Shuttle & Find
Retrieving the Region of Interest in Correlative Microscopy with Shuttle & Find
Shuttle & Find
Retrieving the Region of Interest in Correlative Microscopy with Shuttle & Find

Contact:  Dr. Ulrich Kohl-Roscher
Date:  December 2013

Defined transfer of specimens between light- and electron microscopes

Introduction

Shuttle & Find is an easy-to-use interface for the defined transfer of specimens between a light microscope and an electron microscope. It connects upright and inverted light microscopes: all current Carl Zeiss Microscopy scanning electron microscopes and CrossBeam workstations; and the SteREO Discovery, Axio Imager and Axio Observer families equipped with a motorized stage. The main task of the interface is to precisely retrieve the regions of interest in the light microscope that were marked in the electron microscope. It is also possible to overlap the images from the two different microscopes systems.

Availability

The Shuttle & Find solution is available for all current ZEISS SEM/CrossBeam platforms and the Axio Imager, Axio Observer and SteREO Discovery families equipped with a motorized stage.

Guaranteed compatibility with AxioVision 4.8 or higher, SmartSEM V5.04 or higher (required Remote API 2.4 or higher). Zeiss SteREO Discovery, Axio Imager, Axio Observer families equipped with motorized stages, all SEM / CrossBeam platforms (correlative workflow between all microscopes).

Benefits

- Time efficient
  Fast and easy specimen transfer between light microscope and electron microscope platforms.

- Easy to use
  The specimen can be kept on one holder only. An adapter makes the use of the holder in the EM possible.

- Instant and reliable recall of ROI
  Within minutes, the specimen can be transferred from one system to another. Specimens can also be shipped to other laboratories for additional investigation. With Shuttle & Find, the position can be retrieved by simply transforming the coordinate system and a position list.

Operation

The position data of a selected ROI can be saved to a position list and retrieved later. For instance, after the transfer to another microscope or even after shipping it to another laboratory. This means the advances of LM and EM systems can be combined.
Specification

Sample Sizes
Mount for three metallurgical specimens:
- 1 specimen with \(d = 1\frac{1}{2}''\) or \(1 \times d = 30\) mm via adapter
- 2 specimens with \(d = 1''\) or \(1 \times d = 1''\) and, via adapter, \(1 \times d = 1/2''\)
Alternatively, specimen slides: 2
75 x 25 mm2 specimen slides;
mount for 2 SEM stubs with 1/2”
surface and 1/8” pin

Relocation Accuracy
≤ 25 μm (coarse); ≤ 10 μm (fine) – depending on stages

The following items need to be available on the **electron microscope** side:

- **SmartSEM 5.04** or higher
- **API 2.4** or higher
- **AxioVision 4.8.2** or higher (if the customer has 4.x, licence upgrade is free) (main or site licence)
- **AxioVision Module Shuttle&Find 1.1** (main or site licence)
- **SEM Adapter for Specimen holder CorrMic Life Science (D) or SEM/STEM Adapter for Specimen holder CorrMic Life Science (D)** compatible to STEM detector

The following items need to be available on the **light microscope** side:

- **Digital camera** (Carl Zeiss AxioCams HRx, MRx, Icx)
- **Motorized stage** (see below) depending on the light microscope family
- **AxioVision 4.8.2** or higher (if the customer has 4.x licence, upgrade is free) main or site licence (if the customer already has AxioVision )
- **AxioVision module Shuttle&Find 1.1** main or site licence (if customer already has AxioVision S&F module)
- **Operating system** Microsoft Windows XP; other operating systems are not approved

Cameras:
Carl Zeiss AxioCams HRx, MRx, Icx

Stages:
Motorized stage in accordance with chosen microscope platform. For details, please contact your respective MicroImaging sales counterpart.
Upgrade Info

Upgrade path

Specimen holders. The type will depend on the application.
- CorrMic Materials Universal A
- CorrMic Life Sciences Cover Glass
- Customized specimen holder can be ordered

Dongles for corresponding AxioVision licences (one for each microscope is recommended).

The retrofit must be done by an authorised Carl Zeiss Microscopy service engineer. For further information, contact:

microscopy@zeiss.com

<table>
<thead>
<tr>
<th>Part</th>
<th>Ordering no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic software for light microscope</td>
<td></td>
</tr>
<tr>
<td>AxioVision Rel. 4.8 Software</td>
<td>410130-0500-000</td>
</tr>
<tr>
<td>AxioVision 4 Module LM-EM</td>
<td></td>
</tr>
<tr>
<td>Correlative Microscopy Shuttle and Find</td>
<td>410132-0521-000</td>
</tr>
<tr>
<td>Additional licence for electron microscope</td>
<td></td>
</tr>
<tr>
<td>AxioVision Rel. 4.8 Software Site Licence</td>
<td>410130-1500-000</td>
</tr>
<tr>
<td>AxioVision 4 Module LM-EM Correl. Microsc. Shuttle &amp; Find Site Licence</td>
<td>410132-1521-000</td>
</tr>
<tr>
<td>Accessories for Correlative Microscopy</td>
<td></td>
</tr>
<tr>
<td>Specimen holder CorrMic Materials Universal A</td>
<td>432335-9100-000</td>
</tr>
<tr>
<td>Specimen holder CorrMic Life Sciences Cover Glass</td>
<td>432335-9300-000</td>
</tr>
<tr>
<td>Customized specimen holder</td>
<td>Contact: aftermarket. <a href="mailto:microscopy@zeiss.com">microscopy@zeiss.com</a></td>
</tr>
</tbody>
</table>