Features included in i-Solution DT-L/ DT/ DT-M

iSolution DT-L is the program focused on core material science applications.
iSolution DT has all features for various science and inspection applications.
iSolution DT-M is the motorized stage control application version having all features of iSolution DT.
It has many new developed functions also

Include:

Live Measurement and Overlay Settings

Users can perform measurements on the live preview image, using the crosshair or grid masks to center and count. The grid masks include calibration data. Calibration marker (scale bar) can be placed on the live preview image. The marker (scale bar) can also be burned on each captured image automatically. Any
standard file format image can be chosen to see it above live preview image.

Calibration (Auto, Manual)

All measurements start with an accurate calibration. Auto, Semi-Auto calibration functions allow the software to calculate the pixels-per-unit value automatically. Only setting the unit for the calibration scale and the distance between the scale marks is needed. This feature greatly improves the accuracy and repetition of measurements. Manual calibrations are easily added and saved for recall from a drop down menu. All calibrations can be saved as files, which let the calibration be retrieved by simply opening the saved files later.
Calibration can be protected by password option. Two password options, one in calibration menu itself and the other in camera resolution option, protect calibration by unexpected change. A scale bar can be permanently added to each image. Scale bar properties for color, size and text are simple to optimize for any image background.

Z-Axis Extended Focus Imaging (EFI), with displacement compensation for stereo microscopes

Samples with curves or of varying heights are difficult to bring into focus under highly magnified conditions. And more a stereomicroscope takes images with tilting due to its own structural characteristics. Thus, each image is out of its supposed position when you move microscope to the Z-axis getting the right focus. Our displacement compensation function allows you to rearrange these images automatically and manually.
Software can combine a stack of images sequentially captured at different levels of focus and combine them into a single in-focus image. You can count on our software not to leave any trace of the composites.

3D Visualization. . . clearly view complex structures

A Three-dimensional picture can be created from any image. The 3-D presentation is based upon intensity values of the image and can be displayed as a normal or wire frame image. Z axis information can easily be adjusted to optimize the 3-D effect. To better visualize an image in 3-D, software offers full 360 degrees of rotation on X-Y-Z axis. A 3D image can then saved in JPG, TIF or BMP format.

Image Stitching. . . create a mosaic of the "Big Picture"

With our software, you can create auto and manual composites of continuously captured images in order to minimize the reduction in the field-of-view that typically comes with increased magnification. Combined images are automatically corrected for brightness without leaving any stitching mark.

Live Image Comparison. . . for fast inspection and size verification

For QA testing or quick go/no-go inspections any stored image can be used as a reference image onto which the live preview image is projected.

Time Lapse Capture and Movie File Production. . . Import into Power Point

Software features a Time Lapse Capture function that supports TIF, BMP and JPG file formats. The Time Lapse Capture function also includes an Auto Save feature by

yyyy/mm/dd/hour/minute/second. You can save video movie recordings in AVI, MPG, MPEG, and MOV formats.

Combine Image Planes - Fluorescence Imaging
Merge and pseudo color monochrome images into a single RGB composite.

Advanced - Fluorescence Image merge
Fluorescence merging function allows several images to one composite image.
There is rich list of pre-defined dyes already.
One can choose desired emission wavelength in nanometers also and then correspondent color is calculated automatically

Export Into Excel® - with one mouse click
A single mouse click exports the original image with measurement, calibration, annotation overlay, measurement data, statistics, and chart.

Manual Measurement Tools - Including Various Perpendicular Distance
Software's versatile manual measurement features include tools for measuring lengths, areas, and angles and can even auto detect an object's outline and then make specified measurements. The software is equipped with a wide choice of powerful measurement tools including 3-point circle functionality, Npoint circle measurement functionality, parallel line distance measurement, perpendicular distance measurement and object distance measurement. In addition, a zoom-in window can be used to determine the accurate measuring point of an object.
Once you've measured a specimen you can easily export all of the images, measurement data and statistics to an Excel® file. With i-Solution DT, comprehensive statistics and data are just one effortless mouse click away.

Line Profiling
Single, multiple, parallel and polyline commands provide Gray/Red/Green/Blue intensity values for specific lines within an image. The profile data of each pixel on the line can be exported to MS Excel.

Auto Trace
Using an automatic edge detection algorithm, our software will perform an auto trace measurement function around a closed object. This function greatly increases accuracy and saves time when making
measurements of complex shapes.

Image Processing
Manual Brightness, Contrast, Gamma, Background Subtraction, Shading Correction, Histogram, Clone, Crop, AOI, Resize, Rotate, Split, Merge Monochrome series into RGB Color, Combine different exposure Images for highlight reduction, Image Mode Change, Grayscale, RGB, HSB, YUV Pseudo Color view, Full range of enhancement and morphology filters 8bit and 16bit per channel

Manual Measurements
Point Count, Straight Line, Circle by radius, Circle by N points, Circle by diameter, Circle by 3 points, rectangle, polygon, polyline, splice lines from a common point, auto trace, angle parallel lines, perpendicular width, perpendicular from common line, angle between 2 lines, distance, perpendicular distance.

Shading Correction
The edge parts of captured image by low magnification have background shading frequently, which can be removed by the shading correction function. The color of the original image remains the same though. A standard image is acquired from a blank space on the slide glass, or from an out of focus image in a metallurgical specimen. Such a standard image is used to correct the background shading of all other captured images.

Annotation
Line, arrow, polyline, spline, rectangle, ellipse, text

Region of Interest- ROI. . . . with unique add/subtract capability
Rectangle, arbitrary rectangle, circle, arbitrary ellipse, polyline, spline, magic wand ROI itself can be saved to work with other images. The saved ROI can be placed on the exact same location of other images.

View and Zoom Image

Manual zoom In-Out, User Defined, Fit to Window, 1600% Zoom in Window for Accurate Edge Detect, sizeable context Window to view all open Images

Image Editing

Undo, Redo, Copy, Paste, Paste New, Delete, Delete All, Annotate, Image Information

Save Options

TXT File Format, image and measurement data together in Propriate .img File Format for future editing and data collection

Supported Image File Formats

jpg, jpeg, tif, tiff, bmp, gif, pcx, tga, mpg, mpeg, avi, mov, img, rpt, txt and etc.

Report Generator

Create Report, Insert Image and Data, Insert other OLE Objects

Window View

Split Horizontal, Split Vertical, Cascade, Tile Horizontal, Tile Vertical, Arrange icons, Dynamic User Interface (UI), Classic, Modern

Time Lapse Sequence Control

Play Forward, Backward, Making Movie File (mpg, avi, mov) with Still Images, Split Single Image from Sequence File

Auto/Manual Thresholding for Count and Size

Intensity and color based thresholding tools for identifying, counting and categorizing objects. Ideal for automatic objects counting and percentage of area measurements.

Objects Editing… enhanced measurement accuracy!

Target threshold objects can be edited by all measurement parameters or with filters to clean, close, open, dilate, erode, automatic separate and fill holes.

Densitometry

i-Solution software automatically calculates Optical Density (OD) by absolute and relative figures, semi automatically, or manually based on user configuration. Images and OD figures can then be exported directly to an MS PowerPoint file.

Perfect Focus Enhancement

i-Solution implements a perfect function of focus compensation irrespective of the status of lights and specimen.

Macro-Enabled Recording

Create and save customized measurement settings and sequences

Data Collector

Select desired measurements then easily collect and tabulate data from multiple samples.

Reflected Light Subtraction

i-Solution creates clear, evenly illuminated images by removing the bright saturated light from a highly reflective sample.

Automatic count for live and stained cells

Conglomerated live and stained cells are separated automatically and counted.

Particle Analysis

Particle data in many images is given by statistics and individual form. Each object is viewed with data together.

Phase Analysis & Advanced Threshold

i-Solution conducts phase analysis on an entire image or within a specified Region of Interest (ROI) and it can allow to sort images using Gray Scale, RGB, HSB or YUV.

Thickness Measurement (Layer Depth Measurement)

Average thickness is measured automatically by defining box. The number of scan lines can be defined by users.

Stereometry for Biovolume

The 3D volume of an object is calculated by using 2D measuring parameters.

67 selectable measurement parameters

A complete menu of measurement types with a description of the parameter

3D reconstruction

A 3D rendering picture can be created from Z stacked images. A real 3D rendering picture is made by many Z stacked images. The 3-D presentation can be displayed as a normal or wire frame image. To better visualize an image in 3-D, software offers full 360 degrees of rotation on X-Y-Z axis. A 3D image can then saved in JPG, TIF or BMP format.

Illuminator control

Program controls illuminator shutter.

Live cell count

Live cells having irregular shape can be counted automatically, which can be hardly possible by ordinary thresholding method.

Grain Size Measurement

iSolution DT provides the standard measurement environment in structure analysis of metal and materials according to ASTM E112 (2000). Both intercept lines and planimetric counting are available.

Ferrite in Cast Iron

Percent Ferrite is calculated by excluding the graphite area. Graphite can be sorted for calculation including portions with the same gray intensity value of the background pearlite.

Graphite Analysis in Nodular Cast Iron

iSolution DT may automatically generate measured data on the international standards regarding the cast iron. It provides graphite types and nodularity data according to the international standards such as ASTM A247-67 (1998), ISO 945 (1975), JIS G5502 (2001), KSD4302 (2002) with a single click.

Chart Navigator

The Chart Navigator permits direct comparison between the live or captured image and a series of reference images. The user-friendly interface makes you quickly find the image you need which matches or is similar to the live or captured image out of a large number of reference images. Both the live image and the reference image can be exported to MS Excel by simple mouse click. Synchronize zoom function makes it enable to see the same view size whatever zoom ratio the live or captured image has.

Particle analysis

It gives particle analysis result with each object shape and statistic data.

The below features are included in iSolution DT and DT-M only, not in DT-L

Non-metallic Inclusion Rating

The functions in iSolution DT is intended to determine the inclusion content of steel according ASTM E45 (2002), ASTM E1122 (1996), DIN 50602 (1985), ISO 4967(1998), KSD 0204 (2002), JIS G0555 (2003). Two analysis approaches, Stereological measurements and JK inclusions ratings are implemented.

Yarn filament analysis

The function is intended for processing a narrow class of special images with filament objects. There are four types of filament objects supported by the program: triangle, circles, FD circle, and polygon.

Automatic Fruit Size Analysis

It measures fruit size automatically.

Volume fraction based on ASTM E562-05

It gives the volume fraction of residual Austenite and Ferrite based on ASTM E562-05

Rust Analysis based on ASTM D610-08 and JIS H 8681-2

It gives the rust analysis result based on ASTM D610-08 and JIS H 8681-2

Microindentation hardness

It gives microindentation hardness test result based on Knoop and Vickers.

The below features are included in iSolution DT-M only

Motorized stage control

iSolution DT-M controls motorized stage of Marzhauser, Ludl, Prior scientific, and ASI

Virtual microscope

With motorized control stage, it gives automatic image stitching for scanning whole slide area. While making a whole large area image, image stitching and microscope focus enhancement can be done at the same time. Even with stereomicroscope, such a function is available.

Image analysis with automatic image stitching

Image analysis with data collector can be done having automatic image stitching at the same time. Image analysis data can be achieved while making a large stitched image by motorized control stage, which gives analysis data and whole picture at the same time.

Automatic focus adjustment

While stage is moved, focus is adjusted automatically by software function alone, not with any other additional hardware device.

Banding analysis based on ASTM E1268

It gives banding analysis result based on ASTM E1268 standard.

Adding customized modules by request

System Requirements

- PC with a Pentium-class processor; Pentium 300MMX or higher recommended

- Microsoft Windows Win7/Vista/WinXP/2000/ME/Win98SE operating system

- 32 MB of RAM or more (128 MB recommended)

- 15 MB or more hard-disk space (50 MB recommended)

- CD-ROM drive

- VGA or higher-resolution monitor; Super VGA recommended (1024 x 768 pixel and 24 bit and more color support video card is recommended)

- Microsoft Mouse or compatible pointing device

- USB- or LPT-port for hardware key (depends on delivery).

Supported imaging devices

1. TWAIN Driver
2. DirectShow/ WDM (Windows driver mode) driver
3. i-Link Devices

All PixeLINK cameras.
Optronics digital cameras
- MicroFire
- MacroFire
- QuantiFire and QuantiFire XI
- Microcast
- All MPX series cameras
- All QPX series cameras
Jenoptik ProgRes digital cameras
- C3 (cooled and non-cooled)
- C5 (cooled and non-cooled)
- C14
- ProgRes CF and CFScan (cooled, non-cooled, and scan)
- ProgRes MF (cooled, non-cooled, and scan)
-ProgRes all CMOS cameras.
Nikon digital cameras
- DS-U2 Fi1
- DS 5M/2M-U2
- DS 5M/2M-U1
- DXM 1200C

- DXF 1200F
Pixera digital camera
- Penguin series all models
- Pro series all models
Scion corporation digital camera
-CFW series all models
Matrix vision
-mvBlueFox digital camera
Artray
- ARTCAM-500MI
- ARTCAM-300MI
- ARTCAM-200MI
- ARTCAM-130MI (color, mono, and NIR)
- ARTCAM-036MI (color, mono, and TWIN)
- ARTCAM-500P
- ARTCAM-200SH
- ARTCAM-150P-II (color and mono)
- ARTCAM-098 (color and mono)
- ARTCAM-34MC
Lumenera
- Infinity 1 series all models
- Infinity 2 series all models
- Infinity 3 series all models
- Infinity X and Infinity X-21
XLi camera
- M series cameras
- DC series cameras
- DX series cameras
Spot digital camera
- Insight
- Flex
Qimaging digital cameras
- MicroPublisher
- Retiga
All Leica digital cameras by TWAIN
Carl Zeiss AxioCam by TWAIN
FlashBus frame grabber
- Spectrim Lite
- Spectrim Pro
- MV Lite
Matrox frame grabber
- Meteor II
Avermedia frame grabber
- EZMaker
Consumer digital cameras
IMT i-Solution Inc.
www.imt-digital.com
www.IMT-Solution.com