



OEM Ability!

RUSSIAN MANUFACTURER  
OF PROCESS CONTROL INSTRUMENTS



**PDE-020(Ex), PDE-020I(Ex)**  
Digital test gauge



- High Precision Digital Test Gauges: up to  $\pm 0.02\%$  of measured value
- Versions: Industrial and "intrinsic safety"
- Ambient temperature:  $-20 \dots 60 \text{ }^\circ\text{C}$
- Ingress protection rating: IP65 or IP54
- Integrated 5-segment LCD screen with backlight and graphical display
- Wide range of units: Pa, kPa, Mpa, kgf/cm<sup>2</sup>, kgf/m<sup>2</sup>, mm Hg, bar, psi
- 0° to 340° rotatable body

### Application

Digital test gauges PDE are used for testing process pressure measurements, and for calibration and verification of shop instruments in lab, industrial, and field environment.

The PDEs provide high-precision absolute and manometric fluid pressure and gas expansion pressure measurements.

It can be used as calibrator components for pressure gauge and pressure transducer adjustment, calibration, and verification in the field. They also serve as a high-precision (reference) pressure measuring instrument.

### Basic Specifications

PDE	020	020I	020IEx
Body	Stainless steel	Impact-resistant plastic, wear-resistant rubber, stainless steel	Aluminum, wear resistant rubber, stainless steel
Rotatable body	—	0...340°	
Display	—	LCD, with backlight	
Battery	—	Li-Ion	NiMH
Pressure measurement error	<ul style="list-style-type: none"> <li>• up to <math>\pm 0.02\%</math> (A0 order code)</li> <li>• up to <math>\pm 0.03\%</math> (A order code)</li> <li>• up to <math>\pm 0.05\%</math> (B order code)</li> <li>• up to <math>\pm 0.1\%</math> (C order code)</li> </ul>		
Output interface	RS-232 (USB)		
Compatible multifunctional calibration systems	IKSU-2012, KDM-030, PKD-260		
	KDM-020		

### Stand-alone Mode for Field Measurements

In the stand-alone mode device is powered by its integrated battery. This mode enables the PDE-020I, PDE-020IEx models to be used in industrial environment and in the field, for process monitoring and to check shop instruments on site.



### Comprehensive Screen

Measured pressure values are indicated on a 5-segment digital screen with a bar indicator and backlight. There is a field to indicate the battery status or the relative value expressed as percentage of the upper span limit. The screen also displays the current unit of measurement (Pa, kPa, MPa, kgf/cm<sup>2</sup>, kgf/m<sup>2</sup>, mm Hg, bar, psi).



### Easy to Use

You do not need a menu to control the PDE: all the functions are button-controlled. The 5-button keypad on the front panel lets you switch the instrument on and off, select a unit of measurement, turn the backlight on/off, adjust zero, and view the max measured value. It takes just a couple of minutes to learn. Just open the box and you are ready to proceed!

### Overload Protection

The PDEs have a buzzer to give an audible overpressure warning. The warning threshold is adjustable from a PC.

### Impact-Resistant Body

The PDE body is made of impact-resistant plastic or metal. PDE-020I and PDE-020IEx bodies are rubber covered for extra protection.

### Universal Digital I/O




To enable PC-controlled calibration and adjustments, and to operate as part of the IKSU-2012 Multifunctional Calibration System and of the PKD-260, KDM-020 (030) Pressure Calibrators, the PDEs are equipped with a digital data link and an RS-232 interface (a USB converter to connect to PC).

# PDE-020(Ex), PDE-020I(Ex)

## Specifications



### Basic Specifications

	PDE-020(Ex)	PDE-020I	PDE-020IEx
Feature			
Screen	—	LCD, 5-segment, with backlight	
Keypad	—	Membrane	
Max weight, kg	0,2	0,4	0,8
Dimensions, mm	106 × 27 × 31	153 × 94 × 37	207 × 119 × 68,5
Battery	—	Li-Ion	NiMh
Ambient conditions	-20...+60 °C		
Humidity	RH 0...95 %		
Measurement rate	100 ms		
Data update rate	300 ms		
Ingress protection rating	IP54	IP65	

### PDE Models

Model	Pressure measured	Pressure range	Max pressure	Order code
010	Absolute	0...10 kPa	150 kPa	B, C
030	Absolute	0...120 kPa	300 kPa	A0, A, B, C
040	Absolute	0...250 kPa	1 MPa	A0, A, B, C
050	Absolute	0...600 kPa	2 MPa	A0, A, B, C
060	Absolute	0...2,5 MPa	6 MPa	A0, A, B, C
070	Absolute	0...6 MPa	16 MPa	A0, A, B, C
080	Absolute	0...16 MPa	25 MPa	A0, A, B, C
110	Manometric	0...6,3 kPa	100 kPa	A, B, C
120	Manometric	0...16 kPa	100 kPa	A0, A, B, C
120E	Manometric	0...40 kPa	200 kPa	A0, A, B, C
130	Manometric	0...100 kPa	300 kPa	A0, A, B, C
140	Manometric	0...250 kPa	1 MPa	A0, A, B, C
150	Manometric	0...600 kPa	1,6 MPa	A0, A, B, C
160	Manometric	0...2,5 MPa	6 MPa	A0, A, B, C
170	Manometric	0...6,0 MPa	16 MPa	A0, A, B, C
180	Manometric	0...16 MPa	25 MPa	A0, A, B, C
190	Manometric	0...60 MPa	100 MPa	A0, A, B, C
190E	Manometric	0...100 MPa	120 MPa	A0, A, B, C
310	Manometric negative pressure	-10...10 kPa	100 kPa	A, B, C
320	Manometric negative pressure	-40...40 kPa	200 kPa	A0, A, B, C
340	Manometric negative pressure	-100...160 kPa	1 MPa	A0, A, B, C
350	Manometric negative pressure	-100...600 kPa	1,6 MPa	A0, A, B, C

## Basic accuracy

Order code	Range	Accuracy, $\delta$
A0	up to 50 % upper limit	$\pm 0.01$ % of upper limit
	from 50 to 100 % upper limit	$\pm 0.02$ % of measured value
A	up to 33 % upper limit	$\pm 0.01$ % of upper limit
	from 33 to 100 % upper limit	$\pm 0.03$ % of measured value
B	up to 33 % upper limit	$\pm 0.017$ % of upper limit
	from 33 to 100 % upper limit	$\pm 0.05$ % of measured value
C	up to 33 % upper limit	$\pm 0.033$ % of upper limit
	from 33 to 100 % upper limit	$\pm 0.1$ % of measured value

## Complementary error

Complementary error caused by	Value
Air pressure change by $\pm 10$ kPa (75 mm Hg) from the steady value in the 84...106.7 kPa (630...800 mm Hg)	max 0,2 $\delta$
Ambient temperature change from the normal one ( $23 \pm 2$ ) °C to any other value within the operating temperature range per each 10 °C temperature change	max 0,5 $\delta$

$\delta$  — is the basic accuracy



**PDE-020IEx** as part of the PKD-260 Portable Pressure Calibrator



**KDM-020Ex** with a PDE-020Ex connected



**PDE-020I** as part of the IKSU-2012 Multifunctional Calibration System



**KDM-030Ex** with a PDE-020IEx connected



ELEMER, lane 4807, bldg. 7/1, Zelenograd, Moscow, Russian Federation  
Tel.: +7 (495) 988 48 55, tel. for call from EU: +498007244869  
e-mail: [elemer@elemer.ru](mailto:elemer@elemer.ru)