

150 - 300 W Oriel Solar Simulators



91160 Solar Simulator

Our 150 - 300 W Solar Simulators produce a uniform, collimated, 2 x 2 inch output beam. We offer two models, differing in spectral output.

• 150 - 300 W Full Spectrum Solar Simulator

Produces close spectral match to sunlight with power equivalent to ~ sun with model 91159 and ~2 suns with 91160.

• 300 W UV Solar Simulator

Simulates the UV portion of solar radiation only; the percentage of UV in the total output of our full spectrum model is less than 6%. The percentage of UV in the total output of the UV model is ~36%.

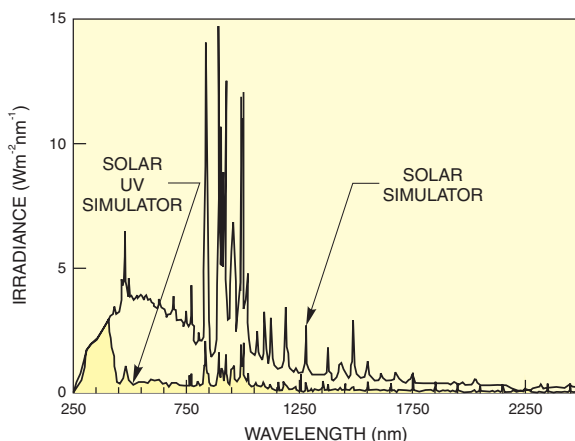


Fig. 1 Spectral output of a full spectrum 300 W Solar Simulator compared to the output of a 300 W UV Solar Simulator.

Full Spectrum Solar Simulator

The 91160 produces power equivalent to ~2 suns, while model 91159 produces ~ 1 sun. With optional air mass filters, you can simulate various solar conditions. Table 1 shows the typical output of the 91160, in the design-irradiated plane.

- Generate intense ultraviolet radiation with minimal sample heating
- Run tests when you want to, without concern for weather conditions and time of day
- Shape the output with easily interchangeable filters
- 2 x 2 inch collimated output in upward or downward configuration

Table 1 Typical Output of 91160 Full Spectrum Solar Simulator

With This Optional Mass Filter	Typical Output ($W m^{-2}$)	
	250 - 2500 nm	250 - 1100 nm
AM 1 Direct	2551	1810
AM 1.5 Direct	2270	1610
AM 2 Direct	2100	1470
AM 1.5 Global	1550	1325
AM 0	2805	2050
Unfiltered Irradiance	3620	2900

UV Solar Simulator

The 91260 is ideal for UV testing without the complicating effects of high levels of VIS and IR. The percentage of UV in the total output of our full spectrum model is less than 6%. The percentage of UV in the total output of the UV model is ~36%. We use a UVB/UVA dichroic mirror to shape the output of the 91260 Solar Simulator. This dichroic passes 280 to 400 nm and greatly reduces the VIS and IR output of the lamp. You can use bandpass filters, after the dichroic, to further isolate the portion of the UV in which you are working. In Table 2, we show the typical output power, in the design-irradiated plane, from the 91260 UV Solar Simulator.

Table 2 Typical Output of 91260 UV Solar Simulator

With These Optional UV Filters	Typical Output ($W m^{-2}$)		
	UVC (Below 280 nm)	UVB (280 - 320 nm)	UVA (320 - 400 nm)
Atmospheric Attenuation Filter	0	8	172
Atmospheric Attenuation Filter + VIS-IR Bandpass Blocking Filter	0	7	109
UVC Blocking Filter	0	23.5	180
UVB/C Blocking Filter	0	0.07	138
Unfiltered Irradiance	11.5	61	190

What Makes Up a Solar Simulator?

The Illuminator Housing

This aluminum enclosure is equipped with five safety interlocks to ensure operator and system safety. An integral fan cools the lamp and optics.

150 W or 300 W Xenon Arc Lamp

Both the Full Spectrum and the UV Simulators use an ozone free lamp, which has negligible output below 260 nm. For applications where DUV is necessary replace this lamp with the 6259 UV enhanced model. Please notify a Sales Engineer at the time of order, if you want the 6259 Lamp.

The Power Supply

The highly regulated power supply provides constant electrical power to the xenon lamp. For long-term (>8 hours) stability-critical applications and/or for exposure control, we suggest you also order the 68951 Digital Exposure Controller (see page 208)

UVB/UVA Dichroic Mirror (for 91260 UV Solar Simulator only)

The 91260 UV Solar Simulator includes a dichroic mirror. It passes 280 to 400 nm and greatly reduces the VIS and IR.

Electronic Shutter

These simulators include an electronic shutter for exposure control. The shutter is activated by a push button switch on the illuminator housing, or via a contact closure or logic level input. You can also use the 68955 Hand-Held Shutter Switch. For automated exposure control, use the 68951 or 68945 Exposure Controller (see page 208).

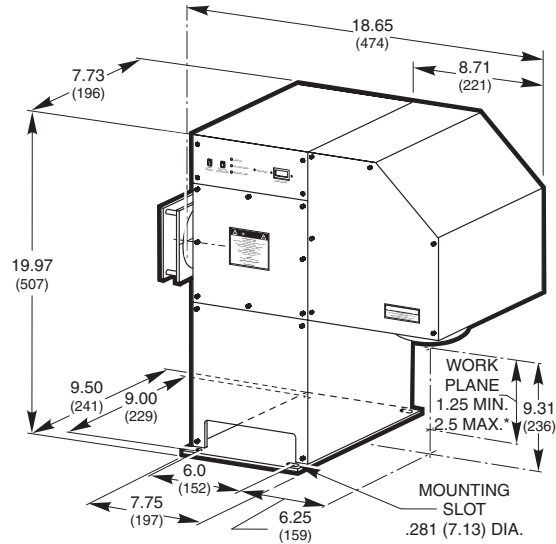
Certification

These systems meet Class B IEC 904-9 requirements, but do not come certified.

Safety Considerations

These illuminators produce considerable ultraviolet radiation. Proper protective eyewear and gloves should be worn at all times during operation (see page 246).

WEB See our website
for more info



* THE DISTANCE FROM THE VERTEX OF THE LENS TO THE WORK PLANE.
** THE DISTANCE FROM THE CENTER OF THE BEAM PATH TO THE CENTER OF THE MOUNTING HOLE.

Fig. 2 Dimensional diagram of 300 W Solar Simulator Housing.

Specifications

Wattage	150 or 300 W
Lamp Type	Xenon, short arc
Output Beam Size	2 x 2 in. (51 x 51 mm)
Collimation	<±10°
Beam Uniformity	±5 %
Light Ripple	<1 % r.m.s.
Solar Simulator Input	95 - 264 VAC, 8 A, 47 - 63 Hz
Line Regulation	0.01 %

Ordering Information

Solar Simulators

For upward, downward or sideways beam configuration, please contact Newport for pricing

Model	Simulator Type	Output Beam Size
91159	150 W Full Spectrum Solar Simulator	2 x 2 in. (51 x 51 mm)
91160	300 W Full Spectrum Solar Simulator	2 x 2 in. (51 x 51 mm)
91260	UV Solar Simulator	2 x 2 in. (51 x 51 mm)

Replacement Lamps

Model	Lamp Type
6255	150 W Xenon, OF
6258	300 W Xenon, OF
6259	300 W Xenon, UV Enhanced

Accessories

Model	Description
92000	Extended Care Program
68955	Remote Switch

TECHNICAL REFERENCE
CALIBRATION SOURCES
DEUTERIUM SOURCES
ARC SOURCES
INCANDESCENT SOURCES
MONOCHROMATOR AND FIBER ILLUMINATORS
SOLAR SIMULATORS
PHOTOLITHOGRAPHY INSTRUMENTS
ACCESSORIES FOR ORTEL LIGHT SOURCES