# Multi-Product Calibrators

TRANSMILLE


## 2000 Series

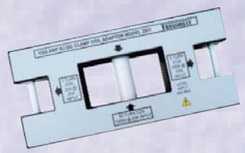
# Solutions in Calibration

# 2006A/2041A/2050 Multi-Product Calibrators

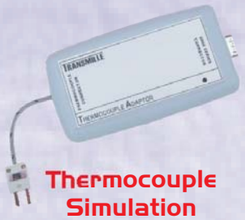
- **5** ppm Accuracy Model 2006A
- **25** ppm Accuracy Model 2041A
- **50** ppm Accuracy Model 2050
- **V** AC / DC Voltage to 1000V
- **I** AC / DC Current to 20A
- **Ω** 2 & 4 Wire Resistance to 1GΩ*
- **F** Capacitance to 100uF*
- **H** Inductance to 10H**
- **Hz** Frequency to 10MHz**
- **Pt** PT100 Simulation**
- **RS 232** Standard RS232 Interface
- **GPIB** GPIB Interface (Optional)
- **W** Power Calibration Option
- **O** Oscilloscope Calibration Option
- **A** Automated Calibration using ProCal Calibration Software


## Expanded workload coverage using external adapters...

**Power Supply Calibration Adaptor**

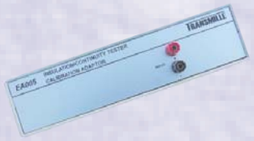


**1 / 5 / 50 Turn Clamp Coil Adaptor**



**Thermocouple Simulation Adaptor**

**Optical Tachometer Calibration Adaptor**



**Continuity & Insulation Adaptor**

**High Resistance & pA Measurement Adaptor**

**Pressure & Torque Calibration Kits**

## OSCILLOSCOPE & POWER CALIBRATION

To extend the functionality of the 2000 Series calibrators, two retro-fittable internal options are available. A full function oscilloscope calibration option provides time markers to 2ns, amplitude to 300V pk-pk, 50V/Div and a leveled sweep output to 600MHz. A power calibration option enables simultaneous output of voltage up to 1000V and current up to 1000A using the clamp coil adaptor with adjustable phase relationship.

## ADVANCED TECHNOLOGY

The 2000 Series Calibrators use the latest technology from the reference source to the front panel design to give outstanding accuracy and performance. The latest foil resistors and an ultra linear D/A design ensures stable, low noise outputs suitable for today's calibration requirements.

## Source & Measure Calibration

Plugging into the feature connector, calibration adaptors use the 2000 series high accuracy A/D convertor to measure as well as source which dramatically extends the range of instruments that can be calibrated, including...

Process Control Calibrators • Thermocouple Simulators • Power supplies • Continuity & Insulation Testers • Current Shunts • PicoAmp Meters • High Resistance Boxes • Electrometers

## INTERFACE RS232 • USB • GPIB

The standard Rs232 interface allows full control of the calibrator using a simple high level command language. RS232 ports are standard on all PCs allowing direct connection to your computer without the expense of buying an interface card. In addition, for field use the calibrator can be used directly using a Laptop PC.
USB or GPIB interface options are also available.

## Pressure & Torque Calibration

Using the feature connector, a wide range of transducers can be used by the 2000 series calibrator & PC software for the calibration of pressure, torque, temperature etc.

A range of pressure transducers and a manual handpump system are available to allow turn-key solutions for pressure calibration.

## PORTABLE

Developed for both laboratory and on site calibration, the 2000 series packs full calibration functionality into a briefcase size box. After a fast warm up time the 2000 series is ready to start work. The modern circuit design and use of low temperature coefficient components combined with the internal temperature monitoring and compensation allow the 2000 series calibrators to be used in uncontrolled environments.

## CALIBRATES . . .

- ANALOGUE & DIGITAL MULTIMETERS
- DIGITAL THERMOMETERS
- OPTICAL TACHOMETERS
- FREQUENCY COUNTERS
- CHART RECORDERS
- LOW OHM METERS
- POWER METERS
- CLAMP METERS
- OSCILLOSCOPES
- RLC METERS
- POWER SUPPLIES

*2050 Limited range **Not available for 2050

# 2006A/2041A/2050 Multi-Product Calibrators

## The World's First Truly Portable Calibration System

- Ideal for On-Site calibration
- Ultra portable (12.5kgs)
- Custom Carry Case with Front & Rear access
- Laptop extender case for a complete system solution

The world's only truly portable calibration system enables for the first time calibration work to be performed in-situ saving both time and inconvenience for military, marine, aerospace and industrial applications.

The small footprint of the calibrator makes it ideal for use in confined spaces. Operation from within the custom carry case, together with a laptop PC eliminates lengthy setup delays.

# Professional Calibration Software For Windows™

The calibration suite from Transmille provides solutions for automated calibration systems, from basic stand-alone systems up to fully integrated network systems incorporating calibration and job control.

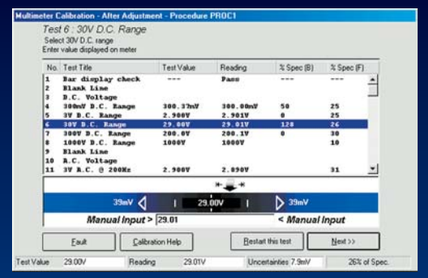
## ProCal

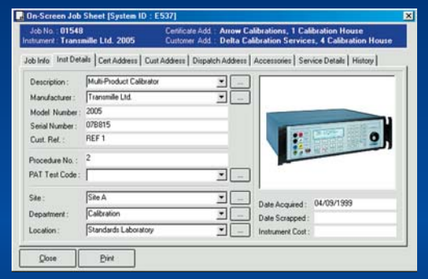
Produces certificates for Electrical, Mechanical, Dimensional and Pressure Instrumentation.

Supports instrumentation from a wide range of manufacturers

Fast generation of procedures using Procedure Builder Wizard.

Expanding procedure library accessible via the Internet




## ProCal - Track

Comprehensive job handling and control package.

Network ready with full integration with ProCal.

'Virtual' On-Screen job sheet.

Paperwork including job sheets, service logs and dispatch notes

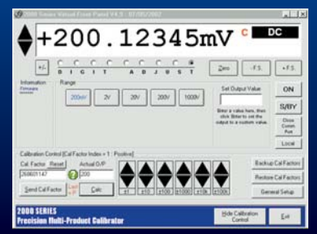
Produces reports and stores instrument history as required by ISO 9000.

## 2000 Series Virtual Front Panel

The Virtual Front Panel allows full control of all calibrator functions from a P.C.

Expands the functionality of the 2000 Series calibrators (with optional adaptors)

Incorporates a calibration control panel to simplify the task of recalibration.




Windows is a trademark of Microsoft corporation

# 2000 SERIES OPTIONS GUIDE

VISIT OUR WEB SITE FOR FULL DETAILS

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## OSCILLOSCOPE CALIBRATION up to 600MHz

A retro-fittable option which installs internally to extend the capabilities of the 2000 series calibrators for calibration of analogue, digital and storage oscilloscopes and scopemeters. Features include time markers to 2ns and amplitude to 400 Volts pk-pk allowing calibration of oscilloscopes up to 50V/Div. A leveled sweep sine wave output allows bandwidth calibration to 600MHz (2006A / 2041A) or 250MHz (2050).
Specifications: Time Markers 2ns to 5s/Div @ 5ppm : Amplitude 2mV to 50V/Div @ 0.01%

## POWER CALIBRATION

A retro-fittable option which extends the capabilities of the 2000 series calibrators to enable simultaneous output of AC Voltage up to 1000V and AC Current up to 1000A using the clamp coil adaptor with adjustable phase relationship.
Best power accuracy 0.14% : Phase angle 0 to 359.9°, resolution 0.1°

## 1/5/50 TURN CLAMP COIL ADAPTOR

A uniquely designed high accuracy clamp coil adaptor (shown right) for use with the 2000 Series calibrators. Three separate coils are built into a custom designed enclosure enabling the testing of a wide range of clamp meters including meters with a narrow jaw opening.

## POWER SUPPLY CALIBRATION ADAPTOR

An external option for 2006 / 2041 providing calibration for bench power supplies. Provides current load to 4A and voltage measurement to 33V. Must be used in conjunction with the 2000 Series Virtual Front Panel or ProCal software.

## TEMPERATURE ADAPTOR

A high accuracy thermocouple simulator for thermocouples types K, J, T, R, S, E,N and B which connects to the calibrator via the 'feature connector'. Incorporated is an industry standard thermocouple plug for direct connection to thermocouple input sockets with integral temperature sensor for accurate cold junction compensation.

## PRESSURE/TORQUE CALIBRATION KITS

Options for 2006A / 2041A providing calibration for either pressure or torque using the appropriate transducer. Pressure kit comprises of a pressure transducer, handpump & a selection of BSP connectors. Must be used in conjunction with the 2000 Series Virtual Front Panel or ProCal software.

## ADDITIONAL OPTIONS see options specifications booklet for further details

- **GPIB (IEEE488) Interface**
- **Inductance Calibration Module :** 8 Precision Values from 1mH to 10H, 0.5% Accuracy
- **PRT Resistance Thermometer Calibration Module :** 8 Precision Values from -100°C to +800°C
- **Optical Tachometer Calibration Adaptor :** 240 RPM to 60,000 RPM, 0.02% Accuracy
- **Insulation / Continuity Calibration Adaptor :** Continuity 1 & 10 : Insulation 100k to 100M 0.1% acc.
- **Programmable Switch /Scanner Unit :** 2x High Current, 2x High voltage & 4x Signal Channels
- **High Resistance / pA Measurement Adaptor :** Measure high resistance to 10T and low currents to 0.1pA
- **Combined mV/mA/Ohms Measurement Adaptor :** Measure mV, V, mA & Thermocouple O/Ps, 0.01% Accuracy
- **High Voltage 10kVDC / 7.5kVAC Amplifier :** 1 to 10kV DC, 0.05% Accuracy : 1 to 7.5kV AC, 0.1% Accuracy
- **Capacitance and Inductance Measurement Bridge Adaptor :** Calibrate capacitance & inductance boxes
- **SOA Stackable Transconductance Amplifier :** Calibrate high clamp meters & shunts, 0.08% Accuracy
- **pA Source Adaptor :** Calibrate electrometers, 4 ranges from 10nA to 10uA, 0.01pA resolution.

**For full options specifications please see the additional 2000 Series Specifications booklet or contact our sales office.**

# 2006A SPECIFICATIONS GUIDE

VISIT OUR WEB SITE FOR FULL DETAILS

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| D.C. Voltage Range | Resolution | Accuracy 1 Year (Set+Rng) ppm | Output Load Current |
|---|---|---|---|
| 0 - 202.0000mV | 1nV | 8 + 2 | 1mA* |
| 0.2 - 2.020000V | 100nV | 7 + 2 | 50mA |
| 2 - 20.20000V | 1uV | 5 + 2 | 50mA |
| 20 - 202.0000V | 10uV | 6 + 2 | 10mA |
| 200 - 1020.000V | 100uV | 8 + 4 | 10mA |

All specifications allow 2uV for lead and thermal emf effects.

* Limited by 50 ohm output resistance on this range.

| A.C. Voltage Range | Resolution | Frequency (2Hz Resolution) | Accuracy 1 Year (Set+Rng)ppm |
|---|---|---|---|
| 0 - 202.000mV | 100nV | 10Hz to 30Hz | 800 + 100 |
| | | 30Hz to 1kHz | 120 + 80 |
| | | 1kHz to 10kHz | 200 + 80 |
| | | 10kHz to 60kHz | 350 + 100 |
| 0.2 - 2.02000V | 1uV | 10Hz to 30Hz | 650 + 80 |
| | | 30Hz to 1kHz | 100 + 50 |
| | | 1kHz to 20kHz | 210 + 80 |
| | | 20kHz to100kHz | 600 + 190 |
| 2.0 - 20.2000V | 10uV | 10Hz to 30Hz | 500 + 80 |
| | | 30Hz to 1kHz | 100 + 50 |
| | | 1kHz to 20kHz | 210 + 80 |
| | | 20kHz to100kHz | 600 + 190 |
| 20 - 202.000V | 100uV | 30Hz to 1kHz | 100 + 60 |
| | | 1kHz to 10kHz | 200 + 80 |
| | | 10kHz to 40kHz | 300 + 150 |
| 200 - 1020.00V | 1mV | 30Hz to 1kHz | 100 + 100 |
| | | 1kHz to 10kHz | 200 + 120 |
| | | 1kHz to 40kHz | 350 + 250 |

All specifications +/- 20uV. All AC spec apply from 10% of F.S.

| Resistance Range | Accuracy 1 year ppm | Current Maximum | Voltage Maximum |
|---|---|---|---|
| 0 | - | 0.5A | |
| 0.1 | 45 | 0.5A | 0.05Volts |
| 1 | 35 | 0.3A | 0.3Volts |
| 10 | 25 | 200mA | 2Volts |
| 100 | 15 | 50mA | 5Volts |
| 1k | 8 | 10mA | 10Volts |
| 10k | 8 | 3mA | 30Volts |
| 100k | 10 | 1mA | 100Volts |
| 1M | 25 | 0.1mA | 100Volts |
| 10M | 95 | 10uA | 100Volts |
| 100M | 390 | 1uA | 100Volts |
| 1G | 9500 | 100nA | 100Volts |

4 wire connection. Allow 1mOhm on all resistance specs.

| x3 Resistance (optional) Range | Accuracy 1 year % | Current Maximum | Voltage Maximum |
|---|---|---|---|
| 30 300 3k | | | |
| 30k 300k | 0.02 | 10mA | 10Volts |

| Frequency - TTL | Standard Spec. | Optional Spec. |
|---|---|---|
| 10Hz - 10MHz | 12ppm | 1ppm |

| PWM (%) | |
|---|---|
| 5% to 95% | Better than 0.001% |

| D.C. Current Range | Resolution | Accuracy 1 Year (Set + Rng) ppm | Burden Voltage |
|---|---|---|---|
| 0-202.0000uA | 10pA | 45 + 10 | 4.2 Volts |
| 0.2 - 2.020000mA | 100pA | 35 + 5 | 4.2 Volts |
| 2 - 20.20000mA | 1nA | 20 + 3 | 4.2 Volts |
| 20 - 202.0000mA | 10nA | 25 + 4 | 4.2 Volts |
| 0.2 - 2.020000 A | 100nA | 85 + 12 | 4.2 Volts |
| 2 - 20.20000A | 1uA | 170 + 20 | 3.9 Volts |

All specifications +/- 4nA.

| A.C. Current Range | Resolution | Frequency (2Hz Resolution) | Accuracy 1 year (Set+Rng)% |
|---|---|---|---|
| 10 - 202.000uA | 1nA | 10Hz to 30Hz | 0.18 + 0.08 |
| | | 30Hz to 1kHz | 0.07 + 0.05 |
| | | 1kHz to 10kHz | 0.7 + 0.08 |
| 0.2 - 2.02000mA | 10nA | 10Hz to 30Hz | 0.18 + 0.08 |
| | | 30Hz to 1kHz | 0.07 + 0.02 |
| | | 1kHz to 10kHz | 0.5 + 0.05 |
| 2 - 20.2000mA | 100nA | 10Hz to 30Hz | 0.18 + 0.08 |
| | | 30Hz to 1kHz | 0.03 + 0.01 |
| | | 1kHz to 10kHz | 0.3 + 0.05 |
| 20 - 202.000mA | 1uA | 10Hz to 30Hz | 0.18 + 0.08 |
| | | 30Hz to 1kHz | 0.03 + 0.01 |
| | | 1kHz to 5kHz | 0.3 + 0.05 |
| 0.2 - 2.02000A | 10uA | 10Hz to 30Hz | 0.18 + 0.08 |
| | | 30Hz to 1kHz | 0.03 + 0.01 |
| | | 1kHz to 2kHz | 0.5 + 0.1 |
| 2 - 20.2000A | 100uA | 30Hz to 500Hz | 0.08 + 0.01 |
| | | 500Hz to 1kHz | 0.2 + 0.05 |

All specifications +/- 650nA. Loads must be Non Inductive.
High current output is limited to maximum of 2 mins.
All AC spec apply from 10% of F.S.

| Maximum Burden Voltage Range | DCI | ACI (RMS) |
|---|---|---|
| 0 - 0.2Amps | 4.2 Volts | 3 Volts |
| 0.2 - 2Amps | 4.2 Volts | 3 Volts |
| 2 - 20Amps | 3.9 Volts | 2.8 Volts |

| Typical Output Resistance Range | Resistance |
|---|---|
| 200mV | 50 ohms |
| 0.2 - 20V | 0.2 ohms |
| 20V - 1000V | 0.5 ohms |

| Capacitance Range | Accuracy 1 year % | Volts. Maximum |
|---|---|---|
| 1nF | 0.2 | 50V |
| 10nF | 0.2 | 50V |
| 20nF | 0.2 | 50V |
| 50nF | 0.2 | 50V |
| 100nF | 0.25 | 50V |
| 1uF | 0.4 | 30V |
| 10uF | 0.6 | 20V |
| 100uF | 0.8 | 10V |

All specifications allow 20pF for lead effects

Specifications apply at 1kHz.

All specifications relative to calibration standards
Warm up Time: 20 Minutes to full specifications

Temperature Coefficient Outside Tcal: 0.18 x 1 year spec : Tcal 18°C to 25°C
Due to continuous development specifications may be subject to change.
Accuracy specifications apply under typical dmm loading conditions

# 2041A SPECIFICATIONS GUIDE

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| D.C. Voltage Range | Resolution | Accuracy 1 Year (Set+Rng) ppm | Output Load Current |
|---|---|---|---|
| 0 - 202.0000mV | 0.1uV | 30 + 3 | 1mA* |
| 0.2 - 2.020000V | 1uV | 30 + 3 | 50mA |
| 2 - 20.20000V | 10uV | 25 + 3 | 50mA |
| 20 - 202.0000V | 100uV | 30 + 3 | 10mA |
| 200 - 1020.000V | 1mV | 30 + 6 | 10mA |

All specifications allow 3uV for lead and thermal emf effects.

* Limited by 50 ohm output resistance on this range.

| A.C. Voltage Range | Resolution | Frequency (2Hz Resolution) | Accuracy 1 Year (Set+Rng)% |
|---|---|---|---|
| 0 - 202.000mV | 1uV | 10Hz to 30Hz | 0.2 + 0.08 |
| | | 30Hz to 1kHz | 0.04 + 0.01 |
| | | 1kHz to 10kHz | 0.06 + 0.04 |
| | | 10kHz to 40kHz | 0.1 + 0.07 |
| 0.2 - 2.02000V | 10uV | 10Hz to 30Hz | 0.14 + 0.09 |
| | | 30Hz to 1kHz | 0.04 + 0.008 |
| | | 1kHz to 20kHz | 0.09 + 0.04 |
| | | 20kHz to 100kHz | 0.23 + 0.18 |
| 2.0 - 20.2000V | 100uV | 10Hz to 30Hz | 0.14 + 0.09 |
| | | 30Hz to 1kHz | 0.03 + 0.008 |
| | | 1kHz to 20kHz | 0.09 + 0.04 |
| | | 20kHz to 100kHz | 0.23 + 0.18 |
| 20 - 202.000V | 1mV | 30Hz to 1kHz | 0.04 + 0.01 |
| | | 1kHz to 10kHz | 0.06 + 0.04 |
| | | 10kHz to 20kHz | 0.1 + 0.05 |
| 200 - 1020.00V | 10mV | 30Hz to 1kHz | 0.04 + 0.02 |
| | | 1kHz to 10kHz | 0.15 + 0.1 |

All specifications +/- 20uV. All AC spec apply from 10% of F.S.

| Resistance Range | Accuracy 1 year % | Current Maximum | Voltage Maximum |
|---|---|---|---|
| 0 | - | 0.5A | |
| 0.1 | 0.015 | 200mA | 2Volts |
| 1 | 0.01 | 200mA | 2Volts |
| 100 | 0.005 | 50mA | 5Volts |
| 1k | 0.004 | 10mA | 10Volts |
| 10k | 0.004 | 3mA | 30Volts |
| 100k | 0.004 | 1mA | 100Volts |
| 1M | 0.01 | 0.1mA | 100Volts |
| 10M | 0.035 | 10uA | 100Volts |
| 100M | 0.3 | 1uA | 100Volts |
| 1G | 1 | 100nA | 100Volts |

4 wire connection. Allow 1mOhm on all resistance specs.

| x3 Resistance (optional) Range | Accuracy 1 year % | Current Maximum | Voltage Maximum |
|---|---|---|---|
| 30 300 3k | | | |
| 30k 300k | 0.02 | 10mA | 10Volts |

| Frequency - TTL | Standard Spec. | Optional Spec. |
|---|---|---|
| 10Hz - 10MHz | 12ppm | 1ppm |

| PWM (%) | |
|---|---|
| 5% to 95% | Better than 0.001% |

| D.C. Current Range | Resolution | Accuracy 1 Year (Set + Rng) % | Burden Voltage |
|---|---|---|---|
| 0-202.0000uA | 100pA | 0.01 + 0.008 | 4.2 Volts |
| 0.2 - 2.020000mA | 1nA | 0.008 + 0.002 | 4.2 Volts |
| 2 - 20.20000mA | 10nA | 0.005 + 0.002 | 4.2 Volts |
| 20 - 202.0000mA | 100nA | 0.008 + 0.002 | 4.2 Volts |
| 0.2 - 2.020000 A | 1uA | 0.015 + 0.002 | 4.2 Volts |
| 2 - 20.20000A | 10uA | 0.04 + 0.002 | 3.9 Volts |

All specifications +/- 4nA.

| A.C. Current Range | Resolution | Frequency (2Hz Resolution) | Accuracy 1 year (Set+Rng) % |
|---|---|---|---|
| 10 - 202.000uA | 1nA | 10Hz to 30Hz | 0.2 + 0.08 |
| | | 30Hz to 1kHz | 0.09 + 0.02 |
| | | 1kHz to 2kHz | 1.0 + 0.2 |
| 0.2 - 2.02000mA | 10nA | 10Hz to 30Hz | 0.2 + 0.08 |
| | | 30Hz to 1kHz | 0.09 + 0.01 |
| | | 1kHz to 10kHz | 0.4 + 0.1 |
| 2 - 20.2000mA | 100nA | 10Hz to 30Hz | 0.2 + 0.08 |
| | | 30Hz to 1kHz | 0.09 + 0.01 |
| | | 1kHz to 10kHz | 0.4 + 0.1 |
| 20 - 202.000mA | 1uA | 10Hz to 30Hz | 0.2 + 0.08 |
| | | 30Hz to 1kHz | 0.09 + 0.01 |
| | | 1kHz to 2kHz | 0.4 + 0.1 |
| 0.2 - 2.02000A | 10uA | 30Hz to 1kHz | 0.09 + 0.01 |
| | | 1kHz to 1kHz | 0.7 + 0.2 |
| 2 - 20.2000A | 100uA | 30Hz to 500Hz | 0.1 + 0.01 |

All specifications +/- 650nA. Loads must be Non Inductive.
High current output is limited to maximum of 2 mins.
All AC spec apply from 10% of F.S.

| Maximum Burden Voltage Range | DCI | ACI (RMS) |
|---|---|---|
| 0 - 0.2Amps | 4.2 Volts | 3 Volts |
| 0.2 - 2Amps | 4.2 Volts | 3 Volts |
| 2 - 20Amps | 3.9 Volts | 2.8 Volts |

| Typical Output Resistance Range | Resistance |
|---|---|
| 200mV | 50 ohms |
| 0.2 - 20V | 0.2 ohms |
| 20V - 1000V | 0.5 ohms |

| Capacitance Range | Accuracy 1 year % | Volts. Maximum |
|---|---|---|
| 1nF | 0.25 | 50V |
| 10nF | 0.25 | 50V |
| 20nF | 0.25 | 50V |
| 50nF | 0.25 | 50V |
| 100nF | 0.25 | 50V |
| 1uF | 0.4 | 30V |
| 10uF | 0.6 | 20V |
| 100uF | 0.8 | 10V |

All specifications allow 20pF for lead effects : Specifications apply at 1kHz.

All specifications relative to calibration standards
Warm up Time: 20 Minutes to full specifications
Temperature Coefficient Outside Tcal: 0.1 8 x 1 year spec : Tcal 17°C to 27°C

Due to continuous development specifications may be subject to change.
Accuracy specifications apply under typical dmm loading conditions

# 2050 SPECIFICATIONS GUIDE

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| D.C. Voltage Range | Resolution | Accuracy 1 Year (Set+Rng) ppm | Output Load Current |
|---|---|---|---|
| 0 - 202.0000mV | 0.1uV | 60 + 5 | 1mA* |
| 0.2 - 2.020000V | 1uV | 60 + 5 | 50mA |
| 2 - 20.20000V | 10uV | 50 + 4 | 50mA |
| 20 - 202.0000V | 100uV | 70 + 5 | 10mA |
| 200 - 1020.000V | 1mV | 70 + 10 | 10mA |

All specifications allow 5uV for lead and thermal emf effects.

* Limited by 50 ohm output resistance on this range.

| A.C. Voltage Range | Resolution | Frequency | Accuracy 1 Year. (Set+Rng)% |
|---|---|---|---|
| 0 - 202.000mV | 1uV | 40Hz to 1kHz | 0.08 + 0.015 |
| | | 1kHz to 10kHz | 0.1 + 0.06 |
| 0.2 - 2.02000V | 10uV | 40Hz to 1kHz | 0.08 + 0.012 |
| | | 1kHz to 10kHz | 0.1 + 0.06 |
| 2.0 - 20.2000V | 100uV | 40Hz to 1kHz | 0.07 + 0.012 |
| | | 1kHz to 10kHz | 0.1 + 0.05 |
| 20 - 202.000V | 1mV | 40Hz to 1kHz | 0.08 + 0.015 |
| | | 1kHz to 10kHz | 0.1 + 0.06 |
| 200 - 1020.00V | 10mV | 40Hz to 1kHz | 0.08 + 0.03 |

All specifications +/- 20uV. All AC spec apply from 10% of F.S.

| Capacitance Range | Accuracy 1 year % | Volts. Maximum |
|---|---|---|
| 10nF | 0.4 | 50V |
| 1uF | 0.6 | 30V |

All specifications allow 20pF for lead effects
Specifications apply at 1kHz.

Due to continuous development specifications may be subject to change.
Accuracy specifications apply under typical dmm loading conditions

All specifications relative to calibration standards
Warm up Time: 20 Minutes to full specifications
Temperature Coefficient Outside Tcal: 0.1 8 x 1 year spec : Tcal 17°C to 30°C

| D.C. Current Range | Resolution | Accuracy 1 Year (Set + Rng) % | Burden Voltage |
|---|---|---|---|
| 0-202.0000uA | 100pA | 0.015 + 0.01 | 4 Volts |
| 0.2 - 2.020000mA | 1nA | 0.012 + 0.005 | 4 Volts |
| 2 - 20.20000mA | 10nA | 0.012 + 0.005 | 4 Volts |
| 20 - 202.0000mA | 100nA | 0.15 + 0.005 | 4 Volts |
| 0.2 - 2.020000 A | 1uA | 0.05 + 0.005 | 2 Volts |
| 0 - 20.20000A | 10uA | 0.08 + 0.008 | 1 Volt |

All specifications +/- 4nA.

| A.C. Current Range | Resolution | Frequency | Accuracy 1 year (Set+Rng) % |
|---|---|---|---|
| 10 - 202.000uA | 1nA | 40Hz to 500Hz | 0.1 + 0.06 |
| 0.2 - 2.02000mA | 10nA | 40Hz to 500Hz | 0.1 + 0.05 |
| 2 - 20.2000mA | 100nA | 40Hz to 500Hz | 0.1 + 0.03 |
| 20 - 202.000mA | 1uA | 40Hz to 500Hz | 0.1 + 0.03 |
| 0.2 - 2.02000A | 10uA | 40Hz to 500Hz | 0.15 + 0.05 |
| 2 - 20.2000A | 100uA | 40Hz to 500Hz | 0.2 + 0.1 |

All specifications +/- 650nA. Loads must be Non Inductive.
High current output is limited to maximum of 2 mins.
All AC spec apply from 10% of F.S.

| 2 Wire Resistance Range | Accuracy 1 year % | Current Maximum | Voltage Maximum |
|---|---|---|---|
| 10 | 0.05 | 200mA | 2Volts |
| 100 | 0.008 | 50mA | 5Volts |
| 1k | 0.005 | 10mA | 10Volts |
| 10k | 0.005 | 3mA | 30Volts |
| 100k | 0.005 | 1mA | 100Volts |
| 1M | 0.01 | 0.1mA | 100Volts |
| 10M | 0.05 | 10uA | 100Volts |

Allow 35mOhm on all resistance specs.

## General Specifications 2006A / 2041A / 2050

| | | | |
|---|---|---|---|
| Line Power | 230V / 110V 50Hz / 60Hz | Marking | CE Marked |
| Dimensions | 14cm x 43cm x 46cm<br>3U rack mount kit option | Warranty | 3 Years |
| | | Warm up Time | Double the time since last used (20 min max.) |
| Weight | 12.5kgs | Interface | RS-232 (standard) • GPIB/USB (optional) |

## ORDERING INFORMATION

| | |
|---|---|
| 2006A | AC/DC Multiproduct Calibrator (5ppm) |
| 2041A | AC/DC Multiproduct Calibrator (25ppm) |
| 2050 | AC/DC Multiproduct Calibrator (50ppm) |
| Option SCP | 600MHz Oscilloscope Calibration Module (internally installed) |
| Option PWR6 | Power Calibration Module for 2006A (internally installed) |
| Option PWR41 | Power Calibration Module for 2041A (internally installed) |
| Option SCP-PWR | Combined Scope & Power Calibration Module for 2050 |
| Option PSU | Power Supply Calibration Adaptor |
| Option THER | Thermocouple Simulation Adaptor with internal CJC Readback |
| Option TACH | External Optical Tachometer Adaptor |
| Option IND | Inductance Calibration Module (internally installed) |
| Option PRT | PRT Module (internally installed) |
| Option FRQ | High Stability Crystal Reference (internally installed) |
| Option COIL | 1 / 5 / 50 Turn Coil for Power / Clamp meters |
| Option CASE | Carry Case (soft) |
| UKAS2006 | 2006A AC/DC Multiproduct Calibrator UKAS Certification |
| UKAS2041 | 2041A AC/DC Multiproduct Calibrator UKAS Certification |
| UKAS2050 | 2050 AC/DC Multiproduct Calibrator UKAS Certification |

## SOFTWARE for Windows™95 or Higher

| | |
|---|---|
| ProCal Lite | Calibration Software for use ONLY with Transmille calibrators |
| ProCal | Calibration Software |
| ProCal-Track | Laboratory Management Software |
| Virtual Front Panel | Remote & Extended operation and calibration software for 2000 Series |

UKAS CALIBRATION 0324

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