



User Instructions

Instruction Notes for Thermocouple Meter

General

The PTM1 is a precision tool that measures temperature. A built-in microprocessor stores, calculates and compensates for K, J and T type thermocouple probes.

The touch mode keys are highly reliable with tactile feedback. This meter uses four “AAA” batteries. The resetting of parameters are not required when power is restored.

The front of the meter has a large LCD that displays temperature and time/date simultaneously along with user prompts and thermocouple type indicator.

The unit is also equipped with a non-volatile memory allowing the user to store 50 different sets of readings. This unit will assign a site number for each set of readings stored, so the user can review the data easily.

Other features include long battery life and 50/60Hz AC noise rejection. This meter is user-friendly for field, industrial and laboratory applications.

Waterproof

Though the PTM1 meter is housed in a watertight case, **DO NOT** use it underwater. The watertight case prevents permanent damage to the unit if accidentally dropped into non-corrosive solutions. Follow these steps immediately if the unit is immersed in any solution:

- 1.) Rinse unit carefully in distilled water. After rinsing and drying, inspect and clean connectors to remove all contaminants that may affect probe connections.
- 2.) Wait for the unit and probe to dry completely before resuming operation.
- 3.) If the unit does not function correctly after steps 1 and 2, call Glas-Col for possible repair or replacement.



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Installing the Batteries

The PTM1 meter is supplied with four “AAA” alkaline batteries required for operation. To insert batteries into the meter, follow the procedure outlined below.

- 1.) Use a screw driver to remove the two screws and battery cover to expose the battery compartment.
- 2.) Note the polarity and insert the batteries into the battery compartment correctly.
- 3.) Replace the battery cover and make sure to secure the two screws for the water-tight feature.

(NOTE: Press the (ON/OFF) key to turn the unit on. If the unit is running then you can press the (ON/OFF) key





Keys Function

	ON/OFF - Powers on and shuts off the meter.
	HOLD - In the MEASURE mode, press this key to freeze the temperature display. Press this key and hold for 10 seconds to turn off the one hour-auto shutdown feature. In the HOLD mode, press this key to unlock the temperature display.
	SET - In the MEASURE mode, press this key to enter the SETTING mode. In the SETTING mode, press this key to cancel any changes made and return to the MEASURE mode.
	SAVE - In the MEASURE mode, press this key to save the temperature reading, date and time in the next available slot of the 50-slot memory. In the SETTING mode, press this in the “EXIT” option to save all the changes the user made and return to the MEASURE mode. This key will only work in the “EXIT” option.



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Keys Function - Continued

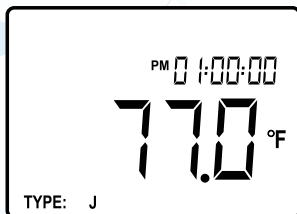
	<p>LEFT/RECALL - In the MEASURE mode, press this key to change the mode to RECALL mode. In the SETTING mode, press this key to move back to the previous setting. In the RECALL mode, press this key to exit the RECALL mode and return to the MEASURE mode.</p>
	<p>RIGHT/CLEAR - In the MEASURE mode, MAX mode, MIN mode, press this key to clear the max and min values. In the SETTING mode, press this key to select the next setting. In the RECALL mode, press this key for 2 seconds to clear all data saved.</p>
	<p>Up/°C/°F - In the MEASURE mode, MAX mode, MIN mode, press this key to display temperature reading in either °C or °F. In the SETTING mode, press this key to select the next option of the flashing setting. In the time and date setting, it will advance the date or time. In the RECALL mode, press this key to display the next available data storage site.</p>
	<p>DOWN/MAX/MIN - In the MEASURE mode, press this key to change the mode to MAX mode. In the MAX mode, press this key to change the mode to MIN mode. In the MIN mode, press this key to change the mode to MEASURE mode. In the SETTING mode, press this key to go back to the previous selection option. In the time and date settings, it will advance the value of the date or time. In the RECALL mode, press this key to display the last data storage site.</p>



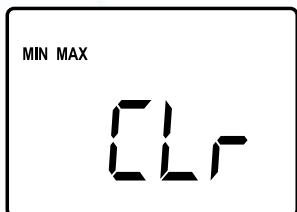
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Model PTM1 Modes

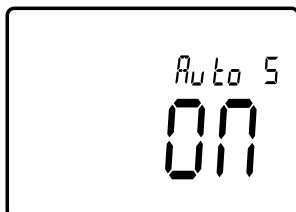
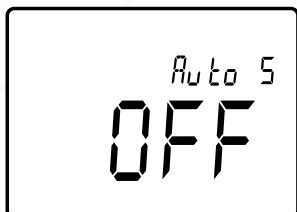
MEASURE Mode



When user powers on the model PTM1, the MEASURE mode screen will appear. The instrument will return to this mode once you exit from other modes. Only in the MEASURE mode, the user can press the (SAVE) key to save the temperature reading, time and date into the next available slot of the 50-slot memory.

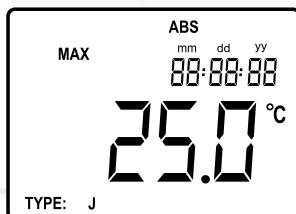
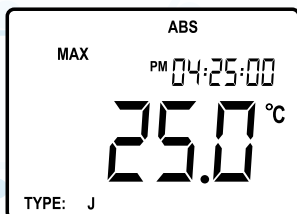


The user can clear the MIN and MAX values while in the MEASURE mode. The instrument will display the screen on the left for a few seconds when the user presses the (CLEAR) key.

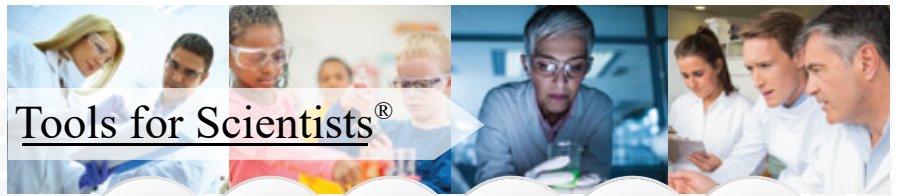


The user can turn off the one hour-auto shutdown feature only in the MEASURE mode. Press the (HOLD) key and hold for 10 seconds to toggle the setting of the one hour-auto shutdown feature.

MAX Mode



Press the (MAX/MIN) key in MEASURE mode to enter the MAX mode, the model PTM1 will display the maximum temperature reading it has captured since the last time the instrument has been cleared. The instrument will display 2 screens, one with time and the other with date. The user can press the (CLEAR) key to clear the MAX and MIN values while in this mode.

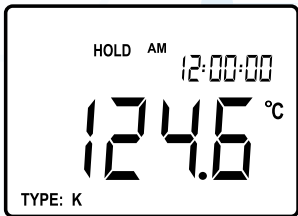


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MIN Mode

Press the (MAX/MIN) key in MEASURE mode to enter the MIN mode, the model PTM1 will display the minimum temperature reading it has captured since the last time the instrument has been cleared. The instrument will display 2 screens, one with time and the other with date. The user can press the (CLEAR) key to the MAX and MIN values while in this mode.

HOLD Mode

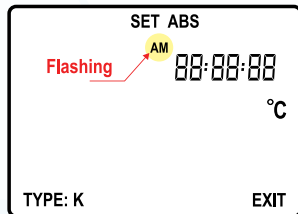


Press the (HOLD) key in MEASURE mode to enter the HOLD mode, the model PTM1 will freeze the temperature reading. The time will still be updated on screen but the temperature reading will NOT be updated until you return to the MEASURE mode. Press the (HOLD) key again to return to the MEASURE mode.

SETTING Mode

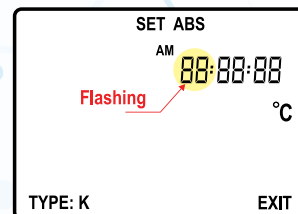
Press the (SET) key in MEASURE mode to enter the SETTING mode. In this mode user can change the following model PMT1 settings:

AM/PM



Press the (UP) or (DOWN) key to change to PM or AM. Press the (RIGHT) key to move to Hour, Min, Sec setting. Press the (LEFT) key to move to the EXIT option.

Hour/Min/Sec

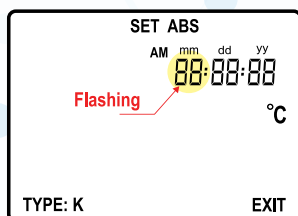


Press the (UP) or (DOWN) key to change the flashing value or press the (RIGHT) key to move to the next time setting. After the Sec setting, press the (RIGHT) key to move to Month, Day, Year setting. Press the (LEFT) key to move back to the previous option.



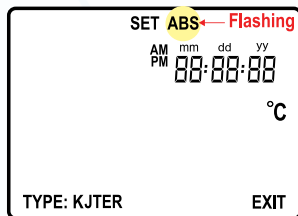
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Month/Day/Year



Press the (UP) or (DOWN) key to change the flashing value or press the (RIGHT) key to move to the next date setting. After the Year setting, press the (RIGHT) key to ABS/REL setting. Press the (LEFT) key to move back to the previous option.

ABS/REL



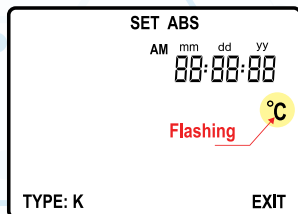
Press the (UP) or (DOWN) key to change to ABS or REL value settings. If the user chooses ABS, the MAX and MIN mode will display the actual time the MAX and MIN temperature occurred. If the user chooses REL, the MAX and MIN mode will display the ELAPSED TIME from the time the user cleared the last MAX and MIN values to the time the new MAX and MIN values occurred. Press the (RIGHT) key to move to the next setting.

Special Note When Setting in REL Time

The instrument will auto shutdown after 1 hour of no key activity unless the user turns off the auto shutdown feature (see (HOLD) key function). The maximum elapsed time the instrument can record is about 24 hours "23:59:59" after which it will start back to "00:00:00". If the user turns on the instrument after shutting down for a long period of time, the instrument will still compute the elapsed time from the last (CLEAR) key function the user performed.

EXAMPLE: If the user clears the min/max at 03:00:00AM and the last max recorded occurred at 04:00:00AM the next day (after more than 1 day) the recorded elapsed time will be 01:00:00.

°C/°F

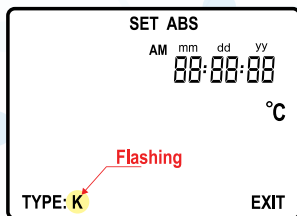


Press the (UP) or (DOWN) key to change to °C or °F. This will set the default turn-on temperature unit.



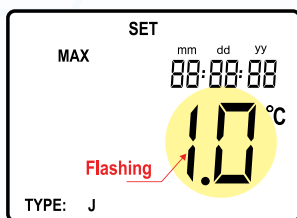
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Type K, J or T



Press the (UP) or (DOWN) key to select K, J or T type thermocouple. Press the (RIGHT) key to move to the OFFSET option. Press the (LEFT) key to move back the previous option.

Offset



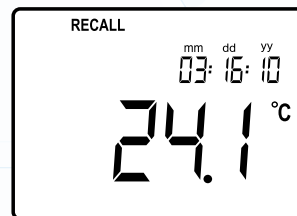
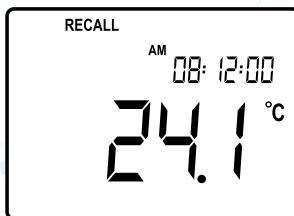
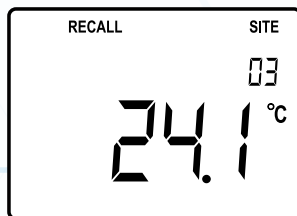
Press the (UP) or (DOWN) key to change the value from - 10.0 to 10.0 if the unit is in °C or - 18.0 to 18.0 if unit is in °F. The value here will be added to the temperature display in the MEASURE mode. Press the (RIGHT) key to move to the EXIT option.

Exit

Press the (SAVE) key to save all the changes made. **IMPORTANT NOTE:** The user must power down the unit and back on for the changes to take effect. If the user wants to cancel at any time, just press the (SET) key.

Recall Mode

Press the (LEFT/RECALL) key in the MEASURE mode to switch to the RECALL mode. Press the (LEFT/RECALL) key again to exit the RECALL mode and return to the MEASURE mode. When the instrument switches to the RECALL mode, it will first display the last data saved by the user. Three screens will be displayed for every data site.



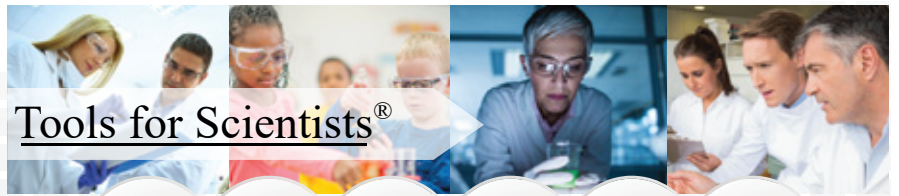
The first screen will display the site number. the 2nd screen will display the date. The temperature reading saved is always displayed in all screens. In the RECALL mode, press this key for 2 seconds to clear all data saved.



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Error Displays and Troubleshooting

LCD Display	Additional LCD Message	Mode	Possible Cause(s) [Action(s)]
“ovEr” (OVER)		MEASURE	1.) Temperature measured > the instrument’s range for the thermocouple type sensor used. 2.) Probe not properly connected. (Change sensor with proper temperature range.) (Check probe connection.)
“undr” (UNDER)		MEASURE	1.) Temperature measured < the instrument’s range for the thermocouple type sensor used. 2.) Probe not properly connected. (Change sensor with proper temperature range.) (Check probe connection.)
“ovEr” (OVER)	“MAX”	MAX	Unit recorded an over temperature reading before. (Clear the MAX values)
“undr” (UNDER)	“MIN”	MIN	Unit recorded an under temperature reading before. (Clear the MIN values)
“FUL” (FULL)	“SAVE”	MEASURE	User tries to save data but the 50 sites are full. (Go to the RECALL mode and erase all data)
“Ept” (EMPTY)	“RECALL”	RECALL	User tried to go to the RECALL mode but no data has been saved. (Save at least 1 set of data)



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Specifications

Type	Range	Resolution	Accuracy
J	-328.0°F to 2010°F	0.1F (from -328.0F to 392.0F); 1F (from 393F to 2010F);	±0.1%FS ±1.4°F
	-200.0°C to 1099°C	0.1C (from -200.0C to 200.0C); 1C (from 201C to 1099C)	±0.1%FS ±0.7°C
K	-328.0°F to 2500°F	0.1F (from -328.0F to 392.0F); 1F (from 393F to 2500F);	±0.1%FS ±1.4°F
	-200.0°C to 1371°C	0.1C (from -200.0C to 200.0C); 1C (from 201C to 1371C)	±0.1%FS ±0.7°C
T	-328.0°F to 752°F	0.1F (from -328.0F to 392.0F); 1F (from 393F to 752F);	±0.1%FS ±1.4°F
	-200.0°C to 400°C	0.1C (from -200.0C to 200.0C); 1C (from 201C to 400C)	±0.1%FS ±0.7°C

Clod Junction Compensation Error	0.05°C / °C; 0,0.5°F / °F
Ambient Temperature: Measurement Range Rated Accuracy	0.0°C to 50.0°C 18.0°C to 28.0°C
Power	Four "AAA" Batteries
Display (Time : Temperature)	4.7mm : 13.9mm high LCD
Relative Humidity	Up to 90%
Case	IP67 Water-Tight Case
Dimensions (W x D x H)	75mm x 157mm x 35mm
Weight	230 Grams (Batteries Included)