



## MILLIAMP CALIBRATORS Models 46, 134



See Altek 46  
Manual for  
updated  
information



### MODEL 46

- **2-WIRE SIMULATOR**  
Calibrate Receivers
- **5 POINT CALIBRATION**  
4, 8 12, 16, 20mA
- **LOOP POWERED**  
No Batteries Required
- **EASY TO USE**  
One Hand Operation

Simulate 2-Wire Transmitters to calibrate receivers, recorders, controllers, indicators and computers. Loop Power eliminates the need for batteries. Loop current is CLAMPED at the key value you select. Accuracy is  $\pm 0.08\%$  of 4 to 20mA, even with changes in load and supply voltage.

Switch settings of 0, 25, 50, 75 and 100% give you fast, full range checkout of instrument or system. The single switch and palm sized case have been designed for simple, one handed operation. Just clip the Built-in leads to the 2-Wire terminals in the Field, Junction Box or Control Room.

ALTEK's pocket sized milliamp calibrators offer 2-Wire transmitter simulators as well as milliamp sources. Each model give you ease of use, as well as accuracy and ruggedness both.

When you check out receivers, recorders or controllers in a 2-Wire 4 to 20mA loop, simply disconnect the 2-Wire transmitter and hook up a Model 46 or 134 in 2-Wire mode. Flip a switch to get instant Full Scale and Zero outputs. The calibrators operate just like a 2-Wire transmitter by modulating the external power supply voltage into a 4 to 20mA signal.

In the control room, shop, or field, use the Model 134 as a precise 4 to 20mA Source. Stroke valves, set trip points or calibrate receivers or recorders. Easily replaceable 9 Volt alkaline batteries will source 20 milliamps *continuously* for over 25 hours. Many users can go for months between battery changes!

Used as a 2-Wire Transmitter Simulator the Model 134 receives all of its operating power from the loop. This lets you operate continuously for days when long term loop testing is required. Use it as a manual loading station when a controller needs repair or replacement. Minimize process shutdowns installing a new controller.

### MODEL 134

- **MILLIAMP OUTPUT**  
Sources 4-20mA
- **2-WIRE SIMULATOR**  
Field or Panel
- **"QUIK-CHEK®" SWITCH**  
Instant 4.00 & 20.00mA
- **CONTINUOUS DIAL**  
0.02% Resolution

Calibrate computers, receivers and controllers with unparalleled ease. The Model 134 is also ideal for setting current trips and stroking valves. Built-in batteries supply 20mA loads from 0 to 1000 Ohms (typically 3 months of field use).

Simulate any 2-Wire Transmitter without using internal batteries. Current stays at desired value even with changes in load and supply voltage.

"QUIK-CHEK" switch gives you instant settings of 0 and 100% for both the mA Source and 2-Wire Simulator. Set any value in dial position using the 10 turn continuous adjustment.

High efficiency design typically gives you months of operation before replacing the batteries. Optional AC adapters are available for full-time bench use.

### OTHER PRODUCTS

Altek designs and manufactures fast, accurate instruments for measurement, generation and simulation of virtually every process control signal. Consult our factory directly or contact your local stocking representative to order precise, low cost Milliamp Calibrators, Voltage Sources, Direct Thermocouple Sources, RTD Simulators and Frequency Sources. Altek also produces calibrators for custom ranges and unique applications. Additional models and ranges are frequently added to the Altek instrument family to meet all of your critical calibration requirements. Altek products are made in the USA.

# OPERATING INSTRUCTIONS

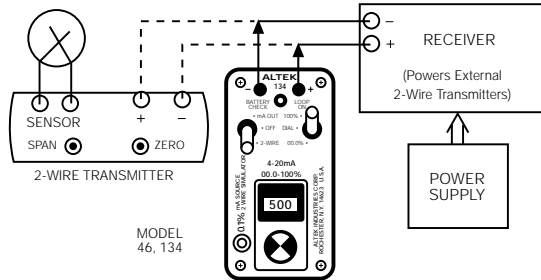
## 2-WIRE SIMULATOR MODE

### Models 46,134

- 1) Disconnect existing 2-Wire transmitter from the loop
- 2) Put the Mode selector switch (Models 134) into the 2-Wire position
- 3) Connect the red lead of the calibrator to the plus (+) terminal of the field connections and the black lead to the minus (-).

The LED will glow steadily to indicate that the loop current is present. If the LED doesn't glow, check the connections and the power supply.

Select the 0.0% and 100.0% switch positions to quickly calibrate the endpoints of your receivers. Intermediate positions of 25, 50 and 75% may be selected with the Model 46. Use the digital dial on the Models 134 to select any value from 0.0 to 100.0% (a setting of 645 on the dial is equal to 64.5%).



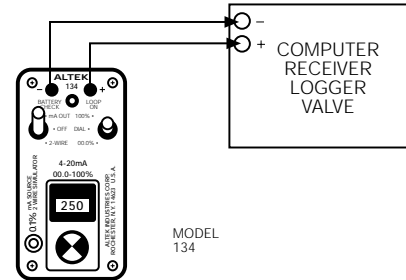
## SOURCE MODE

### Models 134

- 1) Disconnect one or both wires from the device to be calibrated
- 2) Connect the red lead of the calibrator to the plus (+) input of the device and the black lead to the minus (-).
- 3) Move the Mode to mA OUT

The LED on the Model 134 will glow steadily only when current is flowing through the loop. If the LED doesn't light, check the batteries and connections.

Output current is continuously adjustable with the "QUIK-CHEK" switch in the DIAL position. Exact 0.0 and 100.0% outputs are available by using the 0.0 and 100.0% "QUIK-CHEKS".



## SPECIFICATIONS

(Unless otherwise indicated, specifications are in  $\pm\%$  of Span @ 23°C)

#### ACCURACY:

MODEL 46... $\pm 0.08\%$

MODEL 134

Dial:  $\pm 0.1\%$  from 1% to 99%

"QUIK-CHEK" Switch:  $\pm 0.08\%$  at 0.00% and 100.0%

TEMPERATURE EFFECT:  $\pm 0.01\%$ /Degree C

OPERATING TEMPERATURE RANGE: -10 to 140°F (-25 to +60°C)

STORAGE TEMPERATURE LIMITS: -40 to +160°F (-40 to +70°C)

POWER SUPPLY EFFECT:  $\pm 0.005\%$ /Volt

WARM UP TIME: 2 Seconds to rated accuracy

WEIGHT:

Model 46...3 ounces (85 grams)

Models 134...12 ounces (340 grams)

SIZE:

Model 46...11/2x21/8x31/4 inches (38x54x63 mm)

Models 134...21/8x4x21/4 inches (54x102x55 mm)

LOOP VOLTAGE LIMITS:

Models 46 & 134...6 to 45 VDC

#### OUTPUT DRIVE CAPABILITY:

Model	Fresh Batteries or AC Adapter	Battery Low Limit
134	1000 Ohms	800 Ohms

#### BATTERY LIFE: (Nominal):

Model Nominal Life—Alkaline Battery

134 25 hours at 20mA continuous output (3-9 Volt)

Batteries should be removed when storing the unit for >3 months.

#### Battery Check:

Model 131...LED will glow when the power switch is held in the BATTERY CHECK position

Model 134...LED will pulse once when the power switch is moved to the mA OUT position

Specifications subject to change without notice

### DIGITAL DIAL SETTING vs MILLIAMPS

MODEL	Reading on Dial																MILLIAMPS
	Clockwise ➡																
	000	062(5)	100	200	250	300	400	500	562(5)	600	700	750	800	900	000		
134 (LINEAR)	4.00	5.00	5.60	7.20	8.00	8.80	10.4	12.0	13.0	13.6	15.2	16.0	16.8	18.4	20.0		
(0, 25, 50, 75, 100% D/P FLOW)	0%	25%			50%				75%						100%		

#### ORDERING INFORMATION:

Model 46	2-Wire Transmitter Simulator	46-0420
Model 134	4 to 20mA Source/2-Wire Simulator	134-0420
AC Adapters for Models 134		
	120 VAC Adapter	28-0120
	240 VAC Adapter	28-0240
Carrying Case		09-3781

#### Part No.

#### WARRANTY

Our equipment is guaranteed against defective material and workmanship (excluding batteries) for a period of three years from date of shipment. Claims under guarantee can be made by returning the equipment prepaid to our factory. The equipment will be replaced, repaired or adjusted at our option. No responsibility is accepted for damage, loss or other expense incurred through sale or use of our equipment. Under no condition shall Altek be liable for any special, incidental or consequential damage.

**AVAILABLE FROM:**