PV624

Portable automatic/hybrid pressure controller

Genii advanced modular calibration system

The PV624 within one portable base station is both a fully automatic controller and a hybrid pressure controller. Hybrid control combines the advantages of manual pressure generation with fully automatic pressure generation and control.

Using the PV624 with a DPI620G electrical calibrator and interchangeable PM620/PM620LP/PM620T pressure modules from the Genii advanced modular calibration system creates a uniquely capable, flexible, self-contained portable automatic hybrid pressure controller with a turndown from high to ultra-low pressure.

The PV624 automatic/hybrid pressure controller offers an easy and fast method to accurately maintain pressure set points. Hybrid pressure control also supports large test volumes and long battery life.

With a robust design and tool-less pressure connection, the PV624 is ideally suited to perform pressure testing and calibrations in the field.

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Features

- Rangeable pressure generation from 2.5 mbar (1 inH2O) FS to 20 bar (300 psi) FS
- In-the-field pressure range selection from the Genii PM620/PM620LP/PM620T pressure module family.
- In built barometer to enable accurate pseudo pressure measurements.
- Smart selection of Low-pressure fully automatic pressure generation or high pressure/volume hybrid generation.
- Automatic pressure control range +/-55 mbar (22 inH20) into a 20 mL (0.7 fl oz) volume
- Hybrid pressure generation and control from -0.9 barg (-13 psig) to 20 barg (300 psig).
- Fully automatic pressure generation and control to accurately maintain setpoint.
- Minimise in-the-field leaks with quick-fit pressure adapters.
- Physical or *Bluetooth® wireless connection to a DPI620G electrical calibrator.
- In-the-field rechargeable battery pack replacement.
- Autonomous calibration wizard to store procedures and calibration data.

Druck PV624 portable automatic/hybrid pressure controller

In hybrid mode the PV624 automatically selects between fast high volume manual pressure generation and fully automatic precise pressure generation to quickly achieve and accurately maintain a stable setpoint.

To achieve a fast time to up-scale pressure set points (or down-scale pressure set points for negative pressure ranges), the hand pump is requested by the PV624 to be exercised for a portion of the pressure change before automatically isolating the hand pump and seamlessly engaging fully automatic pressure generation to set point.

Down-scale pressure set points (or up-scale pressure set points for negative pressure ranges) are quickly achieved with automatically controlled venting.

Once at set point the PV624 automatically generates and controls the pressure to combat the effect of adiabatic or minor leaks.

Pressure control turndown from high to ultra-low pressure

By simply changing the pressure module, the PV624 can generate and control pressure up to 20 bar (300 psi) using the unique hybrid control technology, or alternatively for the easy calibration of ultra-low pressure devices, the PV624 operates in full automatic mode and automatically generates and controls differential pressure up to +/- 55 mbar (22 inH_2O).

Modular integration

The PV624 portable hybrid pressure controller connects physically or *wirelessly via Bluetooth® with any Bluetooth® **DPI620G electrical calibrator.

A simple hand tight screw fit (no tools required) makes both an electrical and pressure connection to a range of fully interchangeable **PM620 series of pressure modules.

By utilizing the PV624 internal barometer, a PM620/PM620T pressure module reference type can be changed by the user from gauge to ***pseudo absolute or from absolute to ***pseudo gauge.

*Due to individual country radio licence requirements, Bluetooth® wireless technology may not be available in some countries. An up-to-date list of countries where with Bluetooth® wireless technology is licenced to be used in is available upon request from Druck. Users will need a Bluetooth® DPI620G & Bluetooth® PV624 to allow this.

**The PV624 is not compatible with any hazardous area intrinsically safe approved products e.g.DPI620-IS or PM620-IS

***pseudo selection only available for PM620 1 bar/15 psi gauge full-scale ranges or above and for 2 bar/30 psi absolute full-scale ranges and above

Precision engineering

The choice of case material and precision over moulding ensures that the PV624 is rugged, weatherproof, and suitable for the harshest environments.

Supplied with a dirt trap to reduce contamination of both the instrument itself and the system under test from dirt and debris as well as moisture.

Ease of use

The PV624 provides a tool-less quick-fit pressure connection where finger-tight connections achieve pressure-tight connections to 20 bar (300 psi). Supplied with a G1/8 female and 1/8 NPT female adapter (other adapters available, see accessories).

The PV624 is supplied with an AC adapter and a rechargeable battery pack that can be charged in the unit, or is easily exchanged in the field with a charged additional battery (additional battery and external charger available as an accessory).

Druck PV600 series portable pressure base stations

The PV624 is a portable hybrid pressure controller base station that joins the Genii advanced modular calibration system. The unique hybrid pressure generation and control technology compliments the established PV621G/622G/623G manual pressure generation and control base stations offering pressure generation from vacuum to 100 bar (1,500 psi) pneumatic and up to 1,000 bar (15,000 psi) hydraulic.

Genii advanced modular calibration system

The Druck Genii advanced modular calibration system comprises of four possible system components to provide the multifunctionality to perform duties formerly requiring a wide range of different instruments. These system components are:

- DPI620G – Electrical/multi-function calibrator, HART/ Fieldbus communicator
- PM620/PM620LP/PM620T - Interchangeable pressure modules (–all ranges from 2.5 mbar/1 inH2O up to 20 bar/ 300 psi compatible with the PV624)
- MC620G - Pressure module carrier
- PV62XG (including the PV624) - Pressure generating base stations.

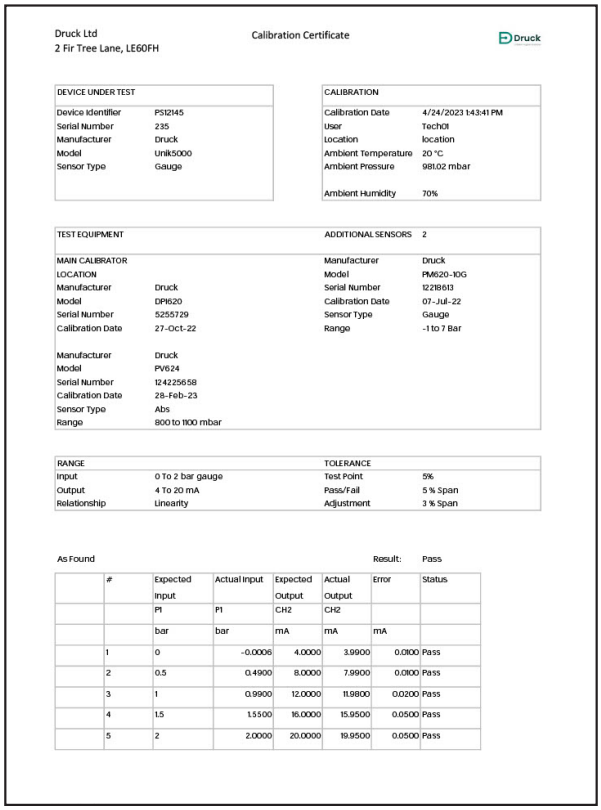
This user selectable flexible system allows the choice of multiple DPI620G models to be used as a standalone electrical/multi-function calibrator, as a pressure reference with the addition of a pressure module carrier and pressure modules or as a self-contained pressure calibrator with a pressure base station and a pressure module.

Calibration procedures

Test procedures can be created and stored using the autonomous “Calibration Wizard”. A single test procedure template can be run on multiple devices with live pass/fail error analysis and results for each device saved individually in the internal storage of the DPI620G that can be locally viewed or transferred to a PC to support traceability.

With the test results exported to a PC, the data can be sorted or Druck provides a Calibration Certificate template for pressure to electrical device calibrations, which transforms the results into a formatted professional-look certificate ready for printing or filing.

The PV624 is also compatible with Druck’s 4Sight2 calibration management software that provides full visibility of all your assets and reference standards with calibration workload scheduling, track and trace calibrations, historical trending and drift analysis features to drive process efficiency and time saving.



Druck Ltd
2 Fir Tree Lane, LE60FH

Calibration Certificate

Druck

DEVICE UNDER TEST	
Device Identifier	PS12145
Serial Number	235
Manufacturer	Druck
Model	Unik5000
Sensor Type	Gauge

CALIBRATION	
Calibration Date	4/24/2023 1:43:41 PM
User	Tech01
Location	location
Ambient Temperature	20 °C
Ambient Pressure	981.02 mbar
Ambient Humidity	70%

TEST EQUIPMENT	
MAIN CALIBRATOR	
LOCATION	
Manufacturer	Druck
Model	DPI620
Serial Number	5255729
Calibration Date	27-Oct-22
Manufacturer	Druck
Model	PV624
Serial Number	124225658
Calibration Date	28-Feb-23
Sensor Type	Abs
Range	800 to 1100 mbar

ADDITIONAL SENSORS	2
Manufacturer	Druck
Model	PM620-10G
Serial Number	12218613
Calibration Date	07-Jul-22
Sensor Type	Gauge
Range	-1 to 7 Bar

RANGE	
Input	0 To 2 bar gauge
Output	4 To 20 mA
Relationship	Linearity

TOLERANCE	
Test Point	5%
Pass/Fail	5 % Span
Adjustment	3 % Span

As Found — Result: Pass

	#	Expected Input	Actual Input	Expected Output	Actual Output	Error	Status
		PI	P1	CH2	CH2		
		bar	bar	mA	mA	mA	
	1	0	-0.0006	4.0000	3.9900	0.0100	Pass
	2	0.5	0.4900	8.0000	7.9900	0.0100	Pass
	3	1	0.9900	12.0000	11.9800	0.0200	Pass
	4	1.5	1.5500	16.0000	15.9500	0.0500	Pass
	5	2	2.0000	20.0000	19.9500	0.0500	Pass

Specifications

Range and performance

Automatic pressure control range

+/- 55 mbar (22 inH_2O) into a 20 mL (0.7 fl oz) volume

Hybrid pressure control range

-0.9 barg (-13 psig) to 20 barg (300 psig)

Compatible PM620, PM620LP & PM620T (FS) pressure ranges

Differential ranges: +/- 2.5 mbar (1 inH_2O),
+/- 12.5 mbar (5 inH_2O), +/-25 mbar (10 inH_2O)

Gauge ranges: 0.07 bar (1psi), 0.1 bar (1.45 psi), 0.2 bar (3 psi), 0.35 bar (5 psi), 0.7 bar (10 psi), 1 bar (15 psi), 2 bar (30 psi), 3.5 bar (50 psi), 7 barg (100psi), 10 barg (150 psi), 20 barg (300psi).

Absolute ranges: 2 bar (30 psi), 3.5 bar (50 psi), 7 bar (100 psi), 10 bar (150 psi), 20 bar (300 psi).

Maximum over range pressure (without damage)

120% FS

Barometer pressure measurement range

800-1100 mbar abs

Barometer total uncertainty (24hr)

<0.5 mbar

Barometer drift/year

<0.33 mbar/yr typical

Pressure control stability

0.005% of PM620 series full scale ranges 25 mbar to 20 bar (10 inH_2O to 300 psi)

0.01% of PM620 series full scale ranges 12.5 mbar (5 inH_2O)

0.05% of PM620 series full scale ranges 2.5 mbar (1 inH2O)

Speed to stable set point

0 barg to 2 barg (30 psig) +/-50 ppm into 15 ml volume <15sec

0 barg to 20 barg (300 psig) +/-50 ppm into 50 ml volume <90sec

Maximum compensated leak rate at 20 barg (300 psig) with 50 ml volume

60 mbar/min

General specification

Operating temperature

0 to +50 deg. C

Storage temperature

-20 to +70 deg. C

Ingress protection

IP54

Humidity

Up to 95% non-condensing

Shock/vibration

As per MIL-PRF-28800F (Class II equipment)

Altitude

Up to 3000 m

EMC

CE and UKCA approved IEC61326-1

Electrical safety

CE and UKCA approved IEC61010

Pressure safety

CE and UKCA approved Sound Engineering Practice

Test volume materials

Suitable for air

Approvals

CE marked, UKCA marked

Size (excl DPI620)

(L) 343 mm/13.5" x (W) 192 mm/7.6" x (H) 136 mm/5.4"

Weight (excl DPI620)

3.4 Kg/7.5 lb

Power supply

15 V, 2 A (30 W)

Battery life (from 100% charge)

Min 8 hrs continuous usage (typical)

Battery charge time

8 hrs

Service

>5000 pressure cycles

Power failure protection

System lock and manual vent valve feature provided

Connectivity

USB client micro-USB (+Bluetooth® low energy for B1 option)

Pressure connection

Quick fit with G1/8 female + 1/8 NPT female adapter

Ordering information for the PV624

Model

PV624		Hybrid pressure controller base station
		Connectivity to DPI620G
	B0	B0 Standard electrical connection
	B1	B1 Standard electrical connection plus *Bluetooth®

PV624 - B0 (Example model number)

Standard specification

- 1x PV624 Hybrid pressure controller base station
- 1x Shoulder/carry strap
- 1x AC power supply
- 1x Rechargeable battery pack
- 1x Quick start/safety manual
- 1x G1/8 female adapter
- 1x 1/8 NPT female adapter
- 1x Dirt moisture trap

Accessories for the PV624

Pressure station carrying case

A protective carrying case with shoulder strap and large pocket for accessories. Also accommodates the assembled system including the DPI620 and PM620. P/N IO620-CASE-3.

Power

A spare rechargeable battery pack P/N IO624-Battery

An external desktop battery charger for the PV624 battery pack:

- UK Plug – P/N IO624-CHGR-KIT-UK
- European Plug – P/N IO624-CHGR-KIT-EU
- USA Plug – P/N IO624-CHGR-KIT-US
- Australia Plug – P/N IO624-CHGR-KIT-AU
- China Plug - P/N IO624-CHGR-KIT-CN

Pneumatic hoses

A pneumatic hose rated to 35 bar (508 psi). The hose connects directly to the PV624 pressure port and replicates the quick fit connection for compatibility with the standard adaptors supplied and the adaptor kits.

P/N IOHOSE-NP1: 1 m/3.28 ft pneumatic hose kit.

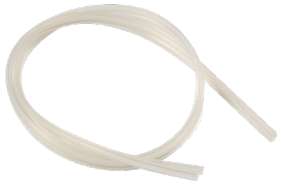
P/N IOHOSE-NP2: 2 m/6.56 ft pneumatic hose kit.

P/N IOHOSE-NP3: 3 m/9.84 ft pneumatic hose kit.

PM620LP Low pressure tube

Flexible 6 mm (1/4") silicone tubing for use with the PMP620LP pressure module “push fit” barbed pressure connectors.

P/N IOHOSE-LP2: 2 m/6.56 ft low pressure pneumatic twin tube. Maximum pressure 500 mbar/7 psi.



Low pressure tube connector kit

Low pressure connector kit compatible with 6 mm (1/4") flexible twin silicon tubing. Contains: 1 off high pressure barb to connect tube to PV62X/MC620G, 1 off valve to allow pressure equalization of high and low pressure tube during set up and sensor zero, 3 off "T" connectors.

P/N IO620-LP: Low Pressure Connector Kit

Pressure connection

A set of test point adaptors to connect the tool-less quick fit PV624 pressure port or the extension hoses to the device under test.

P/N IO620-BSP: G1/8 male and G1/4 male, G1/4 female, G3/8 female and G1/2 female.

P/N IO620-NPT: 1/8”NPT male and 1/4” NPT male, 1/4” NPT female, 3/8” NPT female, and 1/2” NPT female.

P/N IO620-MET: 14 mm female and 20 mm female.

Low pressure external pump

An external squeeze pump to supplement low pressure generation (up to 950 mbar/13.5 psi) into large volumes when the PV624 is in hybrid mode. Supplied with “T” connector compatible with PM620LP twin tubing.

P/N IO624-LP-PUMP: External low-pressure pump.

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920-708F

BHCS39378A (03/2026)

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