Time Electronics
Calibration, Test and Measurement

Portable Process and Pressure Calibration Instruments

Calibrators • Simulators • Sources • Pumps • Gauges

1048 Voltage/Current/Loop Calibrator

A compact voltage, current, and process loop calibrator for engineering, manufacturing, test, and process control applications. The 1048 combines digital accuracy with simple analogue control and is well suited to plant operations such as powering control loops.
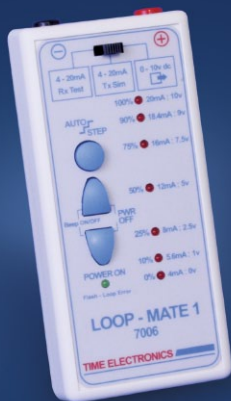
- Source/measure voltage and current
- 3 source ranges: 0 to 22mA and 0 to 22V
- 3 measure ranges: 0 to 70mA and 0 to 50V
- Accuracy 0.02%
- Transmitter simulator/sink loop control
- Output steps and ramps
- Fine adjustment (inching)
- Battery powered 9V PP3, 20 hours typical use
- H142 x W78 x D50mm, weight 0.34kg

7005 Voltage/Current/Loop Calibrator

A handheld instrument for the calibration and simulation of voltage and current loops. The 7005 is a high accuracy compact calibrator with source and measure capabilities.

- Current measurement: 125mA, source 50mA. Resolution 1μA
- Voltage measurement: 25V, source 21V. Resolution 1mV
- Accuracy 0.01%
- Transmitter and square root functions
- Auto-ranging feature
- Programmable steps and ramp
- 9 hours typical use between charges
- Supplied with battery charger and carry case
- H165 x W90 x D45mm, weight 0.42kg

7006 Loop-Mate 1: Loop Simulator and Source

A cost-effective handheld loop simulator that provides 4 to 20mA or 0 to 10V loop signals. Features include manual and automatic step modes with audible indication that changes pitch as the output increases/decreases.

- 4 to 20mA or 0 to 10V ranges
- Set-points: 0, 10, 25, 50, 75, 90, 100% of range
- Accuracy 0.1%
- TxSim or RxTest modes
- Internal loop supply, 25mA maximum
- Auto-stepping mode: up/down/up, 0.5, 1, 2, 4, or 8 sec/step
- Battery powered 9V PP3, 40 hours typical use
- Supplied with carry case
- H140 x W65 x D30mm, weight 0.18kg

7007 Loop-Mate 2: Loop Signal Indicator

A simple operation portable loop signal indicator with LCD display. Suitable for use with the 7006 Loop-Mate 1.

- 4 to 20mA, 0 to 10V, 0 to 50V ranges
- LCD 4 digit display, mA, V, or % of range
- Accuracy 0.05%
- RxSim, TxTest, or 50mA/50V measure modes
- Internal loop supply, 25mA maximum
- Battery powered 9V PP3, 40 hours typical use
- Supplied with carry case
- H140 x W65 x D30mm, weight 0.20kg

1049 PT100 Simulator

A handheld precision simulator for PT100 0.3850 platinum resistance elements used for accurate temperature measurement. High performance metal film resistors are used throughout which ensures a good temperature coefficient and long term stability.

- -200°C to +800°C with 23 set points
- Accuracy ± 0.3°C
- Less than 30ppm/°C temperature coefficient
- ITS-90 IEC60751
- Exceeds class A
- Passive resistance source
- Supplied with carry case
- H112 x W61 x D55mm, weight 0.17kg
- °F version available – 1050 (-100°F to 1000°F, ± 0.5°F accuracy)

7000 RTD Temperature Calibrator

A portable process control instrument that combines a precision digital thermometer (using RTD probes) with an RTD/ohms calibrator.
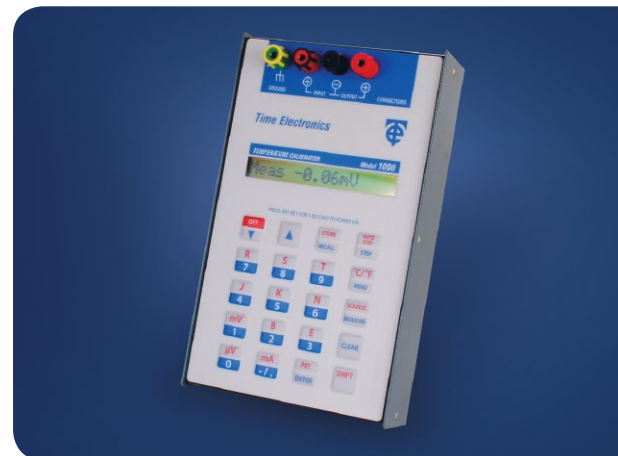
- Temperature – Accuracy 0.05°C (0.09°F). Resolution 0.01°C (0.02°F)
- Resistance – Accuracy 0.03Ω. Resolution 0.01Ω
- 2, 3, and 4 wire connections
- Measure and simulate °C, °F, °K, and ohms
- Ramp and step
- PT100 plus 7 other RTD types
- User programmable
- 24 hours typical use between charges
- Supplied with battery charger and carry case
- H165 x W90 x D45mm, weight 0.42kg

1090 Process and Temperature Calibrator

A portable, key-press operation instrument that combines source and measurement functions for thermocouples, RTDs, mV and mA. The 1090 features a memory storage function that holds frequently used values.

- Measures/simulates 8 thermocouple types, PT100-RTD, mV and mA
- Displays units in °C, °F, μV/mV, or mA
- Automatic or manual cold junction compensation
- Inching and step functions with time configurable steps
- Process loops 4 to 20mA and 0 to 50mA
- 24V loop drive voltage
- Mains or battery operation – 60 hours typical use between charges
- Supplied with battery charger and carry case
- H235 x W150 x D75mm, weight 1.2kg

7050 Process and Thermocouple Calibrator

A process calibrator that combines the essential functions of measurement and simulation of volts, millivolts, milliamps, and ohms with the direct readout simulation of thermocouples and RTDs in °C or °F units.

- Measure (3 ranges) up to 40V, 400mA, 40kΩ
- Output voltage (3 ranges) up to 10V, 1μV resolution
- Output current (3 ranges) up to 20mA, 1μA resolution
- Output resistance: 0 to 400Ω, 0.01Ω resolution
- Thermocouple measure and simulate: J, K, T, E, R, S, B, N
- RTD measure and simulate: PT100
- Ramp function
- Battery or mains operation
- W270 x H175 x D250mm, weight 4.5kg

Portable Pressure Calibrators and Test Pumps

7090 Pneumatic Calibration Pump
7095 Hydraulic Calibration Pump

Pneumatic and hydraulic calibration pumps that combine high performance with durability. Features include contoured cushioned handles for comfort and dual o-rings on all pistons to ensure zero leakage.
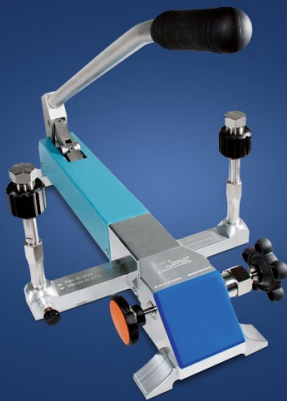
- 7090 – Pneumatic pressure to 40bar, Vacuum to -950mbar
- 7095 – Hydraulic pressure to 700bar
- Non-oil based lubricant used on all moving parts
- Both supplied as kits with carry case, hoses, and fittings
- 7090 – H200 x W125mm, weight 0.91kg
- 7095 – H240 x W125mm, weight 1.4kg
- Digital pressure gauges available (7091 and 7096)

7091 and 7096 Digital Pressure Gauges

Digital pressure gauges that provide high accuracy, resolution and stability. Robust design and a number of in-built functions make these gauges ideal for a wide range of pressure applications.

- 7091 – Vacuum to 40bar, accuracy 0.2% of full scale
- 7096 – Pressure to 700bar, accuracy 0.2% of full scale
- Easy-to-read display with 5 digit resolution
- Unique self-protection capability technology
- 3 times per second measure speed
- Fully temperature compensated accuracy
- Long working period – low power consumption
- RS-232 connection on rear of gauge, EasyCal compatible
- H178 x W112 x D45mm, weight 0.6kg

7194 Pneumatic Benchtop Pressure Calibration Pump

A benchtop pneumatic pressure pump that is a dual pressure source with the ability to easily adjust and stabilize. It provides both 95% vacuum and pressure to 120bar (1800psi) using air as the media. Ideal for use with calibrators and gauges.

- 0.95bar vacuum to 120bar pressure
- Dual pressure source
- High pressure resolution
- High pressure stability
- Easy to use pressure lever with handle
- Gas liquid isolator
- Free from humidity and dirt
- W270 x H178 x D450mm, weight 7.5kg
- 7195 hydraulic benchtop pump also available - Vacuum to 600bar

7078 Auto-Ranging Digital Pressure Gauge

A high performance digital pressure gauge that has the ability to auto-range and maintain a 0.1% of reading accuracy from vacuum to 200bar. The 7078 eliminates the need for multiple gauges to span many different ranges, solving the problem of over ranging errors.

- Vacuum to 200bar (3000psi)
- 0.1% of reading accuracy
- 9 engineering units – bar, PSI, Hg, kPa, Inch Hg, Inch H20, MMHg, MMG20, mbar
- High accuracy silicone piezo resistive sensors
- Reads both gauge and absolute pressure
- Easy to read colour display with full 2 line alphanumerics
- Compact and robust with protective rubber housing
- H165 x W115 x D55mm, weight 0.88kg

7040 Digital Pressure/Current Calibrator

A versatile calibrator that combines a digital pressure gauge and current indicator. Suitable for pressure testing and maintenance as well as process loop applications.

- 0.2, 2, 5, 10, or 20bar versions (vacuum available on 2bar model)
- Pressure/vacuum calibration, 0.04% accuracy
- Loop current calibration (displayed in mA, or % of range, 4 to 20mA)
- 9 engineering units – bar, psi, KPa, inWg,cmWg, inHg, mmHg, Kg/cm2, Atm
- Minimum/Maximum logging and leak rate functions
- 4.5 digit display
- RS-232 serial interface and EasyCal software compatible
- Battery powered 9V PP3, 50 hours typical use
- Supplied with carry case, fittings kit and hose, test lead, and RS-232 cable
- H157 x W90 x D33mm, weight 0.29kg

7010 Single Channel Pressure Calibrator
7015 Dual Channel Pressure Calibrator

Portable battery or mains powered pressure calibrators designed for both lab and field applications.

- Vacuum, 0.2, 2, 5, 10, 20, 35, 70, 100, 200, 400, or 600bar versions
- Best accuracy 0.04% of full scale
- Pneumatic or hydraulic
- Up to 5 selectable engineering units per channel
- Loop current measure
- 24/36V loop power
- Over-pressure alarm
- RS-232 serial interface and EasyCal software compatible
- W270 x H175 x D250mm, weight 3kg

7016 Regulated Low Pressure Calibrator
7018 Differential Pressure Calibrator

Portable pressure calibrators that are rugged design and simple operation. Suitable for pneumatic field instrumentation.

- 7016 – Regulated low pressure: Vacuum, 0.2, 2, 5, 10, or 20bar versions
- 7018 – Differential pressure: Vacuum, 0.2, 2, 5, 10bar versions

- Pneumatic with 0.04% of full scale best accuracy
- Up to 5 selectable engineering units
- Loop current measure
- 24/36V loop power
- Over-pressure alarm
- RS-232 serial interface and EasyCal software compatible
- W270 x H175 x D250mm, weight 3kg

Pressure Calibration Accessories

Time Electronics offer a range of pressure accessories to accompany pumps, gauges, and calibrators. Items include adaptors, fittings, and hoses to provide a quick solution to pressure component requirement in both the field and laboratory.

- 7198: 45 piece fittings and adaptors kit covering nearly all pressure instruments
- 7073: Low pressure connection/adaptor kit (<20bar) for calibrators and modules
- 7097: Minimess high pressure hose test kit
- Air preparation and filtration kits
- 7042: USB remote pressure module (0.2, 2, 5, 10, 20bar versions)
- Line pressure equipment for calibration benches and laboratories

		Factory Calibration Certificate (NPL)	UKAS Calibration Certificate (ISO 17025)	Carry Case	Rechargeable Battery Pack	Mains Power Supply	EasyCal Software
Portable Loop & Temperature Instruments							
1048	Voltage / Current / Loop Calibrator - 0.02% Accuracy	C176	C138	✓	–	opt 7643	–
1049	PT100 Simulator Handheld (Class A °C)	C161	C114	✓	–	–	–
1050	PT100 Simulator Handheld (Class A °F)	C161	C114	✓	–	–	–
1077	Milliamp Transducer/Line Simulator - 0.02% Accuracy	C158	C108	opt 9027	opt 9529	–	–
1090	Temperature and Process Calibrator	C177	C139	✓	internal	✓	–
7000	RTD Temperature Calibrator	C183	C194	✓	internal	opt 7633	
7005	Voltage / Current / Loop Calibrator - 0.01% Accuracy	C184	C195	✓	internal	opt 7633	–
7006	Loop Simulator & Source (Loop-Mate 1) - 0.1% Accuracy	C145	C145	✓	–	–	–
7007	Loop Signal Indicator (Loop-Mate 2) - 0.05% Accuracy	C145	C144	✓	–	–	–
7050	Process and Thermocouple Calibrator	C180	C192	field case	internal	–	–
Portable Pressure Instruments							
7010	Pressure Calibrator (Vac to 600bar versions)	C178	C190	field case	internal	✓	ECFLA
7015	Pressure Calibrator (Vac to 600bar versions)	C178	C190	field case	internal	✓	ECFLA
7016	Regulated Pressure Calibrator (Vac to 20bar versions)	C178	C190	field case	internal	✓	ECFLA
7018	Differential Pressure Calibrator (Vac to 10bar versions)	C178	C190	field case	internal	✓	ECFLA
7040	Pressure/Current Calibrator (Vac to 20bar versions)	C185	C196	✓	–	–	ECFLA
7090	Pneumatic Pump Kit (-950mbar to 40bar)	–	–	–	–	–	–
7095	Hydraulic Pump Kit (0 to 700bar) with hoses, fittings, case	–	–	–	–	–	–
7194	Benchtop Pneumatic Pump (0.95bar vac to 120bar)	–	–	–	–	–	–
7195	Benchtop Hydraulic Pump (0.9bar vac to 600bar)	–	–	–	–	–	–
7078	Auto Ranging Digital Gauge (Vac to 200bar, 0.1% Accuracy)	C204	C205	–	–	–	–
7091	Digital Pressure Gauge (Vac to 40bar, 0.2% Accuracy)	C202	C203	–	–	–	ECFLA
7096	Digital Pressure Gauge for 7095 (0 to 700bar, 0.2% Accuracy)	C202	C203	–	–	–	ECFLA

Pressure Range Codes for 7010, 7015, 7016, 7018 and 7040

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	7109	7110

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For more information please contact your local Time Electronics representative: