperature sensor and a small magnet which is embedded in a small PCB.

Each sensor tip contains the mounted Hall sensor, temperature sensor and a small magnet.

Modular Pulse Amplifier model Tabc Series with the following Product Code description

Where a = 1 or 2 or 3 depending on the Mounting type:
a = 1 if it is Flush-mount
a = 2 if it is Screw-in M14x1.5 short / ≤ZHM 04, SRZ & HM mount
a = 3 if it is Screw-in M14x1.5 long / ZHM, SRZ & HM mount

Where b = 0 or 1 depending on the Housing/Sensor/IP type:
b = 0 if it is Aluminum made material
b = 1 if it is Stainless Steel made material

Where c = 0 or 1 depending on the Connector type:
c = 0 if it is M12 Connector (5-pole)
b = 1 if it is M16 Connector (5-pole)

14 **DESCRIPTIVE DOCUMENTS**

14.1 **Drawings**

Refer to Certificate Annexe.

14.2 **Associated Reports and Certificate History**

Issue	Date	Report number	Comment
0	19 June 2023	R80090654A	The release of the prime certificate.

15 **SPECIFIC CONDITIONS OF USE** (denoted by X after the certificate number)

15.1 The Modular Pulse Amplifier is supplied by three Diode Safety Barriers (one for the Power Circuit, one for Frequency Output Circuit 1 and one for Frequency Output Circuit 2). These circuits must be kept separate in the field wiring by grounded metal shields. The terminations in the cable connector (not supplied with the apparatus) maintain 2mm separation. The cable shall provide an insulation min. 0.25 mm thickness.

15.2 The flush mount single or dual sensor tips are for Tambient and Tmedium(process) of -40°C to +60°C.

15.3 The long/short sensor tip are for Tambient of -40°C to +50°C, a Tmedium(process) of -40°C to +80°C (electronics installed above the mechanical meter), a Tmedium(process) of -40°C to +95°C (electronics installed beside the mechanical meter) and must have a minimum of 30mm distance between the Tabc housing and the mechanical meter.

15.4 In order to avoid a possible ignition hazard, the versions with an aluminum enclosure must not be subjected to impact or friction.

16 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS (REGULATIONS SCHEDULE 1)**

In addition to the Essential Health and Safety Requirements covered by the standards listed in Section 9, all other requirements are demonstrated in the relevant reports.

17 **PRODUCTION CONTROL**

17.1 Holders of this certificate are required to comply with production control requirements defined in Schedule 3A, as applicable, and CSA Group Testing UK Regulations for Certificate Holders

Certificate Annexe

Certificate Number: **CSAE 23UKEX1069X**

Product: **Modular Pulse Amplifier model Tabc Series**

Manufacturer: **KEM Küppers Elektromechanik GmbH**

Issue 0

Drawing	Sheets	Rev.	Date (Stamp)	Title
NPG-BIF-0003_BOM_EX	1 of 1	1.0	05 Apr 23	BOM of Interface Board NPG-BIF-0003
NPG-BIF-0003_PCB_EX	1 to 5	1.0	05 Apr 23	PCB Drawing of Interface Board NPG-BIF-0003
NPG-BIF-0003_Schematic_EX	1 of 1	1.0	05 Apr 23	Schematic of Interface Board NPG-BIF-0003
NPG-BIO-0003_BOM_EX	1 of 1	1.2	05 Apr 23	BOM of IO Board NPG-BIO-0003
NPG-BIO-0003_PCB_EX	1 to 8	1.2	05 Apr 23	PCB Drawing of IO Board NPG-BIO-0003
NPG-BIO-0003_Schematic_EX	1 to 2	1.2	05 Apr 23	Schematic of IO Board NPG-BIO-0003
NPG-BSEN-0002_BOM_EX	1 of 1	4.2	05 Apr 23	BOM of Sensor Board NPG-BSEN-0002
NPG-BSEN-0002_PCB_EX	1 to 9	4.2	05 Apr 23	PCB Drawing of Sensor Board NPG-BSEN-0002
NPG-BSEN-0002_Schematic_EX	1 to 2	4.2	05 Apr 23	Schematic of Sensor Board NPG-BSEN-0002
NPG-FE-0001_BOM_EX	1 of 1	3.1	05 Apr 23	BOM of Frontend Board NPG-FE-0001
NPG-FE-0001_PCB_EX	1 to 5	3.1	05 Apr 23	PCB Drawing of Frontend Board NPG-FE-0001
NPG-FE-0001_Schematic_EX	1 of 1	3.1	05 Apr 23	Schematic of Frontend Board NPG-FE-0001
NPG-FE-0002_BOM_EX	1 of 1	2.0	05 Apr 23	BOM of Frontend Board NPG-FE-0002
NPG-FE-0002_PCB_EX	1 to 5	2.0	05 Apr 23	PCB Drawing of Frontend Board NPG-FE-0002
NPG-FE-0002_Schematic_EX	1 of 1	2.0	05 Apr 23	Schematic of Frontend Board NPG-FE-0002
NPG-FE-0004_BOM_EX	1 of 1	2.1	05 Apr 23	BOM of Frontend Board NPG-FE-0004
NPG-FE-0004_PCB_EX	1 to 5	2.1	05 Apr 23	PCB Drawing of Frontend Board NPG-FE-0004
NPG-FE-0004_Schematic_EX	1 of 1	2.1	05 Apr 23	Schematic of Frontend Board NPG-FE-0004
NPG-FE-0005_BOM_EX	1 of 1	1.1	05 Apr 23	BOM of Frontend Board NPG-FE-0005
NPG-FE-0005_PCB_EX	1 to 5	1.1	05 Apr 23	PCB Drawing of Frontend Board NPG-FE-0005
NPG-FE-0005_Schematic_EX	1 of 1	1.1	05 Apr 23	Schematic of Frontend Board NPG-FE-0005
NPG-FE-0006_BOM_EX	1 of 1	1.1	05 Apr 23	BOM of Frontend Board NPG-FE-0006
NPG-FE-0006_PCB_EX	1 to 5	1.1	05 Apr 23	PCB Drawing of Frontend Board NPG-FE-0006
NPG-FE-0006_Schematic_EX	1 of 1	1.1	05 Apr 23	Schematic of Frontend Board NPG-FE-0006
NPG-TERM-0002_BOM_EX	1 of 1	1.5	05 Apr 23	BOM of Terminal Board NPG-TERM-0002
NPG-TERM-0002_PCB_EX	1 to 9	1.5	05 Apr 23	PCB Drawing of Terminal Board NPG-TERM-0002
NPG-TERM-0002_Schematic_EX	1 of 1	1.5	05 Apr 23	Schematic of Terminal Board NPG-TERM-0002
T100 BOM Overview	1 of 1	R02	05 Apr 23	T100 BOM Overview
T100 Label Overview	1 of 1	R01	05 Apr 23	T100 Label Overview
T100_D_EN_230130_E001	1 to 8	E001	05 Apr 23	T100 Control drawing for hazardous areas