



1 EU-TYPE EXAMINATION CERTIFICATE

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: CSACa 23ATEX1003X Issue: 0

4 Equipment: Modular Pulse Amplifier model Tabc Series

5 Applicant: KEM Küppers Elektromechnik GmbH

6 Address: Liebigstraße 5  
Karlsfeld Bavaria 85757  
Germany

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

8 CSA Group Testing & Certification Inc., notified body number 2899 in accordance with Articles 17 and 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, 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 the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN IEC 60079-0:2018 EN 60079-11:2012

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to Specific Conditions of Use identified in the schedule to this certificate.

11 This EU-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:

 II 1G  
Ex ia IIC T4 Ga

Project Number 80090653

Signed: 

Title: Senior Director of  
Operations

CSA Group Testing & Certification Inc.  
178 Rexdale Boulevard,  
Toronto, Ontario M9W 1R3



## SCHEDULE

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### 13 DESCRIPTION OF EQUIPMENT

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.

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)

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14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated CSA Reports and Certificate History

Issue	Date	Report number	Comment
0	27 June 2023	R80090653A	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 OF ANNEX II (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.

17 CONDITIONS OF MANUFACTURE

17.1 The use of this certificate is subject to the Regulations Applicable to Holders of CSA Certificates.

17.2 Holders of EU-Type Examination Certificates are required to comply with the conformity to type requirements defined in Article 13 of Directive 2014/34/EU.

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# Certificate Annexe



Certificate Number: CSACa 23ATEX1003X  
 Equipment: Modular Pulse Amplifier model Tabc Series  
 Applicant: KEM Kueppers Elektromechni GmbH

Issue 0

Drawing	Sheets	Rev.	Date	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

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