

PosiTector® **DPM**

Dew Point Meter

Instruction Manual



Introduction

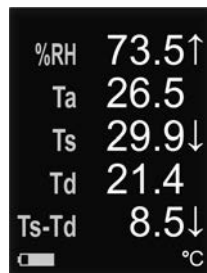
The **PosiTector Dew Point Meter (DPM)** is a hand-held, electronic instrument that measures, calculates and records climatic conditions, quickly, and accurately. It consists of a body (Standard or Advanced) and probe (pg. 3).

Quick Start

Press the **≡** button to power up the Gage. To conserve battery life, the gage will automatically go to sleep after 5 minutes of inactivity. While in **Sleep Mode**, the gage powers up significantly faster—convenient when moving between parts or locations. The gage will completely power off after 4 hours of inactivity. Alternatively, select **Power Off** from the main menu. All settings are retained.

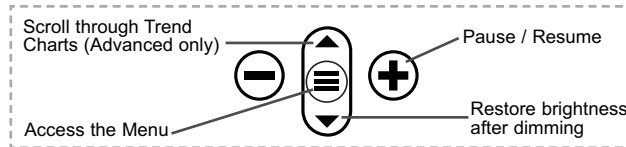
1. Remove the protective rubber cap from the probe.
2. Power-up Gage by pressing the center navigation **≡** button.

A typical instrument screen is shown below, consisting of RH, Ta, Ts, Td, and Ts-Td readings. This group of readings is referred to as a dataset.



RH - Relative Humidity (measured)
Ta - Air Temperature (measured)
Ts - Surface Temperature (measured)
Td - Dew Point (calculated)
Ts-Td - Surface *minus* Dew Point Temperature (calculated)
Tw - Wet Bulb Temperature (calculated) (*Advanced models only*)
V - Wind Velocity (*DPM A model only*)

Button Functions- Normal Operation



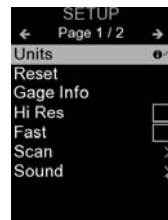
The Pause/Resume **+** button stops values from automatically updating to allow for closer examination of the relationship between the values or to allow time to manually record the entire dataset. Press **+** again to resume.

Menu Operation

To access the Menu, power-up the gage, then press the center navigation button **≡**. Either the keypad or touch screen can be used to navigate the menu. If desired, touch screen functionality can be disabled within the Setup menu (See **Touch**, pg. 5).

Select a menu option by touching it, or use the **▲** and **▼** buttons to highlight the desired option and press **≡** to select it.

On menus longer than one page, the current page number is displayed below the menu name. Navigate between pages using **▲** when the first menu item is selected, or **▼** when the last menu item is selected. If using touch, navigate between pages by touching **←** or **→** or by swiping up or down. Press the **Exit** button or swipe right to return to a previous screen. Select **Exit** to close the Menu.



When a Menu option is highlighted, the **i** icon indicates on-gage help is available. Press **+** or touch the **i** icon to display the help.

Update your gage to ensure that you have the latest on-gage help information.

■ indicates that a sub-menu exists for the Menu option. Select the option to display its sub menu.

Probes

When powered-up, the **PosiTector** automatically determines which probe is attached and does a self-check.

To disconnect a probe from a body, slide the plastic probe connector horizontally (in the direction of the arrow) away from the body. Reverse these steps to attach a different probe. It is not necessary to power-down the Gage when switching probes.

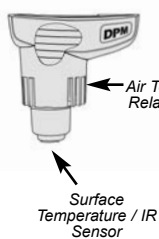


The **PosiTector** body accepts a wide variety of probe types including magnetic, eddy current, and ultrasonic coating thickness, surface profile, hardness, salt contamination and ultrasonic wall thickness probes.

PosiTector DPM probes:

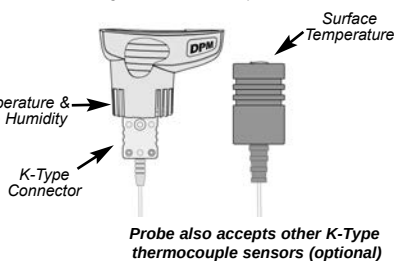
PosiTector DPM / DPM IR

Integral Surface Temperature Sensor



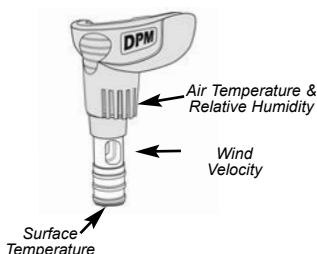
PosiTector DPM S

Magnetic Surface Temperature Sensor



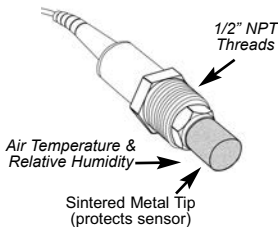
PosiTector DPM A Anemometer

Integral Surface Temperature Sensor



PosiTector DPM D

Cabled probe with NPT threads



Alarm Mode

Alarm ☒

The **PosiTector DPM** can automatically alert the user when current climatic conditions exceed pre-set values. When selected, the Alarm icon  is displayed at the top of the screen.

Standard models will alert the user when the surface temperature is less than 3°C (5°F) above the dew point temperature. Enable by selecting the tick box.

Advanced models allow the user to set up custom alarm conditions for each reading in a dataset. When connected to WiFi, Advanced models can also send alerts via email.

Setup Menu

Units

Converts the displayed units for temperature and wind velocity.

Temperature (*all models*): Celsius (°C) or Fahrenheit (°F)

Velocity (*DPM A only*): m/s, ft/s, km/h, mph, or kn.

Reset

Reset (menu reset) restores factory settings and returns the Gage to a known condition. The following occurs:

- All batches and stored datasets, batch names and screen captures are erased.
- Menu settings are returned to the following:

Memory = OFF	Bluetooth & Stream = OFF
Auto Log = OFF	WiFi & Access Point = OFF
Trend Chart = None	USB Keyboard & Stream = OFF
Auto Dim = ON	BLE Keyboard = OFF
Display = None	Anemometer = ON

Perform a more thorough **Hard Reset** as follows:

1. Power down the Gage and wait 5 seconds.
2. Simultaneously press and hold the  and  buttons until the **Reset** symbol  appears.

This returns the Gage to a known, “out-of-the-box” condition.

It performs the same function as a menu **Reset** with the addition of:

- Bluetooth Pairing info is cleared.
- Alarm settings are set to defaults.
- Menu settings are returned to the following:

Units (temperature) = Celsius	Units (velocity) = m/s
Flip Lock = OFF	Battery Type = Alkaline
Auto Sync .net = ON	Backlight = Normal
Alarms = OFF	Bluetooth Smart = OFF
Alarm Sound = OFF	USB Drive = ON
Sound = Medium	Auto Log Interval = 5 min
Language = English	Wet Bulb = OFF
Touch = ON	

NOTE:

Date, Time and WiFi settings are not affected by either **Reset**.

Trend Chart *(Advanced models only)*

Displays a real-time graph of the readings over the last three minutes. Use Trend Charts to monitor short-term environmental changes and spot trends.

Shortcut: Press the ▲ button to scroll through the trend charts.

Wet Bulb *(Advanced models only)*

When selected, the wet bulb temperature (Tw) is displayed on the main screen. It is calculated from Ta and RH using an air pressure of 1.0 atmospheres (1013 mbar). Variations of Tw at other pressures could be greater than $\pm 1^{\circ}\text{C}$ ($\pm 2^{\circ}\text{F}$).

Sound

Adjusts the volume of built-in speaker (Off, Low, Medium, High).

Flip Lock



Disables the **Auto Rotate** feature by locking the display in its current orientation.

Touch



Allows the touch screen functionality to be disabled. All gage functions can also be controlled using the navigation buttons.

Set Clock

All measurements are date and time stamped (24-hour format) when stored into memory. It is therefore important to set the correct date and time. Use the ▲ and ▼ buttons to select a value, and the ⊖ and ⊕ buttons to adjust it. The current date and time setting can also be viewed at the top of the main menu.

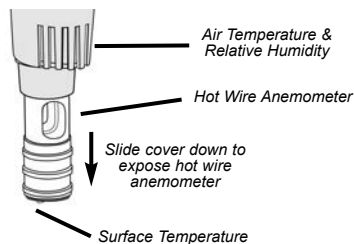
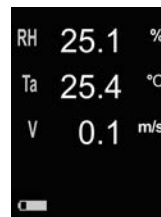
Battery Type

Selects the type of batteries used in the Gage from a choice of "Alkaline", "Lithium" or "NiMH" (nickel-metal hydride rechargeable). The battery state indicator symbol is calibrated for the selected battery type. No damage will occur if the battery type used in the Gage does not match the selected battery type.

Anemometer

(PosiTector DPM-A probes only)

When **Enabled** ☒, the **PosiTector DPM A** will display wind velocity (**v**) in the selected unit of measure (see **Units** pg. 4).



NOTE: Dew point (Td) and surface temperature (Ts) are not displayed when the **Anemometer** is enabled.

Emissivity

(PosiTector DPM-IR Models Only)

Sets the emissivity ratio for the **PosiTector DPM IR** infrared temperature sensor.

Select from a **User Entered Value** or one of the following preset options:

- | | |
|----------------------------|---------------------------|
| - Aluminum (rough) = 0.07 | - Plastics = 0.94 |
| - Zinc (Galvanized) = 0.25 | - Steel (Oxidized) = 0.95 |
| - Concrete = 0.54 | - Wood = 0.95 |
| - Paint = 0.96 | |

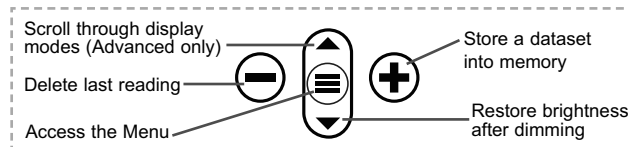
Memory Management

The **PosiTector DPM** has internal memory storage for recording measurement datasets. Stored datasets can be reviewed on-screen or accessed via computers, tablets and smart phones. Datasets are date and time-stamped. Datasets can be stored manually (using the  button), or automatically using the **Auto Log** mode.

The  symbol appears when the Gage is set to store datasets.

Standard models store up to 2,500 datasets in one batch.

Advanced models store 250,000 datasets in up to 1,000 batches. "New Batch" closes any open batch and creates a new batch name using the lowest available number. New batch names are date stamped when they are created.

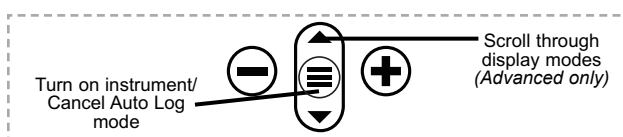


Screen Capture

Press both  and  buttons simultaneously to save an image of the current display. The last 100 screen captures are stored in memory and can be accessed when connected to a computer (see **PosiSoft USB Drive** pg. 9).

Auto Log Mode

The **PosiTector DPM** can automatically display and record datasets at user selected time intervals. When selected, the Auto Log icon (🕒) will appear on the display, with a countdown timer until the next reading. Connect the instrument to a USB power source for long-term use.



Standard models remain powered-up while in auto log mode. The instrument will take readings for 50-60 hours on a set of alkaline batteries, depending on the frequency of measurements.

Advanced models power down between readings to conserve batteries. At each interval, the instrument will wake up, take a reading, sync to PosiSoft.net (if configured) and power down. The instrument can record approximately 10,000 datasets while in this mode using alkaline batteries, and can be configured to **Auto Batch** at daily, weekly, and monthly intervals.

NOTES:

- Auto Log** continues recording until the instrument loses power or the user turns off **Auto Log** mode. Stored datasets will remain in memory until full, then the oldest dataset or batch will be overwritten to allow space for the next dataset.
- To conserve battery life, readings update only at the Log Interval. The last recorded readings will remain on the display until the next dataset has been stored.
- It is recommended that fresh alkaline batteries be installed prior to an extended **Auto Log** if not connected to continuous power.

Accessing Stored Measurement Data

DeFelsko offers the following free solutions for viewing, analyzing and reporting data:

PosiSoft USB Drive - Connect the Gage to a PC/Mac using the supplied USB-C cable. View and print readings and graphs using universal PC/Mac web browsers or file explorers. No software or internet connection required.

PosiSoft Desktop - Powerful desktop software (PC/Mac) for downloading, viewing, printing and storing measurement data. Includes a customizable, templated PDF Report Generator. No internet connection required.

PosiSoft.net - Web-based application offering secure, centralized storage of measurement data. Access your data from any web-connected device.

PosiTector App - (*Advanced models only*) App for compatible iOS and Android smart devices. Permits users to create, save and share professional PDF reports. Add images and notes using the smart device's camera and keyboard.

WiFi

Connect Menu
(Advanced Models Only)



Allows connection to your local wireless network or mobile hot spot. Ideal for using your network's internet connection for synchronizing stored measurements with **PosiSoft.net** (above).

USB

When **USB Drive** is enabled ☒, the PosiTector uses a USB mass storage device class which provides users with a simple interface to retrieve stored data in a manner similar to USB flash drives and digital cameras. **USB Drive** is also required to import stored measurements into **PosiSoft Desktop** software (above).

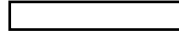
NOTE: While connected, power is supplied through the included USB-C cable. The batteries are not used and the body will not automatically power down.

Keyboard

(Advanced models only)



When enabled and connected to a computer, the PosiTector will be recognized as a *Keyboard*. Readings are sent to the computer as they are taken, emulating keystrokes, followed by a carriage return.



(Advanced models only)

Stream individual readings to a USB connected computer via a serial protocol. Ideal for use with serial compatible SPC data collection software.

NOTE:

Sync .net Now

The above **WiFi** and **USB** menus contain a **Sync .net Now** option. When selected, the Gage immediately synchronizes stored measurement data via its respective communication method (internet connection required). Alternatively, select **Auto Sync .net** from within the **USB** connect menu to automatically synchronize upon connection to a PC. Additional measurements added to memory while connected are synchronized only when the USB cable is disconnected and reconnected, or when the **Sync.net Now** option is selected. **WiFi** connected gages automatically attempt synchronization upon power-up.

NOTE: **PosiSoft Desktop** is required when using **USB** to synchronize measurements with PosiSoft.net.

Bluetooth

(Advanced models only)



(Advanced models only)



Allows communication with a smart device running the **PosiTector App** (pg. 9) via auto-pairing **Bluetooth Smart** (BLE) wireless technology.

Sync Batches

Select batches to flag them for synchronization to the PosiTector App. **Sync Batches** is useful when connecting a new device to a gage with pre-existing batches, since only batches created while **Bluetooth Smart** is enabled are automatically selected.

Selected batches are synchronized when the next reading is taken in a batch flagged for synchronization, or when the **Sync Batches** option is selected at the bottom of the list of selected batches.

NOTE: If **Bluetooth Smart** is disabled or disconnected, data from batches selected in the **Sync Batches** menu are held in a queue until communication with the PosiTector App is re-established.

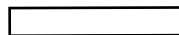
Send Batches

Transfers selected batches to the PosiTector App. **Send Batches** is useful when switching between devices, as only readings and batches that have yet to be synchronized with any smart device are synchronized automatically.

The **Send Batches** option is visible in the menu when the Gage is connected to a smart device running the PosiTector App.

BLE Keyboard (Advanced models only)

When enabled and connected to a computer, the PosiTector will be recognized as a wireless **Keyboard**. Readings are sent to the computer as they are taken, emulating keystrokes, followed by a carriage return.



WARNING: The Gage will perform a **Hard Reset** (pg. 4) after an update. All stored measurements will be erased from memory.

Technical Data

Conforms to: ISO 8502-4, BS7079-B and ASTM D3276

Operating Range: -40° C to +80° C -40° F to +175° F

PosiTector DPM, DPM S, DPM A, DPM D, DPM IR

	Range	Accuracy	Resolution
Surface Temp.	-40° to 80° C	±0.5° C	0.1° C
	80° to 190° C	±1.5° C	0.1° C
	-40° to 175° F	±1° F	0.1° F
	175° to 375° F	±3° F	0.1° F
IR Surface Temp.**	-70° to 380° C	±1° C + (0.01°C/°C)***	0.1° C
	-94° to 716° F	±2° F + (0.01°F/°F)***	0.1° F
Air Temp.	-40° to 80° C	±0.5° C	0.1° C
	-40° to 175° F	±1° F	0.1° F
Humidity	0 to 100%	±3 %	0.1 %
Wind Speed*	0 - 20 m/s	±3% Full Scale + least significant digit	0.1 m/s
	0 - 65 ft/s		0.1 ft/s
	0 - 3900 fpm,		1 fpm,
	0 - 72 km/h		0.1 km/h
	0 - 44 mph		0.1 mph
	0 - 38 kn		0.1 kn

*DPM A Models Only

**DPM IR Models Only

***At Ta = 23° C

PosiTector DPM IR:

- Distance to Target Size Ratio (D:S) – 4:1
- Response Time: <500 milliseconds (95% response)
- Spectral Response: 5.5 - 14 µm

CAUTION:

To ensure optimal performance of your **PosiTector DPM**, do not obstruct the airflow near the air temperature and humidity sensors. Keep fingers away from the sensor, as body heat can cause incorrect readings. Allow time for the instrument to acclimate and for the readings to stabilize when moving the instrument between different environments.

When using the surface temperature probe, do not use excessive downward force, and do not drag it sideways. When the instrument is not in use, place the rubber cap over the surface temperature sensor to prevent damage.

Returning for Service

Before returning the instrument for service...

1. Install new or newly recharged batteries in the proper alignment as shown within battery compartment.
 2. Examine the surface temperature sensor for dirt or damage.
 3. If the humidity sensor is slow to respond or reading erratically, recondition the sensor by removing the probe from the gage body and wrapping it in a damp cloth overnight.
 4. Perform a **Hard Reset** (pg. 4).
 5. If issue is not resolved, **Update** (pg. 11) your **PosiTector** gage body and re-attempt measurements.
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