

Transmation

Easy to use

The Transmation CheckMate 200 will check, calibrate and measure all the DC voltage instruments in your plant. Three ranges cover most instrumentation voltage signals.

Source voltage

Calibrate recorders, digital indicators, computer inputs or any other instruments that measure DC volts. Easily set any value within 0.01 millivolt or volt with the intuitive UP and DOWN pushbuttons. Separate buttons for each digit make adjustments fast and easy.

"No-break" calibration

Calibrate any 1 to 5 volt device in a live 4 to 20 milliamp loop without disconnecting any wires. The CheckMate 200 will automatically source or sink 0 to > 16 milliamps to clamp the test voltage in all source ranges. Output impedance is less than 0.3 ohm to let you calibrate voltage instruments in milliamp loops without removing the 250 ohm input load resistors.

Recall output settings

The "QUIK-CHEK" pushbuttons provide rapid checking of any three points in each range. Quik-Chek settings remain in memory even when the CheckMate 200 is powered off.

Measure DC voltages

Check controller outputs, batteries or measure the loop power supply. The CheckMate 200 measures up to 110.00 mV, 11.00 V and 45.0 VDC

Display the present reading, maximum or minimum by pressing the READ, MAX or MIN pushbuttons to quickly check how much the loop has varied or the stability of control.

Voltage Calibrator CheckMate™ 200



- Calibrate DC voltage instruments
Source 0.00 to 110.00 millivolts
Source 0.00 to 10.25 Volts
- Measure process voltages
Read 0.00 to 110.00 millivolts
Read 0.00 to 10.25 volts
Read 0.0 to 45.0 volts
- Calibrate voltage instruments in live loops
No need to disconnect current loop or 250 ohm resistor
- Compact and low cost
The CheckMate 200 fits easily into your pocket and budget.
- Easy to use
One touch to set the output & function
- Accuracy to $\pm 0.025\%$
Within ± 0.02 V or ± 0.07 mV
- Long lasting alkaline batteries
Four "AA" Alkaline cells can provide months of typical use
- Settable "Quik-Chek®" pushbuttons
Set any HI and LO output in both ranges

POWER

Turn-on

Each time you turn on the CheckMate 200 the LCD will display all segments for about 1 second. It then displays the most recently selected source or read setting.

Source

The three Quik-Chek outputs will be the same as previously stored. Each time a different function is selected, the three Quik-Chek outputs will be recalled.

Read

The CheckMate 200 is ready to measure the same signal as the last time it was turned on and will automatically update the MAX & MIN readings for recall at any time.

Selecting ranges

For some functions there are two or more ranges or scales. Press the RANGE/TYPE pushbutton to scroll through the ranges and scales. The ranges will scroll and will go back to the beginning after the last choice.

RANGE/TYPE

Turn-off

Press the POWER push-button to turn the CheckMate 200 off. If AUTO-OFF is enabled, the Checkmate 200 will turn itself off after 30 minutes of inactivity.

POWER

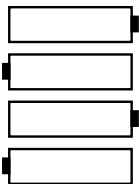
Autocal

To maintain accuracy, the CheckMate 200 periodically recalibrates its measuring circuitry against internal references. While this is occurring the word CAL will appear on the display for less than 2 seconds.

CAL

Changing batteries

Low battery is indicated by BAT on the display. Approximately four hours of operation remain before the LCD blanks and CheckMate 200 shuts itself down. Turn the CheckMate 200 off, loosen the captive screw securing the battery compartment and lift off the cover from the bottom of the case. The four "AA" batteries are easily removed and replaced (alkaline supplied and recommended). Replace the battery compartment cover and tighten the screws.



Auto-off

CheckMate 200 can be set up to turn itself off after 30 minutes of inactivity. The internal timer is reset to 30 minutes each time a pushbutton is pressed. This configuration is part of the Default Settings below.

Default settings – Auto-off

CheckMate 200 may be restored to the factory settings. This will reset the HI and LO "Quik-Chek" memories. Prompts also guide you for selection of Auto-Off.

- 1) Press and hold the STORE/RESET push-button while turning the CheckMate 200 on.
- 2) Keep pressing the STORE/RESET push-button until the display flashes (about 5 seconds) then release.
- 3) The words BAT and ON will appear on the display indicating that AUTO-OFF is selected.
- 4) To toggle the AUTO-OFF function on and off press the RANGE/TYPE push-button and the words oN and oFF will display.
- 5) After five seconds the CheckMate 200 will automatically store your choice and the CheckMate 200 will begin normal operation. Or you may press the STORE/RESET button to accept your choice and begin operation.

HI / MAX

SET / READ

LO / MIN

STORE/RESET

HI / MAX

SET / READ

LO / MIN

STORE/RESET

Or
Ur

Source voltage

Select source by pressing the SOURCE/READ pushbutton until the word SOURCE appears on the LCD display. To change the output value press the UP or DOWN pushbutton corresponding to the digit being displayed. To ramp the output press and hold any UP or DOWN pushbutton. The display will continue to change in increments corresponding to the digit being changed and will automatically carry up and down until the limits of the range are reached. This function operates in all three output positions (HI, SET & LO).

Storing Quik-Chek outputs

- 1) Press HI or LO
 - 2) Press the UP/DOWN keys to desired value
 - 3) Press the STORE push-button
- The LCD will flash once to show that the value was saved

If a value is in the SET position and you want that value stored in HI or LO, press and hold the STORE push-button, then press the HI or LO pushbutton. The display will flash once to indicate the value has been stored. Then release both pushbuttons.

Recall Quik-Chek outputs

When you need a stored value just press the HI or LOW Quik-Chek pushbutton. Any value for the selected range may be stored in HI & LO. The CheckMate 200 remembers the HI, LO and SET values for each function with the power on or off. Each time a different function is selected, the last three Quik-Chek values for that function will be recalled.

Note: The same value is stored for both mA and %. The recalled value will be displayed in the units you have selected.

Open loops

The digits on the LCD will flash if there is an open loop or if the polarity is reversed. Check all the connections in the loop or try reversing the leads.

Read milliamps

Select read by pressing the SOURCE/READ pushbutton until the word READ appears on the LCD display. The READ functions measure the desired signal.

Min/Max

To read the maximum or minimum input since read mode was entered, simply press the MAX or MIN pushbutton. The value will appear on the LCD along with the word MAX or MIN. The MAX/MIN values are automatically updated and may be viewed at any time without disturbing the other values.

Restarting Min/Max

Pressing the STORE/RESET push-button will cause the CheckMate 200 to store the present reading into the MAX and MIN memories. Upon releasing the STORE/RESET push-button the CheckMate 200 will resume reading the input and update the MAX & MIN values as the measured signal changes.

Out of range signals

Signals above or below those available for the currently selected range will be indicated by Or and Ur on the display.

Source voltage

V, mV

Choose this function to provide an output from 0.00 mV to 110.00 mV and from 0.00 to 10.25 VDC. Source current compliance is a nominal 20 mA to provide the driving power to your voltage receivers.

- 1) Disconnect one or both input wires from the device to be calibrated
- 2) Connect the red SOURCE lead of the calibrator to the plus (+) input of the device and the black SOURCE lead to the minus (-)
- 3) Press the RANGE/TYPE push-button to switch the display between mV and V.

Output current is adjustable with the UP and DOWN push-buttons. Span and Zero outputs are available by using the LO and HI QUIK-CHEK push-buttons to recall your stored settings.

Read DC voltages

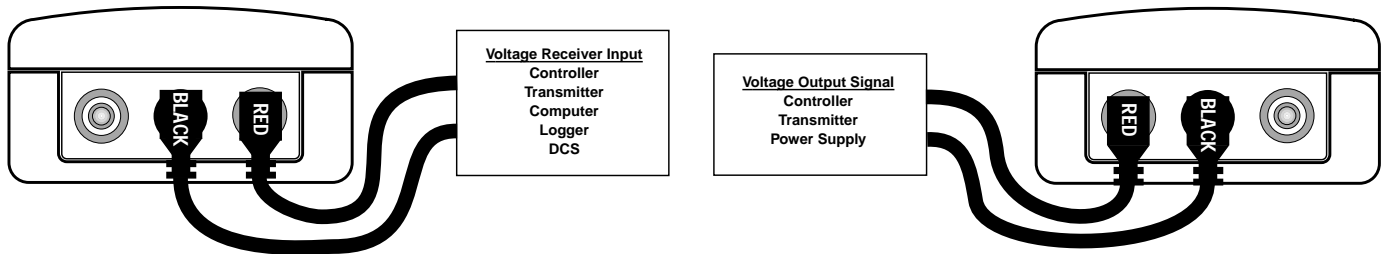
V, mV

Choose this function to measure from 0.00 to 10.25 or 0.0 to 45.0 DC volts. For checking low level sensor outputs and other low levels change the input range to display from 0.00 to 110.00 millivolts.

- 1) Connect the red READ (+) lead and the black READ (-) lead of the calibrator across the voltage to be measured.

Display the present reading, Maximum or Minimum by pressing the READ, MAX or MIN pushbuttons.

Signals above or below those available for the currently selected range will be indicated by Or and Ur on the display.



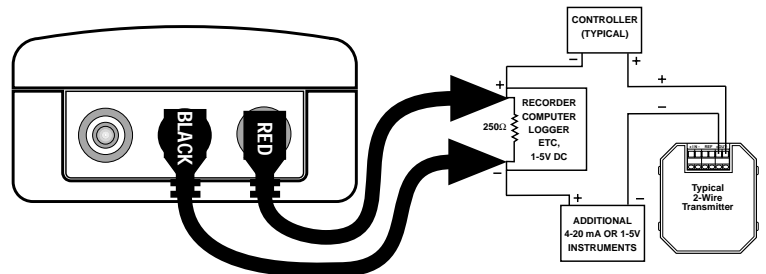
Check 1 to 5 VDC instruments without disconnecting wires

Most 1-5 volt receivers in 4-20mA loops have a 250 ohm resistor across the input of the receiver. This resistor may be mounted internally or externally. CheckMate 200 is connected directly across the input of the 1-5 volt receiver without disconnecting any field wiring. This saves a great deal of time when a large number of voltage receivers, such as chart recorders or computer systems, require calibration.

Make certain that changing the signal input will not disturb the process or cause unexpected alarms when checking on-line instruments. It is important to remember the CheckMate 200 drives only the device to which it is connected. It has no effect on other devices in the 4 to 20 mA loop. The CheckMate 200 will clamp the selected value in the mV and V Ranges to the maximum sink current of >16 mA.

- 1) Connect the red SOURCE lead of the calibrator to the plus (+) input of the device and the black SOURCE lead to the minus (-). The associated 250 ohm resistor must not be disconnected.
- 2) Press the RANGE/TYPE push-button to switch the display between mV and V.

Output current is adjustable with the UP and DOWN push-buttons. Span and Zero outputs are available by using the LO and HI QUIK-CHEK push-buttons to recall your stored settings.



Product Specifications

	General
90 day accuracy	$\pm(0.025\%$ of Full Scale + 1 LSD)*
1 year accuracy	$\pm(0.05\%$ of Full Scale + 1 LSD)
Warm up time	10 seconds to specified accuracy, 2 minutes to maximum accuracy
Temperature effect	$\pm 0.01\%/^{\circ}\text{C}$ based on $23^{\circ}\pm 25^{\circ}\text{C}$
Batteries	Four "AA", (R6) batteries (Alkaline supplied and recommended)
Battery life	Nominal 30 hours int high impedance loads
Low battery indication	"BAT" indication on the display at approximately 4 hours left
Overvoltage protection	Protected to 120V AC/DC for 30 seconds
Operating temperature range	-5 to +130 °F (-20 to +55°C)
Storage temperature range	-13 to +130°F (-25 to +55°C)
Relative humidity	10 to 90%, non-condensing for 24 hours from 0 to 35°C
Overall size	158.1 x 83.1 x 49.3 mm (6.23 x 3.27 x 1.94 inches)
Weight	0.34 kg (12 oz)
	DC voltage source
Ranges	0.00 to 110.00 mV; 0.00 to 10.25 V
Accuracy	$\pm(0.05\%$ of 110 mV+ 0.01mV) = ± 0.07 mV $\pm(0.05\%$ of 10.25 V + 0.01V) = ± 0.02 V
Source current	>20 mA
Sink current	>16 mA
Output impedance	<0.3 Ohms
Short circuit duration	Infinite
	Measure DC volts
Ranges	0.00 to 110.00 mV; 0.00 to 10.25 V; 0.0 to 45 V
Accuracy	$\pm(0.05\%$ of 110 mV+ 0.01mV) = ± 0.07 mV $\pm(0.05\%$ of 10.25 V + 0.01V) = ± 0.02 V $\pm(2\%$ of 45.0 V + 0.1V) = ± 1.0 V
Input resistance	>1 Meg Ohm
Source resistance effect	0.01% per 100 Ohms

*Typical 90 day accuracy can be estimated by dividing the 1 year % of full scale accuracy by 2. Additions to the specification, such as + 1 LSD, remain constant.

Warranty

Transmation products are warranted to be free from defects in material and workmanship (excluding fuses, batteries and leads) for a period of one year from the date of shipment. Warranty repairs can be obtained by returning the equipment prepaid to our factory. Products will be replaced, repaired, or adjusted at our option. *Transmation gives no other warranties, including any implied warranty of fitness for a particular purpose.* Also, Transmation shall not be liable for any special, indirect, incidental or consequential damages or losses arising from the sale or use of its products.

Ordering information
CheckMate 200 Voltage Calibrator

Part No.
23403E

Included with each CheckMate 200 are:
1 Pair of test leads with banana plugs and alligator clips
Carrying Case

Test Equipment Depot - 800.517.8431 - 99 Washington Street Melrose, MA 02176

FAX 781.665.0780 - TestEquipmentDepot.com

Transmation, Inc.

PO Box 837, Everett, WA 98206
1520 75th Street SW, Everett, WA 98203

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