## **INSCOPER**

# User Guide Configurator v. 1.0.11





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## **1. INSTALLATION AND DEVELOPMENT SOLUTIONS**

Configuration software tools designed for microscopy facility engineers and other specialists who install and update regular or home-built microscopy systems.

## **1.1. Inscoper Configurator**

The Inscoper Configurator is a powerful tool for configuring and installing a complete microscopy system with all its devices, and tailoring it to the specific applications and needs of the user, whether in biology or other research fields.

Conhgu	urator						- 0	^
File			Help			Connect	Disconnect	₹
- Scan	FRAP_TIRF_Mid	croscope_Inscoper						
► De			Add New Device					
Co	nnections							
► Re	cipes							
Ins	scoper I.S.							

## 1.1.1. Getting started

The main interface is divided into three sections:

- I Toolbar
- II Configuration section (detailed here)
- III Device Controller (DC) status & actions



- 1. File allows to:
  - New: Create a new configuration
  - Open: Open an existing configuration
  - Save: Save current configuration
  - Exit: Close the Configurator window.
- 2. Devices options are:
  - **Reload Devices:** Reload devices information from the DC and external drivers (micromanager drivers and custom drivers).

NB: When the checking is done, a popup window appears in the bottom of the Configurator window indicating you the number of found/loaded devices (Inscoper, Micromanager or custom [which is no inside the DC])

Inscoper Box	: 56	
Micro Manager	: 19	
Custom	:7	

- Load Devices from File: read and import the devices information (settings, configuration, etc.) from stored file.
- Save Devices to File: export the devices information to a new local file.
- **Display Devices:** Display of the previously mentioned popup window.
- **3. Settings**: You can specify the directory where the Micromanager and custom drivers are stored on your computer. You can add several directories by clicking **Add External Resources** and

delete them by clicking on  $\bigotimes$ . You can specify the **API log level** used by the configurator in the drop-down menu. When you are done, you can close the window and all the information will be saved automatically.



4. In the **Help** menu, you have the following options:

- Update Firmware: Open explorer window to upload the firmware file
- Online Help: Open the Configurator or Inscoper User Guides
- Visite Website: Open the Inscoper website
- About: Open popup window with all information about the Configurator (Configurator version, API number, Firmware Version)



The **DC actions section** allows you the following actions:

- 1. Connect: Connection of Device Controller
- 2. Disconnect: Disconnection of the Device Controller

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  - 3. Restart Firmware: Restart the Firmware
  - 4. Reset Inscoper Box USB view: Triggers the Inscoper Box to rescan all USB devices connected to its ports. For example, if a device is plugged in while the Configurator is open, this action updates the detected USB devices within the DC.

## 1.1.2. Create configuration

- **1**. There are three ways to create a configuration:
  - Click on File and New.

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Fil		Devices		Connect	Disconne	ct 🔻
	New (	Etrl+N				
	Open I					
	ave	Ctrl+S				
	xit (	Ctrl+Q				

• Right click inside the Configuration section (left part of the window) then click Add Config.



• Use the key combination: Ctrl + N.

When a new configuration is created, it will appear in the Configuration section with a default name **New Config**.



- 2. To **save** your configuration, there are three ways:
  - Click File then by clicking on Save.



to select the folder. The name of your configuration will be the name of the folder.

- Right click on **New Config** (or renamed config) then click on **Save**.
- Use the key combination: Ctrl + S.

NB: If the **Path** field is not filled in, a file explorer opens to allow the user to choose a save directory. Upon confirmation, the configuration is saved.



## 1.1.3. Devices setup

T Configurator			- a ×
File Devices Settings Help			Connect Disconnect 🛡
Config     Devices	ld Hamamatsu_Fusion_trigger	Description	Sub Device Creation
<ul> <li>Hamamatsu_Fusion</li> <li>PCO_Panda</li> </ul>	Driver Type INSCOPER_BOX	✓ Device Des	cription
Hamamatsu_Fusion_trigger     PCO_Panda_Trigger	Description     Hamamatsu - Fusion	Driver : Brand :	INSCOPER_BOX
<ul> <li>Nikon_li2</li> <li>Lumencor_SpectraX</li> <li>Connections</li> </ul>	Diagnostic Set Diag Connection	Model :	
Recipes     Inscoper I.S.		Description : Author :	
		Changelog : Release Date :	
		Version :	
		> Sub Device	
		> Params	
		> Connection	
Configuration section	L Device section	Sub-device section	

When you create your configuration, all the subsequent levels are automatically created [Devices, Connections, Recipes, I.S. Inscoper] in the configuration section.

In this stage, the main Configurator window is divided into 3 parts:

- | 1 Installation and development solutions | 1.1 Inscoper Configurator
  - Configuration section (already explained here)
  - Device section: where you will configure all the devices
  - **Sub Device** section: where you will create Sub Devices for the device. This section has two tabs: one for creating Sub Devices and the other for the device description.
  - 1. Add Devices to Your Configuration

For this, click the **Add New Device** button OR right-click on the **Devices** in the Configuration section and click **Add Device**.



As a result, you'll see additional fields appear with the parameters to be filled in for this device and its Sub Devices.



- 2. Configure your device. Here, you can:
  - a. Rename your device in the Id field.
  - **b.** Specify the **Driver type** in the Driver Type field. For example : driver in Inscoper Box, custom driver or micro\_manager.
  - c. Depending on the chosen Driver type, fill in
    - For Custom Driver: Enter the device Description or Driver Name, along with the device Identifier. You can click Detect to automatically find the device identifier. If multiple devices of the same type are present, add the device Index (starting from 0).

NB: In practice, the Identifier and Index fields are only useful when the same device is used multiple times, and only one of them should be used.

- For **Inscoper Box**: Fill either the **Description**or the **Hardware Id** (using the Hardware ID requires knowing the exact identifier of the device to be added).
- For Micro manager: Fill either the Description (preferred) or the Module Name and Device Name or Config File (rarely needed).

d. For the **Description**, find your device in the drop-down menu.

NB: Items are listed beginning of a word	l in alphabetical order, but I.	t you can also search by	typing the
Id     Nikon_TI2       Driver Type     INSCOPER_BOX       O     Description       Nikon_Ti2e       Hardware Id       Order0050e       Diagnostic     Set Diag Connection       Load Dagnostic     Save Dagnostic	Id Nikon_Ti2 Driver Type MICRO_MANAGER  Description Module Name Device Name Config File Diagnostic Load Diagnostic Save Diagnostic	Id Nikon_Ti2 Driver Type CUSTOM_DRIVER ~ Description ~ Driver Name Identifier ~ Index 0 ~ Diagnostic Load Diagnostic Save Diagnostic	Detect

**3.** Before clicking on **Diagnostic** be sure that the device is connected to the system (either to the computer or the Inscoper Box). This function retrieves additional information beyond the initial description loaded via **Reload Devices** (brand, model, author, changelog). For Custom and Micro-Manager drivers, Diagnostic requests the device to provide its list of properties. It also updates the status of Sub Devices (Available, Unavailable, or Unknown) and may refine associated constraints.

All the information about the device will be found in the **Description tab** of the **Sub Device section**.



4. After running the Diagnostic, you can check the status of each Sub Device in the Sub Devices tab of the Sub Devices section. The table contains four columns:

- Check: checkbox to select the Sub Devices.
- **Status:** indicates if the Sub Device is **available**, **unavailable** or **unknown** (after the diagnostic the driver could not verify the status).
- **Description:** indicates the name of the Sub Device.
- **Property** (Custom and Micromanager only): property of the Sub Device.

S Configurator								- 0	×
	lelp						Connect	Disconnect	₹
ScanFRAP_TIRF_Microscope_Inscoper     Devices	ld OrcaFusion			Description Sub Device Creation					
scanFRAP_TIRF     Nikon_Ti2	Driver Type CUSTOM_DRIVER ~		Check	Status	Descri	Property		Select All	
<ul> <li>SpectraX</li> <li>OrcaFusion_Trigger</li> </ul>	<ul> <li>Description</li> <li>Hamamatsu - All Models ~</li> </ul>						-1	Deselect All	
FirePreview     seconTIRE Appelo								Select Unknow	m
<ul> <li>scanTIRF_Radius</li> </ul>	Identifier S/N: 001730 🗸	Detect			Property Property	Camera Model Serial Number	-ĭ	Select Available	e
scanTIRF_SegmentalLength     OrcaEucion	Index 0				Property			Select Unavailab	ble
TIRF_OR_FRAP_MODE	Diagnostic				Property			Select For IIS	
Connections  • Recipes	Load Diagnostic Save Diagnostic				Property Property	SENSOR MODE READOUT SPEED			
		:			Property				
					Property Property		- 1		
					Property				
					Property Property	TRIGGER MODE TRIGGER ACTIVE	- 1		
					Property				
					Property Property	TRIGGER POLARITY TRIGGER CONNECTOR			
					Property				
					Property Property	TRIGGER DELAY SENSOR TEMPERATURE			
				AVAII ABI F	Pronerty		U		
			Generate	Sub Device C	onfig				

- 5. To the right of the window, you have access to different buttons to interact with the Sub Devices list:
  - Select All: Select all Sub Devices
  - Deselect All: Unselect all Sub Devices
  - Select Unknown: Select all Sub Devices where the status is UNKNOWN
  - Select Available: Select all Sub Devices where the status is AVAILABLE
  - Select Unavailable Select all Sub Devices where the status is UNAVAILABLE
  - Select for IIS (only for camera devices): Select all Sub Devices needed for your Inscoper interface
- 6. When you have selected all Sub Devices needed, you can add them in the configuration by clicking on the **Generate Sub Device Config** button. All Sub Devices will be inserted below the Device Name on the Configuration section.

T Configurator								- a ×
								onnect Disconnect 🔻
• Config								
		Hamamatsu_Fusion			ition Sub	Device Cr	eation	
	Driver Type							
		COSTON_DIAVEN		Check	Status	Descri	Property	Select All
	<ul> <li>Description</li> </ul>	Hamamatsu - All Models 🗸 🗸						Deselect All
Camera Model								
Serial Number	<ul> <li>Driver Name</li> </ul>							Select Unknown
		C 01 001730						Colored Associateda
BufferMode	Identifier	S/N: 001730	Detect					Select Available
Image Pulling	Index	0		$\checkmark$				Select Unavailable
SENSOR MODE		LL×						
	Diagnostic							Select For IIS
	Load Diagnostic Sa							
BIT PER CHANNEL								
TRIGGER MODE								
TRIGGER GLOBAL EXPOSURE								
TRIGGER CONNECTOR								
TRIGGER TIMES								
SENSOR TEMPERATURE								
DEFECT CORRECT MODE								•
HOT PIXEL CORRECT LEVEL				Generate	Sub Device (	onfig		
Binning				Generati	- Dub Device (	- Ching		

7. If some Sub Devices are missing, you can select them and click the Generate Subdevice Config button. A pop-up window will appear asking you if you want to override the previous Sub Devices. If you answer Yes, your selection will replace your previous Sub Devices, if you click No, your Sub Devices selection will be added to your previous Sub Devices list.



#### 8. Right clicking on the device will allow you to:

- Add Sub Device: Add a subdevice to the device
- Remove All Sub Devices: Remove all subdevices from the device
- Move up: Move the device up
- Move Down: Move the device down
- Delete: Delete the device and all its Sub Devices

• **Duplicate:** Allows you to fully copy a device within a given configuration. This is useful, for example, if you have multiple identical devices or if you want to reuse an already configured device in a new configuration.

NB: It is possible to duplicate the device with all its recipe elements and elements related to the configuration of the Inscoper I.S.

NB: Impossible to duplicate the device with the same name to the same configuration (error message will appear).

#### ■ Configurator





- 9. If you manually add a Sub Device (with the Add Sub Device function), you will need to fill:
  - a. The Id of the Sub Device
  - b. Either the Description or the Tag of your Sub Device.
  - c. [OPTIONAL] Recipe Id: Define a Recipe Id to group several Sub Devices in one unique Recipe Element.

NB: For example, if you define a Recipe Id "Shutter", you could apply it to all your shutter Sub Devices. Thus, you can later create a Recipe Element with this Recipe Id and all your shutter Sub Devices will be called with this Recipe Element.

- d. [OPTIONAL] Post Init: Check this if you want your Sub Device to be ignored by the Create Recipe function and the Initialize or Update Display Data. This also allows you to force the Sub Device to be called at initialization if the SET function has no param (for Sub Sevice with an editable param, a default value is required).
- **10.** If your Sub Device has one or multiple parameters, you can add a default value to your parameterss by clicking on **Add Param**:
  - a. Select either your param or the corresponding tag.
  - b. Select if the param is fixed or not
  - c. Define your default value

NB: In many cases, we want a Sub Device to carry one (or no) editable param. For Sub Devices with several params, you need to fix the value of several params to keep just one editable param.

Example: the Property Sub Device (defined for all external drivers) has 2 params : Property Name and Property Value. If you fix the Property Name value, the Property Value value will be the editable param of your Sub Device : Property Name = "Exposure" (fixed) -> never changes Property Value = Editable value



NB: If no param exists for your Sub Device, the Add Param button is not visible.

**11.** If you click on a **Sub Device**, you will get all information about it in the Sub Device part like **Description, Function, Parameters**.

NB: [FOR DRIVER\_CUSTOM and MICRO\_MANAGER ONLY] In Parameters (**Params**) you can see the **Property Name** and the **Property Value**. In the Device part you will always find the **Property Name**. This property is fixed. If you notice that a parameter (Property Value) is missing, you can add it by pressing the **Add Params** button. In the drop-down menu you can select the property that is not fixed. You can select the default value by selecting it in the drop-down menu.

7 Configur	ator				- 6	o x			
File	Devices Settings Help				Connect Disconne	nect 🔻			
	SUBARRAY VPOS4	9a	Id	TRIGGER MODE	11 Sub Device Description				
	SUBARRAY VPOS5	9b	Sub Davica	Property					
	SUBARRAY VSIZE1		Sub Device		Name : Property				
	SUBARRAY VSIZE2		🔿 Tag		Tag: 1				
	SUBARRAY VSIZE3	90							
	SUBARRAY VSIZE4	~	Receipe Id		lype: NUNE				
	SUBARRAY VSIZE5	<b>9</b> d	Post Init		× Functions				
	SYSTEM ALIVE								
	Serial Number	10		Params     Params     SET : Set Property Value					
	TIME STAMP PRODUCER	10	Add Param		GET : Get Property Value				
	TIMING CYCLIC TRIGGER PERIOD				CHECK : Check Property Value				
	TIMING EXPOSURE		✓ Property I	lame					
	TIMING GLOBAL EXPOSURE DELAY		_						
	TIMING INVALID EXPOSURE PERIOD		Param	Property Name 🗸					
	TIMING MIN TRIGGER BLANKING		О Тел		V Params				
	TIMING MIN TRIGGER INTERVAL		U 109		▶ Property Name				
	TIMING READOUT TIME		Fixed	✓	Property Value				
	TRIGGER ACTIVE		Default		Description : Value of the property				
	TRIGGER CONNECTOR		Delduit		Tag: 2				
	TRIGGER DELAY		V Property )	(alue	Type : string				
	TRIGGER GLOBAL EXPOSURE		- Hoperty I	uide	Min :				
	TRIGGER MODE		Param	Property Value	✓ Connections				
	TRIGGER POLARITY								
	TRIGGER SOURCE		🔿 Tag						
	TRIGGER TIMES								
	Start Continous Sequence Acquisition		Fixed	START					
	Software Trig Image		Default						
	Snap Image								
	Stop Sequence Acquisition								

**12.** Repeat these steps for each device of your system.

When all devices are added to your configuration, you can go to the Connections step.

## 1.1.4. Template use

A quicker way to prepare your configuration and set up devices is to use templates: use devices that have already been added by our technical staff to the Configurator library. Templates are small configurations by device. Each configuration is tested and validated.

1. Click on Load Template.



2. Select the devices in the library you want to load by checking the boxes.

8	Choose Template		
	_		
	<ul> <li>ConfigutationLibrary</li> </ul>	▼	
	• 🗌 Cameras 🧹	▼ — Cameras	
	Confocal Unit	▼— Hamamatsu	
	• 🗌 Generic	✓ FusionHardwareTrigger	
	▶ 🗌 iLas	FusioSoftwareTrigger	
	LightSources	▶	
	• 🗌 Microscopes	<ul> <li>Confocal Unit</li> </ul>	
	Optical Sectionning	• 🗌 Generic	
	▶ 🗌 Piezo	▶ 🗌 iLas	
	▶ 🗌 Stages	✓ — LightSources	
	Virtual	✓ ✓ Lumencor	
		📘 🔽 Spectra	
		OKCancel	

- 3. Click **OK** to load the devices into your configuration.
- 4. Check the connections and recipes of your devices and change them if necessary. The templates automatically import all the information.

**!** NB: In general it is necessary to modify the connections of the devices (especially if you do not have the same type of box and therefore not the same number of connectors).



Configurator						- 0	×
File Devices Settings Help					Connect	Disconnect	₹
<ul> <li>New Config</li> </ul>		Select Sub De	evic	e Shutter			
Devices     Eusion Camera	Sub Daviene			Shuttore			
Fusion_cumera	Sub Devices			Shatters			
► Lumencor Spertra X	▼ Search		ŀ	Y Search			
Connections	Fusion_Camera-Init		- <b>[</b>	Lumencor_Spectra_X-LedBlue440ShutterSerialModulation			
▶ Recipes	Fusion Camera-Finish			Lumencor Spectra X-LedCvan470ShutterSerialModulation			
Inscoper I.S.							
	Fusion_Camera-SENSOR MODE						
	Fusion_Camera-READOUT SPEED						
					F	Previous	ext
					•	Create Recip	es

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  - **5**. You will then be able to check and modify the display of your devices within the Inscoper software by reviewing the Inscoper I.S. You will be able to modify all of the tabs by following steps described in Inscoper I.S. configuration.

Configurator											- 0	×
File C										Connect	Disconnect	-
<ul> <li>New Conf</li> <li>Devices</li> <li>Fusion</li> </ul>	fig s on_Camera					Group						
<ul> <li>Fusion</li> <li>Lumo</li> </ul>	on_Trigger encor_Spect	ra X	Add Group									
Connec				Location			Category	Sub Device List				
Recipes	s er LS.		[	Channels	~		Spectra 🗸	Lumencor_Spe 💊	- 8			
				Channels	~		Spectra 🗸	Lumencor_Spe ~	<ul> <li></li></ul>			
				Channels	~		Spectra 🗸	Lumencor_Spe 🗸	<ul> <li>✓</li> <li>Ø</li> </ul>			
				Channels	~		Spectra 🗸	Lumencor_Spe ~	_ ⊗			
				Channels	~		Spectra 🗸	Lumencor_Spe 🗸	<ul><li>✓</li></ul>			
				Channels	~		Spectra 🗸	Lumencor_Spe 🗸	✓ ⊗			

## 1.1.5. Connections setup

This stage is the link between the devices and the Device Controller (DC).

**1.** Click **Connections** inside the Configuration section, you'll get a view of the box and the devices that need to be connected to the DC.



2. The box type (S, M, L, XL) is recognized automatically. To select the box type manually, click on the **Box Type** drop-down menu in the top right-hand corner.

The drawing is automatically updated according to your choice.

Configurator		- 0 ×
File Devices Settings		Connect Disconnect 🔻
<ul> <li>ScanFRAP_TIRF_Microscope_Inscoper</li> </ul>		
<ul> <li>Devices</li> </ul>		
<ul> <li>scanFRAP_TIRF</li> </ul>		
<ul> <li>Nikon_Ti2</li> </ul>	Orrafusion Trioner	
<ul> <li>SpectraX</li> </ul>		
<ul> <li>OrcaFusion_Trigger</li> </ul>	fusion_TriggerOut	
<ul> <li>FirePreview</li> </ul>	fusion_ExposureOutin	scanFRAP_TIRF
<ul> <li>scanTIRF_Angle</li> </ul>	tize TizeUsbGen	maxillda Usb
<ul> <li>scanTIRF_Radius</li> </ul>	lusion_TriggerReadyIn	
<ul> <li>scanTIRF_SegmentalLength</li> </ul>		
<ul> <li>OrcaFusion</li> </ul>		
<ul> <li>TIRF_OR_FRAP_MODE</li> </ul>		i i
Connections	Ethernet	
Recipes		
Inscoper I.S.		
	Analog Out TTL	
		i i
	SpectraX	i i
	spectra x Serial	i i

**3.** Indicate where you have connected your device to the DC: right-click on the device you want to connect to change the mode from **Move Cell** to **Link Cell**.



**4**. Link the connection by holding click from the connection to the DC. Repeat this step for each connection



NB: Depending on the type of connection used, the connectors are automatically recognized. For example : the light source Lumencor Spectra X can be connected to the device controller by RS232 or USB connections.



When the connections are linked to the device controller (DC), the colour of the box around the Sub Device name changes from red to white.



5. If the color of the box around the connection name is yellow, it means that a parameter is missing. To change it, double-click the connection name. A popup will appear and you can fill in the empty field. For example, for the Microscope Stand Ti2, you will get the window below and you need to enter the Pid and Vid numbers by checking the box of them.

<b>▼7</b> Usb Config			- D X
Switch To Selected			
Vid Vid	0x000004b0	Serial Number	00001
V Pid	0x00007836	Sub Device Tag	
✓ Manufacturer	NIKON	Num Interface	
Product	Ti2-E	Waiting Answer	
			OK

6. You can also detect all connected devices and select which port you need. Switch To Manual and

#### **Switch To Selected**

By clicking on **Rest Usb View**, The box will rescan all USB-connected devices.

💕 Usb Config									- 0	×
Switch To N Reset Usb V	1anual /iew									
	VID	PID	Manufac	Product	Serial	Num	Driver	Hub	Port	
	0x00001a40	0x00000101		USB 2.0 Hub			Unknown	о		
$\bigcirc$	0x000004b0	0x00007836	NIKON	Ti2-E	00001		Unknown	о		
	0x00000483	0x00005740	STMicroel	STM32 Vir	39593664		Unknown	0		
								C	Cancel	

NB: In the list of USB ports, the first line corresponds to the USB hub inside the box (not valid for S type box). This is given for information only, to check that the box is working correctly.

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  - 7. You can modify the color of the arrow (Color Box) or delete it (Delete Edge) by a right click on it. If you click on the arrow you create a spot and you can move it to make an angle (like the example). To delete it, make a right click on the spot.



Once all your devices are connected to the DC, the diagram will look as follows:



After, you can go to the next step, which is the Recipe creation.

## 1.1.6. Recipe creation

There are two ways to create recipes:

- 1. Manual recipe creation
- 2. Automatic recipe creation

## 1.1.6.1. Manual recipe creation

1. Add recipe to your configuration

For this, right-click on the **Recipes** in the Configuration section and click **Add Recipe**.



NB: If you want to delete all the recipes, select Remove All Recipes.

NB: You can duplicate the recipe by clicking on **Duplicate**, then select the Configuration and indicate the recipe name and validate.



- 2. If necessary, give this recipe a name in the Name field.
- 3. Then click Add Recipe Element.
- 4. Choose the **Type** of this recipe element:
  - SIMPLE: Recipe for a Sub Device (or a list of Sub Devices if recipe Id is selected)
  - GROUP: Recipe call another recipe
  - **EVENT:** Option that triggers a specific action at a defined moment in the acquisition sequence (e.g., stop or pause). This ensures, for example, that shutters are closed when the system is paused. This applies to both configurations with and without the device controller (DC).



- 5. If you choose SIMPLE option, you can:
  - a. Modify the Name of this recipe element.
  - b. Indicate the Call ID which is the ID of the recipe.
  - c. In the Action part, you can:

1

 Indicate the Sub Device involved in this recipe element or if you want to call the Recipe Id defined in the Sub Device during the configuration.

NB: click on the pencil to open the pop-up window to Add Receipe Id

NB: Recipe ID created at device level can not be removed or modified. All recipe IDs created at recipe level can be created, deleted, and modified.



- Choose the Function that you want to call:
  - SET: send a value
  - GET: give the current value
  - CHECK: wait until the Sub Device is in the good status
- Define a Default Value

d. In the Condition part, you can:

- Check the **Optimisation** box if you want to call the function only if the value changed
- Define Tag and Call Condition:
  - Tag Condition: Boolean expression about the presence or absence of a tag
  - Call Condition: Boolean expression to check if a recipe element with a specific callId has been called previously. For example : TI2xAxisPosition || TI2yAxisPosition
- Add value condition by clicking Add Value Condition
  - Select a Sub Device and indicate the Value Condition for this Sub Device
  - You can add several value conditions.

					-	~
File Devices Settings					Connect Disconnect Refres	h 🔻
<ul> <li>ScanFRAP_TIRF_Microscope_Inscc</li> </ul>					1_	
<ul> <li>Devices</li> </ul>		Name Init		Type SIMPLE ~	5	
Connections				Name New Recipe Flement	] =	
▼ Recipes		Add Basing Flamout		Name New Recipe Liement	Joa	
Init		Add Redpe Liement		Call Id	56	
DeviceUpdate		New Recipe Element			]	_
StartLive				Ac	tion5	
Live				Sub Device	~	
StopLive						
StartCamera					<ul> <li>Image: A set of the set of the</li></ul>	
SwitchToInternal						
SwitchToEdge				Function	GET	
SwitchToLevel				Default Value		
SwitchToSoft						
TakeImage						
CameraCheckReady	•				dition	
DevicesSet						
DevicesCheck						
CameraDevicesSet						
CameraDevicesCheck						
StageDevicesSet				Call Condition		
StageDevicesCheck						
LasersShuttersClose				Add value Condition		
LasersShuttersOpen				Sub Device	Value Condition	
LasersShuttersCheckClose						
LasersShuttersCheckOpen						
LasersShuttersCloseWhenIm						
LasersShuttersCheckCloseWI						
			L			

- 6. If you choose **GROUP**, you can add many recipe elements by clicking on **Add Recipe Element** and repeat the previous steps to configure them.rec
- 7. Recipe elements tools allow to:
  - a. View details of this element (valid only for a Recipe Element Group).
  - **b.** Move the Recipe element to another recipe.

- c. Delete this Recipe Element.
- d. Drag and drop the Recipe Element to reposition it.

Name DeviceUpdate	
Add Recipe Element	7a 7b 7c
CameraDevicesSet	💿 🖘 🚫
StageDevicesSet	o 🖘 🛞
LasersShuttersClose	• 🖘 🛞
DevicesSet	S < A (S)
LasersShuttersOpen	o 🖘 🚫

## 1.1.6.2. Automatic recipe creation

- In the Configuration section, select the Recipe line. For each function, you must verify the details of the selected Sub Device. This Sub Device definition is required to generate the recipe. By default, the fields are prefilled.
- 2. For the **Stage Device**, you can enter the name of the stage, modify the Sub Devices. If you have multiple stages on your system, you can add a stage by clicking on the **Add Stage** button. You can delete a stage by clicking on the red cross.
- **3.** You will find all properties for the focus device. You can enter the piezo and autofocus Sub Devices. When it's done, click on **Next**.

Configurator					- 0	×
Hie Devices Settings H • ScanFRAP_TIRF_Microscope_Inscoper • Devices • scanFRAP_TIRF	elp Add Stage		Select Stage Sub Devices		Connect Disconnect	Ĭ
<ul> <li>Nikon_Ti2</li> </ul>	Name	X-Axis	Y-Axis	Move Axis		
SpectraX				)//		
OrcaFusion_Trigger	Nikon_Ti2 Stage	Nikon_Ti2-xAxisPosition	Vikon_Ti2-yAxisPosition	Nikon_Ti2-MoveXY ~	$\otimes$	
FirePreview						
scanTIRE Radius						
scanTIRF SegmentalLength						
► OrcaFusion			Select Focus Sub Device			
TIRF_OR_FRAP_MODE			Add Sub Dovice			
Connections		Nikon_Ti2-FocusPosition 🐱	Aud Sub Device			
<ul> <li>Recipes</li> </ul>			Autofocus Incompatibili	ties		
Inscoper I.S.	Focus Detault Value	-500000				
	Focus Offset Sub Device	~				
		~				
	Auto Focus Sub Device	<u> </u>		Aucun contenu dans la table		
	Auto Focus Offset Sub Device	~				
	Auto Focus Mode Sub Device	Ľ				U
					Previous	ext 1
					Create Recipe	es

- |1 Installation and development solutions | 1.1 Inscoper Configurator
  - 4. Enter all the shutters in your system. If one is missing, you can search for the name of the shutter in the search field of the left column and move to the right column by clicking the arrow.
    - >> : All Sub Devices on the field are moved in the shutters list
    - > : Only the selected Sub Device is moved in the shutters list
    - << : All Sub Devices on the field are removed from the shutters list
    - < : Only the selected Sub Device is removed from the shutters list

File Devices Settings Help			Connect Disconnect 🔻
Claire API     Devices	Select Su	b Devi	ce Shutter
► camera			
▶ trigg	▼ Search		▼ Search
Iumencor	camera-Init	İ.	microscope-IL_shutterDown
Connections	camera-Finish		microscope-IL_shutterUp
Recipes			microscope-TL_shutter
Inscoper I.S			lumencor-LedBlue440ShutterDigitalModulation
		<u> </u>	lumencor-LedBlue440ShutterSerialModulation
			lumencor-LedCyan470ShutterDigitalModulation
			lumencor-LedCyan470ShutterSerialModulation
			lumencor-LedGreen550ShutterDigitalModulation
			lumencor-LedGreen550ShutterSerialModulation
			lumencor-LedRed640ShutterDigitalModulation
			lumencor-LedRed640ShutterSerialModulation
			lumencor-LedTeal510ShutterDigitalModulation
			lumencor-LedTeal510ShutterSerialModulation
			lumencor-LedUV395ShutterDigitalModulation
			lumencor-LedUV395ShutterSerialModulation
			lumencor-LedYellow575ShutterDigitalModulation
	CONTRACTION BOODUCED		Lassan taketta Attenta katakata kataka
			Previous Next
			Create Receipes

NB: Use the search line to find the needed element.

You can come back to the previous device by clicking on **Previous**. Once all your shutters are in the list, you can click **Next**.

5. Verify if the open and close values of the shutters are correct and click **Next**.

NB: By default 0 means close shutter and 1 means open shutter. Check if necessary "Update Only When Imaging". If you check the box of **Update Only When Imaging**, the status of the shutter will be only in **Live** or during the acquisition. If the box is unchecked, you can modify by yourself the status of the shutter.



6. Enter all your cameras. The camera is automatically detected. You can add many cameras by clicking on Add Camera. For each camera, you need to select or modify the Name, the Camera Driver, the Trigger Device (only if you want to trigger the camera with the device controller) and indicate the pixel size. You can delete the Camera by clicking on the red cross. Click on Next.

카 Configu	rator							- 8	×
File							Connect	Disconnect	•
					Select Camera Devices				
• De	vices								
• •			Add Camera						
► t	trigg		Name	Driver	Tringer	Divel Cire			
► r			Name		Inggei	Fixel Size			
•			camera	camera 🗸 🗸	▼ Search	6.5			
Cor	nnections				camera				
Rec	cipes				trigg				
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					hardscope				
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								Previous	at
								Create Receipe	es

7. Start, Stop, Snap and Soft Trig Sub Devices are pre-filled. They are Sub Devices of the camera Driver Device. If the Trigger Device has been filled in, Edge, Level and CheckReady are available and pre-filled. Otherwise, the fields are disabled. Click Next.



- 8. Define the **Camera Stream Sub Devices**: Indicate the parameters applied for the different modes of the camera. 4 fields need to be filled in:
  - Internal Stream: This mode I used for Live or Snap.
  - Soft Stream: In this mode, the camera is triggered via software by calling the previously defined Sub Device in the Soft Trigger field. This field is available only if Soft Trigger was specified in the previous view.
  - External Edge Stream: In this mode the camera is triggered by the DC with TTL. With this mode, you can't use different exposure times in one sequence. This field is available only if Edge Trigger was specified in the previous view.
  - External Level Stream: In this mode the camera is triggered by the DC with TTL. With this mode, you can use different exposure times in one sequence. This field is available only if Level Trigger was specified in the previous view.

The Sub Devices responsible for those properties depend on your camera.



- |1 Installation and development solutions | 1.1 Inscoper Configurator
  - 9. For each field, select the correct Sub Device and Value using the search box. Once your Sub Device is selected, you will get the values specific to this Sub Device in the Value drop-down menu.

File     Devices     Settings     Help       - Cane Al - Schweiner - Schweiner - Singer - Stropester - Strop	T Coefigurator		77 Configurator			
· Clark API · Suborkar     · Clark API · Clarkar     · Clark API · Clarkar     · Clark API · Clarkar     · Clark API · Clarkar     · Clarkar     · Define ClarkarS train Sub Device       · Cancel · Inforcoope · Inforcoope · Inforcoope     · Clarkar     · Clarkar     · Clarkar     · Clarkar       · Marcoope     · Marcoope     · Marcoope     · Marcoope     · Marcoope       · Marcoope     · Marcoope     · Marcoope     · Marcoope       · Marcoope     · Marcoope     · Marcoope     · Marcoope       · Marcoope     · Marcoope     · Marcoope     · Marcoope       · Marcoope     · Marcoope     · Marcoope     · Marcoope       · Marcoope     · Marcoope     · Marcoope     · Marcoope       · Marcoope     · Marcoope     · Marcoope     · Marcoope       · Marcoope     · Marcoope     · Marcoope     · Marcoope       · Marcoope     · Marcoope     · Marcoope     · Marcoope       · Marcoope     · Marcoope     · Marcoope     · Marcoope       · Marcoope     · Marcoope     · Marcoope     · Marcoope       · Marcoope     · Marcoope     · Marcoope     · Marcoope       · Marcoope     · Marcoope     · Marcoope     · Marcoope       · Marcoope     · Marcoope     · Marcoope     · Marcoope       · Marcoope     <	File Devices Settings Help					
	Claire API		Claire API		D-fi C	- Streen Sub Devices
• camera     camera     camera       • triggi • microscope     • de     • microscope       • da     internal Stream     • microscope       • damo     • microscope     • microscope       • function     • subDevice     • talenal       • Connections     • subDevice     • talenal       • Recipier     • microscope     • microscope       • functions     • subDevice     • talenal       • connex inflation     • microscope     • subDevice       • connex inflation     • microscope     • microscope       • function     • microscope     • microscope       • connex inflation     • microscope     • microscope       • connex inflation     • microscope     • microscope       • function     • microscope     • microscope       • connex inflation     • microscope <td< td=""><td>Devices</td><td></td><td></td><td></td><td>Denne Came</td><td>a stream sub Devices</td></td<>	Devices				Denne Came	a stream sub Devices
	▶ camera	camera		camera		
• Interrocepe     Adit     Interrocepe     Adit     • Interrocepe     Adit     Adit       • Unterrocepe     SubDevice     Value     Convections     SubDevice     Value     SubDevice     Value     SubDevice     SubDevice     Value     SubDevice     Value     SubDevice     Value     SubDevice     SubDevice     Value     SubDevice     Value     SubDevice     SubDevice     Value     SubDevice     SubDevice     SubDevice     Value     SubDevice     SubDevice </td <td>▶ trigg</td> <td></td> <td></td> <td></td> <td></td> <td></td>	▶ trigg					
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Kacpet     Image: Comparing Field       Incorport LS     Comparing Field       Comparing Field     Image: Comparing Field       Comparing Field     Comparing Field       Comparing Field     Comparing Field	Connections	• hand	Connections	The second second		
Incorper LS         Interaction	Recipes	Percon.	Recipes	camera- rkiodek so 🗸	<b>`</b>   ♥	
amere Fridh amere Fridh amere Effektive	Inscoper I.S	camera-Init				
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CAMPUS-BUFFER FRAMERYTES MASTER PULSE					MASTER PULISE	
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camera-BLIFFER ROWBYTES Add Soft Stream Add				Add		Add
camera-BUFFER TOP OFFSET BYTES						
camers-Binning SubDevice Value SubDevice				SubDevice	Value	SubDevice
camera-ButtintAcde						
camera-Bus						
No content in table No content in table						

- **10.** [This is a optional step for all system with special techniques using ILDA connector (FRAP, TIRF) or FLIM option. If so, check ILDA functions]
- **11.** When all the properties are filled in, click on **Create Recipe**. Once done, you will get a popup window "Receipes Created Successfully" and you will find your receipe in the configuration part (under Receipes line).



**12**. Normally you don't need to change the recipe, but if you want to, you can drag and drop the recipe function to change the order.

T Configurator				- 0 ^
File Devices	Settings Help			Connect Disconnect
🕶 New Config 🛛 🔒				
<ul> <li>Devices</li> </ul>	Name StartCamera		Type 🗸 🗸	
▶ camera				
▶ stage	Add Receipe Flement			
Connections				
<ul> <li>Recipes</li> </ul>		• 🖘 🛞		
DeviceUpc		• • 🕅		
StartLive		• \$ ®		
Live				
StopLive				
StartCame		<b>⊗</b> <i>∽</i> ⊗		
SwitchToE				
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StageDevi				
StageDevic				
LasersShut				

## 1.1.6.3. ILDA functions for FRAP, TIRF, FLIM modules

- **1.** If you have an additional module such as a FRAP, TIRF or FLIM module, ILDA fuctions will need to be configured. You can continue setting up the recipe by clicking **Next**.
- 2. In the Ilda Functions tab, select your device connected to the Ilda connector (only available for the XL box type).

Comigurator		
File Devices Settings He		Connect Disconnect 🛡
ScanFRAP_TIRF_Microscope_Inscoper     Devices	Define IIda Sub Devices	
► scanFRAP_TIRF ► Nikon_Ti2	Ilda Functions Laser Frap Mode Tirf Mode ROI Mode Illumination Mode	
SpectraX     OrcaFusion Trigger	Ida Device scanERAP_TIRF ~ Add Ilda Function	
FirePreview     scanTIRF_Angle	> AddManipRoi	⊗
<ul> <li>scanTIRF_Radius</li> <li>scanTIRE_SegmentalLength</li> </ul>	> AddPointListToRoi	$\otimes$
OrcaFusion     TIRE OR ERAP MODE	> AddPointToPointl istRoi	$\otimes$
Connections	> AddRoi	$\otimes$
Recipes Inscoper LS.	> Blanking	
	> CircleEdge	
	> DurationExpected	
	> EllipseEdge	
	> EllipseFull	
	> FrapHere	
		Previous
		Create Recipes

File Devices Settings H	Help			C	onnect Disconnect
<ul> <li>ScanFRAP_TIRF_Microscope_Inscoper</li> <li>Devices</li> </ul>		Define Ilda S	Sub Devices		
<ul> <li>scanFRAP_TIRF</li> <li>Nikon_Ti2</li> <li>SpectraX</li> </ul>	Ilda Functions Laser Frap Mode	e Tirf Mode ROI Mode			
<ul> <li>OrcaFusion_Trigger</li> <li>FirePreview</li> <li>scanTIRF_Angle</li> </ul>	> AddManipRoi	-			⊗
scanTIRF_Radius	> AddPointListToRoi				$\otimes$
scan IIRF_SegmentalLength     OrcaFusion     TIRE OR ERAP MODE	✓ AddPointToPointListRoi				$\otimes$
	Name AddPointToPointListRoi	Name	Tag		
		pointListIndex	17		
	Sub Device scanFRAP_TIRF-AddPoin ~	pointIndex	18		
	Editable	lineOn	19		
	Add Function Param	pointIntensity	22		
	> AddRoi				
	> Blanking				
	> CircleEdge				
	> DurstionEunerted				
					Previous
					Create Recipes

- **3.** All IIda functions and all parameters in each function are automatically loaded. Check if all functions and parameters are correct, then click on the **Laser tab**.
- 4. In the Laser tab, you will find a table where you must specify the shutter and power Sub Devices for each laser line. Select the Sub Devices by clicking on the drop-down menu in each column.

Configurator							-	- 0	×
File Devices Settings Hel							Connect Dis	sconnect	Ŧ
ScanERAP_TIRE_Microscope_Inscoper     Devices				Define Ilda Si	ub Devices				
<ul> <li>scanFRAP_TIRF</li> <li>Nikon_Ti2</li> </ul>	Ilda Functions 3	Laser	Frap Mode		Illumination Mode				
► SpectraX	4	Name		Shutt	er	Power			
OrcaFusion_Trigger     Eigenemisure					~	scanFRAP_TIRF-RedPower		~	ור
scanTIRE Angle		Green				scanERAP_TIRE-GreenPower			ňl
► scanTIRF_Radius									41
<ul> <li>scanTIRF_SegmentalLength</li> </ul>					`	scanFRAP_TIRF-BluePower		~	4
OrcaEusion     TRE_OR_ED_NO_LODE						scanFRAP_TIRF-MagentaPower			
<ul> <li>IRF_OK_FRAP_MODE</li> <li>Connections</li> </ul>					~	scanFRAP_TIRF-YellowPower		~	וח
► Recipes					~	scanFRAP_TIRF-CyanPower		~	
Inscoper I.S.						л <u></u>			빕
							Previo	Neo	
							Creat	te Recipe	5

- 5. Then click on the FRAP Mode tab.
- 6. Select Active Frap Mode to access this option in the interface (if the box is unchecked, no FRAP parameters appear in the interface):
  - a. Select the sub-device that determines the frap density and the scanRate.
  - **b.** Specify the density index, which must match the FRAP diameter value set for the subdevice in the Device tab.
  - c. Select the Sub Device that determines the Fire Preview.

- |1 Installation and development solutions | 1.1 Inscoper Configurator
  - **d.** Active Channel Elements shutter for FRAP (Allows to indicate which channel is a FRAP channel).
  - e. Add the discriminant for the frap calibration like Objective, filter cube.
  - f. Add camera calibration.

NB: If you have several cameras indicate if you want to use the same calibration for all cameras or a different one. If you want to use the same calibration indicate the same number in the calibration column for all cameras



- 7. When it's done, then go to the **TIRF Mode tab.**
- 8. Select Active TIRF Mode to access this option in the interface (if the box is unchecked, no TIRF parameters appear in the interface):
  - a. Select the Sub Device assigned to the TIRF density.
  - **b.** Specify the density index which need to be the same number than in the subdevice TIRF diameter in the Device tab.
  - **c.** Select the Sub Device responsible for the Angle, Angle Length and the radius. Those parameters will help you to configure as you want a TIRF experiment.
  - d. Active Channel Elements for TIRF (allows to indicate which channel is a TIRF channel).

- File
   The control
   Interpret
   Interpret
- e. Add discriminant for the TIRF calibration like Objective, filter cube, lasers.

- 9. If you have a lightsheet system, go to the ROI Mode tab (for ROI scanning).
  - a. Select Active ROI Mode to access to this option in the interface.
  - **b.** As with FRAP, select the sub-device that determines the density and the scanRate.
  - **c.** Specify the density index which need to be the same number than in the subdevice frap diameter in the Device tab.
  - **d.** Add active channel elements ( if you activate one element in the channel that means you are in the ROI mode).
  - e. Add discriminant.
  - f. Add ROI.

Configurator							- 0	×
File Devices Settings	Hel	p				Conne	t Disconnect	₹
ScanfRAP_TIRF_Microscope_Inscope     SocietRAP_TIRF     ScanfRAP_TIRF     Nikon_TQ     SpectraX     Orcations_Trigger     Fin/Perview     scanTRF_Redux     ScanTRF_RES     ScanTRF_Redux     ScanTRF_RES     ScanTRF_RES	a [ b[ c[	Ilda Functions Laser Frap Mode CArtive (IIO) Mode Diameter	Tirf d Add SubDo	Define Ilda Mode 9 ROI Mode Active Charme vice Value Aucun contenu dan	s Sub Devices	e C Add Discinitiant Discriminant Aucun contenu duns le table		
Inscoper I.S.	f	Add ROI	Car	nera Name	Edit			
							Previous Ne Create Recipe	a s

- **10**. The **Illumination Mode** is used to add a virtual device to select the illumination mode (e.g. if you have a multimodal system with FRAP, TIRF, Spinning Disk).
  - a. Select Active Illumination Mode to access to this option in the interface.
  - **b.** As with FRAP, select the Sub Device that determines the density and the scanRate.
  - **c.** Specify the density index which must to be the same number than in the Sub Device frap diameter in the Device tab.
  - d. Add active channel elements.
  - e. Add discriminant.

🔂 Configurator						- 0 ×
	Hel					Connect Disconnect
<ul> <li>ScanFRAP_TIRF_Microscope_Inscoper</li> <li>Devices</li> </ul>				Define Ilda Sub Devices		
• scanFRAP_TIRF     • Nikon_Ti2     • SpectraX     • Occafusion_Trigner	a	Ilda Functions Laser Frap Mode	Tirf Mode	ROI Mode 10 Illumination Mod	e	
FirePreview     scanTIRF Angle	U	Diameter V	SubDevice	Value	Discriminant	
scanTIRE_Radius     scanTIRE_SegmentalLength		Scan Rate				
OrcaFusion     TIRF_OR_FRAP_MODE		Density Index U				
Connections						
<ul> <li>Recipes</li> </ul>						
Inscoper I.S.						
						Previous Next
						Create Recipes

**11.** Click on **Next** to proceed to the last step, which is the **FLIM configuration**.

NB: If you don't have the FLIM module, you can directly click on **Create Recipes**.

- a. Add all devices responsible for the Delay.
- **b.** Add discriminant.

Configurator						- 0
	Help				Connect Disconnect	Refresh
<ul> <li>ScanFRAP_TIRF_Microscope_Inscope</li> </ul>			a 11 Define Flim Sub Devices			
<ul> <li>Devices</li> </ul>		<b>6</b>				
scanFRAP_TIRF	Add Delay		Add Discriminant			
<ul> <li>Nikon_Ti2</li> </ul>			Disc	riminant		
<ul> <li>SpectraX</li> </ul>		~ ]				
<ul> <li>OrcaFusion_Trigger</li> </ul>						
FirePreview	Delay Generator	¥				
<ul> <li>scanTIRF_Angle</li> </ul>	Gato Width					
scanTIRF_Radius						
<ul> <li>scanTIRF_SegmentalLength</li> </ul>	Scan Mode	~				
Orcal-usion						
TIRF_OR_FRAP_MODE						
Connections						
• Recipes						
inscoper i.s.						
					Prev	Nex
					Cre	ate Recipe

**12.** Click on **Create Recipes**. Your recipe is created. You can now finalize your I.S. configuration.

## 1.1.7. Inscoper I.S. configuration

When the recipe is generated, the last action is to design the interface that you will use to control your system.

🔂 Configurator								- 0	$\times$
File Devices Settings H	lelp						Conn	ct Disconnect	] ₹
ScanFRAP TIRF Microscope Inscoper									
<ul> <li>▼ Devices</li> </ul>	General			Device Update	Image Scalers	Calibration			
scanFRAP_TIRF									
<ul> <li>Nikon_Ti2</li> </ul>									
<ul> <li>SpectraX</li> </ul>		lex Acquisition Available				ilable 🗌			
<ul> <li>OrcaFusion_Trigger</li> </ul>		Display Joystick	$\checkmark$						
<ul> <li>FirePreview</li> </ul>		Mosaic Manin							
<ul> <li>scanTIRF_Angle</li> </ul>									
<ul> <li>scanTIRF_Radius</li> </ul>		White Balance							
<ul> <li>scanTIRF_SegmentalLength</li> </ul>		XY Move Strat Available							
<ul> <li>OrcaFusion</li> </ul>		Reset USB At Startup							
<ul> <li>TIRF_OR_FRAP_MODE</li> </ul>									
Connections	Seconds To W	ait Before Reconnection							
▶ Recipes									
Inscoper I.S.									

To configure Inscoper I.S. you have 6 steps to review:

- General
- Display
- Group
- Device Update
- Image Scalers
- Calibration

## 1.1.7.1. General

**General** tab allows you to select what kind of elements/options you want to have on your interface by checking boxes:

- **Complex Acquisition Available:** Option to create several acquisition sequences depending on some dimensions
- Display Joystick: Virtual joystick with blue arrows
- Mosaic Manip: Tiling calibration and experiment option
- White Balance: If you have color camera in your system
- XY Move Strat Available: Stage moving options when there is a significant distance between two positions
- Reset USB At Startup: Some devices need you to scan all the USB devices connected to the box, otherwise they won't be found
- Seconds To Wait Before Reconnection: waiting time between rescanning and reconnection (some devices may take a little longer)
- **Trigger Live Available:** allows to synchronize the Live with another device via a small sequence in the DC. You need this option if you are constrained in image capture. If you check this box you can add **Trigger Live Conditions**

Configurator									- 0	$\times$
File Devices Settings Hel								Connect	Disconnect	₹
ScanFRAP_TIRF_Microscope_Inscoper										
Devices	General	Display		Device Update						
▶ scanFRAP_TIRF										
<ul> <li>Nikon_Ti2</li> </ul>										
<ul> <li>SpectraX</li> </ul>	Comple)	Acquisition Available			Ingger Live Ava					
► OrcaFusion_Trigger			$\checkmark$							
FirePreview		Mosaic Manip								
<ul> <li>scanTIRF_Angle</li> </ul>		White Balance								
▶ scan HRE_Radius										
scanTIRF_SegmentalLength	X	r Move Strat Available								
		Reset USB At Startup								
Connections	Seconds To Wai	t Before Reconnection								
Recipes										
Inscoper I S										
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## 1.1.7.2. Display

**Display**: This tab allows you to configure the layout (**Display**) of your interface. It can be divided into different sections (**Location**) and different categories in the location (**Category**). There are 3 important points in this tab :

- A- Sub Device search field (lets you perform a quick search among items in the list)
- B- Buttons to interact with the Sub Devices
- C- The display setting table

T Configurator						- 0 ×
File Devices Settings Help						Connect Disconnect 🔻
Claire API     Devices     camera	General Displa	ay Group				
▶ trigg	A Search					B Initialize Update
microscope     lumencor	C Sub Device	Name	Location	Category 💉	Display Type	Advanced
Connections → Receipes		BIT PER CHANNEL	CameraParame 🗸			
Inscoper I.S		BUFFER FRAMEBYTES	CameraParame 🗸			
		BUFFER PIXEL TYPE	CameraParame 🗸			1
		BUFFER ROWBYTES	CameraParame 🗸			/
		BUFFER TOP OFFSET BY1	CameraParame 🗸			/
		Binning	CameraParame 🗸			1
		BufferMode	CameraParame 🗸			1
		Bus	CameraParame 🗸			1
		COLORTYPE	CameraParame 🗸			1
		CONVERSION FACTOR C	CameraParame 🗸			1
		CONVERSION FACTOR C	CameraParame 🗸			1
		Camera Model	CameraParame 🗸			1
		DEFECT CORRECT MODE	CameraParame 🗸			1
		Exposure	CameraParame 🗸			1
						· ·

 Click on Initialize to create all Display Data (if this step has already been done but you want to add another device, click on Update). If you click on Initialize when you have already initialized your devices, you will get a message to know if you want to overwrite your current display or not.



NB: After the initialization, you will get a table with all sub devices and their Location, Category, Name, Display type by default and advanced settings.

- Sub Device: Sub Device bound to the display Data
- Name: name by default in the interface

j

- **Location:** in which section you want to place and display the Graphic Field.
  - Category: in the location you can organize sub devices by category
  - **Display type:** which kind of UI-elements it will be (for example, switcher will be a on/off button). Generated by default but you can change it by clicking on Advanced parameters.
  - Advanced: go to advanced parameters.
- 2. You can modify all the parameters directly by clicking on each column (or you can go to Advanced)
  - Name: You can change the name by editing the field.
  - **Location**: by clicking on the drop down menu you can choose another location. Depending on your system, you will find : Setting, Channel, Shortcut, CameraParameters, Hidden.

Settings
Channels
CameraParameters
Shortcuts
Hidden

 Category: You can add a category by clicking on Edit (pen). Write the name and click on Add Category, then click on OK to close the window. You will find the new category on the drop-down menu.



- **Display type**: Depending on the Sub Device the display type will be by default but you can modify it by clicking on **Advanced** parameters.
- Advanced Parameters.
- **3. Advanced** Tab groups all previous display parameters together. Click on **Edit** (pen). You will find 3 sections to navigate by scrolling:

T Display							_
			— General –				
camera-Exposure							
Nama	European a						
Name	Exposure						
Location	CameraParameters	~					
Category	camera	~					
Expert Mode							
Disabled							
			— Display —				
Display Type	NUMBER	~	Numb	er Type	NumberFieldOnly	~	
				Min	0		
				Max	1000000		
				Step	 [		
				Unit	NoUnit		
			Conversior	n Factor	1	$\sim$	
			Number	Format			
			– Advanced				—
Channel Extra	a Param		Tooltip				
Acquisition Extra	a Param 🗌 St	ate Change	d Message			]	
							K Cancel

#### a. General:

- Name: text field.
- Location: drop-down list.
- Category: drop-down list.
- If you want to see this parameter in Expert mode, you should check the box (Expert mode allows unrestricted access to all settings and parameters of the system).
   If you don't check the box, the parameter will appear in User mode. User mode allows restricted access to some settings and parameters. The restrictions are fully customizable, from the basic channel configuration to the most advanced settings of the camera(s) or other devices.

 If you check the **Disabled** box, the setting cannot be changed. It is possible to switch from User Mode to Expert Mode at any time. A password can be set to access the Expert Mode. These authorization levels are optional, depending on the use of the system.

#### b. Display Type:

SELECT - Select either Combo\_Box (drop-down list), Toggle\_Button (switching between two states) or Radio\_Button (multiple button but one choice). Then click on Add Value and fill in required values. You can delete them one by one by clicking on the red cross.

					-	
Disabled						
		— Display ——				ר
Display Type	SELECT 🗸	Select Type	ComboBox	~		
		Add Value				
		Value	Display	RADIO_BUTTON		
			No content in table			
I						Cancel
マア Display						
Uisabled						
Uisabled	U	— Display —				
	L	— Display —				
Display Type	SELECT V	— Display — Select Type	Сотровох	~		
Disabled Display Type	SELECT V	— Display — Select Type	ComboBox	~		
Disabled	SELECT	— Display — Select Type Add Value	Сотьовох	~		
Display Type	SELECT V	— Display — Select Type Add Value Value	ComboBox	<b>v</b>		
Display Type	SELECT V	— Display — Select Type Add Value Value	ComboBox Display	~		
Display Type	SELECT V	Display      Select Type     Add Value     Value	ComboBox Display	✓		
Display Type	SELECT V	— Display — Select Type Add Value Value	ComboBox Display V	✓		
Uisabled	SELECT	— Display — Select Type Add Value Value	Combo8ox Display ✓	~		
Display Type	SELECT V	Display      Select Type     Add Value     Value	ComboBox Display	✓		
Uisabled	SELECT V	— Display — Select Type Add Value Value	ComboBox Display V	✓		
Uisabled	SELECT	— Display — Select Type Add Value Value	Combo8ox Display ✓	<	OK	Cancel

NB: Example : you have 5 positions in the filter wheel (from 0 to 4 [you can find this information in the property of your Sub Device]). The display type will be SELECT and ComboBox. To configure these 5 positions you need to add 5 Values (see the example table below):

	Val- ue	Dis- play
	0	DAPI
	1	GFP
	2	YFP
	3	СуЗ
	4	Cy5

- NUMBER Select Number Type in the drop-down list:
  - Number field only
  - VerticalJoystick
  - ThetaJoystick
  - Horizontal Slider
  - Vertical Slider
  - Potentiometer

For each number type, you need to indicate:

- Minimal and the maximal value
- Step to change the value
- Unit of this value: it can be **Distance**, **Time** or **No unit**
- Number Format: decimal, the number of decimal or no decimal
- Conversion Factor: decimal
- For the Vertical Joystick and the Theta Joystick, you can add a Joystick Name

🕈 Display				
		——— Display ———		
Display Type	NUMBER_FIELD_ONLY ~	Number Type	NUMBER_FIELD_ONLY	~
	NUMBER_FIELD_ONLY	- Min		
	VERTICAL_JOYSTICK			
	THETA_JOYSTICK	- Max		
		- Step		l
	POTENTIOMETER	Unit	NO_UNIT	~
		Conversion Factor	1	l.
	NoUnit			
	Distance			
	Time			_

• SWITCHER - Select Switcher Type between Switcher or Button in the drop-down

menu:

• If Switcher, indicate the open and close value.



• If **Button**, indicate the open and close value, open and close name.

/ITCHER	~	Switcher Type		
		Switcher Type	BOLLON	~
		Open Value	1	
		Close Value	0	
		Open Name		
		Close Name		
			Open Value Close Value Open Name Close Name	Close Value 0 Open Name Close Name Close Name

• **TEXT** - Text display type requires no action from your part.

		Display	
Display Type	IEXI		
L			

## 1.1.7.3. Group

This tab allows you to group the display of several settings.

💕 Configurator										- 0	×
	Help								Connect	Disconnect	•
Scant RAP_TIRE_Microscope_Inscoper											
Devices			Display	Group	Device Update						
scanFRAP_HRF     Nikon_Ti2	1										
<ul> <li>SpectraX</li> </ul>	Ē	Add Group									
<ul> <li>OrcaFusion_Trigger</li> </ul>	2		Location		Category		3	Sub Device List			
<ul> <li>FirePreview</li> </ul>		Set	ttings 🗸 🗸			~	1				
scanTIRF_Angle     scanTIRF_Radius			annale		CoostraV			Constrat Lad			
<ul> <li>scanTIRF SegmentalLength</li> </ul>			anneis 🗸		Spectrax	<b>`</b>		Spectrax-LedB V			
OrcaFusion		Ch	annels 🗸			~		<u> </u>			
▶ TIRF_OR_FRAP_MODE		Ch	annels 🗸 🗸			~					
Connections		Ch	annels 🗸			~					
Inscoper I.S.		Ch	annale			_					
			villets v			<u> </u>					
		Ch	annels 🗸			<b>`</b>		<u> </u>			
		Ch	annels 🗸 🗸			~		<b></b>			
		Ch	annels 🗸			~		~			
		Ch	annels 🗸 🗸		TIRF	~		scanTIRF_Radi 🗸			
		Set	ttings 🗸 🗸		scanFRAP_TIRF	~		scanFRAP_TIRE 🗸			
		Ch	annels 🗸 🗸		Lasers	~		scanFRAP_TIRF 🗸			

- 1. Click on Add group.
- 2. Find the sub devices you need to group by filtering by Location and Category.
- 3. Select them in the Sub Devices drop-down list.
- **4**. Repeat the previous steps if you need to group more items.

If necessary, you can delete the group by clicking on **Delete** (red cross).

## 1.1.7.4. Device Update

This tab allows you to select the devices whose values are to be updated automatically. The interface will query the drivers (DC, custom and Micromanager) to update the device value.

Example: it is important to update the values because the stage can be moved manually with the joystick.

💕 Config.	arator								- 0 ×
File	Devices	Settings	Help						Connect Disconnect <b>T</b>
▼ Scan	FRAP_TIRE_Mici								
• De	evices			General Display		Device Update	Image Scalers		
۲	scanFRAP_TIRF								
•	Nikon_Ti2		1	Add Device To Llodate					
•	SpectraX			ned benee to opdate					
•		gger	2	Sub	Device	3	Delay (ms	)	
•	FirePreview			Nikon Ti2-cubeDown			1000		
•	scanTIRF_Angle								
•	scanTIRF_Radiu			Nikon_Ti2-FocusPosition		~	1000	l 🌐	
•	scanTIRF_Segm	nentalLength		Nikon Ti2-yAvisPosition		$\overline{}$	1000		
•	OrcaFusion								
	TIRF_OR_FRAP_	_MODE		Nikon_Ti2-yAxisPosition		<u>~</u>	1000		
Ce	onnections			Nikon_Ti2-sidePortPosition		$\overline{}$	1000		
• Ke	cipes					=			
ins	scoper i.s.			Nikon_Ti2-TL_lampIntensity		<b>~</b>	1000		
				Nikon_1i2-objective		~	1000	÷	
							L		

- 1. Click on Add Device to Update.
- 2. Use the search form to select the devices you need.
- 3. Indicate the delay of the update.
- 4. Repeat these steps if needed.

If necessary, you can delete the device by clicking on **Delete** (red cross).

## 1.1.7.5. Image Scalers

All devices that can change the pixel size of the image should be specified in this tab. Example: objective.

This is very important for tile calibration and experiment, scale bar, and metadata.

File Devices Settings Help     • Oracle Margine     • Settings     • Settings </th <th>Configurator</th> <th></th> <th></th> <th></th> <th>- 0</th> <th><math>\times</math></th>	Configurator				- 0	$\times$
- ScraftAlg_TIRE - Nextees - ScartRA_TIRE - Nextees - ScartRA_TIRE - Nextees - ScartRA_TIRE - Nextees - ScartRA_TIRE - SeptraX - Sort Games - ScartRA_TIRE - Sub Device -	File Devices Settings Help				Connect Disconnect	] =
Centeral Display Group Device Update Image Scalers Calibration     Canad Labor_TING     SpectraX     SpectraX     SeptraX     SeptraX     SeptraX     SauTIRE_Angle     canIIIE_Dadate     Macm contenu dans Is table     Aucun contenu dans Is table	<ul> <li>ScanFRAP_HRF_Microscope_Inscoper</li> </ul>					
<ul> <li>conTRAP_INF</li> <li>kiton_TI2</li> <li>spectaX</li> <li>Orafusion_Inigger</li> <li>iserbeview</li> <li>canTRF_Songio</li> <li>canTRF_SognethalLongth</li> <li>Orafusion</li> <li>consections</li> <li>Readges</li> <li>hacoper IS.</li> </ul>	<ul> <li>Devices</li> </ul>	General Display Group Device Update	Image Scalers			
<ul> <li>Nikon_TI2</li> <li>SpectraX</li> <li>Graditision_Trigger</li> <li>FirePreview</li> <li>CaraTIRF_Angle</li> <li>Saud Device</li> <li>CaraTIRF_SegmentalLength</li> <li>Organization</li> <li>ToraFireSon</li> <li>ToraFireSon</li> <li>Tecoper 15.</li> </ul>	scanFRAP_TIRF					
SpectraX • SpectraX • Crad usin_Trigger • Grad usin_Trigger • Grad usin_Trigger • Grad usin_Trigger • Sub Device • scanTRF_Segmentalungth • Oran class • Aucun contenu dans la table Aucun contenu dans la table • Aucun contenu dans la table	Nikon_Ti2	And Jacobs Control Math	G	A del Januaro Guerlan Jan		
• fordunision_frigger       sub Device       Sub Device         • icarifier_Parigie       scanTRF_Salgie       Niter_O_I_IZe-objective       Image: Comparison of the comparison of	<ul> <li>SpectraX</li> </ul>			too inage scale inv		
• FiniProview • scanTRF, SogmentalLength • scanTRF, SogmentalLength • scanTRF, SogmentalLength • orarisation • IRE_OR_TRP_MODE Connections • Redges Incoper IS. • Aucun contenu dans la table	Orcalusion_Trigger	Sub Device		Sub Device		
	<ul> <li>FirePreview</li> </ul>		2 🛛	Nilvan Til abiastica		
• conTRE_SegmentalLength     • conTREss     • conTREss     • Crantersion     • INF_OR_TRAP_MODE     Connections     • Recipes     Inscroper IS.     Aucun contenu dans lo table	<ul> <li>scanTIRF_Angle</li> </ul>			Nikon_nz-objective		
	▶ scanTIRF_Radius					
Crafacion     TRE/OR_TRAP_MODE Connections     Reapes     Aucun contenu dans la table	<ul> <li>scanTIRF_SegmentalLength</li> </ul>					
IRE_OR_TRAP_MODE Connections     Kcopes Inscoper 15. Aucun contenu dans la table	OrcaFusion					
Connections  Redges Inscroper IS.  Aucun contenu dans la table	TIRF_OR_FRAP_MODE					
Keapes     Iscoper 15.      Aucun contenu dans la table	Connections					
Inscoper IS. : Aucun contenu dans la table	<ul> <li>Recipes</li> </ul>					
Aucun contenu dans la table	Inscoper LS.					
Aucun contenu dans la table						
Aucun comenu dons lo table						
		Aucun contenu dans la table				

- 1. Click Add Image Scaler Mult or Add Image Scaler Inv to specify the Sub Device that enlarges or reduces the image size respectively.
- 2. Select the Sub Device of interest from the drop-down menu.
- 3. Repeat these steps if needed.

Click on **Delete** (red cross) to delete the Sub Device.

## 1.1.7.6. Calibration

Calibration means putting a dependency link between 2 sub devices. Allows to set up different calibrations for your application.

- 1. Click on Add Calibration to create a new one.
- 2. Once you add it, you can edit it by clicking on the **pen**. You can delete it by clicking on the red cross.

Configurator File Devices Settings Help				- ♂ × Connect Disconnect ₹
ScanFRAP_TIRF_Microscope_Inscoper     Devices     scanFRAP_TIRF     Nikon_TI2     Government	General Display Gro		Calibration	
Spectrax     OrcaFusion_Trigger	Name	Туре	Edit	
FirePreview     ScanTIRF_Radjus     ScanTIRF_Radjus     ScanTIRF_ContailLength     Orariavision     TIRF_OR_FRAP_MODE     Connections     Racipes     Inscoper LS.				

- 3. In the Calibration Edit window, you can:
  - a. Indicate the name of your calibration.
  - **b.** Select the **type** of calibration (which formula you want to use to move the device). You can find several type like :
    - Linear: Linear formula (ax+b);
    - Linear delta:
    - Bilinear: representing a 3D plane (ax+by+c);
    - Linear piece wise: allows a curve approximation;
    - Constant: applying a fixed parameter between 2 devices;
    - Formula: you can enter a formula that you need
  - **c. Auto Update:** If you check this box, you will get a button in your interface to deactivate the calibration. If this box is checked, you will have to specify the name of the button and its location (Category).
  - **d. Camera Dependant:** Check this box if your calibration depends on the camera (example: Tiling and FRAP).
  - e. Add Target: Add the target device, i.e. the device to be modified.
  - f. Add discriminant: The discriminant is a Sub Device or device if you modify one of these Sub Devices, you must make the calibration again. For example, for FRAP calibration, if you change your objective or filter, you need to do another calibration.

NB: The discriminants will be filters and objectives.

g. Interpolator: select the Sub Device that is not the objective. For example, with the bilinear formula, you will have 2 interpolators.

General	
Add Target     Linear     f     Add Discriminant       Sub Device     Bilinear     Sub Device       LinearPiecewise     Constant       Formula     Formula	
No content in table No content in table	
Linear —	

4. Click **OK** to save the calibration.

## **1.2. Inscoper Configurator Glossary**

#### **Inscoper Configurator**

Software tool designed to facilitate the setup, management, and optimization of microscopy systems by configuring devices, sub devices, and image acquisition sequences through a structured graphical interface. It acts as an intermediary between the user, the API, and the DC, ensuring that hardware parameters are properly defined, controlled, and optimized.

## Α

API: A software library that allows an external program to communicate with the DC, the microscope, and other devices.

## С

Call Condition: A condition ensuring that an action is executed only if another specific action has occurred before.

Constraints: Restrictions applied to a Sub Device's values for safe and consistent operation:

- Min/Max: Defines the acceptable value range.
- Step: Defines the minimum increment between two values.
- List of Values: Some values are predefined and limited (e.g., objective lens positions).

#### D

Device: A hardware component such as a microscope, camera, stage, or laser, or a virtual device used for testing.

Virtual Device: A software simulation of a hardware component, useful for testing interactions without physical hardware.

Time Device: An element that manages time-related aspects of a sequence (e.g., setting the time interval between two image captures).

#### E

Event: A Recipe Element that allows for sequence interruptions or parameter adjustments based on an external or internal trigger.

#### F

Functions of sub devices : Set, Get, Check:

Set: Assigns a new value (e.g., moves an objective lens).

Get: Retrieves the current value.

Check: Verifies whether the requested action was successfully completed.

#### Ρ

Property Name: The name of a configurable parameter for a sub device (e.g., "Exposure" for a camera's exposure time). Only valid for external drivers (custom and micromanager).

Property Value: The value assigned to a property (e.g., "200ms" for an exposure time). Only valid for external drivers (custom and Micromanager)

### R

Recipe: A structured set of instructions defining system operation, including action order, execution conditions, and sequence optimization.

Recipe Element: A single unit within a recipe that associates a sub device or multiple sub devices with one or more actions.

Recipe Element Group: A group of multiple Recipe Elements, structuring a complex recipe.

Recipe Element Event: A specific Recipe Element that permits interruptions or parameter changes at predefined points.

Recipe ID: A unique identifier assigned to a Recipe Element.

#### S

Sequence: A structured set of actions applied to sub devices based on statuses and recipes.

Optimized Sequence: Avoids redundancy.

Sub device: A controllable part of a device (e.g., microscope focus, laser intensity).

#### Т

Tag Condition: Ensures an action is executed only if a specific tag is present in a status.

Tags (Recipe Keywords): Link actions to specific conditions (e.g., capture an image only at the first position in a cycle).

#### V

Value Condition: A condition that determines whether an action is executed based on a sub device's value.

| 1 - Installation and development solutions | 1.3 - Inscoper API

## 1.3. Inscoper API

This page is under construction.

## 2. SPECIFICATIONS

Operating specifications and parameters, input/output connexions, system requirements

## 2.1. Approach

Inscoper I.S. is a turnkey hardware solution that completely revolutionizes the way in which fluorescence microscopes are controlled in live cell imaging.

Inscoper's fundamental new approach involves dissociating the two functionalities managed by the acquisition software:

- **1. User Interaction**: to configure the acquisition sequence, receive the acquired images, and display and save them;
- **2. Device Control**: to communicate with the different devices in the microscopy system and run the acquisition sequence defined by the user.



Microscope devices: stage, cameras, focus, shutters, light sources, filter wheels,...

This separation means that the Inscoper I.S. is free from hardware constraints. Therefore, regardless of the type of microscope, the Interface remains simple, easy to use and focused on user requirements rather than hardware issues.

## 2.2. Inscoper Device Controller

## 2.2.1. Warnings and cautions

- **1.** Always check that the Inscoper Device Controller is powered up before starting the computer. If in doubt, restart the computer.
- 2. The equipment can only be powered through Safety Extra Low Voltage that also complies with the limits of 6.3.1/6.3.2 of IEC 61010-1:2010.
- 3. Never use cables <u>longer than 3 meters</u> to connect devices (except for the Ethernet cable).
- 4. Please note that if the Inscoper Device Controller is used in a way that is not specified by INSCOPER, the protection provided by the device may be compromised.

## 2.2.2. Operating specifications

Parameter	Current Version Next Versions				
Device Con- troller Model	М	S	L	XL	
Weight	3.050 kg (6.724 lb.)	1.150 kg (2.20 lb.)	4.450 kg (8.82 lb.)	4.650 kg (8.88 lb.)	
Dimensions (L*W*H)	230*230*230 mm 120*200*65 mm (9.06*9.06*9.06 in.) (4.72*7.87*2.55 in.)		420*434*84 mm (16.53*16.93*3.15 in.)		
Power input	24 VDC @ 2.5 A 24 VDC @ 3.75 A				
Operation tem- perature range	From 10 to 40 °C (from 50 to 104 °F)				
Altitude	Maximum 2000 m (6561,68 feet)				
Operating humidity range (non- condensing)	From 30 to 85 %				
Storage tem- perature range	From 0 to 50 °C (from 32 to 122 °F)				
Storage humid- ity range (non- condensing)	From 30 to 85 %				



NB: All there data are valuables for indoor use only.

## 2.2.3. Input / Output



	Current Version	Next Versions					
TYPE	М	S	L	XL			
	2x (0-5V) 1x (0-12V)	1	8	16			
ANALOG OUTPUTS	DAC resolu- tion 12 bits No Programma- ble Output range	DAC resolution 14 bits Sample rate 180 MS/s Output range ±10 V, 0-5 V, +-5 V					
ILDA	Via External Con- troller (MaxILDA)	-	-	1			
	2x (0-5V) 1x (0-12V)	-	-	16			
ANALOG INPUTS	ADC resolu- tion 12 bits No Programma- ble Input range	ADC resolution 16 bits Sample rate 1 MS/s Input range ±2.5 V, ±5 V, ±10 V, ±12.5 V					
I/O	6	4	18	18			
SERIAL PORTS	5	1	4	8			
USB host	5	1	6	6			
Computer		Windows 7/10/11					
	1920 x 1080 px						

## 2.3. System requirements

	Minimum requirements	Optimum configuration
Operating system	Windows 7 / 10 32 bit / 64 bit MAC OSX 10.5	Windows 10 64 bit MAC OSX 10.5
RAM	4 Go	16 Go
Hard disk drive	4 Go	128 GB SSD drive for fast image saving
Processor	Pentium 2 266 MHz	Core i5 3.2 GHz
Graphics card		NVidia GeForce 8 and 100 series or higher ATI Radeon HD 2400, 3000, 4000, 5000 and 6000 series Intel GMA 4500 and GMA HD
Screen	Resolution 1920 x 1080	2 screens highly recommended

## 2.4. Installation

The Inscoper I.S. should only be installed by INSCOPER staff or appointed representatives. The customer and/or user can be involved in the installation process provided explicit consent has been given by an INSCOPER representative. In the event of intervention on the microscopy system with INSCOPER equipment or software without INSCOPER's consent, the company declines all responsibility for any consequences resulting from this intervention.

To **request installation** of Inscoper I.S. on a microscope, the following three steps are necessary:

- **1.** Send a list of all your devices connected to the microscope to contact@inscoper.com or via the dedicated form available at www.inscoper.com.
- 2. Give INSCOPER team three-day access to install the microscope.
- **3. Test out** the microscope with your team: acquire images of your research samples and compare them with previous ones.

## **3. CONTACT & LEGAL**

Disclaimer, copyright, information about certifications, contact information.

Thank you for purchasing the INSCOPER product.

Please read this manual carefully before using the product. For future reference, please keep it in a safe place.

While every effort has been made to ensure the accuracy of this manual, some errors may remain. Please contact us if any points are unclear.

## 3.1. Contact

If you have any questions regarding the use of this product, please contact us by e-mail at: support@inscoper.com.

Please specify the following information about your system:

- Product serial number,
- Contact details,
- Any problem(s) you may have.

## 3.2. Copyright

The copyright in this document and the associated drawings are the property of INSCOPER and all rights are reserved. This document and the associated drawings are issued on condition that they are not copied, reprinted or reproduced, nor their contents disclosed except in cases and places where the system is used.

The publication of information in this document does not imply freedom from any patent or proprietary right of Inscoper or any third party.

INSCOPER and the INSCOPER logo are trademarks of INSCOPER Company (INSCOPER SAS - 12 square du Chêne Germain - 35510 Cesson-Sévigné - FRANCE). INSCOPER includes technology covered by the following patents:

- US Patent No. US10330911,
- EP Patent No. EP3123149,
- FR Patent No. FR3019324,

Changes will be made to the product on a periodic basis and these will be incorporated into new editions of user guides.

## 3.3. Disclaimer

The information contained in this manual is provided on an "as is" basis, without any warranties, conditions or representations of any kind, whether express, implied, statutory or otherwise, including, but not limited to, any warranties of merchantability, non-infringement or fitness for a particular purpose.

In no event shall Inscoper be liable for any loss or for any direct, indirect, special, incidental, consequential or other damages, regardless of the cause, whether arising in contract tort or in connection with the use of the information provided herein.

## 3.4. FCC/IC certification

Any changes or modifications to this equipment not expressly approved by INSCOPER may cause, harmful interference and void the FCC authorization to operate this equipment.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device must be professionally installed.