

Translation

# EU-Type Examination Certificate Supplement 1

Equipment intended for use in potentially explosive atmospheres  
Directive 2014/34/EU

EU-Type Examination Certificate Number: **BVS 16 ATEX E 041**

Product: **Integrated Amplifier type ExDANGmicro2W\_\*\*\***

Manufacturer: **Brosa AG**

Address: **Dr. Klein Straße 1, 88069 Tett nang, Germany**

This supplementary certificate extends EU-Type Examination Certificate No. BVS 16 ATEX E 041 to apply to products designed and constructed in accordance with the specification set out in the appendix of the said certificate but having any acceptable variations specified in the appendix to this certificate and the documents referred to therein.

DEKRA EXAM GmbH, Notified Body number 0158, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, 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 Annex II to the Directive.  
The examination and test results are recorded in the confidential Report No. BVS PP 16.2083 EU.

Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN 60079-0:2012 + A11:2013    General requirements**  
**EN 60079-11:2012                Intrinsic Safety "i"**

If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Special Conditions for Use specified in the appendix to this certificate.

This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

The marking of the product shall include the following:

 **II 2G Ex ib IIC T4 Gb**

DEKRA EXAM GmbH  
Bochum, 2017-05-15

Signed: Jörg Koch

Certifier

Signed: Dr Michael Wittler

Approver

13 **Appendix**

14 **EU-Type Examination Certificate**

**BVS 16 ATEX E 041  
Supplement 1**

15 **Product description**

15.1 **Subject and type**

Integrated Amplifier type ExDANGmicro2W\_\*\*\* (single or dual channel version)

1<sup>st</sup> asterisk: A = intrinsically safe circuit(s) separated from (each other and) the enclosure of the amplifier  
B = intrinsically safe circuit(s) connected to the enclosure of the amplifier under fault condition

2<sup>nd</sup> asterisk: A = single channel  
B = dual channel

3<sup>rd</sup> asterisk: 0 = connector (single channel) or separate connectors (dual channel)  
1 = permanently connected cable (single channel)  
or two separate permanently connected cables (dual channel)  
2 = permanently connected 4-wire cable with screen carrying both channels  
3 = permanently connected 4-wire cable carrying both channels with separately screened pairs of wires  
4 = permanently connected 4-wire cable carrying both channels without screen  
5 = connector suitable to carry both channels

15.2 **Description**

**Reason for the supplement:**

- Diversification of resistive DMS measuring bridges providing / not providing insulation AC 500 V versus force measuring membrane
- Extension with dual channel version of the Integrated Amplifier
- Extension with various options with regard to connection of intrinsically safe supply and signal circuits.
- Revision of type code.

**Description of the product**

The Integrated Amplifier type ExDANGmicro2W\_\*A\* comprises of a metallic enclosure of tubular size, fitted with a connection facility or permanently connected cable for the intrinsically safe supply- and signal circuit at the front end and with a pressure-sensitive membrane at the rear end. One resistive DMS measuring bridge is attached to the internal side of the pressure-sensitive membrane.

The printed circuit board carrying electronic components of the amplifier is embedded in casting compound inside the enclosure.

The Integrated Amplifier type ExDANGmicro2W\_\*B\* comprises of a stainless steel enclosure of various size and shape, designed as mechanical force measuring axle.

Two resistive DMS measuring bridges are placed on membranes located in chambers inside the axle.

The printed circuit boards carrying the electronic components of the two amplifier channels are embedded in casting compound and located in another chamber inside the axle.

The chamber containing the printed circuit boards of the two amplifier channels is equipped with one or two connectors or with permanently connected cable(s) for the intrinsically safe supply- and signal circuits.

The permanently connected cable of the Integrated Amplifier type ExDANGmicro2W\_\*B2 and type ExDANGmicro2W\_\*B4 requires protection against damage and mechanical stress, verified by suitable installation.

Listing of all components used referring to older standards: not applicable.

### 15.3 Parameters

#### 15.3.1 Intrinsically safe supply- and signal circuit(s), level of protection Ex ib IIC

Single channel parameters		Integrated Amplifier type	
		ExDANGmicro2W_*A0	ExDANGmicro2W_*A1
		ExDANGmicro2W_*B0	ExDANGmicro2W_*B1
		ExDANGmicro2W_*B5	ExDANGmicro2W_*B2
			ExDANGmicro2W_*B3
			ExDANGmicro2W_*B4
Voltage	$U_i$	DC 30 V	DC 30 V
Current	$I_i$	100 mA	100 mA
Power	$P_i$	750 mW	750 mW
Effective internal capacitance	$C_i$	24 nF	24 nF + 0.3 nF/m
Effective internal inductance	$L_i$	3 $\mu$ H	3 $\mu$ H + 1 $\mu$ H/m

15.3.2 Ambient temperature range:  $-40\text{ }^\circ\text{C} \leq T_a \leq +80\text{ }^\circ\text{C}$

### 16 Report Number

BVS PP 16.2083 EU, as of 2017-05-15

### 17 Special Conditions for Use

None

### 18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.


### 19 Drawings and Documents

Drawings and documents are listed in the confidential report.

We confirm the correctness of the translation from the German original.  
In the case of arbitration only the German wording shall be valid and binding.

DEKRA EXAM GmbH  
Bochum, dated 2017-05-15  
BVS-Scha/Nu A 20160936

  
\_\_\_\_\_  
Certifier

  
\_\_\_\_\_  
Approver

Translation

# EU-Type Examination Certificate

Equipment or Protective System intended for use in potentially explosive atmospheres  
Directive 2014/34/EU

EU-Type Examination Certificate Number: **BVS 16 ATEX E 041**

Product: **Integrated Amplifier type ExDANGmicro2W**

Manufacturer: **Brosa AG**

Address: **Dr. Klein Straße 1, 88069 Tettwang, Germany**

This product and any acceptable variation thereto are specified in the appendix to this certificate and the documents therein referred to.

DEKRA EXAM GmbH, Notified Body number 0158, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, 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 Annex II to the Directive.

The examination and test results are recorded in the confidential Report No. BVS PP 16.2083 EU.

Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN 60079-0:2012 + A11:2013 General requirements**  
**EN 60079-11:2012 Intrinsic Safety "i"**

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 appendix to this certificate.

This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

The marking of the product shall include the following:

**Ex II 2G Ex ib IIC T4 Gb**

DEKRA EXAM GmbH  
Bochum, 2016-05-09

Signed: Simanski  
Certifier

Signed: Dr. Wittler  
Approver

13 **Appendix**

14 **EU-Type Examination Certificate**

**BVS 16 ATEX E 041**

15 **Product description**

15.1 **Subject and type**

Integrated Amplifier type ExDANGmicro2W

15.2 **Description**

The Integrated Amplifier comprises a metallic enclosure of tubular size, fitted with a connection facility for the intrinsically safe supply- and signal circuit at the front end and with a pressure-sensitive membrane at the rear end.

A resistive DMS measuring bridge is attached to the internal side of the pressure-sensitive membrane.

A printed circuit board carrying electronic components is embedded in casting compound inside the enclosure.

15.3 **Parameters**

15.3.1 Intrinsically safe supply- and signal circuit, level of protection Ex ib IIC

Voltage	$U_i$	DC	30	V
Current	$I_i$		100	mA
Power	$P_i$		750	mW
Effective internal capacitance	$C_i$		24	nF
Effective internal inductance	$L_i$		3	$\mu$ H

15.3.2 Ambient temperature range:

$-40^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$

16 **Report Number**

BVS PP 16.2083 EU, as of 2016-05-09

17 **Specific Conditions of Use**

None

18 **Essential Health and Safety Requirements**

The Essential Health and Safety Requirements covered by the standards listed under item 9.

19 **Drawings and Documents**

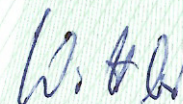
Drawings and documents are listed in the confidential report.

We confirm the correctness of the translation from the German original.  
In the case of arbitration only the German wording shall be valid and binding.

DEKRA EXAM GmbH  
Bochum, dated 2016-05-09  
BVS-Scha/Mu A20151068



Certifier



Approver