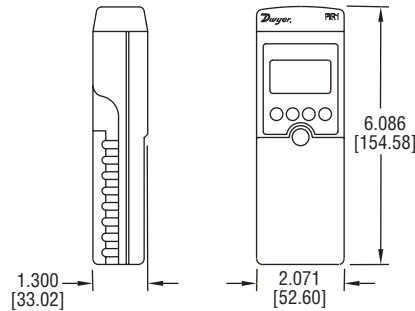




Model PIR1 POCKET-SIZE INFRARED THERMOMETER

Specifications – Installation and Operating Instructions



DESCRIPTION

The PIR Pocket-Size Infrared Thermometer allows for temperature measurement of processes not suited for conventional “contact” measurements. The PIR1’s light weight design, raised push-buttons and large liquid crystal display make it convenient for most temperature measurement needs.

TAKING MEASUREMENT SAMPLES

To take temperature measurements, point the instrument at the surface to be measured and press the power key. Although this simple explanation works well in most cases, there are other factors that may impact the measurement accuracy. Consider these influences before using the data you obtain with your infrared thermometer:

1. The target must completely fill the spot diameter seen by the infrared sensor, otherwise the temperature displayed will be influenced by the surface surrounding the target. The ratio of the distance to the size of the spot being measured is 6:1.
2. Emissivity of an object will also affect accuracy.
3. This instrument is sensitive to electromagnetic interference (EMI), such as that generated by spark plug wires, radio transmitters and welders. Do not use this instrument in close proximity to equipment that may produce such interference.
4. The instrument must be used within the ambient temperature range.

While the power key is pressed, a temperature reading is taken at a minimum of once every 1/2 second (500 milliseconds).

SELECTING FAHRENHEIT OR CENTIGRADE SCALES

Select the scale you prefer to use (°F or °C) by pressing the °F/°C button after the power key is pressed and °C/°F is flashing.

BACKLIGHT OPERATION

To toggle the backlight on or off, press the button with the backlight symbol. Once the backlight has been turned on, it will come on each time the power key is pressed until it is toggled off. Please note that this feature significantly reduces the battery’s life.

MEASUREMENT MODES

This instrument allows you to select display modes. You can cycle through the modes in this order:

1. Real-time temperature measurements.
2. Maximum temperature measured (MAX mode)
3. Minimum temperature measured (MIN mode)
4. Calculated (time weighted) average temperature (AVG mode)
5. Temperature difference between MIN and MAX (ΔT mode)

The last mode selected will remain selected the next time you power on the meter.

PHYSICAL DATA

Range: 0 to 600°F (-20 to 315°C).

Accuracy: $\pm 2\%$ of reading or $\pm 4^\circ\text{F}$ ($\pm 2^\circ\text{C}$) whichever is greater.

Resolution: $1^\circ\text{C}/^\circ\text{F}$.

Sample Rate: 0.5 seconds minimum.

Emissivity: Adjustable 0.3 - 1.0.

Distance-to-Target Size Ratio: 6:1, nominal.

Laser Classification: Class II (Output <1 mW).

Response Time: 500 ms.

Operating Temperature: 32 to 122°F (0 to 50°C), 80% RH max.

Display: 3-digit. Automatically shuts off 7 seconds after hold button is released.

Power: One 9V alkaline battery (included).

Weight: 6.3 oz (180 g).

1). Real-time Temperature Measurement Mode

This display mode shows the actual temperature of surfaces measured. This value is updated at least once every 1/2 second. When the instrument is powered up for the first time, this mode is preset.

2). Maximum Temperature (MAX) Mode

To enter the “MAX” display mode, press and release the MODE button repeatedly until you see the word “MAX” displayed on the LCD. The temperature reading will update each time a higher temperature is measured.

3). Minimum Temperature (MIN) Mode

To enter the “MIN” display mode, press and release the MODE button repeatedly until you see the word “MIN” displayed on the LCD. In the “MIN” mode, the lowest temperature measurement is taken and displayed on the LCD. The temperature reading will update each time a new lowest temperature is measured.

4). Average (AVG) Mode

To select the “AVG” display mode, press and release the MODE button repeatedly until “AVG” is displayed on the LCD. The term “time weighted” in reference to the averaging mode means all temperature measurements taken, from the time the power key was first pressed, are averaged together. Actual surface temperature is not displayed while taking measurements in this mode. If you were to walk along a wall for one minute taking readings that were generally 72 degrees, then walk by a spot for 1/2 second that was 20 degrees, no significant change in average temperature would be displayed.

5). Temperature Differential (ΔT) Mode

To select the temperature differential display mode, press and release the MODE button repeatedly until is displayed on the LCD. This display mode is used to determine the net temperature difference between the two surfaces. This is particularly valuable when calculating net heating or cooling since ambient temperature is effectively removed from the equation.

RECALLING MEMORY POINTS

With each press of the power key, four values are recorded in memory:

- 1). The highest temperature measured
- 2). The lowest temperature measured
- 3). The time weighted average temperature
- 4). The value last displayed before releasing the button.

A total of nine sets of these four values, representing nine power key presses, are available for recall. To review recorded values, start with the instrument off, (power off and nothing visible on the LCD), then press and release the MODE button. The number "1" will appear on the display, indicating the latest of nine sets of values recorded in memory. You may now either cycle through each of the four values recorded during the last power key press, or go to one of the four values, then select the number of the power key press you wish to review. For example, to select the high measured three power key presses ago, you may either:

1. Press the MODE button once. The number "1" and a value appears.
2. Press the BACKLIGHT/UP INCREASE button twice. The number "3" and a value appears.
3. Press the MODE button once again. The word "MAX" appears in the lower left of the LCD, along with the highest temperature recorded three power key presses prior.

Or:

1. Press the MODE button once. The number "1" and a value appears.
2. Press the MODE button once again. The word "MAX" appears in the lower left of the LCD, along with the highest temperature recorded during the power key press.
3. Press the BACKLIGHT/UP INCREASE button twice. The number "3" and the value of the highest temperature recorded from three power key presses ago appears.

To maneuver up and down through recorded values, press the appropriate °F/°C/DOWN DECREASE or BACKLIGHT/UP INCREASE button to view the different readings on the LCD.

AUDIBLE ALARM

The Model PIR1 will sound an audible alarm at both an upper and a lower temperature limit, which you set. To adjust the alarm, start with the instrument's power turned off. Press and hold the MODE button. Either "HI" or "LO" will be displayed on the LCD, along with a value to the right. Do not press the power key.

Select the mode (HI or LO) you want the instrument to provide the alarm for by pressing either the °F/°C/DOWN DECREASE button to select the low temperature alarm or BACKLIGHT/UP INCREASE button to select the high temperature alarm. Once the instrument indicates the alarm mode you want to set, press the MODE button again.

You are now ready to adjust the alarm's threshold value, displayed on the LCD. To decrease the value press the °F/°C/DOWN DECREASE button. To increase this value, press the BACKLIGHT/UP INCREASE button. To lock this value in, once again, press the MODE button.

The alarm settings (whatever is displayed at the time) are instantly saved if, at any time during the alarm setting process, the instrument either shuts off after five seconds of inactivity or the power key is pressed).

EMISSIONITY ADJUSTMENT

When a process calls for repeated measurements of like materials, such as evaluating a plastic's solidity at a processing plant, the best method of attaining quick, reliable temperature readings is to adjust the emissivity setting of your meter.

To set emissivity you must pass through the alarm setting function. As described earlier, press and hold the MODE button, and the LCD displays the alarm adjustment function. Do not press the power key, or let the instrument time-out and turn off. Press the MODE button once more to display the current emissivity value.

To decrease the value, press the °F/°C/DOWN DECREASE button. To increase this value, press the BACKLIGHT/UP INCREASE button.

To exit and save the newly set value, press the MODE button again, let the instrument time-out in five seconds, or press the power key.

The value last entered for emissivity will become the instrument's default next time it is used. If the instrument will be used on various surfaces or by various people for different applications, it is a good practice to reset the emissivity value to .95 before returning it to storage.

Knowing the emissivity value your instrument is set at may prevent the collection of erroneous data that could result in unnecessary, time consuming and costly process step adjustments.

LASER TARGETING

Caution: Do not point the laser at the eyes or face of any human or animal. Eye damage may result from direct exposure to laser light. Reflected laser light, from mirrors, glass, etc. can also cause eye damage. The laser is effective for hundreds of feet. Be aware of what or who is in your line of sight. Keep this device away from children, except under direct adult supervision.

To toggle the laser targeting feature on or off, depress the LASER button. You can engage the laser function from any of the five measurement modes. Once selected, the laser light is activated each time the button is pressed until it has been toggled off.

Note: The laser remains on for approximately 1/2 second after the laser button is released.

MAINTENANCE/REPAIR

The PIR1 Pocket Size Infrared Thermometer does not require routine maintenance. A periodic check of calibration is recommended. These devices are not field repairable and should be returned to the factory if recalibration or other service is required. After first obtaining a Returned Goods Authorization (RGA) number, send the material, freight prepaid, to the following address. Please include a clear description of the problem plus any application information available.

Dwyer Instruments Inc.
Attn: Repair Department
102 Indiana Highway 212
Michigan City, IN 46360