

## User Notes for PD300-IRG-V2 (P/N 7Z02495)

The PD300-IRG gives you state of the art performance in measuring both low and high powers in the spectral range 900 – 1630nm. It is designed for optimum performance both with fiber input and with direct laser beam input.

In order to give you this performance and flexibility, the PD300-IRG has a somewhat different design than many fiber optic power meters. In many fiber optic power meters, the input is strictly from a single mode fiber and the input is into a built in SM fiber which is coupled directly to the power meter detector. Such an arrangement allows the meter to be used only with SM fiber input and no other.

Ophir has designed the input to its power meter to be with an air gap between the input fiber or laser and the detector. This arrangement has a number of advantages:

1. The input is not limited to SM fibers but can also be multimode fibers and with the included lens input, direct parallel beams from a laser or other collimated source as well.
2. The arrangement does not involve direct contact between the input fiber and another fiber and therefore the measurement is more accurate since there are no variable losses involved in the connection loss between the connected fibers.
3. Since there is no contact between the power meter and the input fiber, there is no risk of contamination on the fiber tip causing losses and erroneous readings or even ruining the power meter.
4. The arrangement allows input through the lens assembly included with the meter and thus allows measuring free space beams as well as fiber input and allows beam sizes up to Ø5mm diameter.

Since with the Ophir input there is an air gap between the fiber and the detector, the user has to take into account the reflection losses at the tip of his input fiber when measuring with a fiber input. For typical fibers in the spectral range of 1300-1630nm, these losses will be 4.3% = 0.19dB. Therefore, when measuring the output of a fiber which will be used connected to another fiber, the user should take into account that the amount of power transmitted in the user's system will be higher than the power indicated on the PD300-IRG by:

(4.3% = 0.19dB – connection loss in dB)

Note that using the ATTENUATE function in the Ophir display, you can have the instrument automatically take this factor into account. See the user manual for details.

### Measurement with the PD300-IRG:

#### Fiber input:

Attach the appropriate FC/FC-APC or LC input adapter to the PD300-IRG. If you will be measuring powers  $> 800\mu\text{W} = 0.97\text{dBm}$ , then before connection, attach the included filter to the adapter and set the display to "filter in". Attach your fiber source and measure.

#### Free space beam input:

Attach the collimator lens assembly to the PD300-IRG and center the laser input onto the lens. Measure the power. If you will be measuring powers  $> 800\mu\text{W} = 0.97\text{dBm}$ , then before connection, attach the included filter to the adapter and set the display to "filter in". Measure the power. The collimator lens allows beam sizes up to  $\phi 5\text{mm}$  diameter and angles up to  $\pm 5$  degrees. Therefore, the beam measured should be aligned with the input within  $\pm 5$  degrees angle.

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