MULTI FUNCTION TESTING

3000A SERIES

PRECISION MULTI PRODUCT CALIBRATOR

TRANSMILLE

SOLUTIONS IN CALIBRATION

3000A SERIES

MULTI PRODUCT CALIBRATORS WITH ADVANCED ADAPTER INTERFACE

TRANSMILLE
SOLUTIONS IN CALIBRATION

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

CLEAR LED INDICATION OF ACTIVE TERMINALS

USB INTERFACE AS STANDARD (ETHERNET & GPIB OPTIONS AVAILABLE)

OUTPUT TERMINAL CONFIGURATION DESIGNED TO MATCH DMM INPUTS - MINIMISES LEAD CHANGES WHEN CALIBRATING DMMs

DIGITAL CONTROL FOR QUICK SELECTION OF RANGES & OUTPUTS

INTUITIVE INTERFACE - DEDICATED BUTTONS FOR EACH FUNCTION

ADVANCED ADAPTER INTERFACE TO EXPAND FUNCTIONALITY

TACTILE SOFT-KEYS LINKED TO ON-SCREEN FUNCTION-SPECIFIC MENUS FOR CLEAR, CONCISE USER OPERATION

ENHANCED GRAPHICAL LCD DISPLAY INCORPORATING *LED BACKLIGHT* TECHNOLOGY FOR A CLEAR, BRIGHT PRESENTATION OF FUNCTIONS & SETTINGS

FULL RANGE CONTROL AND INDIVIDUAL DIGIT ADJUST VIA OUTPUT CONTROL SECTION

EASY MANUAL ENTRY OF TEST VALUES USING BUILT-IN NUMERIC KEYPAD

COMPLETE ADJUSTMENT CONTROL ALLOWING EASY RECALIBRATION* DIRECT FROM FRONT PANEL

* WITH PASSWORD PROTECTION

ELECTRONIC 'COVERS ON' CALIBRATION DIRECT FROM FRONT PANEL OR VIA REMOTE INTERFACE

ELIMINATES TEMPERATURE GRADIENTS FOR THE ULTIMATE IN STABILITY

INCORPORATES THE LATEST IN HIGH PERFORMANCE PROCESSOR TECHNOLOGY

FOR ULTRA PRECISION & ADVANCED FUNCTIONALITY

FUNCTIONS AT A GLANCE

- 8PPM ACCURACY MODEL 3010A
- 25PPM ACCURACY MODEL 3041A
- 50PPM ACCURACY MODEL 3050A
- DC/DC VOLTAGE TO 1000V
- AC/DC CURRENT TO 30A*
- 2 & 4 WIRE RESISTANCE TO 1GΩ — PASSIVE & SIMULATED MODES
- CAPACITANCE TO 10mF — PASSIVE & SIMULATED MODES
- INDUCTANCE TO 10H
- FREQUENCY TO 10MHz
- RTD/PRT SIMULATION
- USB INTERFACE
- GPIB INTERFACE OPTION
- SINE / DC POWER SIMULATION
- HARMONIC POWER SIMULATION — DIRECT DIGITAL SYNTHESIS WAVEFORM GENERATION
- OSCILLOSCOPE CALIBRATION — 250 / 350 / 600MHz BANDWIDTH OPTIONS
- BUILT-IN ADAPTER INTERFACE — EXTENDED WORKLOAD CAPABILITY WITH A WIDE RANGE OF ADD-ON ADAPTERS

*MODEL 3050A 20A

ADVANCED TECHNOLOGY

The 3000 series calibrators use the latest technology from the temperature stabilised reference to the sub ppm linearity D/A.

DDS (Direct Digital Synthesis) technology is used for generating stable, jitter free wideband AC waveforms. Custom waveforms for use in harmonics calibration are available with the 3041/3010 power options.

An ultra-linear VMOS power amplifier provides a ground breaking 30A capability with *continuous* output available up to 20A. A power efficient design with two-stage cooling has resulted in reduced internal thermal EMFs for superior short term stability whilst reducing fan noise for a more comfortable working environment.

I-GUARD intelligent output protection safeguards the calibrator by testing the output sockets for voltages applied accidentally when switching from *standby* to *output on* - protects your investment from accidental misuse.

COMPLETE WORKLOAD CAPABILITY

The 3000 Series generates all the outputs required for multimeter calibration, plus options for :

Oscilloscope Calibration including amplitude, time base, fast rise and bandwidth up to 600MHz. A key feature is the ability to support the growing number of oscilloscopes with 50V/Div (300V Pk-Pk) ranges.

AC/DC Power Calibration uses simultaneous generated voltage to 1025V and current to 30A outputs to simulate power up to 30.6kW (1.5MW using the 50 turn coil). Phase angle control up to 359.9° is available.

Harmonics Calibration option available for 3041 & 3010 includes five preset waveforms and support for custom defined harmonics upload using a PC.

RCL Meters can be calibrated using the inductance option, unique to the Transmille 3000A Series. The passive inductance, resistance & capacitance in the 3000A Series are suitable for measurement using any technique, including AC Bridges. For total flexibility simulated resistance and capacitance options are also available.

Frequency Meter calibration up to 10MHz is supported with accuracy to 1ppm

Using the external calibration adapters, Power Supplies, Process Control Calibrators, Electrometers, Insulation Testers, Pressure Gauges and Transmitters, even Torque Screwdrivers can be calibrated quickly and efficiently.

PRECISION MULTI PRODUCT CALIBRATORS
3000A SERIES

TRANSMILLE
SOLUTIONS IN CALIBRATION

MULTI PRODUCT TESTING

PRECISION DMM CALIBRATION

OSCILLOSCOPE CALIBRATION

HARMONICS / POWER

ADD-ON ADAPTERS FOR EXPANDED FUNCTIONALITY

FOLD OUT FOR OVERVIEW

MULTI PRODUCT TEST SOLUTIONS
A WIDE RANGE OF TESTING CAPABILITES...EXPANDABLE WITH ADD-ON ADAPTERS.

DIGITAL MULTIMETERS

POWER / CLAMP METERS

DIGITAL OSCILLOSCOPES

HARMONIC / POWER ANALYSERS

RLC METERS

POWER SUPPLIES

PROCESS CONTROL CALIBRATORS

HIGH RESISTANCE METERS

ELECTROMETERS

CURRENT SHUNTS

DATA LOGGERS

PRESSURE GAUGES

HIGH VOLTAGE PROBES

TORQUE SCREW DRIVERS

THE COMPLETE MULTI PRODUCT TEST SOLUTION

3000A SERIES

TRANSMILLE
SOLUTIONS IN CALIBRATION

The 3000A Series calibration system has been designed to help you & your business, allowing a wide range of calibration work to be performed quickly, accurately & economically. Modern calibration is a competitive market, and cost effective equipment and software are key considerations.

Meeting the needs of todays quality systems including ISO9000 / ISO17025 require calibration traceable to national standards of a wide range of instrumentation. The 3000A Series calibration system provides the ideal platform to cover these calibration requirements, whether in the laboratory or on site. Every Transmille calibrator and adapter is supplied with UKAS calibration traceable to National Standards, and are ready for use out of the box.

Offering the widest workload coverage of any calibration system presently available, the 3000A series is a true class leading solution. The unique concept of external calibration adapters combined with built-in measurement capability dramatically extends the range of instruments that can be cost effectively calibrated.

MODERN DESIGN USING THE LATEST PROCESSOR TECHNOLOGY

The 3000A Series calibrators incorporate cutting edge design, based on the latest in advanced processors for precision control. Dedicated sub-processors separate range control from digital to analogue data handling for the ultimate in noise free output.

INTEGRATED ADAPTER INTERFACE FOR ADVANCED FUNCTIONALITY

Using the adapter interface, the capabilities of the 3000A Series can be expanded considerably. Thermocouple source/measure with high accuracy CJC compensation, voltage measurement and electronic load configuration for power supplies, pico amp measurement as well as torque, pressure many other signals can be measured using external adapters.

WIDE WORKLOAD CAPABILITIES

- ☑ **THE WIDEST WORKLOAD OF ANY MULTI PRODUCT CALIBRATOR - OVER 18 TYPES OF INSTRUMENTS WITH POWER TO DRIVE OLDER ANALOGUE INSTRUMENTS AND THE ACCURACY TO CALIBRATE MODERN DIGITAL INSTRUMENTS**
- ☑ **IDEAL FOR BOTH LABORATORY AND ON-SITE USE - MODERN TECHNOLOGY PROVIDES A FAST WARM UP TIME AND EXTREMELY PORTABLE DESIGN.**
- ☑ **AUTOMATE CALIBRATION WITH PROCAL - THE WORLDS EASIEST TO USE *MULTI DISCIPLINE* CALIBRATION SOFTWARE FOR MAXIMUM CALIBRATION THROUGHPUT**
- ☑ **THE MOST COST EFFECTIVE CALIBRATION SYSTEM ON THE MARKET - 3 MODELS TO SUIT BUDGET & ACCURACY REQUIREMENTS**
- ☑ **A WIDE RANGE OF OPTIONS ALLOWS THE CALIBRATOR TO BE TAILORED TO MEET YOUR NEEDS - EXPANDABLE FOR THE FUTURE**
- ☑ **FULL OUTPUT PROTECTION INCLUDING I-GUARD SYSTEM - PREVENTS OUTPUT BEING SWITCHED ON WHEN VOLTAGE IS DETECTED ON THE TERMINALS**
- ☑ **GUARANTEED RELIABILITY WITH 3 YEAR WARRANTY AS STANDARD**

PROCAL

ProCal is the genuinely easy to use calibration software which complements the 3000A Series calibration system 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, streamlining laboratory operation.

OSCILLOSCOPE CALIBRATION OPTION

250MHz / 350MHz / 620MHz BANDWIDTH

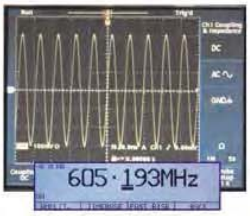
TRANSMILLE
SOLUTIONS IN CALIBRATION

OSCILLOSCOPE OPTION OVERVIEW

Three options are available for the 3000A Series calibrators which are suitable for calibration of both analogue and digital storage oscilloscopes. All options provide the calibration waveforms required for amplitude, timebase and bandwidth including gain and linearity of the horizontal and vertical deflection circuits. To minimise lead changing, the oscilloscope outputs are output from a single BNC connector.

AMPLITUDE

TIMEBASE



BANDWIDTH

AT A GLANCE

- ☑ **250MHz (SCP250) : 3050A**
- ☑ **350MHz (SCP350) : 3041A • 3010A**
- ☑ **620MHz (SCP600) : 3041A • 3010A**

- ☑ **AMPLITUDE TO 50V/DIV (300V PK-PK) 1,2,5 SEQUENCE**
- ☑ **TIMEBASE TO 2ns**
- ☑ **SEPARATE TRIGGER OUTPUT**
- ☑ **ALL CALIBRATION SIGNALS FROM A SINGLE BNC**

AMPLITUDE

The calibrator produces either a precision 1kHz square wave or a DC level covering the range from 2mV/Div to 50V/Div in a 1,2,5 sequence. Deviation up to 10% in 0.01% steps can be applied using the digital control. The calibrator's wide range output, giving up to 300V pk-pk, can be used to directly calibrate the ever increasing number of oscilloscopes with amplitude ranges up to 50V/Div placing it in a class leading position.

TIMEBASE

The timebase function of the oscilloscope option provides outputs from 2ns/Div to 5s/Div. Deviation up to 10% in 0.01% steps can be applied using the digital control. To use, simply align the time marker with the graticule display and read the deviation from the % display on the calibrator. The comb waveform used below 100ns is ideal for triggering on both analogue and digital oscilloscopes alike. For faster timebase calibration, a sine wave is produced which makes viewing on bandwidth limited oscilloscopes easier. The timebase output can be used either directly or into a 50 Ohm input.

FAST RISE

A fast rise output is available with a rising edge time of typically 1ns for evaluating overshoot, undershoot and ringing of oscilloscope attenuation and amplifier circuits.

SPECIFICATIONS

Voltage Amplitude	
Range	2mV/Div to 50V/Div
Sequence	1 • 2 • 5
Frequency	1kHz
Accuracy	0.01% ± 20uV
Time Markers	
Range	2ns to 5s
Sequence	1 • 2 • 5
Waveshape	Comb < 100ns Sine > 100ns
Accuracy	5ppm
Fast Rise*	1ns typical
** 3041A / 3010A*	
Leveled Sweep	
Range (SCP250)	5MHz to 250MHz
Range (SCP350)	5MHz to 350MHz
Range (SCP600)	5MHz to 600MHz
Leveled Sweep	600mV pk-pk into 50Ohms
Reference Level	50kHz
Accuracy	1dbm
50kHz Reference	
Frequency Accuracy	30ppm
Level Accuracy	0.5%

See extended specifications for full details

LEVELED SWEEP

The leveled sweep output of the oscilloscope option provides a continuously variable sine wave from 5MHz to 620MHz. A 50kHz reference level waveform is also available to allow the oscilloscope controls to be set to give a 6 graticule height display.

EA017 :: OSCILLOSCOPE TEST HEAD ADAPTER

For automating oscilloscope calibration a 4 channel switching test head is available. Connect to the 3000A Series adapter interface and select channel required. For accurate calibration of 50Ohm input oscilloscopes up to 1V/Div a low impedance buffered amplitude output can be selected.

SPECIFICATIONS

Channels	
Input	1
Output	4
Output Impedance	
Direct	As Input
Buffered	Typically 0.2Ω

Direct Front Panel Control & PC Control

POWER CALIBRATION OPTION

PWR50 / PWRSINE / PWRDDS

TRANSMILLE
SOLUTIONS IN CALIBRATION

POWER OPTION OVERVIEW

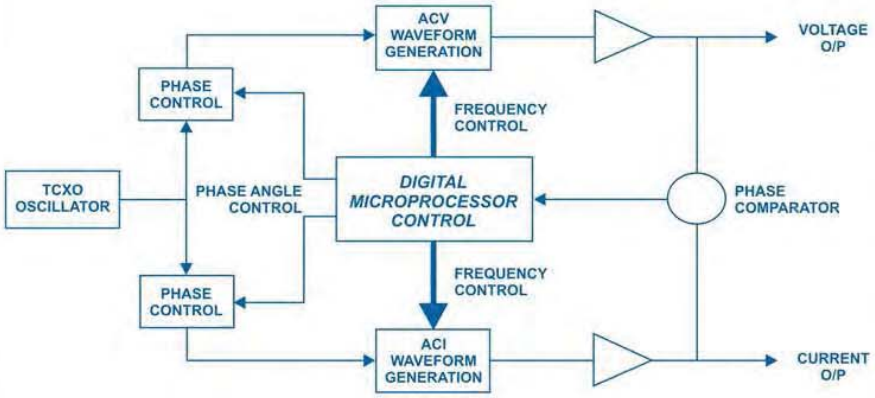
Three options provide cost effective calibration of power (Watts) and VA ranges on power meters, power/harmonics analysers & clamp meters. The power option for the 3000A series calibrators allows both voltage and current output to be generated simultaneously (phantom load) with an adjustable phase relationship.

Any voltage up to 1025 Volts can be set using the normal output ranges and specification of the calibrator. Currents up to 30Amps are available from the output of the calibrator without the need for an external amplifier.

AT A GLANCE

- ☑ **3050A : SINE POWER OPTION (PWR50)**
- ☑ **3041A • 3010A : 2 OPTIONS**
  PWRSINE : SINE & DC POWER
  PWRDDS : 6 WAVEFORMS + USER & SINE
- ☑ **UP TO 1.5MW (USING 50 TURN COIL)**
- ☑ **0° TO 359.9° ADJUSTABLE PHASE RELATIONSHIP**

The power function is extremely easy to use - select 'Power' from the soft key menu, connect the power meter to both the voltage and current output terminals and enter the voltage, current and frequency. Phase angle can be adjusted using the softkeys with a resolution of 0.1°. Power output is calculated & displayed in kW. The 3000 series calibrator dynamically controls the phase angle between the current and voltage waveforms eliminating errors caused by capacitive or inductive loading experienced when using clamp coils.



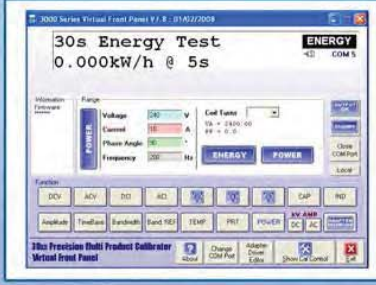
EXTENDED RANGE USING EA002 CLAMP COIL

Combined with the EA002 optional clamp coil adapter the power calibration option allows a current of 1500Amps to be simulated, and power to 1.5Megawatts (1500Amps x 1000Volts).

HARMONIC ANALYSER CALIBRATION

Option PWRDDS for the 3041A / 3010A calibrators allows generation of waveforms with harmonic content for calibrating power meters with power harmonics functions. This includes a set of fixed waveforms, plus the capability to upload user defined waveforms from a PC allowing waveforms with custom harmonic content to be generated using the supplied ProWave software.

Waveforms	
Sine	12th 10%
3rd 5%	21th 10%
3rd10%	TRANSIENT
5th 10%	CUSTOM



SPECIFICATIONS

DC Power

Voltage Range	1V to 1025V
Current Range	0.5mA to 30A (22A*)

Range	*Resolution*	*Accuracy*
0.5mA to 200mA	10uA	0.1% ± 40uA
0.201A to 2A	0.1mA	0.015% ± 400uA
2.01A to 30A (22A*)	1mA	0.04% ± 4mA

AC Power

Voltage Range	1V to 1025V
Current Range	0.5mA to 30A (22A*)

Range	*Resolution*	*Accuracy*
0.5mA to 200mA	10uA	0.1% ± 40uA
0.201A to 2A	0.1mA	0.015% ± 400uA
2.01A to 30A (22A*)	1mA	0.04% ± 4mA

Phase Angle Resolution	0.1°
Phase Accuracy	0.1°

**3050A Max. Current 22A • See extended specifications for full details*

KW HOUR METER & ENERGY CALIBRATION

Using the 3000A Series VFP the Voltage, current, frequency, phase angle, time and the number of coil turns can all easily be set, click the energy button and the power is turned on for a set period making calibration of kWatt/hours and energy meters easy.

RTD / PRT TEMPERATURE SIMULATION OPTION

OPTION PRT

The PRT option makes the calibration of high accuracy resistance thermometers easy. Simply connect in place of the probe and compare the displayed value with the calibrated value from the 3000 series calibrator. Because the calibrator uses passive precision resistors, reliable readings are guaranteed regardless of the measurement technique used by the thermometer.

- ☑ **Ultra Accurate Resistance Value**
- ☑ **2 Wire or 4 Wire Simulation of Probe**
- ☑ **8 Passive Resistance Values**
- ☑ **Temperature Standard : EN60751:1996 / IEC 60751:1983**
- ☑ **Automated Calibration Using ProCal Software**

SPECIFICATIONS

Range	-100°C • 0°C • 30°C • 60°C 100°C • 200°C • 300°C • 800°C
Nominal resistance value	60.25 • 100 • 111.67 • 123.24 138.5 • 175.84 • 247.04 • 375.51 Ohms
Best Accuracy	0.02°C

See extended specifications for full details

MEASURED VALUE STORED FOR ACCURATE CALIBRATION

When the 9000 series PRT option is calibrated, the exact temperature values on the ITS90 scale for Pt-385 resistors is stored in non volatile memory. This value is recalled and displayed each time a specific resistor is selected, allowing accurate calibration to be performed.

INDUCTANCE CALIBRATION OPTION

OPTION IND

By incorporating this useful and easy to use option the work load of the calibrator can be increased to allow calibration of RLC (Resistance, Inductance and Capacitance) meters and bridges and also allows calibration of DMMs with inductance measurement ranges.

Incorporates 8 fixed values, including 19mH and 29mH for '3' range meters to allow testing of these types of meters at points which can verify their linearity at near full scale points.

- ☑ **8 precision values from 1mH to 10H**
- ☑ **Ideal for calibration of RCL meters / bridges**
- ☑ **Cost effective option**
- ☑ **Automated Calibration Using ProCal Software**

SPECIFICATIONS

Range	1mH • 10mH • 19mH • 29mH 50mH • 100mH • 1H • 10H
Accuracy	0.5%
Calibration frequency	1kHz

See extended specifications for full details

MEASURED VALUE STORED FOR ACCURATE CALIBRATION

When the 9000 series inductance option is calibrated, the exact value of the inductor is measured as Ls up to 1H, Lp above at 1kHz and stored in memory. This value is recalled and displayed each time a specific inductor is selected, allowing accurate calibration to be performed.

SIMULATED RESISTANCE & CAPACITANCE

OPTION SIMRC

For dependable readings regardless of the measurement technique and the ultimate in performance the 3000 series uses precision passive resistors and capacitors, with calibrated values for both 2 and 4 wire connections. Using passive standards allows confident calibration of AC bridges and removes any difficulty with traceability.

For the 3000A Series a simulated option provides for resistance calibration between cardinal points and gives a continuous resistance range from 0 Ohms to 10 MOhms, with decade capacitance points up to 10mF.

THERMOCOUPLE SIMULATION & MEASUREMENT ADAPTER

OPTION EA001A

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SOLUTIONS IN CALIBRATION

Temperature gradients / thermal EMFs which can be introduced by internally mounted thermocouple simulation methods are one of the greatest sources of error with thermocouple temperature calibration. For the ultimate in accuracy, Transmille has designed a dedicated source / measure external adapter. This keeps the electronics required to generate the low level signals used for thermocouple simulation as close as possible to the measuring input of the thermometer. This allows the signal to be as free from electrical noise as possible, and also eliminates errors caused by heat generated by surrounding electronics.

- ☑ **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 supported thermocouple types Without the need for compensation cables, avoiding introduction of errors.
- ☑ **CJC sensor built into thermocouple plug & socket -**
  For optimum CJC

DIRECT FRONT PANEL CONTROL
NO PC REQUIRED

SOFTWARE CONTROL VIA USB ALSO AVAILABLE

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

COLD JUNCTION COMPENSATION

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 directly into the adapter thermocouple plug & socket. By measuring the cold junction at the connection point allows any type of thermocouple to be simulated / measured without using compensation cables.

2 / 10 / 50 TURN CLAMP COIL ADAPTER

OPTION EA002

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 1000A with 9050**
- ☑ **Calibrates Clamp Meters up to 1500A with 9041**
- ☑ **2 / 10 / 50 Turn Coils**
- ☑ **High Accuracy AC/DC Balanced Design**
- ☑ **Wide range of clamp sizes covered**
- ☑ **Includes alignment table for repeatable readings**

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	30A
Duty Cycle @ 20A	70% On / 30% Off
Maximum RMS Voltage	4V
Frequency Range	DC to 400Hz
Accessories	Detachable platform

See extended specifications for full details

INNOVATIVE CLOSED CONSTRUCTION DESIGN

Three coils in one provide the ability to calibrate a wide range of coils, from small lower 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.

MULTI FUNCTION WORKSTATION

OPTION EA015

TRANSMILLE
SOLUTIONS IN CALIBRATION

The multi function workstation provides a central work area with all connections routed conveniently to remote terminals mounted at the front of the adapter. The adapter extends the functionality of the calibrator to include :

- ☑ 2 / 10 / 50 TURN CLAMP COIL
- ☑ INSULATION RESISTANCE OUTPUT
- ☑ CONTINUITY RESISTANCE OUTPUT
- ☑ CONTINUITY CURRENT MEASUREMENT
- ☑ OPTICAL TACHOMETER CALIBRATION
- ☑ THERMOCOUPLE SIMULATION
- ☑ CURRENT MEASUREMENT TO 30mA
- ☑ CALIBRATOR OUTPUT ROUTING
  VOLTAGE, CURRENT AND HIGH CURRENT TO DEDICATED WORKSTATION TERMINALS

Incorporating the advanced clamp coil, thermocouple simulation and tachometer calibration adapters as well as process control source / measure capabilities, this workstation adapter provides a versatile platform for efficient calibration of a wide range of equipment.

☑ Clamp Meters

Using the built in 2, 10 and 50 turn coils, clamp meters can be accurately and quickly calibrated. Using a high accuracy balanced design both wound (AC only) & Magnetic field (hall effect) AC/DC clamp meters can be calibrated. Three coils in one provide the ability to calibrate a wide range of coils, from small lower clamps down to 10mm jaw diameter to larger 2000A clamps.

☑ Insulation Testers

Insulation tester calibration is a common requirement and is now easy to perform using the workstation. Insulation to 2GOhms @ 1000V and continuity to 1kOhm is available from dedicated terminals. Using the measurement capabilities of the adapter interface, the workstation also provides insulation test voltage measurement to 1000V and continuity current measurement.

☑ Process Control

Source/measure process control calibrators are common place in industry and previously required several references to calibrate. The workstation integrates all the functions required to both source and measure the required signals.

☑ Digital Thermometers

Digital thermometers can be easily calibrated accurately using the workstation's built in thermocouple simulation output with automatic cold junction compensation.

☑ Optical Tachometers

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

SPECIFICATIONS

Clamp Meter Calibration	
Range	2 / 10 / 50 Turn Coil Up to 1500A
Insulation Tester Calibration	
Continuity Resistance	Up to 1kOhm
Insulation Resistance	Up to 2GOhms / 1000V
Continuity Current Measurement	Up to 300mA
Insulation Test Voltage Measure	Up to 1000V
Digital Thermometer Calibration	J, K, T, R, S, B, N, E, L, U, C
Process Control Calibration	
DCV Measurement	100mV/1V/30V Ranges
DCI Measurement	30mA Range
DCV/I Source From Calibrator	AC/DC 1000V • 30A
Optical Tachometer Calibration	
Range	60 to 60,000 RPM

See extended specifications for full details

OPTICAL TACHOMETER CALIBRATION ADAPTER

OPTION EA003

TRANSMILLE
SOLUTIONS IN CALIBRATION

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

- ☑ **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	20ppm

See extended specifications for full details

HIGH RESISTANCE / pA MEASUREMENT ADAPTER

EA008

- ☑ Accurate current measurement down to pico amp levels
- ☑ Ideal for high value resistance measurement to 1TOhm
- ☑ Five ranges from 10nA to 100uA
- ☑ Supplied with VFP Software

The high resistance / pA measurement adapter eliminates the need for a separate electrometer instrument. The low cost EA008 provides 5 current measurement ranges down to 10nA with a resolution of 1pA and incorporates a 'virtual ground' input, avoiding input impedance errors.

Using the high voltage output from the 3000 Series calibrator together with the current measurement capability of the EA008 allows high accuracy resistance measurements to be made at any voltage up to 1000V.

The virtual front panel program supplied as standard with the adapter provides a familiar user interface with all the features such as null, filter and auto range.

Using the popular ProCal calibration software, the EA008 adapter can be used with automated procedures for comprehensive calibration of pA signals or high resistances.

SPECIFICATIONS

Ranges	10nA • 100nA • 1uA • 10uA • 100uA
Resolution	1pA • 10pA • 100pA • 1nA • 10nA
Accuracy	0.5% Reading ± 0.4% Range
Operation	Direct front panel control or software (via USB)

See extended specifications for full details

PICOAMP SOURCE ADAPTER

EA013

- ☑ **Ideal for calibrating electrometers**
- ☑ **Source accurate current down to pico amp level**
- ☑ **Low open circuit compliance voltage**
- ☑ **Safe to use on sensitive input circuits.**
- ☑ **Supplied with VFP Software**

Provide accurate calibration of sensitive electrometers and low level pico amp meters safely & quickly with this purpose designed option.

A unique and ingenious circuit designed to convert the accurate voltage output from the calibrator into low noise precision currents without the use of the destructive high voltages and unstable high value resistors often used.

Yet another example of Transmille's pioneering ideas and designs for providing solutions to some of the common problems faced by calibration laboratories Everywhere.

Automate calibration with ProCal software

SPECIFICATIONS

Ranges	10nA • 100nA • 1uA • 10uA • 100uA
Resolution	1pA • 10pA • 100pA • 1nA • 10nA
Accuracy	0.5%
O/C Compliance	10V
Operation	Direct front panel control or software (via USB)

See extended specifications for full details

3A POWER SUPPLY CALIBRATION ADAPTER

EA3023

TRANSMILLE
SOLUTIONS IN CALIBRATION

An essential option for simplifying calibration of power supplies. The PSU adapter can measure the output voltage and also provides a precision electronic current load allowing volts, current and even output resistance to be calibrated by one compact unit. 4 wire connection ensures accuracy and repeatability.

☑ MEASURE PSU OUTPUT VOLTAGE

The adapter measures the power supply's output voltage using the internal high accuracy A/D converter built into the 3000 Series.

☑ CALIBRATE POWER SUPPLY CURRENT METER

The adapter provides a precision electronic load controlled by the

☑ DETERMINE OUTPUT RESISTANCE/VOLTAGE DROP

By measuring a power supply's on load / off load voltages, the output resistance of the PSU can easily be measured.The operation is controlled using a PC running either the Virtual front panel program (supplied) or ProCal software. ProCal procedure wizard available for automatic procedure generation.

- ☑ **Measure Output voltage to 63 Volts**
- ☑ **Active Current load to 3 Amps**
- ☑ **Measures output Resistance**
- ☑ **Connects to Adapter Interface**
- ☑ **Control direct from front panel or software (via USB)**

SPECIFICATIONS

Voltage Measurement Resolution Best 1 Year Accuracy	0 to 63V 10mV 0.02% of Setting ± 20mV
Current Load Range Best 1 Year Accuracy	0 to 3A 0.05% of Setting ± 1mA
Notes	Direct Front Panel Control or Software Control

See extended specifications for full details

60A POWER SUPPLY CALIBRATION ADAPTER

EA3025A

Extending on the capabilities of the EA3023, the EA3025A provides an easy to use solution for the calibration of high current power supplies. This adapter overcomes many of the problems associated with measuring higher output currents required.

Traditional techniques of using high current low value load resistors and current shunts can result in unstable/inaccurate readings even with small voltage fluctuations from the power supply or variations in connection and lead resistance. The manual nature of this method of calibration is both time consuming and prone to accidental damage of the load resistor and measurement equipment.

The three advantages of using the EA3025A are :

1. Provides an accurate, stable electronic current load regardless of the power supply output voltage and lead/ connection resistances
2. Removes the need for high power load resistors
3. Allows automation for more efficient calibration

- ☑ **Measure Output voltage to 100 Volts**
- ☑ **Active Current load to 60 Amps**
- ☑ **Measures Output Resistance**
- ☑ **Applications include Battery/UPS Testing**
- ☑ **Control direct from front panel or Software (via USB)**

SPECIFICATIONS

Voltage Measurement Resolution Best 1 Year Accuracy	0 to 100V 10mV 0.02% of Setting ± 30mV
Current Load Range Best 1 Year Accuracy	0 to 60A 0.05% of Setting ± 30mA
Notes	Direct Front Panel Control or Software Control

See extended specifications for full details

AC / DC TRANSCONDUCTANCE AMPLIFER

EA3012A

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- ☑ **Control from 3000A front panel or ProCal Software**
- ☑ **Stackable for higher currents**
- ☑ **0.08% Accuracy**
- ☑ **Low noise linear MOSFET technology**
- ☑ **Up to 100A DC • 70A AC Output**
- ☑ **Calibration of up to 2000A clamp meters using 50 turn coil**
- ☑ **Ideal for calibrating high power current shunts & meters**

The EA3012A is a powerful linear transconductance amplifier designed exclusively for use with the 3000 Series calibrators which provides a cost effective solution to calibrating high current instruments. Connecting to the 3000 Series calibrator using the adapter interface, the EA3012A extends the output current range to 100A DC / 70A AC - higher currents are available by paralleling EA3012A amplifiers as required to Give the current output needed.

Use of linear technology throughout gives a very low noise output completely free from switching spikes. The latest in high power MOSFET design ensures reliable and stable operation even into inductive loads. Long term accuracy is assured by using precision foil resistors and a custom manufactured internal shunt.

DIRECT FRONT PANEL CONTROL
NO PC REQUIRED

SOFTWARE CONTROL VIA USB ALSO AVAILABLE

SPECIFICATIONS

AC Output	70A Maximum
DC Output	100A Maximum
AC/DC Accuracy	0.08% ± 10mA
Compliance Voltage	6V Pk-Pk
Frequency	40 to 400Hz
Power Consumption	1kW
Cooling	Internal Fan

See extended specifications for full details

KILOVOLT AMPLIFIER

EA3024

The EA3024 kilovolt amplifier provides the solution to the calibration of high voltage probes and dividers. The amplifier/calibrator combination is used with Virtual Front Panel (supplied) or ProCal software.

- ☑ **DC Output 1 to 10 kVolts**
- ☑ **AC Voltage 1 to 5 kVolts**
- ☑ **Controlled by ProCal or Virtual Front Panel Software**

Connect for DC or AC output is via independent sockets, with each socket having an individual LED indicator. The ground connection is a 4mm terminal post.

SPECIFICATIONS

AC Output	5kV Maximum
DC Output	10kV Maximum
AC/DC Accuracy	0.5%
Output Current	100uA
Frequency	40 to 60Hz

See extended specifications for full details

INTELLIGENT PRESSURE MODULES

TPM001 to TPM018 • OPTION PUMP

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OPTIONAL PRESSURE PUMP

INTELLIGENT PRESSURE MODULE WITH INTEGRATED TRANSDUCER

The 3000A series supports pressure calibration using a range of pressure modules, which connect directly to the adapter interface. These pressure modules cover the range from 25mBar to 10000 PSI with a 5 PSI differential and ±1Bar vacuum modules available.

- ☑ Pressure measurement from 25mBar to 10,000PSI.
- ☑ Optional Hand pump available (-0.95Bar to 60Bar)
- ☑ Direct connection to Calibrator adaptor interface
- ☑ Use direct from front panel or ProCal software
- ☑ Supports multiple pressure units
- ☑ Pressure function auto select on connection

DIRECT FRONT PANEL CONTROL
NO PC REQUIRED

SOFTWARE CONTROL VIA USB ALSO AVAILABLE

SPECIFICATIONS

Pressure Range	25mBar to 10,000 PSI (Dependant on Transducer)
Accuracy	0.04% FS BSL (Dependent on Transducer)
Optional Hand Pump Range	-0.95 Bar to 60 Bar

See extended specifications for full details

Pressure modules are supplied with calibration coefficients are stored in the calibrator for direct display of pressure or used with VFP or ProCal software. Calibration of a pressure gauge can easily be performed by connecting the hand pump to the pressure module and gauge under test, applying pressure and comparing readings against the reference pressure module for rising / falling pressure.

TORQUE CALIBRATION ADAPTER

EA014

- ☑ Accuracy 0.2%
- ☑ Direct front panel or software control
- ☑ Supports different units e.g. mNm, ftlb, etc.

DIRECT FRONT PANEL CONTROL
NO PC REQUIRED

SOFTWARE CONTROL VIA USB ALSO AVAILABLE

Connect an external torque transducer via the EA014 adapter to the 3000A series calibrator to enable torque measurement directly from the adapter interface. Torque range is dependent on the transducer connected (up to 1500Nm).
Built in continuous / peak reading modes for calibration of torque screwdrivers and wrenches.Operate direct from 3000A front panel or via the interface using software.

TEMPERATURE & HUMIDITY MONITORING ADAPTER

OPTION EA016

SPECIFICATIONS

Humidity Accuracy	10% to 90% 2%
Temperature Accuracy	0°C to 50°C 0.5°C

See extended specifications for full details

- ☑ **Humidity measurement 10% to 90%**
- ☑ **Temperature measurement 0°C to 50°C**

Ideal for monitoring laboratory environment allowing measurements to be made and displayed on screen.

DIRECT FRONT PANEL CONTROL
NO PC REQUIRED

SOFTWARE CONTROL VIA USB ALSO AVAILABLE

PRECISION ANALOGUE LEAD SET OPTION

OPTION 3000LEAD

A comprehensive collection of test leads and adapters is provided to cover requirements from low level DC through to high current and high resistance measurements. Carefully selected materials minimise connection/lead errors, with safetyensured by the use of non-retractable shrouded connectors for the voltage test lead set.

- ☑ **Comprehensive 19 piece test lead & adapter set**
- ☑ **Low thermal gold/copper voltage leads (0.7uV)**
- ☑ **High current 32A leads**
- ☑ **All 4mm plugs with safety shrouds**

AUTOMATED SOFTWARE CALIBRATION

EFFICIENT, COST EFFECTIVE SOFTWARE CONTROLLED CALIBRATION

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SOLUTIONS IN CALIBRATION

EASY TO USE SOFTWARE FOR FAST & ACCURATE TESTING

Transmille ProCal software provides easy control of the 3000A Series with pre-set test points for each model of tester. The software takes care of setting the 3000A series to the correct function and output - the user simply follows on-screen prompts and confirms measurements or enters readings from the tester.

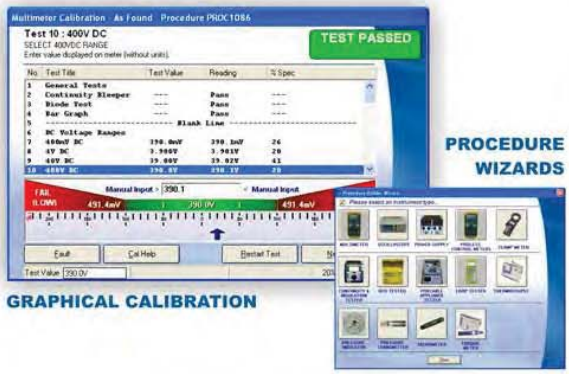
ProCal software provides an easy to use package, with simple function select using drop down boxes and is focused on providing a complete solution for rapid on-site, workshop or laboratory testing, with an easy learning curve for new users ensuring rapid return on investment.

The use of software is the key to realising a cost-effective test solution, whether it is for in-house / maintenance support or for commercial calibration services. Built-in procedure wizards for each type of tester allow procedures to be created in minutes, with a library of procedures also available for popular testers. The software is fully network ready to allow multi-station calibration configuration to be achieved.

PROCAL : MULTI DISCIPLINE CALIBRATION SOFTWARE

PROCAL

- > UNIVERSAL CALIBRATION SOFTWARE
- > FAST PROCEDURE CREATION - PROCEDURE WIZARDS
- > CREATE & PRINT CERTIFICATES ON PLAIN PAPER
- > M3003 / GUM UNCERTAINTIES
- > SUPPORTS CRYSTAL REPORTS
- > CALIBRATION PRICING SUPPORT



PROCEDURE WIZARDS

GRAPHICAL CALIBRATION

PROCAL PROGRAM SUITE

PROSET	PROCAL	PROEDIT	PROCERT
SYSTEM SETUP	INSTRUMENT CALIBRATION	PROCEDURE MANAGEMENT	CERTIFICATE PRINTING

PROCAL

CONDENSED SPECIFICATIONS

FUNCTION	3010A RANGE	3010A RESOLUTION	3010A ACCURACY	3041A RANGE	3041A RESOLUTION	3041A ACCURACY	3050A RANGE	3050A RESOLUTION	3050A ACCURACY
DC Voltage	0 to 1025V	10nV	8ppm	0 to 1025V	0.1uV	25ppm	0 to 1025V	0.1uV	50ppm
Kilovolt Amplifier (EA3024)*	1 to 10kV	10mV	0.5%	1 to 10kV	10mV	0.5%	-	-	-
DC Current	0 to 30A	10pA	50ppm	0 to 30A	100pA	50ppm	0 to 20A	100pA	0.01%
pA Source Adapter (EA013)*	0 to 100uA	0.1pA	200ppm	0 to 100uA	0.1pA	200ppm	-	-	-
Transconductance Amplifier (EA3012A)	10 to 100A	100uA	0.08%	10 to 100A	100uA	0.08%	-		
AC Voltage	0 to 1020V 10Hz to 1MHz	100nV	150ppm	0 to 1020V 10Hz to 500kHz	1uV	0.035%	0 to 1020V 10Hz to 100kHz	1uV	0.035%
Kilovolt Amplifier (EA3024)*	1 to 5kV	10mV	0.8%	1 to 5kV	10mV	0.8%	-	-	-
AC Current	0 to 30A 10Hz to 10kHz	100pA	0.04%	0 to 30A 10Hz to 10kHz	1nA	0.06%	0 to 20A 10Hz to 10kHz	1nA -	0.07% -
Transconductance Amplifier (EA3012A)*	10 to 70A	100uA	0.08%	10 to 70A	100uA	0.08%	-	-	-
Resistance (Passive)	0Ω to 1GΩ	-	8ppm	0Ω to 1GΩ	-	40ppm	0Ω to 100MΩ	-	0.005%
Resistance (Simulated)*	30Ω to 10MΩ	100ppm	0.01%	30Ω to 10MΩ	100ppm	0.03%	-	-	-
Capacitance (Passive)	1nF to 10uF	-	0.25%	1nF to 10uF	-	0.25%	10nF to 1uF	-	0.4%
Capacitance (Simulated)*	100uF to 10mF	-	0.7%	100uF to 10mF	-	0.7%	-	-	-
Inductance (Option)*	1mH to 10H	-	0.50%	1mH to 10H	-	0.50%	-	-	-
Frequency (Std/HiAcc Option*)	1Hz to 10MHz	-	20ppm/1ppm	1Hz to 10MHz	-	20ppm/1ppm	10Hz to 10MHz	-	20ppm
Pulse Width / Duty Cycle	10 to 90%	-	1ppm	10 to 90%	-	1ppm	-	-	-

Temperature	
Thermocouple Simulation/Measurement (EA001A)	Types: J, K, T, R, S, B, N, E, L,U,C • Accuracy 0.05°C • CJC: Auto & Manual - Accuracy 0.1°C • Neutral (Copper) T/C Plug & Socket
PRT/RTD (OPTION PRT) (3041A/3010A)	Range: -100°C to 800 °C • Accuracy 0.02%
Oscilloscope Calibration (SCP250/SCP350/SCP600)	
Ampltude	Range: 2mV/Div (12mV Pk-Pk) to 50V/Div (300V Pk-Pk) • 1kHz Square Wave or DC • Accuracy 0.01% ± 20uV
Timebase	Range: 5s to 2ns (Option SCP600) • 5s to 5ns (Option SCP350/SCP250) • Accuracy 5ppm
Leveled Frequency Sweep	Range: 50kHz, 5MHz to 250/350/600MHz (dependant on option installed) • Level : 600mV Pk-Pk into 50 Ohms • Accuracy 0.5dbm
Trigger Output	Dedicated BNC trigger output for timing & amplitude waveforms
Power Calibration (PWR50/PWRSINE/PWRDDS)	
AC Power	Power Direct / 50 Turn Coil: 20.8kW / 1.04MW (3050A): 30.7kW / 1.53MW (3041A/3010A) • Accuracy 0.05% ± 3.5mW/Volt
Phase / Frequency Range	Range: 0 to 359.9° • Resolution 0.1° • Accuracy 0.1° • Frequency Range: 10Hz to 1kHz
DC Power	Power Direct / 50 Turn Coil: 30.7kW / 1.53MW (3041A/3010A) • Accuracy 0.04% ± 3.5mW/Volt
Optical Tachometer Calibration (3041A/3010A)	
Optical Tachometer Adapter (EA003)	Range: 60RPM to 60,000RPM • Accuracy 50ppm
Power Supply Calibration (3041A/3010A)	
PSU Calibration Adapter EA3023 (EA3025)	Voltage Measurement 0 to 63V (100V) • Current Load 0 to 3A (60A)
Pressure Calibration (3041A/3010A)	
Pressure Calibration Modules (TPM001 to TPM018)	Range: 25mBar to 700Bar (10,000PSI) • Accuracy 0.04% FS BSL
Torque Calibration (3041A/3010A)	
Torque Calibration Adapter (EA014)	Range: Up to1500Nm (Dependant on transducer) : Accuracy 0.2%
pA / High Resistance Calibration (3041A/3010A)	
pA / High Resistance Measurement Adapter (EA008)	5 Ranges: 10nA to 100uA • Resolution 1pA • Accuracy 0.02% ± 3 Counts
pA Source Adapter (EA013)	5 Ranges: 10nA to 100uA • Resolution 1pA • Accuracy 0.02% ± 3 Counts
Clamp & Power Meter Calibration	
2/10/50 Turn Clamp Coil (EA002)	3 Coils: 2 • 10 • 50 Turn : Magnetically Balanced Design: 10mm (2/10 Turn) 25mm (50 Turn) Internal Dimensions: Accuracy: 0.24%
Multi Function Workstation (EA015) (3041A/3010A)	
Insulation Tester Calibration - Insulation Resistance	Range: 0 to 2GOhms • Resolution 10kOhm • Max. 1000V • Accuracy 0.2% to 5MOhm, 3% above
Continuity Resistance	Ranges: 1.9, 10, 19, 100, 190, 1kOhms • Accuracy 0.2% ± 50mOhms
Test Voltage Measurement	Ranges: 50V, 100V, 250V, 500V, 1kV @ 1mA Load • Accuracy 0.5% ± 2 Counts
Process Control Calibrators	
Voltage Measurement	Ranges(Resolution): 100mV(1uV), 1V(10uV), 30V(100uV) • Accuracy 0.02% ± 2 Digits
Current Measurement	Ranges: 30mA • Accuracy 0.03% ± 2 Digits
Voltage, Current & Temperature Source	See Calibrator Specifications
Clamp Meter / Temperature / Optical Tachometer	See Clamp Coil / Thermocouple / Tacho Adapter Specifications

GENERAL SPECIFICATIONS

Warm Up Time	Double the time since last turned on up to 20 minutes maximum	Safety	Designed to EN61010-1:2001
Interface	USB (fitted as standard) • GPIB (option) • LAN/ETHERNET (option)		CE Marked
Line Power	110 / 230V (28Watts standby)	EMC	EN55011:1998
Dimensions / Weight / Warranty	45cm x 44cm x 14cm / 16.5kg / 3 Years warranty parts & labour cover		EN61326:1998

FOR EXTENDED SPECIFICATIONS CONTACT YOUR LOCAL REPRESENTATIVE OR VISIT WWW.TRANSMILLE.COM

Best 1 year absolute accuracy including calibration uncertainties : * Optional : Due to continuous development specifications may be subject to change.

TRANSMILLE :: THE CALIBRATION SPECIALISTS

Transmille has over a decade's 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.

UKAS CALIBRATION
0324

The 3000A Series Transportable calibrator complements the 8000 Series range of multimeters, 9000 Series range of transportable calibrators, 3200 Series Electrical Test Equipment Calibrator and the 3000 Precision range of reference standards. This comprehensive range of Queen's award winning instrumentation combined with the ProCal calibration software provides a complete solution for the modern calibration laboratory.

PROCAL REFERENCE SUPPORT : AUTOMATE CALIBRATION USING PROCAL SOFTWARE

ORDERING INFORMATION

3041A / 3010A

3010A	**3010A MULTI PRODUCT CALIBRATOR (8ppm) + UKAS Calibration Certificate**
3010A-SYS	**3010A MULTI PRODUCT CALIBRATOR (8ppm) + UKAS Calibration Certificate** WITH PWRSINE, PRT, EA001A(THERM) AND SIMULATED RESISTANCE/CAPACITANCE OPTIONS INC. UKAS
3041A	**3041A MULTI PRODUCT CALIBRATOR (25ppm) + UKAS Calibration Certificate**
3041A-SYS	**3041A MULTI PRODUCT CALIBRATOR (25ppm) + UKAS Calibration Certificate** WITH PWRSINE, PRT, EA001A(THERM) AND SIMULATED RESISTANCE/CAPACITANCE OPTIONS INC. UKAS

INTERNAL OPTIONS	OPTION PWRSINE	AC (SINE) / DC POWER CALIBRATION OPTION
	OPTION PWRDDS	AC/DC DDS SYNTHESISED POWER OPTION
	OPTION SCP350	350MHz OSCILLOSCOPE OPTION
	OPTION SCP600	600MHz OSCILLOSCOPE OPTION
	OPTION PRT	PRT/RTD SIMULATION OPTION
	OPTION IND	INDUCTANCE CALIBRATION OPTION
	OPTION FRQ	1ppm HIGH STABILITY CRYSTAL REFERENCE
	OPTION SIMRC	SIMULATED RESISTANCE & CAPACITANCE OPTION
EXTERNAL OPTIONS	OPTION EA001	THERMOCOUPLE SIMULATION ADAPTER
	OPTION EA002	2/10/50 TURN CLAMP COIL + ALIGNMENT PLATFORM + STD Cert
	OPTION EA003	OPTICAL TACHOMETER CALIBRATION ADAPTER
	OPTION EA008	HIGH RESISTANCE / pA MEASUREMENT ADAPTER*
	OPTION EA013	pA SOURCE CALIBRATION ADAPTER*
	OPTION EA014	TORQUE CALIBRATION ADAPTER* + STD Cert
	OPTION EA015	MULTI FUNCTION WORKSTATION
	OPTION EA016	HUMIDITY & TEMPERATURE SENSOR + STD Cert
	OPTION EA017	4 CHANNEL OSCILLOSCOPE TEST HEAD
	OPTION EA3012	AC/DC TRANSCONDUCTANCE AMPLIFIER)*
	OPTION EA3023	3A/63V POWER SUPPLY CALIBRATION ADAPTER*
	OPTION EA3024	AC/DC KILOVOLT AMPLIFIER*
	OPTION EA3025	60A/100V POWER SUPPLY CALIBRATION ADAPTER*
	OPTION TPA001 to TPA018	PRESSURE CALIBRATION MODULES - SEE WEB SITE FOR LIST
	OPTION PUMP	PRESSURE HAND PUMP

* Supplied complete with VFP software. All products supplied with UKAS certificate unless otherwise specified.

3050A

3050A	**3050 MULTI PRODUCT CALIBRATOR (50ppm)** **Complete with EA001A THERMOCOUPLE ADAPTER & UKAS Calibration Certificate**

INTERNAL OPTIONS	OPTION SCP250	250MHz OSCILLOSCOPE OPTION
	OPTION PWR50	AC/DC POWER CALIBRATION (SINE) OPTION
EXTERNAL OPTION	OPTION COIL	2/10/50 TURN CLAMP COIL WITH ALIGNMENT PLATFORM

OPTIONS

OPTION SOFTCASE	SOFT CARRY CASE
OPTION TRANCASE	HARD TRANSIT CASE
OPTION 3000LEAD	PRECISION LEAD SET
OPTION USB	RS232 TO USB CONNECTION LEAD
OPTION GPIB	GPIB INTERFACE OPTION
OPTION RACK	19inch RACK MOUNT KIT

SOFTWARE

AUTOMATE CALIBRATION WITH PROCAL SOFTWARE - SEE SOFTWARE BROCHURE FOR FULL DETAILS

PROGRAPH	**MEASUREMENT ANALYSIS SOFTWARE**
PC-SU	**PROCAL MULTI DISCIPLINE CALIBRATION SOFTWARE**
PROSITE	**ON-SITE DATABASE MANAGEMENT SOFTWARE FOR PROCAL**
PROWEB	**WEB SERVICE DATA EXPORTER FOR PROCAL**
PCT-SU	**PROCAL-TRACK LABORATORY MANAGEMENT SOFTWARE**

EVALUATION VERSIONS OF ALL SOFTWARE PACKAGES ARE AVAILABLE FROM www.transmille.com

TRANSMILLE
SOLUTIONS IN CALIBRATION

UNIT 4 SELECT BUSINESS CENTRE,
LODGE ROAD, STAPLEHURST, KENT.
TN12 0QW. UNITED KINGDOM.
TEL : +44 (0) 1580 890700
FAX : +44 (0) 1580 890711
EMAIL : sales@transmille.com
WWW.TRANSMILLE.COM

AGENT

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