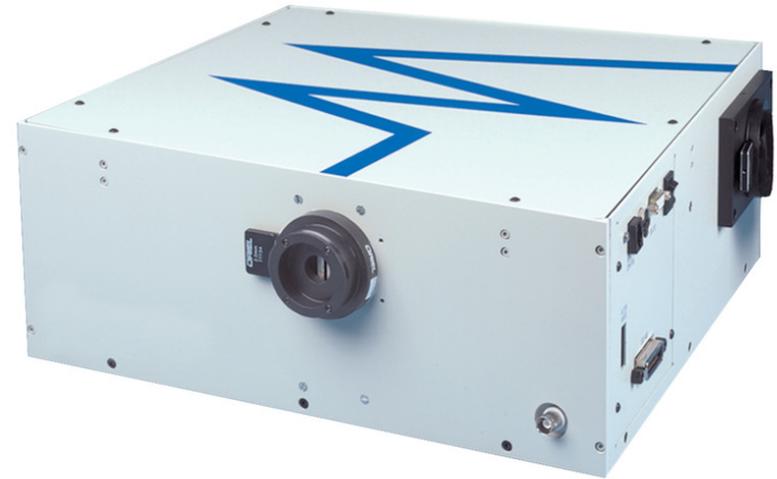


Oriel Cornerstone™ Monochromator



Cornerstone™ 130 1/8m



Cornerstone™ 260 1/4m

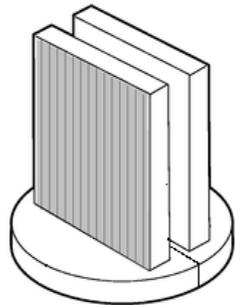
Common Utility Software Installation Issues

- **Important note:**
 1. For the software to send proper numeric format to the instrument, windows regional settings in control panel must be set to **English (United States)**.
- **If the utility software cannot be installed with USB model 74125 see following steps:**
 1. When the “found new hardware” wizard appears, select the option “install the software automatically (recommended)”, then click the “next >” button. (It is not necessary to have the CD-ROM in the drive at this point.).
 2. If any warning dialogs appear stating that the driver is “not signed” or “has not passed windows logo testing”, click “continue anyway” to proceed.
 3. After the wizard completes, click the “finish” button.

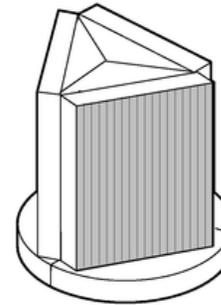
Zero Parameters

1. The zero parameter for gratings are listed in chart below.
2. The default setting for Cornerstone™ 260 - 1/4 meter is for a three grating mount. If two grating mount is required the grating zero parameters must be changed per chart below. Grating 2 and Grating 3 will have the same parameter for zero.
3. For the Cornerstone™ 260 - 1/4 meter, two gratings and three gratings are not interchangeable because of the base of the grating assembly, see view below. It is recommended to return unit for alignment and calibration.

| Parameter | Two Grating Mount | Three Grating Mount |
|----------------|-------------------|---------------------|
| Grating 1 Zero | 0.0875665 | 0.0872665 |
| Grating 2 Zero | 3.2288591 | 2.1816616 |
| Grating 3 Zero | 3.2288591 | 4.2760567 |



Two Grating Mount



Three Grating Mount

Field Calibration (Using Line Lamp)

- **Grating Calibration**

1. Select a radiation source that has at least two narrow spectral lines in the wavelength region where you will be working.
2. The radiation from your line source should be focused on the entrance slit to fill the monochromator's $f/37$.
3. The focused beam should be parallel to Cornerstone™'s optical axis.
4. Command Cornerstone™ to move to the grating you would like to calibrate and then to a wavelength of your line source. Now use the STEP feature to move Cornerstone™ toward the signal peak for your source.
5. Notate the spectral line you first commanded to move to and the resultant wavelength position where you located the actual peak. See the tables on next page.
6. Command Cornerstone™ to move to a second wavelength of your line source. Now use the STEP feature to move Cornerstone™ toward the signal peak for your source.

Field Calibration (Using Line Lamp)

7. Notate the spectral line you first commanded to move to and the resultant wavelength position where you located the actual peak. See the example tables below.
8. Using Factor equation below to calculate these parameters for your new grating.
9. Repeat for all gratings, Using the Utility software you can enter the FACTOR values into the Cornerstone via the “Setup” screen. The GRATINGn FACTOR commands can be used, VIs are also supplied for these commands. They cannot be entered directly via the Hand Controller.

Equation

| | Spectral Line | Observed Peak |
|--------------|---------------|---------------|
| Wavelength 1 | L1 | P1 |
| Wavelength 2 | L2 | P2 |

$$\text{FACTOR} = (L1-L2)/(P1-P2)$$

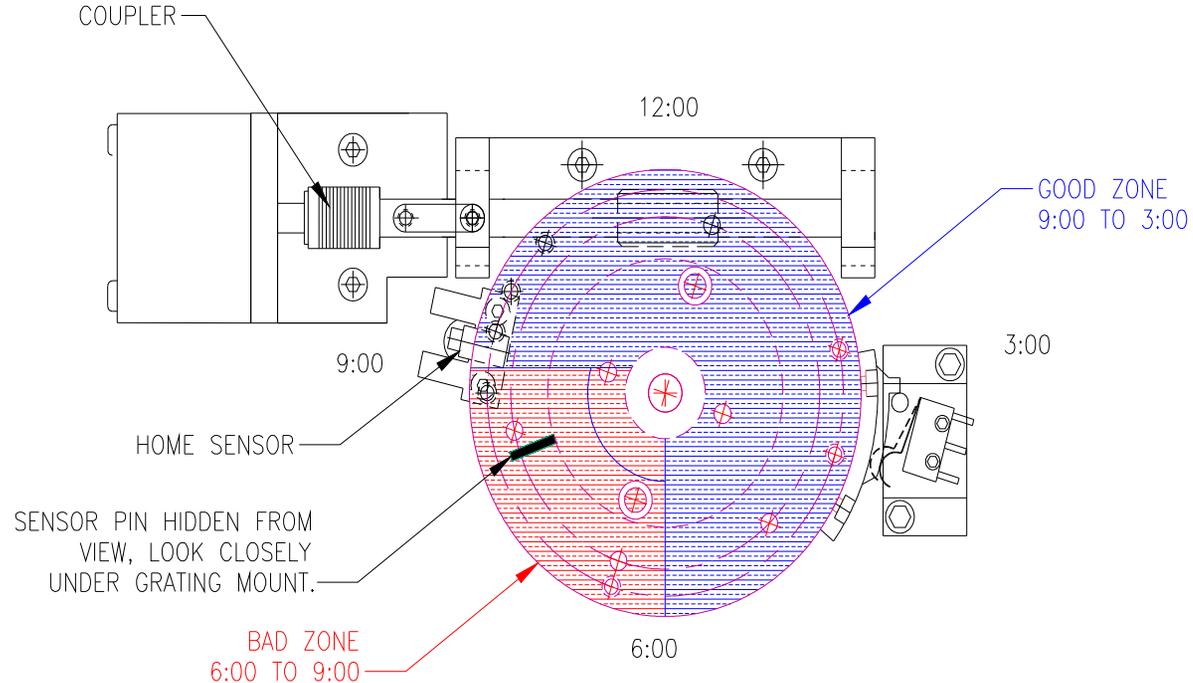
Example

| | Spectral Line | Observed Peak |
|--------------|---------------|---------------|
| Wavelength 1 | 546 | 577 |
| Wavelength 2 | 365 | 372 |

$$\text{FACTOR} = (546-365)/(577-372) = 181/205=0.8829268$$

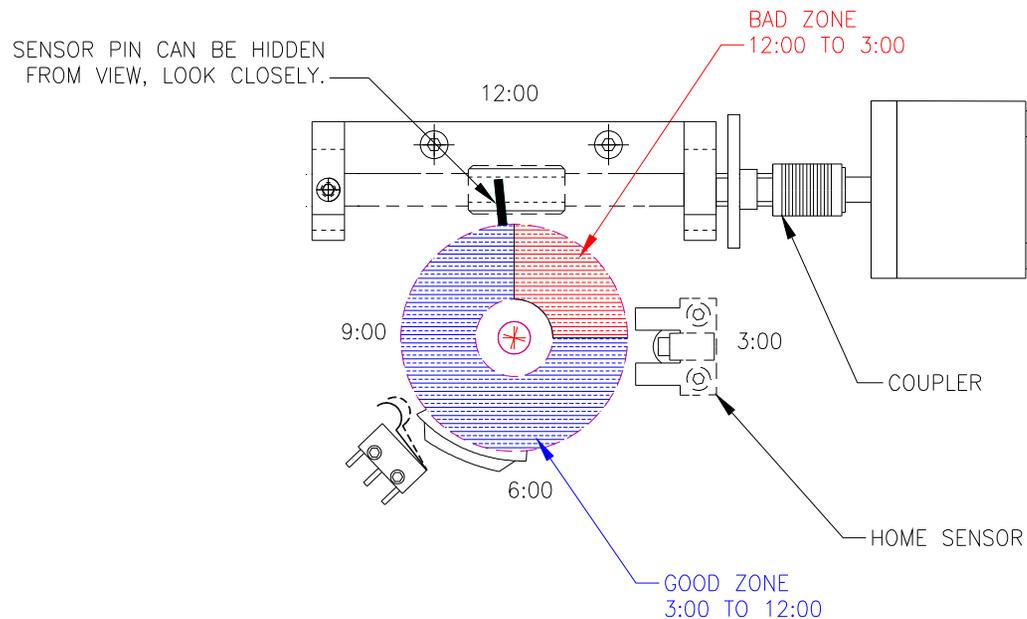
Grating Turret Position for Cornerstone 260 (1/4 Meter)

1. If the monochromator lost communication, power off unit and remove cover. See view below to verify if Grating Turret has gone past home.
2. You will need to manually turn the Coupler until the sensor pin is located in the good zone (9:00 to 6:00). Power on unit to verify monochromator homes. If unit goes back to bad zone you will need to clear memory from board and enter factory parameters, see page 7.



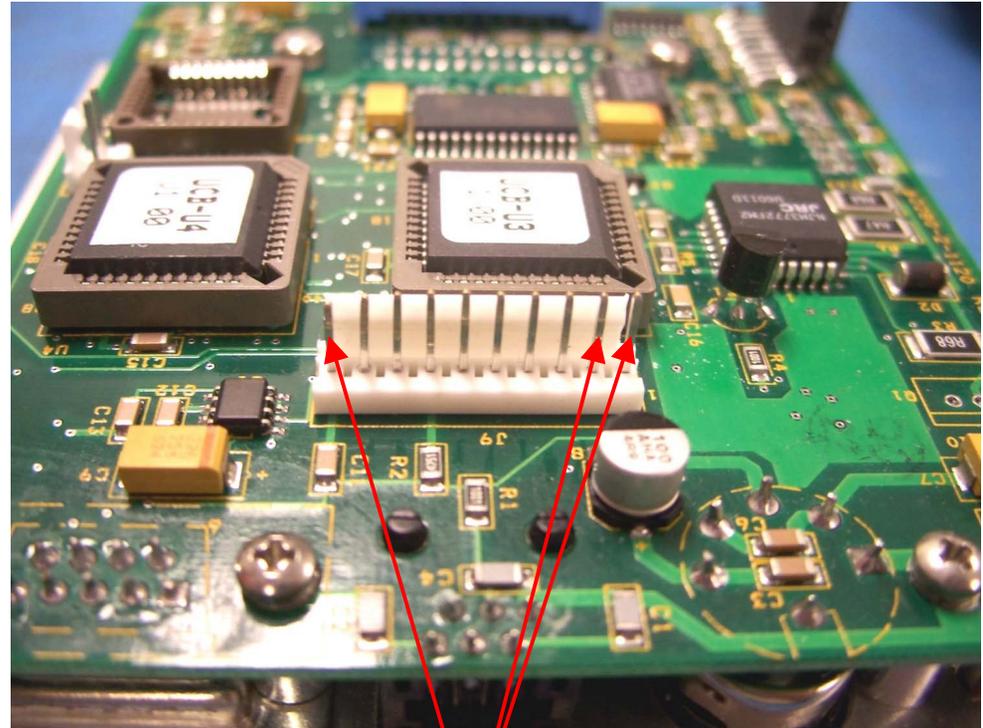
Grating Turret Position for Cornerstone 130 (1/8 Meter)

1. If the monochromator lost communication, power off unit and remove cover. See view below to verify if Grating Turret has gone past home.
2. You will need to manually turn the Coupler until the sensor pin is located in the good zone (9:00 to 6:00). Power on unit to verify monochromator homes. If unit goes back to bad zone you will need to clear memory from board and enter factory parameters, see page 7.



Clearing Memory from Instrument

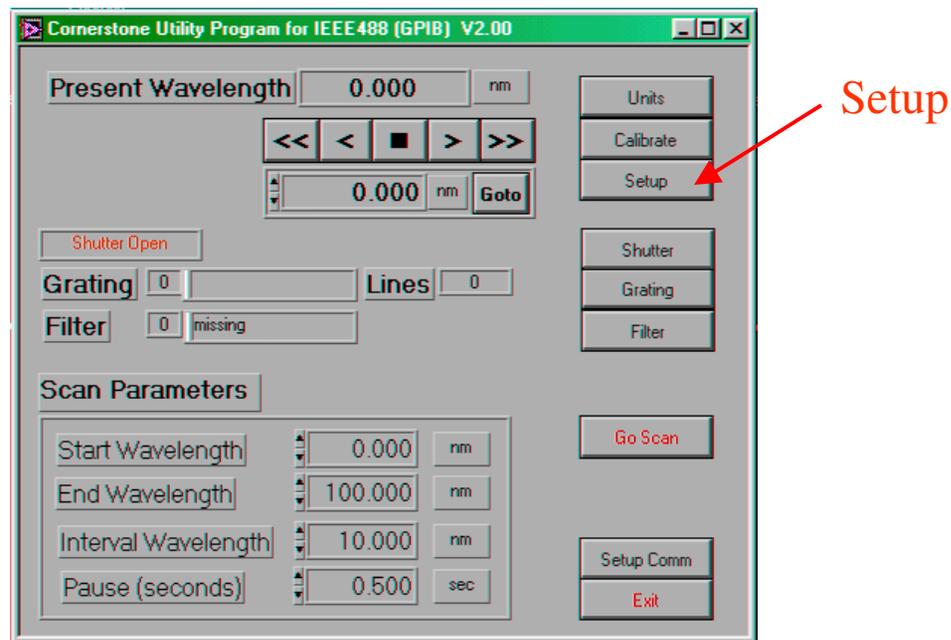
1. Turn off power to the instrument.
2. Remove board from instrument.
3. Apply jumpers to short the 3 pins indicated in the photo
4. Turn on power to instrument and short the 3 pins together, for ~10 seconds.
5. Turn power to instrument, off.
6. Reconnect the board and power the instrument.
7. Reload factory parameters, see page 8.



Short all 3 pins
together, for ~10
seconds

Factory Configuration Parameters

1. To reload the instrument parameters.
2. All of the necessary values are included on the Cornerstone Calibration Parameters datasheet that came with your instrument.
3. Run the Utility Program. Click 'Setup' to open Cornerstone Setup dialog window.



Factory Configuration Parameters

4. Enter correct values (Lines, Factor, Offset, Zero, Label – this is the Blaze value and can be found on the Sales Order). When complete, exit setup using 'OK' button and click Yes when prompted.

The screenshot shows the 'MS260i Setup' dialog box. It contains a table for configuring three gratings and a section for filter settings.

| | Lines/mm | Factor | Offset | Zero | Label (blaze) |
|-----------|----------|-----------|-----------|-------------|---------------|
| Grating 1 | 1200 | 1.0000000 | 0.0000000 | 0.087266500 | |
| Grating 2 | 1200 | 1.0000000 | 0.0000000 | 2.181661600 | |
| Grating 3 | 1200 | 1.0000000 | 0.0000000 | 4.276056700 | |

Please refer to the Cornerstone manual before setting the grating parameters

| | Position | Label |
|--------|----------|-------|
| Filter | 0 | |

Buttons: OK, Cancel, Motorized Slits, Install 2grating Turret

5. Your Cornerstone memory should be restored now.