

UV RADIOMETER

# **UVR-300**



# High sensitivity, Wide range, User-friendly, High performance digital UV Meter.

The UVR-300 is a handy-type UV radiometer with excellent efficiency and expansive ability.

Three different types of high-sensitivity detectors, each for differing wavelength ranges, are available to deal with specific usages.

Measuring bactericidal lamps, measurement of quantity of light of photochemical reaction, measurement of quantity of light of photoresist, and testing solarization are just a few areas where the UVR-300 stands out.



## Features

### Extra digit for detecting sensitivity

0.1 - 280,000  $\mu\text{W}/\text{cm}^2$

### Measurement mode are selectable by Keyboard

#### •Correction factor (C.C.F.mode)

Input correction factor for of irradiance of various ultraviolet lamps.

#### •Measurement of integral irradiance ( $\text{mJ}/\text{cm}^2$ mode)

Irradiation amount of ultraviolet light can be easily measured with the integration function. Maximum integral irradiance is 1,000,000,000  $\text{mJ}/\text{cm}^2$ , and maximum integration time is 999,900 seconds (approx.280hrs.).

#### •Deviation measurement ( $\Delta$ mode)

percentage measurement (% mode)  
The amount of deviation of the ultraviolet ray irradiation surface as compared to the reference value can be calculated.



## USB interface

Measured data can be retrieved from UVR-300 via USB.

Pin No.	Signal	Baud rate	38400
1	VBUS	Data length	7
2	D-	Parity	ODD
3	D+	Spread bit	1
4	GND		
5	GND		



\*USB cable is not included in UVR-300 standard package.  
\*Mini USB series B connect mail (5pin)

## Examples of use

### Photochemical reaction

- Photoresist for manufacturing semiconductors
- Photosensitive materials for printing or plate making
- Photo color fading
- Evaluation of solar battery properties
- Testing for deterioration of products

### Photoelectric reaction

- Exposure for electrophotography
- Printing for electrophotography

### Biological reaction

- Erythema, pigmentation
- Treatment of facula, diagnosis of photo-hypersensitivity
- Aid and control in raising livestock or fish
- Suppressing turion in plants
- Photosynthesis

### Measurement and analysis of germicidal effects in food processing

- \* Also can be used for other adjustment, inspection, research, development

## Examples of light sources

- Fluorescent sun-lamp
- High-pressure mercury-vapor lamp
- Photo-polymerization
- Super-high-pressure mercury-vapor lamp
- Black light (UD-360A)
- Photocopying lamp
- Xenon lamp
- Bactericidal lamp (UD-250)
- Fluorescent lamp, etc.

## Good to Know

### •Basic relations

$$\text{Joule [J]} = \text{Watt [W]} \times \text{Second [s]}$$

$$\text{Joule [J]} = 10^7 \text{ [erg]}$$

$$[\text{cm}^2] = 10^{-4} [\text{m}^2]$$

$$\text{Hour [h]} = 3600 [\text{s}]$$

### •Converting units

$$1 \text{ mW}/\text{cm}^2 = \frac{10^{-3} \text{ W}}{10^{-4} \text{ m}^2} = 10 \text{ W}/\text{cm}^2$$

$$1 \text{ mW} \cdot \text{h}/\text{cm}^2 = \frac{10^{-3} \text{ W} \cdot 3,600 \text{ s}}{10^{-4} \text{ m}^2} = 36,000 \text{ J}/\text{m}^2$$

$$1 \text{ mJ}/\text{cm}^2 = \frac{10^{-3} \mu\text{W} \cdot 1 \text{ s}}{1 \text{ cm}^2} = 1,000 \mu\text{W} \cdot \text{s}/\text{cm}^2$$

## Standard Package

- UVR-300(main body).....1 pcs
- Cap.....1 pcs
- Leather case.....1 pcs
- CD-ROM(USB Driver / instruction manual).....1 pcs
- Analog output plug.....1 pcs

# Detectors

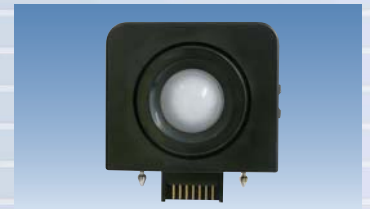
## 3 Types of Detectors

UD-250 (220 - 300nm)

UD-360A (320 - 400nm)

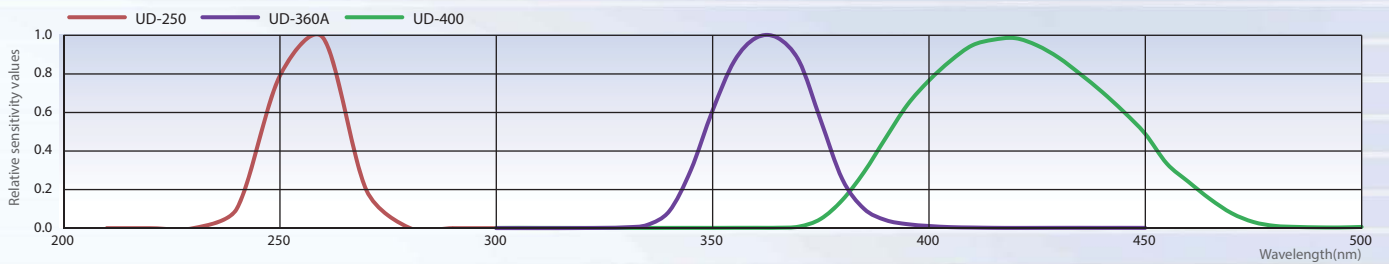
UD-400 (360 - 490nm)

Three type of detectors are interchangeable and Main unit of UVR-300 is shared by three detectors.

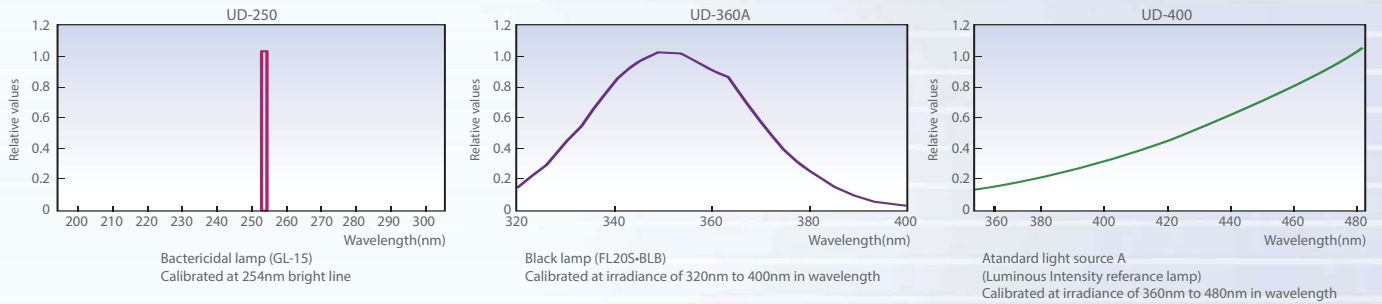


## Spectral Characteristic

### •Spectral sensitivity characteristics

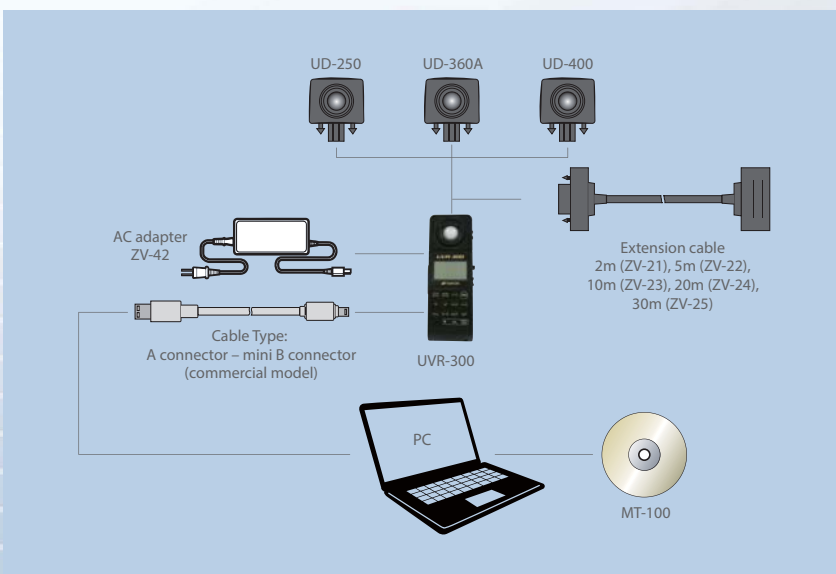


### •Spectral distribution of calibration light sources



\* If you measure light sources having spectral properties differing to the calibration light source using an ultraviolet radiometer, the values will be relative values, not absolute. Examples of relative value measurement include: deterioration management of UV lamps, measurement of UV lamp flux distribution, measurement of illuminance irregularities of UV irradiation devices, etc.

## System / Dimensions



## Specifications

Display range	0.1– 280,000 $\mu$ W/cm <sup>2</sup> Auto/manual 4-step range
Display	4-digit LCD Read
Linearity	$\pm$ 5% of rdg. : $\pm$ 1 digit (Auto range)
Measurement wavelength range	UD-250 220 – 300 nm UD-360A 320 – 400 nm UD-400 360 – 490 nm
Temperature Characteristics	Within $\pm$ 3% (-10 to 4 $^{\circ}$ C : against 23 $^{\circ}$ C)
Humidity characteristics	Within $\pm$ 3%
Analog signal output	0 to 3Vmax, 1mV / 1digit
Interface	USB (Virtual COM port)
Power supply	AA battery x 2 : Separately sold parts
Operating conditions	Temperature : -10 to +40 $^{\circ}$ C Humidity : 85% R.H. or less (no condensation)
Dimensions	Approx. 195 mm x 70 mm x 33 mm (including detector)
Weight	About 260 g (including detector and batteries)
Detection element	Silicon photodiode
Calibration light source	UD-250 GL-15 UD-360A FL20S-BLB UD-400 Standard light source A

Detector unit types such as UD-250, UD-360A, UD-400 are available according to measurable wavelengths range, but the display unit can be used with any of them.

## Options

### AC adapter ZV-42

AC adapter is used in long time continuous measurement.

### Extension cable

Handy for using the photoreceptor and the display unit separately.

5 types available:

2m (ZV-21), 5m (ZV-22), 10m (ZV-23), 20m (ZV-24), and 30m (ZV-25).



### Measurement Program MT-100

Standard optional software MT-100 can obtain measured data from UVR-300. The MT-100 operates continuous measurement up to 99,999 times. Measured data can be stored with CSV format, which can be opened by spreadsheet software.

\*MT-100 is not included the product, it is possible to download it from the website below.

<http://www.topcon-techno.co.jp/en>

### •Meaning of "of rdg." and "digit"

"of rdg" is for reading values. For example, " $\pm$ 5% of rdg" means  $\pm$ 5% of reading values.

$\pm$ 1 digit means reading values. "digit" means 1 count in digital and indicates that there may be error of one count in the last significant digit of the digital display.



\*Some screens are simulated.

\*The specifications and external appearances of product in this catalogue may be changed without prior notice due to improvements.

\*The catalogue includes products that are sold separately.

\*The actual color of products may differ slightly from the catalogue due to lighting and printing conditions.

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### SAFETY PRECAUTIONS



Make sure to carefully read the "Manual" to ensure that you use the product properly and safely.

•Always connect the instrument to the specified power supply voltage. Improper connection may cause a fire or electric shock.

•Be sure to use the specified batteries. Using improper batteries may cause a fire or electric shock.

For more information please visit our website.

<http://www.topcon-techno.co.jp/en/>

