# INSCOPER I.S

**More than Microscopy Software**

INSCOPER — Project — Settings — Support — User Mode

**Configuration** — Acquisition

Project Name — Project 2023-03-17 — Open in Explorer

**Camera Settings**
Exposure (ms): 20
Binning: 1x1
Advanced — Snap — Live

Threshold
Contrast
Min : 416.00 Average : 7549.83 Max : 51477.00

50.00 µm

FPS : 35.50
Edit Chart — Crop Image

**Calibration** — Tiling

**Magnification** — Objective — 60x

**Axis**
Z
Focus: 21231.62
Step (um): 0.001
X-Axis: 58182.24
Y-Axis
Step (um)

**Channel** — Zaber GFP — Zaber GFP — Add

**IL light**
IL Shutter 385
IL Lamp 385 Intensity — 0
IL Shutter 473
IL Lamp 473 Intensity — 30
IL Shutter 568
IL Lamp 568 Intensity — 0

**Light Path** — Cube — GFP

Go To Acquisition
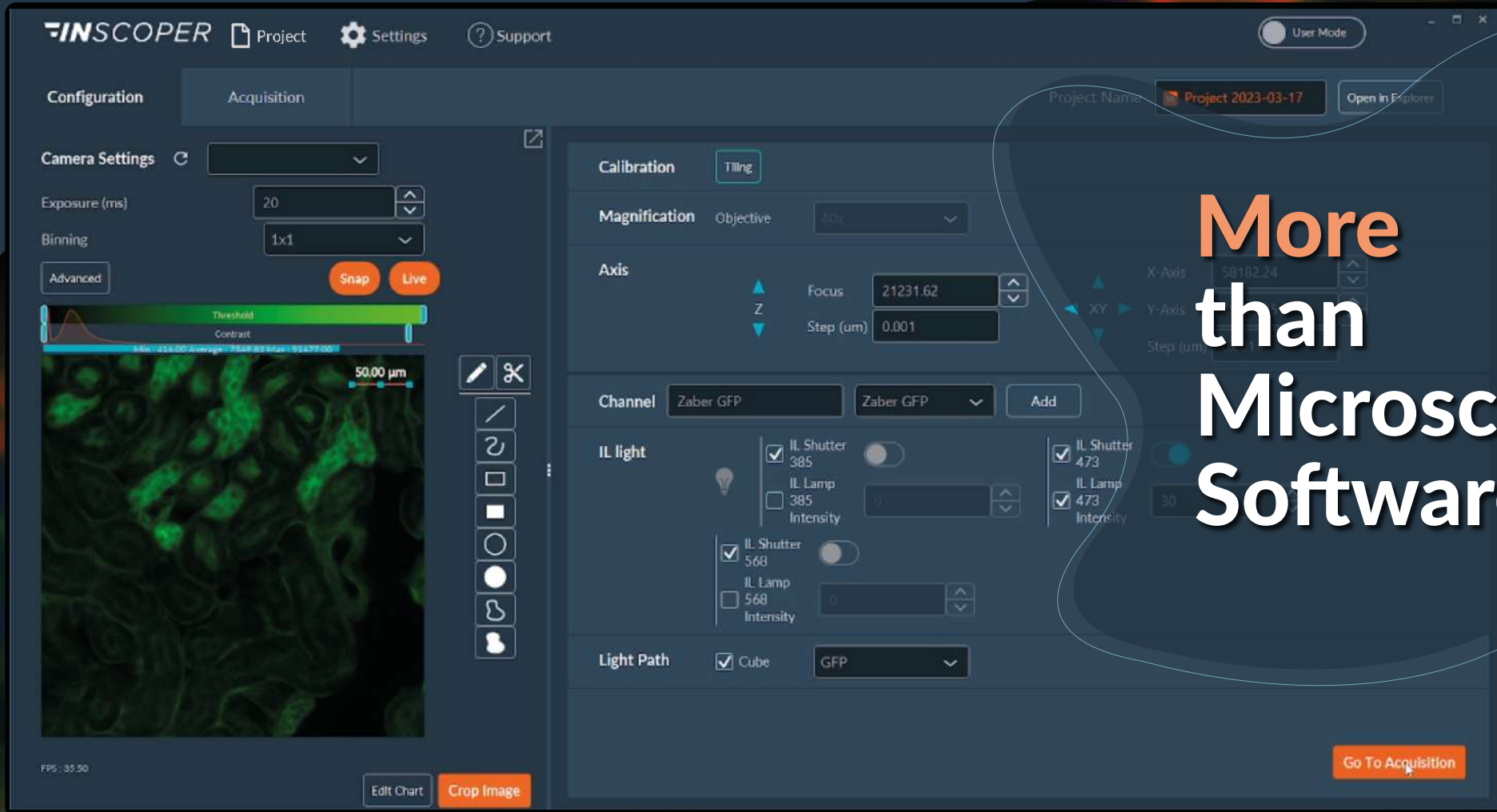
# NEW SOFTWARE APPROACH FOR MICROSCOPY IMAGING

Inscoper I.S. is a complete, universal solution for image acquisition in fluorescence microscopy. Incorporating a specialized device controller, Inscoper I.S. provides a new user experience with improved technical performance, system integration and ease-of-use.

## KEY ADVANTAGES

### ALL-BRAND COMPATIBILITY

Inscoper I.S. is compatible with camera-based microscopes from Evident, Leica, Nikon, Zeiss and with all additional third-party devices: cameras, light sources, XYZ stages, confocal add-on modules, microfluidics, etc.

### HIGHER TEMPORAL RESOLUTION

INSCOPER exclusive control technology eliminates all software latency when operating the microscope and its peripherals outside the computer environment. All command signals are synchronized ensuring full stability of acquisition over time, repeatability between sessions and tripling the acquisition framerate. When examining live specimens, temporal resolution and repeatability are unquestionably just as important as spatial resolution.

### THIRD-PARTY SOFTWARE COMPATIBILITY

Inscoper I.S. is compatible with any analysis software that uses .tiff, .bigTiff or Bio-Formats images such as Imaris, ImageJ, Huygens, etc. I.S. integrates also some third party software into a single workflow: e.g. Jetraw or Microvolution.

### UNIQUE WINDOW, UNLIMITED APPLICATIONS

The I.S. software interface is designed with only one window and 3 tabs for an intuitive user journey. It stays user friendly whatever the complexity of the image acquisition sequence.
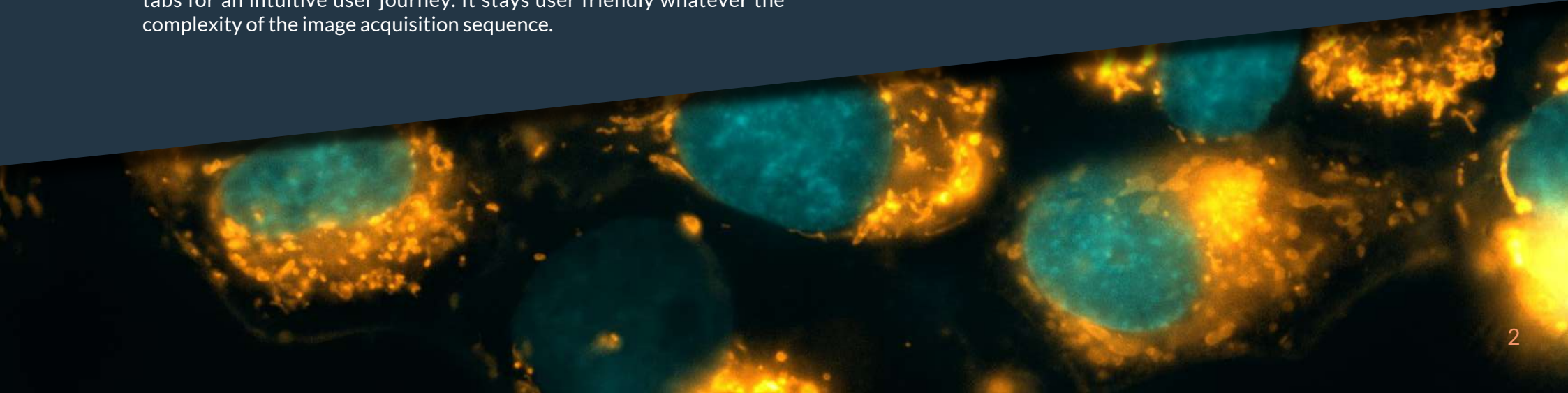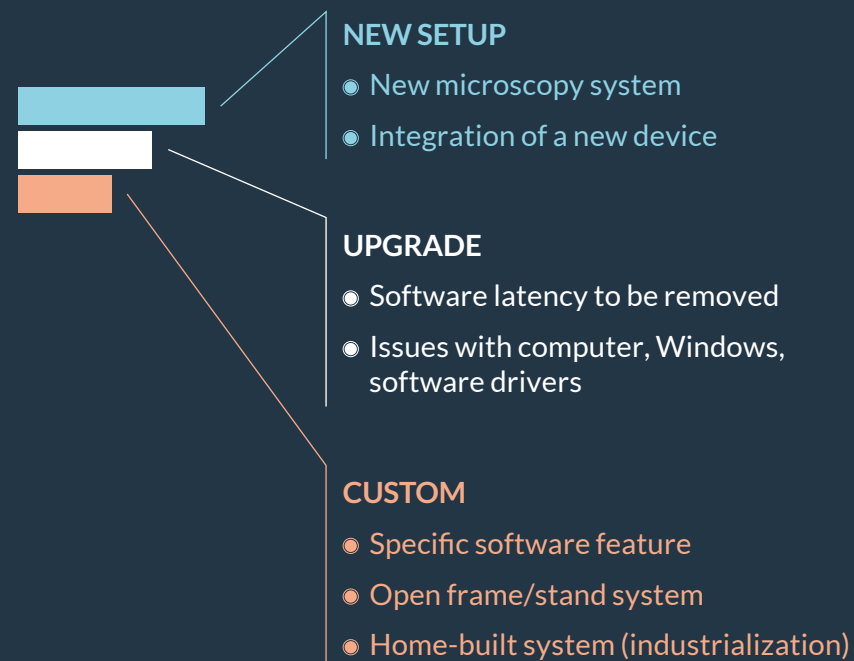
# SOLUTION FOR ALL MICROSCOPE SETUPS

## OFFER TAILORED TO SYSTEM EQUIPMENT LEVEL

Inscoper I.S. is a complete control & image acquisition solution for light microscopes used in life science research. Thanks to its great modularity, the solution is as convenient to be used from the most simple microscopes to the most advanced setups.

| | 1D-IMAGING<br>Live imaging, time lapse | 3D-IMAGING<br>Z-stack imaging | 5D-IMAGING<br>Multi-D imaging | HIGH-END<br>Laser illumination | HOME-BUILT<br>Custom manip, prototype setup |
|---|---|---|---|---|---|
| Single camera | ✓ | ✓ | ✓ | ✓ | |
| Light-source, microscope incl. motorized Z | ✗ | ✓ | ✓ | ✓ | |
| X-Y motorized stage, dualcam | ✗ | ✗ | ✓ | ✓ | Contact us |
| Laser source, multi-cam, 3d-party confocal unit | ✗ | ✗ | ✗ | ✓ | |
| Additional devices * | ✗ | ✗ | ✓* | ✓* | |

*optional*

### NEW SETUP
- New microscopy system
- Integration of a new device

### UPGRADE
- Software latency to be removed
- Issues with computer, Windows, software drivers

### CUSTOM
- Specific software feature
- Open frame/stand system
- Home-built system (industrialization)

## I.S. ADRESSES ALL USER NEEDS AND CHALLENGES ENCOUNTERED WITH MICROSCOPES

# FROM SIMPLE IMAGE ACQUISITIONS ▸

Inscoper I.S. is a turnkey solution combining hardware and software to perform the microscope at its best. It completely revolutionizes the way fluorescence microscopes are controlled in live cell imaging, allowing much higher frame rates and perfect signal synchronization.

I.S. user interface offers a modern and friendly environment with a single window and 3 tabs (Configuration, Acquisition, Visualization). Users can easily define and organize multi-dimensional image acquisition sequences to observe and manipulate fixed or live samples.

## I.S. RANGE LEVELS

**1D-IMAGING**

- Time-lapse

**3D-IMAGING**

- 1D-imaging
- Z stack
- Channels

**5D-IMAGING**

- 3D-imaging
- Spatial dimensions X Y
- Multiposition with tiling & stitching
- Multi-camera control
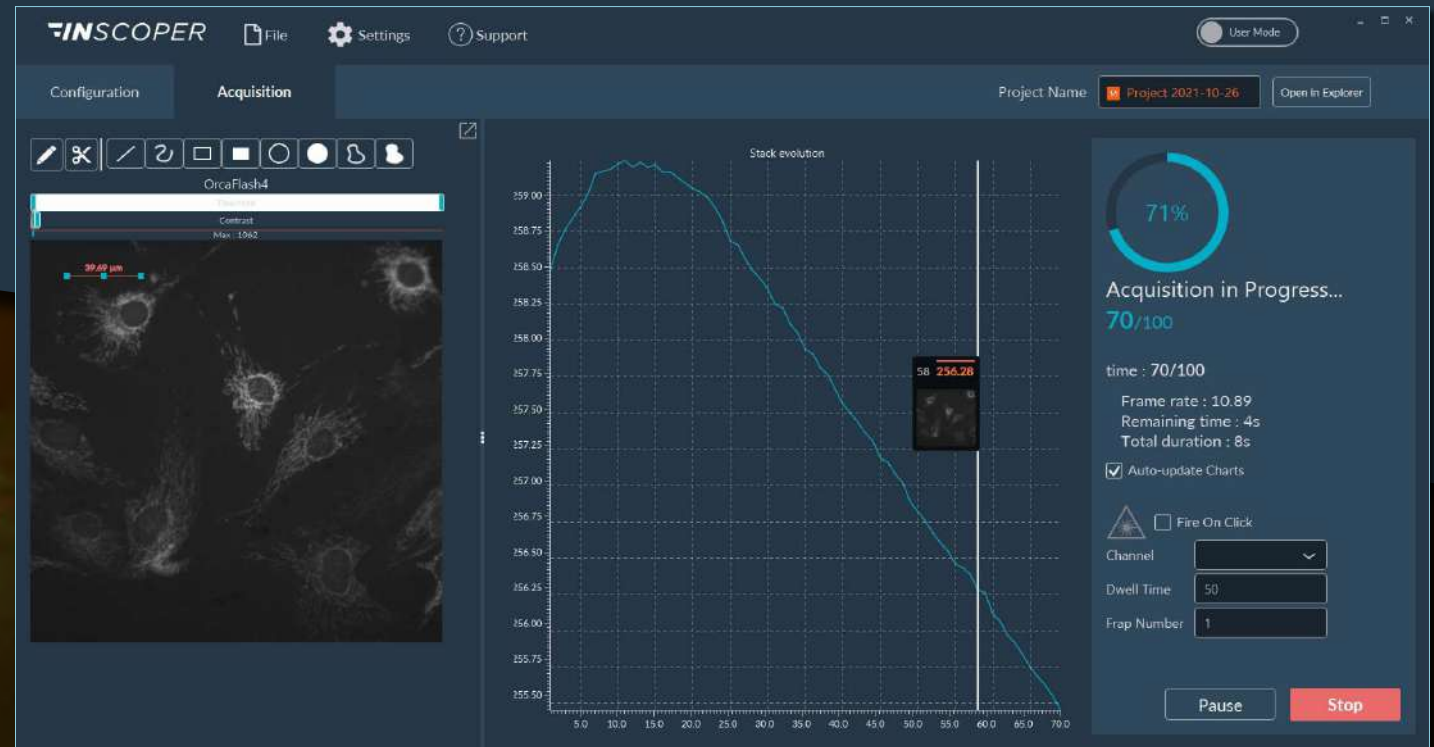
# ◄ TO COMPLEX MICROSCOPY TECHNIQUES

## HIGH-END

- 5D-imaging
- Rotation axis
- SPIM systems
- Spinning Disk & Confocal systems
- F-techniques (FRET, FRAP, FLIM)
- Hi-Lo/TIRF & PALM/STORM techniques
- Temperature control
- Microfluidics & Drug injection
- Ratiometric Imaging
- RIM (Random Illumination Microscopy)
- Optical sectioning by structured illumination
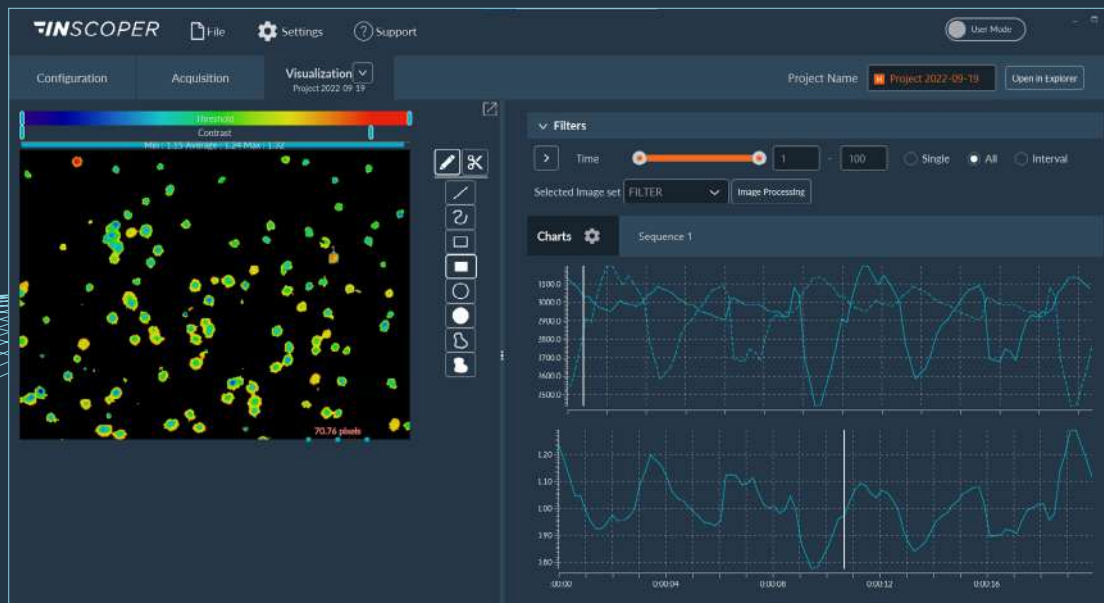
## HOME-BUILT

Some research teams develop their own microscopy system to create a new imaging technique, adapt an instrument to their specific needs or minimize costs. When the time comes to make it reliable and accessible to regular users, I.S. is the ideal platform for turning a laboratory prototype into a commercial-grade microscopy system at a reasonable and pre-determined cost. Our top-level technical team will implement your project according to your needs and with the necessary confidentiality.



*Live calcium imaging*



*Ultra high-speed live cell image acquisition system (continuous motion imaging), Gaithersburg, Maryland, USA*

# INTUITIVE SOFTWARE ENVIRONMENT FOR ALL MICROSCOPE USERS



Project management

Acquisition workflow

Sequence management

Full/limited configuration access

Dimension management (drug & drop)

ROI tools

Data processing tools

Saving data as .tiff / .BigTiff

# SOFTWARE FEATURES

## CONFIGURATION
### Automate & Calibrate

- Access to all microscope and third-party setting: camera parameters (binning, exposure time), objectives, stage, light source, etc.
- Camera presets management
- Possibility to call previous projects (uploading parameters with images or parameters only)
- AutoSave function: recalls the last set parameters recorded every 30s
- Expert/User mode management to limit the access to certain features
- Manual and automated contrast adjustment, choice of LUT, Camera overload indocator (Pixel indicator)
- ROI creation and management
- Channel management and customization
- Software or hardware camera crop
- Numerical zoom in/out on the image
- Automated calibration (tiling, multiwell plate, ...)

## ACQUISITION
### Monitor & Register

- Drag-and-drop order of dimensions
- Multi-sequence acquisition
- Loop to repeat sequence
- Data Processing :
    - Tiling
    - Raw image
    - Raw image and graphic
    - Shading correction
    - Customizable data processing
- Real-time visualization of images and/or graphics during acquisition
- View of the tiling imaging during the acquisition
- Synchronized ROI creation/edition/removing with automatic graph updates during acquisition

## VISUALIZATION
### Analyze & Store

- Saving files as tiff or BigTiff
- Export images (.tiff, .bigTiff) or graphics (.csv) or video (.avi)
- All metadata are bio-formats compatible
- Replay feature : to visualize raw images according to dimension filters
- Synchronized ROI creation/edition/removing with automatic graph updates
- «See in Live» mode to automatically center an element of interest on acquired image for subsequent acquisition
- Visualization of all images and access to dimension filters
- Creation of new tiling (in new sequence or not) from a previous tiling image
- For expert user, access to add and create new algorithms
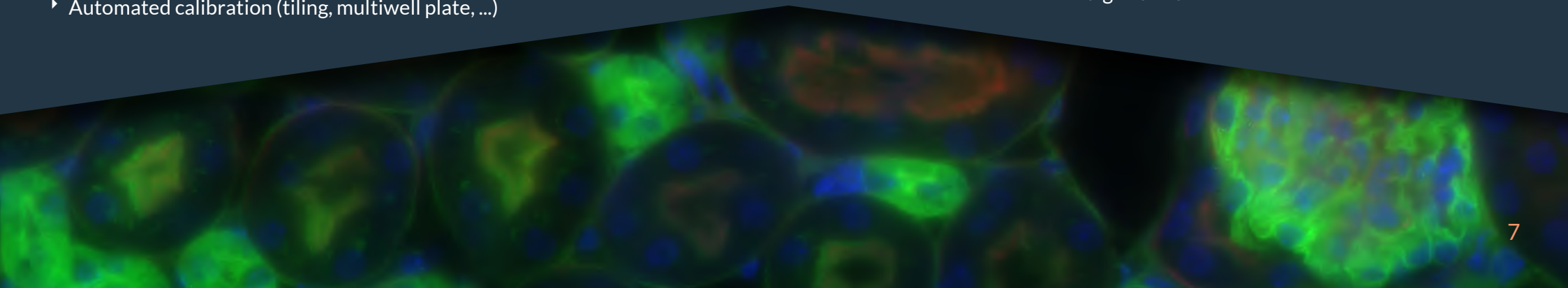
# THE TECHNOLOGY BEHIND I.S. SOLUTION



**User Interface**          **Device Controller**
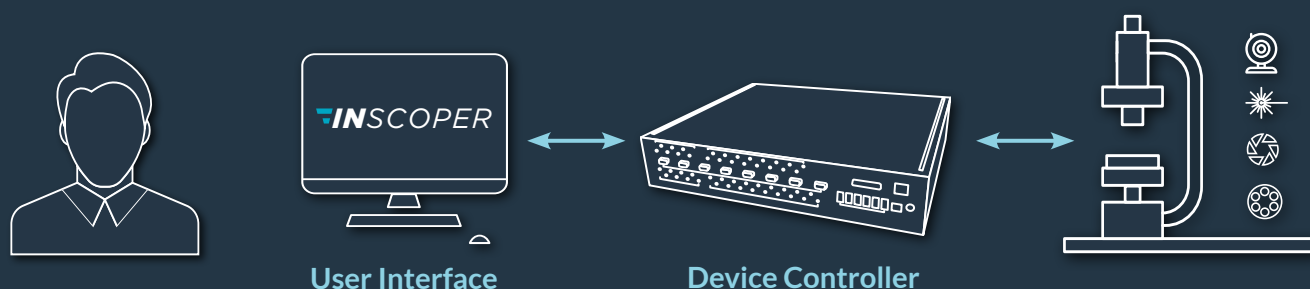
**INSCOPER's innovative approach involves dissociating the two functionalities managed by all acquisition software: (1) Interaction with the user, and (2) control of the devices.**

(1) **User interaction**: configuration of system parameters, set-up of acquisition sequence, display, processing and saving of acquired images.

(2) **Device control**: communication with the various devices in the microscopy system and execution of the user-defined acquisition sequence.

The key to achieving optimal microscope performance and reliability is to control the various devices with a specialized and dedicated electronic system, instead of a general-purpose computer even powerful.

## BREAKTHROUGH TECHNOLOGY

Inscoper Device Controller communicates with each device using its low-level protocol. It eliminates all software latency caused by the operating system and the software drivers it requires to enable «translation» with its high-level software environment.

For the User software interface, this separation means it is free from hardware constraints. So, regardless of the type of microscope, the interface remains flexible, versatile and focused on user requirements rather than hardware issues.

**Reduced Time for Image Acquisition**
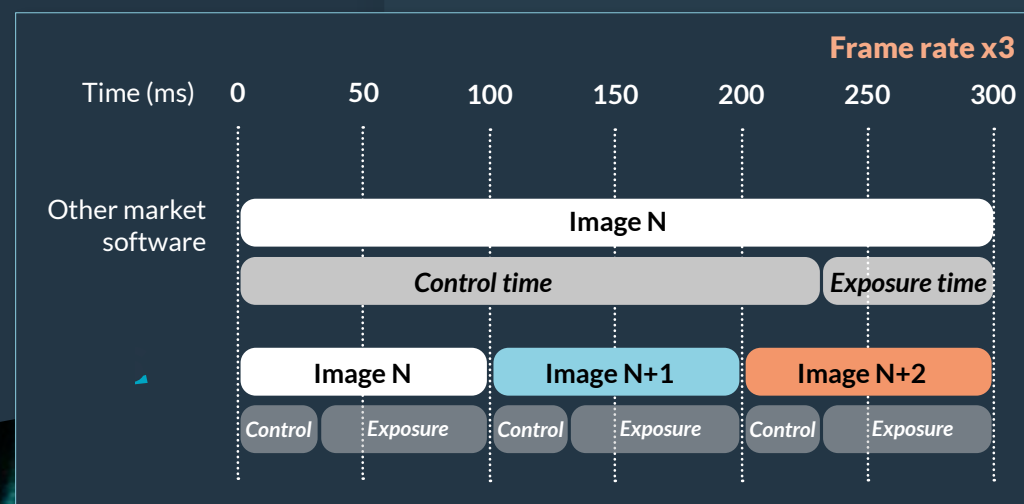
# DEVICE CONTROLLER SPECIFICATIONS

|  |  | S | M | L |
|---|---|---|---|---|
| **ANALOG OUTPUTS** | DAC resolution 14 bits<br>Sample rate 180 MS/s<br>Output range ±10 V, 0-5 V, +-5 V | 1 | 8 | 16 |
| **ILDA** | Laser illumination control | - | - | 1 |
| **ANALOG INPUTS** | ADC resolution 16 bits<br>Sample rate 1 MS/s<br>Input range ±2.5 V,  ±5 V,  ±10 V, ±12.5 V | - | - | 16 |
| **I/O** | TTL | 4 | 18 | 18 |
| **SERIAL PORTS** | RS232 | 1 | 4 | 8 |
|  | USB host | 1 | 6 | 6 |
| **COMPUTER** | Operating System | Windows 10/11 | | |
|  | Display | 1920 x 1080 px | | |

*The microscopy system to equip determines the model (S, M, L) of the Device Controller.*

9

# WARRANTY & SUPPORT SERVICE

Inscoper I.S. comes with a two-year warranty and support service. Unchanging and evolving extensions after these first two years can be purchased on an annual basis or as a three-year bundle.

| Service | | Years 1&2 | Following the first two years | |
|---|---|:---:|:---:|:---:|
| | | | *Unchanging setup* | *Evolving setup* |
| **Contact** | via email, telephone. Response within 24 business hours | ✓ | ✓ | ✓ |
| **Assistance** | in training and using the software | ✓ | ✓ | ✓ |
| **Diagnosis** | in the event of breakdown or malfunction | ✓ | ✓ | ✓ |
| **Troubleshooting** | software-related problems | ✓ | ✓ | ✓ |
| **Replacement** | of a malfunctioning Device Controller | ✓ | ✓ | ✓ |
| **Update** | up to 2 setup/software updates per year | ✓ | ✗ | ✓ |

Our support team mainly uses TeamViewer remote access software, which is a convenient, fast and secure way of intervening.

**YOU BUY THE SOFTWARE SOLUTION.**
**YOU GET A FULLY OPERATIONAL MICROSCOPE.**
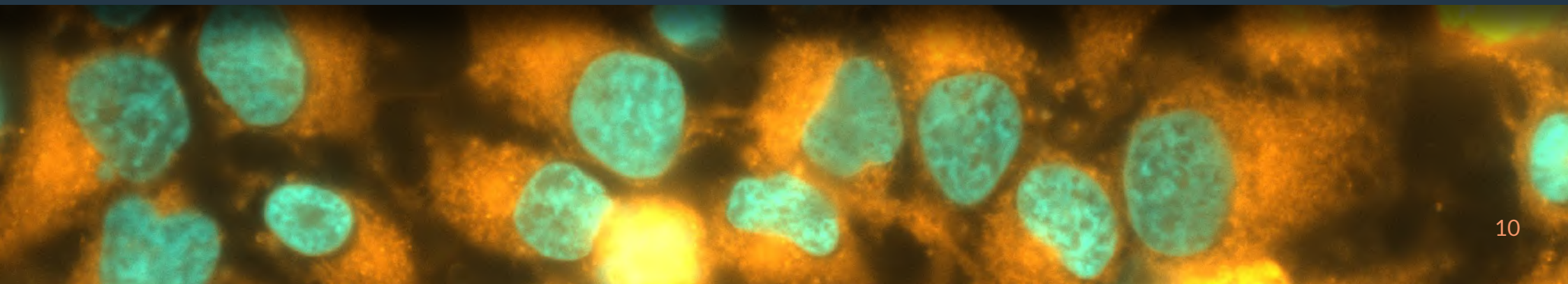
# LET'S KEEP IN TOUCH

contact@inscoper.com
www.inscoper.com

**GET A QUOTE,
REQUEST A DEMO,
ASK A QUESTION.**

Provide us with the list of your system's devices and a short description of the application / manips that you carry out.

**INSCOPER**