TOPCON

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 - 280,000μW/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 (mJ/cm^2 mode)
Irradiation amount of ultraviolet light can be easily measured with the integration function. Maximum integral irradiance is 1,000,000,000mJ/cm^2, and maximum integration time is 999,900 seconds (approx.280hrs.).
•Deviation measurement (Δ mode)
precentage 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
1	VBUS
2	D-
3	D+
4	GND
5	GND

Baud rate	38400
Data length	7
Parity	ODD
Spread bit	1

*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
•Evalution 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

Joule [J] = Watt [W] × Second [s]

Joule [J] = 10^7 erg [erg]

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

Hour [h] = 3600[s]

•Converting units

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

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

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

Standard Packge

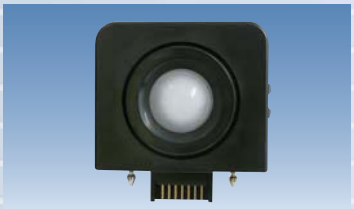
•UVR-300(main body).....1pcs
•Cap.....1pcs
•Leather case.....1pcs
•CD-ROM(USB Driver / instruction manual).....1pcs
•Analog output plug.....1pcs

Detectors

3 Types of Detectors

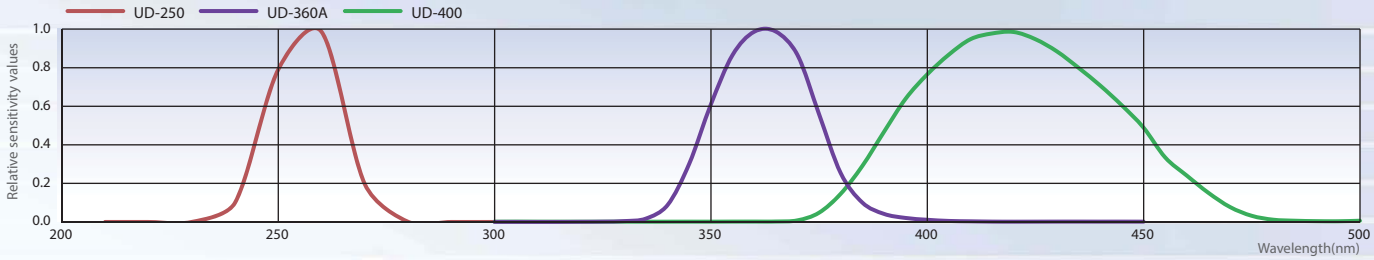
UD-250 (220 - 300nm) | UD-360A (320 - 400nm) | UD-400 (360 - 490nm)

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

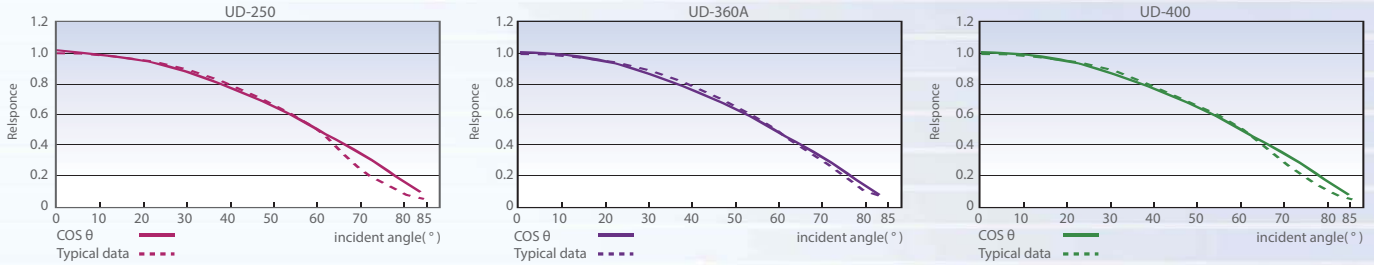


Spectral Characteristic

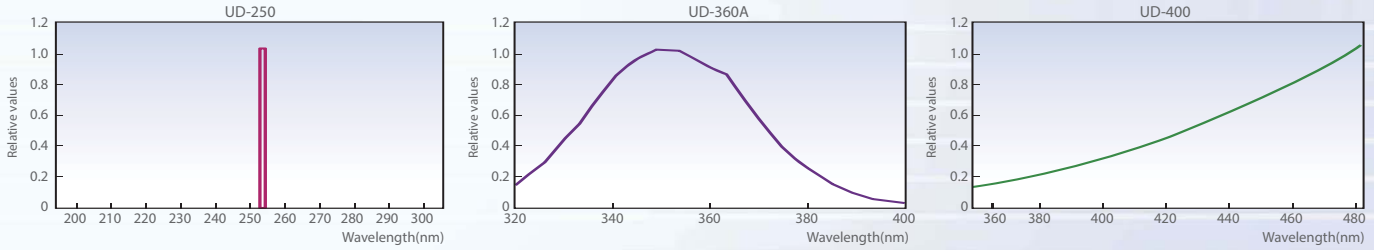
•Spectral sensitivity characteristics



•Angular incident light characteristics



•Spectral distribution of calibration light sources



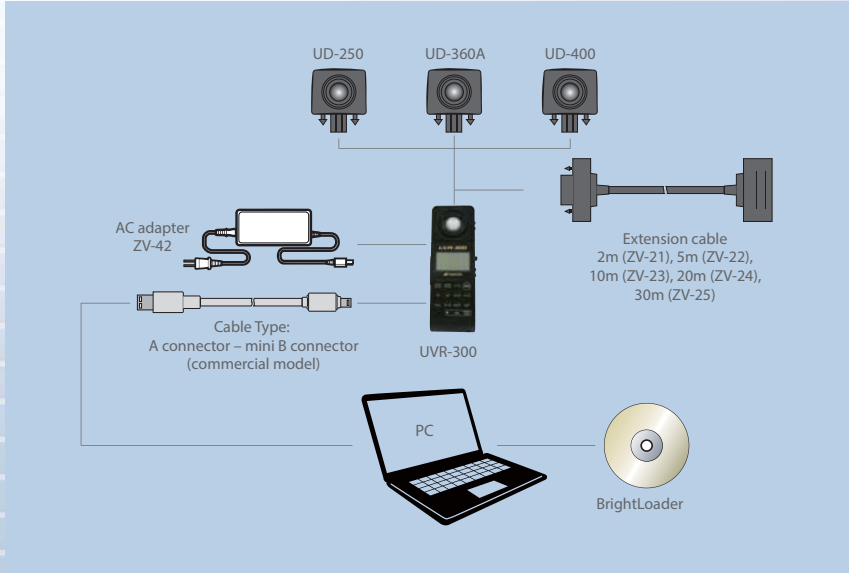
Bactericidal lamp (GL-15)
Calibrated at 254nm bright line

Black lamp (FL20S•BLB)
Calibrated at irradiance of 320nm to 400nm in wavelength

Atandard light source A
(Luminous Intensity referance lamp)
Calibrated at irradiance of 360nm to 480nm in wavelength

* 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– 280,000μW/cm²
	Auto/manual 4-step range
Display	4-digit LCD Read
Linearity	± 5% of rdg. : ± 1 digit (Auto range)
Measurement wavelength range	UD-250 220 – 300 nm
	UD-360A 320 – 400 nm
	UD-400 360 – 490 nm
Angule incident light characteristics	
Temperature Characteristics	Within ±3% (-10 to 4ºC : against 23ºC)
Humidity characteristics	Within ±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 +40ºC
	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

	UD-250	UD-360A / 400
30º	±3%	±3%
60º	±15%	±10%

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.

•Meaning of "of rdg." and "digit"

"of rdg" is for reading values. For example, "±5% of rdg" means ±5% of reading values.
±1digit 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.

Options

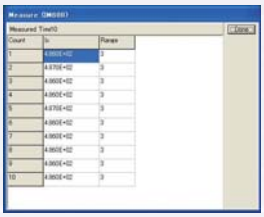
AC adapter ZV-42

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).

Bright Loader (by Harvey lab)



Bright Loader is data collection software to retrieve measured data from UVR-300. Measurement interval, the number of measurement, and Measurement range can be specified via PC. Integral illuminance can be calculated. Measured data is saved as CSV format, which can be open by spreadsheet program. Mini USB cable is required to connect PC to UVR-300.

• OS : Windows 2000 / Windows XP / Windows Vista (32bit)

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 spread sheet 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

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UKAS ENVIRONMENTAL MANAGEMENT 051

JCSS 0073 — JCSS is the logo of the traceability system based on the Japanese Measurement Law. TOPCON TECHNOHOUSE is a certified provider optical solutions. The company's certification number is 0073. (JCSS: JAPAN Calibration Service System)

TOPCON TECHNOHOUSE has been certified as a provider of optical solutions, according to the Japanese Measurement Law.

We will issue a calibration certificate bearing the JCSS logo, which guarantees the accuracy of illuminance (illuminance meter), and luminosity (lamp) based on national standards.

*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/

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