



Physical-Technical Testing Institute
Ostrava - Radvanice



EU - Type Examination Certificate

(1)

(2)

Equipment or Protective Systems Intended for Use
in Potentially Explosive Atmospheres
(Directive 2014/34/EU)

(3) EU - Type Examination Certificate number:

FTZÚ 17 ATEX 0165X

(4) Product: **Gas Volume Conversion Device type PTZ-BOX 5.0, Data Logger type D-BOX 5.0**

(5) Manufacturer: **vemm tec Messtechnik GmbH**

(6) Address: **14482 Potsdam, Gartenstrasse 20, Germany**

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

(8) The Physical-Technical Testing Institute, Notified Body number 1026, in accordance with Articles 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26.02.2014, 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 confidential Report number:

17/0165 dated 07.06.2018

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

**EN 60079-0:2012 + A11:2013 (IEC 60079-0:2011 + Cor1:2012 + Cor2:2013),
EN 60079-11:2012 (IEC 60079-11:2011 + Cor1:2012)**

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to Specific Conditions of Use specified in the schedule to this certificate.

(11) This 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.

(12) The marking of the product shall include the following:

 **II 1G Ex ia IIB T4 Ga**

This certificate is valid till: **31.03.2023**

Responsible person:


Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: 20.06.2018

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Physical-Technical Testing Institute, s.p., Pikartská 1337/7, 716 07 Ostrava - Radvanice, Czech Republic
tel +420 595 223 111, fax +420 596 232 672, ftzu@ftzu.cz, www.ftzu.cz



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(13)

Schedule

(14) **EU - Type Examination Certificate No. FTZÚ 17 ATEX 0165X**

(15) Description of Product:

The Gas Volume Conversion Device type PTZ-BOX 5.0 is designed to measure and calculate the gas volume at base conditions and energy using signals from sensor of gas meters, the gas temperature measured by an external temperature sensor and the gas pressure measured by a built-in pressure sensor and/or external pressure sensor.

The device is constructed as a compact unit in a plastic enclosure casting containing several printed circuit boards, a pressure sensor, lithium batteries and connecting terminals.

The apparatus is powered by a built-in battery or by an external intrinsically safe power supply complying with the parameters stated below.

Communication with a PC or other apparatus is possible via an IR interface, serial links or NFC links but only through special certified devices.

Data Logger type D-BOX 5.0 differs from Gas Volume Conversion Device type PTZ-BOX 5.0 only in software.

Intrinsically safe parameters:

External power supply (POWER SUPPLY) - Terminals 2 (V_{IN}) to 1 (GND):

$U_i = 6.51 \text{ V}$; $P_i = 3.5 \text{ W}$; $I_i = 1.1 \text{ A}$; $L_i = 0$; $C_i = 12 \mu\text{F}$

External power supply of communication ports (COM SUPPLY) - Terminals 4 (V_{IN}) to 3 (GND):

$U_i = 6.51 \text{ V}$; $P_i = 0.8 \text{ W}$; $I_i = 0.4 \text{ A}$; $L_i = 0$; $C_i = 2.64 \mu\text{F}$

Port COM1 - Terminals 5 (D-), 6 (D+) to GND:

Port COM2 - Terminals 7 (D-, Rx), 8 (D+, Tx) to GND:

$U_o = 6.51 \text{ V}$; $I_o = 0.8 \text{ A}$; $P_o = 1.1 \text{ W}$; $P_i = 0.66 \text{ W}$; $L_i = 0$; $C_i = 0$;

Gas Group IIA: $L_o = 800 \mu\text{H}$; $C_o = 500 \mu\text{F}$

Gas Group IIB: $L_o = 200 \mu\text{H}$; $C_o = 25 \mu\text{F}$

External DIGITAL SENSOR - Terminals 10 (VOUT) to 9 (GND)

$U_o = 6.51 \text{ V}$; $I_o = 0.29 \text{ A}$; $P_o = 0.47 \text{ W}$; $L_i = 0$; $C_i = 0$

Gas Group IIA: $L_o = 2 \text{ mH}$; $C_o = 500 \mu\text{F}$

Gas Group IIB: $L_o = 1 \text{ mH}$; $C_o = 25 \mu\text{F}$

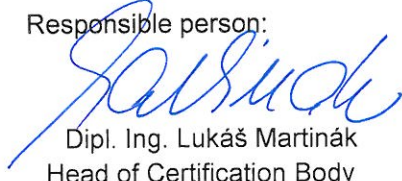
Outputs DIGITAL OUTPUTS - Terminals 11 (DO1+), 12 (DO2+), 13 (DO3+), 14 (DO4+) to GND:

$U_i = 15 \text{ V}$; $I_i = 0.123 \text{ A}$; $P_i = 0.33 \text{ W}$; $L_i = 0$; $C_i = 0$; $U_o = 6.51 \text{ V}$

Gas Group IIA: $L_o = 18 \text{ mH}$; $C_o = 7 \mu\text{F}$

Gas Group IIB: $L_o = 10 \text{ mH}$; $C_o = 1.7 \mu\text{F}$

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Contact inputs - Terminals 16 (DI1+), 18 (DI2+), 20 (DI3+), 22 (DI4+), 24 (DI5+) to GND
and 26 (DI6+), 28 (DI7+), 30 (DI8+), 29 (DI8-) to GND :

$U_i = 6.51 \text{ V}$; $L_i = 0$; $C_i = 120 \text{ nF}$

Gas Group IIA: $L_o = 800 \text{ mH}$; $C_o = 500 \mu\text{F}$

Gas Group IIB: $L_o = 400 \text{ mH}$; $C_o = 25 \mu\text{F}$

Additionally only for contact input - Terminal 20 (DI3+) to GND

$P_o = 27 \text{ mW}$; $U_o = 6.51 \text{ V}$; $I_o = 16.5 \text{ mA}$

NAMUR inputs (HF1, HF2) -Terminals 26 (DI6+) to 25 (DI6-), 28 (DI7+) to 27 (DI7-):

$U_o = 9.6 \text{ V}$, $I_o = 33 \text{ mA}$; $P_o = 78 \text{ mW}$; $L_i = 0$; $C_i = 0$

Gas Group IIA: $L_o = 800 \text{ mH}$; $C_o = 100 \mu\text{F}$

Gas Group IIB: $L_o = 400 \text{ mH}$; $C_o = 13 \mu\text{F}$

Input SCR ENCODER -Terminals 30 (DI8+), 29 (DI8-) to GND:

$U_o = 9.6 \text{ V}$, $I_o = 0.021 \text{ A}$; $P_o = 48 \text{ mW}$; $L_i = 0$; $C_i = 0$

Gas Group IIA: $L_o = 800 \text{ mH}$; $C_o = 100 \mu\text{F}$

Gas Group IIB: $L_o = 400 \text{ mH}$; $C_o = 13 \mu\text{F}$

Sensor Pt1000 -Terminals 32 (I+), 31 (I-), 34 (U+), 33 (U-) to GND:

$U_i = 6.51 \text{ V}$; $L_i = 0$; $C_i = 250 \text{ nF}$

External pressure sensor – Terminals 36 (PS1), 38 (PS2), 40 (PS3), 37(PS4), 39 (PS5) to 35 (GND):

$U_i = 6.51 \text{ V}$; $L_i = 0$; $C_i = 200 \text{ nF}$

Ambient temperature: - 25°C to + 70°C

Battery Saft LS33600, TadiranSL2780

Ambient temperature: - 25°C to + 50°C

Battery EVE ER34615

Degree of protection by enclosure: IP66

(16) Report Number.: 17/0165

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(17) Specific Conditions of Use:

1. Allowed types of batteries: Tadiran SL-2780, SAFT LS33600 or EVE ER34615. It is prohibited to combine different types of batteries.
2. Allowed types of backup batteries SAFT LS14250 or FANSO ER14250H.
3. Internal intrinsically safe circuits, including pressure and temperature sensors internal circuits, do not stand 500V test given in EN60079-11 to earthed or isolated metal parts of its enclosure. The type of protection does not depend on the separation. Metal bushings of product and metal parts of its pressure sensors are galvanically connected. It can be installed as fully floating or bonded. It must be taken into account during installation.
4. Under certain extreme circumstances, the plastic enclosure may store an ignition-capable level of electrostatic charge. The product shall not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge. The product shall only be cleaned with a damp cloth.
5. The function and parameters of some inputs/outputs depend on version of product, detailed information is written in User manual.

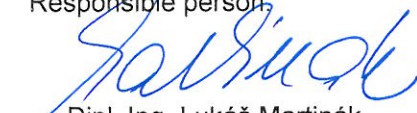
(18) Essential Health and Safety Requirements:

Compliance with the Essential Health and Safety Requirements is covered by standards mentioned in clause (9) of this certificate.

(19) Drawings and Documents:

| <i>Document/Drawings:</i> | <i>Rev./Ver.:</i> | <i>Date:</i> | <i>Nr. of Pages:</i> |
|---------------------------|-------------------|--------------|----------------------|
| Technical documentation | | 03.11.2017 | 40 |
| User manual | 03 EN | 10.2017 | 55 |

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