# Quick Reference Guide
# RS$^3$ Software

Turn on the instrument. Allow the instrument to warm up for at least 10 minutes for reflectance measurements and 30 minutes for radiometric measurements. Connect the communication cable securely to the laptop. Turn on the computer.

Launch the instrument software by double-clicking the **RS$^3$ icon** on the desktop. Use the high contrast icon to allow better computer display screen visibility when collecting outdoor spectra.

Open the **Control\Adjust Configuration** on the toolbar. Enter the following details:

**Foreoptic type** (or choose foreoptic type directly from toolbar).
Number of samples for **Spectrum, Dark Current,** and **White Reference**. ASD recommends a spectrum sample value between 10 and 25. It is a good practice to set the white reference sample setting to twice the spectrum sample setting.
Check **Absolute Reflectance** if using a calibrated Spectralon® Panel.

Select OK to accept details and to close the window. Follow the instructions below to begin collecting data.

Open the Spectrum Save screen by selecting **ALT S** or **Control\Spectrum Save** on the toolbar. Enter the following details:

**Path Name:** The directory folder where files are to be saved. ASD recommends using the current month, day, and year.
**Base Name:** The name used for each data file collected.
**Starting Spectrum Number**
**Number of files to save** each time the spacebar, Save button, Remote Trigger, or **Begin Save** button is pressed.
Desired **interval time** between saves.
**Comments:** Document weather conditions, sample type, etc.

Select **OK** to accept details and to close the window or select **Begin Save** to immediately save a spectrum or spectra.

## Taking Relative Reflectance Measurements

Point the bare fiber or attached foreoptic at the white reference. Optimize the instrument response by selecting **Control O** or the **Opt** button on the screen. After optimizing and collecting a dark current, the graph will display measurements in raw Digital Numbers (DN) and plot them against wavelength in nm.

Select **F4** or the **WR** button on the screen to collect an automatic dark current measurement and to get a **reflectance** value of 1.00. To display the relative reflectance measurement, hold the bare fiber or the attached foreoptic above the sample. Press the spacebar to save the spectrum data. The instrument beeps when the data is saved. Use ViewSpec Pro for viewing and post-processing ASD format files.

## Taking Radiance or Irradiance Measurements

Point the bare fiber or the attached foreoptic at the white reference. Optimize the integration time by selecting **Control O** or the **Opt** button on the screen. After optimizing and collecting a dark current the graph will display measurements in raw Digital Numbers (DN) and plot them against wavelength in nm.

Select **F9** or the **RAD** button on the screen to collect an automatic dark current measurement and to get **radiance** or **irradiance** spectrum. The foreoptic type will automatically select the correct radiometric type (**radiance or irradiance**).

To display the radiance measurement, hold the bare fiber or the attached foreoptic above the sample. Press the spacebar to save the spectrum data. The instrument beeps when the data is saved. Use ViewSpec Pro for viewing and post-processing ASD format files.

## Troubleshooting

For specific troubleshooting help, refer to the ASD Users Manual.

## Best Practices

For the most accurate results, ensure that the correct foreoptic is being used for the application. Ensure that the Field-of-View is only capturing reference and/or target data and nothing extraneous. For example, the Remote Cosine Receptor has a Field-of-View of 180 degrees and shadows from tree limbs or light poles can influence the values collected. Re-optimize if illumination conditions (i.e. cloud cover, sun position, etc.) change substantially or if a detector is saturating.

Take a new white reference every 10-15 minutes. Take a white reference more often if the illumination, viewing, or atmospheric conditions are variable.


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# Shortcut Quick Reference
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| Function | Shortcut Key(s) |
|---|---|
| Optimization | Ctrl + O |
| Foreoptic Selection | F7 (decrease to match foreoptic size)<br>F8 (increase to match foreoptic size) |
| Measure dark current | F3 |
| Measure white reference | F4 |
| Alternate between Zoom/Pan/Coordinate Modes | F5 |
| Freeze Screen | F6 |
| Initialize Radiometric Calculation | F9 |
| Apply Parabolic Correction to Radiometric Spectra | Ctrl + P |
| Move Cursor Left/Right | Left/Right Arrows (for one data point)<br>Ctrl + Left/Right (for large increments) |
| Move Cursor to First/Last Data Point | Home/End |
| Zoom In/Out on X-axis | Left/Right Arrows |
| Zoom In/Out on Y-axis | Up/Down Arrows |
| Zoom In/Out Full X-axis | Home/End |
| Zoom In/Out Full Y-axis | Page Up/Page Down |
| Pan Left/Right | Left/Right Arrows |
| Pan Up/Down | Up/Down Arrows |
| Pan Left/Right to Edge | Home/End |
| Pan Top/Bottom to Edge | Page Up/Page Down |
| Undo Last Pan/Zoom | Ctrl + U |
| Restore Default Settings | Ctrl + R |
| Open Foreoptic Menu | Ctrl + F |
| Open Spectrum Type Menu | Ctrl + Y (use the Up/Down Arrows to maneuver menu) |
| Abort Current Task | Ctrl + A |
| Save Spectrum and Display on Screen | Alt + Spacebar |

**Technical Support is available to answer any questions**
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