

# DPEC 260

Digital pneumatic electronic  
calibrator

The portable digital pneumatic calibrator DPEC 260 is designed to make simple and quick workshop and on-site tests and calibrations of pneumatic systems and pneumatic devices e.g. pressure gauges, pressure transmitters, digital manometers and pressure switches. The self-contained calibrator provides easy handling, high accurate pneumatic pressure and electrical measurements. The pressure value, the electrical value and the error in percent can be visualized in the two line display.

### General

The menu guided, microprocessor operated universal calibration instrument DPM 200 has an internally mounted pressure transducer to measure the pneumatic pressure. The calibrator combines a wide range of measurement capabilities and high accuracy with an easy to handle menu structure. The DPEC 260 unit is not only used to measure exact pressure values but also high precision electrical inputs (output from the device under test) in order to realize an automatic error calculation. The measured pressure values are evaluated in linear or root function. Pressure values, electrical inputs and the error in percent, as a result of both input parameters, are shown simultaneously on the LCD display.

Results obtained during test and calibration can be stored in the internal memory for further analysis or be

transferred to a computer system via RS 232 interface. Calibration data of 18 tested transducers with maximum 22 test points can be stored. The DPEC 260 system provides also the capabilities for pressure switch calibration and leak test measurements. The pressure display is selectable in seven different pressure units. One additional pressure unit can be programmed as required.

Due to the integrated hand pump, the NiMH battery and the 24V DC supply the calibration system works completely independent of an external pressure source and external power supply.

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### Benefits

- High accuracy of pressure, current or voltage measurements
- Flexible use through line or battery supply
- 24 V DC sensor supply
- Built-in pressure/vacuum pump with volume control
- Additional port suitable for an external air supply connection, an additional volume or a second device under test
- Easy to use menu system
- Programmable pressure switch and leakage test mode
- Two line LCD display with backlight
- Automatic error calculation
- Internal data memory
- Zero adjustment with single push button
- DKD calibration according to DIN EN ISO/IEC 17025



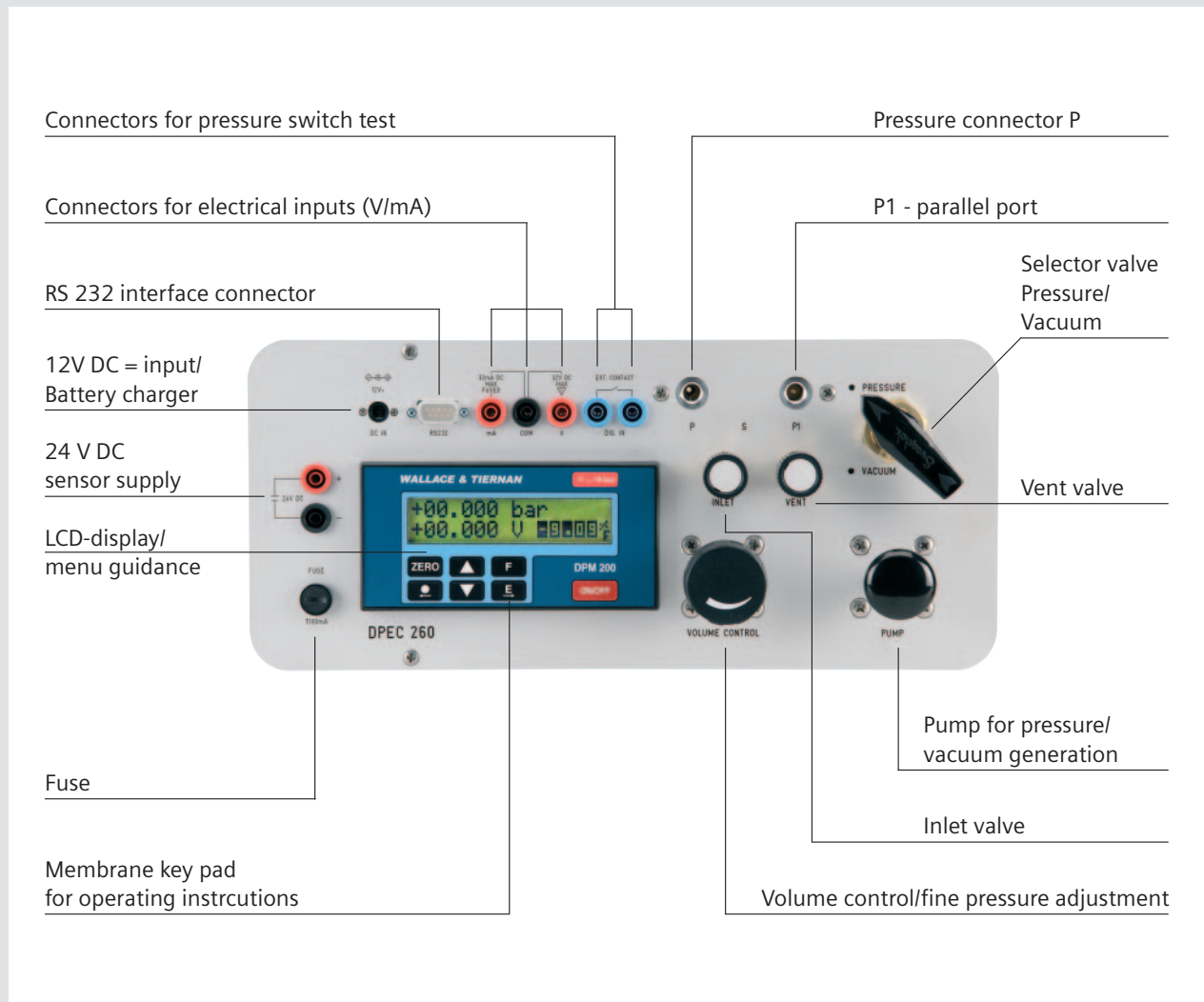
## Construction

The DPEC 260 calibrator is a small, lightweight pressure test stand wholly contained in a robust carrying case and suitable for the usage in difficult industrial areas. A small compartment for accessories is located in the front cover of the case. The front panel accommodates the digital pressure gauge, all pressure connections, all electrical connections, two needle valves, a selector valve, hand-pump and a volume control. With the selector valve it can be chosen whether pressure or negative pressure shall be generated.

The measured pressure is transferred to the output "P". The pressure can be easily generated locally by means of the integrated hand pressure pump. With the manually operated hand-pump pressure up to 20 bar (290 PSI) and negative pressure up to -850 mbar (-12,3 PSI) can be generated. An external pressure source can be connected to the connection "P1". The exact pressure value is adjusted by means of the volume control.

The front panel of the integrated digital pressure gauge DPM 200 with keypad and the LCD display is covered with a polycarbonate front membrane. The pressure gauge is either powered by the internal rechargeable NiMH battery with a typical operation time of approx. 16 hours (without additional sensor supply) or by an external plug-in power supply for the line voltage of 100 ... 240 V AC. A fully isolated 24 V DC electrical output for an external sensor supply is also included. The battery status is shown in the diagnose menu. At a battery discharge of approx. 90 percent the user will be warned by an acoustic signal in 30 seconds intervals.

The DPEC 260 unit is available with gauge, compound, differential or absolute pressure ranges up to 20 bar (290 PSI). A bag with the plug-in power supply is included.



DPEC 260 Frontpanel

## Technical data

### Pressure measurement

#### Accuracy:

0.02 % of reading  $\pm 3$  or  $\pm 6$  digits  
(depends on range, including linearity, hysteresis and temperature error)

#### Temperature compensation:

Compensation between 10 °C and 40 °C  
(Error within the specified tolerance for temperature changes less than 6 °C/hour)

#### Resolution:

max. 44 000 digits (depending on range)

#### Pressure units:

mbar, bar, kPa, mmHg, PSI, IN.H<sub>2</sub>O (20°C), IN.Hg  
and one programmable unit

#### Display:

LCD display 2 x 16 characters, 8 mm high,  
with backlight (switchable)

#### Pressure overload safety:

3 times

Option: stat. pressure (connection "S")

4 x pressure range but  $\leq 15$  bar (215 PSI G)

#### Pressure overload warning:

Optical warning at 5 % overload (flashing display) and  
acoustical warning at 10 % overload

#### Pressure/vacuum generation:

The pressure calibrator is fitted with a hand pump  
capable to generate pressure up to approx. 20 bar and  
vacuum up to approx. -850 mbar.

### Electrical measurement system

#### Voltage range:

(measurement range/accuracy)  
0 ...  $\pm 32$  V DC; 0.025 % FS  $\pm 2$  digits

#### Resolution:

32 000 digit/0.001 V

#### Current range:

(measurement range/accuracy)  
0 ...  $\pm 32$  mA DC; 0.025 % FS  $\pm 2$  digits

#### Resolution:

32 000 digits/0.001 mA

#### Temperature error:

(current and voltage range)  
max. 0.002%/K

#### Input impedance:

Voltage input  $\geq 10$  MOhm

Current input  $\leq 1$  Ohm

max. current 30 mA

#### Interface:

Standard RS 232 serial interface

#### Sensor supply:

24 V DC  $\pm 10$  %, galv. isolated 500 V DC

### Environment specifications

#### Temperature:

Operating temperature: 10 °C ... 40 °C (compensated)

Storage temperature -10 °C ... 60 °C

#### Tests and marks:

CE, MIL-STD-4150J

#### Enclosures:

IP41 EN 60529

IP 67 (with closed case cover)

#### Medium:

Only use with non corrosive, dry gases

### Additional features

#### Dimensions: (B x H x T):

430 x 244 x 340 mm

#### Weight:

approx. 6 kg

#### Pressure connections:

1/8" NPT female

#### Ext. power supply:

100 ... 240 V AC, 50/60Hz ( $\pm 10$  %) for line and  
battery supply

#### Scope of supply:

Pneumatic calibrator DPEC 260 with test certificate,  
fuse, plug-in power supply

#### Available accessories:

Test cable for electrical measurement

Quick connector, coupling plug with 1/8" NPT female  
thread,

Connector with 1/8" NPT male to 1/8" OD tube for  
mounting in coupling plug, download software

#### Option

Differential pressure execution on request



Pressure ranges	Resolution	Order number	Accuracy
<b>Gauge pressure</b>			
0 ... 3 PSI	0.0001 PSI	DPEC 260-G-A003	0.02% of reading $\pm$ 6 digits
0 ... 15 PSI	0.001 PSI	DPEC 260-G-A015	0.02% of reading $\pm$ 3 digits
0 ... 35 PSI	0.001 PSI	DPEC 260-G-A035	0.02% of reading $\pm$ 6 digits
0 ... 100 PSI	0.01 PSI	DPEC 260-G-A100	0.02% of reading $\pm$ 3 digits
0 ... 150 PSI	0.01 PSI	DPEC 260-G-A150	0.02% of reading $\pm$ 3 digits
0 ... 300 PSI	0.01 PSI	DPEC 260-G-A300	0.02% of reading $\pm$ 6 digits
<b>Compound pressure</b>			
-15 ... 0 ... 15 PSI	0.001 PSI	DPEC 260-C-A030	0.02% of reading $\pm$ 6 digits
-4 ... 0 ... 30 PSI	0.001 PSI	DPEC 260-C-A034	0.02% of reading $\pm$ 6 digits
-10 ... 0 ... 40 PSI	0.001 PSI	DPEC 260-C-A050	0.02% of reading $\pm$ 6 digits
-10 ... 0 ... 100 PSI	0.01 PSI	DPEC 260-C-A110	0.02% of reading $\pm$ 3 digits
-10 ... 0 ... 300 PSI	0.01 PSI	DPEC 260-C-A310	0.02% of reading $\pm$ 6 digits
<b>Absolute pressure</b>			
0 ... 15 PSI A	0.001 PSI A	DPEC 260-A-A015	0.02% of reading $\pm$ 3 digits
0 ... 30 PSI A	0.001 PSI A	DPEC 260-A-A030	0.02% of reading $\pm$ 6 digits
0 ... 100 PSI A	0.01 PSI A	DPEC 260-A-A100	0.02% of reading $\pm$ 3 digits
0 ... 150 PSI A	0.01 PSI A	DPEC 260-A-A150	0.02% of reading $\pm$ 3 digits
0 ... 300 PSI A	0.01 PSI A	DPEC 260-A-A300	0.02% of reading $\pm$ 6 digits

Pressure ranges	Resolution	Order number	Accuracy
<b>Gauge pressure</b>			
0 ... 200 mbar	0.01 mbar	DPEC 260-G-002	0.02% of reading $\pm$ 3 digits
0 ... 400 mbar	0.01 mbar	DPEC 260-G-004	0.02% of reading $\pm$ 6 digits
0 ... 1 bar	0.0001 bar	DPEC 260-G-010	0.02% of reading $\pm$ 3 digits
0 ... 2 bar	0.0001 bar	DPEC 260-G-020	0.02% of reading $\pm$ 3 digits
0 ... 4 bar	0.0001 bar	DPEC 260-G-040	0.02% of reading $\pm$ 6 digits
0 ... 10 bar	0.001 bar	DPEC 260-G-100	0.02% of reading $\pm$ 3 digits
0 ... 20 bar	0.001 bar	DPEC 260-G-200	0.02% of reading $\pm$ 3 digits
<b>Compound pressure</b>			
-100 ... 0 ... 200 mbar	0.01 mbar	DPEC 260-C-003	0.02% of reading $\pm$ 6 digits
-100 ... 0 ... 400 mbar	0.01 mbar	DPEC 260-C-005	0.02% of reading $\pm$ 6 digits
-1 ... 0 ... 1 bar	0.0001 bar	DPEC 260-C-020	0.02% of reading $\pm$ 3 digits
-1 ... 0 ... 4 bar	0.0001 bar	DPEC 260-C-050	0.02% of reading $\pm$ 6 digits
-1 ... 0 ... 10 bar	0.001 bar	DPEC 260-C-110	0.02% of reading $\pm$ 3 digits
-1 ... 0 ... 20 bar	0.001 bar	DPEC 260-C-210	0.02% of reading $\pm$ 6 digits
<b>Absolute pressure</b>			
0 ... 1.1 bar abs	0.0001 bar	DPEC 260-A-010	0.02% of reading $\pm$ 3 digits
0 ... 2 bar abs	0.0001 bar	DPEC 260-A-020	0.02% of reading $\pm$ 3 digits
0 ... 4 bar abs	0.0001 bar	DPEC 260-A-040	0.02% of reading $\pm$ 6 digits
0 ... 20 bar abs	0.001 bar	DPEC 260-A-200	0.02% of reading $\pm$ 3 digits

The display is switchable into 7 different pressure units.  
1 pressure unit is free programmable.

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