



FAQ

Inspector

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Title FAQ - Inspector				Version 1.05

Document History

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Software

S01 – How do I know which firmware version is installed?

In Inspector I10 the version numbers can be seen in the InspectorI10 -> Device Info dialog.

In Inspector I20 the version numbers can be seen in the Help -> About Inspector dialog.

The following combinations of version numbers exist:

Release	Application version	Monitor version	FPGA version	Inspector GUI version
Inspector I10 1.0	1.0.0.46	1.0.0.46	1.0.2.0	Not seen
Inspector I10 1.1	1.1.0.2	1.0.0.46	1.0.2.0	1.1 (seen in Main view tab)
Inspector I20	1.0.0.2	1.0.0.46	1.0.2.0	1.0.0.2 (seen in Help- >About Inspector)

S02 – What version of SOPAS do I need?

The SOPAS ET version can be found in the Help -> Info dialog

Release Used	SOPAS version
Inspector I10 1.0	2.18 build 2460
Inspector I10 1.1	2.20 build 2665
Inspector I20 1.0	2.20 build 2665

S03 – Why does the installation of the software stop?

It will take a while to install SOPAS, especially in the step where the installation program copies files. This is normal and the progress bar will not move during this step

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S04 – Why can't I open my saved device file?

When double clicking on a saved device file (*.sdv) SOPAS will open and the following dialog can appear:



There can be several causes for this dialog:

- The device is not connected to the network
- The device is not turned on
- The devices IP address has been changed since the file was saved the last time. This can happen if the device is using a DHCP and the device has for example been rebooted, and for some reason the DHCP server has assigned another IP address (usually, the same IP address will be assigned).

The solution is to use the connection wizard, find the correct device and connect to it. Then use Edit -> Load Device Data to device and select the saved Device File. After this is done the Device File can be saved again, now containing the correct IP address. See Chapter 15.4 in the SICK Inspector operating Instructions.

S05 – Why do I get the warning message "device module not found"?

If the warning message "Device module not found!" is shown after a device has been selected in the Connection Wizard, it means that the JAR file for the selected device type is missing. The help message says that the user can install the device module using the *Module Manager*, which is true but not easy to do. The cause of this error is that the wrong version of SOPAS is installed. So instead of using the Module Manager, make sure that the correct version of SOPAS that is supplied on the Inspector CD is installed. If not, contact technical support.

S06 – What should I think about when setting up the locator?

Edge strength

Adjust the amount of highlighted contours by changing the *Edge strength* setting in the *Object locator* tab. In most cases, you should make sure that most of the characteristic contours are highlighted but nothing is highlighted in the background or outside the object.

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OK

Enough amount of learned contours



Bad

Too few contours



Bad

Too many contours, as well as contours on the background.

If it is difficult to make sure that there are no highlights in the background with the *Edge strength* setting, use the *Mask* tool to mask out areas of the region that lies outside the object.

Match Settings

The match settings consist of settings to control the accuracy in locating objects. The different settings are *Match*, *Allow rotation*, *Allow objects anywhere in image*, *Allow scaled Objects* and *Advanced* (that include *Search method*).



The *Match* setting tells how well the located object must match.

Set *Allow rotation* to (slightly higher than) the largest rotation that the objects will ever appear, compared to the reference object. This way, the Inspector will not spend time trying to find objects with larger rotations.

Deselect *Allow scaled objects* if the objects always appear with the same size as the reference object. This speeds up the inspections and makes it much more robust.

The *Allow objects anywhere in image* setting is used for telling where in the image to search for objects. When selected, the Inspector will locate objects that are partially outside the image (although with a lower score). When deselected, you can specify the region (*Search region* in green color) in which the objects are allowed. Objects located outside or partially outside this search region will not be located.

The *Advanced* setting contains the *Search method* slider. To display the advanced settings, click on the plus/expand button. The *Search method* setting in the Inspector can be changed using one slider between *High accuracy* and *High speed*. Higher accuracy gives lower speed and higher speed gives lower accuracy.

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S07 – Why don't I see any images in the Live view?

If you don't see any live images, do the following:

- First check that the live image tab is selected and that the trigger mode is free-running or that trigger signals are sent.
- Try to switch to edit mode and then back to live mode. This will re-establish the connection that is needed to send images from the device to the PC.
- Try to connect to the device again using the Connection Wizard.
- Re-boot the device and connect to it again.

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Communication

C01 – What is the protocol between the Inspector and the Wago box?

The protocol is Modbus and there is no special software/firmware on the Wago box developed by SICK.

The Modbus protocol uses the client/server communication model, using request/reply commands. Modbus defines a number of requests that can be made, each identified with a function code. There are many function codes defined in the Modbus standard, but the Wago module only supports a subset of these.

When communicating, the Inspector acts as a client (master) and the Wago module is a server (slave). This means that all communication is initiated by the Inspector, both for setting outputs and reading inputs. The Wago module never initiates any communication to the Inspector. The Inspector and Wago module communicate via UDP on port 502.

C02 – I have trouble connecting to the Inspector, what could be the problem?

Several corrections regarding connectivity have been made since the first Inspector release:

- When having a wireless connection activated in the PC and at the same time trying to connect to an Inspector peer-to-peer via cable, it was previously not possible to get the correct IP settings to the device. Once the wireless connection was turned off it worked. The same behaviour has sometimes been seen when having two non-wireless network cards on the PC. This problem has now been corrected (SOPAS ET release 2.20).
- The checkbox for DHCP is now automatically deselected when the option "Show new proposal" is selected to get a proposed static IP address (SOPAS ET release 2.20).
- Previously, if SOPAS ET had been installed from a CD of another SICK sensor, it was sometimes not possible to connect to the Inspector I10 because the port 2112 was disabled in the *Advanced Scan Settings* dialog (only available in standard SOPAS). This problem was corrected in SOPAS ET release 2.20.

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Inputs and outputs

I01 – What is the max. frequency of the encoder input signal?

The maximum frequency of the encoder input signal is 40 kHz.

I02 – What's the max number of trigs that can be queued for long delays?

The maximum number of trigs that can be queued is 2900.

I03 – What's the max number of outputs that can be queued for long delays?

The maximum number of outputs that can be queued is 2900.

I04 – How fast can I switch between inspections?

The time it takes to switch reference object depends on the number of inspections, inspection type, and the sizes of the regions in the reference object. Typically, it takes about one second to switch reference object. The following table gives some guidelines:

Reference object configuration	Typical time for reference object selection
Only locator	0.5s
Locator plus four Pixel Counter inspections	1s
Locator plus four Edge Pixel Counter inspections	1s
Locator plus four Contour inspections	2s
Locator plus 32 Pixel Counter inspections	3.5s
Locator plus 32 Contour inspections	20s

I05 – Can I switch banks with another interface than SOPAS?

When the Inspector contains multiple reference objects, you can use the built-in inputs on the Inspector, or the inputs on an I/O extension box connected to an Inspector I20, to switch between the objects without using SOPAS Inspector.

Digital inputs

When using digital inputs for selecting reference objects, you should first specify the following in SOPAS Inspector:

- The inputs to use for object selection. If an input is already used for image triggering, encoder or external teach, that input cannot be used for object selection and the check box for that input is therefore disabled.
- The reference object that should be selected by a certain combination of those inputs.

Value	Reference objects	In1	In2	In3	In4
0	<Object 1>	0	0	-	-
1	<Object 2>	1	0	-	-
2	<Object 3>	0	1	-	-
3	<Object 4>	1	1	-	-

When using external object selection, the inputs should remain in their active/inactive state during the entire time that the selected object is to be used. As soon as the input signal changes, another reference object will be selected instead.

The digital inputs of the I/O extension box (I20) can be used for selection of reference objects. This way, In1– In4 can for example be used for encoder input or for triggering inspections.

I/O Settings ✖

I/O usage | I/O extension box setup

Output settings

Enable I/O extension box for output results

Input settings

Use external teaching (In2)

Use current exposure settings

Auto-adjust exposure settings

Use external image trigger (In3)

Use encoder (In4)

Enable external object selection...

...using input pins

...using I/O extension box

External object selection setup

Ext1 Ext2 Ext3 Ext4

Value	Reference objects	Ext1	Ext2	Ext3	Ext4
0	<Object 1>	0	0	0	0
1	<Object 2>	1	0	0	0
2	<Object 3>	0	1	0	0
3	<Object 4>	1	1	0	0
4	<Object 1>	0	0	1	0
5	None	1	0	1	0
6	None	0	1	1	0
7	None	1	1	1	0

OK Cancel Apply

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Miscellaneous

M01 – What type of applications can be solved by the Inspector?

The Inspector can be used in several different fields to solve a big variety of applications. The main application segments for the Inspector are currently:

Packaging – Below are some application examples for the packaging segment:

- Label position on bottles, cartons, cases etc.
- Date code presence
- Cap inspection - presence, position, height, integrity or damage
- Blister packs - are all tablets in the blister, is the blister damaged, foil sealed
- Sterile soft bags - are all components inserted
- Level control of fluids where non-volumetric filling is applied
- Uniformity of positioning of packs in bulk

Automotive – Below are some application examples for the automotive segment:

- Bowl feeder inspection
- Verification of part assembly before next station
- Verify correct type in multi type production lines
- Verify presence of holes, nuts, safety springs and simmer rings
- Surface inspection for defects

Other segments where the Inspector is used are:

- Pharma and Cosmetics
- Food and Beverages
- Electronic Assembly