

1000 SERIES

ULTRA PORTABLE CALIBRATOR

TRANSMILLE

SOLUTIONS IN CALIBRATION



**MULTI FUNCTION
PORTABLE / COMPACT
BENCH CALIBRATOR**



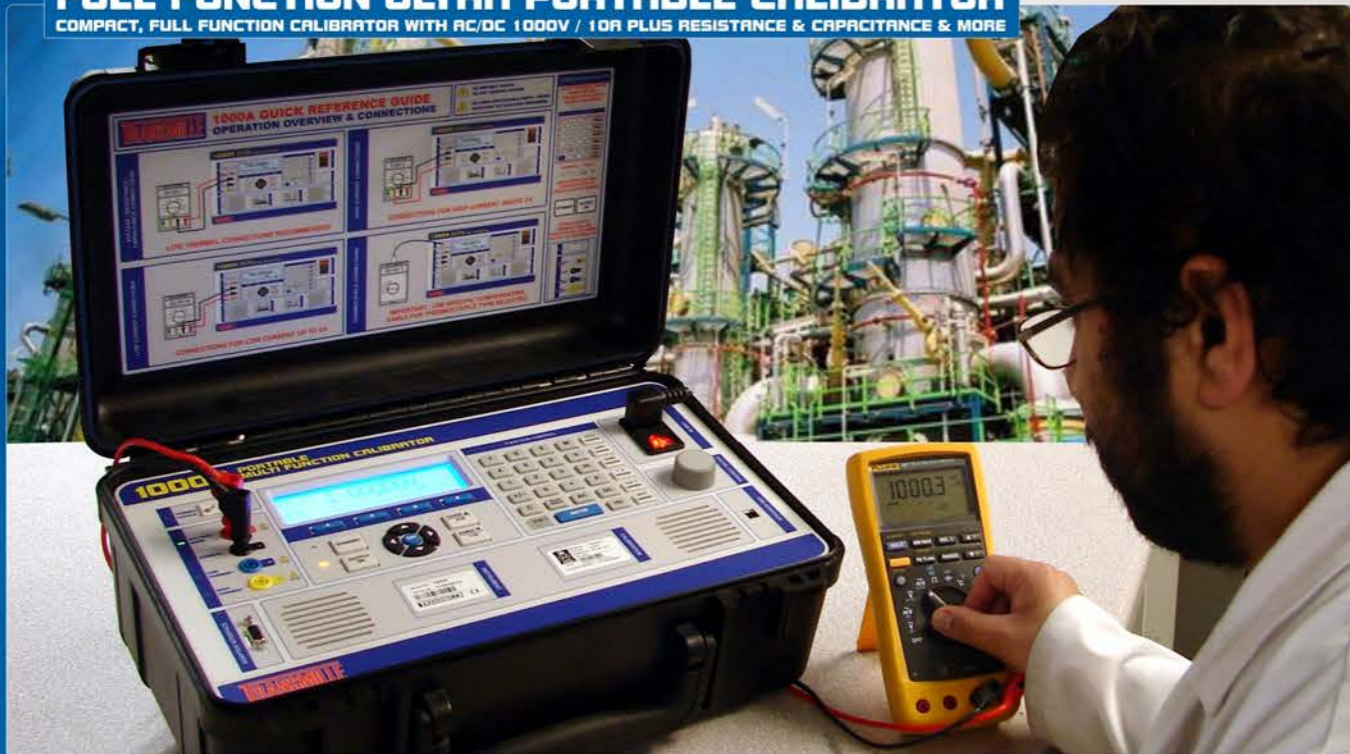
ULTRA PORTABLE MULTI FUNCTION CALIBRATOR

1000 SERIES



FULL FUNCTION ULTRA PORTABLE CALIBRATOR

COMPACT, FULL FUNCTION CALIBRATOR WITH AC/DC 1000V / 10A PLUS RESISTANCE & CAPACITANCE & MORE



DIGITAL MULTIMETERS	POWER / CLAMP METERS	PROCESS CONTROL METERS	CURRENT SHUNTS	DATA LOGGERS	PRESSURE GAUGES (OPTION)

DESIGNED FOR A WIDE RANGE OF INDUSTRIES

LABORATORIES	MILITARY	PROCESS PLANTS
AEROSPACE	MARINE	OFF-SHORE
RAILWAYS	POWER STATIONS	TELECOMMUNICATIONS

THE WORLDS FIRST ULTRA PORTABLE CALIBRATOR

1000 SERIES



The new 1000 Series is set to transform the world of calibration - the completely new design utilises the latest in cutting edge digital and analogue electronics, combined with the latest manufacturing techniques to create the worlds first ultra portable full function calibrator. Transmille have applied their expertise in designing bench and transportable calibrators to create this new generation of multi function calibrators to offer *true portability* and *rapid return on investment*.

For the first time the 1000 Series will allow you to easily take your calibration laboratory with you. The significant improvement in portability changes how and where calibration can be performed. On-site calibration is not a new idea, but older designs meant carrying large, heavy instruments. The 1000 Series is easy to carry, quick to set up anywhere and a fast warm up time allows work to be started quickly.

Although ultra portable and lightweight, the 1000 Series provides all the capabilities you would expect from a traditional full size calibrator. Full functionality and accuracy come as standard, with the 1000 Series offering the following comprehensive features :

- ✓ AC/DC Voltage to 1000V
- ✓ AC/DC Current to 10A (500A with coil)
- ✓ Resistance to 100 MOhms
- ✓ Capacitance
- ✓ Frequency
- ✓ Thermocouple Simulation
- ✓ PRT Simulation
- ✓ Pressure Measurement (via Transducers)
- ✓ Process Control Measurement (mV / mA)
- ✓ Insulation Tester Calibration

All these functions together with the high drive capabilities for calibrating older analogue instruments make the 1000 Series the perfect choice for on-site calibration. This full function ultra portable configuration makes it ideal for all types of sites including oil rigs, ships, aviation, power & process plants and railways.

KEY FEATURES AND FUNCTIONALITY

- ✓ MULTI FUNCTION CALIBRATOR DESIGNED TO CALIBRATE MULTIPLE INSTRUMENT TYPES WITH THE POWER TO DRIVE OLDER ANALOGUE INSTRUMENTS AND THE ACCURACY TO CALIBRATE MODERN DIGITAL INSTRUMENTS
- ✓ A DEDICATED RUGGED, ULTRA PORTABLE DESIGN IDEAL FOR ON-SITE USE. FAST WARM UP TIME
- ✓ WIDE WORKLOAD WITH FUNCTIONS TO COVER MANY TYPES OF TESTERS.
- ✓ FULL OUTPUT PROTECTION USING BUILT-IN **I-GUARD** SYSTEM
- ✓ OPTION TO CONFIGURE IN A BENCH TOP CASE FOR MAXIMUM FLEXIBILITY



PROCAL ProCal is the genuinely easy to use calibration software which complements the 1000 Series calibrators to provide a complete laboratory solution. Maximum calibration throughput is achieved with multi discipline support. ProCal-Track adds laboratory management control with dynamic job tracking from goods inwards to despatch - streamlines laboratory operation.

FLEXIBLE CONFIGURATION - PORTABLE OR BENCHTOP



ULTRA PORTABLE CALIBRATION

1000 SERIES THE WORLD'S FIRST ULTRA PORTABLE CALIBRATOR

ONE CALIBRATOR :: TWO CONFIGURATIONS



1000B BENCH CALIBRATOR

COMPACT BENCH ENCLOSURE - A REDUCED FOOTPRINT ALLOWS THE CALIBRATOR TO BE POSITIONED AT THE REAR OF A WORKBENCH OR WITHIN A RACK SYSTEM.

- 1 ADVANCED ADAPTER INTERFACE TO EXPAND FUNCTIONALITY INCLUDING mV, mA, PRESSURE MEASUREMENT AND MORE.
- 2 CLEAR LED INDICATION OF ACTIVE TERMINALS
- 3 DEDICATED THERMOCOUPLE OUTPUT SOCKET
- 4 GRAPHIC LCD DISPLAY INCORPORATING LED BACKLIGHT FOR CLEAR, BRIGHT PRESENTATION OF FUNCTIONS & SETTINGS
- 5 TACTILE SOFT-KEYS LINKED TO ON-SCREEN MENUS

1000A PORTABLE CALIBRATOR

RUGGED IP67 RATED ENCLOSURE WITH BUILT-IN HANDLE INCORPORATING COMFORT INSERT AND HIGH PERFORMANCE LATCHING CATCHES.

- 6 EASY MANUAL ENTRY OF TEST VALUES USING NUMERIC KEYPAD
- 7 DIGITAL CONTROL FOR QUICK SELECTION OF RANGES & OUTPUTS
- 8 USB INTERFACE BUILT-IN AS STANDARD

BUILT-IN INPUT PROTECTION



I-GUARD SYSTEM PREVENTS OUTPUT BEING SWITCHED ON WHEN VOLTAGE DETECTED ON TERMINALS

ADVANCED ADAPTER INTERFACE



EXPAND WORKLOAD CAPABILITIES WITH ADD-ON ADAPTERS



ELECTRONIC 'COVERS ON' CALIBRATION VIA REMOTE INTERFACE



ELIMINATES TEMPERATURE GRADIENTS FOR THE ULTIMATE IN STABILITY



INCORPORATES THE LATEST IN HIGH PERFORMANCE PROCESSOR TECHNOLOGY



FOR ULTRA PRECISION & ADVANCED FUNCTIONALITY



SMALL AND LIGHTWEIGHT CONFIGURATION - IDEAL FOR ON-SITE OR INDUSTRIAL ENVIRONMENTS



FOR THE ULTIMATE IN PORTABILITY



DIMENSIONS : H=257 W=432 D=185mm
WEIGHT : 9.5kg



DIMENSIONS : H=180 W=447 D=297mm
WEIGHT : 9.2kg
CASE RATING : IP 67

KEY FEATURES

- 80 PPM ACCURACY
- AC/DC VOLTAGE TO 1000V
- AC/DC CURRENT UP TO 10A
- 2 WIRE RESISTANCE TO 100MΩ
- CAPACITANCE
- FREQUENCY
- THERMOCOUPLE SIMULATION
- PRT & INSULATION TEST FUNCTIONS

ANALOGUE / MOVING IRON METER SUPPORT

The high current drive capability allows the 1000A Series to drive moving iron meters - ideal for many industrial applications where these analogue meters are commonly used in monitoring stations / control panels.



EA001A THERMOCOUPLE SIMULATION & MEASUREMENT ADAPTER

The 1000 Series provides thermocouple simulation via a front panel socket for basic temperature meters. For higher accuracy meters and thermocouples Transmille has designed an external source / measure adapter which keeps the electronics used for thermocouple simulation / measurement as close as possible to the connection of the UUT. Temperature gradients / thermal EMFs can be eliminated by using this external adapter, allowing the signal to be as free from electrical noise as possible, preventing errors caused by heat generated by surrounding electronics in the calibrator.

✓ Superior thermocouple simulation / measurement

✓ 11 Built-in Types

✓ Temperature Standard - EN60584-1 (1996) : Scale - ITS90

✓ Thermocouple measurement

✓ Uses neutral (copper) thermocouple plug - simulation / measurement of any thermocouple type without the need for compensation cables, avoiding introduction of errors.

✓ CJC sensor built into thermocouple plug - The ultimate in accurate CJC compensation - measures the temperature at the closest point to the cold junction.

COLD JUNCTION COMPENSATION



CJC Sensor

Special care has been taken over the cold junction compensation - a common source of errors in thermocouple calibration. The cold junction compensation sensor is mounted in the thermocouple plug / socket itself. By measuring the cold junction at the instruments input allows any type of thermocouple to be simulated / measured without using compensation cables.



SPECIFICATIONS

TYPE	RANGE
J	-210°C to 1200°C
K	-200°C to 1370°C
T	-250°C to 400
R	0°C to 1760°C
S	0°C to 1760°C
B	600° to 1820°C
N	-200°C to 1300°C
E	-250°C to 1000°C
L	-200°C to 900°C
U	-200°C to 600°C
C	0°C to 2316°C

See extended specifications for full details

EA002 2 / 10 / 50 TURN CLAMP COIL ADAPTER



Designed for the calibration of both wound AC & Magnetic field hall effect AC/DC clamp meters the Transmille current coil offers several unique features built in a robust construction, complete with alignment table for ease of use.



✓ Calibrates Clamp Meters up to 500A

✓ 2 / 10 / 50 Turn Coils

✓ High Accuracy AC/DC Balanced Design

✓ Wide range of clamp sizes covered

✓ Includes alignment table for repeatable readings

INNOVATIVE CLOSED CONSTRUCTION DESIGN

Three coils in one provide the ability to calibrate a wide range, from small clamps down to 10mm jaw diameter, to larger current clamps. The low inductance, low resistance properties allow the calibrators to easily drive the coil, giving plenty of overhead for calibrating older clamps. The coils are fully enclosed in a strong, robust and compact plastic enclosure preventing mechanical damage. This rugged design is ideal for using the coil on-site and in harsh environments.

SPECIFICATIONS

Configuration	2 Turn (LHS) 10 Turn (RHS) 50 Turn (Centre)
Type	High Accuracy Balanced
Internal Dimensions	10mm (2/10 Turn) 25mm 50 Turn
Maximum Current	40A
Duty Cycle @ 20A	70% On / 30% Off
Maximum RMS Voltage	4V
Frequency Range	DC to 500Hz

See extended specifications for full details

EA022 PROCESS CONTROL CALIBRATION ADAPTER

To provide support for calibration of process control instruments and transducers, the 1000 Series has a dedicated adapter designed to allow measurement of mV and mA signal sources allowing the 1000 Series to perform these measurement tasks without the need for a separate meter. A dedicated pressure module input on the rear of the adapter also allow pressure monitoring for transducer calibration.

✓ mV Measurement to 30V

✓ mA Measurement to 30mA

✓ 24V Loop Supply for Transducers

✓ Pressure Module input for pressure monitoring

SPECIFICATIONS

FUNCTION	RANGE	ACCURACY
Voltage Measurement	100mV	0.02% ±2 DIGITS
	1V	0.02% ±2 DIGITS
	30V	0.02% ±2 DIGITS
Current Measurement	30mA	0.03% ±2 DIGITS

See extended specifications for full details



INSULATION TESTER CALIBRATION FUNCTIONS



The Insulation test functions allow both Insulation and Installation tester functions to be calibrated. Adding yet another useful set of functions to the 1000 Series, the insulation tester calibration functions provide simulated insulation resistance and test voltage measurement capabilities to the 1000 Series.

Outputs are generated using accurate simulated techniques, meaning any resistance value within the output range of the 1000 Series can be selected.

✓ Insulation Resistance from 1MΩ to 1GΩ

✓ Select any resistance value within output range

✓ Test Voltage Measurement

✓ Accuracy 0.8%

PRT TEMPERATURE SIMULATION

The PRT temperature simulation function makes the calibration of resistance thermometers easy. Simply connect in place of the probe and select a resistance value using the keypad or digital control. Compare the calibrator simulated value with the displayed value on the thermometer.

Additional modes are available using the PRT simulation function and can be selected using the on-screen PRT menu.

✓ 2-Wire simulation of probe

✓ Range -200° to 800°C

✓ Accuracy 0.3°C



TPM INTELLIGENT PRESSURE MODULES



The 1000 Series supports pressure calibration using a range of pressure modules, which can connect directly to the 1000 Series or be used as part of a transducer verification system with the E022 adapter. These pressure modules cover the range from 25mBar to 10000 PSI with a 5 PSI differential and ± 1 Bar vacuum modules available.

- ☑ Pressure ranges from 25mBar to 10,000PSI • 5 PSI differential • ± 1 Bar vacuum
- ☑ Optional Hand pump available (-0.95Bar to 60Bar).
- ☑ Connects directly to Adapter Interface or EA022 Adapter
- ☑ Use direct from front panel or ProCal Software
- ☑ Supports multiple pressure units
- ☑ 1000 series automatically switches to pressure function on connection



EA003 OPTICAL TACHOMETER CALIBRATION ADAPTER



Using a high intensity LED light source, optical tachometers can be calibrated quickly and easily. Simply enter the RPM value using the calibrator keypad or use with ProCal software for automated calibration.

- ☑ High intensity LED light source
- ☑ Direct keyboard input in RPM
- ☑ Range : 60 to 60,000 RPM

SPECIFICATIONS

Light source	High intensity LED
Range	60 to 60,000 RPM
Duty Cycle	20% on / 80% off
Accuracy	50ppm

See extended specifications for full details

PROCAL : EASY TO USE SOFTWARE FOR CALIBRATION



GRAPHICAL CALIBRATION

Transmille ProCal software provides easy control of the 1000 Series with pre-set test points for each model of tester. The software takes care of setting the 1000 Series to the correct function and output - the user simply follows on-screen prompts and confirms measurements or enters readings from the tester.

ProCal software provides an easy to use package, with simple function select using drop down boxes and is focused on providing a complete solution for rapid on-site, workshop or laboratory testing, with an easy learning curve for new users ensuring rapid return on investment.



PROCEDURE WIZARDS

- ☑ UNIVERSAL CALIBRATION SOFTWARE
- ☑ AUTOMATIC CONTROL OF 1000 SERIES CALIBRATORS
- ☑ FAST PROCEDURE CREATION - PROCEDURE WIZARDS
- ☑ PRINT CERTIFICATES ON PLAIN PAPER
- ☑ M3003 / GUM UNCERTAINTIES
- ☑ SUPPORTS CRYSTAL REPORTS
- ☑ CALIBRATION PRICING



BUILT IN SUPPORT FOR SCANNERS & PRINTERS



CONDENSED SPECIFICATIONS¹

FUNCTION	RANGE	RESOLUTION	ACCURACY
DC Voltage	0 to 1020V	1uV	80ppm
DC Current	0 to 10A	1nA	300ppm
AC Voltage Frequency Range	0 to 1020V 10Hz to 20kHz	1uV	0.08%
AC Current Frequency Range	0 to 10A 10Hz to 2kHz	1nA	0.1%
Resistance (Simulated)	0Ω to 10MΩ	1mΩ	0.02%
Resistance (Passive Decades)	10Ω to 100MΩ	100uΩ	0.02%
Capacitance(Passive)	10nF to 1uF	0.1pF	0.8%
Insulation Resistance*	1MΩ to 1GΩ	0.1MΩ	0.8%
PRT Resistance*	-200° to 800°C	0.01°C	0.3°C
Frequency	10Hz to 100kHz	1Hz	20ppm
Thermocouple Simulation	J, K, T, R, S, B, N, E, L, U, C	0.01°C	0.22°C

* Simulated Resistance

EXTERNAL ADAPTERS : CONDENSED SPECIFICATIONS¹

FUNCTION	RANGE	RESOLUTION	ACCURACY
EA001A Thermocouple Simulation / Measure Adapter Simulation & Measurement	J, K, T, R, S, B, N, E, L, U, C	0.01°C	0.09°C
EA002 2/10/50 TURN CLAMP COIL ADAPTER 2/10/50 Turn Clamp Coil	3 Coils : 2 • 10 • 50 Turn	-	0.24%
EA003 Optical Tachometer Calibration Adapter RPM	0 to 60,000 RPM	1 RPM	50ppm
EA022 Process Control Calibration Adapter Voltage Measurement	100mV 1V 30V	1uV 10uV 100uV	0.02% ± 2 Digits 0.02% ± 2 Digits 0.02% ± 2 Digits
Current Measurement	30mA	1uA	0.03% ± 2 Digits

GENERAL SPECIFICATIONS

WARM UP TIME	Double the time since last powered up to 20minutes maximum.
INTERFACE	Built-In USB
LINE POWER	110V / 230V
DIMENSIONS	1000A : H 180 • W 447 • D 297mm 1000B : H 257 • W 432 • D 185mm
WEIGHT	1000A : 9.2kg 1000B : 9.5kg
WARRANTY	1 Year
SAFETY	Designed to EN61010-1:2001 : CE Marked
EMC	EN55011:1998 • EN61326:1988

¹Best 1 Year absolute uncertainties including calibration uncertainties
Due to continuous development specifications are subject to change

ORDERING GUIDE

1000A	80PPM PORTABLE MULTI FUNCTION CALIBRATOR (PORTABLE TRANSIT CASE)
1000B	80PPM COMPACT MULTI FUNCTION CALIBRATOR (BENCH TOP ENCLOSURE)
1000M	80PPM COMPACT MULTI FUNCTION CALIBRATOR (RACK MOUNT ENCLOSURE)
CAL1000	UKAS CALIBRATION CERTIFICATE
OPTION EA001A	EA001A THERMOCOUPLE SIMULATION AND MEASUREMENT ADAPTER
OPTION EA002	EA002 2/10/50 TURN CLAMP COIL ADAPTER
OPTION EA003	EA003 OPTICAL TACHOMETER CALIBRATION ADAPTER
OPTION EA022	EA022 PROCESS CONTROL CALIBRATION ADAPTER
OPTION TPMxx	TPM PRESSURE MODULES (SEE SEPARATE PRICE LIST FOR RANGES AND OPTIONS)
OPTION 1000LEAD	1000 SERIES LEAD SET
OPTION PC-PACK	PROCAL CALIBRATION SOFTWARE

PRODUCT RANGE

MULTI PRODUCT



8/25/50ppm ACCURACY

TRANSPORTABLE



25/50ppm ACCURACY

MULTIMETERS



4/9ppm ACCURACY

ELECTRICAL TEST



INSULATION · RCD · PAT · LOOP

TRANSMILLE :: THE CALIBRATION SPECIALISTS



Transmille has over a decades experience in calibration and instrumentation design & manufacture. Our products are in use throughout the world in both commercial and military laboratories, service centers and production facilities. Our reputation for innovation, reliability & value is second to none with complete solutions including instrumentation, software, support & training.



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