

4-Channel High Energy UV Integrating Radiometer Power Puck®



Features

- Truly compact: 4.60" diameter – same as a CD!
- Self-contained, battery-powered
- Total UV Energy Density, joules/cm²
- Peak UV Irradiance, watts/cm²
- UV ranges simultaneously - UVA, UVB, UVC, UVV
- Low battery indicator
- User replaceable lithium batteries
- User selectable data displays

Applications

- Measure UV curing system performance
- Determine UV lamp efficiency
- Establish UV level for proper curing
- Measure UV spectral distribution
- Meet ISO 9000 requirements
- Measure changes in spectral distribution ratios as the UV lamp ages

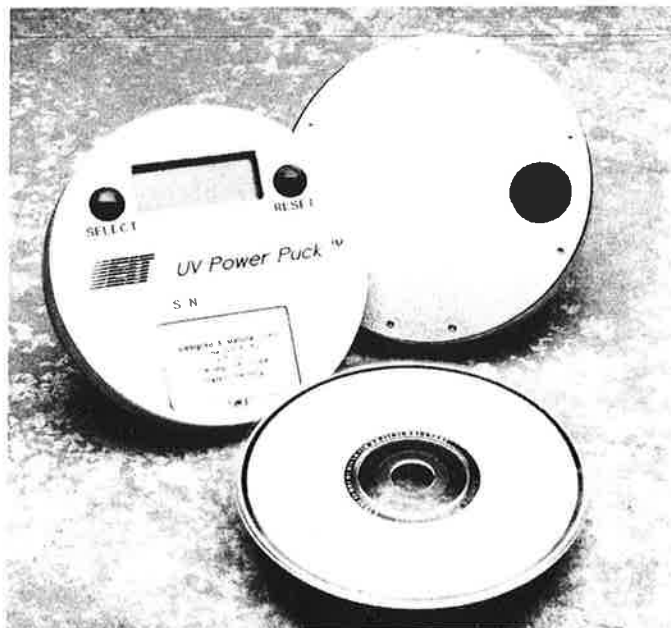
Introduction

The EIT UV Power Puck is a self-contained, electro-optic instruments designed to measure and display peak UV irradiance and total UV energy density used in the UV curing process. The Power Puck's unique compact design, only 4.60 inches in diameter and ½ inch high, allows it to be placed directly in most curing environments. The instrument operates successfully in the extremes of UV and thermal radiation often encountered in UV curing systems.

A carefully designed optical sensing system measures total UV energy density on 4 different channels simultaneously. These four different channels represent four different UV bandwidths of interest for most curing applications: UVA (320-390nm), UVB (280-320nm), UVC (250-260nm), and UVV (395-445nm). The output of the sensing system is converted to digital form and displayed on the LCD by scrolling through a user-friendly menu. Total UV energy, density measured in joules/cm² is the result of the integrated irradiance during exposure time. It is how much actual UV energy was impinged on the unit from the time it encountered UV until the time the UV source was removed. The UV Power Puck also has the distinct advantage of being able to monitor the peak irradiance in watts/cm². This allows the operator to determine not only the total energy, but also how that energy is delivered; i.e., what irradiance at what wavelength.

Why to Use a Radiometer

When product is passed through a curing system and the resulting cure is satisfactory, the operator normally does not know what UV level was required to obtain this cure. Therefore, he may not be able to repeat this process



successfully next week or next month. With the use of a radiometer, the operator can immediately quantify the process. After product is cured satisfactorily, the operator exposes the radiometer to the same UV process. The UV level readings are displayed on the radiometer.

Because of the data provided by the radiometer, true process control can be achieved. At start-up each day, the operator exposes the radiometer to the curing process, takes readings, and observes if the readings are within his curing parameters for a satisfactory cure for the particular product to be run. The operator can make adjustments by changing length of exposure time, cleaning reflectors, or even relamping in order to obtain the desired UV levels, thereby assuring consistency in the curing process. The radiometer quantifies the UV curing system, and takes a great deal of guesswork out of the overall curing process. Contact EIT for more information on establishing and maintaining a process window.

Operation

The EIT UV Power Puck is very easy to use. Simply push the "Reset" button and send the unit through a curing system, either conveyORIZED or stationary. The unit begins accumulating data when UV energy is encountered which is greater than its 5mW/cm² threshold. After the Power Puck has been passed through the UV process, the results of its measurements can be easily accessed by touching the "Select" button to scroll through a simple menu. Measurements displayed will be the UV bandwidth being monitored, the total UV energy density in joules/cm², and the peak UV irradiance in watts/cm². If a low battery condition exists, this will also be displayed.

The unit will time itself out after approximately two minutes of non-use to conserve battery life. After the unit times itself out, the first measurements obtained by the Power Puck for all bandwidths on all menus can still be accessed by pushing the "Select" button again. This information will remain available until the user pushes the "Reset" button to initiate a new reading.

The unit is able to withstand extremely demanding operating conditions. Since the internal temperature should not exceed 80°C, a safety, an audible high temperature alarm will provide a warning that the unit is approaching an unsafe internal temperature.

The EIT UV Power Puck can accommodate energy irradiance levels up to 5W/cm². An optional 10W/cm² version is available. Total energy range is 0 to 250 J/cm² for each UV range.

The Power Puck is battery powered using lithium, user-replaceable batteries. A weak battery will trigger a "Lo Batt" status. Data remains valid even in "Lo Batt" status. When the battery voltage affects data integrity, zeros are displayed in all locations.

The EIT UV Power Puck comes in a protective foam-lined carry case.

Specifications

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|-----------------------------|---|
| Range | UVA, UVB, UVV – 5mW/cm ² to 5W/cm ² UVC – 5mW/cm ² to 1W/cm ² |
| Display | 4 Digit LCD |
| Data Readings | UV Bandwidth: UVA (320-390nm) UVB (280-320nm) UVC (250-260nm) UVV (395-445nm) Total Energy Range: 0-250 J/cm ² Peak Irradiance: 0 to 5 Watts/cm ² (UVA, UVB, UVV); Optional 10W/cm ² unit also available 0 to 1 W/cm ² (UVC) Internal Radiometer Temperature Degrees Celsius (80°C max) Lo Batt indicator |
| User Interface | Push button switch allows user to obtain data from both display modes, intensity and dosage |
| Accuracy | +/-5% typical, +/-10% guaranteed |
| Spectral Response | Choice of: 320-390nm (UVA) 280-320nm (UVB) 250-260nm (UVC) 395-445nm (UVV) |
| Spatial Response | Approximately cosine |
| Operating Temperature Range | 0-80° C internal. The unit will tolerate much higher external temperatures for short periods. A safety audible alarm will sound if internal temperature rises above a safe level. |
| Time-Out Period | Approximately 4 minutes RUN mode; 2 minutes DISPLAY mode |
| Batteries | Two user replaceable lithium cells, Duracell DL2450, Sanyo CR2450 or equivalent |
| Battery Life | Over 1500 readings with typical use |
| Dimensions | 4.60" diameter x .50" high (11.7cm x 1.27cm) |
| Weight | 11.75 oz. (333.11 grams) |
| Package Material | Stainless and aluminum |

Carrying Case

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|--------------|---|
| Construction | Cut polyurethane interior. Soft, scruff-resistant nylon cover |
| Weight | 1 lb. (453.6 grams) |
| Dimensions | 12"W x 4.7"H x 8.25"D (30.48 x 11.94 x 20.96cm) |

Specifications subject to change