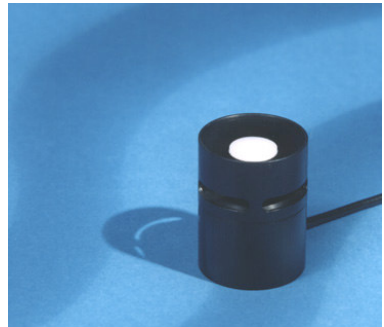


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# SEALED ENERGY & PAR DETECTORS

MODEL DV211-Cos

USER HANDBOOK



DV211Q-Cos  
DV211E-Cos

Handbook Ref No. IH004/Issue A  
File Ref: DV211-v2a.doc

 **IRRADIAN**  
Light Measurement Systems & Calibration



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# SEALED ENERGY & PAR DETECTORS

MODEL DV211-Cos

**USER HANDBOOK**

- CONTENTS:**
1. Introduction
  2. Specification
  3. Spectral Response
  4. Cosine Angular Response
  5. Outline Drawings
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-



# 1. INTRODUCTION

## SEALED ENERGY & PAR DETECTORS

The Irradian DV211-Cos sealed series detectors are housed in a waterproof enclosure and are designed for use with data loggers and weather stations, where continuous monitoring is required.

They are provided with a calibrated current sensitivity and comprise of a silicon photodiode and filter glass package (PAR detector only) with diffuser.

Key design features include:

- Self cleaning input diffuser
- Stay dry diffuser with wide water drainage slots
- Good cosine response
- Infinity error correction ring
- All aluminium body with weather resistant anodising
- High stability silicon photodiodes
- Internal calibration resistor, adjustable for annual recalibration

Two models of data logger compatible sealed detectors are available. A photosynthetic active response detector model and a simulated solar energy response detector model:

Energy:    Model DV211E-Cos

PAR:        Model DV211Q-Cos

## 2. SPECIFICATION

Spectral response	Ref. Figures 1 and 2
Cosine Corrected Input:	Within $\pm 5\%$ up to $70^\circ$ . Ref. Figure 3
Sensitivity*:	
DV211E-Cos	0.01mV per $W/m^2$ of total solar radiation
DV211Q-Cos	0.01mV per $\mu mol/m^2/s$ of PAR

\* Other ranges available on request.

Terminating Resistor	DV211E-Cos, $100\Omega$ (typical) DV211Q-Cos, $700\Omega$ (typical)
Temperature Range:	
Operating range	-10 to $+60^\circ C$
Storage range:	-20 to $+100^\circ C$
Temperature Dependence:	
DV211Q-Cos	Sensitivity $<0.2\% / ^\circ C$ , 400 - 700nm
DV211E-Cos	Sensitivity $<0.2\% / ^\circ C$ , 400 - 1000nm
Cable:	5 meter screened pair Red wire, + (photodiode anode) Blue wire, - (photodiode cathode) Screen, not connected at the detector, connect screen to data logger only.
Mounting:	Two M4 tapped holes on a 24mm PCD.
Housing:	Black anodised aluminium.

### 3. SPECTRAL RESPONSE

DV211E-Cos  
Relative Spectral Response

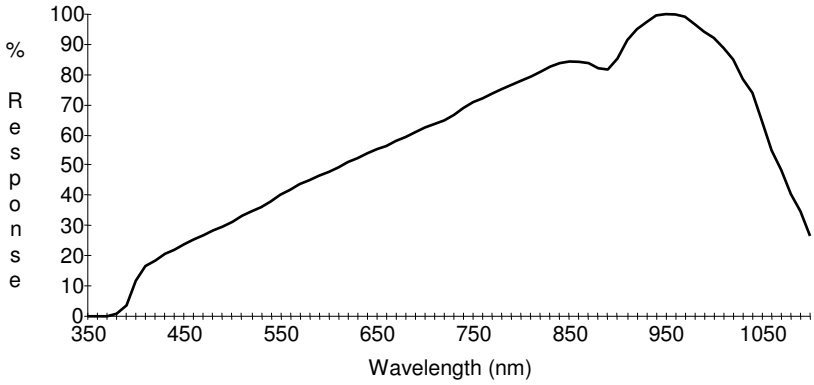


Figure 1

DV211Q-Cos  
Relative Spectral Response

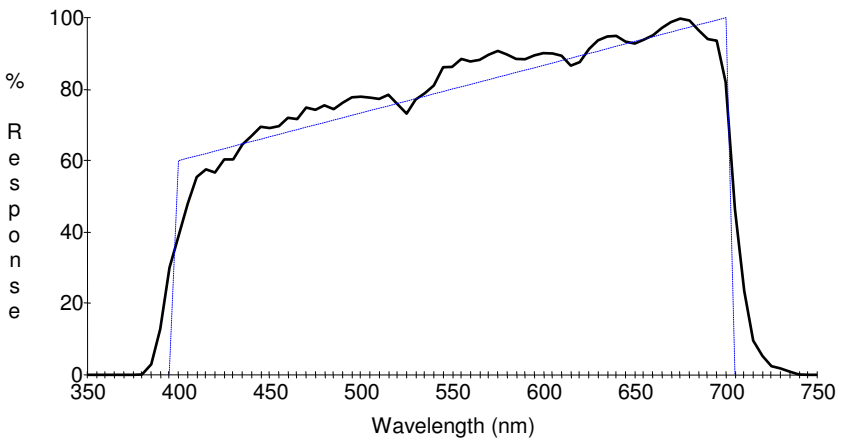


Figure 2

## 4. COSINE ANGULAR RESPONSE

### COSINE CORRECTED INPUT

Angular Response:      Accurately cosine corrected to Lambert's Cosine Law.

Maximum error is less than  $\pm 5\%$  from true response to  $70^\circ$  from normal incidence. Refer to Figure 3.

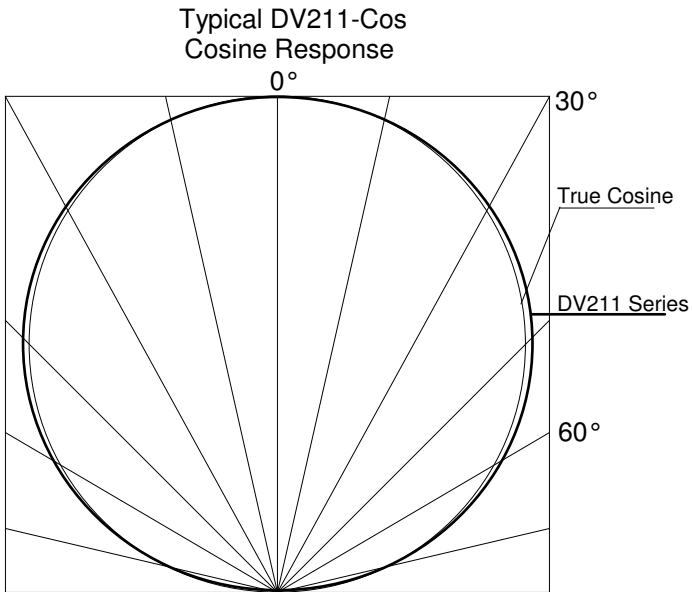
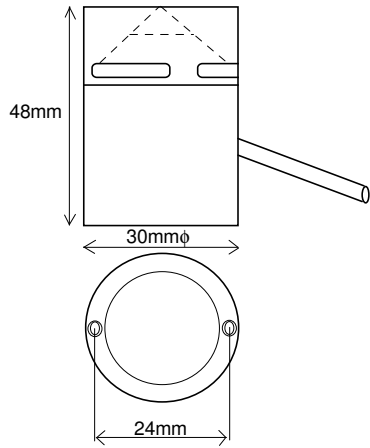
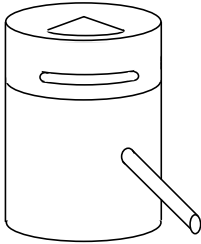


Figure 3



## 5. OUTLINE DRAWINGS



## 6. CARE AND MAINTENANCE

### LOOKING AFTER THE DETECTOR

1. The DV211-Cos detector should be cleaned using a moist cloth with detergent, solvent or alcohol.
2. The diffuser on the detector should be kept clean at all times.
3. The detector is a precision instrument, protect it from shocks.
4. Avoid supporting the detector by the cable.

## 7. ENVIRONMENTAL CARE, RECYCLING AND DISPOSAL

### WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT

The purpose of the European Commission WEEE directive (Waste Electrical and Electronic Equipment; 2002/96/EC) is to ensure that electrical and electronic products are recycled using the best treatments, recovery and recycling techniques that are currently available. This is so that high health standards and a lasting environmental protection can be achieved and maintained.

This product has been designed and manufactured using high quality materials and components, many of which can be recycled and reused.

Please remember to observe the local regulations that govern both the disposal of the packaging materials accompanying this product and any used batteries.



**DO NOT DISPOSE OF THIS PRODUCT IN YOUR GENERAL WASTE BIN.**

Please inform yourself about your local WEEE collection system which is available for electrical and electronic products that are marked with the symbol shown here.

When disposing of this meter, please use one of the following options:

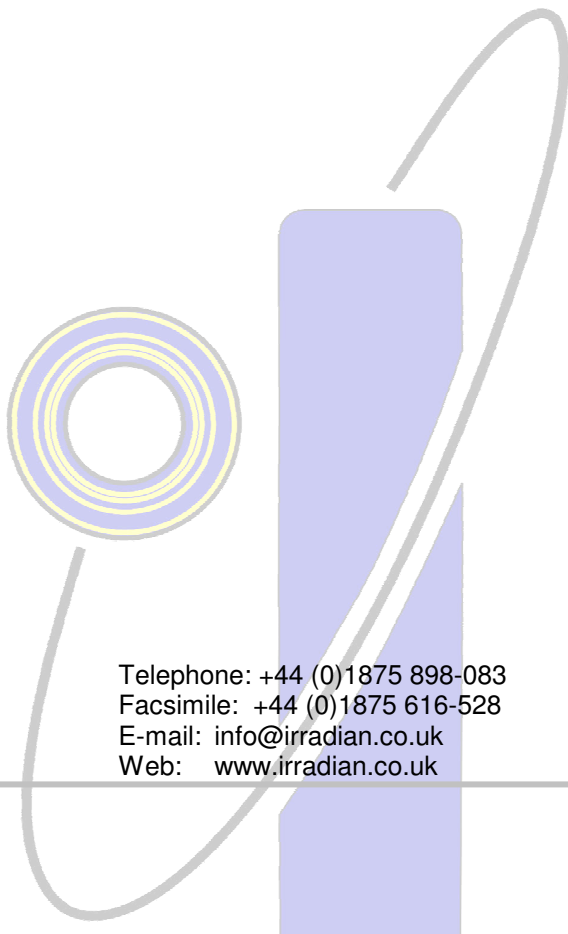
1. Use your local designated WEEE collection facilities to dispose of the complete product (including cables, detectors, filters & accessories).
2. Return the complete product back to Irradian, marking it clearly as intended for WEEE disposal.

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