

GE  
Sensing

# The PACE5000

Modular Pressure Controller/Indicator

First in a new generation of modular, high precision Druck pressure controllers/indicators, designed for ATE and test bench applications.



# The Latest Control and Measurement Technology

The new PACE5000 pneumatic pressure controller brings together the latest control and measurement technology from GE Sensing to offer an elegant and economical solution to pressure control for production, test and calibration.

It employs full digital control to provide high control stability and high slew rate, while its digitally characterized pressure sensor offers the quality, stability, higher bandwidth and precision associated with this latest generation of piezo-resistive devices.

## Features

- Ease of operation
- High speed control
- Virtually no downtime and instrument outage because of modularity
- Improved precision
- Improved long term stability
- Control stability to 0.003% FS
- High resolution colour display
- Touch screen operation
- Less maintenance – longer intervals between calibration
- High precision pressure generation
- Up to 210 bar (3000 psi/21 MPa) gauge and absolute
- Lower cost of ownership
- Very low drift
- RS232 and IEEE connectivity as standard
- Future expandable communications
- Designed both for 482 mm (19 in) rack systems and for bench use
- Backward compatibility with existing GE products (Druck DPI520)
- Compatibility with Intecal and Third Party software
- Utilises GE's unique piezo-resistive sensor technology
- Negative calibration included as standard
- Complementary supporting services available



## Accurate and Stable

Based on the field-proven and highly reliable Druck control technology, the new PACE5000 offers significant improvements in overall precision, long-term measurement stability and control performance over previous generation instrumentation. As such, it is ideal for integration into automated processes where fast and accurate pressure control is required.

## Ease of Operation

A touch screen and a high resolution, 1/4 VGA wide display ensure that the PACE5000 is extremely easy to operate and read. It features a simple icon menu to allow ease of use and comprehensive functionality and connectivity, via RS232 or IEEE. A USB communications port provides for easy PC connection, the use of set-up software and diagnostics download for technical support. Modularity means that 100% uptime is virtually guaranteed with replacement modules of the same pressure range or different pressure ranges easily interchangeable. Only the control module itself needs to be sent for recalibration.

## Up-to-Date Instrument Status

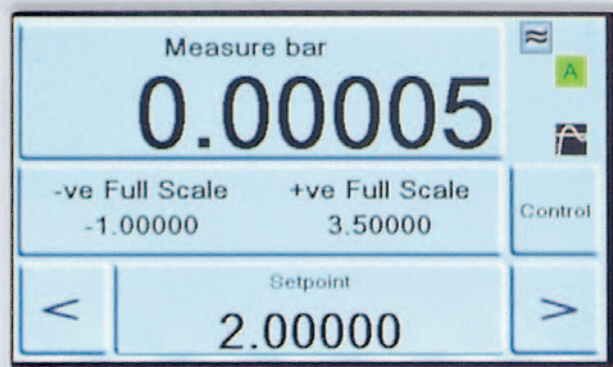
The calibration and maintenance history of the PACE5000, along with its configuration, is stored within the instrument. The calibration history is automatically up-dated each time a calibration is carried out to ensure that calibration records are always up-to-date to meet quality assurance standards.

## A Range of Languages

The default language of the PACE5000 is English but the major European languages, as well as Russian, Chinese and Japanese can be selected. Additional languages, to suit specific requirements, can be easily translated and downloaded.

## Supporting Services

Our highly trained staff can support you, no matter where you are in the world. We can provide training, rental units, nationally accredited calibration - both initially and at periodic intervals - extended warranty terms, multi-year Services agreements and complementary services.



# Proven Software

The PACE5000 has been designed to communicate with the GE Druck Intecal software, which was specifically developed to provide support for both laboratory and field calibrations. This provides easy control in a fully integrated pressure calibration loop, giving 100% automated calibrations of pressure transducers and transmitters. Intecal software has full documenting facilities to prepare reports and provide calibration certificates from its database, utilizing readout data from connected calibration equipment and test devices.

## Options

### Soft options

The range of optional features includes:

- Enhanced Precision to 0.01% Rdg + 0.01% FS.
- Switch Test – Automatic & accurate calibration of pressure switches
- Leak Test – Automatically measures leak rates in the desired units/minute
- Test Program - Write & save up to 100 test programs

### Physical options / Accessories

Intecal Advanced Software - allows complete automation of the calibration process. (Please state e-mail address for registration)

|                 |  |
|-----------------|--|
| 781-016-A       | INTECAL Advanced Software                |
| IO-ADAPT-G1/4   | Adaptor G 1/4 Male to G 1/4 Female       |
| IO-ADAPT-1/8NPT | Adaptor G 1/8 Male to 1/8 NPT Female     |
| IO-ADAPT-1/4NPT | Adaptor G 1/4 Male to 1/4 NPT Female     |
| IO-DIFF-KIT-LP  | Differential Connection Kit Low Pressure |
| IO-NEG-G-GEN-1  | Negative Gauge Pressure Generator        |
| IO-SW-TEST-KIT  | Kit Switch Test Elect Connector          |
| IO-FILTER-KIT   | Filter Kit Control Manifold              |
| IO-CM-PACKAGING | Control Module Packing Box               |
| IO-RMK-P5000    | Rack Mount Kit                           |

Choose one from this list

|          |                           |
|----------|---------------------------|
| IO-IML-1 | MAINS LEAD IEC-UK PLUG    |
| IO-IML-2 | MAINS LEAD IEC-JAPAN PLUG |
| IO-IML-3 | MAINS LEAD IEC-EU PLUG    |
| IO-IML-4 | MAINS LEAD IEC-USA PLUG   |

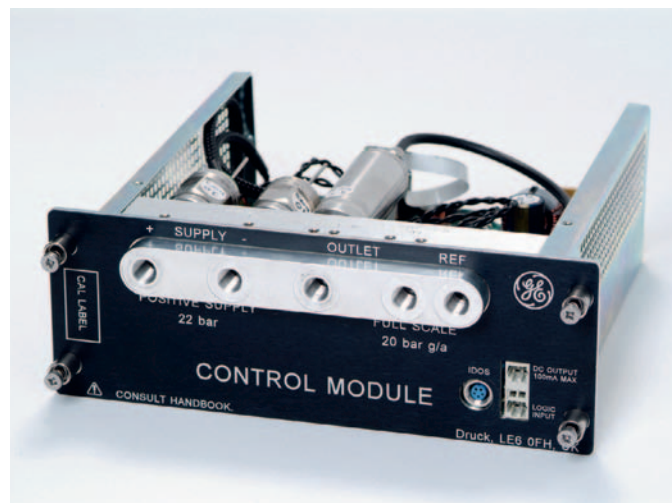
## Ordering information

Please state the following (where applicable)

1. Model PACE5000-I5000 Chassis
2. Control module(s) – CMI Pressure Range(s)

|                | bar      | psi      | Pa        |
|----------------|----------|----------|-----------|
| Control Module | 25 mbar  | 0.35 psi | 2.5 kPa   |
| Control Module | 70 mbar  | 1 psi    | 7.0 kPa   |
| Control Module | 200 mbar | 3 psi    | 20.0 kPa  |
| Control Module | 350 mbar | 5 psi    | 35.0 kPa  |
| Control Module | 700 mbar | 10 psi   | 70.0 kPa  |
| Control Module | 1 bar    | 15 psi   | 100.0 kPa |
| Control Module | 2 bar    | 30 psi   | 200.0 kPa |
| Control Module | 3.5 bar  | 50 psi   | 350.0 kPa |
| Control Module | 7 bar    | 100 psi  | 700.0 kPa |
| Control Module | 10 bar   | 150 psi  | 1.0 MPa   |
| Control Module | 20 bar   | 300 psi  | 2.0 MPa   |
| Control Module | 35 bar   | 500 psi  | 3.5 MPa   |
| Control Module | 70 bar   | 1000 psi | 7.0 MPa   |
| Control Module | 100 bar  | 1500 psi | 10.0 MPa  |
| Control Module | 135 bar  | 2000 psi | 13.5 MPa  |
| Control Module | 210 bar  | 3000 psi | 21.0 MPa  |

3. Soft options
4. Physical options / accessories
5. Mains lead
6. Supporting Services (order as separate items)



# Specifications

## Pressure Measurement

|                          |   |
|--------------------------|---|
| Standard Pressure Ranges | 25, 70, 200, 350 and 700 mbar gauge, 1, 2, 3.5, 7, 10, 20, 35, 70, 100, 135 and 210 bar gauge<br>0.35, 1, 3, 5, 10, 15, 30, 50, 100, 150, 300, 500, 1000, 1500, 2000, 3000 psi<br>2.5, 7, 20, 35, 70, 100, 200, 350, 700 kPa, 1, 2, 3.5, 7, 10, 13.5, 21 MPa<br>All gauge versions available with negative calibration as standard. For absolute pressure ranges select a gauge range and add Barometric Reference (provides gauge + atmosphere absolute range). Available Sept 08. |
| Over Range Indication    | 10% above full scale pressure range.  |
| Pressure Media           | Dry, oil free, non-corrosive gas maintained at a value of 10% above the maximum required outlet pressure.<br>Dry air or Nitrogen recommended.   |

## Display

|                |  |
|----------------|--|
| Panel          | ¼ VGA wide format Graphics LCD, colour touch screen.   |
| Update Rate    | 2 times per second.  |
| Readout        | ± 9999999  |
| Pressure Units | 24 scale units plus four user defined: Pa, hPa, kPa, MPa, kg/cm <sup>2</sup> , kg/m <sup>2</sup> , mmHg, cmHg, mHg, inHg, mmH <sub>2</sub> O, cmH <sub>2</sub> O, inH <sub>2</sub> O@4C, H <sub>2</sub> O@20C, H <sub>2</sub> O@60F, feetH <sub>2</sub> O (@ 4C, 20C, 60F), psi, lb/ft <sup>2</sup> , torr, atm, mbar & bar. |

## Performance

|                                |   |
|--------------------------------|---|
| Standard Precision             | 0.02% Rdg + 0.02% FS includes linearity, hysteresis, repeatability and temperature effects for gauge pressures and assumes steady state and regular zeroing. For absolute pressures, add 0.1 mbar or 0.0015 psi.  |
| Enhanced Precision             | 0.01% Rdg + 0.01% FS includes linearity, hysteresis, repeatability and temperature effects for gauge pressures and assumes steady state and regular zeroing. For absolute pressures, add 0.1 mbar or 0.0015 psi.  |
| Negative Gauge Precision       | Maximum error at any given pressure value is equal to maximum error at the equivalent positive pressure value.  |
| Long Term Stability            | To 0.01% Reading per annum.   |
| Barometric Reference Precision | Precision for the optional barometric reference 0.1 mbar or 0.0015 psi. Includes non-linearity, hysteresis, repeatability and temperature effects between 15°C (59°F) and 45°C (113°F). Long term measurement stability 0.1 mbar or 0.0015 psi per annum. |
| Controller Stability           | 0.005% FS (standard precision) or 0.003% FS (enhanced precision).   |
| Gas Consumption                | All supply gas is delivered to the system. No gas is used in measure mode, or when the instrument is turned off.  |

## Electrical

|              |   |
|--------------|---|
| Power Supply | 90 V AC to 130 V AC @ 47 to 63 Hz & 180 V AC to 260 V AC @ 47 to 63 Hz. |
|--------------|---|

## Communications

|               |  |
|---------------|--|
| Communication | RS232, IEEE-488, DPI520 emulation. Future expandability. |
|---------------|--|

## Environmental

|             |   |                               |
|-------------|---|-------------------------------|
| Temperature | Operating   | 10°C to 50°C (50°F to 122°F)  |
|             | Calibrated  | 15°C to 45°C (59°F tot 113°F) |
|             | Storage   | -20°C to 70°C (-4°F to 158°F) |
| Sealing     | IP30  |                               |
| 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  | EN61010, EN61326, PED, ROHS & WEEE CE marked.                     |                               |

## Physical

|                       |   |
|-----------------------|---|
| Weight                | 10.1 kg or 22 lbs   |
| Dimensions            | 440 mm x 2U x 320 mm (17.3 in x 2U x 12.6 in)   |
| Pneumatic Connections | G ½ female<br>Optional: G ½ male to ½ NPT female adaptors,<br>G ½ male to ¼ NPT female adaptors,<br>G ½ male to G ¼ female. |

# Supporting Services

GE Sensing provides Services to enhance, support and complement the PACE5000 product range. Our highly trained staff can support you, no matter where you are in the world. Further details can be found in [www.gesensing.com/productservices/service.htm](http://www.gesensing.com/productservices/service.htm)

## Pressure Measurement Training

GE Sensing's training and education program offers comprehensive curricula focusing on operation, application, maintenance and technology. For PACE5000 users we recommend the 3-day Principles of Automated Pressure Calibration Training course.

## Nationally Accredited Calibration

New product is supplied with factory calibration certificates where measurements are traceable back to international standards. For applications where nationally accredited calibration certificates are required or periodic re-calibration is desired GE sensing can provide the solution.

**Order OI5000-ACAL-PRESS** PACE5000 accredited pressure calibration (one per control module)

## Extended Warranty Terms

New product is supplied with an industry benchmarked initial warranty. For peace of mind, improved cost predictability and increased assurance, extend coverage on your equipment.

**Order OI5000-WTY-5** to extend warranty to 5 years total coverage.

## Multi-year Calibration and Repair Services agreements

Available for the PACE5000 a multi-year service agreement increases cost predictability by providing fixed rates for extended periods. With larger scope undertakings customized plans can be adapted to your needs.

**Order OI5000-CR300-5** for a 5-year services agreement covering calibration & minor repairs

## Rental

GE's rental program offers a simple, quick and affordable solution for unexpected measurement need. Rentals allow you to be fully operational when challenges that are not foreseen arise. Assisting our customers in meeting peak demands, unexpected situations, evaluations and also to minimise downtime of important processes a wide range of measurement, test and calibration equipment is available on a short-term rental basis. The rental fleet is available from inventory, factory tested & calibrated with a minimum rental period only 1 week. With larger scope undertakings any product can be made available for rental.

## Maintenance

Should your equipment need repair our global repair facilities are happy to serve. Work is conducted by trained approved technicians, using controlled original equipment parts and procedures so restoring the product to design condition. This is particularly important for the performance expectations and advanced features incorporated in the PACE5000 range. Should you wish to conduct you own maintenance a number of spares kits are available to facilitate this.

## Set Your PACE

Available with the purchase of each PACE5000 unit is a set-up package. Once you have received delivery and installed your instrument, a member of our extended team can travel to your location check the connections and run through the unit operation with you. Provided with this basic training you will then have the confidence to rapidly maximise the benefits of your new equipment through setting limits, ramps and sequenced routines.  
**Order OI5000-SET** PACE5000 set-up and basic features training

## PACE Life Support

PACE5000 life support is constructed to provide a continuous operation "never down" philosophy. Alongside the initial unit and pressure control module comes a second pressure control module of the same range, transportation box and a full 5 years calibration and preventative maintenance including a one-time damage repair support.

**Order OI5000-LIFE** PACE5000 package including second pressure controller & annual calibrations

## Services Ordering Information

Please order the following as separate line items.

### **Order OI5000-ACAL-PRESS**

PACE5000 accredited pressure calibration (one per pressure controller)

### **Order OI5000-SET**

PACE5000 set-up and basic features training

### **Order OI5000-WTY-5**

Extended warranty providing a total of 5 years cover

### **Order OI5000-LIFE**

PACE5000 package including second pressure controller & annual calibrations

# About US

GE has united the technological innovation and experience of industry leaders in the design and manufacture of advanced sensing and measurement solutions into one world-class business—GE Sensing.

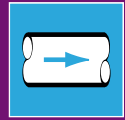
GE's sensing products measure temperature, pressure, liquid level, moisture and humidity, gas concentration, and flow rate for applications ranging from environmental, medical, and pharmaceutical to automotive, aerospace, chemical, and petrochemical.

From high-quality hand-held and portable field calibrators to stand-alone measurement instruments and systems, GE Sensing provides end-to-end solutions that can help you monitor, protect, and control your critical processes and applications.

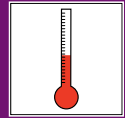
*Pressure*



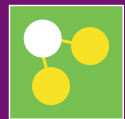
*Flow*



*Temperature*



*Gas*



*Moisture*



*Humidity*



*Level*





GE imagination at work

[www.gesensing.com](http://www.gesensing.com)

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