



## Description

The 7018 is a differential pressure calibration system suitable for field and laboratory calibration work of both differential pressure and electrical process loop signals. The instrument is designed for very stable measurement of differential pressures between its two output ports, enabling the calibration of differential pressure gauges, transducers, and transmitters. There are five available versions, according to the required range, either 0.2, 2, 5, or 10 bar.

Features include a 4.5 digit LCD display with 4 selectable pressure units plus mA, zeroing switch, and two quick release connector ports (Hi and Lo for differential pressure input) that are situated on the front panel of the unit. Best accuracy is 0.04 % of full scale.

For process signal calibration the loop signal is displayed on the LCD display to 0.05 % accuracy. Loop drive supply (24 V or 36 V) 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.

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 7018 is housed in an impact resistant safety case that provides protection and increased durability. Pressure connections are on the front panel and the instrument is supplied with a pressure hose, electrical test lead, 2 electrical probes and 2 crocodile clips.

## Options

For the 7018, input pressure can be generated by the 7090 pneumatic hand pump (-950 mbar to 40 bar). Other pumps and digital pressure gauges are also available.

For process control signal simulation Time Electronics' handheld 7006 Loop-Mate is available as an option. It 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 can be stored in the 7018's supplied carry pouch. See separate datasheets for more information.

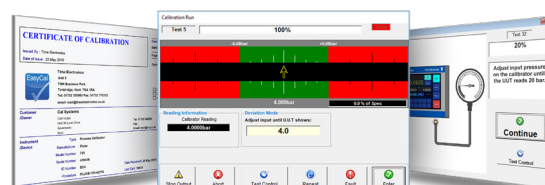
The 7018 is fitted with RS232 connection as standard. Display readback can be performed using EasyCal calibration software. With comprehensive features EasyCal can simplify and speed up calibration procedures. Easily produce calibration certificates and reports to international quality standards.

## Features

- 0.2, 2, 5 and 10 bar versions available
- Accuracy 0.04 % of full scale
- Pneumatic
- Calibrate DP transmitters, gauges & more
- Loop current measure
- 24/36 V loop power
- Over-pressure alarm
- RS-232 serial interface
- EasyCal software compatible
- Mains or battery powered

## EasyCal Calibration Software

The 7018 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

Specifications are for 1 year at 23 °C ±5 °C.  
Accuracy includes linearity and long term effects. All accuracies are ±1 digit.  
For operation outside specified temperature range, apply 70 ppm per °C.

### Pressure

Range (bar)	0 to ±0.2	0 to ±2	0 to ±5	0 to ±10
Accuracy (% of FS)	0.1	0.04	0.04	0.04
Resolution (bar)	0.01 mbar	.0001	0.001	0.001

**Units** .....0.2 bar version: mbar, PSI, kg/cm<sup>2</sup>, cmWg and mA.  
2, 5, and 10 bar versions: bar, PSI, kg/cm<sup>2</sup>, cmWg and mA.

**Maximum Static Pressure** ..... 10 bar.

**Sensor** .....Piezo-resistive - stainless steel diaphragm.

**Over pressure warning** .....1.2 x range full scale - audio and visual (on LCD) warning.

**Fittings** .....Quick Release.

### Electrical

**Range** .....Loop current measurement 0 to 200 mA.

**Resolution** ..... 10 µA.

**Resistance** .....Loop load 5 Ω.

**Accuracy** .....0.05 % of reading ±1 digit.

**Loop Drive** .....24 V or 36 V switch selectable, 50 mA max - isolated and with short circuit protection.

**Continuity** .....Threshold: 100 Ω with audio and visual warning.

**Terminals** .....4 mm industry standard terminal posts.

## General Specifications

**Power Source** .....Internal rechargeable NiMH batteries, or mains supply (230 V or 110 V 50/60 Hz).

**Battery Life** .....24 hrs of typical usage between charges.

**Display** .....7 segment LCD display 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** .....W 270 x H 175 x D 250 mm.

**Weight** .....3 kg.

**Supplied with** .....1 pressure hose: Quick release fitting.  
Electrical Test Lead: Twin flexible lead, terminated with 4 off 4 mm gold plated plugs.  
Electrical probes: 2 off low voltage probes and 2 crocodile clips. Mains power lead.

**Optional extras** .....Pneumatic hand pumps, gauges, loop simulators, EasyCal calibration software, spare fuses, and calibration certificates.

## Ordering Information

7018.....**Differential Pressure Calibrator** (+ pressure range code a shown below)

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

7090 .....Pneumatic Hand Pump (vacuum to 40 bar). See separate datasheet for options

7190 .....Pneumatic Benchtop Pump (-400 mbar to 400 mbar). See separate datasheet for options

7191 .....Pneumatic Benchtop Pump (vacuum to 4 bar). See separate datasheet for options

7006 .....Loop-Mate 1: Loop Current Simulator

ECFLA .....EasyCal Calibration Software. See separate datasheet for further information.

C178 .....Traceable calibration certificate (Factory)

C190 .....Accredited calibration certificate (ISO 17025)

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