4.5. Energy or Average Power Measurement

Warning:

Do not exceed maximum sensor limits for power, energy, power density and energy density as listed in tables 5 and 6 in section 9 of the manual. Otherwise there is a risk of damaging the absorber.

With the pyroelectric sensor, you have been supplied a test slide with the same coating as on your pyroelectric detector. You can also obtain this slide from your dealer. You should use this slide to test the damage threshold with your laser pulses. If the slide shows damage, then either enlarge your beam or lower the laser energy until damage is no longer seen.

4.6. To choose Energy or Average Power Measurement

In the main measurement screen press the Mode key. Select power or Energy and press the OK key.

STARLITE
Quick Reference

1 Getting Started

The StarLite is equipped with "soft keys." That is, the functions of the keys change as indicated by the legend above each key.

To connect sensor to the StarLite meter:
Insert the 15 pin D type connector of the measuring sensor cable into the socket marked "Sensor Input" on the rear panel of the StarLite meter.

To switch the StarLite on:
Briefly press the on/off switch (bottom-most key). The unit will switch on, and the display will appear. Note that the sensor must be plugged in before the unit is switched on. The backlight for the StarLite's LCD can be configured to toggle between full, half, and low illumination. This toggling will be performed by briefly pressing the on/off switch after the StarLite has been switched on. To switch the StarLite off, press the on/off switch and hold it for ~ 2 seconds until the display blanks.

The StarLite automatically saves the current for next power up.

Enter the Setup screen to update the following:
1. Select "Show Settings" and enter. Set to Yes to display sensor settings in the measurement screens. Set to No to hide the sensor settings and show a larger graph.
2. Select "Line Frequency" and enter. Set to 50Hz or 60Hz, depending on the electrical power grid of the area that you are in.
3. Select Date and enter. Scroll through and select Month, Day, Year, Hour and Minutes with the Right arrow. Change the selected item with the Down arrow.

To zero instrument:
1. Disconnect the sensor.
2. Make sure instrument is not in an electrically noisy environment and is undisturbed.
3. Press "Zero" and "Start". Wait until "Zeroing completed successfully" appears. For more details, see main manual section 3.5.5.

2 Thermal Sensors

2.1. Use of StarLite with Thermal Type Sensors

To set type of laser being used:
1. With the sensor attached, enter the Setup screen.
2. Press the Down arrow until Laser is highlighted and press the Enter arrow.
3. Select the appropriate laser wavelength and press the OK key.
4. This will be saved automatically as the laser setting to work with.

To choose manual or automatic ranging in power measurement:
1. With the sensor attached, enter the Setup screen.
2. Press the Down arrow until Range is highlighted and press the Enter arrow.
3. Select the appropriate manual range or AUTO and press the OK key.
4. This will be saved automatically as the laser setting to work with.

To choose power or energy measurement:
In the main measurement screen press the Mode key. Select power or Energy and press the OK key.

2.2. Setting and Saving the Startup Configuration

1. When measuring power, you can set the period over which to Average the measurements.
2. When measuring energy you can set the threshold level in order to screen out false triggers.
3. The present settings are automatically saved for the next time StarLite is turned on.

2.3. Power or Single Shot Energy Measurement

Warning:

Do not exceed maximum sensor limits for power, energy, power density and energy density as listed in tables 5 and 6 in section 9 of the main manual. Otherwise, there is a risk of damaging the absorber.

To use the StarLite to measure laser power:
1. Press the Mode key and select Power. Press the OK key.
2. In the Setup screen Press the Down arrow until Range is highlighted and press the Enter arrow. Select AUTO or one of the manual ranges. The correct manual range is the lowest one that is larger than the expected maximum power of the laser. Note that the range will be displayed in the lower right corner of the main display.

To use the StarLite to measure laser energy:
1. Press the Mode key and select Energy. Press the OK key.
2. The energy mode is manual ranging. In the Setup screen Press

the Down arrow until Range is highlighted and press the Enter arrow. The correct range is the lowest one that is larger than the pulse energy measured. Note that the range will be displayed in the lower right corner of the main display.
3. When the StarLite screen flashes "READY", on and off, fire the laser.

To select an analog needle type display for the StarLite:
Press the "Display" key. Select "Needle" and press the OK key. The display will now show a simulated analog needle type display.

To expand the bargraph scale ±5x about the present reading:
1. From the main power measurement screen press the "Zoom" button.
2. Press the "Zoom" button again to return to the ordinary bargraph.

To subtract background and set current reading to zero:
1. From the main power measurement screen press the "Offset" button.
2. Press "Offset" again to cancel.

3 Photodiode Sensors

3.1. Selecting Chosen Wavelengths

To set type of laser being used:
1. With the sensor attached, enter the Setup screen.
2. Press the Down arrow until Laser is highlighted and press the Enter arrow.
3. Select the appropriate laser wavelength and press the OK key.
4. If the wavelength you want is not among the wavelengths in the six wavelengths listed press the Modify key.
5. Use the Right and Down arrows to adjust the wavelength as desired. Then press the OK key.

To choose manual or automatic ranging or dBm in power measurement:
1. With the sensor attached, enter the Setup screen.
2. Press the Down arrow until Range is highlighted and press the Enter arrow.
3. Select the appropriate manual range or AUTO (or dBm for logarithmic scale) and press the OK key.
4. This will be saved automatically as the laser setting to work with.

3.2. Other Settings and Saving the Startup Configuration

1. You can set the period over which to Average the measurements.
2. You can set the removable Filter setting to OUT for more accuracy and a wider wavelength range; you can set it to IN to measure higher powers.
3. The present settings are automatically saved for the next time StarLite is turned on.

3.3. Power Measurement

Warning:

Do not exceed maximum sensor limits for power, energy, power density and energy density as listed in tables 5 and 6 section 9 of the manual, Sensor Specifications. Otherwise, there is a risk of damaging the absorber.

To expand the bargraph scale ±5x about the present reading:
1. From the main power measurement screen, press the "Zoom" button.
2. Press the "Zoom" button again to return to the ordinary bargraph.

To subtract background and set current reading to zero:
1. From the main power measurement screen press the "Offset" button.
2. Press "Offset" again to cancel. See Section 5.4.5 of the main manual for details.

4 Pyroelectric or Photodiode Energy Sensors

4.1. Zeroing Instrument Against Sensor

For most accurate calibration, you should zero the pyroelectric sensor against the StarLite it is being used with. Proceed as follows:

Make sure the sensor is in a quiet environment and not subject to pulsed radiation. Plug sensor into StarLite and turn on. Enter the Setup screen. Press "Zero" and "Start". Wait until "Zeroing completed successfully" appears. For more details, see main manual section 3.5.5.

4.2. Changing Chosen Wavelengths (metallic type only)

1. With the sensor attached, enter the Setup screen.
2. Press the Down arrow until Laser is highlighted and press the Enter arrow.
3. Select the appropriate laser wavelength and press the OK key.
4. If the wavelength you want is not among the wavelengths in the six wavelengths listed press the Modify key.
5. Use the Right and Down arrows to adjust the wavelength as desired. Then press the OK key.

4.3. To Set Type of Laser Being Used

To set type of laser being used:
1. With the sensor attached, enter the Setup screen.
2. Press the Down arrow until Laser is highlighted and press the Enter arrow.
3. Select the appropriate laser wavelength and press the OK key.
4. This will be saved automatically as the laser setting to work with.

4.4. Other Settings and Saving the Startup Configuration

1. You can set the period over which to Average the measurements.
2. You can set the Energy Range to measure in. Select the lowest range that is higher than the maximum expected energy measurement.
3. Set the Threshold to screen out noise that may be seen as false triggers and measured as energy pulses.
4. If the sensor is a diffuser sensor, set diffuser to IN or OUT.
5. Select "Pulse Length" and choose the shortest pulse length setting that is longer than your laser's pulse length.

Warning:

Incorrect readings will result if pulse length is not set up correctly.