

This Specification Data Sheet
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Transmation

Easy to use

The Transmation CheckMate 500 checks, calibrates and measures all the RTD devices in your plant. Toggle the display between °C and °F or lock it for full time use of either temperature scale.

Simulate temperature and measure RTDs directly with the pocket sized CheckMate 500. Don't lug the decade box or squint at RTD tables.

The CheckMate 500 is easy to use. Select an RTD type and use the decade push-buttons for the precise output you need.

Source thermocouple

Calibrate recorders, digital indicators, computer inputs or any other instruments that measure RTDs. Easily set any value to 1° C or F with the intuitive UP and DOWN pushbuttons. Separate buttons for each digit make adjustments fast and easy.

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 500 is powered off.

Measure thermocouple probes

Verify proper sensor function and measure temperatures by attaching an RTD to the CheckMate 500. Toggle the display between °C and °F or configure it for full time use of either temperature scale.

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

RTD Calibrator CheckMate™ 500



- Calibrate RTD instruments
Check transmitter inputs
Simulate sensors into controllers and indicators
Read RTD probes
- Four built-in RTD types & ohms
Pt 100 ohm, alpha = 1.3850
Pt 100 ohm, alpha = 1.3926
Pt 100 ohm, alpha = 1.3916
Ni 120 ohm
0.0 to 500.0 ohms
- Compact and low cost
The CheckMate 500 fits easily into your pocket and budget.
- Easy to use
One touch to set the output & function
- Accuracy to $\pm 0.025\%$
Within $\pm 1^\circ\text{C}$
- 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 each range

POWER

Turn-on

Each time you turn on the CheckMate 500 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 type is selected, the three Quik-Chek outputs will be recalled.

Read

The CheckMate 500 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.

RANGE/TYPE

Turn-off

Press the POWER push-button to turn the CheckMate 500 off. If AUTO-OFF is enabled, the Checkmate 500 will turn itself off after 30 minutes of inactivity.

POWER

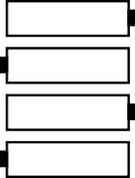
Autocal

To maintain accuracy, the CheckMate 500 periodically recalibrates its measuring circuitry against internal references. 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 500 shuts itself down. Turn the CheckMate 500 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 500 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.

Default settings – Auto-off

CheckMate 500 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 and temperature scales.

- 1) Press and hold the STORE/RESET push-button while turning the CheckMate 500 on.
- 2) Keep pressing the 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 500 will automatically store your choice and the °C & °F symbols will flash on the display.
- 6) Press the RANGE/TYPE push-button to make your selection. With °C flashing the unit will display only in °C, with °F flashing the unit will display only in °F and with both flashing you can select °C and °F for each RTD type. °C/°F is selected if no push-buttons are pressed.
- 7) After five seconds the CheckMate 500 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

HI / MAX

SET / READ

LO / MIN

STORE/RESET



Source RTD

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 500 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.

High excitation current

Five dashes (-----) will appear on the LCD if the excitation current from the instrument being calibrate is too high for the CheckMate 500.

Read RTDs

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 500 to store the present reading into the MAX and MIN memories. Upon releasing the STORE/RESET push-button the CheckMate 500 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.

Calibrate RTD instruments

Choose this function to simulate an RTD signal into any instrument requiring a RTD or resistance input.

- 1) Disconnect the RTD from the instrument being calibrated.
- 2) Press the POWER push-button, then press the SOURCE/READ pushbutton until SOURCE is displayed.
- 3) Press the RANGE/TYPE push-button until the desired RTD type and temperature scale appear.
- 4) Use two or three wires to connect the CheckMate 500 to the instrument.

Output temperature is adjustable with the UP and DOWN push-buttons. Span and zero outputs are available by using the HI and LO Quik-Chek push-buttons to recall your stored settings.

Measure RTD sensors or resistances

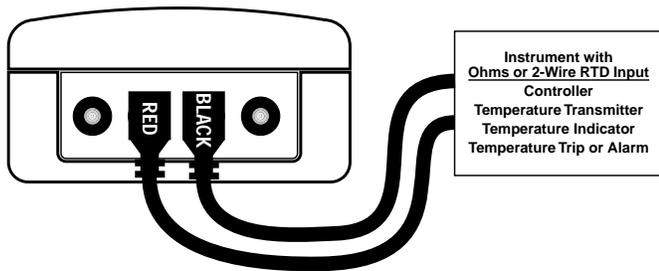
Choose this function to read an RTD or to measure resistance.

- 1) Disconnect the RTD from any instrument.
- 2) Press the POWER push-button, then press the SOURCE/READ pushbutton until READ is displayed.
- 3) Press the RANGE/TYPE push-button until the desired T/C type and temperature scale appear.
- 4) Use two or three wires to connect the RTD to the CheckMate 500.

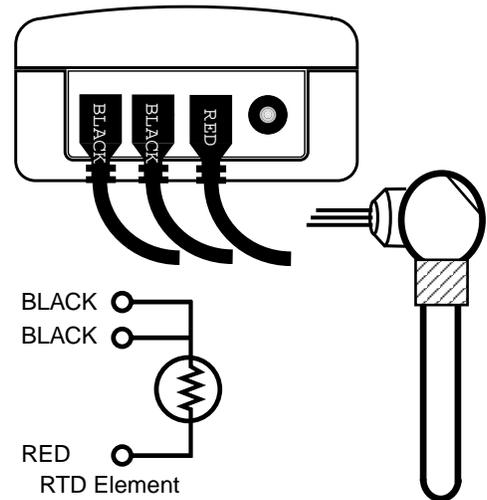
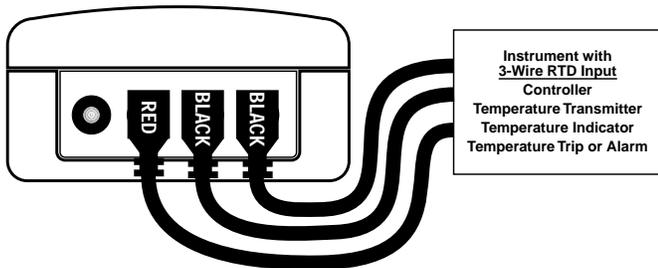
Display the present reading, maximum or minimum by pressing the READ, MAX or MIN pushbuttons.

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

Source Two Wire RTD Connection



Source Three Wire RTD Connection



Product Specifications

	General
90 day accuracy	$\pm(0.025\%$ of Full Scale + 0.075 mV/mA excitation current)*
1 year accuracy	$\pm(0.05\%$ of Full Scale + 0.075 mV/mA excitation current)
Warm up time	10 seconds to specified accuracy, 2 minutes to maximum accuracy
Temperature effect	$\pm 0.01\%/^{\circ}\text{C}$ based on 23 $^{\circ}$
Batteries	Four "AA", (R6) batteries (Alkaline supplied and recommended)
Battery life	Nominal 40 hours
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 $^{\circ}\text{F}$ (-20 to +55 $^{\circ}\text{C}$)
Storage temperature range	-13 to +130 $^{\circ}\text{F}$ (-25 to +55 $^{\circ}\text{C}$)
Relative humidity	10 to 90%, non-condensing for 24 hours from 0 to 35 $^{\circ}\text{C}$
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)
	RTD source
Types and ranges	Pt100 alpha 1.3850 (DIN/IEC/JIS 1989) -100 to 850 $^{\circ}\text{C}$; -148 to 1562 $^{\circ}\text{F}$ Pt100 alpha 1.3926 (US lab) -100 to 862 $^{\circ}\text{C}$; -148 to 1584 $^{\circ}\text{F}$ Pt100 alpha 1.3916 (old JIS 1981) -100 to 800 $^{\circ}\text{C}$; -148 to 1562 $^{\circ}\text{F}$ Ni120 alpha 1.6720 (pure) -100 to 800 $^{\circ}\text{C}$; -148 to 1562 $^{\circ}\text{F}$
RTD accuracy	$\pm 1^{\circ}\text{C}$
Ohms accuracy	$\pm(0.05\%$ of Full Scale + 0.1 ohm = ± 0.3 ohms)
Temperature effect	$\pm 1^{\circ}((0.035 \text{ mV}/^{\circ}\text{C}) * (1/\text{mA excitation current}))$
Allowable excitation current	0.125 to 2.0 mA continuous DC
	Read RTD and ohms
RTD accuracy	$\pm 1^{\circ}\text{C}$
Ohms accuracy	$\pm(0.05\%$ of Full Scale + 0.1 ohm = ± 0.3 ohms)
Excitation current supplied	1 mA, nominal

*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 500 RTD Calibrator

Part No.
23412T

Included with each CheckMate 500 are:
Two black and one red lead with banana plugs and spade lugs
Carrying Case

Transmation, Inc.

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

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