

Safe area pressure indicator



Hazardous area pressure indicator

DPI 705E Series

Druck Handheld Pressure Indicators

The Druck DPI 705E Series of handheld pressure and optional temperature indicators combine tough and rugged design with accurate and reliable measurements.

Compact and robust, the DPI 705E Series is designed for single handed operation and provides many essential features required for routine maintenance and system troubleshooting.

Features

- 41 pressure ranges from ±25 mbar to 1,400 bar (±10 inH20 to 20,000 psi/2.5 kPa to 140 MPa)
- Total 1 year uncertainty down to 0.025% full scale (FS) over temperature range of -10°C to +50°C
- Integral calibration record with calibration due count-down display

- Rugged, handheld design with backlit high-contrast display
- Leak test, tare, maximum/minimum and filter functions
- Hazardous Area (Intrinsically safe) version available
- Optional remote plug and play pressure (PM700E) and Resistance Temperature Detector (RTD-PROBE) sensors
- Compatible with our pneumatic and hydraulic hand pumps



DPI 705E Improves test efficiency

- · Power on and use. No warm up time required.
- 20 pressure measurement units (See below)
- 1, 3 or 5 minute leak test
- · Impact resistant, sealed to IP54
- · Large digit high-contrast LCD with backlight
- · Optional carrying case with belt loop
- Optional magnetic/loop hanging strap
- · Long battery life
- · Integral desk stand and hanger
- · 3 Levels of accuracy

Special features

Pressure units

mbar, bar, Pa, kPa, hPa, MPa, psi , lb/ft², kgf/cm², kgf/m², mmHg(0°C), mHg(0°C), inHg 0, mmH $_2$ O, cmH $_2$ O, mH $_2$ O, inH $_2$ O (4°C, 20°C), ftH $_2$ O (4°C, 20°C)

Calibration certificates

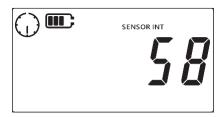
- Supplied as standard in bar, psi and kPa
- · Optional UKAS accredited calibration available

Leak test

Used to determine if there is a leak in the system by recording the pressure change over a fixed time.

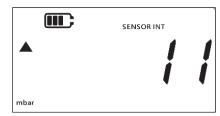
Leak test can also be used with the RTD sensor to record a temperature change over time.

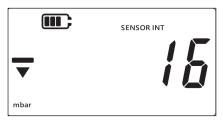
User defined 1, 3 or 5 minute leak test with live countdown timer.



Maximum/minimum

Captures both maximum and minimum readings in peak-hold mode.





Zero

Zero pressure correction (gauge/differential sensors)

Tare

0 to 100% FS temporary zero offset capability by subtracting the current reading from subsequent measurements.

Filter

Enables a filtered pressure reading by showing a rolling average of the last 10 measurements. Providing a more stable reading in a noisy measurement.

Alarm

User adjustable high and low pressure alarms with visual (Bell Icon, Pressure Reading and Backlight flash) and audible warning for 60 seconds.

Calibration

Used in conjunction with the optional pneumatic or hydraulic hand pumps, the DPI 705E Series provides a simple, low-cost calibration solution.



Battery

- 4 x AA Alkaline/NiCd/NiMH cells
- Ultra power efficient design, can be used for 8 Hours per day, 6 days per week for up to a year using a single set of batteries.

Display

16mm digital height LCD with ±99999 readout

Hazardous area approvals

- ATEX, IECEX, UKEX, CSA, CCOE, XPL, KCs, NEPSI, ECASEX (Ordering code 'H1')
- INMETRO (Ordering code 'H2')
- ATEX, IECEX, UKEX, CCOE, XPL, KCs, NEPSI, ECASEX, INMETRO: Ex ia IIC T4 Ga (-10°C ≤ Ta ≤ +50°C)
- CSA approved (Canada & US): Class I, Zone 0, AEx/Ex
 ia IIC T4 Ga (-10°C ≤ Ta ≤ +50°C)

Pressure ranges

DPI 705E Internal pressure sensors

The DPI705E includes an internal Absolute, Gauge or Differential sensor.

Available ranges as per table:

PM 700E External remote pressure sensors

Any number of remote sensors can be individually used with a single DPI705E as all sensors hold their own calibration data and are supplied with a 2.9m (9.5 feet) cable.

Available ranges as per table:

	DPI 705E Interno	al pressure sensor avai	lability	PM 700E Externo	al pressure sensor avai	lability
Туре	Internal (1) Standard	Internal (2) High	Internal (3) Premium	Remote (1) Standard	Remote (2) High	Remote (3) Premium
25 mbar / 10 inH2O / 2.5 kPa	G, L	-	-	G, L	-	-
70 mbar / 1 psi / 7 kPa	G, L	-	-	G, L	-	-
200 mbar / 3 psi / 20 kPa	G, L	-	-	G, L	-	-
350 mbar / 5 psi / 35 kPa	G, A, L	G, L	-	G, A, L	G, L	-
700 mbar / 10 psi / 70 kPa	G, A, L	G, L	-	G, A, L	G, L	-
1 bar / 15 psi / 100 kPa	G, A, L	G, A, L	-	G, A, L	G, A, L	-
750-1150 mbar / 11-17 psi /75-115 kPa (Barometric)	В	В	-	В	В	-
2 bar / 30 psi / 200 kPa	G, A, L	G, A, L	G,L	G, A, L	G, A, L	G,L
3.5 bar / 50 psi / 350 kPa	G, A	G, A	G	G, A	G, A	G
7 bar / 100 psi / 700 kPa	G, A	G, A	G	G, A	G, A	G
10 bar / 150 psi / 1000 kPa	G, A	G, A	G, A	G, A	G, A	G, A
20 bar / 300 psi / 2 MPa	G, A	G, A	G, A	G, A	G, A	G, A
35 bar / 500 psi / 3.5 MPa	G, A	G, A	G, A	G, A	G, A	G, A
70 bar / 1000 psi / 7 MPa	G, A	G, A	G, A	G, A	G, A	G, A
100 bar / 1500 psi / 10 MPa	G, A	G, A	G, A	G, A	G, A	G, A
135 bar / 2000 psi / 13.5 MPa	G, A	G, A	G, A	G, A	G, A	G, A
200 bar / 3000 psi / 20 MPa	G, A	G, A	G, A	G, A	G, A	G, A
350 bar / 5000 psi / 35 MPa	А	Α	А	А	А	А
700 bar / 10000 psi / 70 MPa	А	Α	Α	А	А	Α
1000 bar/ 15000 psi/ 100 MPa	-	-	-	А	А	А
1400 bar / 20000 psi / 140 MPa	-	-	-	А	А	A

G = Gauge L = Differential A = Absolute B = Baro

Negative calibration option (OPI) (Gauge sensors)

Full Scale Pressure Range	Standard and High Accuracy sensors	Premium accuracy sensors
25 mbar to 1 bar/10 inH2O to 15 psi/100 kPa to 2.5 kPa	Available down to negative Full Scale by default	Not available
1 bar to 20 bar/15 psi to 300 psi/20 kPa to 2 MPa	Available down to -1 bar g as option OP1	Available down to -1 bar g by default
35 bar to 200 bar/500 psi to 3000 psi/3.5 MPa to 20 MPa	Not available – calibrated down to 0 bar g	Not available – calibrated down to 0 bar g

Note: All differentials calibrated down to negative Full Scale (limited to -1bar)





Accuracy levels

1-Standard ±0.1% FS Total accuracy over -10 to 50 degrees C including NLH&R,1 year drift and calibration uncertainty
 2-High ±0.05% FS Total accuracy over -10 to 50 degrees C including NLH&R,1 year drift and calibration uncertainty
 3-Premium ±0.025% FS Total accuracy over -10 to 50 degrees C including NLH&R,1 year drift and calibration uncertainty

Accuracy specification

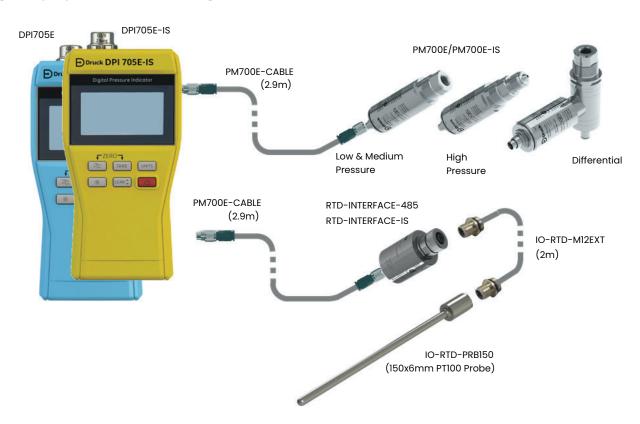
Gauge/differential sensors	Standard accuracy		High	accuracy	Premium accuracy	
_	NLH&R	Total uncertainty	NLH&R	Total uncertainty	NLH&R	Total uncertainty
Pressure range		-10 to 50°C (14 to 122°F)				
	(% FS)	(% FS)	(% FS)	(% FS)	(% FS)	(% FS)
25 mbar	0.3	0.348	N/A	N/A	N/A	N/A
70 mbar	0.1	0.121	N/A	N/A	N/A	N/A
200 mbar	0.08	0.1	N/A	N/A	N/A	N/A
350 mbar to 1 bar	0.08	0.1	0.04	0.05	N/A	N/A
2 bar to 200 bar	0.08	0.1	0.04	0.05	0.018	0.025

Absolute sensors	Standard accuracy		High	High accuracy		Premium accuracy	
	NLH&R	Total uncertainty	NLH&R	Total uncertainty	NLH&R	Total uncertainty	
Pressure range			-10 to 5				
	(% FS)	(% FS)	(% FS)	(% FS)	(% FS)	(% FS)	
750 - 1150 mbar (Barometric)	0.08	0.1	0.04	0.075	N/A	N/A	
350 mbar and 700 mbar	0.08	0.1	N/A	N/A	N/A	N/A	
1 bar to 7 bar	0.08	0.1	0.04	0.075	N/A	N/A	
10 bar to 1400 bar	0.08	0.1	0.04	0.075	0.018	0.063	

Notes:

- 1. NLH&R Non-linearity, hysteresis and repeatability.
- 2. Total uncertainty includes 1 year drift and calibration uncertainty. For 350mbar to 7bar absolute ranges typical values are stated for maximum values add 0.045%FS for standard accuracy, 0.055%FS for high accuracy. For 10bar absolute ranges and above maximum values are stated above.

Plug and play remote sensor range



Media compatibility

Sensors up to and including 3.5bar (including differential) are exposed, 7-1400bar are diaphragm isolated.

Pressure FS	Media compatibility
0 to 3.5 bar	Non-condensing dry gases compatible with 316L Stainless Steel, Pyrex, Silicon, Gold, Aluminium, Glass, Silicon Dioxide and RTV Adhesive.
Differential sensor reference port	Non-condensing dry gases compatible with 316L and 304 Stainless Steel, Pyrex, Silicon, Glass, Silicon Dioxide and RTV Adhesive.
7 to 200 bar	316L Stainless Steel and Hastelloy C276
350 to 1400 bar	Inconel 625 and 17-4PH Stainless Steel

Note: Only fluids that are compatible as per above table should be used, to ensure the integrity of the pressure sensor.

DPI705E General	DPI705E General specifications						
Working pressure	110% FS (alarm active beyond this range)						
Sealing	IP54						
Operating temperature	-10 to 50°C (14 to 122°F)						
Storage temperature	-20 to 70°C (-4 to 158°F)						
Humidity	0 to 90% RH non condensing						
Shock and vibration	MIL-PRF-28800F for Class II equipment. 1 m Drop Tested @ -20°C (-4°F)						
EMC	BS EN 61326-1						
Electrical safety	BS EN 61010-1 UL 61010-1						
Pressure safety	Pressure equipment directive class SEP. UL61010 Safe to 2xFS						
Approval	CE marked, RCM						
Size and weight	L 200 mm, W 95 mm, D 43 mm 563 g maximum						
RoHS	Compliant						
Resolution	5 digits						

Pressure fittings

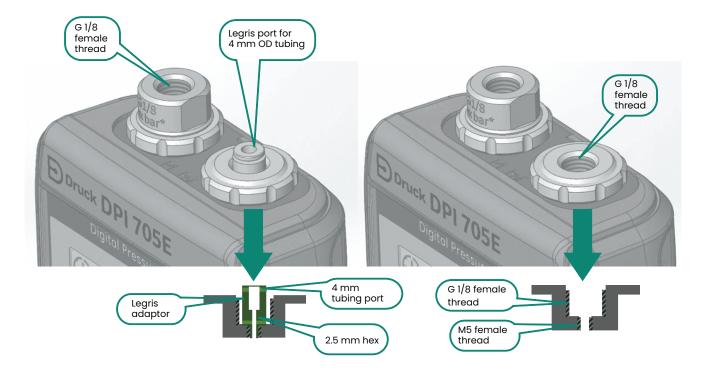
Internal and remote sensors are fitted with pressure connectors as detailed below:

- PI GI/8 Female direct sensor connection of instrument, welded non-removable (for ranges 200 bar and below) with optional adaptor:
- P2 G1/4 Female adaptor that goes into the instruments G1/8 female
- P3 1/8 NPT Female adaptor that goes into the instruments G1/8 female
- P4 1/4 NPT Female adaptor that goes into the instruments G1/8 female
- P5 Quick-Fit adaptor comes with G1/8 and 1/8 NPT adaptors
- P6 9/16 x 18 UNF Male direct sensor connection of instrument, welded non-removable (mandatory for ranges greater than/equal to 350 bar)

Differential reference port: Legris 4 mm tubing adaptor.

Adaptors

The Legris adaptor fitted to the reference port can be removed using a 2.5mm hex key leaving a G1/8 female thread and an M5 female thread.



Optional remote RTD temperature interface/probe

Enabling users to perform plug and play temperature measurement capability, displaying units as resistance or temperature.

The Interface only option P/N RTD-INTERFACE-485 for DPI705E Safe Area or P/N RTD-INTERFACE-IS for DPI705EIS Hazardous Area certification allows users to use their own PTI00 RTD probe. RTD-INTERFACE is supplied with a field-rewireable MI2 connector to allow users to connect their own wire-ended RTD's.

The probe option P/N RTD-PROBE-485 for DPI705E Safe Area or P/N RTD-PROBE-IS for DPI705EIS Hazardous Area comes with the interface and a 15 cm (6") class A PTI00 probe. All RTD-PROBE-xxx and RTD-INTERFACE-xxx come with a 2.9m cable.

For further options please see Accessories section.



RTD Accuracy specification					
	NLH&R ±1°C (2°F) for 24 hrs (note I)	Total Uncertainty 10° to 30°C (50° to 86°F) for 1 year (note 2)	Additional error -10° to 10°C (14° to 50°F) 30° to 50°C (86° to 122°F)		
0 to 400 Ω	0.012% Rdg + 0.005% FS	0.015% Rdg + 0.006% FS	0.001% FS/°C		
Pt 100 - Measured temp range -200 to 0°C		0.017% Rdg + 0.1°C	Excluding PT100 calibration error		
Pt 100 - Measured temp range 0 to 850°C		0.0215% Rdg + 0.1°C	Excluding PT100 calibration error		

Notes

- 1. NLH&R includes stability at $\pm 2^{\circ}$ C for 24 hours, at temperatures within 10°C to 30°C.
- 2. Total uncertainty includes 1 year drift

RTD General specifications							
Measuring temperatures	IO-RTD-PRB150	-50°C to 200°C (when used with appropriate extension cable)					
	RTD-INTERFACE (BODY)	-10°C to 50°C					
	DTD DDODE	-10°C to 50°C when directly plugged in to RTD-INTERFACE					
	RTD-PROBE	-25°C to 75°C when using supplied cable					
	SPECIALIST RTD PROBES (Not supplied by Druck)	The capability of the RTD-INTERFACE (resistance range) with a suitable extension cable and suitable probe is 0 to 400Ω which equates to -250°C to +650°C for a PTI00 probe.					
Dimensions	IO-RTD-PRB150 RTD-PROBE	Probe tip: Ø6.35 x 150mm Probe total: Ø15 x 200mm					
	RTD-INTERFACE	Body: Ø34 x 72mm length					

Ordering information for DPI705E handheld pressure indicator

The DPI 705E and DPI 705E-IS are supplied with a user guide and calibration certificate as standard.

Model type

DPI705EIS - 1

- 07G

P2 - H1 - U0 - OP1

DPI705E Safe Area pressure indicator DPI705EIS Hazardous Area pressure indicator

Accuracy (Now offering three levels of accuracy – see page 3 for availability by pressure range)

- 2
- 3

	Standard		,	page e lei aram	ability by proceding	o rango)
2	High Premium					
,	Pressure range and reference type; (Mandatory to select only one e.g. 008A for each configuration)					
	riessure lange and referen	Gauge		Absolute (A)	Differential (L)	
	25 mbar/10 inH2O/2.5 kPa	008G	` ,	-	008L	-
	70 mbar/1 psi/7 kPa	01G		_	01L	-
	200 mbar/3 psi/20 kPa	02G		-	02L	-
	350 mbar/5 psi/35 kPa	03G		03A	03L	-
	700 mbar/10 psi/70 kPa	04G		04A	04L	-
	1 bar/15 psi/100 kPa	05G		05A	05L	-
	750-1150 mbar/11-17 psi/	_		_	_	05B
	75-115 kPa (Barometric)					000
	2 bar/30 psi/200 kPa	07G		07A	07L	-
	3.5 bar/50 psi/350 kPa	08G		08A	-	-
	7 bar/100 psi/700 kPa	10G		10A	-	-
	10 bar/150 psi/1000 kPa	11G		11A	-	-
	20 bar/300 psi/2 MPa	13G		13A	-	-
	35 bar/500 psi/3.5 MPa	14G		14A	-	-
	70 bar/1000 psi/7 MPa	16G		16A	-	-
	100 bar/1500 psi/10 MPa	165G		165A	-	-
	135 bar/2000 psi/13.5 MPa	17G		17A	-	-
	200 bar/3000 psi/20 MPa 18	3G 18A		_	-	
	350 bar/5000 psi/35 MPa	-		20A	-	-
	700 bar/10000 psi/70 MPa	_		22A	-	-
		itting - Refer to	page 5		,	,
		1/8 Female				lded non-removable)
		1/4 Female ad	•	For ranges less		
		8 NPT Female	•	•		
		4 NPT Female	•	•		
		uick-Fit adapt		For ranges less		/
	P6 9,	/16 x 18 UNF Ma	ie	(welded non-re		an/equal to 350 bar
	H			als (Mandatory to	efault if DPI705E se	vlootod)
	H			CCOE, XPL, KCS,		elected)
	H		OEX, CSA, O (Brazil)		NEFSI, ECASEX	
		Pressur		sure units (Defau	lt coloction)	
		U0 U1		Pressure units on	•	
					•	
			•	(Mandatory to s	•	
			OP0	No option requi		
			OP1	Negative calibro	ation for gauge ro	anges 20 bar and below
1	* *	*	*			

(Example model numbers)

Ordering information for PM700E external remote pressure sensors

The PM 700E and PM 700E-IS are supplied with a user guide and calibration certificate as standard.

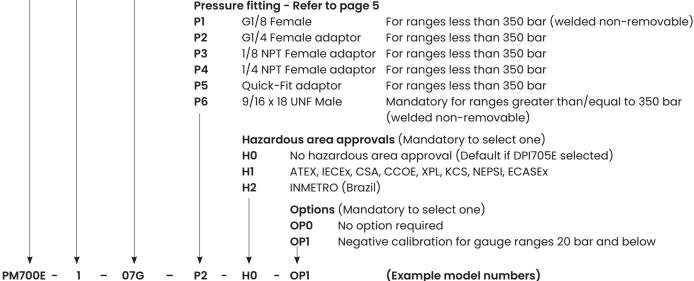
Model type

PM700E Safe Area External remote pressure sensorr PM700EIS Hazardous Area External remote pressure sensor

Accuracy (Now offering three levels of accuracy - see page 3 for availability by pressure range)

- 1 Standard
- 2 High
- 3

Pressure range and reference	Gauge (G)	Absolute (A)		Barometric (B)
25 mbar/10 inH2O/2.5 kPa	008G	-	008L	-
70 mbar/1 psi/7 kPa	01G	_	01L	_
200 mbar/3 psi/20 kPa	02G	_	02L	_
350 mbar/5 psi/35 kPa	03G	03A	03L	_
700 mbar/10 psi/70 kPa	04G	04A	04L	_
bar/15 psi/100 kPa	05G	05A	05L	_
750-1150 mbar/11-17 psi/				OED
'5-115 kPa (Barometric)	-	-	-	05B
2 bar/30 psi/200 kPa	07G	07A	07L	-
3.5 bar/50 psi/350 kPa	08G	08A	-	-
bar/100 psi/700 kPa	10G	10A	-	-
0 bar/150 psi/1000 kPa	11G	11A	-	-
20 bar/300 psi/2 MPa	13G	13A	-	-
35 bar/500 psi/3.5 MPa	14G	14A	-	-
'0 bar/1000 psi/7 MPa	16G	16A	-	-
00 bar/1500 psi/10 MPa	165G	165A	-	-
35 bar/2000 psi/13.5 MPa	17G	17A	-	-
200 bar/3000 psi/20 MPa	18G	18A	-	-
350 bar/5000 psi/35 MPa	-	20A	-	-
700 bar/10000 psi/70 MPa	-	22A	-	-
000 bar/ 15000 psi/ 100 MPa	-	23A	-	-
400 bar/20000 psi/140 MPa	-	24A	-	-
Pressure fittin	g - Refer to page	5		
	emale		than 350 bar (we	elded non-remov
P2 G1/4 F	emale adaptor	For ranges less		
P3 1/8 NF	T Female adanta	r For ranges less	than 350 har	



Options

OP1 - Negative calibration

Optionally available for Gauge ranges of 20 bar and below (default for -3 accuracy). If this option is chosen, then the calibration certificate will include values down to -1 bar g.

UKAS calibration

We also offer UKAS accredited calibrations, please advise at the time of order placement if required.

Accessories

Please state any accessories required as separate items when placing order.

The DPI 705E Safe and Hazardous area versions are compatible with the following accessories unless otherwise specified.

Part code	Description
IO705E-CASE	DPI705 & DPI705E Carry Case
IO705E-CASE-IS	DPI705 & DPI705E Carry Case (IS)
IO705E-STRAP	DPI705E Hanging Strap
PM700E-CABLE	PM700E Remote Sensor Cable 2.9m (Cable from DPI705E to PM700E or RTD-INTERFACE)
IO-ADAPT-G1/4	Adaptor G1/8 Male to G1/4 Female
IO-ADAPT-1/4NPT	Adaptor G1/8 Male to 1/4NPT Female
IO-ADAPT-1/8NPT	Adaptor G1/8 Male to 1/8NPT Female
IO-ADAPT-QF	G1/8M to Quick-fit Adaptor
182-190	Adaptor High Pressure 9/16UNF Female to 3/8BSP Male (suitable for Pressure Fitting option P5 up 1000 bar)
RTD-INTERFACE-485	RTD Interface only - RS485
RTD-INTERFACE-IS	RTD IS Interface only - RS485
RTD-PROBE-485	RTD Interface with PT100 probe - RS485 (supplied with 2.9m cable)
RTD-PROBE-IS	RTD IS Interface with PT100 probe-RS485 (supplied with 2.9m cable)
IO-RTD-M12CON	Field Wireable M12 connector 4-pin
IO-RTD-M12EXT	M12M to M12F 2m ext lead (6.5 ft) 4-wire (Cable interface to the PT100 probe)
IO-RTD-PRB150	RTD Probe 150mm, PT100 steel Class A
IOHOSE-NP1	20 bar Hose Assembly 1 metre
IOHOSE-NP2	20 bar Hose Assembly 2 metre
IO620-HOSE-P1	Pneumatic Hose 1 metre
IO620-HOSE-P2	Pneumatic Hose 2 metres
IO620-HOSE-P3	Pneumatic Hose 3 metres
IO620-HOSE-HI	Hydraulic Hose 1 metre
IO620-HOSE-H2	Hydraulic Hose 2 metres
IO620-HOSE-H3	Hydraulic Hose 3 metres
IO620-HOSE-P1-IS	Pneumatic Hose 1 metre (IS)
IO620-HOSE-P2-IS	Pneumatic Hose 2 metres (IS)
IO620-HOSE-P3-IS	Pneumatic Hose 3 metres (IS)
IO620-HOSE-H1-IS	Hydraulic Hose 1 metre (IS)
IO620-HOSE-H2-IS	Hydraulic Hose 2 metres (IS)
IO620-HOSE-H3-IS	Hydraulic Hose 3 metres (IS)
IO620-BSP	Pressure Adaptor Set - BSP
IO620-NPT	Pressure Adaptor Set - NPT

Related products

Process calibrators

Druck offer a comprehensive range of portable pressure, temperature and electrical field calibrators. To help you select the right process calibration tools we have categorised our products into three ranges.

Druck's Essential range provides rugged, accurate and easy-to-use test and calibration tools.

Druck's Expert range introduces higher accuracy and increased functionality.

Druck's Elite range provides a modular system offering state-of-the-art multifunction communication and calibration.



Pneumatic and hydraulic test kits:

PV210 Low pressure pneumatic hand pump

Fully portable, easy to use, an ideal tool for low pressure calibration checks on pressure transmitters, pressure switches, indicators, recorders and controllers.

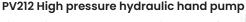


- Generates pressures to 3 bar (45 psi)
- · Generates vacuum to 90%.

PV211 Pneumatic hand pump

Lightweight, high quality combined pressure and vacuum hand pump, designed to provide maximum pneumatic pressures efficiently and effortlessly.

- Pneumatic pressures in excess of 40 bar (600 psi)
- Generates vacuum to 96%



Lightweight, easy to use, an ideal tool for calibrating pressure transmitters, pressure transducers, pressure switches and pressure gauges.

- Generates pressures up to 1000 bar (15,000 psi)
- Controlled pressure release and adjustment

PV411A Multifunction hand pump

High quality field proven pressure and vacuum hand pump. This product replaces four conventional hand pumps.

- Pneumatic pressures to 40 bar (600 psi)
- Hydraulic pressures to 700 bar (10,000 psi)
- Removable hydraulic reservoir which can be disconnected from the pump without draining the fluid
- · Excellent low pressure control
- 95% vacuum

Laboratory and workshop instruments

Druck's PACE Series offers a comprehensive range of pressure controllers and indicators.

Pressure transducers and transmitters

Druck offer a wide range of pressure transducers and transmitters including analog, digital and HART/Smart devices. Please contact BH for further information

Supporting services

Druck's highly trained staff can support you, no matter where you are in the world. We can provide nationally accredited calibration (both initially and at periodic intervals), extended warranty terms, maintenance and even rental of portable or laboratory instruments. Please contact your local Druck customer care team for more information.



