



PTZ-BOX 5.0

Gas volume and energy electronic conversion device with intergrated GSM 2G/3G modem

PTZ-BOX is a gas volume corrector that enables PTZ, PT or T conversion. The device is designed to measure volume, energy and flow of gas. Primarily battery powered with the possibility to connection to an external power supply. The device converts the volume of gas counted by the gas meter (turbine, rotary, diaphragm) into the base conditions. Gas compressibility factor is calculated with the use of algorithms SGERG-88, MGERG-88, AGA8-92DC, AGA8-G1, AGA8-G2, AGA NX-19 mod or constant value of relative compression factor. PTZ-BOX is an intrinsically safe device ready to be installed in explosive hazardous zone 0.

Main features of the PTZ-BOX

- Industrial housing cooperates with various types of gas meter like turbine, rotary, diaphragm directly by LF, HF, Namur, Encoder, Wiegand
- 4 independent serial transmission ports (2 x RS485 + optica interface 62056-21+ NFC IEC 14443)
- Built-in GSM/GPRS modem (option)
- Backlit graphic display
- 5 configuable binary Ex inputs
- 2 configuable binary NAMUR Ex inputs (working on batery mode)
- Binary and frequency outputs
- Eco power operatio mode
- Internal or external pressure transducers available
- 10 years of archivable registered data storage (with monthly sampling interval)





Communication

1. Direct transfer of data to system – Data readout through internal GSM/GPRS modem with the use of internal batteries



2. Remote data readout – connection through communication interfaces INT-S3 and extension module EM-1



3. Local readout and configuration



4. Process of measurement using PTZ-BOX (with external pressure sensor) and rotary gas meter





5. Process of measurement using PTZ-BOX and turbine gas meter



PTZ-BOX accessories



INT-S3 | Transmission interface

Performs as an external power supply to the intrinsically safe measurement device (located in stationary telemetric systems that are supplied from 230 V or a battery that is located in explosive zone 0, 1, or 2). Additionally, data is transmittable to a readout device (i.e. computer) via RS485 port.

IM-1 | Extension module

Extends the functionality of PTZ-BOX by adding two additional current outputs operating in 4-20 mA current loop and four binary relay type outputs. Can operate as a standalone device as it has its own parameters that can be modified remotely using MODBUS RTU transmission protocols. Data readout and modification can be performed with the use of SCADA system.



EM-2 | Extension module

Extends the functionality of the PTZ-BOX by adding eight additional digital inputs that operate as a namur type or cooperate with Potential-free connector. Can also operate as a standalone device as it has its own table of parameters for remote modification using MODBUS RTU transmission protocols. Data readout and modification can be performed with the use of SCADA system.



OptoBTEx | Opticalgaz-Bluetooth Interface

A wireless transmitter of data from compatible devices. The transmission is performed through Bluetooth 2.1+ EDR Class 2 standard. Data is transmitted to a compatible device, which has IEC 62056-21 standard and the readout software installed (usually a mobile device running MS Windows or Android operating system). OptoBTEx does not modify data and wireless communication is performed in Bluetooth 2.1+ EDR Class 2 standard.



Technical specification

Undersitions 19/16 (3) 4 × 6 × mm Noticity 19/16 (3) × 6 × 6 mm Noticity Provide matrix Relative humidity max 95 % at temp 55 °C Housing protection class P6 60 (for outdoor installation) Replay 25 °C < 50 °C, battery, SE 1033500, Tablian 512780 Pack for A °C > Chattery, SE 1033500, Tablian 512780 25 °C < 50 °C, battery, SE 1033500, Tablian 512780 Network P6 60 (for outdoor installation) Tabliantions Network P6 60 (for outdoor installation) Tabliantions Internal SW papy Pice Inhum batters 50 (for secon maximission interface INF3) (54485, Supply output 5.7 V, 2 giglia input/socitation 50 (for secon maximission interface INF3) (54485, Supply output 5.7 V, 2 giglia input/socitation 50 (for secon maximission protecols Pice Inhum batters 60 (for secon maximission protecols Environment conditions class MORENS 266 (for lation) MORENS 266 (for lation) Sea conditions MORENS 266 (for lation) Pice Inhum batters 60 (for secon maximission protecols Morenaiselle error (MPE) Constrained periadipsi on constrain ange and protecols MORENS 266 (for lation) Morenaiselle error (MPE) Constrained periadipsi on constrain ange and protecols MORENS 267 (for lation) Moren	~~~~~		107 x 191 x 92 mm			
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• Optical Interface IEC 2026-21 • NFC interface IEC 14443 • GSM/GPRS 20/36 (option) Transmission protocols Environment conditions class (Mechanical/Electromagnetic) Base conditions Base conditions - Base conditions - Base temperature Tb: range (270 + 300), K, detault 1,01325 bar Base temperature Tb: range (270 + 300), K, detault 273, 155 (of 25 °C) - Reference temperature for combustion process 11: range (270 + 300) K, default 298, 15 K (25 °C) - Reference temperature for combustion process 11: range (270 + 300) K, default 298, 15 K (25 °C) - Reference temperature for combustion process 11: range (270 + 300) K, default 298, 15 K (25 °C) - Reference temperature for combustion process 11: range (270 + 300) K, default 298, 15 K (25 °C) - Reference temperature for combustion process 11: range (270 + 300) K, default 298, 15 K (25 °C) - Reference temperature for combustion process 11: range (270 + 300) K, default 298, 15 K (25 °C) - Reference temperature for combustion process 11: range (270 + 300) K, default 298, 15 K (25 °C) - Reference temperature for combustion process 11: range (270 + 300) K, default 298, 15 K (25 °C) - Reference temperature for combustion process 11: range (270 + 300) K, default 298, 15 K (25 °C) - Reference temperature for combustion process 11: range (270 + 300) K, default 298, 15 K (25 °C) - Reference temperature for combustion process 11: range (270 + 300) K, default 298, 15 K (25 °C) - Reference temperature for combustion process 11: range (270 + 300) K, default 298, 15 K (25 °C) - Reference temperature for combustion process 11: range (270 + 300) K, default 298, 15 K (25 °C) - Data 200 × (10 × 01) ×			 Intrinsically safe power supply and transmission interface INT-S3 (RS485, Supply output 5.7 V, 2 digital inputs/outputs OC type, Supply input 11 ÷ 30 V DC) 			
Transmission protocols MODBUS RTU, MODBUS RTU, MODBUS RTU, MASTER MODE) Environment conditions class M2/E2 Base conditions M2/E2 Adjustable by authorized service personnel, available options: Base conditions Base conditions Adjustable by authorized service personnel, available options: Base pressure (absolute) by transpective To: range (270 + 300) K, default 273, 15K (0 °C) The maximum permissible error (MPE) Reference temperature To: range (270 + 300) K, default 273, 15K (0 °C) Scording to standard _EN 12405-2* SEGRG-88, MGGR-88, AGA8-92 Detailed Composition, AGA8-G1, AGA8-G2, AGA NX-19 mod constant compression factor X1 Veed algorithms for calculations of compression factor X1 SEGRG-88, MGGR-88, AGA8-92 Detailed Composition, AGA8-G1, AGA8-G2, AGA NX-19 mod constant compression factor X1 Neglistration periods SEGRG-88, MGGR-89, AGA8-92 Detailed Composition, AGA8-G1, AGA8-G2, AGA NX-19 mod constant compression factor X1 Neglistration periods Segressite periodically logging interval from 1 up to 60 minutes – 24000 records Veerits memory: approximately 4000 records Meets the requirements specified in Standard 2004/22/WE (MID) Inputs S configurable potential-free contact inputs - builty data: more than 10 yeas: Secret on the sensor is a meetic serve thread M12 X 1.5 (termot) Y contigurable potential-free contact inputs	Transmission ports		Optical Interface IEC 62056-21 NFC interface IEC 14443			
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• Base pressure (absolute) pb: range (100 ÷ 1,02) Ext (default 1,01325 bar • Base temperature To: range (270 ÷ 300) K, default 231,5K (0° C) • Reference temperature To: range (270 ÷ 300) K, default 238,15 K (25 °C) 0,5 % at reference conditions 1 % at nominal operating to standard "EN 12405-1" 1 % at nominal operating conditions 1 % at nom						
The maximum permissible error (MPE) according to standard _EN 12405-1" 0.5 % at reference conditions The maximum permissible error (MPE) according to standard _EN 12405-2" 0.5 % at reference conditions Sternard according to standard _EN 12405-2" EC C Class B Sternard according to standard _EN 12405-2" SERG-88, MGERG-88, AGA8-92 Detailed Composition, AGA8-G1, AGA8-G2, AGA NX-19 mod constant compression factor K1 Registration periods > Data registered periodically: logging interval from 1 up to 60 minutes – 24000 records Hourty data: more than 3 years > Daily data: more than 10 years • Doubly data: more than 10 years • Events memory: approximately 4000 records • Monthly data: more than 10 years • Events memory: approximately 4000 records • Monthly data: more than 10 years • Sonfigurable petrinti-free conditions (inputs DIS, DI4) – frequency up to 60 Hz with the possibility of cooperation with Wigard transmitters, • Ts input - tamper switch, normally short (input DI5), • Up to 2 NAMUR digital inputs, 1 • Up to 2 NAMUR digital inputs, 1 • SCR input for SCR encoder (alternate with DI8 potential-free digital input) Pressure sensor p1 (internal or external) - measurement range in standard option - up to 6 bar abs £ 20 °C (± 3 °C) (0.8 + 6) bar abs 20 °C (± 3 °C) (25 + 55) °C ± 0,3 % of measured value (0.8 + 6) bar abs £ 20 % of measu	Base conditions		 Base pressure (absolute) pb: range (1,00 ÷ 1,02) bar, default 1,01325 bar Base temperature Tb: range (270 ÷ 300) K, default 273,15K (0 °C) 			
The maximum permissible error (MPF) EĆD Class B according to standard., E/N 12405-2" Used algorithms for calculations of compression factor K1 Registration periods SGERG-88, MGERG-88, AGA8-92 Detailed Composition, AGA8-G1, AGA8-G2, AGA NX-19 mod constant compression factor K1 • Data registred periods • Oatar ange, EN values > 24000 records • Hourly data: more than 3 years • Data registred periods • Data registred periods • Monthly data: more than 3 years • Monthly data: more than 3 years • Events memory: approximately 4000 records • Nonthly data: more than 3 years • Monthly data: more than 10 years • Sonfigurable potential-free contact inputs: • Monthly data: more than 3 years • Monthly data: more than 10 years • Sonfigurable potential-free contact inputs: • Monthly data: more than 50 periods • Fequency up to 60 Hz with the possibility of cooperation with Wiegand transmitters, • To Singlurable potential-free contact inputs: • Vest of digital inputs (inputs DI,			0,5 % at reference conditions			
according to standard _FN 12405-2** SGERG-88, MGERG-88, MGA8-92 Detailed Composition, AGA8-G1, AGA8-G2, AGA NX-19 mod constant compression factor K1 Registration periods • Data registered periodically: logging interval from 1 up to 60 minutes – 24000 records • Daily data: more than 2 years • Daily data: more than 2 years • Monthly data: more than 3 years • Monthly data: more than 3 years • Monthly data: more than 3 years • Monthly data: more than 3 years • Monthly data: more than 3 years • Monthly data: more than 3 years • Monthly data: more than 10 years • Service of figurable potential-free contact inputs: • Northly data: more than 2 years • Monthly data: more than 3 years • Monthly data: more than 3 years • Monthly data: more than 3 years • Monthly data: more than 3 years • Monthly data: more than 3 years • Monthly data: more than 3 years • Monthly data: more than 3 years • Monthly data: more than 3 years • Monthly data: more than 3 years • Mostinguable NAMR Inputs (Inputs DI3, DI4) – frequency up to 60 Hz with the possibility of cooperation with Wiegand transmitters, 15 input - tamper switch, normally stori (Input DI5), - up to 5 digital inputs (Inputs DI0, DI7): - 2 HF pulse inputs, frequency 0 ÷ 5000 Hz, - HE2 (DI7) input can work with NAMUR encoder, - Up to 6 bar. End of the sensor is a metric screw thread M12 x 1.5 (Ermeto) Pressure ranges Max	-		typical error < 0,15 %			
Used algorithms for calculations of compression factor SGERG-38, MGERG-38, AGA8-92 Detailed Composition, AGA8-G2, AGA NX-19 mod constant compression factor K1 Registration periods > Data registred periodically: logging interval from 1 up to 60 minutes – 24000 records • Hourly data: more than 3 years > Monthly data: more than 10 years • Data registred periodically: logging interval from 1 up to 60 minutes – 24000 records • Hourly data: more than 10 years • Events memory: approximately 4000 records Meets the requirements specified in Standard 2004/22/WE (MID) • S configurable potential-free contact inputs: • Measuring inputs UFI, LF2 (Dinputs DI3, DI4) – frequency up to 60 Hz with the possibility of cooperation with Wiegand transmitters, • T5 input - tamper switch, normally short (input DI5), • Up to 5 digital inputs (inputs DI1, DI2, DI3, DI4, DI5),11 • 2 configurable NAMUR inputs (inputs DI1, DI2, DI3, DI4, DI5),11 • 2 configurable NAMUR inputs (inputs DI1) • Up to 2 NAMUR digital inputs, (input DI5), • Up to 2 NAMUR digital inputs, (input DI1) • Up to 2 NAMUR digital inputs, (input DI1) • Up to 6 bar. End of the sensor is a metric screw thread M12 x 1.5 (Ermeto) Pressure ranges Maximum permissible errors for measurements of p (0.8 ÷ 0) bar abs ± 0,2 % of measured value ± 0,3 5 % of measured			ECD Class B			
compression factor constant compression factor K1 Registration periods • Data registred periodically: logging interval from 1 up to 60 minutes – 24000 records • Daily data: more than 2 years • Daily data: more than 2 years • Daily data: more than 1 years • Daily data: more than 2 years • Daily data: more than 2 years • Daily data: more than 2 years • Daily data: more than 1 years • Events memory: approximately 4000 records Meets the requirements specified in Standard 2004/22/WE (MID) • Foundard 2004/22/WE (MID) • Passure sensor p1 (internal or external) - measurements inputs (inputs DII, DI2, DI3, DI4, DI5, DI7); • Yents memory: approximately 4000 records • Pressure sensor p1 (internal or external) - measurement range in standard option • Sc Ri nput for SCR encoder (alternate with DI8 potential-free digital input) • Pressure sensor p1 (internal or external) - measurements of p Maximum permissible errors for measurements of p (0.8 ÷ 6) bar abs (2 ÷ 10) bar abs ± 0,2 % of measured value (25 ÷ 55) °C ± 0,35 % of measured value ± 0,3 % ± 0,13 % (10 ÷ 100) bar abs ± 0,2 % of measured value ± 0,35 % of measured value ± 0,13 % ± 0,13 % (10 ÷ 100) bar abs ± 0,2 % of measured value • Pressure sensor p2 (internal, optional) – absolute or gauge, ranges from 0 ± 100 bar abs ± 0,13 %<						
Registration periods Data registered periodically: logging interval from 1 up to 60 minutes – 24000 records Hourly data: more than 3 years Monthly data: more than 10 years Events memory: approximately 4000 records Inputs S configurable potential-free contact inputs: Measuring inputs UFI, LF2 (Diputs DI3, DI4) – frequency up to 60 Hz with the possibility of cooperation with Wiegand transmitters, TS input - tamper switch, normally short (input DI5), Up to 5 digital inputs (inputs DI1, DI2, DI3, DI4, DI5),1 2 configurable potential-free contact inputs:		lculations of	SGERG-88, MGERG-88, AGA8-92 Detailed Composition, AGA8-G1, AGA8-G2, AGA NX-19 mod			
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