



## DPI 270/280 Series

Digital Process Indicators

**GE Druck**

- High accuracy  $\pm 0.01\%$  F.S.
- Wide range of process measurements
- Extensive range of programmable features
- Built-in sensor energisation
- RS 232/485 and analogue interfaces
- IP65 sealed front panel



# DPI 270/280 Series

## Digital Process Indicators

### Intelligent Monitoring

The versatile DPI 270 (miniature) and DPI 280 (general) series of digital process indicators are "smart" instruments for use with a wide range of process sensors and signal inputs.

When used with the Druck range of pressure transducers or transmitters, a direct reading in pressure is provided. The DPI 284/5 internal pressure sensor can be supplied up to 60 bar or external pressure sensor up to 700 bar. Direct input of thermocouples and PT 100 resistance thermometers is available for temperature monitoring.

Powerful application oriented software features enable the DPI 270/280 series to be utilised for all measurement parameters and sensor types, making these panel meters suitable for many process applications.

### Process functions

#### Alarms

Up to 4 open collector or 2 x SPST alarms are available: High or low, low with disable during start-up, on/off controller with direct or reverse action, high or low deviation. Alarm features include: Adjustable on/off delay in seconds, adjustable hysteresis, latching; non/manual reset/fail-safe. Operator adjustable set-point.

#### Peak/valley detection

Configurable functions allow detection of peak and/or valley. Operator access to view and reset.

#### Dual scaling (DPI 28X only)

Measurement can be displayed in either of two scale units (e.g. bar and psi). Each scale can have different formats and resolution. Toggle between the two scales by assigning an operator function key.

#### Tare and gross/nett functions

Tare off the current displayed reading and toggle between the gross and nett measurement values by assigning operator function keys.

#### Analogue output

For the DPI 27X, this option is programmable for 0/4-20mA, 0/1-5V or 0-10V. For the DPI 28X it is available as 0/4-20mA, 0-2V, 0/1-5V or 0-10V. Output is proportional to display reading, net and peak/valley or unlinearised input.

#### Serial communications (DPI 28X only)

Optional, isolated, serial communications interface for full access to all instrument functions and features. Dual port RS 232 (for multi-drop connection) or twisted pair RS 485 (for distributed multi-drop operation).

#### Printer Output (DPI 27X only)

Optional isolated RS232 printer output. Front key single print or continuous printing operation.

#### Password protection and calibration locking

Instrument configuration can be protected by a 4 digit password. Calibration data can be locked to guarantee calibration certificates.

#### Linearisation

The DPI 28X has 17 calibration correction points. This provides a powerful scaling facility for sensor linearity improvement and non-linear scaling for applications such as flow and tank volume measurement. In addition, the DPI 270/271 has 'square root' capability.

#### Infra Red Pen and MLink (DPI 27X only)

Windows based MLink software configures the DPI 27X via an RS232 link /infra red pen. Fast and simple set up, ideal for multiple configurations.



### Typical Installations

The DPI 270/DPI 280 series can be used simply on the benchtop, rack mounted into an indication bank (below) or even trolley mounted for portable workshop applications (above).



# DPI 270/280 Series

## Applications



### Low Differential Pressure/HVAC

Used with LP series sensors for a precise indication of low pressure from just 1mbar FS.

This combination is ideal for Pharmaceutical, Chemical and silicon process facilities where clean rooms need to be maintained.



### Temperature Control

Indicator alarm outputs used for temperature control on small ovens or heating systems. Direct/reverse-heating options are provided.

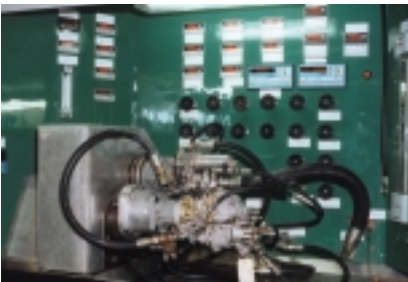
Analogue output can be configured to provide reverse output proportional to temperature.



### Humidity Display & Monitoring

The DPI282 can be connected to a humidity transmitter to display the ambient conditions of any outdoor or indoor area.

Datalogging via RS232/485 to a remote PC or via analogue output to a local chart recorder.



### Pressure Leak Testing

The panel meter can be used as a pressure measurement device in a leak test system e.g. for testing pressure seal integrity.

External input HOLD function can be used to read final pressure from a timer or PLC.



### Pressure Calibration

The DPI280 connected to a PDCR 4010 with improved accuracy to 0.05% FS is suitable for calibration of many pressure devices.

The PV411 hand pump can generate manifold test pressures for multiple DUTs.



### Inline Process Pressure Monitoring

For display of pressures on a process pipeline such as water feeds, gas supply/distribution piping, liquid or gas containment/packaging.

4-20 mA output used for relaying pressure data from remote stations.



### Load Cell/Weighing

The DPI280 'Auto cal' feature is designed for use with load cells in weighing applications. It can remove deadweight errors on the cell.

For weigh bridges, hopper contents, scales of all sizes, either production or point of sale.



### Liquid Level Monitoring

Level measurement and control of sewage, waste/potable water, oils, fuels, lubricants, dairy products, beverages, coolants etc.

Linearisation and scaling functions achieve accurate measurements of tank contents.



### Hydraulic Testing

Rugged Druck high pressure sensors (>3000 psi) can be used to test hydraulic systems for example on automotive vehicles.

Peak loads captured/recalled after the test to ensure pressure safety limits are not exceeded.

### DPI 270 series

Miniature 4 digit LED



### DPI 280 series

General 4 1/2 digit LED



### DPI 284/285

Internal pressure Sensor



For use with external sensors

Direct pressure connection



Pressure Transducer



Pressure Transmitter



Differential Pressure



Very low pressure



Depth & Level



Temperature RTDs, T/C



Humidity & moisture



Load Cells & force

### SPECIFICATIONS

Select and state the model number when ordering overleaf e.g. DPI 284. Also refer to general specifications and options (opposite).

INPUTS	DPI 270	DPI 271	DPI 272	DPI 273	DPI 280	DPI 281	DPI 282	DPI 283	DPI 284	DPI 285
<b>Voltage</b>										
± 2000mV					●	●				
± 100mV			●		●	●				
± 20 Volt							●	●		
± 10 Volt*	●	●					●	●		
<b>Current</b>										
± 20mA	●	●					●	●		
<b>Temperature</b>										
Thermocouple				●			●	●		
RTD**				●			●	●		
<b>External Pressure Transducer</b>										
Millivolt input			●		●	●				
Voltage input	●	●					●	●		
Current input	●	●					●	●		
<b>Internal Pressure Transducer</b>										
0 to 60 bar									●	●
<b>OUTPUTS</b>										
<b>Sensor Excitation</b>										
10 Volt regulated		●	●		●	●				
24 Volt unregulated	●						●	●		
<b>Alarms</b>										
4 Open collectors					●	●	●	●	●	●
2 Relay contacts	Option J	Option J	Option J	Option J		●		●		●

\* Includes 1-5V and 0-10V

\*\* PT100 and Ni100

## GENERAL

	DPI 27X	DPI 28X
<b>Accuracy</b>		
Voltage input	0.02% FS	0.01% FS
Current input	0.03% FS	0.02% FS
Pressure input (typical)	0.1% FS	0.1% FS (0.05% FS linearised)
Temperature (Nominal)	0.3°C	0.3°C
<b>Display</b>		
Display count range	-1999 to +9999	-19999 to +20999
Display height	14.2mm	14.2mm
A/D resolution	18 bit (1 part in 200,000)	18 bit (1 part in 200,000)
Display update	200msec max.	10 per second
<b>Power Supplies</b>		
Vac Input	85-264 Vac	90-132/200-264 Vac
Frequency, Power	47 - 70Hz, 4 VA	47 - 70Hz, 4 VA
ac Isolation (Input/Output)	>2500 Vdc (1500Vrms)	>2500 Vrms
Vdc Input		10-40V, 300mA @ 10V
dc Isolation (Input/Output)		>500 Vrms
<b>Environmental</b>		
Operating temperature	-10°C to 60°C	-10°C to 60°C
Storage temperature	-40°C to 85°C	-40°C to 85°C
Humidity	0 to 90% RH non-condensing	0 to 90% RH non-condensing
<b>Physical</b>		
Weight	200 gms	500 gms
Pressure Connection (DPI 284/285 only)		G1/8 BSP or 1/8 NPT
IP65 sealed front panel	Standard	Option (E)
<b>Safety</b>		
CE marked	Meets CE requirements for safety, EMC immunity and emissions	

## OPTIONS

Select and state the option codes required for each instrument when ordering overleaf e.g. (A), (B), (D)

	DPI 270	DPI 271	DPI 272	DPI 273	DPI 280	DPI 281	DPI 282	DPI 283	DPI 284	DPI 285
<b>Matched and tested with Druck sensor</b>										
Standard Calibration	●	●	●	●	●	●	●	●	●	●
Linearised Calibration for improved accuracy					●	●	●	●	●	●
<b>Analogue output***</b>										
0 to 20 mA (Option A)	●	●	●	●	●	●	●	●	●	●
0 to 10 Vdc*	●	●	●	●	●	●	●	●	●	●
<b>Digital Output ***</b>										
RS232 (Option B)					●	●	●	●	●	●
RS485 (Option C)					●	●	●	●	●	●
Printer output (I)	●	●	●	●						
<b>Power Supply</b>										
24 Vac/48 Vac (Option K)					●	●	●	●	●	●
<b>Display</b>										
Green Display (Option G)	●	●	●	●	●	●	●	●	●	●
Blank front Panel (Option F)	●	●	●	●	●	●	●	●	●	●
<b>Case</b>										
1/8 DIN adaptor (Option M)	●	●	●	●						
IP 65 Cover (Option E)					●	●	●	●	●	●
<b>Special</b>										
Infra red pen** (Option H)	●	●	●	●						

\* Includes 1-5V and 0-2V. (Option A on DPI 27X, option D on DPI 28X).

\*\* Provided with free configuration software to setup the DPI27X series.

\*\*\* Only one of these options may be fitted on the DPI 28X series.

# DPI 270/280 Series

## Digital Pressure and Process Indicators

### RELATED PRODUCTS

#### Laboratory and workshop instruments

Druck manufacture a comprehensive range of pressure instruments. Included are Pressurements industrial deadweight testers and Ruska high precision controllers and 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 515, DPI 605, 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, supplied to standard or custom designs.

### SUPPLIED AS STANDARD

- (1) Detailed user guide supplied with the instrument.
- (2) Calibration certificate for any matched sensor supplied.

### ORDERING INFORMATION

The unit can be ordered with or without sensor and calibration. For all indicators, please state the following:

- (1) Type number.
- (2) Options.

When interfaced to remote sensors

- (3) Pressure range and scaling.
- (4) Gauge, differential or absolute. (N.B. line pressure for differential)
- (5) Transducer or transmitter specification/type - see relevant sensor datasheet for ordering information.

When internal pressure sensor supplied (DPI 284/285):

- (3) Pressure range and scaling.
- (4) Gauge or absolute reference.
- (5) Pressure connection.

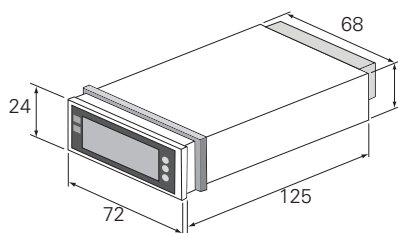
### CALIBRATION STANDARDS

Instruments manufactured by Druck Limited are calibrated against precision calibration equipment which is traceable to International Standards.

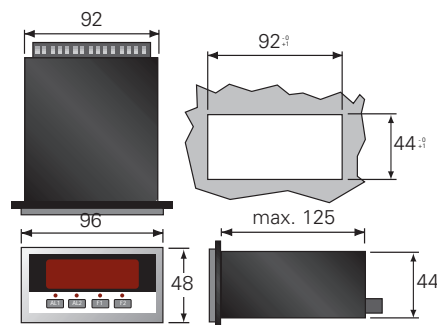
For non-standard requirements please specify in detail.

**Continuing development sometimes necessitates specification changes without notice**

### INSTALLATION DRAWINGS - Dimensions in mm



DPI 270/271/272/273



DPI 280/281/282/283/284/285