

## Altek mA Calibrator

*The worlds best selling milliamp calibrator!*

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- Adjust the Output From Any Quik-Chek® Output
- Digipot Simplifies Output Adjustments
- Calibrates All 4 to 20 Milliamp Loop Functions
- Source From 0.00 to 24.00 mA or From -25.0 to +125.0% of 4 to 20 mA Span
- Read Up to 52.00 mA
- Simulate Two-Wire Transmitters
- Power and Measure Two-Wire Transmitters (Up to 27V)
- Uses Any Loop Power From 3 To 45 VDC
- Read DC Volts to Check Loop Power Supplies
- Accuracy to ±0.03%
- Quik-Chek® Switch Instantly Outputs 4.00 and 20.00 mA and a Third From 0–24 mA

Altek Model 334A Loop Calibrator has been designed to check, calibrate, and troubleshoot all the signals present within a standard 4 to 20 milliamp process control loop. A 24 mA Source, mA meter, 2-Wire Transmitter Simulator, and a DC Volt meter are combined into one easy-to-operate instrument. Dual current ranges allow display of each current function in percent of 4 to 20 mA signal, as well as directly in milliamps.

Power and Measure 2-wire transmitters simultaneously in Source Mode. The Altek Model 334A supplies the required voltage and displays the current as regulated by the 2-Wire Transmitter.

The Model 334A may also be used when a controller is temporarily removed for repair or replacement. Simply substitute the model 334A for the controller and use it as a manual loading station.

Benchtop accuracy in a toolbox calibrator assures fast, precise setting of current trips, recorders, controllers, loggers, computers, and final control elements.

**Each Unit Includes:** Padded nylon carrying case with shoulder strap and belt loop, three 9V alkaline batteries, and instruction manual, three-year warranty and manufacturer's statement of calibration practices.

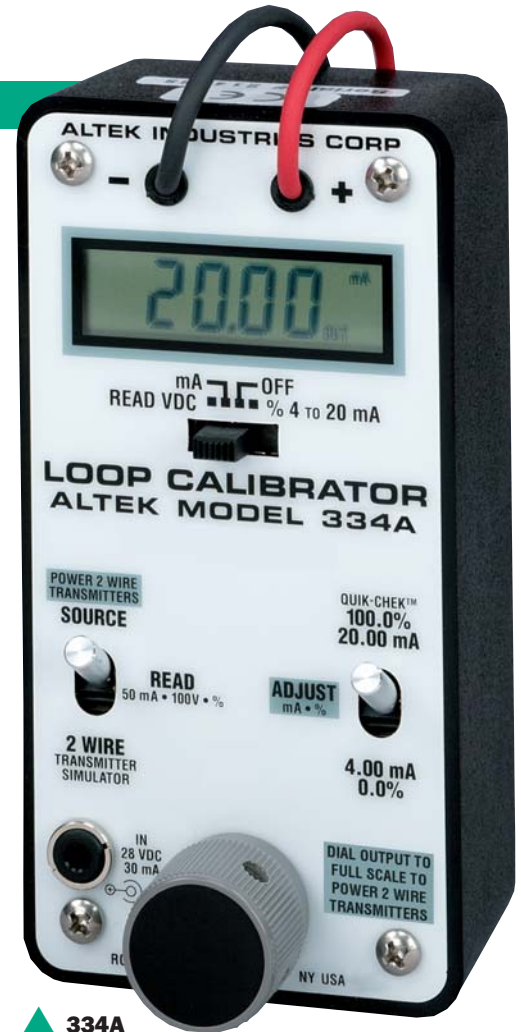
### Specifications

<b>Milliamp</b>	
Source/2-Wire Simulator:	0.00 to 24.00 mA; -25.0 to 125.0% of 4 to 20 mA
Read:	0.00 to 52.00 mA; -25.0 to 300.0% of 4 to 20 mA
Accuracy:	Quik-Chek®: ±(0.03% of Rdg + 0.01 mA) 0 to 24 mA: ±(0.05% of Rdg + 1 LSD)
Typical Drive Capability:	1200 ohms @ 20.00 mA
Read DC Volts:	-99.99 to +99.99 VDC
<b>General</b>	
Batteries:	Three 9V batteries
Operating Temp. Range:	-5 to +140°F (-20 to +60°C)
Overall Size:	121.9 x 66.0 x 35.8 mm (4.8 x 2.6 x 1.41")
Weight:	0.22 kg (7.8 oz)

### Ordering Information

Order #	Mfg #	Description	Price
MP4353E	334A	Calibrator, 4 to 20 mA	
MP3334E	28-0120	Optional AC Adapter, 120V	
MP3335E	28-0240	Optional AC Adapter, 240V	
MP3330T	09-3781	Dual Soft Carrying Case	
MPU9VL-J-PC	U9VL-J-PC-180	9V Lithium Battery (3 required for 334A)	

Transcat Accredited Calibration with Data	CALL
Transcat Accredited Calibration without Data	CALL



▲ 334A

CE REGISTERED ISO 9000 MANUFACTURER

Calibration Instruments



The 334A is a true handheld that performs all loop test functions. ▲

## **NEW** Fluke Model 789 ProcessMeter

**INTRODUCING**  
**The New Fluke 789**  
**Now With ...**

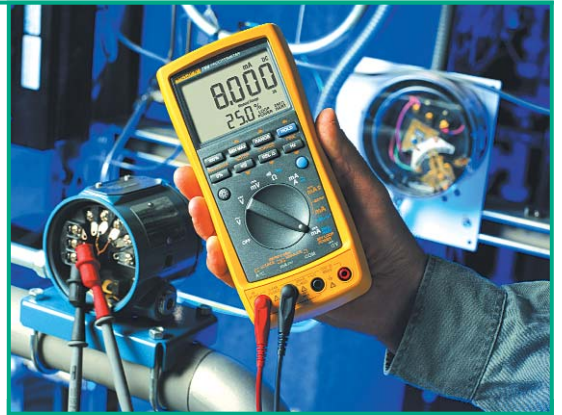
**100% Larger Display**

**0 to 100% mA Span Check**

**250Ω HART® Resistor**

**24V Loop Power**

**Infrared Serial Port**



**A**

### **NEW Key features of the Fluke 789**

- 24V Loop Power Supply
- HART Mode Setting with Loop Power (adds 250 ohm resistor)
- 100% Larger Dual Display
- 1,200 Ohm Drive Capability on mA Source
- Enhanced Backlight w/ Two Brightness Settings
- 0-100% mA Span Check Buttons to Toggle between 4 and 20 mA
- Infrared I/O Serial Port Compatible with FlukeView® Forms Software Version 2.1
- Externally Accessible Fuses for Easy Replacement

### **These 787 features are also included in the 789**

- DMM Designed to Meet 1000 Volt IEC 1010 CAT III Standards
- Precision 1000V, 440 mA True-RMS Digital Multimeter
- Frequency Measurement to 20 kHz
- Min/Max/Average/Hold/Relative Modes
- Diode Test and Continuity Beeper
- Simultaneous mA and % of Scale Readout
- 20 mA DC Current Source / Loop Calibrator / Simulator
- Manual Step (100%, 25%, Coarse, Fine) plus Auto Step and Auto Ramp
- Externally Accessible Battery for Easy Battery Changes

**Each Unit Includes:** TL75 Test Leads, AC72 Alligator Clips, Four Alkaline AA batteries (Installed), Users Manual and Quick Reference Guide

**The Original Model 787 is located on page B6**

### Specifications

Measurement	Range/Resolution	Best Accuracy (% Rdg + digit)
VDC	400.0 mV, 4.000 V, 40.00 V, 400.0 V, 1000 V	±0.1% + 1
VAC-RMS	400.0 mV, 4.000 V, 40.00 V, 400.0 V, 1000 V	±0.7% + 2
mADC	30.000 mA	±0.05% + 2
ADC	1.000A (0.440A continuous)	±0.2% + 2
AAC	1.000A (0.440A continuous)	±1% + 2
Resistance (ohms)	400.0 Ohms, 4.000 k, 40.00 k, 400.0 k, 4.0 M, 40 M	±0.2% + 1
Frequency (0.5 Hz to 20 kHz)	199.99 Hz, 1999.9 Hz, 19.999 kHz	±0.005% + 1
Diode Test	2.000V (shows diode voltage drop)	±2% + 1
Continuity	Beeps for resistance < approx. 100 ohms	
<b>Output</b>	<b>Range/Resolution</b>	<b>Drive Capability</b>
DC Current Output	0.000 to 20.000 or 4.000 to 20.000 mA (selectable at power-up)	24V Compliance or 1,200Ω @ 20 mA
Internal battery (operation)	Over-range to 24.000 mA	
DC Current Simulate (Ext. 24 Volt loop supply)	0.000 to 20.000 or 4.000 to 20.000 mA (selectable at power-up)	1,000Ω @ 20 mA
	Over-range to 24.000 mA	
24V Loop Supply	Minimum 24V	250Ω @ 20 mA
Current Adjustment Modes	Manual: Coarse, Fine, 25% and 100% step	
Automatic:	Slow Ramp, Fast Ramp, 25% step	
Temperature range of 18 °C to 28 °C, for one year after calibration		

### Ordering Information

Order #	Mfg #	Description	Price
MP789E	789	ProcessMeter 789	
MP787E	787	ProcessMeter 787	

Transcat Accredited Calibration with Data	CALL
Transcat Accredited Calibration without Data	CALL

## Altek High Accuracy mA Calibrator

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- $\pm 0.015\%$  Accuracy, 0.001 mA Resolution
- Sources, Simulates, and Reads mA
- Built-In 24V Loop Supply
- Built-In 250 $\Omega$  Resistor for HART Compatibility
- Reads DCV
- Keypad Version Available

### Classic Altek Design

The model 434 is a milliamp source, milliamp meter, 2-wire transmitter, and will supply the power to a 2-wire transmitter while displaying the transmitter's output. Read or source to 0.001 mA or 0.01% of 4 to 20 mA span. Check loop power supplies with its built-in DC Voltmeter.

### Make Output Settings with the Speed Sensitive Rotary Knob

The 434 lets you store and recall three outputs with the Quik-Chek<sup>®</sup> switch for fast checkout of span, zero, and set points. Read loop current with accuracy exceeding that of handheld DVMs. Monitor signal drift with automatic Min/Max tracking.

### Keypad Version

If you prefer a keypad over switches and knobs, the Model 434-KP is for you. The Model 434-KP allows you to set output values with individual up/down push-buttons for each digit. The performance and specifications of the 434-KP are the same as that of the Model 434.

### Automatic Features

Select Auto-Chek and program two, three, five, or ten steps, spaced from five to 900 seconds apart. Or choose Ramp and Soak settings to simulate a process or stroke a valve to check for smooth operation. Connect the calibrator anywhere in the loop and check instruments on the panel front or at another remote location. Use Valve-Chek<sup>®</sup> to automatically step up and down to check valves and actuators at, and around, fully open and fully closed positions.

### Extra Long Battery Life

Six easily replaceable AA alkaline batteries drive 20 mA continuously for over 30 hours and other functions for over 75 hours. That's over 50% longer than other handheld calibrators.

### Calibrate State-of-the-Art Instruments

Modern instruments require high accuracy and 1 microamp resolution for calibration confidence. Calibrate any 4 to 20 mA instrument with accuracy of 0.005 mA!

### Optional Rubber Boot

Protect your calibrator with a protective rubber boot. The protective holster comes with a strap so you can hang your 434 or 434-KP.

**Each Unit Includes:** Six alkaline AA batteries, test leads with alligator clips, carrying case, instruction manual, three-year warranty and manufacturer's statement of calibration practice.

### Specifications

<b>Milliamp Source Mode</b>	
Ranges:	0.000 to 24.000 mA, -25.00 to +125.00% of 4 to 20 mA
Accuracy:	$\pm(0.015\%$ of rdg + 0.002 mA)
Drive Capability:	1200 $\Omega$
<b>Milliamp Read Mode</b>	
Ranges and Accuracy:	Same as source mode
Voltage Burden:	0.9V at 4 mA, 1.2V at 20 mA, 1.4V at 24 mA
<b>Transmitter Power Supply:</b>	Nominal 24 VDC loop power
<b>Transmitter Simulation</b>	
Ranges and Accuracy:	Same as mA source mode
Loop Voltage Limits:	2 VDC, min.; 50 VDC, max.
<b>DC Volts Read Mode</b>	
Range:	-99.99 to +99.99V
Input Resistance:	>1 M $\Omega$
Source Resistance Effect:	0.01% per 100 $\Omega$
<b>Overvoltage Protection:</b>	To 120V AC or DC without fuses for 30 seconds
<b>Operating Environment:</b>	-5 to +130 $^{\circ}$ F (-20 to +55 $^{\circ}$ C), 10 to 90% RH, non-condensing
<b>Power Supply:</b>	Six AA alkaline batteries
<b>Size:</b>	6.23 x 3.27 x 1.94" HWD (158.1 x 83.1 x 49.3 mm)
<b>Weight:</b>	1.125 lb. (0.5 kg)



434

CE REGISTERED ISO 9000 MANUFACTURER



434-KP

### Ordering Information

Order #	Mfg #	Description	Price
MP434E	434	Process Loop Calibrator	
MP434-KP	434-KP	Process Loop Calibrator Keypad Version	
MP21037E-120	502226-114	120V Battery Eliminator	
MP21037E-240	502226-115	240V Battery Eliminator	

Transcat Accredited Calibration with Data	CALL
Transcat Accredited Calibration without Data	CALL

## **NEW** Fluke mA Loop Calibrators

**The NEW 707EX Intrinsically Safe Loop Calibrator: The fast, one-handed tool for loop checks**

- Improved Accuracy of 0.015% (707/707EX)
- **NEW!** Intrinsically Safe (707EX)
  - ATEX Certification (Ex II 2 Eex Ia IIC T4 Zones 1 and 2)
  - FM Certification N.I. Class I Div 2 Areas Group A-D
- Simultaneous mA and % Readout
- 0.001 mA Resolution for mA Source, Simulate, and Measure
- Pushbutton 25% Steps for Fast, Easy Linearity Checks
- 0-100% "Span Check" for Fast Confirmation of Zero and Span
- Selectable Slow Ramp, Fast Ramp, and Step Ramp to Provide Smooth Outputs for Valve Slewing and Loop Functional Tests
- 24V Internal Loop Supply to Power and Read a Transmitter
- Measures Volts DC to 28V
- Innovative Output Adjustment Dial with 0.001 mA and 0.1 mA Resolution (707 ONLY)
- HART Mode Connects 250Ω Resistor in Series with 24V Loop for Compatibility with HART Communicators (707 ONLY)



707 ▲



707EX ▲

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This feature-rich solution combines the best features of a push-button and knob-base loop calibrator. Click your way to the precise milliamp value you want with 707's new **Quick Click** interface. Each click changes the value by 0.001 mA. Press and click to change it in increments of 0.100 mA. The large digital display shows you. The click lets you feel it.

**Each Unit Includes:** Test leads (TL75), alligator test clips, holster (C-10), and instructions.

### Specifications and Ordering Information

Mfg#	705	707	707EX
<b>Voltage Measurement</b>			
Range		0-28V DC	
Resolution		0.001V	
Accuracy	0.025% Rdg + 1 LSD	0.015% Rdg + 2 LSD	
<b>Current Measurement</b>			
Range		0-24 mA	
Resolution		0.001 mA	
Accuracy	0.02% Rdg + 2 LSD	0.015% Rdg + 2 LSD	
<b>Current Sourcing</b>			
Range		0-24 mA	
Resolution		0.001 mA	
Accuracy	0.025% Rdg + 2 LSD	0.015% Rdg + 2 LSD	
Drive Capability		24V Compliance	
Intrinsically Safe	N/A	N/A	YES
Order #	MP705E	MP707E	MP707EX
Price			

### Accessories

Order #	Mfg #	Description	Price
MPC12	C12	Soft Carrying Case	
Transcat Accredited Calibration with Data			CALL
Transcat Accredited Calibration without Data			CALL



Calibration Instruments

## **NEW** Druck/Unomat UPS-III Loop Calibrator

- Measure or Source 0 to 24 mA
- Internal 24 Volt Loop Supply for Both Measure and Source
- Accuracy  $\pm 0.01\%$  of Reading
- Maintains 4:1 Calibration Ratio with the Latest Instrumentation
- Graphic Display With Menu-Driven Interface
- Dual mA and % Readout, Linear or Flow
- Adjustable Rate Step, Span Check, Valve and Ramp
- Valve Seating Check (3.8, 4, 4.2 and 19, 20, 21)
- 60 VDC Measurement, Switch-Test and Continuity
- HART™ Compatible 235 $\Omega$  Resistor Menu Selectable Loop Resistor
- AA Batteries and Auto Power Off (enable or disable)
- EMC Compliance to EN 61326-1

**Each Unit Includes:** Test leads, alkaline AA batteries, certificate of calibration and user guide

### Specifications

Function	Range	1 yr Accuracy(1) %rdg + counts
Source mA	0.000 to 24.000 mA	$\pm 0.01\% + 2$
Source mA and 24V	0.000 to 24.000 mA	$\pm 0.01\% + 2$
Measure mA	0.000 to 24.000 mA	$\pm 0.01\% + 2$
Measure mA and 24V	0.000 to 24.000 mA	$\pm 0.01\% + 2$
Measure V	0 to 60 VDC	$\pm 0.02\% + 4$
Continuity		<100 $\Omega$

(1) Accuracy includes temperature effects 62°F to 80°F. For use outside these limits add .002%/°F.  
Size/Weight: 3" x 5" x 1"/9.7 ounces



UPS-III

### Ordering Information

Order #	Mfg #	Description	Price
MPUPS-3	UPS-3	mA Loop Calibrator Druck Unomat UPS III	
MP860-A018	860-A018	Optional protective over-boot with bench stand, hanging loop and quick connect belt clip.	
MP860-A019	860-A019	Optional carry case with belt loop	
MP191-A023	191-A023	Universal line power adaptor	

## Druck/Unomat Loop Calibrator

This full function loop calibrator is the smallest and lightest we offer. It sources, simulates, and reads mA, has a built-in 24V loop supply and the ability to read the loop without breaking the 4-20 mA circuit. In addition to standard source and simulate functions, the 4640E can also automatically step or ramp between test points for hands-free or remote testing.

An intrinsically safe version is available, Cenelec approved under EEx ia IIC T6, for use in IEC defined zones 0, 1, and 2. The IS version is housed in a safety yellow case.

**Each Unit Includes:** Four AA alkaline batteries, carrying case, and instruction manual.

### Specifications

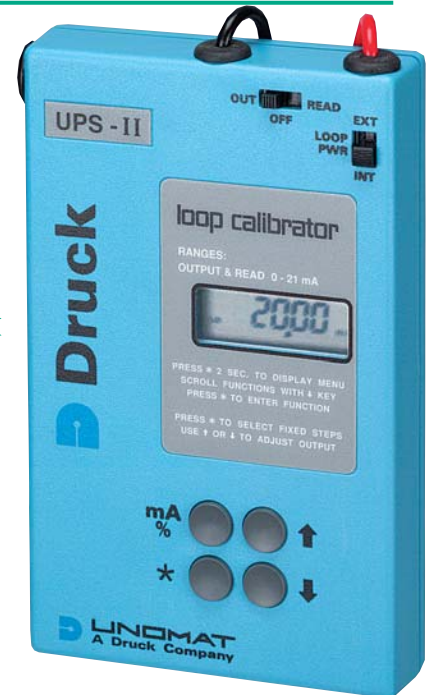
Range:	0 to 21 mA, all modes
Accuracy/Resolution:	$\pm 0.05\%$ of range/10 $\mu$ A
Drive Capacity:	900 $\Omega$ with internal loop power
Power 4640E:	Four AA alkaline batteries; 110 VAC through optional adapter
Power 4640E-IS:	Integral battery pack with rechargeable cells and power-limiting elements
Size/Weight:	5 x 3 x 0.83" HWD/9 oz



### Ordering Information

Order #	Mfg #	Description	Price
MP4640E	UPS-II	4-20 mA Calibrator	
MP4640E-IS	UPS-II-IS	Intrinsically Safe Calibrator	
MP4641E	13602	AC Adapter for 4640E	
MP4641E-IS	13605	AC Adapter for 4640E-IS	

Transcat Accredited Calibration with Data	CALL
Transcat Accredited Calibration without Data	CALL



The UPS-II is small enough to fit in your shirt pocket

## Altek mA Calibrator

### Great price-performance ratio

- Calibrates All Milliamp Instruments
- Source and Read Milliamps
- Simulate Two-Wire Transmitters
- Power and Measure Two-Wire Transmitters
- Quik-Chek® Pushbuttons Output
- 4.00 and 20.00 mA and Any Third Point

#### Easy to Use

The Altek POCKETCAL™ 134-2 will check, calibrate, and measure all your current signal instruments in a 4 to 20 milliamp DC loop. Use at every point in your loop. Source and read 0.00 to 24.00 mA, simulate a two-wire transmitter or use the POCKETCAL™ 134-2 to simultaneously power and measure your two-wire transmitters. Toggle the display to show milliamps or percent of 4 to 20.

**Each Unit Includes:** Attached test leads with alligator clips, instruction manual, three year warranty and manufacturer's statement of calibration practices.

#### Specifications

Milliamp Source and Read	
Ranges:	0.00 to 24.00 mA; -25.0 to 125.0 % of 4 to 20 mA
Accuracy:	±(0.08% of 24 mA Span + 0.01 mA)
Typical Drive Capability:	700 ohms @ 20.00 mA with fresh batteries
General	
Temperature Effect:	±0.01%/°C based on 23°
Batteries:	Two 9V batteries (alkaline supplied)
Operating Temp. Range:	-5 to +130 °F (-20 to +55°C)
Size/Weight:	121.9 x 66.0 x 35.8 mm (4.8 x 2.6 x 1.41")/ 0.22 kg (7.8 oz)

(Unless otherwise indicated, specifications are for 1 year in ±% of Span @ 23°C)



#### Ordering Information

Order #	Mfg #	Description	Price
MP3331E-2	134-2	POCKETCAL™ Milliamp Calibrator	
MP3331E-CS	689824	Carrying Case for 134-2	

Transcat Accredited Calibration with Data	CALL
Transcat Accredited Calibration without Data	CALL

## Transmation CheckMate™ mA Calibrator

- Recall and Source Up to 3 Points in Every Range
- Fast, Easy Set Up

Easily set any 0 to 24 mA value with intuitive UP and DOWN pushbuttons. There are separate buttons for each digit, making adjustments fast and easy. The Quik-Chek® buttons let you store and check up to three points per range in each model. Stored values remain in memory even when the calibrator is turned off.

**Each Unit Includes:** Four AA alkaline batteries, test leads, carrying case, operating instructions and manufacturer's statement of calibration practices.

#### Specifications

Source and Measure	
Ranges:	0.00 to 24.00 mA; -25.0 to 125% of 4 to 20 mA
Accuracy:	±0.05% FS +1 LSD
Drive Capability:	1200 ohms @ 20 mA typical
Power and Measure 2-Wire Transmitters:	0-24.00 mA Output current
Transmitter Simulator 2-Wire:	1.00 to 24.00 mA
Loop Voltage MIN/MAX:	3 to 45 VDC
Operating Temperature:	-5 to 130°F (-25 to 55°C)
Size:	6.23 x 3.27 x 1.94" (158.1 x 83.1 x 49.3 mm)
Weight:	12 oz (0.34 kg)

23400E



#### Ordering Information

Order #	Mfg #	Description	Price
MP23400E	23400E	mA Calibrator	

Transcat Accredited Calibration with Data	CALL
Transcat Accredited Calibration without Data	CALL

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Calibration Instruments

## **NEW** Ametek/Jofra Loop Signal Calibrator

- Compact Signal Loop Calibrator
- Ideal for Loop Calibration, Validation, and Troubleshooting
- Highly Accurate for Calibrations
- Easy to Use for Troubleshooting
- Sources and Reads VDC, mV, mA
- Dual Display
- Knob and Decade Buttons for Easy Value Entry
- Store Test Set Ups

**Each Unit Includes:** Each unit includes: Calibrator, test leads, soft carrying case, Manual, and NIST traceable certification

### Specifications

	Source	Read
<b>Voltage (DC)</b>		
Range:	0 to 20 VDC	0 to 30 VDC Isolated, 0 to 20 VDC Non isolated
Accuracy:	±0.015% of Rdg + 2 mV	
<b>Current (DC)</b>		
Range:	0 to 24 mA	
Accuracy:	±0.015% of reading + 2 µA	
Safety:	CE EN50082-1: 1992 and EN55022: 1994 Class B CSA C22.2 No.1010.1: 1992	
Power:	(1) 9 VDC alkaline battery	
Size / Weight:	7.37 x 3.31 x 2.05" HWD / 14 oz	

**CSC100** ▶



### Ordering Information

Order #	Mfg #	Description	Price
MPSC100G	CSC100	Loop Signal Calibrator	

## **NEW** Ametek/Jofra mA Loop Signal Calibrator

- Compact Loop Signal Calibrator
- A premium Loop Calibrator
- Easy to use for Troubleshooting
- Functional for Validation
- Sources and Reads mA
- Reads VDC
- 24 VDC Loop Power
- Large Two Line LCD
- Step/Ramp Function

**Each Unit Includes:** Calibrator, test leads, soft carrying case, Manual, and NIST traceable certification

### Specifications

	Source	Measure
<b>Range (mADC)</b>	0.00 to 24.00 mA	0.000 to 24.000 mA
Accuracy:	±0.05% of range	
<b>Range (VDC)</b>	N/A	±45.0 VDC
Accuracy:	N/A	±0.5 VDC
Safety:	CE 89/336/EEC EN50081-1 EN50081-2 EN50082-1: 1992 and EN50082-2	
Power:	(4) AA alkaline batteries	
Size / Weight:	6.85 x 2.6 x 1.0" HWD / 13 oz	

**75-MACAL** ▶



### Ordering Information

Order #	Mfg #	Description	Price
MP23351E	75-MACAL	Milliamp Loop Calibrator	

## **NEW** Transcat mA Loop Calibrator

- Very High Accuracy:  $\pm 0.015\%$  of Rdg
- Very High Resolution: 0.001 mA
- % Error Function
- Reads 0 to 28.000 VDC
- Built-in 250 $\Omega$  Resistor Facilitates Calibration of HART™ Devices
- Remote Calibration through Automatic Step and Ramp Functions
- Simulates, Powers, and Measures Two-wire Transmitters
- Includes Protective Rubber Boot
- Digital Knob and User-Selectable Decade Allows Large and Incremental (0.001 mA step) Output Changes
- Loop Power Measurement Capability
- Five Preset Outputs (4, 8, 12, 16, 20 mA)
- Fuseless Input Protection up to 250 VAC

**Each Unit Includes:** Protective Rubber Boot, Test Leads, Batteries and Instructions.

### Specifications

Input	
Current Range	0.000 to 24.000 mA; -25.00 to +125.00%
Voltage (Reading)	0.000 to 28.000 VDC
Input Protection	Fuseless, up to 250 VAC
Output	
Source/Simulate Range	0.000 to 24.000 mA; -25.00 to +125.00% (Incremental to 0.001 mA steps)
Drive Capability	1200 Ohm without HART; 950 Ohm with HART
Loop Supply	24 VDC
Accuracy (Input/Output)	$\pm 0.015\%$ of reading $\pm 2 \mu\text{A}$
Operating Temp.	-10 to +55 °C
Power	One 9V Alkaline Battery
Size/Weight	5.7" x 3.15" x 1.43" (14.47 cm x 8.00 cm x 3.63 cm) /12 ounces (340 gms)

23710E



### Ordering Information

Order #	Description	Price
MP23710E	Precision mA Loop Calibrator	
MPC-101	Carrying Case	

## Altek Two-Wire Simulator

- Accuracy:  $\pm 0.08\%$  ( $\pm 13 \mu\text{A}$ )
- Loop Powered, No Batteries
- Single Switch, One Handed Operation
- Weighs Only Three Ounces!

The Altek Model 46 is a featherweight tool used for checking loop components in the absence of a transmitter. It derives power from the loop, and regulates current flow to 5 switch selectable calibration points: 4, 8, 12, 16, and 20 mA.

**Each Unit Includes:** Instruction manual, three-year warranty and manufacturer's statement of calibration accuracy

### Specifications

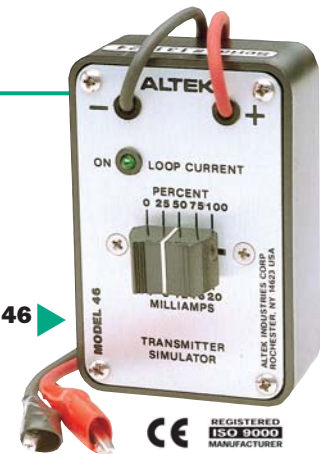
Size:	3.2 x 2.1 x 1.2"
Weight:	3 ounces

### Ordering Information

Order #	Mfg #	Description	Price
MP4364E	46	2-Wire Simulator	
MP3330T	09-3781	Dual Soft Carrying Case	

Transcat Accredited Calibration with Data	CALL
Transcat Accredited Calibration without Data	CALL

46



Calibration Instruments

## Transcat mA Simulator

- Pushbutton Output Selection
- Excellent Accuracy
- 3.8 x 2.4 x 1.0" / 6 oz.

### Pocket-Sized with 0.075% Accuracy

This rugged six-ounce calibrator provides the means for calibrating or troubleshooting a variety of 4 to 20 mA process loop equipment. Two-wire transmitters, panelmeters, recorders, and more can be calibrated or tested. A single front-panel pushbutton allows instant selection of current output in five steps: 4, 8, 12, 16, and 20 mA, with superb accuracy of 0.075% of full scale. Output selected is indicated with an LED. The output can drive up to 300 ohms, or act as a 2-wire simulator when used with an external loop supply of up to 30 VDC.

**Each Unit Includes:** 9V alkaline battery and instructions.

### Specifications

Accuracy:	$\pm 0.075\%$ of FS
Temp Stability:	100 ppm/°C

### Ordering Information

Order #	Description	Price
MP5480MA	Calibrator, mA Simulator	

Transcat Accredited Calibration with Data	CALL
Transcat Accredited Calibration without Data	CALL

5480MA



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## Transcat Portable Loop Power Supply

- 24V Power Source for Field Transmitters
- Low Noise and Ripple

### Specifications

Output Voltage:	24 VDC $\pm$ 5%
Output Noise and Ripple:	<100 mV (25 mV typical)
Load Range:	0 to 25 mA
Line/Load Regulation:	2% max at 4V to 6V, 0 to 25 mA
Short Circuit Current:	<25 mA steady state
Operating Temperature:	-20 to +50°C
Power Supply:	Four AA alkaline batteries, approx. 36-hour life at 12 mA load
Size/Weight:	5.8 x 3.6 x 1.3" HWD/8 oz with batteries

Use our 21052E to easily provide 24 VDC power to process loops during installation, calibration, and servicing. It's compatible with a large variety of calibrators and testers, including Beta and Mercial models, so you can carry just one supply into the field. The unit is battery operated and can utilize either standard or rechargeable cell. The 21052E also features a current monitor jack with cable for connection to an external milliammeter.

**Each Unit Includes:** Test leads, current monitor cable, four AA alkaline batteries, and operating manual.

### Ordering Information

Order #	Description	Price
MP21052E	Portable Loop Power Supply	



21052E ▲

## Transcat Portable Loop Power Supply

- Battery Powered 24V Loop Power Supply
- Simplify Your Field Calibrations
- Regulated 24V Loop Power
- 3.8 x 2.4 x .9" and Weighs 3.6 oz

Portable 24V loop power is now possible with the Transcat 21050E. This shirt pocket-sized supply is powered by a 9V alkaline battery and allows you to power your transmitters in the field quickly and easily. The 21050E is extremely useful with multimeters and calibrators that do not provide internal 24V loop power.

**Each Unit Includes:** Output voltage test leads, 9V alkaline battery, and a current monitor test cable.



← 21050E

### Ordering Information

Order #	Description	Price
MP21050E	Battery Powered 24V Loop Power Supply	

Calibration Instruments

## Transmation CheckMate™ mV/V Calibrator

- Recall and Source Up to 3 Points in Every Range

Easily set any output value with intuitive UP and DOWN pushbuttons. There are separate buttons for each digit, making adjustments fast and easy. The Quik-Chek® buttons let you store and check up to three points per range in each model. Stored values remain in memory even when the calibrator is turned off. Four AA alkaline batteries provide 40 hours of use.

**Each Unit Includes:** Four AA alkaline batteries, test leads, carrying case, operating instructions and manufacturer's statement of calibration practices.

### Specifications

Source:	0.00 to 110.00 mV; 0.00 to 10.25V
Measure:	0.00 to 110.00 mV; 0.00 to 10.25V; 0.0 to 45.0V
Accuracy:	$\pm$ 0.05% FS +1 LSD
Operating Temperature:	-5 to 130°F (-25 to 55°C)
Size:	6.23 x 3.27 x 1.94" (158.1 x 83.1 x 49.3 mm)
Weight:	12 oz (0.34 kg)

### Ordering Information

Order #	Mfg #	Description	Price
MP23403E	23403E	CheckMate™ 200 mV/V Calibrator	

Transcat Accredited Calibration with Data	CALL
Transcat Accredited Calibration without Data	CALL

23403E ►



## Transcat Precision Voltage/Current Source

- Accuracy:  $\pm 0.015\%$
- Four Output Ranges: 200 mV, 2V, 20V, and 24 mA
- RS-232 Interface—Can Be Computer-Controlled

This all new precision voltage source gives you impressive performance in a low cost hand held package. Use it for design and test applications

### Specifications

	Voltage Output	mA Output
Output Range:	200 mV, 2V, 20V	24 mA
Resolution:	0.01 mV, 0.1 mV, 1 mV	0.001 mA
Accuracy:	$\pm 0.015\%$ of FS $\pm 2$ counts	
Load Capability:	$\pm 1$ mA for rated accuracy	1000 ohms
Output Protection:	Current limited to 20 mA internal resettable fuse	
Power Supply:	9V alkaline battery or optional AC adapter	
Size/Weight:	6.0 x 3.25 x 1.25"/12 oz	

### Ordering Information

Order #	Description	Price
MP23894E	Precision Voltage Current Source	CALL
MP3329E	Optional 110V AC Adapter	CALL
MP3329E-220	Optional 220V AC Adapter	CALL

in engineering and manufacturing, or for testing analog devices and A/D converters. RS-232 interface (2400 baud) is standard, the unit can be computer controlled. Documentation includes all ASCII commands which can be used in your own software. The optional Control Link software lets you easily create and run test routines via your PC.

**Each Unit Includes:** Battery, test leads, and carrying case.



23894E

Transcat Accredited Calibration with Data CALL  
Transcat Accredited Calibration without Data CALL

## Calibrators Inc. Voltage Source

- $\pm 0.015\%$  Full Scale Accuracy
- Up to 20 mA Source or Sink Current or Capability
- Decimal or Hexadecimal Modes
- Four Output Ranges
- Output Protected-Current and Voltage

A three-position polarity switch lets you choose between positive, negative, and zero voltage output.

In hexadecimal mode, you have output ranges of  $\pm 1V$  in 244  $\mu V$  increments, and  $\pm 10V$  in 2.44 mV increments.

**Each Unit Includes:** Test lead set, 9V alkaline battery, carrying case, manufacturer's certificate of calibration, and instruction manual.

### Specifications

<b>Voltage Output</b>	
Decimal	0 to $\pm 1.200V$ , 0 to $\pm 12.00V$
Hexadecimal	0 to $\pm 0.99975V$ , 0 to $\pm 9.9975V$ (max HEX=FFF)
Zero Volts	+100 $\mu V$ output error
Accuracy:	Within $\pm 0.015\%$ of Full Scale
Power Supply:	9V alkaline battery
Size:	5.75 x 3.6 x 1.29" HWD (146 x 91 x 33 mm)
Weight:	11 oz (342 grams)

### Ordering Information

Order #	Mfg #	Description	Price
MP7091E	DVC-350A	Voltage Source	CALL
MP7092E	39-7267690	Accessory Kit (AC Charger and NiCad Battery)	CALL

Transcat Accredited Calibration with Data CALL  
Transcat Accredited Calibration without Data CALL



7091E

Calibration Instruments

## Calibrators Inc. High Precision Voltage Source

- $\pm 19.999V$  Full Scale
- Accuracy  $\pm .005\%$  of Full Scale

The 23873E is a high precision voltage reference source for the test bench. You set output level via front panel levers with a decade box-type interface. A vernier control gives you  $\pm 1.5$  mV offset of any setting.

Output is available from either front panel banana jacks, or a rear panel 36 pin gold-plated PC connector. The rear connector also has sense feedback inputs to reduce errors caused by cable resistance.

**Each Unit Includes:** Manufacturer's certificate of calibration.

### Specifications

Output Range:	0 to $\pm 19.999V$ DC
Output Current Range:	0 to 25 mA to rated voltage accuracy
Accuracy:	$\pm 25$ ppm of setting, $\pm 500 \mu V$
Size/Weight:	5.86 x 2.25 x 5.78"/2.25 lbs

### Ordering Information

Order #	Description	Price
MP23873E	High Precision Voltage Source	CALL
MP23873E-PM	Panel Mount Kit for 23873E	CALL

Transcat Accredited Calibration with Data CALL  
Transcat Accredited Calibration without Data CALL



23873E

## Altek mA/V Calibrator

- Dual 5-Digit Display Resolution
- Simultaneous Source and Read to 0.001 mA or V
- ±0.012% Accuracy
- Scalable Display That is User Settable in Engineering Units
- 24 VDC Loop Power

Calibrate at any point in your 4 to 20 mA loop. Source milliamps directly into your receivers with loop loads up to 1200 ohms. Simulate your 2-wire transmitters for checkout of field wiring and total loop testing. Power and measure 2-wire or 4-wire transmitters on the bench to calibrate before installation. Read transmitter and controller outputs up to 52.00 mA. Plus you can calibrate all your DC Voltage instruments.

Instantly recall three output settings in each range with the handy Quik-Chek® switch. All output settings are remembered for each function, even with the power off. Use the Auto-Chek® to continuously switch output from zero to span in 2, 3, 5, or 10 equal steps. Connect your calibrator at one point in the field and calibrate every device in the loop.

**Each Unit Includes:** Six AA alkaline batteries, carrying case (093784), instructions manual, three-year warranty and manufacturer's statement of calibration practices.

### Specifications

Ranges	
Voltage Source:	0.00 to 999.90 mVDC; 0.000 to 20.000 VDC
Voltage Read:	-99.990 to -0.999 VDC, -999.90 to 999.90 mVDC, 0.999 to 99.990 VDC
Milliamp Source:	0.000 to 24.000 mA
Milliamp Read:	-52.00 to -24.00, -24.000 to +24.000, 24.00 to 52.00 mA
Source Current:	25 mA maximum
Accuracy:	±(0.012% of reading +0.008% of FS reading)
Isolation:	500 VDC between source and read leads
Size/Weight:	6 <sup>1</sup> / <sub>8</sub> x 4 x 2 <sup>1</sup> / <sub>8</sub> " HWD (170 x 102 x 75 mm)/1 lb 7 oz

934



### Ordering Information

Order #	Mfg #	Description	Price
MP21037E	934	mA/V Calibrator	
MP21037E-120	502226-114	120V Battery Eliminator	
MP21037E-240	502226-115	240V Battery Eliminator	

Transcat Accredited Calibration with Data	CALL
Transcat Accredited Calibration without Data	CALL

## Altek Process Voltage Analyzer

- Sources and Reads to 19.99 Volts
- Triple Range: mV, V, Percent
- Accuracy: ±0.05% of Span + 1 LSD
- Simulates a 2-Wire Field Transmitter

The Model 235 lets you easily and quickly check your DC voltage instrumentation. You can calibrate live voltage input receivers without disconnecting wires and calibrate 1 to 5V devices without affecting other instruments in the loop. The "Quik-Chek" function provides instant HI and LO settings, adjustable to match your selected span and zero. A 3<sup>1</sup>/<sub>2</sub> digit display, 100 hour battery life, and automatic overload protection to 120V AC or DC add to the convenience of this field-tough tool.

**Each Unit Includes:** Three 9V alkaline batteries, instructions manual, three-year warranty and manufacturer's statement of calibration practices.

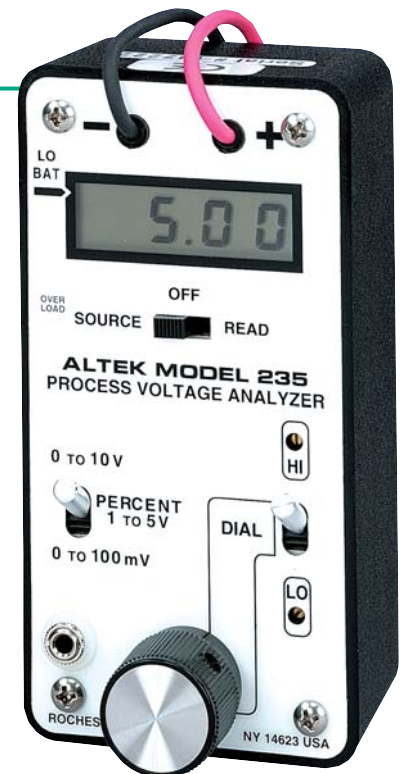
### Specifications

Ranges:	0 to 199.9 mV, 0 to 19.99V, -25.0 to 199.9% of 1 to 5V
Accuracy/Resolution:	±0.05% of span + 1 LSD
Source Current:	30 mA max.
Sink Current:	20 mA max.
Size/Weight:	2 <sup>1</sup> / <sub>2</sub> x 2 <sup>3</sup> / <sub>8</sub> x 5 <sup>1</sup> / <sub>8</sub> " (63.5 x 66.7 x 130 mm) HWD/12.5 oz (0.35 kg)

### Ordering Information

Order #	Mfg #	Description	Price
MP3333E	Model 235	Voltage Calibrator	
MP3334E	28-0120	Optional AC Adapter, 120V	
MP3335E	28-0240	Optional AC Adapter, 240V	
MP3330T	09-3781	Dual Soft Carrying Case	

Transcat Accredited Calibration with Data	CALL
Transcat Accredited Calibration without Data	CALL



Model 235



## **NEW** Transmation DC Process Signal Calibrator

### Highest Accuracy and 50 mA Source

- Calibrates all milliamp Instruments
- Source 4 to 20, 10 to 50 mA and 0 to 20V/100 mV
- Simulate Two-Wire Transmitters and 24V Loop Power
- Read Milliamp Outputs Anywhere in the Loop
- Milliamp or Percent Display
- Power & Measure Two-Wire Transmitters
- Accuracy to  $\pm 0.015\%$  Reading
- Rubber Boot for Protection in the Plant
- One Touch to Set the Output & Function
- Nine Setpoints in Each Range Automatically or Manual Stepping

**Each Unit Includes:** Test Leads, Protective Rubber Boot, Spare Fuses, Four (4) AA Alkaline Batteries, Operating Instructions

### Specifications

Range and Accuracy	Range	Accuracy
Source Milliamp	0.00 to 52.00	$\pm(0.015\% + 2\text{LSD})$
Read Milliamp	0.00 to 52.00	$\pm(0.015\% + 2\text{LSD})$
Source Volts	0.000 to 20.000	$\pm(0.015\% + 2\text{LSD})$
Read Volts (low)	0.000 to 20.000	$\pm(0.015\% + 2\text{LSD})$
Read Volts (high)	0.00 to 48.00	$\pm(0.05\% + 2\text{LSD})$
Source Millivolts	0.00 to 100.00	$\pm(0.015\% + 2\text{LSD})$
Read Millivolts	0.00 to 90.00	$\pm(0.015\% + 2\text{LSD})$
mA compliance	Up to 1000 $\Omega$ load (4 to 20 mA) Up to 400 $\Omega$ load (10 to 50 mA)	
Voltage drive capability	1 mA	
Batteries	Four AA batteries (Alkaline supplied/recommended)	
Battery life	25 hours typical	
Operating temperature range	14 to +122 °F (-10 to +50°C)	
Overall size	190.5 x 101.6 x 38.1 mm (7.5 x 4.0 x 1.5 inches)	



1048

### Ordering Information

Order #	Mfg #	Description	Price
MP1048E	1048E	DC Process Signal Calibrator	
MP6109P-1	6109P-1	Optional Transcat Soft Carrying Case	
MP1400-C	1400-C	Optional Pelican Hard Carrying Case	

Transcat Accredited Calibration with Data	CALL
Transcat Accredited Calibration without Data	CALL

## Transmation DC Process Signal Calibrator

- Input and Output Functions
- 2-Wire Transmitter Simulation
- High Accuracy and Resolution
- Digital Displays, Simultaneous Source and Read, and Battery Operation
- FM Certified Non-incendive for Class I, Division 2, Groups A, B, C, and D

### Model 1045E

The 1045E is an excellent general purpose DC calibrator for mA, mV, and voltage. Input and output circuits are both active at all times, and a toggle switch selects which signal is displayed on the calibrator. For calibrating 2-wire transmitters, the 1045E will power the loop while measuring transmitter output.

**Each Unit Includes:** Test leads (500143-003), NiCd battery pack, charger transformer (TA for 1045), carrying case, instructions manual and manufacturer's statement of calibration practices.

### Specifications

mV/V Input:	$\pm 99.99\text{ mV} / \pm 9.999\text{V} / \pm 50.00\text{V}$
mV/V Output:	0–99.99 mV/0–9.999V
Accuracy:	In/Out: $\pm(0.01\% \text{ FS} + 0.01\% \text{ rdg})$
mA Input:	$\pm 50.00\text{ mA}$
mA Output:	0.00 to 22.00 mA
Accuracy:	In: $\pm(0.01\% \text{ FS} + 0.01\% \text{ rdg} + \text{LSD})$ Out: $\pm(0.045\% \text{ FS} + 0.01\% \text{ rdg} + \text{LSD})$
Resolution:	4-digit
Loop Power:	24 VDC
Power Supply:	Rechargeable NiCd battery pack
Size/Weight:	8.55 x 3.38 x 1.65"/1.75 lb

### Ordering Information

Order #	Mfg #	Description	Price
MP1045E-01	1045-01	DC Process Signal Calibrator for 115V	
MP1045E-02	1045-02	DC Process Signal Calibrator for 115V for 220V	
MPTA	502226-069	115V Charger Adapter for -LP Battery Packs	
MPTA-220	502226-079	220V Charger Adapter for -LP Battery Packs	
MP500143-003	500143-003	Test Leads	
MP759550-010	759550-010	Replacement Batteries for 1045E	

Transcat Accredited Calibration with Data	CALL
Transcat Accredited Calibration without Data	CALL



1045-01

A

Calibration Instruments

## Fluke mA/mV/V Process Calibrator

- Accuracy  $\pm 0.02\%$
- 0.001 mA Resolution
- Source and Read 0–24 mA
- Source and Read 0–10 V or 0–100 mV
- Simulate 2-Wire Transmitters
- Built-In 24V Supply

**Each Unit Includes:** C81Y protective yellow holster and stand, test leads and clips, 9V alkaline battery, and instruction sheet.

### Specifications

Unless otherwise noted, accuracy specifications are expressed as (percent of reading + number of least significant digits) for temperatures 23°C +5°C for one year.

Operating Temperature:	-10°C to 55°C
Safety:	CSA C22.2 No. 1010.1:1992
Power:	Single 9V battery ANSI/NEDA 1604A or IEC 6LR61
Size (with Holster):	201 mm L x 98 mm W x 52 mm D (7.93 x 3.86 x 2.06")
Weight (with Holster):	Approx. 600g (21 oz)

Model 715	Range	Accuracy	Notes
V/mV:	0 to 100 mV 0 to 10V	$\pm 0.02\% + 2$ counts $\pm 0.02\% + 2$ counts	
mA:	0 to 24 mA (-25% to 125%)	$\pm 0.015\% + 2$ counts	Sink (simulate transmitter) Display mA or % of span
Loop Power:	24 VDC	$\pm 10\%$	Drive 20 mA into 1000 $\Omega$



**We have a full line of Fluke carrying cases and test leads.**  
See pages B23-B24



715



### Ordering Information

Order #	Mfg #	Description	Price
MP715	715	mA/mV/V Process Calibrator	
Transcat Accredited Calibration with Data			CALL
Transcat Accredited Calibration without Data			CALL

## Transcat mV, V, and mA Calibrator

- Reads and Simulates mA, mV, and V
- Accuracy of .025% FS  $\pm 1$  LSD

The 5889E is a full function voltage and current calibrator with multiple input/output ranges for both current and voltage. In the current mode, the calibrator can source, simulate, or read mA, and can also supply 24 VDC to power a two-wire transmitter while simultaneously reading back its output both in milliamps or % of Full Scale. As a voltage calibrator, the unit can read or source over two ranges.

For convenience, up to three calibration points can be stored in memory for both voltage and current. These calibration points are non-volatile and will remain in memory until the user changes them.

**Each Unit Includes:** Test leads, four 1.5V AA alkaline batteries, carrying case, and instructions.

### Specifications

Input/Output Ranges	
Current:	0 to 24.00 mA; -25.0% to 125.0%
Voltage:	0 to 200.0 mV; 0 to 20.00V
Input/Output Accuracy:	$\pm 0.025\% \pm 1$ LSD
Load Driving Capability (Current):	Up to 1000 ohms
Power Requirements:	Four AA cells
Size:	7 x 1.6 x 3.8"



5889E



### Ordering Information

Order #	Description	Price
MP5889E	Process Signal Calibrator	
MP3329E	Optional 9V Adapter	
Transcat Accredited Calibration with Data		CALL
Transcat Accredited Calibration without Data		CALL