



## Description

The 7040 is a portable pressure and current calibrator suitable for workshop, laboratory and field use. With the capability to measure both loop current and pressure, devices such as transmitters and converters to be calibrated directly. Basic accuracy is 0.04 % of full scale (0.025 % optional). Pressure can be displayed in any of nine popular engineering units; Bar, PSI, KPa, inWg, cmWg, inHg, mmHg, Kg/cm<sup>2</sup>, and Atm.

Loop current can be displayed in mA, or as a percentage of span (4 - 20 mA). A min/max logging function (pressure or loop current) is provided. The min or max values can be recalled to the display and if required can be viewed in real time. An additional feature is leak rate display. This allows the actual leakage rate to be observed in real time in the selected 'pressure units' per sec, or per min.

By connecting the 7040 to a PC or laptop via RS-232 and using a suitable program (see EasyCal details below) the displayed parameters can be read back: Pressure, Loop Current, Max Value, Min Value. By arranging for the program to store these values in a database a full data logging set-up is possible. The display is 4.5 digit LCD and power is via a 9 V PP3 battery. The 7040 is supplied with pneumatic fittings kit and hose, test leads, technical manual, RS-232 lead, and carry case.

## Options

For the 7040, input pressure can be generated by the 7090 pneumatic hand pump (vacuum to 40 bar). The 7090 is compact with comfortable handles with grips moulded into the design make it easy to control the instrument whilst pumping up to pressure. Features include protective caging for the vent valve guarding against accidental damage, and dual o-rings on all pistons to ensure zero leakage. Also available are a range of pumps suitable for workshop use, that feature an ergonomic mode of operation. These models include the the 7193 (vacuum to 40 bar pneumatic) and 7192 (vacuum to 25 bar pneumatic).

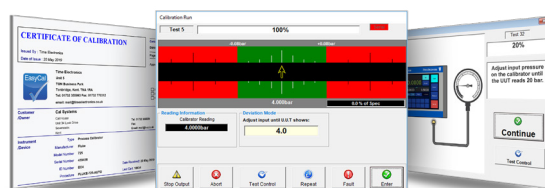
For process control signal simulation a practical tool like the Time Electronics handheld 7006 Loop-Mate is available as an option. It is a low cost, simple operation unit that provides 4 - 20 mA and 0 - 10 V signals at levels of 0 %, 10 %, 25 %, 50 %, 75 %, 90 %, 100 %. It can also step through these set points automatically to allow hands free calibration. It is battery powered and compact, pocket sized and easy to carry in the field.

## Features

- Vacuum to 20 bar versions available
- Accuracy 0.04 % FS (0.025 % FS optional)
- Pneumatic
- Up to 9 selectable engineering units
- Loop current measure
- Min/Max logging & leak rate functions
- 4.5 digit display
- RS-232 serial interface
- EasyCal software compatible
- Battery powered (9V PP3, 50 hours use)

## EasyCal Calibration Software

The 7040 can be controlled with readback via Time Electronics EasyCal software to automate the calibration process. This provides increased speed of calibration and consistency of results. Produce traceable calibration certificates and test reports for quality standards with additional uncertainty information for ISO 17025 conformance.





## Technical Specifications

### Pressure

Range (bar)	0.2	2	5	10	20
Accuracy (% FS)	0.1	0.04 (0.025*)	0.04 (0.025*)	0.04 (0.025*)	0.04 (0.025*)
Resolution (bar)	0.01 mbar	.0001	0.001	0.001	0.001

\* High accuracy available, specify range code + HA on order

<b>Vacuum</b> .....	Available on 2 bar range. Measures vacuum to - 1 bar.
<b>Filter</b> .....	Off (4 readings/sec), average of 4 readings, or average of 16 readings.
<b>Temperature stability</b> .....	Less than 0.005 % per °C.
<b>Sensor</b> .....	Piezoresistive.
<b>Pressure connection</b> .....	1/8 " BSP female in a stainless steel manifold.
<b>Over-pressure</b> .....	3 x full scale or, 35 bar.
<b>Wetted parts</b> .....	Stainless steel and silicon (contaminated media version - stainless steel only).
<b>Units</b> .....	Bar, PSI, KPa, inWg, cmWg, inHg, mmHg, Kg/cm2, Atm.

### Loop Current Calibration

<b>Ranges</b> .....	± 200 mA, and '% of 4 - 20 mA'.
<b>Accuracy</b> .....	0.05 % of reading ± 2 digit, (0.1 % for '% of 4 - 20 mA' range).
<b>Resolution</b> .....	10 µA (200 mA range), 0.1 % (% of 4 - 20 mA range).
<b>Loop resistance</b> .....	Less than 2 Ω.
<b>Protection</b> .....	250 mA automatic reset Poly-Fuse.
<b>Sockets</b> .....	4 mm industry standard.

### Display

<b>Pressure display</b> .....	In one of 9 user selectable units.
<b>Loop current display</b> .....	In mA or % of 4 - 20 mA.
<b>Leak rate display</b> .....	In pressure units per sec, or per minute, as selected in user set-up Max/Min logging display.

## General Specifications

<b>Power</b> .....	PP3 battery, life 50 hours continuous use.
<b>Front panel</b> .....	Polycarbonate membrane keypad.
<b>Interfaces</b> .....	RS-232 for readback and re-calibration (software not supplied).
<b>Operating temperature</b> .....	0 to 50 °C.
<b>Storage temperature</b> .....	-10 to 60 °C.
<b>Case</b> .....	Structural resin which is weather-proof to IP66 standard.
<b>Dimensions / Weight</b> .....	H 157 x W 90 x D 33 mm, weight 0.29 kg.
<b>Supplied with</b> .....	Carry case, pneumatic fittings kit and hose, test lead, serial link cable.
<b>Optional Extras</b> .....	Pneumatic hand pumps, EasyCal calibration software, and calibration certificates.

## Ordering Information

7040..... **Digital Pressure Calibrator 7040/71xx/C or A** (pressure range code a shown below).

Range (bar)	0.2	2	5	10	20
Option Code	7100	7101 (HA)	7102 (HA)	7103 (HA)	7104 (HA)

For contaminated media version add /C. For absolute pressure sensor add /A

<b>7090</b> .....	Pneumatic Hand Pump (vacuum to 40 bar). See separate datasheet for options.
<b>7006</b> .....	Loop-Mate 1: Loop Current Simulator.
<b>ECFLA</b> .....	EasyCal Calibration Software (see separate datasheet for further information).
<b>C185</b> .....	Traceable calibration certificate (Factory).
<b>C196</b> .....	Accredited calibration certificate (ISO 17025).

Due to continuous development Time Electronics reserves the right to change specifications without prior notice.