SpecsLab Prodigy Lens Mode Ranges

VERSION 1.12
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SPECS™

Contents

1 Introduction

The configuration of the active area in SpecsLab Prodigy has changed. The active area specifies the part of a 2D detector which will be used for the final spectrum data (for resolved and integrated setups in non-energy direction).

This document describes how to configure it in version 4.50 and later releases.
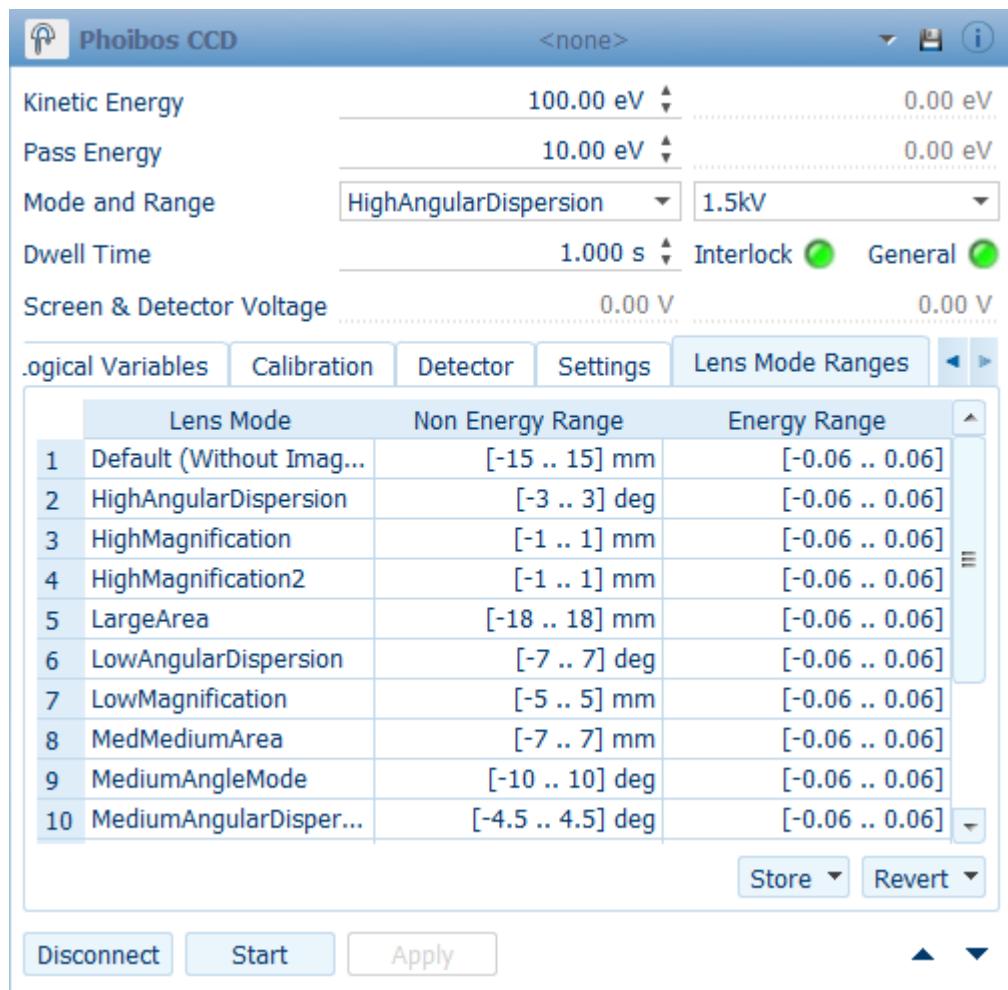
There is no automatic migration from the old settings to the new settings. After the software update, the active area will always show the full range of the detector (which is the default).

Constraining the full range of the detector may be necessary. The reduction in energy direction may be necessary for the MCD calibration to give all remaining energy channels enough intensity and a reduction in non-energy direction may be required if the excitation source has a small spot.
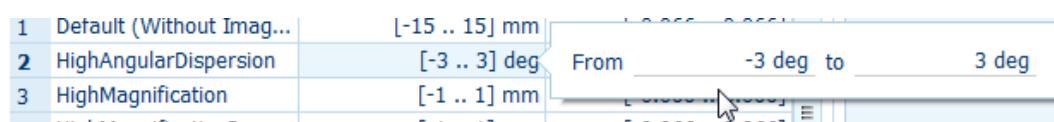
The unit of the transformed image depends on the lens mode: It is "deg" for angle resolved modes and "mm" for the spatial resolved modes. The unit of the energy axis is "eV/Epass".

2 Configuration of Lens Mode Ranges (Active Area)

The active area can be configured in the "Lens Mode Ranges" tab, for each lens mode separately and in the coordinate system of the lens mode at the sample:

Phoibos CCD							`<none>`				

Kinetic Energy — 100.00 eV — 0.00 eV
Pass Energy — 10.00 eV — 0.00 eV
Mode and Range — HighAngularDispersion — 1.5kV
Dwell Time — 1.000 s — Interlock ● General ●
Screen & Detector Voltage — 0.00 V — 0.00 V

Logical Variables | Calibration | Detector | Settings | **Lens Mode Ranges** ◄ ►

	Lens Mode	Non Energy Range	Energy Range
1	Default (Without Imag...	[-15 .. 15] mm	[-0.06 .. 0.06]
2	HighAngularDispersion	[-3 .. 3] deg	[-0.06 .. 0.06]
3	HighMagnification	[-1 .. 1] mm	[-0.06 .. 0.06]
4	HighMagnification2	[-1 .. 1] mm	[-0.06 .. 0.06]
5	LargeArea	[-18 .. 18] mm	[-0.06 .. 0.06]
6	LowAngularDispersion	[-7 .. 7] deg	[-0.06 .. 0.06]
7	LowMagnification	[-5 .. 5] mm	[-0.06 .. 0.06]
8	MedMediumArea	[-7 .. 7] mm	[-0.06 .. 0.06]
9	MediumAngleMode	[-10 .. 10] deg	[-0.06 .. 0.06]
10	MediumAngularDisper...	[-4.5 .. 4.5] deg	[-0.06 .. 0.06]

Store ▼ | Revert ▼

Disconnect | Start | Apply | ▲ ▼

By double-clicking on a table cell an editor opens and the range can be specified for this lens mode:

1	Default (Without Imag...	[-15 .. 15] mm		
2	HighAngularDispersion	[-3 .. 3] deg	From -3 deg to 3 deg	
3	HighMagnification	[-1 .. 1] mm		
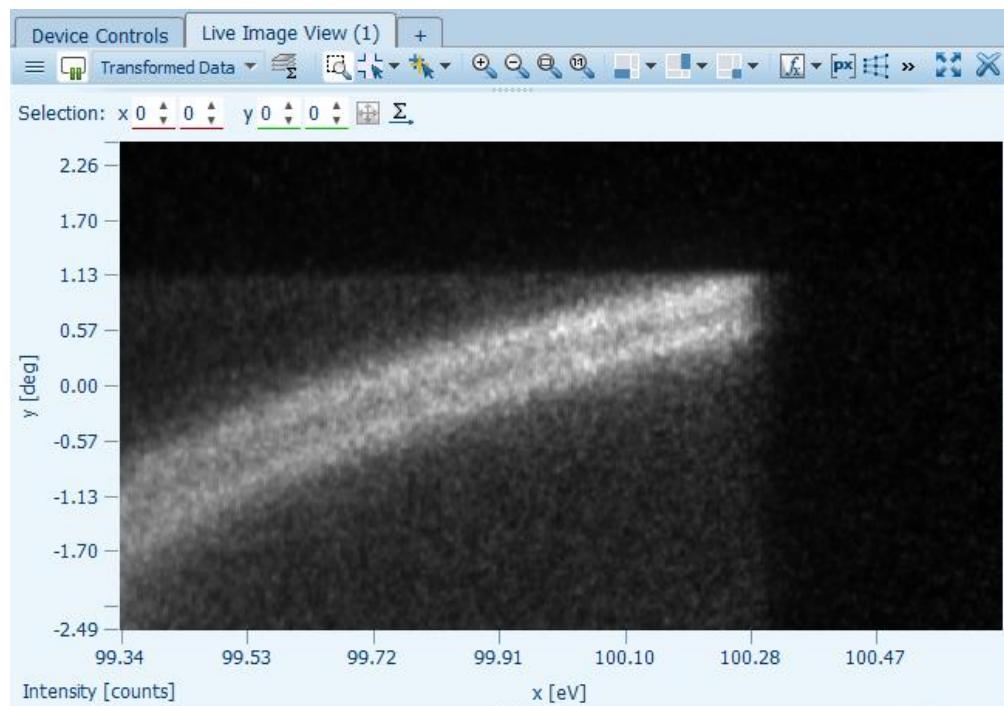
After editing these values, e.g. to

| 2 | HighAngularDispersion | [-2.5 .. 2.5] deg | [-0.066 .. 0.066] |

and clicking on the "Store" button, the effect is immediately shown in the transformed image in the Live Image View (if the same lens mode is selected for the live acquisition):
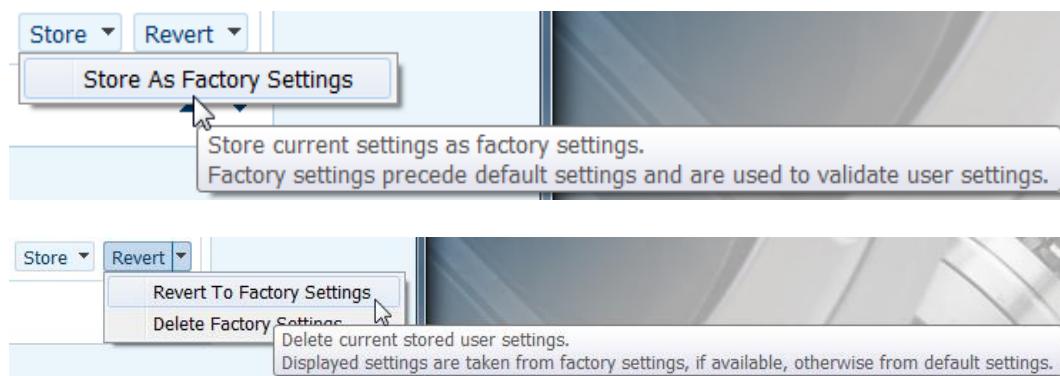

The "Transformed Data" shows the selected non-energy range at the sample along the y-axis and the selected energy range along the x-axis.
The number of pixels corresponds to the number of channels in both dimensions.

3 Storing and Restoring Settings
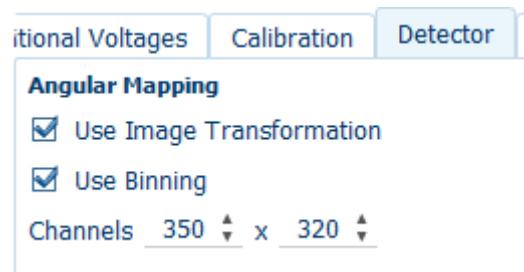
In addition to the currently stored settings, "Factory Settings" can be stored during set-up of a new system and can be restored later. The factory settings are pre-configured by SPECS.
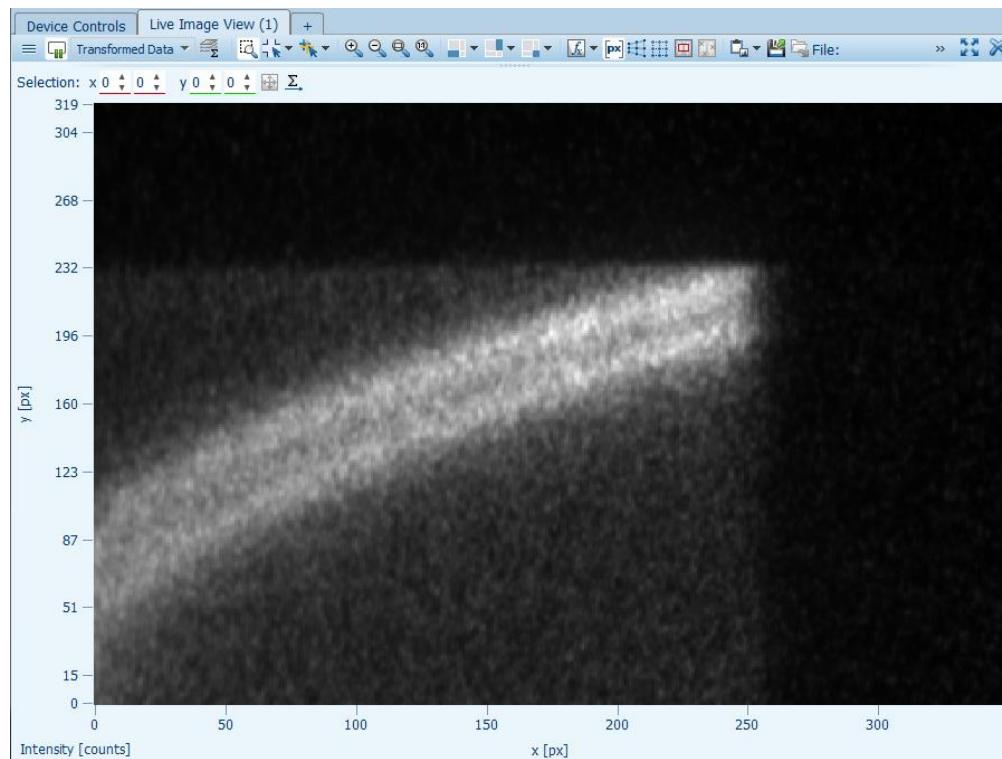

The "Factory Settings" are stored in a csv file in "C:\ProgramData\SPECS\SpecsLab Prodigy\Database\DatasetCalib2D" (e.g. "phoibos150 FactorySettings.csv").

4 Reducing Number of Channels

In addition to the above mentioned settings, the "Transformed Image" is down-sampled into a number of energy channels and non-energy channels as specified on the "Detector" tab:

This "binning" is a software binning only and independent from any hardware binning.
This binning works for arbitrary channel numbers smaller than the detector image size and defines the number of pixels in the "Transformed Image":

8   Remark: "Transformed Data" and "Channel Data" are only different for some background subtraction modes.

Detector specific configurations and adjustments are configured (as in older versions) in the registry under

```
HKLM\SOFTWARE\SPECS\SpecsLab
Prodigy\Devices\<UniqueDeviceName>\Configuration\Detector\CcdDimensio
ns:
```

- Magnification
- Offset
- PixelSize