Inspector Viewer

Monitor multiple Inspectors for improved quality and throughput

SICK

Sensor Intelligence.

Table of Contents

1   About this document

1.1   Purpose

This document describes how to configure and use Inspector Viewer. It contains information required for supervision of an Inspector via Inspector Viewer. You will be lead through all the necessary actions step-by-step.

For device-specific information about the Inspector vision sensor see respective documents or visit www.sick.com. For support questions, find your local representative on the last page or on www.sick.com.

1.2   Target group

This document is intended for those who already know how to work with the Inspector vision sensor.

1.3   Document legend

All names of the controls from the Inspector Viewer application are displayed in *this style* in this document. Inspector vision sensor of company SICK will be referred to as "Inspector" throughout this document.

2   Safety information

2.1   Authorized users

Only appropriately qualified personnel may configure and operate the Inspector and Inspector Viewer. The following qualifications are required for configuring and operating:

▷ Inspector and SOPAS knowledge
▷ Knowledge of the electrical engineering safety regulations currently in force

2.2   Intended use

The Inspector Viewer's primary objective is to allow advanced supervision of Inspector operation. In case of any other use or alterations being made to the device even within the installation or software changes that deviate from SICK software, all warranty claims are forfeited.

3   Inspector Viewer overview

Inspector Viewer is a compact solution suitable for industrial deployment, which allows you to supervise Inspector operation. One Inspector can be connected at a time, but supervision of multiple Inspectors is supported by keeping archived data for every Inspector connected in the past. It provides an easy interface to switch between Inspectors available on the network.

Each Inspector Viewer contains a flash card and allows for connection of external USB flash drives for storage of images and Inspector configurations.

User interface of Inspector Viewer is provided in 8 languages.

Inspector Viewer functions

These are the main functions supported by the Inspector Viewer:

▷ View live, logged and reference images
▷ View overall and detailed results
▷ View statistics and result trends

▷ Store images continuously

▷ Change reference object

▷ Re-teach reference image

▷ Import/export Inspector configuration files to internal/external memory

▷ Import/export Viewer configuration files to internal/external memory

▷ Managing IP address settings of Inspectors and the Inspector Viewer

▷ User management allowing for access restrictions

▷ Track and trace events by user and time stamp

Inspector Viewer limitations

▷ Inspector is able to send only a limited number of images per second. For this reason it is not possible to guarantee that Inspector Viewer will display and archive all live images. For the same reason it is not possible to guarantee that Inspector Viewer will stop on every failed image.

▷ Inspector Viewer does not support USB hubs.

▷ It is not possible to connect to an Inspector that is currently communicating with SOPAS ET interface.

▷ Inspector Viewer must be switched off manually using its onscreen Shutdown button. Abrupt electricity outage may damage the Viewer.

▷ SOPAS software is still needed for configuration of inspections and reference objects.

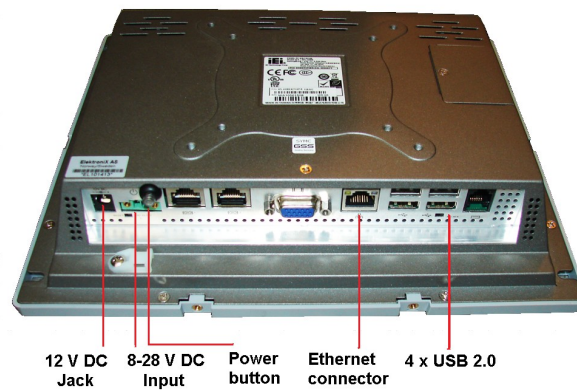# 4   Hardware setup

Figure 1: Inspector Viewer hardware

Figure 2: Inspector Viewer side

4.1   Required components

To use Inspector Viewer, the following components are required:

▷ Configured Inspector
▷ Inspector Viewer hardware with preinstalled software
▷ Power supply

4.2   Supported Inspectors

The following Inspector types are supported:

▷ I10
▷ I20

 ▷ I40
 ▷ P30
 ▷ PI50
 ▷ PI50ECAT

4.3   Installation of Inspector and Inspector Viewer hardware

- Connect the Inspector to a network, or directly to the Ethernet connector of the Inspector Viewer hardware.

- In case Inspector is not connected directly to the Inspector Viewer, connect the Inspector Viewer hardware to the same network as the Inspector.

- Connect the Inspector to a 24 V DC power supply.

- Connect the Inspector Viewer hardware directly to 8-28 V DC power supply or use the 12 V DC adapter shipped with the hardware.

4.4   Getting started

Powering up

Press 'Power' button on the Inspector Viewer hardware. After the boot up session (takes about 30 seconds) the *Menu* screen is shown and the default user is logged in. The default user has all user rights initially.

Switch to another language

- Press button *Viewer Settings* from the Menu.

- Select tab *Language*.

- Select the desired language from the displayed list.

- Press button *SAVE*; application will display a dialog, where user can select whether it should restart immediately. If option *No* is selected new language selection takes effect after next restart.

- Press the *MENU* button on the *Viewer Settings* screen in order to return to the main menu of the application.

Connect to Inspector

- Press button *Network Settings* from the Menu.

- Set the network settings of the Inspector Viewer and the Inspector. Two methods are available:

 ▷ Auto-configuration function: It is recommended to use the automatic configuration function, which can be called through the *AUTOMATIC CONFIGURATION* button on the *Network Settings* screen.
 ▷ Manual: Adjust the network settings manually.

Inspector network settings may be changed using the auto-configuration function, thus other devices may not be able to connect to the Inspector anymore!

- Press button *MENU* on the *Network Settings* screen, in order to return to the main menu of the application.

- Press button *Select Inspector* on the *Menu* screen; application will automatically detect available inspectors on the network.

- From the list, select an Inspector that you want to connect to.

- Press button *CONNECT*.

- Inspector Viewer connects to the Inspector.

- After successful connection, *Live View* is displayed.

It is possible that the Inspector Viewer encounters a problem when connecting to the selected Inspector and displays an error message. Problem solution: Check the network settings.

5   Working with the Inspector Viewer

5.1   Live View screen

Live View screen displays live images incoming from the connected Inspector. Its design slightly differs depending on that, which Inspector is connected. Therefore, following sections describe the screen for Ixx/PI50 Inspectors and P30 separately. Note that the *Live View* screen is accessible only when an Inspector is connected.

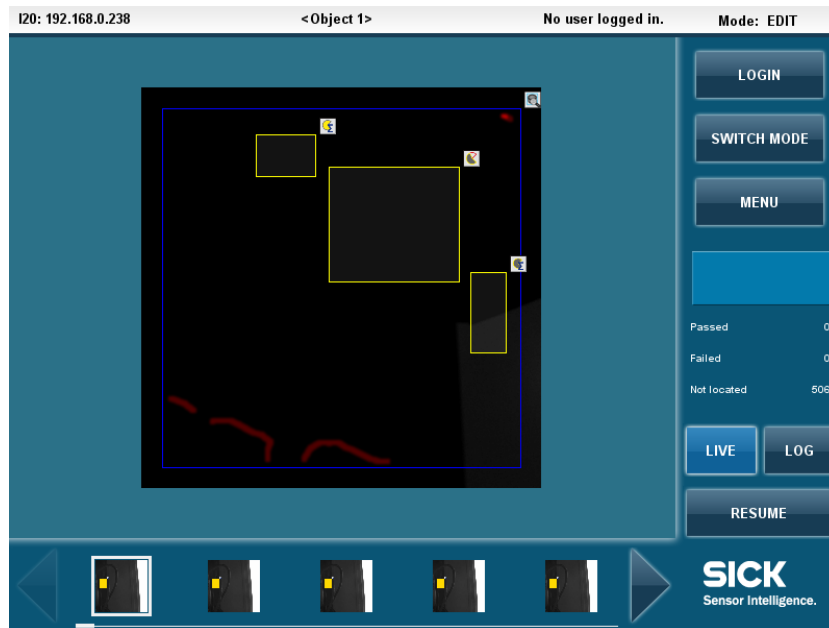### 5.1.1   Ixx and PI50 Inspectors

Figure 3: Live View screen (Inspector I20)

Images from the Inspector (overlayed with defined inspections) are displayed in the central part of the screen. In case when Inspector I10 or I20 is connected, the live images are smaller (not across the whole main pane). The *Live View* can be configured to stop displaying new incoming images in case of a failed analysis, see section 5.2.8. Following controls can be found on the *Live View* screen on the right side panel (controls are described from the top to down in order as they appear):

- *LOGOUT/LOGIN* button - With this button you can login to a different user account or logout from the currently used user account. The button is labeled *LOGIN* in case you are not logged in (i.e. the default user account is being used); in the opposite case it is labeled *LOGOUT*.

- *SWITCH MODE* button - Toggles mode of the Inspector between *EDIT* and *RUN*. If you want to switch the mode, you have to be logged in as a user with right to *Change Inspector mode* (see section 5.2.10).

- *MENU* button - Returns user back to the *MENU* screen (see section 5.2.1).

- Result panel (below the *MENU* button) - Color indicates result of image analysis associated with the currently displayed image. Green - the analysis passed. Red - the analysis failed. Blue - object was not located.

- Statistics - displays basic statistics in the *RUN* mode. Following values are shown:

  ▷ *Passed* - Number of passed analyses.
  ▷ *Failed* - Number of failed analyses.
  ▷ *Not located* - Number of analyses with result 'Not located'.

▷ *Not located and failed* - Number of analyses with result 'Not located and detail failed' (supported only by PI50 Inspector)

- *LIVE* button - When selected, live images from the connected Inspector will be displayed on the screen (it is activated by default).

- *LOG* button - By pressing the *LOG* button the Inspector Viewer downloads the logged images from Inspector and displays them in the strip at the bottom of the screen. Images can be browsed by the arrows on the left and right edge of the strip.

- *RESUME* button - This button is visible only if *Stop live image when not located or detail failed* mode is selected (see section 5.2.8) and *LIVE* button is pressed. In such a case, when a failed analysis is detected, the Inspector Viewer freezes displayed image and will not resume normal operation until this button is pressed.

- Log images strip (below the main image pane) - Displays images downloaded from the Inspectors log memory (visible only in the *LOG* mode) and allows user to browse through them.

5.1.2   P30 Inspector

Most of the controls of the *Live View* screen for the P30 Inspector are identical as the ones present on the Ixx/PI50 Inspector screen. Therefore, only differences will be explained in this section.

Figure 4: Live View screen (Inspector P30)

- *Compass* control - navigates to the position where the object was located. Following states are possible:

  ▷ Object not located - All arrows are blank and center of the *Compass* is covered with a blue cross (see Fig. 5(a))
  ▷ Object located outside of the passing region - A single arrow is painted red. It points to the direction where the Inspector must be shifted in order to fit the object into the passing region (see Fig. 5(b))
  ▷ Object located inside of the passing region - All arrows are blank and center of the *Compass* is filled with a green circle (see Fig. 5(c))

If the passing region is not defined, then the *Compass* control will be replaced with the two state indicator (similar to one used for the Ixx Inspectors): (1) Green color indicates, that object was found; and (2) Blue means that the object was not found.

- Position and rotation of the located object - displayed below the *Compass* control. Following options are possible:

  ▷ If object locator is active, then only a single object can be located. Thus, its results are displayed here.
  ▷ If blob locator is selected, then several objects can be located. In this case, only the results for the most significant object are displayed here (all results can be found on the *Results* screen, see section 5.2.2)

(a) Object not located

(b)
Object located outside of the passing region
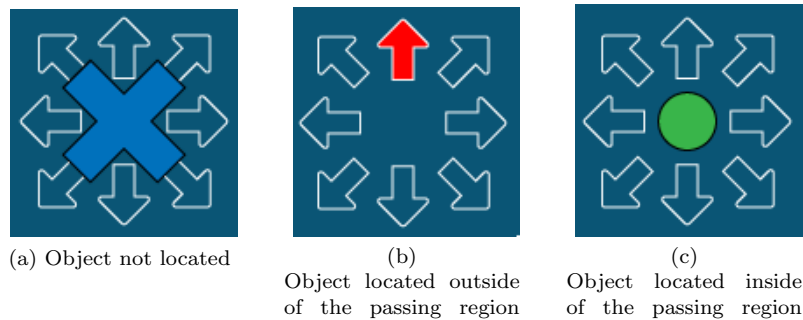
(c)
Object located inside of the passing region

Figure 5: Possible forms of the *Compass* control

If the images on this screen are not refreshing, then check the *Inspector Settings* (see section 5.2.4).

5.2 Other screens

All screens of the Inspector Viewer application contain following common controls:

- Top status bar, where information about current state is displayed (described from left to right; see Fig. 6):

  ▷ Connected Inspector shows - (1) type and IP address of the currently connected Inspector; or (2) text *No Inspector connected* if no Inspector is connected.
  ▷ Reference object shows - (1) Name of the active reference object on currently connected Inspector; or (2) blank if none is active.
  ▷ Logged in user shows - (1) Username of the currently logged in user; or (2) text *No user logged in* in case when the default user is active.
  ▷ Current mode of the Inspector shows - (1) *RUN* if Run mode is active; (2) *EDIT* if edit mode is active; or (3) *None* if no Inspector is connected.

- Common buttons:

  ▷ *LOGOUT/LOGIN* button - With this button you can login to a different user account or logout from the currently used user account. In case when you are not logged in, the button is labeled *LOGIN*; in the opposite case it is labeled *LOGOUT*.
  ▷ *SWITCH MODE* button - Toggles mode of the Inspector between *EDIT* and *RUN*. If you want to switch the mode, you have to be logged in as a user with right *Change Inspector mode* (see section 5.2.10).
  ▷ *MENU* button - Returns user back to the *MENU* screen (see section 5.2.1).

Figure 6: Status bar placed on the top of each screen. Displays current information about the application

5.2.1 Menu screen

Figure 7: Menu screen

This screen contains main menu of the Inspector Viewer. You can return to this menu from any other screen via the *MENU* button located on the right panel. It allows you to navigate to any screen in the Inspector Viewer Application.

SHUTDOWN button

SHUTDOWN button has to be used for safe power off of the Inspector Viewer unit. In order to use it, you must be logged in as a user with privilege *Shutdown Inspector Viewer*. To power up the Inspector Viewer again, press the hardware button, which can be found at the bottom side of the unit (see Fig. 2 for its exact position). In case, when the bottom side is not accessible, the unit can be switched ON by disconnecting and reconnecting the power supply (e.g. pull the plug and insert it into the socket again).

 It is required to shutdown Inspector Viewer using the *SHUTDOWN* button. Failing to do so may result in malfunction of the Viewer.

5.2.2 Results screen

To get to Results screen press button *Results* on the Menu. This screen is different for the Ixx Inspector family, P30, and PI50, thus it will be explained separately.
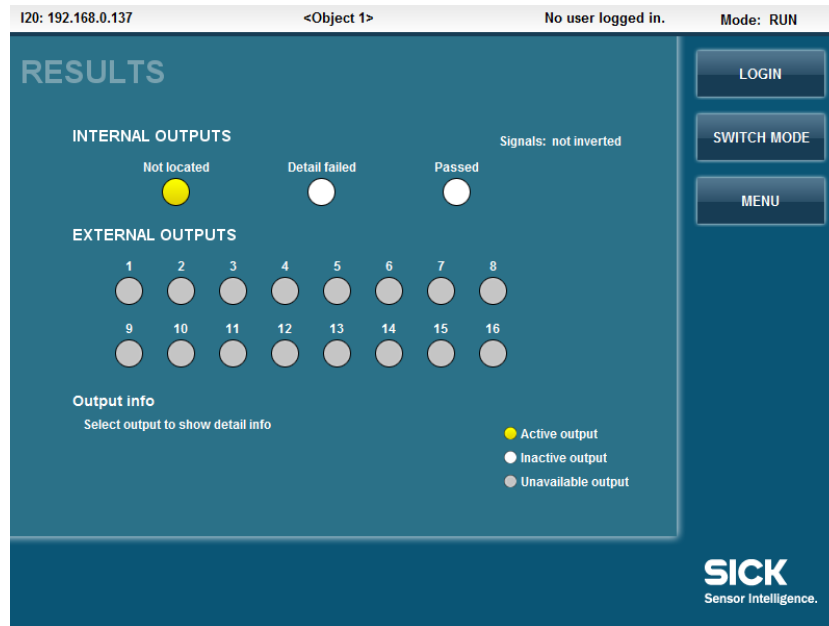
Results Ixx

Figure 8: Results screen for Ixx Inspectors

This screen shows status of all available digital outputs of the connected Inspector. The number of displayed outputs depends on the type of connected Inspector. Information shown here always reflects status of the digital outputs according to the last received image acquisition. State of an output is indicated by color:

  ▷ Yellow - active output
  ▷ White - inactive output
  ▷ Grey - unavailable output

Click an output icon, in order to display additional information about the output. It will be shown in lower left corner of the panel (under the label *Output Info*).

Results P30

Measured positions and rotations of all detected objects are displayed on the first tab of the *Results* screen (see Fig. 9(a))

The second tab displays sample Ethernet output string (see Fig. 9(b)). By pressing the *Refresh* button, you can download new sample string from the connected Inspector (sample string is only available if at least one object was detected). To scroll this view, touch the screen with your finger and slide it upward in order to scroll the message down.

The third tab shows current Ethernet output settings with following information (see Fig. 9(c)):

  ▷ *Communication mode* - Current selection between (1) TCP or (2) UDP
  ▷ *Output format* - Current selection between (1) ASCII or (2) BINARY format
  ▷ *Receiver IP address* - IP address of the receiver machine (displayed only for UDP mode)
  ▷ *Receiver port* - Port number of the receiver machine (displayed only for UDP mode)

Results PI50

Results screen for Inspector PI50 consists of three tabs.

The first tab, *Outputs*, contains the same information as Results screen for Ixx Inspectors (see above).

The second tab, *Ethernet output*, is the same as the second tab of Results screen for P30 Inspector (see above).

(a) Measured positions and rotations of all defined objects

(b) Sample ethernet output string

(c) Ethernet output settings

Figure 9: Tabs of the *Results* screen for P30 Inspector

The third tab, *EthernetOutputSettings*, is similar to the third tab of Results screen for P30 Inspectors (see above). It provides information about Ethernet interface and device calibration.

Common settings:

  ▷ *Device calibrated* - Is the Inspector calibrated
  ▷ *Interface* - Currently activated Ethernet interface: (1) EtherNet/IP or (2) Ethernet Raw

EtherNet/IP settings:

  ▷ *Result input assembly* - Which result assembly is active
  ▷ *Changes allowed via EtherNet/IP* - Are changes allowed via the interface

Ethernet Raw settings:

  ▷ *Communication mode* - Current selection between (1) TCP/IP or (2) UDP
  ▷ *Output format* - Current selection between (1) ASCII or (2) BINARY format
  ▷ *Changes allowed via Ethernet Raw* - Are changes allowed via the interface
  ▷ *Receiver IP address* - IP address of the receiver machine (displayed only for UDP mode)
  ▷ *Receiver port* - Port number of the receiver machine (displayed only for UDP mode)

Results PI50 EtherCAT

Results screen for Inspector PI50 Ethercat is almost the same as result screen for Inspector PI50.

The only difference is that the third tab contains *EtherCATSettings* instead of *EthernetOutputSettings*. It displays following information:

  ▷ *Device calibrated* - Indicates whether the Inspector is calibrated

    ▷ *Changes allowed* - Indicateds whether changes via EtherCAT interface are allowed

    ▷ *Programmable trig enabled* - Indicates whether programmable trigger is enabled

5.2.3   Select Reference Object screen

To get to this screen press button *Select Reference Object* on the *Menu* screen. It shows available reference objects in the Inspector and allows to teach-in a new image from the current live image.

Reference image tab

    Reference Image tab shows the list of the reference objects in the Inspector and the active reference object is displayed in the main image pane. User can select new reference object from the list at the bottom of the screen (either by clicking on the icon of the reference object or by using the arrows on the sides of this list). Marked reference object is then set as active through the *SELECT* button (active only on this tab). Only after this button is pressed, the new active reference object is set in the Inspector and it is also displayed on the main image pane.

Change reference object

    When the Inspector is in the *EDIT* mode, it is possible to change the active reference object by selecting a reference object in the list. To change it you need to be logged in as a user with *Change Inspector mode* and *Change active reference object* priviledges:

    ▷ Change to *EDIT* mode.

    ▷ Press button *Select Reference Object* on the *Menu* screen.

    ▷ Switch to the *Reference image* tab.

    ▷ The active reference object is highlighted in the list on the bottom of the screen and displayed on the main image pane.

    ▷ Select the desired reference object from the list and press *SELECT* button.

    ▷ The selected reference object is set as active.

Live image tab

    The *Live Image* tab is utilized for re-teaching of the active reference object. Following buttons are active when this tab is selected:

    ▷ *AUTO IMAGE SETTINGS* - Automatically sets exposure and gain in order to optimize brightness of live images. This setting applies only to the active reference object.

    ▷ *TEACH-IN* - Teaches in a new reference image for the active reference object. The reference image is replaced with the current live image.

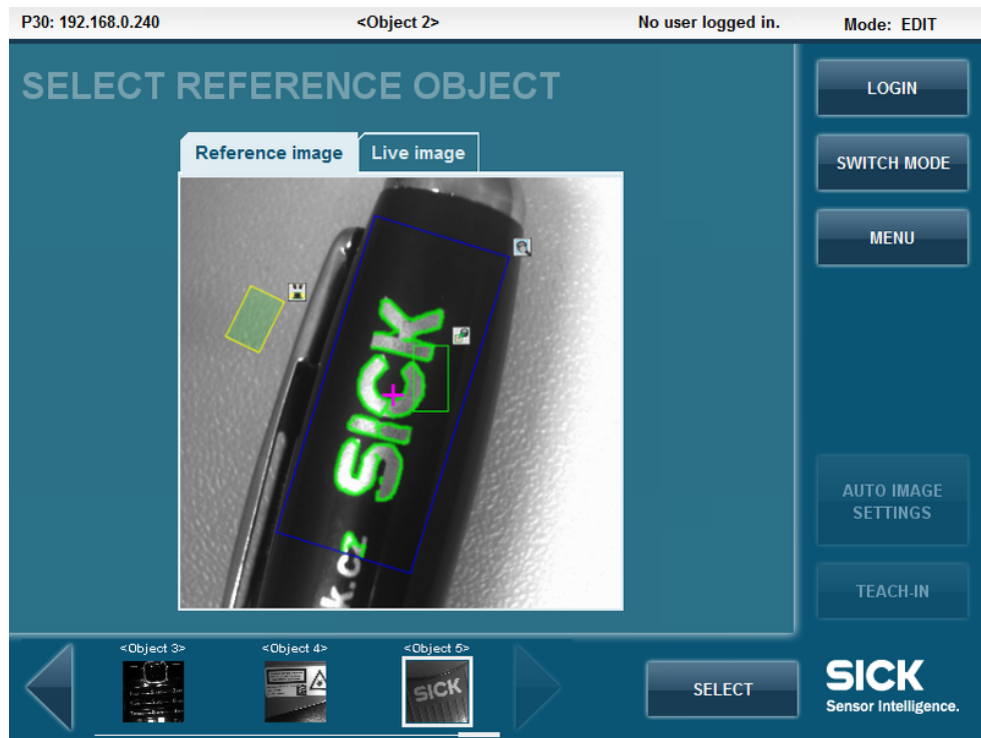   All other properties of the active reference object such as regions and thresholds remain unchanged.
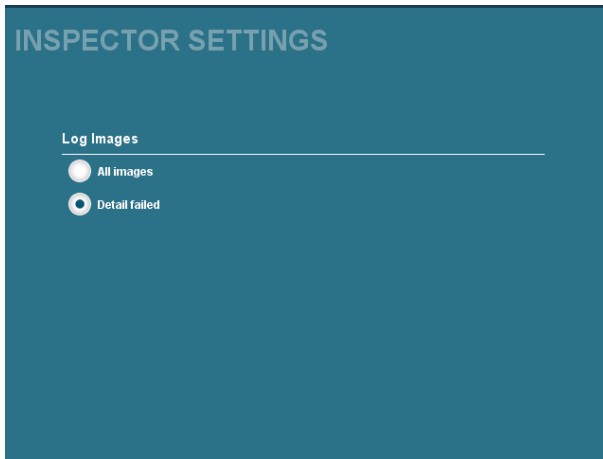
Figure 10: Select Reference Object screen (Reference Image tab)

Figure 11: Select Reference Object (Live Image tab)
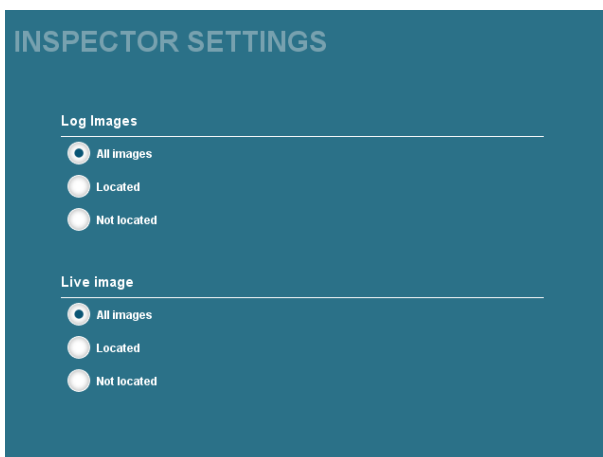
5.2.4   Inspector Settings screen

This screen allows you to configure how the Inspector handles the acquired images. All settings are editable in the *EDIT* mode only.
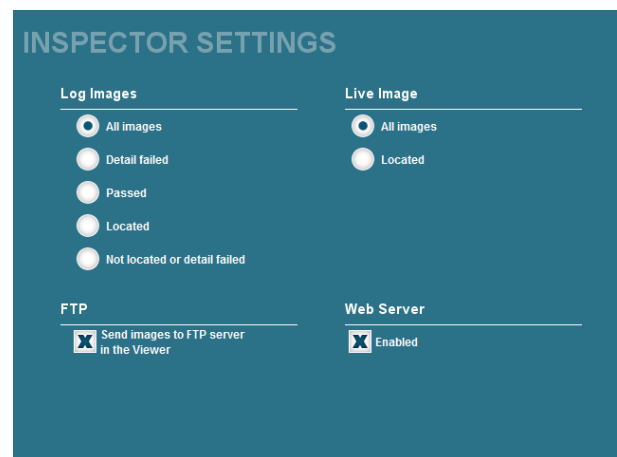

(a) I10 and I20 Inspectors

(b) I40 Inspector

(c) P30 Inspector

(d) PI50 Inspector

Figure 12: *Inspector settings* screens for different Inspector models

I10 and I20 Inspectors

For I10 and I20 Inspectors, you can select which images will be logged within the Inspectors internal memory. Following options are available (see Fig. 12(a)):

▷ *All images* - all acquired images will be logged
▷ *Detail failed* - images with at least one failed inspection will be logged

I40 Inspector

For I40 Inspector, you can select which images will be logged within the Inspectors internal memory. Following options are available (see Fig. 12(b)):

▷ *All images* - all acquired images will be logged
▷ *Detail failed* - images with at least one failed inspection will be logged
▷ *Passed* - images with all inspections passed will be logged

▷ *Located* - images where object was located will be logged

▷ *Not located or detail failed* - images where an inspection failed or object was not located, will be logged

Additionally, you can select, whether the images will be also sent to the Viewer FTP server. Sending images this way is faster than using Live images, but still does not ensure, that all captured images will be transfered. Furthermore, images sent via FTP do not contain inspection-related information. Images are sent if following conditions are met: (1) image obeys rules set in *Log images* section and (2) the Inspector is in the RUN mode.

P30 Inspector

For P30 Inspector, you can select which images will be logged within the Inspectors internal memory and which will be sent as Live images independently. Following options are available for both cases (see Fig. 12(c)):

▷ *All images* - all acquired images

▷ *Located* - images, where object was located

▷ *Not located* - images, where object was not located

PI50 Inspector

For PI50 Inspector, you can select which images will be logged within the Inspectors internal memory, which will be sent as Live images, whether images will be sent to Viewer FTP server, and whether web server of the Inspector is activated.

Log image settings are the same as for I40 Inspector. I.e. following options are available:

▷ *All images* - all acquired images will be logged

▷ *Detail failed* - images with at least one failed inspection will be logged

▷ *Passed* - images with all inspections passed will be logged

▷ *Located* - images where object was located will be logged

▷ *Not located or detail failed* - images where an inspection failed or object was not located, will be logged

Live image settings provide two options:

▷ *All images* - all acquired images will be displayed

▷ *Located* - images where object was located will be displayed

Note that Live image settings are effective only on reference objects that have an object locator defined. When there is no object locator defined all images are treated as if object was located, and therefore *All images* and *Located* Live image settings will both display all images.

FTP settings are the same as for I40 Inspector and same restrictions apply.
The last option, Web server enabled, allows to switch on/off the internal web server of the Inspector.

5.2.5 Inspection Chart screen

Every inspection performed by Inspector is evaluated and a chart can be built up from the inspection results. The purpose of this screen is to allow user to review score charts of inspections defined in the active reference object applied to acquired live images.

To get to this screen press button *Inspection Chart* on the *Menu* screen.

Figure 13: Inspection Chart screen

Select an inspection from the list of *Inspections* located on the right side of the screen. The chart is composed of the *scores* sent by Inspector as a part of live images. Inspector Viewer collects these scores and thus it can plot a chart for every inspection. The score is then compared with the *score limits* (marked with red lines in the chart). If the score is within the limits then the inspection passed, otherwise it failed.

> Keep in mind that Inspector does send only a limited number of images per second. Some values may be missing from the chart.

This screen also displays some basic statistics for values displayed in the chart:

    ▷ *Min* - minimal score
    ▷ *Max* - maximal score
    ▷ *Mean* - average score

If the active reference object has an object locator defined, its chart is listed as the first one. Charts of inspections and other tools follow based on the type of connected Inspector:

    ▷ Ixx Inspector - all defined inspections
    ▷ P30 Inspector - all defined grip regions (in Object locator mode) or blob locator (in Blob locator mode)
    ▷ PI50 Inspector - all defined inspections, polygon tools and blob tools (in this order)

Below the chart is *RESET* button. By pressing it, all charts of inspections will be reset.

5.2.6   Statistics screen

To get to this screen press *Statistics* on the *Menu* screen.

The statistics are displayed for reference object selected in the list of *Reference objects* situated on the right side of the screen. The active reference object is selected by default and the statistics are refreshed automatically. It is possible to reset the statistics for Inspectors I40 and PI50 using *RESET* button (other types do not support this feature).

Figure 14: *Statistics* screen

5.2.7 History View screen

To get to *History View* screen press button *History View* on the *Menu* screen. This screen allows you to browse images stored in the Inspector Viewer permanent memory and in the currently connected Inspector.

The screen offers several types of the repositories where images can be stored (the selected archive can be browsed using arrows on the sides of the image pane):

▷ Live Images (button *LIVE*) - images regularly sent by Inspector; images are stored locally on the Viewer disk. Note, that no images are stored in case, when the current reference object is not taught-in.

▷ Log Images (button *LOG*) - up to 30 images stored in Inspector's internal memory; images are always downloaded directly from the currently connected Inspector.

▷ FTP Images (button *FTP*) - I40 and PI50 can send images to FTP server on the Inspector Viewer; images are stored locally on the Viewer's disk. This button is enabled only when an I40 or a PI50 Inspector is connected. Note, that no images are stored in case, when the current reference object is not taught-in.

If you wish to erase any of the archives you have to be logged in as user with right to *Delete history data*. Press button *CLEAR* on the *History View* screen and the whole archive you have currently selected will be deleted.

The button *EXPORT. . .* lets you save the currently selected history archive to an external memory device.

Inspection results for Ixx and PI50 Inspectors

If information about inspection or tool results are available they are shown in the *Inspections* list on the right side of the image pane:

▷ Green - if inspection/tool passed

▷ Red - if inspection/tool failed

▷ Blue - if object was not located

The first item in the *Inspections* list is Object locator if it is defined. It is colored green if object was located or blue if not located.

Note that PI50 Inspector supports tools that are not related to object locator. These are always either green or red.

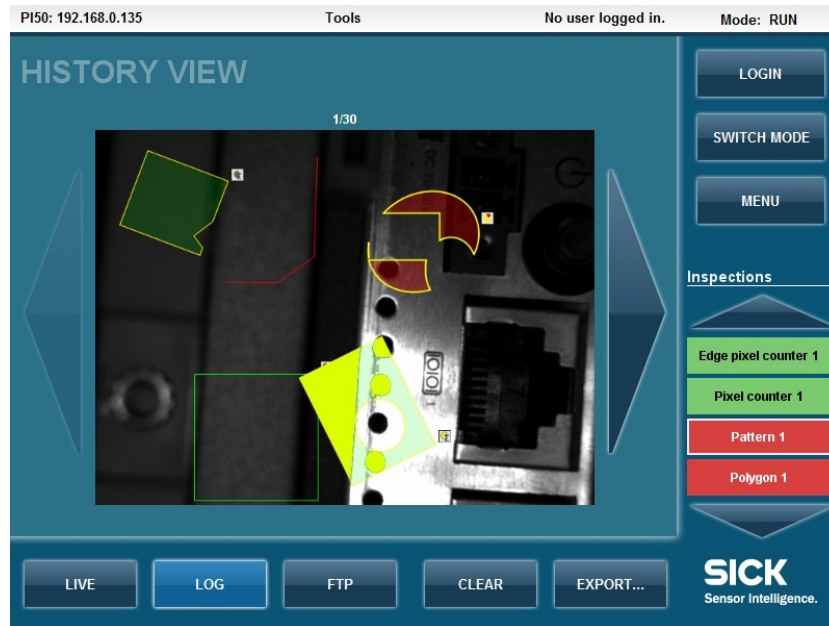Note that FTP images never contain inspection/tool results.

Figure 15: History View screen for Ixx Inspector

Inspection results for P30 Inspector

When P30 Inspector is connected, then results control in *History View* screen is the same as in Live view screen. Thus, user can easily see, where the object was located and *Compass* control points to the direction of the shift.
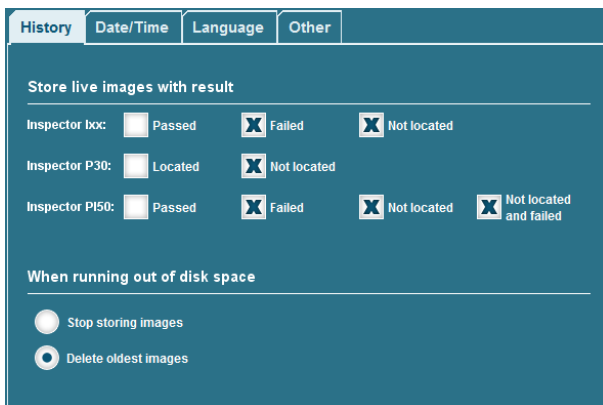
5.2.8   Viewer Settings screen

When button *Viewer Settings* on the main menu is pressed, then screen on the Fig. 16 will appear. This screen allows user to edit *History* settings, set *Date/Time*, change *Language* of the Viewer and configure *Other* settings. All of these are locally stored on the Viewer unit and do not alter any data in the Inspector itself. Following paragraphs explain each tab in detail.

History tab

This tab has following groups of settings (see Fig. 16(a)):

▷ *Store live images with result* - configures, which of the acquired images will be persisted on the local disk

    ▷ *Inspector Ixx* - Options available for the Ixx Inspector family. Images with analysis results *Passed*, *Failed* and *Not located* can be logged. Any combination can be selected.

    ▷ *Inspector P30* - Options available for P30 Inspector. Images with analysis results *Located* and *Not located* can be logged. Any combination can be selected.

    ▷ *Inspector PI50* - Options available for PI50 Inspector. Images with analysis results *Passed*, *Failed*, *Not located*, and *Not located and failed* can be logged. Any combination can be selected.

▷ *When running out of disk space* - configures, how the Inspector Viewer should behave, when stored images fill up the available space on the local disk

    ▷ *Stop storing images* - when disk is full, new incoming images will not be stored

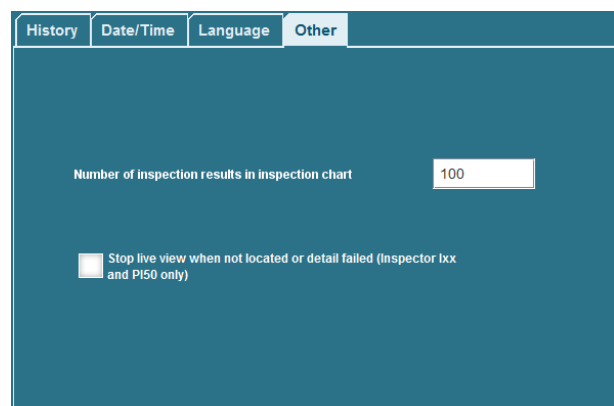   ▷ *Delete oldest images* - when disk is full, the oldest images will be deleted without asking

(a) History tab
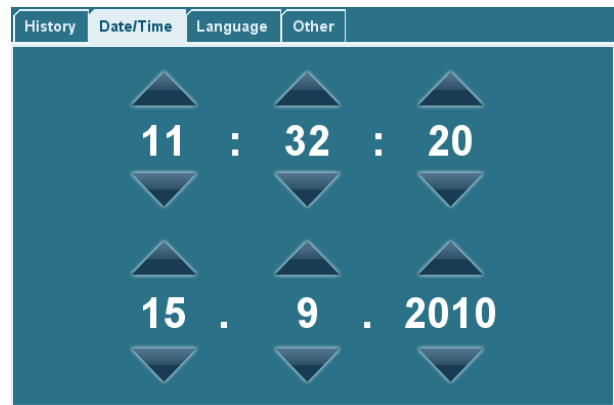
(b) Date/Time tab

(c) Language tab

(d) Other tab

Figure 16: *Viewer settings* screen

Date/Time tab

This tab (see Fig. 16(b)) allows you to adjust date and time of internal Inspector Viewer clock. The Inspector Viewer time is for example used to mark system messages (on the System Info screen):

▷ The time format is: hh:mm:ss
▷ The date format is: dd.mm.yyyy

To change the time stamp you need to be logged in as user with right *Change settings*. Use arrows above and bellow the numbers to adjust date and/or time. Once done, press *SAVE* button to store new values.

Language tab

This tab (see Fig. 16(c)) contains list of all languages into which the application Inspector Viewer is translated. Select one of the options and save the new selection via *SAVE* button. New language settings will be applied after the application is restarted, thus, user is asked, whether the restart shall be performed right away. If *No* is selected, then new language settings are stored and will take effect after next restart.

Other tab

This tab (see Fig. 16(d)) contains settings which do not fit into any other category:

▷ *Number of inspection results in inspection chart* - Number of measurement results displayed in any chart in the application. Once this number of inspections is reached, new result will always cause deletion of the oldest result in order to preserve this number.

      ▷ *Stop live view when not located or detail failed* - if checked, then the *Live View* screen will stop displaying new incoming images, when an image with analysis result Failed or Not located is received. Such an image is then displayed until user presses *RESUME* button to continue. However, the Inspector will continue its measurement in the meantime. This setting applies to Ixx and PI50 Inspectors.

      ▷ *Show only Located/Not located result on Live View screen* - if checked, then the *Live View* screen will show result indicator and statistics only for images that are not located. For PI50 and PI50 Ethercat the statistics for Not Located and Not Located And Detail Failed results are merged.
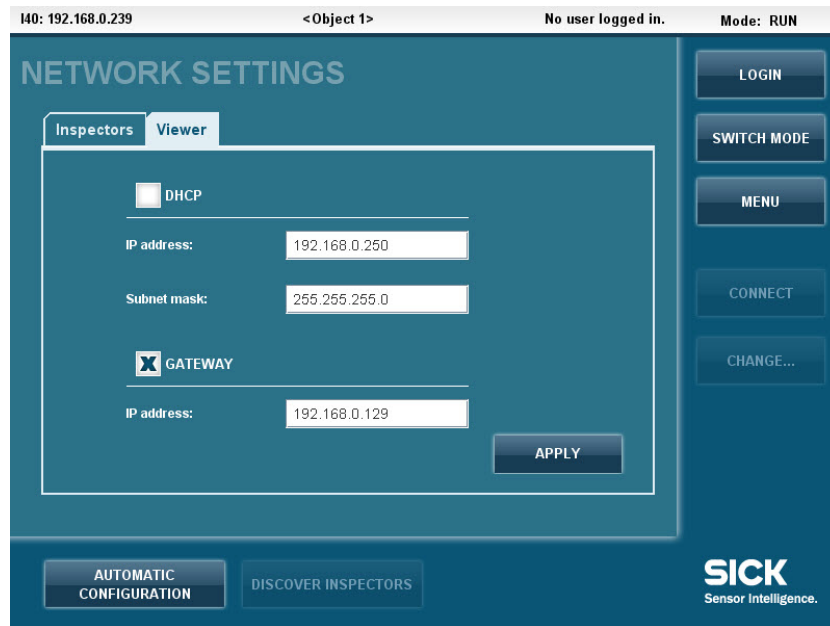
5.2.9   Network Settings screen

Figure 17: *Network Settings* screen (*Viewer* tab)

To get to the *Network Settings* screen press button *Network Settings* on the *Menu* screen. This screen allows user to change network settings of the Inspector Viewer and Inspectors.

AUTOMATIC CONFIGURATION button

There is an option that you can let the Viewer to configure network automatically. This function will set the network settings of Inspector Viewer and all the Inspectors available on the network. To do so, press the button *AUTOMATIC CONFIGURATION* below the main pane.

> ⚠️ This action may cause changes to network settings of the Viewer and of the Inspectors. Thus, if other applications or computers are communicating with them, they might not be able to connect to them anymore.

The screen has following tabs:

Inspectors tab

In the list, user can see Inspector's *TYPE/IP address*, *NAME*, *MAC/SN* (MAC address and serial number), *STATUS* (Online, Offline, Connected). Following buttons are available when this tab is selected:
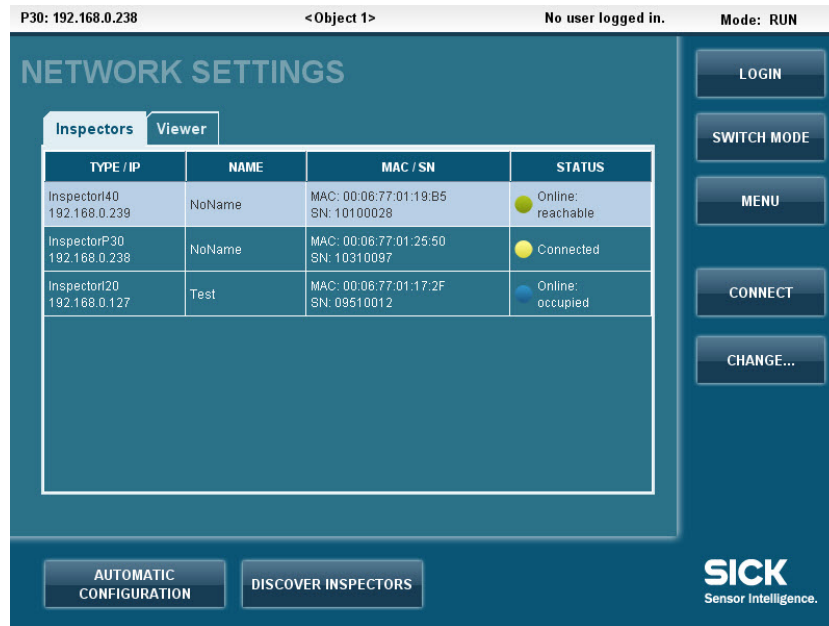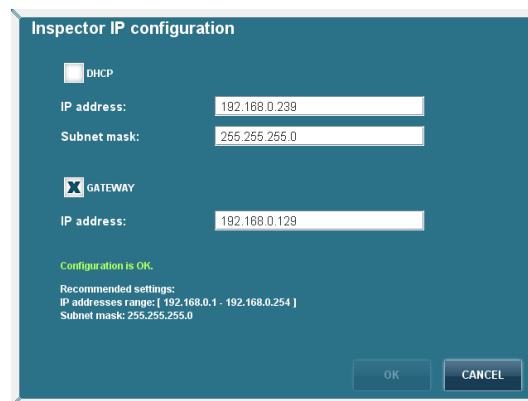

Figure 18: *Network Settings* screen (*Inspectors* tab)

Figure 19: Inspector IP configuration accessible through the *CHANGE...* button

▷ *CHANGE...* button - Allows user to change Ethernet settings of an Inspector. To do so, select an Inspector row from the list (note, that the Inspector has to be available and not connected). and press the button. You will be able to adjust following settings (see Fig. 19):

    ▷ use/don't use DHCP to obtain IP address (check box *DHCP*)
    ▷ set static IP address
    ▷ set subnet mask
    ▷ use/don't use a gateway (check box *GATEWAY*)
    ▷ set gateway IP address

Additionally, configuration screen displays information, whether current settings are valid along with suggested range of acceptable values. To cancel the changes you have already made, press the *CANCEL* button. In order to save changes, press *OK* button.

Once the network settings of the Inspector have been changed, you can test connectivity of it using the *CONNECT* button. It has the same effect as the *CONNECT* button on the *Select Inspector* screen.

▷ *DISCOVER INSPECTORS* button - With this button the list of Inspectors available on the network will be loaded and displayed.

Viewer tab

This tab allows you to manually configure network settings of the Viewer. Following fields are available:

  ▷ use/don't use DHCP to obtain IP address (check box *DHCP*)
  ▷ set static IP address
  ▷ set subnet mask
  ▷ use/don't use a gateway (check box *GATEWAY*)
  ▷ set gateway IP address

To store new network configuration, press *APPLY* button.

> If the configuration fails the Inspector Viewer restores the previous network settings and informs you that the network could not be configured.

5.2.10   User Management screen

To get to this screen press button *User Management* on the Menu. With this screen you will be able to manage user accounts and user rights. It supports following operations:

  ▷ Create user account
  ▷ Delete user account
  ▷ Change password and rights

Every user can be allowed to perform some of these privileged actions:

  ▷ *Change Inspector mode*
  ▷ *Change active Inspector*
  ▷ *Change active reference object*
  ▷ *Export data*
  ▷ *Export/import Inspector configuration*
  ▷ *Change settings*
  ▷ *Manage user accounts*
  ▷ *Delete history data*
 ▷ *Shutdown Inspector Viewer*

The Inspector Viewer has two factory users, which cannot be deleted: (1) *default* user is automatically logged in after powering up or, for example, after logging out from a certain user account. After installation the *default* user has all privileges. However, it is possible to change them as needed. Any privilege given to this user is automatically inherited by all other users as well. (2) *admin* user account has always all privileges and this cannot be changed.

Every screen in the application is always aware of the actual user logged in. If the current user does not have rights for some action, it will be disabled on the screen (e.g. if user does not have right *Change active Inspector*, then buttons *CONNECT* and *DISCONNECT* will be disabled on the *Select Inspector* screen).

Create user account procedure:

It is possible to create user accounts with different privileges. To create a new user account you need to be logged in as a user with right to *Manage user accounts*.

  ▷ Press button *CREATE ACCOUNT. . .* on the *User Management* screen.
  ▷ Fill in the username and press *Done*
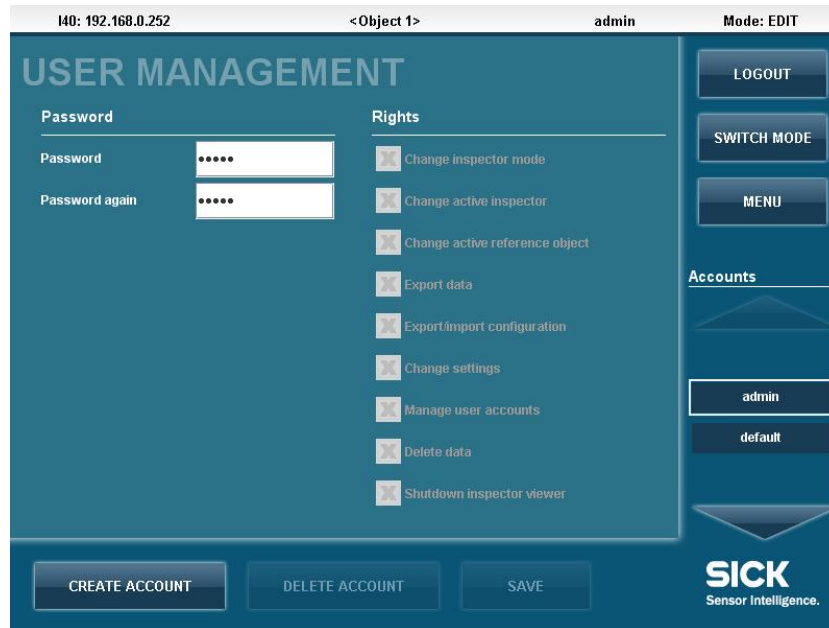
Figure 20: *User Management* screen

▷ New user account has been created. At this point, the account has no password and has the same rights as the *default* user account
▷ Set the *Password* of the new account
▷ Type in the *Password again*
▷ Adjust *Rights* for the new user (Note: If you cannot change *Rights* of the new user because they are grayed out, it is because they are currently assigned to the default user. *Rights* granted to the default user are inherited by every other user.)
▷ Press *SAVE* button

Delete user account

To remove an existing user account you need to be logged in as a user with right to *Manage user accounts*.

▷ Choose the user account you want to remove from the displayed list of *Accounts* on the right side of the main pane.
▷ Press *DELETE ACCOUNT* button on the *User Management* screen.
▷ Select *Yes* on the confirmation dialog.
▷ The selected user account is removed.

5.2.11   System Info screen

To get to this screen press button *System Info* on the *Menu* screen. This screen displays various information about the Inspector Viewer system:

▷ *Viewer version* - version of the Inspector Viewer software
▷ *OS version* - version of the operating system
▷ *Disk space* - size and free space of internal disk
▷ *Messages* - list of messages from the application in order in which they appeared. Every message contains following information: (1) severity, (2) user logged in at the moment of message occurrence, (3) date and time, and (4) informative text. The last incoming message is always displayed at the bottom of the list and user can browse to the older messages with the arrows above and bellow the list. Last 1000 messages are stored on the local disk and these are loaded during the application launch.

Figure 21: System Info screen

Export features

Right panel offers several export features:

1. *VIEWER SETTINGS...* button - serves to store the current Inspector Viewer settings (i.e. all the settings from *History*, *Language* and *Other* tabs from the *Viewer Settings* screen) to an external USB memory device or to local disk.

    ▷ Press button *VIEWER SETTINGS...* in the *Export* section on the *System Info* screen.
    ▷ You will be asked to specify location where the exported configuration should be stored.
    ▷ The settings will be saved to the specified location. If the storing fails an error message will be displayed.

2. *User Manual...* button - exports the Inspector Viewer documentation to an external USB memory device. Before exporting you will be asked to specify the export destination.

3. *MESSAGES...* button - exports information about Inspector Viewer's operation to an external USB memory device.

Import Viewer settings

This procedure can be used to import Inspector Viewer settings. All settings from *History*, *Language* and *Other* tabs on the *Viewer Settings* screen will be imported and saved.

To import these settings you need to be logged in as user with right to *Change settings*.

    ▷ Press button *Viewer Settings...* in the *Import* section on the *System Info* screen.
    ▷ In browse dialog navigate to the location of settings file and select it.
    ▷ Select *Import*.

If the import fails an error message will be displayed.

5.2.12   Select Inspector screen

To get to this screen, press button *Select Inspector* on the *Menu* screen. On this screen, user can select one of the available Inspectors on the network and connect to it.

Figure 22: Select Inspector screen

This screen shows all the Inspectors found on the network and the Inspectors which were previously connected to the Inspector Viewer. In the *STATUS* column, following information can be found:

▷ *Online - reachable* - currently reachable Inspector on the network, but not connected to the Inspector Viewer. Inspector is available for connection.

▷ *Online - unreachable* - Inspector on the network in a different subnet, therefore not reachable.

▷ *Online - occupied* - currently online Inspector on the network, but it is not possible to connect to it, because it is already in use by someone else.

▷ *Offline* - Inspector not available on the network, but was connected in the past.

▷ *Connected* - Inspector currently connected to this Inspector Viewer.

Following buttons are placed to the right of the Inspector list:

▷ *CONNECT* - connects to the selected (Online - reachable) Inspector

▷ *DISCONNECT* - disconnects from the connected and selected Inspector

▷ *DELETE/DELETE HISTORY - DELETE* button is active when an *Offline* Inspector is selected in the list. When this button is pressed, the Inspector will be removed from the list and all its locally stored data (i.e. image history) will be erased from the disk. *DELETE HISTORY* is shown when an *Online* Inspector is selected in the list. When this button is pressed, only locally stored data are erased from the disk. In both cases, the application will require confirmation of the action.

▷ *REFRESH* - refreshes the list of available Inspectors on the network

Disconnect from Inspector procedure:

To disconnect from the connected Inspector you need to be logged in as a user with right to *Change active Inspector*.

▷ Select desired Inspector from the displayed list.

▷ Press button *DISCONNECT*.

▷ Inspector Viewer disconnects from the connected Inspector.

Export Inspector Configuration procedure:

This procedure serves to store all the Inspector configurations for future use (e.g. for device cloning, configuration backup, composing virtually endless reference lists, etc.).

To export the current Inspector settings do the following:

▷ Select the desired Inspector from the list.
▷ Connect to the Inspector.
▷ Press button *Export Inspector Configuration. . .* on the Select Inspector screen.
▷ You will be asked to specify location where the exported settings should be stored (USB memory device, Viewer's memory).
▷ The settings will be saved to the specified location. If the storing fails an error message will be displayed.

Import Inspector Settings procedure:

To import Inspector settings do the following:

▷ Select the desired Inspector from the list.
▷ Connect to the Inspector.
▷ Switch to *EDIT* mode.
▷ Press button *Import Inspector Configuration. . .* on the *Select Inspector* screen.
▷ You will be asked to specify location of the settings to be imported.
▷ The settings will be imported. If the import fails an error message will be displayed.

5.3   How to. . .

Every action described in this chapter begins on the Menu screen, see section 5.2.1. From there you are navigated further. In case you are on any other screen, please move on to the Menu by pressing the button *MENU*.

5.3.1   Connect to an Inspector

In order to complete this procedure, user with the *Change active Inspector* right must be logged in. For more details, see section 5.2.12.

| 1. From *Menu* screen press *Select Inspector* button | 2. In *Select Inspector* screen select one of the available Inspectors from the list and press *CONNECT* button from the right panel | 3. Wait for the Inspector to be connected. |

If the list is empty, press *REFRESH* button.

5.3.2   Add an Inspector to the Viewer

Inspector Viewer application can connect only to the Inspectors, which network settings comply with its own. This procedure shows you how to configure an Inspector to allow the Inspector Viewer to connect to it.
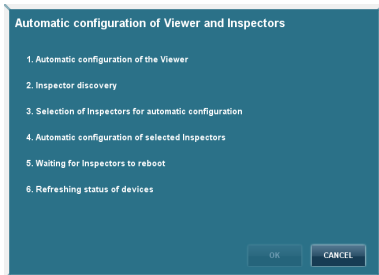
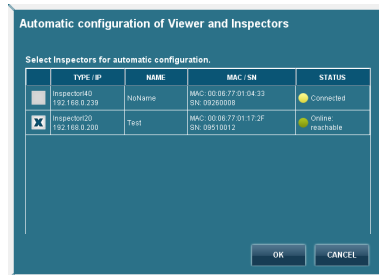1. From *Menu* screen press *Network settings* button.

2. In *Network Settings* screen select *Inspectors* tab and press *AUTOMATIC CONFIGURATION* button.

3. Select *Yes* from the confirmation dialog.

4. List of actions in automatic configuration will display.

5. Select the Inspectors you wish to configure and press *OK* and wait for the the process to finish.

If desired Inspector is not present in the list, then press *DISCOVER INSPECTORS* button.

5.3.3   Change to another reference object

Following conditions need to be met, in order to be able to complete this procedure
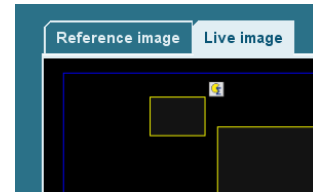
> ▷ An Inspector must be connected
> ▷ User with *Change active reference image* must be logged in
> ▷ Mode of the Inspector must be *EDIT*

1. From *Menu* screen press *Select Reference Object* button.
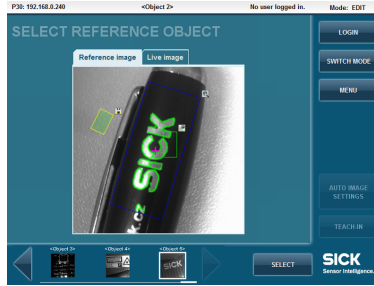
2. Select *Reference Image* tab on the *SELECT REFERENCE OBJECT* screen and from the list of available reference objects (displayed at the bottom of the screen) choose the desired reference object and press the *SELECT* button.

3. Switch to the *Live Image* tab to test the new configuration.

5.3.4   Re-teach reference object

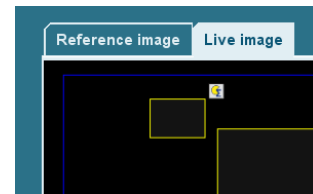Following conditions have to be met, in order to be able to complete this procedure:

▷ An Inspector must be connected
▷ User with *Change active reference object* right must be logged in
▷ Mode of the Inspector must be *EDIT*

1. On the *Menu* screen press *Select Reference Object* button.

2. In *SELECT REFERENCE OBJECT* screen select *Reference Image* tab. From the list of the available reference objects (displayed at the bottom of the screen) select desired reference object and press the *SELECT* button.

3. Switch to the *Live Image* tab and press *TEACH-IN* button from the right panel
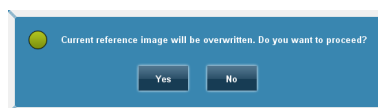
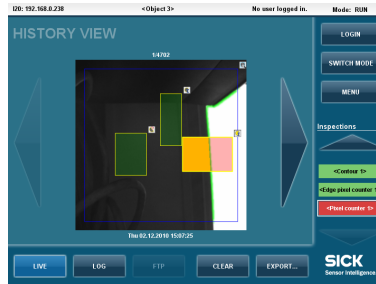4. Select *Yes* from the confirmation dialog.

5.3.5   Save images from Inspector

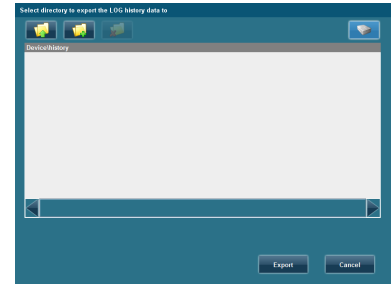Following conditions need to be met, in order to be able to complete this procedure

> ▷ An Inspector must be connected
> ▷ User with *Export data* right must be logged in
> ▷ There must be at least one image in the selected history

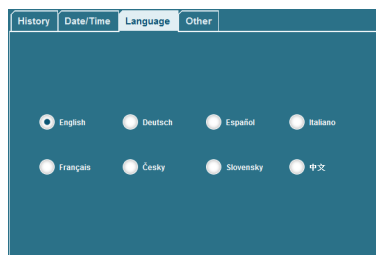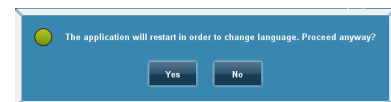|		
1. From *Menu* screen press *History View* button.	2. On the *History View* screen, choose history you want to export (*Live*, *Log* or *FTP*) and press *EXPORT...* button.	3. Select destination directory for the files through the browse dialog and press *Export* button to start the export. Wait for the operation to finish.

5.3.6   Switch to another language

    New language selection will take effect after the application is restarted.

1. On *Menu* screen press *Viewer Settings* button.	2. Switch to *Language* tab on the *Viewer Settings* screen, select desired language and press *SAVE* button.	3. Select *Yes* on the confirmation dialog.

5.3.7   Clone Inspector

This procedure will allow you to copy configuration of existing Inspector (*Source* Inspector) to another Inspector (*Target* Inspector). After the procedure, both *Source* and *Target* Inspector will behave identically (for more details about export/import of the configuration can be found in section 5.2.12). Following conditions will have to be met to complete this procedure:

▷ *Target* Inspector must be in the *EDIT* mode

▷ User with *Export/Import Inspector configuration* and *Change active Inspector* privileges must be logged in

1. From *Menu* screen press *Select Inspector* button.

2. In *Select Inspector* screen, select *Source* Inspector from the list and connect to it. After successful connection the *Live View* will be displayed. Return back to the *Select Inspector* screen using the *MENU* button and the *Select Inspector* button.
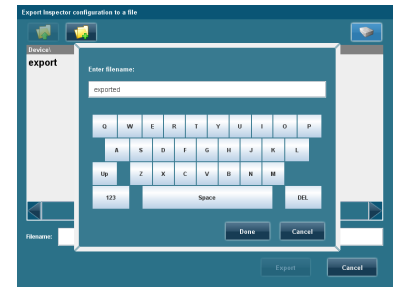
3. Press the *EXPORT INSPECTOR CONFIGURATION...* button. In the browse dialog select destination folder for the exported configuration, type in a filename and press *Export* button.

4. From the list of available Inspectors select the *Target* Inspector and connect to it. After successful connection the *Live View* will be displayed. Return back to the *Select Inspector* screen using the *MENU* button and the *Select Inspector* button.
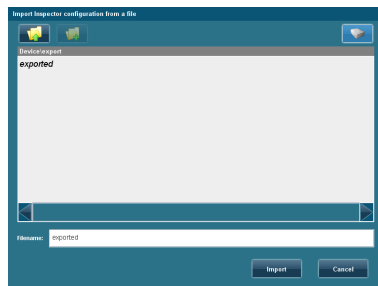
5. Press the *IMPORT INSPECTOR CONFIGURATION...* button. In the displayed dialog browse to the previously exported configuration, select it and press *Import* button

5.3.8   Configure inspections

To configure inspections you need to switch to SOPAS and configure it from there.

5.3.9   Delete files

It is possible to delete Inspector configuration and Viewer settings files from the Viewer internal disk. It is possible to delete whole directories or single files. The delete function is accessible from any of the file dialogs of the application and can also be applied to connected USB memory devices.

Following conditions must be met to be able to peform this procedure.

▷ An Inspector must be connected

▷ User with *Export/Import Inspector configuration* privileges must be logged in
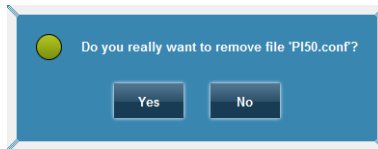

1. From *Menu* screen press *Select Inspector* button.

2. On *Select Inspector* screen, select the connected Inspector and press the *EXPORT INSPECTOR CONFIGURATION...* button. A file dialog will be displayed.
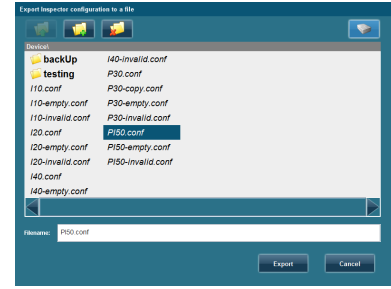
3. Select a directory or a file that shall be deleted and click the third icon from the left in the upper button row.

4. Press *Yes* on the confirmation dialog

6   Technical parameters

Table 1: Technical parameters of the Inspector Viewer

Technical data	Inspector Viewer
Type	VSPV-22 222
Order no	2 057 556
Toolset	Display images
	Batch switching
	Display statistics
	Supervision
Supported Inspectors	I10, I20, I40, P30, PI50, PI50ECAT
Hardware	Resistive Touchscreen, 8"
Resolution	800 x 600 pixels
Processor	Intel Atom N270 1,6 GHz
Storage device	4 GB Compact Flash type II
	Images can be stored on internal flash
	and using the internal ftp server
	(to be used for I40 only)
Backlight lifetime	30000 h (MTBF)
Supply voltage	10 . . . 28 V DC
Power consumption	32 W
Interfaces	Giga LAN: RJ-45
	5 x USB 2.0
Ambient temperature	Operation -10°C. . . 50°C
	Storage -20°C. . . 60°C
Housing material	ABS, plastic front
Dimension	263.2 x 221.2 x 54.4mm
	(L x W x H)
Weight	800 g
Mounting	Wall, VESA
Enclosure rating	IP 64 (on front)
Standards	CE, FCC, CCC

Table 2: Spare parts/Accessories

Type	Order no
CF card	6 042 483
Touch screen display	6 042 385
Ethernet cable to Inspector (2m)	6 034 604

Australia
Phone +61 3 9497 4100
1800 334 802 – tollfree
E-Mail sales@sick.com.au

Belgium/Luxembourg
Phone +32 (0)2 466 55 66
E-Mail info@sick.be

Brasil
Phone +55 11 3215-4900
E-Mail sac@sick.com.br

Canada
Phone +1(952) 941-6780
1 800-325-7425 – tollfree
E-Mail info@sickusa.com

Ceská Republika
Phone +420 2 57 91 18 50
E-Mail sick@sick.cz

China
Phone +852-2763 6966
E-Mail ghk@sick.com.hk

Danmark
Phone +45 45 82 64 00
E-Mail sick@sick.dk

Deutschland
Phone +49 211 5301-301
E-Mail kundenservice@sick.de

España
Phone +34 93 480 31 00
E-Mail info@sick.es

France
Phone +33 1 64 62 35 00
E-Mail info@sick.fr

Great Britain
Phone +44 (0)1727 831121
E-Mail info@sick.co.uk

India
Phone +91–22–4033 8333
E-Mail info@sick-india.com

Israel
Phone +972-4-999-0590
E-Mail info@sick-sensors.com

Italia
Phone +39 02 27 43 41
E-Mail info@sick.it

Japan
Phone +81 (0)3 3358 1341
E-Mail support@sick.jp

Magyarország
Phone +36 1 371 2680
E-Mail office@sick.hu

Nederlands
Phone +31 (0)30 229 25 44
E-Mail info@sick.nl

Norge
Phone +47 67 81 50 00
E-Mail austefjord@sick.no

Österreich
Phone +43 (0)22 36 62 28 8-0
E-Mail office@sick.at

Polska
Phone +48 22 837 40 50
E-Mail info@sick.pl

România
Phone +40 356 171 120
E-Mail office@sick.ro

Russia
Phone +7 495 775 05 30
E-Mail info@sick.ru

Schweiz
Phone +41 41 619 29 39
E-Mail contact@sick.ch

Singapore
Phone +65 6744 3732
E-Mail admin@sicksgp.com.sg

South Africa
Phone +27 11 472 3733
E-Mail info@sickautomation.co.za

South Korea
Phone +82-2 786 6321/4
E-Mail info@sickkorea.net

Slovenija
Phone +386 (0)1-47 69 990
E-Mail office@sick.si

Suomi
Phone +358-9-25 15 800
E-Mail sick@sick.fi

Sverige
Phone +46 10 110 10 00
E-Mail info@sick.se

Taiwan
Phone +886 2 2375-6288
E-Mail sales@sick.com.tw

Türkiye
Phone +90 216 528 50 00
E-Mail info@sick.com.tr

United Arab Emirates
Phone +971 4 8865 878
E-Mail info@sick.ae

USA/Canada/México
Phone +1(952) 941-6780
1 800-325-7425 – tollfree
E-Mail info@sickusa.com

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