



PACE 1001 barometer

Precision barometric indicator and recorder

A high precision Druck indicator and recorder, designed for barometric monitoring in laboratories, airfields and other applications

Features

- Utilizes Druck's unique range of resonant pressure sensor technology
- Pressure ranges 750–1150 mbar (10.9–16.7 psi, 75–115 Kpa), absolute
- Choice of precision up to 0.020 mbar or 0.0002901 psi
- Long term stability of 0.05 mBar/0.00072515 psi per annum
- Selectable numeric or graphic display
- High resolution touch screen operation
- Intuitive icon driven task menu structure
- Airfield task as standard: Display QFE, QFF or QNH in pressure units or as altitude in feet or meters
- Leak test option
- Switch test/analogue output option
- Switch test/voltage free contact option
- RS232, IEEE connectivity, Ethernet and USB as standard
- Min/max/average display
- Compatible with software packages
- 28 selectable pressure units plus 4 user defined units
- Various service support options available

PACE 1001 precision barometric indicator and recorder

The PACE 1001 precision barometric indicator brings together the latest measurement technology from Druck to offer an elegant, fast, flexible and economical solution to barometric indication and monitoring.

PACE 1001 barometer employs digitally characterized pressure sensors which offer the quality, stability and precision associated with this latest generation of resonant devices.

The PACE 1001 barometer offers three levels of precision to accommodate specification and budget requirements, optional external IDOS universal pressure modules can be connected to add more pressure measurement capability.

The color touch screen display of the PACE 1001 barometer can be configured by a user to indicate pressure measurement either graphically or numerically.

The measurements displayed can be logged to an internal memory over a customized time period, sample rate and trigger ready for replay on the display, can also be saved to a USB storage device or exported to a PC.

Pressure sensor measurements can be re-transmitted via one of the communication ports.

The Airfield task is supplied as standard with the PACE 1001 barometer and enables the user to display QFE, QFF or QNH in pressure units or as altitude in feet or meters.

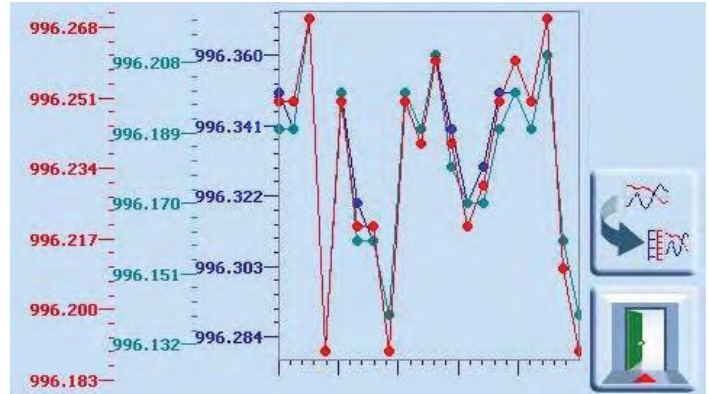
PACE 1001 barometer options

Leak test

Leak test measures leak rate over the measure dwell time. At the start of the test, the instrument measures the applied test pressure of the user system. The instrument records the pressure change during measure dwell time. On completion the display shows the leak rate results, with leak rate per second or per minute in the current pressure units selected.

Switch test – standard with the analogue output or voltage free contacts option

Switch test automates the testing of pressure switch devices. Following the test, displayed is the pressure at which contacts open and close and the switch hysteresis. Switch test task can also be set to capture switch toggle maximum, minimum and average values.



Analogue output

The analogue output can be programmed via the setup menu screen to output a signal proportional to the instrument range selected. This allows the instrument to interface with PC or PLC I/O cards, remote displays, chart recorders or other data logging equipment.

Users can select outputs of 0 to 10 V, 0 to 5 V, -5 to 5 V and 0/4 to 20 mA. Precision with respect to host instrument measured pressure 0.05% FS over the host instrument operating temperature range, variable update rate to 80 readings per second. The option is programmable between minimum and FS pressure for proportional output against pressure.



Volt free contacts

Volt free contacts enable control of peripheral devices such as vacuum pumps, ovens, etc. Each VFC option has three independent volt free NO/NC relay contacts. A number of conditions can be set within a PACE 1001 instrument to trigger a relay toggling its contacts.

Specifications

Pressure measurement	
Barometer pressure range	750–1150 mbar absolute, 10.9–16.7 psi absolute, 75–115 kPa absolute
Over range indication:	10% above mbar/bar full scale pressure range
Pressure media:	Dry, oil free, non-corrosive gas, air
Display	
Panel	¼ VGA wide format 4.3 inch color graphics LCD c/w integral touch screen
Comms update rate	8 times per second
Display update rate readout	2 times per second ± 9999999
Pressure units	mbar, bar, Pa(N/m ²), hPa, kPa, MPa, mm Hg @ 0°C, cm Hg @ 0°C, m Hg @ 0°C, in Hg @ 0°C, mm H ₂ O @ 4°C, cm H ₂ O @ 4°C, m H ₂ O @ 4°C, mm H ₂ O @ 20°C, cm H ₂ O @20°C, m H ₂ O @ 20°C, kg/m ² , kg/cm ² , torr, atm, psi, lb/ft ² , in H ₂ O @ 4°C, in H ₂ O @ 20°C, in H ₂ O @ 60°F, ft H ₂ O @ 4°C, ft H ₂ O @ 20°C, ft H ₂ O @ 60°F, user defined 1, user defined 2, user defined 3, user defined 4 (feet and meters in airfield task)
Performance over the calibrated temperature range	
PACE 1001 barometer standard precision	Standard precision is 0.10 mbar or 0.001450 psi. Includes non-linearity, hysteresis, repeatability and temperature effects between 15°C (59°F) and 45°C (113°F)
PACE 1001 barometer high precision	High precision is 0.05 mbar or 0.000725 psi. Includes non-linearity, hysteresis, repeatability and temperature effects between 15°C (59°F) and 45°C (113°F)
PACE 1001 barometer premium precision	Premium precision is 0.025 mbar or 0.0003625 psi. Includes non-linearity, hysteresis, repeatability and temperature effects between 15°C (59°F) and 45°C (113°F)
PACE 1001 barometer reference precision	Reference precision is 0.020 mbar or 0.0002901 psi. Includes non-linearity, hysteresis, repeatability and temperature effects between 15°C (59°F) and 45°C (113°F)
PACE 1001 barometer long term stability	0.05 mBar / 0.00072515 psi per annum
PACE 1001 barometer reference accuracy	Accuracy (2 Sigma) over calibrated temperature range 0.06 mbar / 0.00087022 per annum. Includes measurement precision, measurement long term stability (see above) and calibration equipment expanded uncertainty.
Electrical	
Power supply	90 VAC to 130 VAC @ 47 to 63 Hz and 180 VAC to 260 VAC @ 47 to 63 Hz. 15 VA
Communications	
Communication	RS232, USB and IEEE-488, SCPI, DP141, DP142 and DP150 emulation. LabVIEW drivers ethernet (VXI-II and sockets using SCPI)
Data log	
Data log	Display screen shot stored in CSV format, onto memory card or external USB storage device. User defined update rate from 1 second
Environmental	
Temperature	Operating 10°C to 50°C (50°F to 122°F) Calibrated 15°C to 45°C (59°F to 113°F) Storage -20°C to 70°C (-4°F to 158°F)
Sealing	IP20 (EN60529), indoor use only
Humidity	5% RH to 95% RH non-condensing
Vibration	Compliant with def. stan. 66-31 8.4 Cat 3 and MIL-T-28800E cat 2
Shock	Mechanical shock conforms to EN61010
Conformity	Electrical safety - Global (IEC61010-1, UL61010-1, CSA 22.2, No. 61010-1 and CB test certificate), LVD (EN 61010-1). EMC EN61326, PED, ROHS and WEEE. CE marked
Physical	
Weight	3.2kg (excluding external PSU and packaging) to 6.5 lbs (including external PSU and packaging)
Dimensions	218 mm wide x 88mm (2U) high x 250 mm deep (8.6in x 3.5 (2U) x 9.8 in)
Pressure connection	G 1/8 Female (1/8 NPT female by adapter, standard for North America)

Ordering information

Please state the following (where applicable)

1. Model PACE 1001 barometer

One internal barometric sensor

- I1001STANDARD-BARO—standard precision
- I1001HIGH-BARO—high precision
- I1001PREMIUM-BARO—premium precision
- I1001REFERENCE-BARO—reference precision

2. Options

The range of optional features includes:

- Leak test – Automatically measures leak rates in the desired units/minute or units/seconds
- Switch test/analogue output – Accurate calibration of pressure switches/integration into older ATE applications
- Switch test/voltage free contacts – Accurate calibration of pressure switches/automatically triggering ancillary devices

3. PACE chassis – Area of use/mains lead

Please state area of use for instrument set up:

Europe

North America

Japan Asia

Rest of the world

Please state area of use for mains lead:

UK

Japan EU USA

South Africa/India

China

Australia/New Zealand

4. PACE barometer unit selection

Please state unit selection.

mbar	psi	kPa
750–1150 mbar a	10.9 – 16.7 psi a	75–115 kPa a



External IDOS universal pressure modul



PACE 1001 from the rear

5. Physical accessories

Please order the following as separate line items:

Part number	Description
IO-ADAPT-G1/4	Adapter G1/8 male to G 1/4 female
IO-ADDAPT-G1/8	G1/8 male to G1/8 female
IO-ADAPT-1/8NPT	Adapter G1/8 male to 1/8 NPT female
IO-ADAPT-1/4NPT	Adapter G1/8 male to 1/4 NPT female
IO-ADAPT-7/16UNF	Adapter G1/8 male to 7/16 – 20 UNF female
IO-ADAPT-AN4	Adapter G 1/8 male to AN4 37 Deg male
IO-ADAPT-AN6	Adapter G 1/8 male to AN6 37 Deg male
IO-ADAPT-BARB	Adapter G 1/8 male to 1/4 hose
IO-ADAPTOR-KIT	Contains one of each of the above adapters
IO-ADAPT-9/16AC	Adapter 9/16 18 UNF autoclave female to 1/8 NPT female
IO-SNUBBER-1	Snubber reference port
IO-DIFF-KIT-LP	Differential connection kit low pressure: Helps reduce the impact of thermal and/or pressure changes in ambient conditions occurring during the measurement cycle
IO-RMK-P1000	19" rack mount kit
IO-PAN-P1000	19" panel mount kit

6. Supporting services

Services ordering information:

Please order the following as separate line items:

Calibration

Part number	Description
UKAS	PACE 1000 accredited pressure calibration



Related products

Druck manufactures a wide range of pressure transducers, transmitters, indicators, calibrators, controllers and air data test systems. Our range of portable calibrators also cover temperature and electrical parameters.

Please refer to www.bakerhughesds.com/measurement-sensing/pressure-measurement-and-calibration/test-and-calibration/pressure-controllers-pace for further information.

PACE family

PACE – pressure calibration and test solutions

PACE 1000 – Precision pressure indicator

PACE 1001 Barometer – Precision barometric indicator and recorder

PACE 5000 – Single channel pressure controller chassis

PACE 6000 – Dual channel pressure controller chassis

CM0 – Standard precision high speed pressure controller module

CM1 – High precision high speed pressure controller module

CM2 – Premium precision high speed pressure controller module

CM3 – Reference precision high speed pressure controller module

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