



- Vacuum to 600bar versions available
- Accuracy 0.04% of full scale
- Pneumatic or hydraulic
- Up to 5 selectable engineering units
- Loop current measure
- 24/36V loop power
- Over-pressure alarm
- RS-232 serial interface
- EasyCal software compatible
- Mains or battery powered

### DESCRIPTION

The 7010 is a fully integrated pressure test and calibration system. It is suitable for field and laboratory calibration work of both pressure and electrical process loop signals. The instrument has a single pressure channel with the range specified on ordering. Standard available versions are; 0.2, 2, 5, 10, 20, 35, 70, 100, 200, 400, and 600bar. Vacuum down to -850mbar is possible on the 2bar version. Other ranges are available upon request.

Best accuracy is 0.04% of range and maximum display resolution is 0.005% of range. The excellent resolution allows higher accuracies to be achieved under controlled lab conditions when accurate pressure standards such as dead-weight pressure testers are available for transfer calibration.

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 allows switch selection of five pressure units. These must 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 separate 4.5 digit LCD displays.

### OPTIONS

For the 7010, input pressure can be generated by external hand pumps. The 7090 pneumatic (-950mbar to 40bar), or 7095 hydraulic (0 to 700bar) pumps are ideal for this purpose. Gauges are also available.

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. See separate datasheets for more information.

The 7010 is fitted with RS-232 connection as standard. Display readback can be performed using EasyCal calibration software. With comprehensive features EasyCal can simplify and speed up calibration procedures. Easily produce calibration certificates and reports to international quality standards.

Power is via internal rechargeable cells (24 hours typical use) with a built-in mains charger. The unit can be powered directly from the mains if required. The 7010 is housed in an impact resistant safety case that provides protection and increased durability. All pressure connections are on the side of the case. The instrument is supplied with a pressure hose, electrical test lead, 2 electrical probes and 2 crocodile clips.



# 7010 Specifications

## TECHNICAL SPECIFICATION

**PRESSURE** (\*High accuracy available for 200, 400, and 600bar versions, specify range code + HA on order)

Range (bar)	Vac	0.2	2	5	10	20	35	70	100	200	400	600
Accuracy (% of fs)	0.04	0.1	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.1(0.05*)	0.1(0.05*)	0.1(0.05*)
Resolution (bar)	.0001	0.01mb	.0001	0.001	0.001	0.001	0.01	0.01	0.01	0.01	0.1	0.1

Temperature Stability ..... Less than 70ppm per °C  
 Units ..... bar, PSI, kPa, MPa, inWg, cmWg, inHg, mmHg, Kg/cm<sup>2</sup>, atm (5 units only, specify on order)  
 Maximum Pressure ..... 2 x range, 1.5 x range for 20bar and above  
 Sensor ..... Piezo-resistive - stainless steel diaphragm  
 Over pressure warning ..... 1.2 x range full scale - audio and visual (on LCD) warning  
 Fittings ..... Minimesse (>20bar versions) & Quick Release (<20bar versions)

## ELECTRICAL

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

## GENERAL SPECIFICATION

Power Source ..... Internal rechargeable NiMH batteries, or mains supply (230V or 110V 50/60Hz)  
 Battery Life ..... 24 hrs of typical usage between charges  
 Display ..... 7 segment LCD with 'Low Battery' warning indicator  
 Interfaces ..... RS-232 for readback and re-calibration (software not supplied)  
 Case ..... Structural resin which is weather-proof to IP66 standard  
 Dimensions ..... W270 x H175 x D250mm  
 Weight ..... 3kg  
 Supplied with ..... 1 pressure hose: Minimesse for versions ordered over 20bar, Quick release for under 20bar  
 Electrical Test Lead: Twin flexible lead, terminated with 4 off 4mm gold plated plugs  
 Electrical probes: 2 off low voltage probes and 2 crocodile clips. Mains power lead.  
 Optional Extras ..... Pneumatic & hydraulic hand pumps, gauges, loop simulators, EasyCal calibration software, spare fuses, and calibration certificates traceable to NPL and UKAS

## ORDERING INFORMATION

**7010** ..... **Single Channel Pressure Calibrator** (+ pressure range code and 5 pressure units – shown below)

Range (bar)	Vac	0.2	2	5	10	20	35	70	100	200	400	600
Option Code	7111	7100	7101	7102	7103	7104	7105	7106	7107	7108 (HA)	7109 (HA)	7110 (HA)
Select 5 Units	bar, PSI, kPa, MPa, inWg, cmWg, inHg, mmHg, Kg/cm <sup>2</sup> , atm											

7090 ..... Pneumatic Hand Pump (-950mbar to 40bar). See separate datasheet for options.  
 7095 ..... Hydraulic Hand Pump (0 to 700bar). See separate datasheet for options.  
 7006 ..... Loop-Mate 1: Loop Current Simulator  
 ECFLA ..... EasyCal Calibration Software. See separate datasheet for further information.  
 C178 ..... Factory Calibration Certificate (NPL traceable)  
 C190 ..... UKAS Calibration Certificate (ISO 17025)

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

Time Electronics Ltd, Unit 11 Sovereign Way, Botany Industrial Estate, Tonbridge, Kent, TN9 1RH. United Kingdom.

T: +44 (0) 1732 355993 F: +44 (0) 1732 770312 E: mail@timeelectronics.co.uk

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

v1c 22/3/11