

DPI 520

Pneumatic Pressure Controller/Calibrator



- Pressure ranges up to 70 bar
- Precision up to 0.025% reading
- Control stability 0.004% full scale
- High speed pressure control
- Stackable for multiple ranges
- RS232 and IEEE-488 communications



DPI 520

Pneumatic Pressure Controller/Calibrator

The DPI 520 pneumatic pressure controller provides a reliable, precise and economic solution for a wide variety of production, test and calibration applications.

This innovative and flexible instrument is utilised extensively for high volume manufacture, research/development and test bench applications. Proven high reliability has enabled it to meet many control, measurement and ISO 9000 requirements.

AUTOMATIC TEST EQUIPMENT (ATE)

Designed for 19" rack systems, the DPI 520 is an ideal instrument for ATE and test bench applications.

Using RS232/IEEE 488 and the simple command protocol, the DPI 520 is easily incorporated into automated processes with the minimum of effort.

The DPI 520 can also be driven by the intuitive, Remote User Interface (RUI) which simply plugs into the front (RUI 100) or the rear (RUI 101) of the pressure controller, to provide a stand alone system.

The RUI is available in either tabletop (RUI 100) or 19" rackmount (RUI 101) format.

STACKING FOR MULTIPLE RANGES

Several DPI 520 controllers can be stacked together to provide a multiple range system for higher precision and improved control throughout the pressure range. Each instrument has an internal isolation valve to isolate it from the system as required.

Up to three DPI 520 controllers can be stacked using the RUI100/101 and up to sixteen using IEEE-488.

ECONOMIC SOLUTION

The DPI 520 can be supplied with three different levels of precision, enabling the optimum performance to be selected.

STABILITY

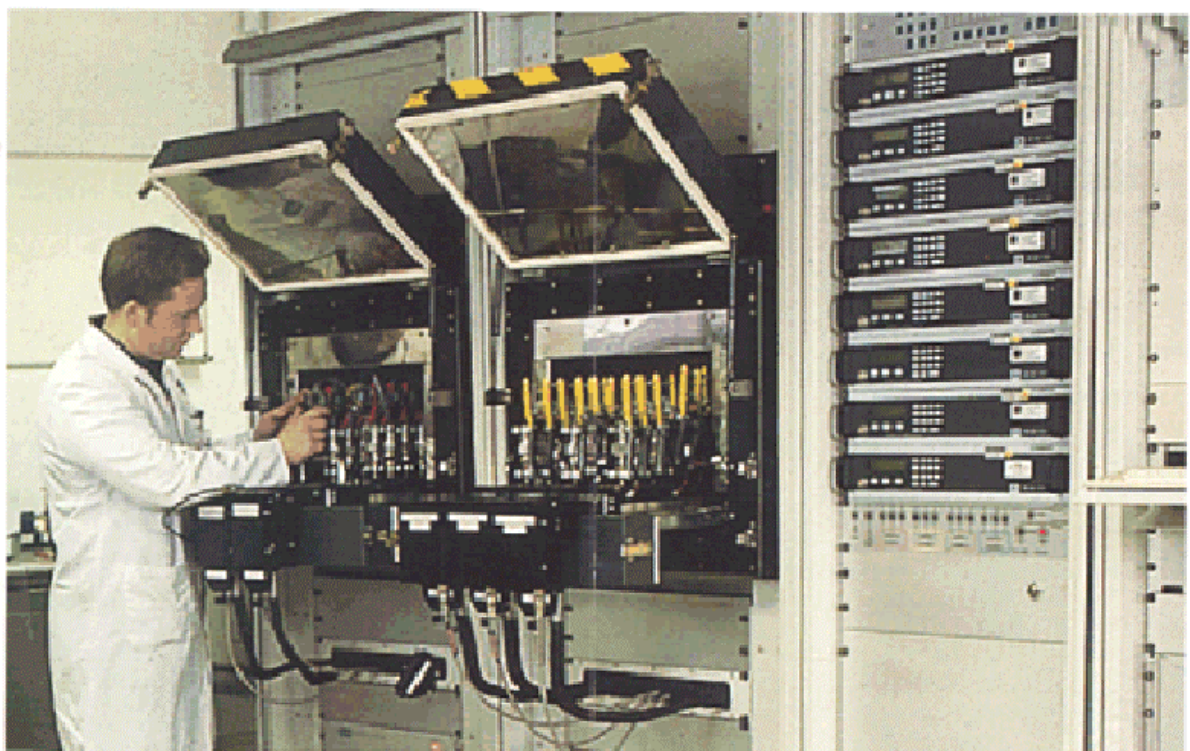
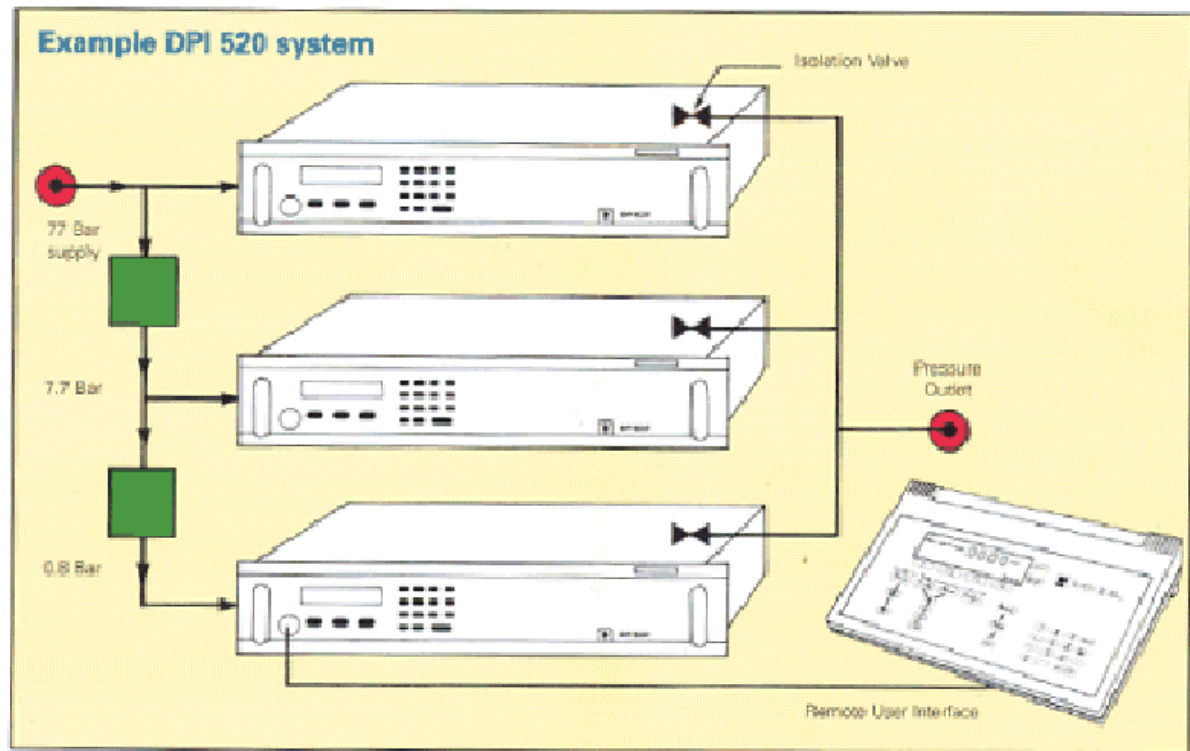
The controller provides a high level of control stability, maintaining setpoint within 40 ppm. In addition the Druck piezo-resistive pressure sensors ensure good measurement stability is maintained.

HIGH SPEED CONTROL

On low test volumes, the DPI 520 can reach and control the setpoint pressure within 5 seconds. Internal control parameter settings allow the user to adjust the controller to match a specific application by providing variable rate selection and control, with or without overshoot.

QUALITY

Druck is ISO 9001 approved, with all instruments manufactured to strict quality control procedures and calibrated against traceable reference standards. Full NAMAS certification is also available.



The RUI 100/RUI 101 remote user interface is designed for use with the DPI 520 as a stand alone pressure control/calibration system.

SIMPLICITY AND FUNCTIONALITY

The RUI provides an alternative to PC control, combining optimal operation and performance with ease of use. Up to three DPI 520 controllers can be stacked and operated from a single RUI.

Commonly used functions are accessed directly via the keypad, whilst additional functions are available through a series of intuitive menus using the softkeys. The high resolution, "white on black", graphics display ensures easy viewing.

Standard functions include:

Manual Control

Enables setpoints to be entered via the numeric keypad.

Divider

Provides the facility to divide a defined pressure span by up to 24 equally spaced points.

Preset

Enables up to 24 individual pressure points to be defined.

Test Program

Enables flexible programs to be created in the RUI program editor, which can contain a number of sequenced pre-defined commands. Up to 100 test programs can be stored.

Leak Test

A fully automated Leak Test procedure is available which enables the user to define wait and test times at a specified pressure. Control is disabled at the test pressure and the leak rate is determined.

Vent

A dedicated key is provided to automatically vent the system.

Zeroing

The RUI can automatically set the DPI 520 to zero, whenever a zero setpoint is entered or after a set time period elapses. Manual zeroing can be carried out at any time.

Output Limits

Pressure limits can be set to prevent accidental damage to the unit under test. Alarm limits can also be set to produce an audible warning.

Control Rate

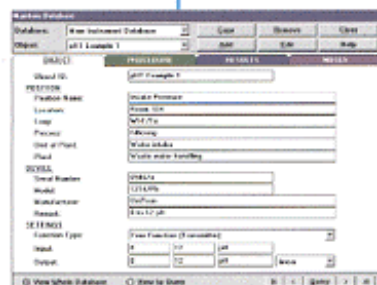
The response to setpoint is adjustable for either maximum, variable or automatic (optimum with no overshoot) rate.

RUI100/101 Specification

RUI 100



RUI 101



GENERAL

Display

Large area, high contrast, emissive graphics LCD.

Memory

Storage for normally 100 tests of 20 point routines or variations.

Stacking

Full use of the DPI 520 stacking facility can be made. Up to 3 controller outlets can be linked to a single pressure test point with automatic isolation of the controllers not in use, providing a multiple pressure range output (see illustrated example). Stacking cable assembly for RS232 available as an option.

Pressure scale units

Four preferred units can be selected under **SET UP** from the 24 available, for quick access via the **UNITS** key.

Units available

Pa, hPa, kPa, MPa, mbar, bar, kg/cm², kg/m², mmHg, cmHg, mHg, mmH₂O, cmH₂O, mH₂O, torr, atm, psi, lb/ft², inHg, inH₂O, ftH₂O (4 and 20), special.

Communications interface

RS232 serial data communications link.

Power supply

10 to 30V d.c. at 8 watts.

Normally the RUI is powered from the DPI 520 via the communication lead, but can be connected to an external source for stand-alone operation.

ENVIRONMENTAL

Temperature

Operating 0 to + 50°C
Storage -20 to + 70°C

Sealing

Front panel to IP54
Case assembly to IP41.

Humidity

0 - 90% RH non-condensing.

Shock and vibration

Designed to meet IEC1010.

Electro magnetic compatibility

Designed to meet EN50081-1 for emissions and EN50082-1 for immunity.

Electrical safety

IEC1010.

PHYSICAL

Weight

RUI 100 1.5Kg
RUI 101 2.1Kg

Dimensions

RUI 100 340mm x 240mm x 40mm
RUI 101 19" wide x 2U high x 360mm deep.

SOFTWARE

Druck Intecal-W is a Windows® based Calibration Management software designed for the support of both laboratory and field based calibrations. The extensive management and analysis features included can interface with many popular Druck instruments such as the DPI 515, DPI 520, Ruska 7000 series controllers and Portable DPI 605, DPI 610, MCX and TRX II to offer a complete and quality assured solution to calibration management.

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PRESSURE MEASUREMENT

Standard Pressure Ranges

Any zero based full scale can be supplied between the ranges below:-
70mbar to 70bar gauge.
350mbar to 70bar absolute.
Gauge versions available with -1bar gauge calibration as an option.

Over Range

1.25 x full scale pressure.
Audible alert at 1.2 x full scale pressure.

Pressure Media

Dry, oil free, non-corrosive gas between 5% and 15% above the full scale pressure range. Dry air or Nitrogen recommended.

Pressure Units

24 selectable scale units plus one user defined.
Pa, hPa, kPa, MPa, mbar, bar, kg/cm², kg/m², mmHg, cmHg, mHg, mmH₂O, cmH₂O, mH₂O, torr, atm, psi, lb/ft², inHg, inH₂O, ftH₂O, (4 and 20°C), special.

PERFORMANCE

Precision

Precision* 0.05% full scale.
Optional 0.05% or 0.025% of reading available.
± 1 digit for both absolute and gauge pressures. Includes non-linearity, hysteresis and repeatability.

Temperature Effects

0.01% of reading/°C averaged over 10°C to 30°C. For absolute ranges, frequent zero correction is required, or a total error of ± 0.5% FS applies.

Negative Gauge Precision

Maximum error at any negative pressure valve is equal to maximum error at the equivalent positive pressure valve.

Measurement Stability

0.015% of reading for 90 days.

Control Stability

Better than 0.004% full scale.

Controller Response

For low volume dead end system, time to set point value is 5 seconds. Increasing external volume reduces response.

Gas Consumption

All supply gas is delivered to the system. No gas is used in measure mode, or when the instrument is turned off.

*NOTE: Precision assumes regular zeroing.

ELECTRICAL

Communications

RS232 and IEEE-488 interfaces supplied as standard.

Analogue Output

A voltage output is ranged as 0-2V, 0-4V, 0-4V, or 0-10V.
Accuracy ± 0.3% FS.
Temperature error band ± 0.5% FS over 0 to 50°C.
Load impedance > 10,000 ohms.
Bandwidth 2kHz (-6dB).

Power Supply

88 - 264V
47 - 65Hz, 60VA

ENVIRONMENTAL

Temperature

Operating	0 to 40°C
Calibrated	10 to 30°C
Storage	-20 to 70°C

Sealing

Front panel to IP40.

Humidity

0-90% non-condensing

Shock and Vibration

Designed to meet IEC1010

Electro Magnetic Compatibility

Designed to meet EN50081-1 for emissions and EN50082-1 for immunity.

Electrical Safety

IEC1010.

PHYSICAL

Weight

5.2Kg nominal.

Dimensions

19" wide x 2U high x 360mm deep.

Pressure Connections

1/8 Female (BSP) on vent, source and outlet connections.

REAR PANEL LAYOUT



INSTALLATION DRAWINGS - Dimensions: mm



Options and Related Products

OPTIONS

DPI 520:

(A1) High Precision

Precision* 0.05% reading from 20% to 100% of full scale range.

Precision* 0.01% full scale from 0% to 20% of full scale range.

(A2) High Precision

Precision* 0.025% Reading from 20% to 100% of full scale range.

Precision* 0.005% full scale from 0% to 20% of full scale range.

Precision includes non-linearity, hysteresis and repeatability for both gauge and absolute ranges.

(B) Negative Calibration

Calibration of a gauge range to -1 bar of the full scale value specified, whichever is less.

(C) LabVIEW® driver

Software driver for LabVIEW®.

RUI 100/101

(A) Power Adaptor

An a.c. power adaptor for use when not connected to the pressure controller.

Specify (A1) for 180 to 260 V input

Specify (A2) for 90 to 130 V input.

(B) Stacking Cable Assembly

RS232 cable for stacking multiple DPI 520 instruments with the RUI 100/101.

*NOTE: Precision assumes regular zeroing.

ACCESSORIES

The DPI 520 is supplied complete with power lead and moulded plug, user handbook and calibration certificate traceable to international standards. RUI 100/101 is supplied with user handbook.

CALIBRATION STANDARDS

Instruments manufactured by Druck are calibrated against precision calibration equipment (Deadweight tester) traceable to international standards.

Continuing development sometimes necessitates specification changes without notice.

RELATED PRODUCTS

Laboratory and workshop instruments

Druck manufacture a comprehensive range of pressure instruments. Included in this range are Pressuremats industrial deadweight testers and Ruska high precision controllers and primary standard piston gauges. A selection is shown below:



Portable Field Calibrators

Druck manufacture a wide range of portable pressure, temperature and electrical field calibrators particularly suitable for use in remote outdoor conditions. A selection is shown above.

Calibration management software

Druck Intecal-W is a Windows® based package which supports laboratory and field based calibrations. Interfacing with many popular instruments such as the DPI 520, DPI 610 and MCX, Intecal-W offers a complete and quality assured solution to calibration management.

Pressure transducers and transmitters

Druck manufacture an extensive range of pressure transducers and transmitters, including custom designed, rangeable and Smart/HART® process pressure transmitters.

ORDERING INFORMATION

Please state the following (where applicable):

1. DPI 520.
2. Pressure range(s), gauge or absolute.
3. Analogue output 2, 4, 5 or 10V = FS.
4. DPI 520 options required.
5. RUI 100/101.
6. RUI options required.