



# CON-TROL-CURE®

## PALM PROBE RADIOMETER

(P)roduction (A)mbient (L)ight (M)easurement device featuring a wide dynamic range for reading UV levels emitted by low- and high-powered UV sources



### INTRODUCTION

The **PALM PROBE UV RADIOMETER** is a process control instrument designed for measuring UV energy within inaccessible environments. The PALM Probe provides a safe, reliable measurement solution for UV-web and other applications.

PALM is an acronym for "Production Ambient Light Measurement". The PALM Probe has an extremely wide dynamic range allowing it to measure very low (i.e. fluorescent bulbs) and very high (i.e. powerful UV curing systems) levels of UV. As the harsh physical conditions inside a UV curing chamber include extreme temperature variations, the PALM Probe is designed to withstand these conditions as well as protect the operator and instrument from damage or electrical shock. To use, simply hold the base of the instrument and position the light guide under the UV source.

### OPERATION

An input aperture at the tip of the PALM Probe light guide detects all wavelengths of ultraviolet, visible and infrared radiation. The light is directed down the light guide to the base of the instrument where a UV filter passes the UV light of interest to the photodetector. The photo-detector converts the light energy to a current that is proportional to its intensity. The signal is then conditioned, digitized, processed and displayed on the device's LCD.

The light guide is constructed of steel alloy and coated with a non-conductive ceramic coating to insulate and protect the user from accidental shock. It is further isolated from the instrument body by a non-conductive Delrin block. The base contains the instrument's optics, electronics, battery and display functions, and can be held either with an 'over' or 'under' hand type of grip. Raised membrane switches permit easy control.

The PALM Probe radiometer has a very wide dynamic range that automatically adjusts itself for the user. For example, the instrument can measure light from approximately 100 microWatts/cm<sup>2</sup> (mW/cm<sup>2</sup>) up to 10 Watts/cm<sup>2</sup> (W/cm<sup>2</sup>) within the UVA (320-390nm) bandwidth. The decimal point in the LCD 'floats' over three places to cover the wide dynamic range on the unit.

The PALM Probe's display allows the user to alternate between Watts-Joules-Seconds during data collection and after a reading has been made. The SELECT button allows the user to toggle between the values.

When collecting irradiance data, the display will change as the light guide changes position under the UV source. As the aperture opening moves into the focused peak irradiance area of the UV source, the reading will increase. Variations in irradiance may also be seen when the PALM Probe's light guide is moved along the length of a UV bulb. The LCD display will automatically scale and adjust as the radiometer takes readings. Pressing the RUN/STOP button will stop the collection of data and the highest irradiance value measured during the collection of data will be displayed. Most users will find that the irradiance value (W/cm<sup>2</sup>) displayed is the most important value when it comes to process control for a particular application.

UV energy density (also widely referred to as "dose") incorporates time into the irradiance measurement. The PALM Probe displays the energy density, or dose, value in Joules (J/cm<sup>2</sup>) on the LCD. Dose is an integration of the area under the irradiance curve. The dose reading increases as the reading continues. The speed at which the dose increases depends on the irradiance value. Switching to the built-in timer will help monitor the 'time component' of the dose reading for more consistent results. Placement of the PALM Probe in the same location is important in order to get consistent and repeatable irradiance values to calculate dose readings.

### 24-HOUR PRODUCT SERVICES

Internet: [www.uvprocess.com](http://www.uvprocess.com)

E-mail: [info@uvps.com](mailto:info@uvps.com)

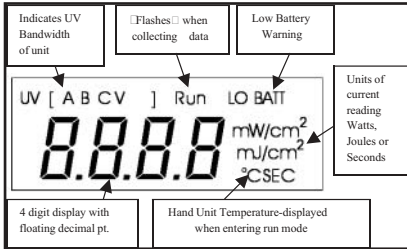


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## LCD DISPLAY

The LCD Displays on the PALM Probe is easy to read and understand as the user will only see the segments on the display that pertain to the current reading.

## PALM PROBE PLACEMENT

Placement of the PALM Probe needs to be in a regular and repeatable location to achieve consistent results. We have developed two accessories to help with this.

The first accessory, the Locking Ring, is supplied with each unit and attaches over the light guide to allow it to be positioned to the same "stop" depth each time the PALM Probe is used to take a reading.

The second accessory, the Locator Kit (M007-096L) helps with placement of the PALM Probe and is sold separately. The Locator Kit is mounted on the system and allows the Light Guide to be inserted in the same location each time. The Locator Kit has been designed to mount in either direction, depending on the UV equipment.

## FEATURES

- Measures UV over a wide dynamic change with auto scaling and adjustment
- Non-conductive Light Guide is electrically isolated from the PALM Probe radiometer's base
- Self contained, easy to use with two raised membrane switches
- Display toggles between Watts, Joules, and Seconds during data collection and at the end of data collection
- UV ranges of UVA, UVB, or UVV
- Battery powered with two user replaceable AA batteries with low battery warning

## APPLICATIONS

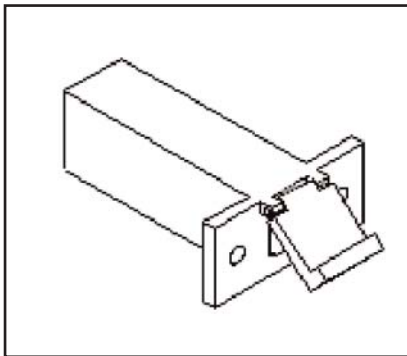
- Measure UV energy output of inaccessible UV environments such as web, flexo and other applications where either space is limited or it is difficult to reach.
- Establish, document and maintain UV process windows.
- Meet ISO, quality and customer requirements for SPC/SQC.
- Coordinate readings from on-line sensors installed to continuously monitor a cure station.
- Hazard application - monitor stray UV in the workplace.

## ELECTRICAL SPECIFICATIONS

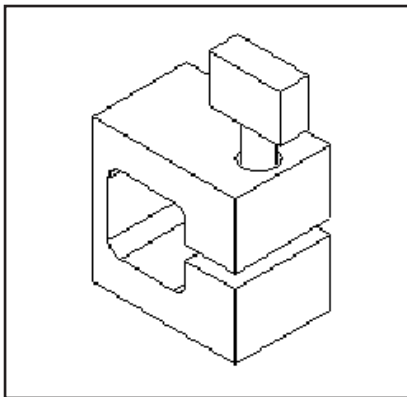
- UV Range: 100 mW/cm<sup>2</sup>-10 W/cm<sup>2</sup>
- Spectral Response: UVA 320-390nm, UVB 280-320nm, UVV 395-445nm
- Display: LCD with 4 digits and floating decimal place
- User Interface: Two raised membrane switches
- Operating Temp: Instrument body: 0-70°C
- Time-out period: 10 Minutes
- Batteries: Two AA Alkaline Batteries
- Battery Life: 25 Hours run time

## MECHANICAL SPECIFICATIONS

- Overall Length: 25.75" ( 65.4 cm)
  - Probe Body Length: 7.5" ( 19.0 cm)
  - Light Guide Length: 18.25" (46.4 cm)
  - Weight: 21 ounces (596 grams)
  - Light Guide: 750°F on a continuous basis
- Temperature Resistance: much higher for measurement length exposures



**Palm Probe Locator Kit Accessory**  
(Sold Separately - M007-096L)



**Palm Probe Locking Ring Accessory (Included)**

## PART NUMBER

## DESCRIPTION

M007-096A	RADM:PALM PROBE UV A
M007-096B	RADM:PALM PROBE UV B
M007-096V	RADM:PALM PROBE UV V
M007-096L	RADM:PALM PROBE LOCATOR KIT

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