

Features

- Pressure ranges from 0 to 10 inH₂O and 0 to 1500 psi (0 to 25 mbar and 0 to 100 bar)
- Choose from three models 7050i, 7050 and 7050LP
- Model 7050i provides advanced precision of 0.005% of reading
- Model 7050 provides 0.003% of full scale precision
- Stability: 0.0075% of reading per year
- Active matrix color screen with enhanced navigation menus

The Series 7050 digital pressure indicator expands upon the popular line of Series 7000 products such as the Series 7250 digital pressure controller and Series 7252 dual output pressure controller. The 7250 and 7252 provide both pressure measurement and control, and the 7050 provides an instrument for applications that only require pressure measurement.

Series 7050

Ruska Digital Pressure Indicator

Series 7050 is a Ruska product. Ruska has joined other GE high-technology sensing businesses under a new name—GE Industrial, Sensing.



GE Sensing

Three models are available to meet a wide range of applications:

- Model 7050i with advanced percent of reading precision
- Model 7050 with a high performance-to-price ratio
- Model 7050LP for low pressure measurements

The Model 7050i, 7050 and 7050LP all use GE's unique quartz sensor, the most accurate pressure sensing technology available. Each quartz sensor is manufactured and tested to provide the ultimate performance required by a GE pressure calibrator, ensuring that every customer receives quality, precision and long term stability in their instrument.

Advanced Precision

The Model 7050i offers advanced percent of reading precision for increased capability with a single instrument, reducing the investment required to measure a wide pressure range. This model provides 0.005% of reading precision from 25% to 100% of the instrument's range. For pressures below the lower threshold of 25%, the 7050i precision is 0.005% of the lower threshold value. For example, a 100 psi (7 bar) Model 7050i provides 0.005% of reading from 25 to 100 psi (1.7 to 7 bar); the precision for pressures from 0 to 25 psi (0 to 1.7 bar) is 0.005% of 25 psi (1.7 bar).

This unmatched precision is achieved through unique quartz pressure sensing technology and multiple quartz sensors in a single instrument. Various full scale pressure ranges from 0 to 5 to 0 to 1500 psi (0 to 400 mbar to 0 to 100 bar) are available. For absolute mode operation, select either the barometric reference option, or the vacuum reference option, which requires an external vacuum pump connected to the reference port. The latter features an on-board vacuum sensor that allows automatic zeroing in absolute mode. Permanent absolute ranges to 50 psia (4 bar) are also available.



Series 7050 features GE's unique fused-quartz sensor. This rugged transducer offers unequalled precision and a stability of 0.0075% of reading per year.

Model 7050i	Uncertainty (2 sigma)
Precision	0.005% of reading
Stability (One year)	0.0075% of reading
Calibration Standard	0.0010% of reading
Environmental: Temperature (included in precision)	0.000% of reading
Head Pressure	0.001% of reading
Expanded Uncertainty (2 sigma)	0.009% of reading

Standard Precision

For applications that do not require the level of performance provided in the Model 7050i, the Model 7050 offers an economical approach to high-accuracy pressure measurement, with a precision of 0.003% of full scale. Various ranges from 0 to 5 to 0 to 1500 psi (0 to 400 mbar to 0 to 100 bar) are available. For absolute mode operation, select either the barometric reference option, or the vacuum reference option, which requires an external vacuum pump connected to the reference port. The latter features an on-board vacuum sensor that allows automatic zeroing in absolute mode. Permanent absolute ranges to 50 psia (4 bar) are also available.



The Series 7050 features multi-lingual menus and displays.

Low Pressure—7050LP

The Model 7050LP is a specially configured instrument for low pressure applications and is available in three different range combinations with two ranges in a single instrument:

- 10 inH₂O and 30 inH₂O (25 and 75 mbar)
- 20 inH₂O and 60 inH₂O (50 and 150 mbar)
- 35 inH₂O and 100 inH₂O (87 and 250 mbar)

The 7050LP provides a precision of 0.005% of reading from 10% to 100% of the maximum range. For example, the 10/30 inH₂O 7050LP provides a precision of 0.005% of reading when measuring pressure from 30 to 3 inH₂O (75 to 7.5 mbar). Changing ranges is automatic both upscale and downscale and does not require operator intervention. Since the 7050LP utilizes a true differential sensor, the reference port of the 7050LP can be connected to the test system eliminating unwanted pressure disturbances due to room drafts caused by HVAC systems.

Long Term Stability

All three models not only provide unequalled precision, but also excellent long term stability of 0.0075% of reading per year due to the inherent properties of quartz.

Automating Pressure Test and Calibration

The 7050i, 7050 and 7050LP are provided with both an RS232 and IEEE-488 interface, and Series 7050 syntax follows SCPI protocol for easy programming. As a standard feature, software written for GE's previous generation Series 7215, 7010, 7000 and 6000 instruments is fully supported by the Series 7050.

Intecal, an off-the-shelf software package is available.

A free download of the LabVIEW® driver is available at www.gesensing.com.

Firmware updates can be performed over the RS232 interface (updates can be downloaded from www.gesensing.com)

A MET/CAL® driver is also available as an option.

Versatility

The Series 7050 is versatile enough to handle almost any type of pneumatic pressure measurement application.

Wide pressure range—available in a variety of standard or custom full scale pressure ranges from 10 inH₂O to 1500 psi (25 mbar to 100 bar)

Pressure units/scales—select from over twelve standard units of measure, including inHg at 0°C and 60°F, kPa, bar, psi, inH₂O at 4°C, 20°C and 60°F, kg/cm², mmHg at 0°C, cmHg at 0°C, and cmH₂O at 4°C, and two user-defined units

Head pressure—automatic correction for head pressure differences.

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Absolute mode—the 7050i and 7050 offer three different methods to make absolute pressure measurements. The barometric reference option provides the most convenient method and is available on ranges 15 psi (1.0 bar) and higher. Alternatively, the vacuum reference option allows the connection of an external vacuum pump to the reference port of the instrument. An on-board vacuum sensor monitors the reference vacuum and allows for automatic zeroing in absolute mode. This option provides the lowest overall uncertainty since it does not include the additional uncertainty of a secondary barometric reference sensor. For pressures to 50 psia (4 bar), permanent absolute models are also available.

Pressure limits—set upper and lower pressure limits to sound an audible alarm

Automatic zeroing—all models feature automatic zeroing, including units with the vacuum reference option, for automated absolute mode zeroing through the front panel or over the PC interfaces.

Options

The following options are available for the Series 7050:

- Vacuum (negative gauge) mode for bidirectional measurements
- Barometric reference for absolute mode operation with the 7050i and 7050; ranges 15 psi (1.0 bar) and higher
- Vacuum reference for absolute mode operation via an external vacuum pump connected to the reference port for 7050i and 7050
- Permanent absolute ranges to 50 psia (4 bar) full scale, which include a tare feature for simulated gauge mode operation
- NVLAP-accredited calibration report
- Intecal software for Windows®

The Series 7050 digital pressure indicators provide high performance pressure measurement with a wide variety of pressure ranges and options. All are easy to use, easy to maintain, and have the reliability, performance and features that you want.



The Series 7050 features an easy to navigate menu structure with full text descriptions for menus and commands. The large color display allows the pressure value to be displayed even when viewing a submenu selection such as the units selection screen shown above.



In addition to the Series 7050, GE also offers the Series 7220 precision pressure indicator for applications that require a portable configuration. Please refer to the Series 7200 data sheet for additional information. GE also offers a wide range of pressure indicators such as the DPI 142 and DPI 150.

Series 7050 Specifications

Pressure Ranges

Standard Pressure Ranges

Model 7050i

5, 10, 20, 30, 50, 100, 150, 300, 500, 1000 and 1500 psig
(400, 600 mbar, 1, 1.6, 2.5, 4, 6, 10, 16, 25, 40, 60, 100,
and 160 barg)
15, 20, 30 and 50 psia (1.0, 1.6, 2.5 and 4 bara)

Model 7050

5, 10, 20, 30, 50, 100, 150, 300, 500, 1000 and 1500 psig
(400, 600 mbar, 1, 1.6, 2.5, 4, 6, 10, 16, 25, 40, 60, 100, and
160 barg)
15, 20, 30 and 50 psia (1.0, 1.6, 2.5 and 4 bara)

Model 7050LP

10/30 inH₂O (25/75 mbar)
20/60 inH₂O (50/150 mbar)
35/100 inH₂O (87/250 mbar)

Optional Pressure Ranges

Model 7050i

Any full scale range from 5 to 1500 psig
(400 mbar to 100 barg)

Model 7050

Any full scale range from 5 to 1500 psig
(400 mbar to 100 barg)

Optional Modes

- Absolute using barometric reference sensor for ranges from 15 to 1500 psig (1.0 to 100 barg)
- Absolute using vacuum reference option for ranges 5 to 1500 psig (400 mbar to 100 barg)
- Negative gauge

Performance

Precision

Model 7050i

From 25% to 100% full scale (FS): 0.005% of reading
Below 25% FS: 0.005% of 25% FS

Model 7050

0.003% of FS

Model 7050LP

From 10% to 100% of maximum FS, 0.005% reading,
Below 10% maximum FS: 0.005% of 10% maximum FS

Stability

All models: 0.0075% of reading per year

Display Resolution

User selectable to 1:1,000,000

Negative Gauge Precision (optional)

Model 7050i

0.005% of 25% FS or 0.0005 psi (0.034 mbar), whichever
is greater

Model 7050

0.003% of FS

Model 7050LP

0.005% of reading from 10% to 100% maximum FS
Below 10% maximum FS 0.005% of 10 maximum FS

Barometric Reference (optional)

0.002 psi (0.1379 mbar) maximum error per year

Vacuum Reference (optional)

0.0002 psi (0.014 mbar) maximum error per year

Calibration

A calibration report with traceability to National Institute of Standards and Technology (NIST) is provided. GE calibrates all Series 7050s with the Model 2465 (0.0010% of reading) to 1000 psi (69 bar) and the Model 2470 (0.001% of reading) gas piston gauge above 1000 psi (69 bar). A NVLAP-accredited calibration is available.

Series 7050 Specifications

Total Uncertainty

The maximum deviation from the true value of pressure including precision, stability, temperature effects and the calibration standard is:

Model 7050i—25% to 100% FS

90 day 0.006% reading

1 year 0.009% reading

Model 7050—Ranges to 1500 psi (100 bar)

90 day RSS: 0.003% FS + 0.002% of reading

1 year RSS: 0.003% FS + 0.0075% of reading

Model 7050LP

- 10/30 inH₂O (25/75 mbar) RSS: 0.005% and 0.0076% of reading per year down to 10% of maximum FS, Below 10% RSS: 0.00015 inH₂O (0.000375 mbar) and 0.0076% of reading per year
- 20/60 inH₂O (50/150) RSS: 0.005% and 0.0076% of reading per year down to 10% of maximum FS, Below 10% RS: 0.003 inH₂O (0.00075 mbar) and 0.0076% of reading per year
- 35/100 inH₂O (87/250 mbar) RSS: 0.005% and 0.0076% of reading per year down to 10% of maximum FS, Below 10% RSS: 0.0005 inH₂O (0.00125 mbar) and 0.0076% of reading per year

Communications

RS232 and IEEE-488, SCPI syntax. Series 7250, 7215, Model 7000 and Series 6000 emulation are standard.

MET/CAL® driver—optional

LabView® driver—download from www.gesensing.com

Firmware updates are performed via RS232 interface—download from www.gesensing.com

Languages

The Series 7050 is capable of displaying menus and functions in:

English, French, Chinese, German, Japanese, Spanish and Italian

Options

- Barometric reference (absolute and negative gauge)
- Vacuum reference* (absolute)
- Negative gauge only
- MET/CAL driver
- Intecal software
- NVLAP-accredited calibration
- Rack mount kit
- Liquid trap assembly

*Requires external vacuum pump

General

Display

TFT, VGA, active matrix, 6.4 in (162.5 mm) 640 x 480 resolution, 65,000 colors

Temperature

Operating: 64°F to 96°F (18°C to 36°C)

Storage: -4°F to 158°F (-20°C to 70°C)

Humidity

5% to 95% relative humidity, non-condensing

Dimensions (h x w x d)

All versions: 7 in x 16.5 in x 19 in
(178 mm x 419 mm x 483 mm)

Weight

All models: 16 lb (7.5 kg)

Power

90 to 260 VAC, 50/60 Hz, 150W

Test Port and Reference Connection

1/4 in NPT female

Series 7050 Specifications

Warm Up Time

2 to 3 hours; may be left on indefinitely

Pressure Medium

Nitrogen or clean dry air

Precision is defined as the combined effects of linearity, repeatability and hysteresis throughout the operating temperature range.

Expression of total uncertainty conforms with the recommendations of the ISO Guide to the Expression of Uncertainty in Measurement.

Other Products and Services

In addition to a wide range of digital pressure controllers and indicators from 1 to 40,000 psi (25 mbar to 2750 bar), GE manufactures primary standard piston gauges from 0.2 to 72,5000 psi (14 mbar to 5000 bar).

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