



The characterisation of spectral response¹ and EQE/IQE of photovoltaic devices involves the determination of device response to a monochromatic light probe in the presence of a solar simulator bias to simulate operation conditions.

In order to discriminate between the photocurrents generated by both optical stimulations, the monochromatic probe is optically chopped (AC), whilst the solar simulator is operated in the DC regime.

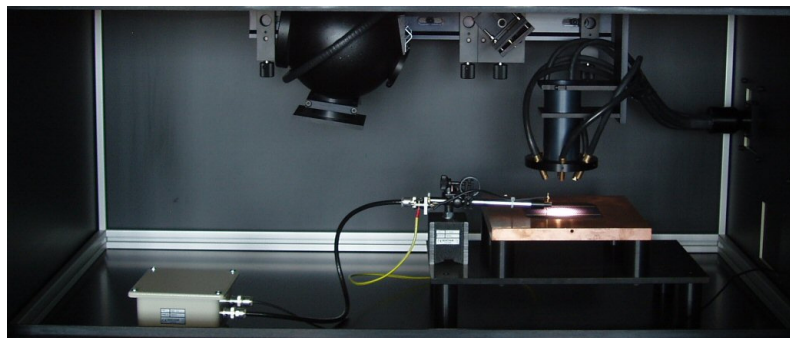
The 474 transformer blocks the DC component and amplifies and passes the AC to the system lock-in amplifier.

The 474 transformer is positioned close to the device under test and coupled via low-resistance cable to ensure short circuit conditions, whilst the 474 amplifier is a single-width module housed within the 417/T mother unit.

Core Features

- Near-short circuit device operation
- Decouples DC bias source generated photocurrent
- Signal gain provided by transformer and low-noise amplifier

Specification	
Transformer DC resistance	0.05Ω
Transformer Gain	~100
Amplifier Voltage Gain	500
Amplifier bandwidth	5Hz to >100kHz
Amplifier short circuit input noise	<1nV Hz ^{-1/2} at 1kHz
Amplifier Maximum Output	10V
Frequency of Operation	600Hz typical



¹ IEC60904-8, Photovoltaic devices – Part 8: Measurement of spectral response of a photovoltaic (PV) device