



## 7010 Single Channel Pressure Calibrator

Time Electronics

Calibration. Test & Measurement

- Range options from 0.2 to 600 bar
- Accuracy 0.04% of full scale
- Pneumatic or Hydraulic
- Over- pressure alarm
- Piezo - resistive pressure sensor
- Isolated 24/36V loop supply
- Loop current measure
- Mains / Battery Power



### Options:



40 bar pneumatic hand pump



700 bar hydraulic hand pump



7006 Loop-Mate

Rugged portable pressure calibrators designed for applications from 0.2 bar up to 600 bar in eleven ranges - specify when ordering. For the 7010, the pressure source is via external hand pumps: The 7090 Pneumatic (-950 mbar - 40 bar), or 7095 Hydraulic (0 - 700 bar). Also available a dual channel version (see separate 7015 Dual Channel datasheet). Alternatively, when external line pressures are available the 7010 can be supplied with an internal regulator to control the output pressure - see separate 7016 LPR datasheet.

For process signal calibration the loop signal is displayed on the LCD display to 0.05% accuracy. Loop drive supply (24V or 36V) is also provided. Both pressure and loop signal can be displayed at the same time to speed up the calibration of pressure transmitters. Additionally a continuity function is available for testing for open circuit loops.

The 7010 single channel version allows switch selection of five pressure units. These should be specified on ordering from the following:- bar, PSI, kPa, MPa, inWg, cmWg, inHg, mmHg, Kg/cm<sup>2</sup>, atm.

Both pressure and loop current are displayed on 4.5 digit LCD displays.

RS232 connection for display read-back when used with Time Electronics EasyCal calibration software (option). Straightforward calibration procedures are easy for the user to write within EasyCal. Results from procedures are stored in EasyCal's results database and printing calibration certificates on demand is simple.

Power is via internal rechargeable cells with a built in mains charger. This allows the unit to be powered directly from the mains if required. The 7010 is housed in a strong resin case that provides on-site protection. All pressure connections are on the side of the case. Leads and an assortment of pressure connection accessories are provided.

For process control signal simulation Time Electronics' handheld 7006 Loop-Mate is available as an option. It provides 4 - 20mA and 0 - 10V 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 can be stored in the 7010's pouch. Please see separate datasheet for more information.

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## 7010 Technical Specifications

### Pressure

|                            |  |        |       |       |       |       |      |      |      |      |     |     |
|----------------------------|--|--------|-------|-------|-------|-------|------|------|------|------|-----|-----|
| <b>Range (bar)</b>         | Vacuum   | 0.2    | 2     | 5     | 10    | 20    | 35   | 70   | 100  | 200  | 400 | 600 |
| <b>Resolution (bar)</b>    | .0001  | 0.01mb | .0001 | 0.001 | 0.001 | 0.001 | 0.01 | 0.01 | 0.01 | 0.01 | 0.1 | 0.1 |
| <b>Acc. % +/-1 digit</b>   | 0.04   | 0.1    | 0.04  | 0.04  | 0.04  | 0.04  | 0.04 | 0.04 | 0.04 | 0.1  | 0.1 | 0.1 |
| <b>Temp Stability:</b>     | Less than 70 ppm per °C                                    |        |       |       |       |       |      |      |      |      |     |     |
| <b>Units:</b>              | bar, PSI, kPa, MPa, inWg, cmWg, inHg, mmHg, Kg/cm2, atm ** |        |       |       |       |       |      |      |      |      |     |     |
| <b>Max Pressure:</b>       | 2 x range, 1.5 x range for 20 bar and above                |        |       |       |       |       |      |      |      |      |     |     |
| <b>Sensor:</b>             | Piezo-resistive - stainless steel diaphragm                |        |       |       |       |       |      |      |      |      |     |     |
| <b>Over press warning:</b> | 1.2 x range full scale - audio and visual (on LCD) warning |        |       |       |       |       |      |      |      |      |     |     |
| <b>Fittings:</b>           | Minimess (>20 bar) & Quick Release (<20 bar)               |        |       |       |       |       |      |      |      |      |     |     |
|                            | ** Specify on ordering: 5 off                              |        |       |       |       |       |      |      |      |      |     |     |

### Electrical

|                    |  |
|--------------------|--|
| <b>Range:</b>      | Loop current measurement 0 - 200 mA  |
| <b>Resolution:</b> | 10 µA  |
| <b>Resistance:</b> | Loop load 5Ω   |
| <b>Accuracy:</b>   | 0.05% of reading ±1 digit  |
| <b>Loop Drive:</b> | 24V or 36V switch selectable, 50 mA max - isolated and with short circuit protection |
| <b>Continuity:</b> | Threshold: 100Ω with audio and visual warning  |
| <b>RS232:</b>      | 3.5mm Stereo socket  |
| <b>Terminals:</b>  | 4 mm industry standard terminal posts  |

### General Specification

|                       |   |
|-----------------------|---|
| <b>Power Source:</b>  | Internal rechargeable Nickel Metal Hydride batteries, or mains supply (230V or 110V 50/60 Hz)         |
| <b>Battery Life:</b>  | 24 hrs of typical usage   |
| <b>Display:</b>       | 7 segment LCD with 'Low Battery' warning indicator  |
| <b>RS232:</b>         | For Read-back (Software not supplied) and re-calibration with supplied software via PC (not supplied) |
| <b>Case:</b>          | Structural resin which is weather-proof to IP 66 standard   |
| <b>Size / Weight:</b> | 27 x 25 x 17.5 cm (11" x 10" x 7"), 3 kg (6.5 lbs)<br><i>Unit comes supplied with test leads</i>      |

### Ordering Information

| Code | Description   |
|------|---|
| 7010 | Pressure Calibrator single channel (+ pressure ranges required + pressure units required) |
| 7090 | Pneumatic hand pump   |
| 7095 | Hydraulic Pressure Calibration pump   |
| 7006 | Loop-Mate loop current simulator  |
| 9747 | EasyCal Software (Automatic Calibration Software, including over 1000 procedures)         |
| 9178 | Factory (NPL Traceable) Calibration Certificate   |
| 9190 | UKAS Calibration Certificate (ISO 17025)  |

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