Conex-PSD Ambient Light Compensation

In some sensitive applications ambient light may negatively affect the repeatability and stability of Conex-PSD readings. To ensure that the instrument is within its published sensitivity specifications, it is needed to measure and compensate for the ambient light.

First, it is recommended to check the background state by running the GP command without the laser illuminating the sensor and while under ambient lighting. When the background is subtracted, the ambient light on the sensor will provide null background response of "1GP-5,-5,0" which means that both X and Y values are at -5mm and the reported power is at 0%.

If the GP command provides any other value under ambient illumination, the user should run the background subtraction to provide the GP null response and obtain stable/repeatable measurements (refer to the example below for step by step instructions):

Example:

1. Turn the beam to be measured OFF

2. Connect to Conex-PSD via GUI

3. Go to Diagnostics tab and send the following set of commands:

- 1PW1 // enter configuration state
- 1LF10 // change low pass filter frequency below 60Hz of the room lighting, 10Hz is good

//set all gains to 1

- 1PX1
- 1PY1
- 1PS1
- 1PW0 // exit configuration mode
- 1GP?
- 1GP-0.1295,-0.1115,6.453 // check for background state under ambient
- 1RA?
- 1RA-0.01531,-0.01357,0.1653 // measurement of analog values in the ambient condition

// enter the RA values into the offsets

- 1PW1
- 1IX-0.01531
- 1IY-0.01357
- 1IS0.1653
- 1RC?
- 1RC-0.0004223,-0.0001896,0.001934 // verifying the effect, the corrected values should now be near 0
- 1PW0
- 1GP?
- 1GP-5,-5,0 // ambient light subtracted so sensor returns null state until illuminated with laser

4. Turn the beam to be measured ON and observe the values changing in the GUI

The background subtraction method is superior to using filters, since filters can cause reflections and reduce signal (they should only be used to attenuate the beam and not to manage background).

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