SPx

Radar Video Processing and Display

P455 Fever Detection Application (ETS) User Guide

V1.84.8

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CAMBRIDGE PIXEL
SENSOR PROCESSING & DISPLAY SOLUTIONS

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Change History

The following list describes the changes between successive versions of this document.

Version:	Date:	Comments:
V1.0	July 2020	First release.
V1.84.8	August 2020	Add support for thermal-only cameras. Add Reset Background Image feature. Updated Settings options. Updated Setup Wizard. Minor wording changes.

1. Introduction

This document describes the user interface features of the ETS Fever Detection Application and explains how to perform temperature scans.

Section 2 provides an overview of functionality.

Section 3 covers installation.

Section 4 covers configuration.

The user interface is described in section 5.

Sections 6 and 7 describe day-to-day and administration tasks.

Keyboard shortcuts are listed in Appendix A and a disclaimer for the use of the software is in Appendix B.

2. Overview

The ETS Fever Detection Application is a full-screen application that displays video and thermal video, overlaid with person detection and temperature data.

Figure 1 – ETS Fever Detection Application

Its purpose is to scan people for an elevated facial or body temperature (fever), which is one of the primary symptoms of Covid-19 and some other communicable diseases.

The application recognises the presence of a human face and scans that area for a heat reading. If the heat exceeds the threshold that has been set, an alarm is generated and a red box is displayed around the person's face.

This system should be regarded as a first-line preliminary check before more detailed medical testing is deemed to be necessary.

The typical fever detection set-up involves the following items:

- A laptop or other PC running the ETS application.

- A combined thermal imaging camera and daylight camera (such as Silent Sentinel's Fixed Modum camera), or a thermal-only camera. This is usually installed in an indoors location where ambient heat and light can be controlled.

  The Fixed Modum camera has an accuracy to 0.3° C.

Note: The daylight camera and thermal camera have different resolutions and aspect ratios. This is the reason why the different video feeds may look mismatched when displayed together on-screen.

- A thermal blackbody unit, which provides a constant, unchanging source of heat for reference purposes and calibration. **This should ideally be situated near the subject's head and pointed directly at the thermal imaging camera (it must be within the camera's Field of View).**

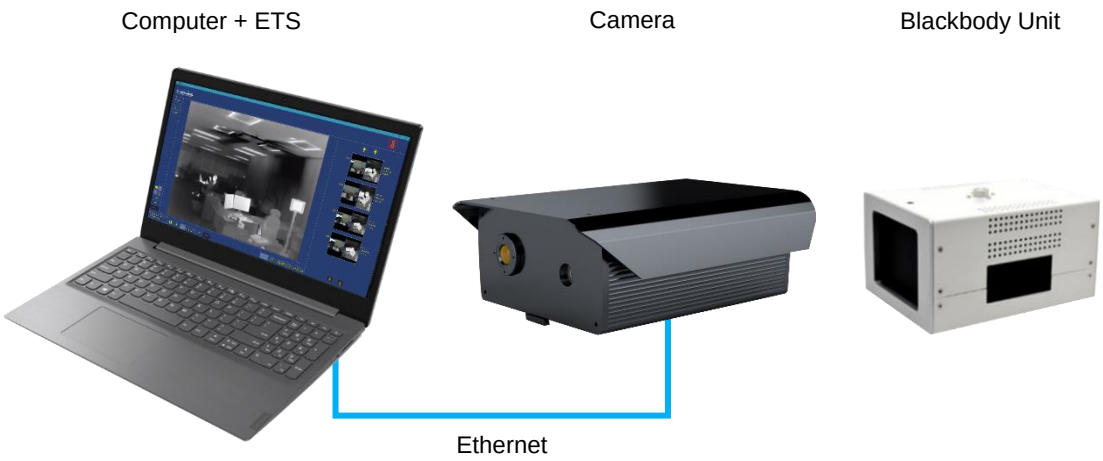
The thermal blackbody self-regulates its surface to 35° C. On the rear of the blackbody is a temperature display:

Please see the documentation for the camera and blackbody unit for set-up information.

Note: For best results, the blackbody unit should be positioned approximately 2 metres away from the camera. The distance should be measured and input as the "Reference Range" in the Settings dialog (see "Settings" on page 25 for further information).

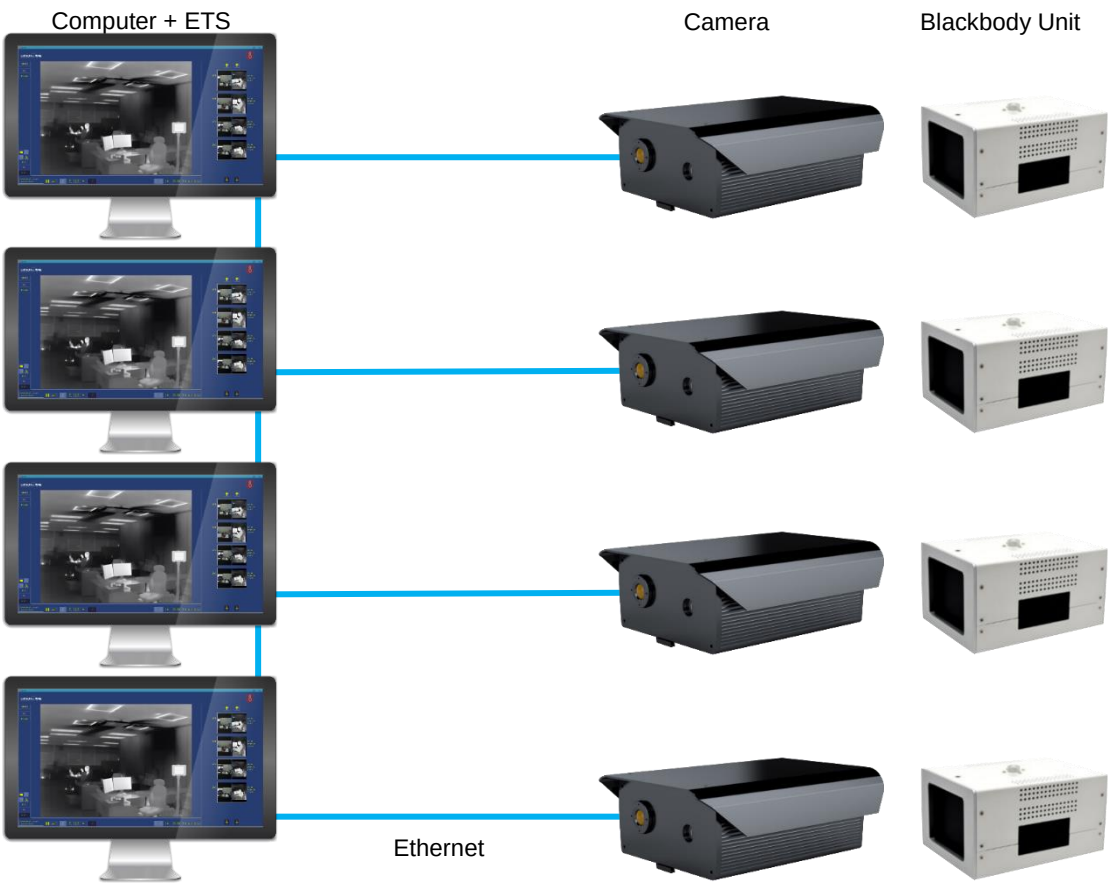
2.1. Typical standalone deployment scenario

A typical standalone fever monitoring setup is shown below:



2.2. Networked deployment scenario

In a scenario where the system is networked across a site, multiple cameras can be deployed at different locations (each camera having its own accompanying blackbody unit). The cameras are then linked to a remote centre via Ethernet.



3. Installation

This chapter describes how to install and run the application on a new system.

3.1. System Requirements

The application should be installed on a system meeting the following requirements:

Operating System:	Windows 10
Minimum Processor:	Intel i5 CPU bench mark score: >7500
Screen Resolution:	UHD. Minimum 1080 vertical pixels (e.g. 1920 x 1080 or higher).
Memory:	8 GB RAM minimum.

3.2. Installing the Software

The application is normally supplied on a CD-ROM or electronically as a zip file.

The application can be installed on a suitable system by copying the contents of the CD-ROM or the unpacked zip file to a directory on the target system.

3.3. Running the Software

After installation and configuration, the application may be started in the same way as any other Windows executable - for example, from a command prompt, or by double-clicking on the executable or a shortcut to it, or by configuring Windows to automatically start the application when an appropriate user logs in. The following executables are provided:

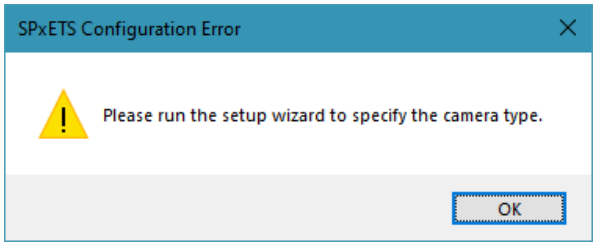
- **64-bit executable:** SPxETS_64.exe
- **32-bit executable:** SPxETS.exe

The following warning from Windows Firewall may be displayed when running the software for the first time:

Figure 2 – Windows Firewall message

Check the checkboxes and click on **Allow access** to proceed. This message will not be displayed again.

If starting the application for the first time after installation, a message may also be displayed to prompt you to run the Setup Wizard.



Running the Setup Wizard is the next stage in setting up the ETS application (see "Configuration" on page 19).

Each time the application is started, a disclaimer message will be displayed:

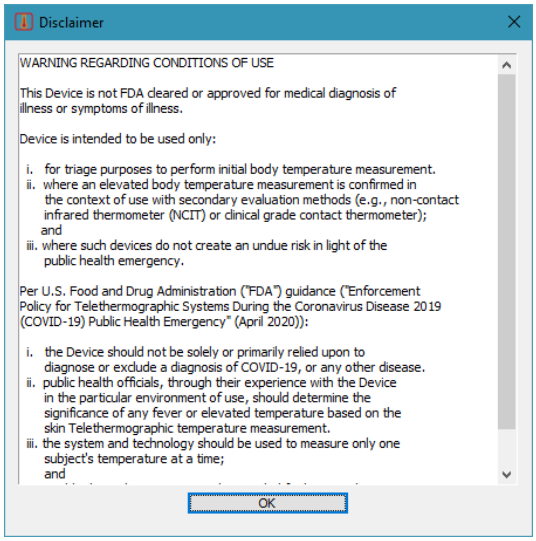


Figure 3 – Disclaimer message

Click **OK** to proceed.

The full text of this message is in Appendix B. on page 51. Note that this disclaimer message can be disabled, if it is not appropriate for the jurisdiction in which the software is being used.

4. Configuration

This section is for use by Admin and configuration staff.

4.1. Separate modes of operation for maintainers/installers and operators

ETS has separate modes of operation for staff who are maintainers/installers of the software (Admin), and staff who are ordinary users (i.e. Operators). This allows a separation of access to functionality, which is intended to avoid the possibility of ordinary operators accidentally changing the settings of the software.

This separation between Admin mode and Operator mode is enforced by means of a password.

When you install ETS for the first time, it will be in Standard mode by default, so you must log in to Admin mode to set a new password.

There are 2 modes of operation for the application:

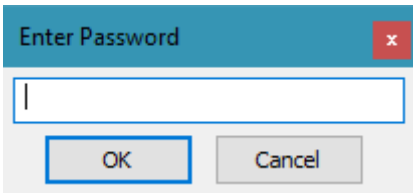
- **Standard** – this is the mode used by operators. This is usually set as the default when the application is started.
- **Admin** – this mode allows admin and configuration staff to set up and tune the settings.

Admin mode allows certain settings to be made (the Region of Interest and Blackbody Edit options can be set while logged into Admin mode). During normal daily operation, the Admin options are typically not available to standard users, who will simply be operating the application.

The menu bar at the top of the window is only visible while logged in to Admin mode.

4.1.1. Logging into Admin mode

Click the **Admin** button or press Ctrl + A keys to log into Admin mode. Enter a password in the pop-up dialog (the default password supplied with the application is "admin", but you can replace it with a password of your own):



4.1.2. Setting an Admin password

An Admin user can set up a password for access to the Admin mode.

Use the **File > Set Admin Password...** menu option to open the Enter New Password dialog:

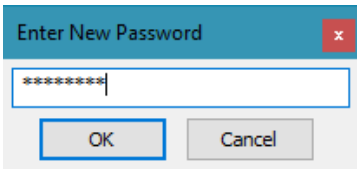


Figure 4 – Enter New Password dialog

Type in a new password and click on **OK**. Use the **File > Save** menu option or click the **Save** button to save the `SPxETS.rpi` file.

4.1.3. Logging out of Admin mode

To log out of the Admin mode and continue using the software as a standard user, click the **Admin** button or use the **File > Leave Admin Mode** menu option.

4.2. Using the Setup Wizard

Maintainers/installers only

A setup wizard is provided to make configuration of your camera and blackbody easier. This is only accessible while in Admin mode.

Use the **File > Setup Wizard...** menu option to start the wizard.

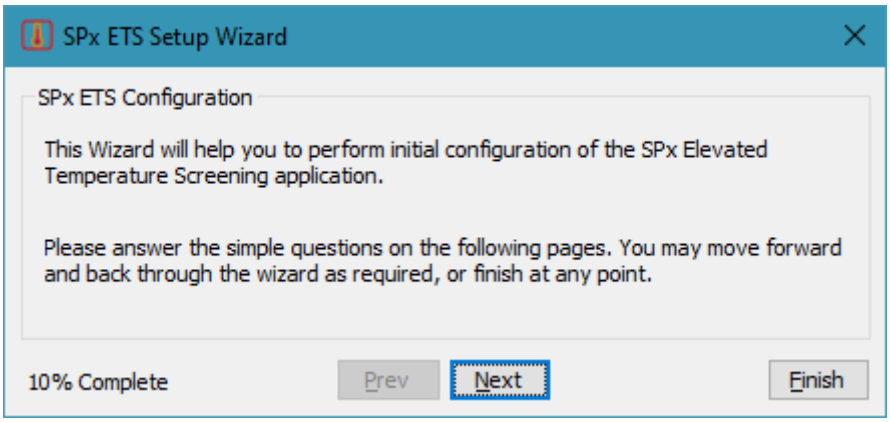


Figure 5 – Setup wizard introduction

Click on **Next** to proceed to the next screen.

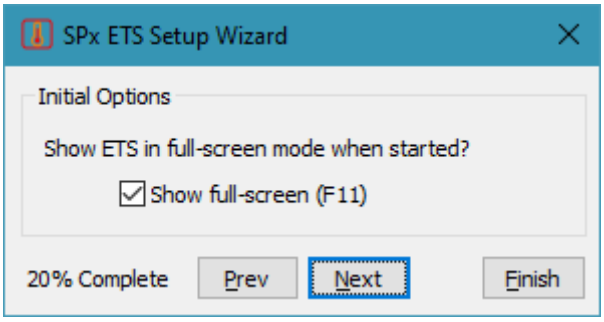


Figure 6 – Initial Options

This screen allows you to specify whether ETS will appear in full-screen mode on startup.

Click on **Next** to proceed to the next screen.

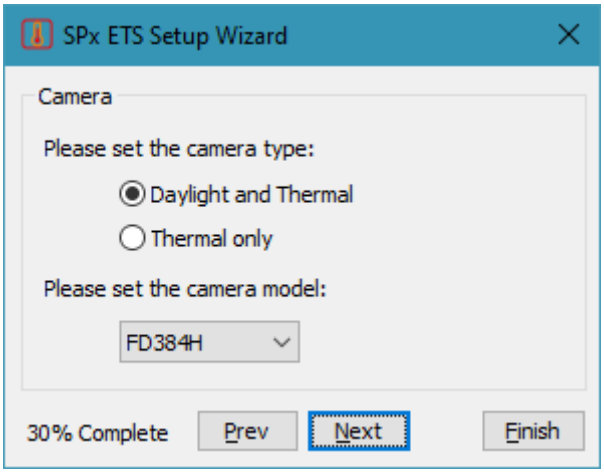


Figure 7 – Camera

This screen allows you to select the camera type and model. Available types of camera are:

- Daylight and Thermal
- Thermal only

Note: If configured for "Thermal only", this will only display options for a thermal camera in the main window. Buttons that are used to display thermal and daylight video in various configurations will not be shown in the bar at the bottom of the screen.

Available models are:

- FD384H
- FD640H

Click on **Next** to proceed to the next screen.

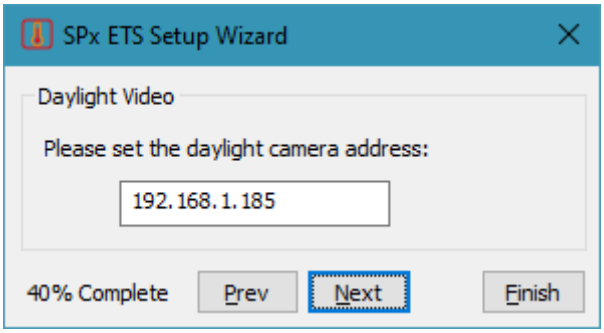
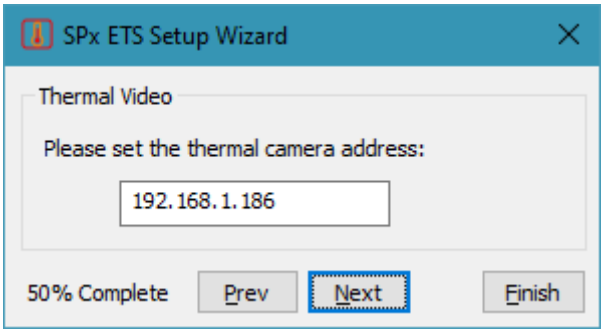


Figure 8 – Video

This screen allows you to specify the IP address of the daylight camera.

Click on **Next** to proceed to the next screen.



This screen allows you to specify the IP address of the thermal camera.

Click on **Next** to proceed to the next screen.

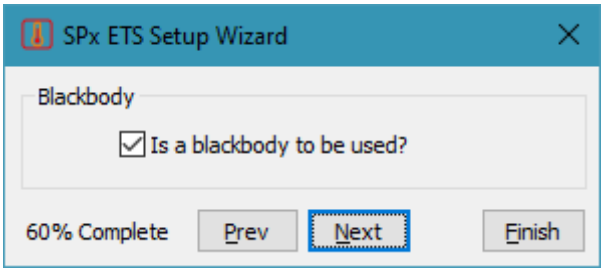


Figure 9 – Blackbody

This screen allows you to enable or disable the use of a blackbody unit as a continuous temperature reference.

Click on **Next** to proceed to the next screen.

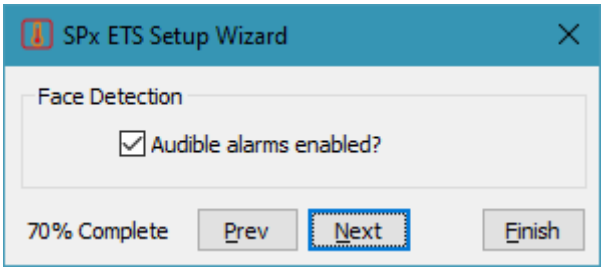


Figure 10 – Face Detection

This screen allows you to enable or disable audible alarms.

Click on **Next** to proceed to the next screen.

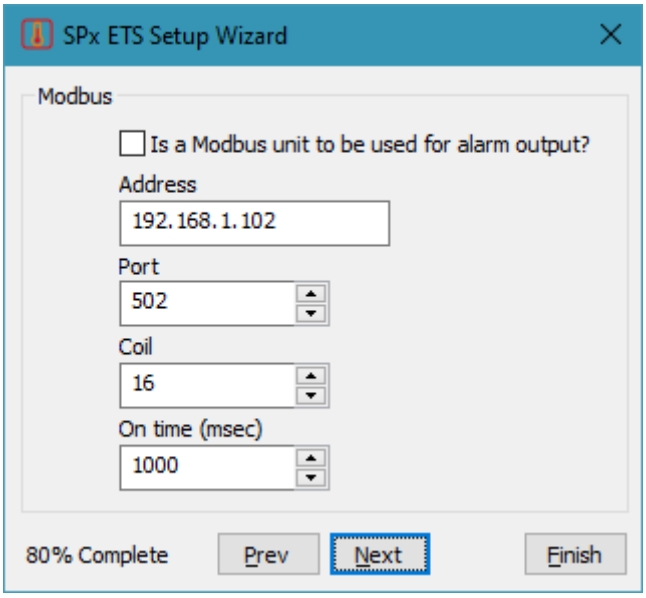


Figure 11 – Modbus

This screen allows alarms to be output to a Modbus-based alarm system.
The feature can be enabled or disabled with the check box.
IP Address, **Port** and **Coil** settings for the Modbus system can be input here.
An alarm duration can be entered with the **On time** control.

Click on **Next** to proceed to the next screen.

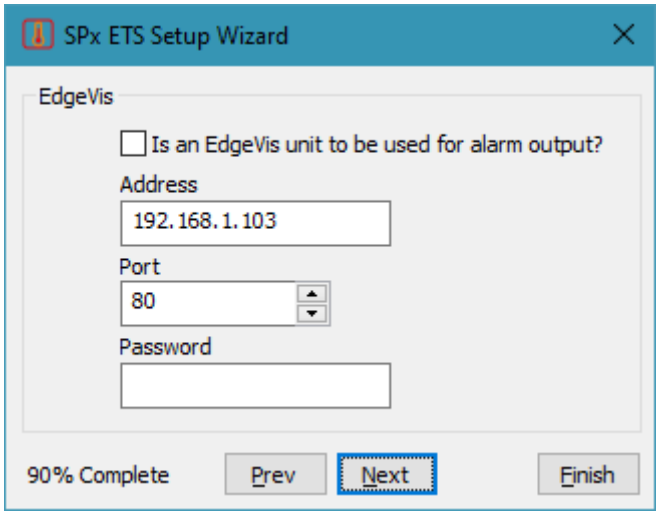


Figure 12 – EdgeVis

This screen allows video output that results from an alarm to be sent to an EdgeVis video streaming system. An EdgeVis system allows multiple video streams to be managed and recorded at an optimised speed.
The feature can be enabled or disabled with the check box.
IP Address, **Port** and **Password** settings for the EdgeVis system can be input here.

Click on **Next** to proceed to the next screen.

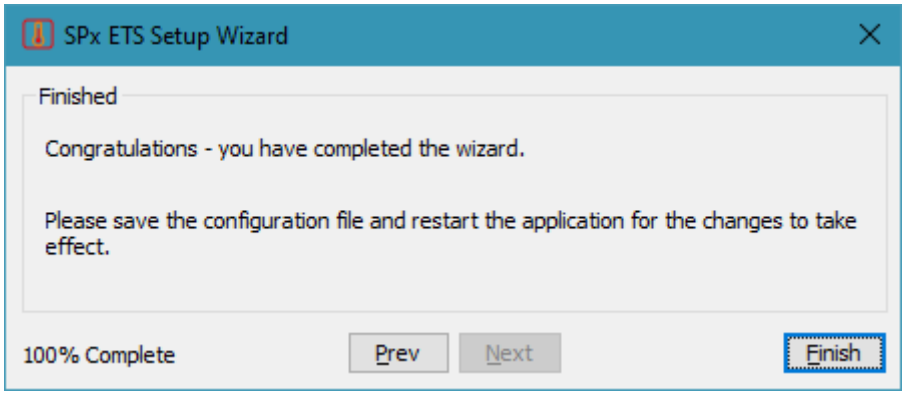


Figure 13 – Finish screen

This screen will be displayed when you have finished using the wizard for configuration.

Click on **Finish** to close down the wizard.
ETS will prompt you to save and restart ETS in order to use the new settings:

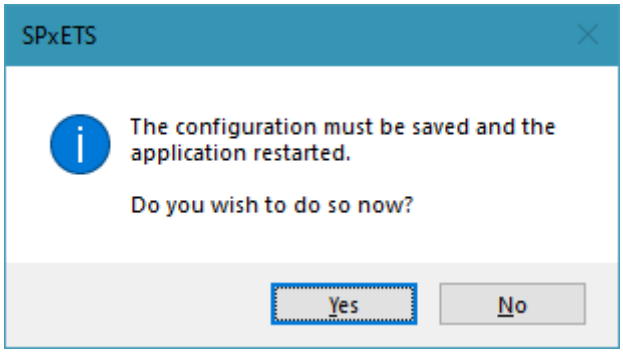


Figure 14 – Restart message

Click on **Yes**. The ETS application will restart, applying the new settings.

4.3. Settings

In Admin mode, various settings can be made for the following features:

- Alarms
- Logging
- Temperature ranges and alarm temperature
- Face detection
- Temperature Units

Open the Settings dialog by clicking the **Settings** button or using the **Tools > Settings...** menu option.

4.3.1. Alarms

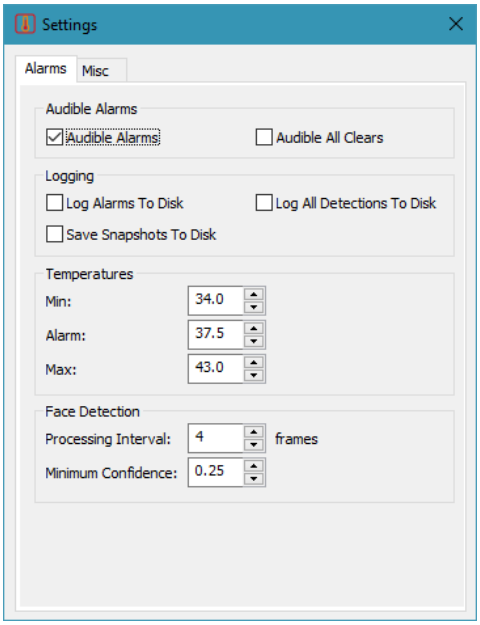


Figure 15 – Settings dialog (Alarms tab)

In the **Audible Alarms** section, an audible alarm or audible "all clear" can be

enabled or disabled. If enabled, an alarm/all clear sound will be emitted from the attached PC or laptop, or from a suitably-configured Modbus alarm system.
An alarm is triggered when the temperature is exceeded. An "all clear" is triggered when a face is detected that is below the temperature threshold.

The **Logging** section has options that specify whether to log alarms or all detections to disk. The **Save Snapshots To Disk** setting enables/disables the saving of snapshots to disk.

If these options are used, alarms and detections are saved in log files (these are .csv files and can be opened with a spreadsheet application such as Microsoft Excel). Snapshots are saved in .jpg format and are stored in a sub-folder called `Snapshots`. Each snapshot's filename contains the date and time so that it can be cross-checked with events in the log files.

A temperature range can be defined with the **Min** and **Max** controls in the **Temperatures** section. The temperature threshold for an alarm to be triggered is set with the **Alarm** control (i.e. this is the body temperature of a healthy person).

In the **Face Detection** section, the **Processing Interval** and **Minimum Confidence** control the face detection tolerances.
Processing Interval sets the number of frames between which the detection algorithm will scan a human face (e.g. 8 means every 8th frame – this controls CPU loading). **Minimum Confidence** sets the threshold for confidence that a human face has been correctly detected (typically, this is set to 0.25 and should not need to be changed).

4.3.2. Misc

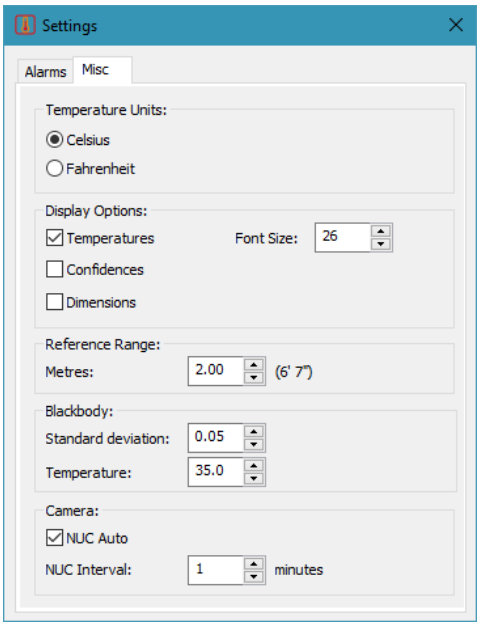


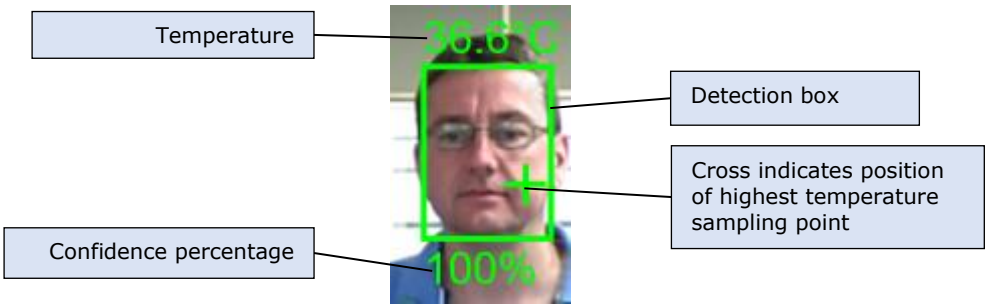
Figure 16 – Settings dialog (Misc tab)

This tab is used to make a variety of settings that are used throughout the application.

The **Temperature Units** section allows you to specify the temperature units that will be used throughout the application (Metric or Imperial). This controls how the temperature is displayed on-screen.

The **Display Options** section sets various options for text that is displayed on-screen:

- **Temperatures** – this checkbox enables or disables the display of a temperature above the detection box.
- **Confidences** - this checkbox enables or disables the display of a "confidence percentage" below the detection box. The confidence percentage indicates the level of certainty that a face has been correctly detected.
- **Dimensions** - this checkbox enables or disables the display of the box's dimensions. This is useful for calibration purposes.
- **Font Size** - this control allows you to specify the size of the text used to display the temperature and confidence figures.



The **Reference Range** control allows you to input the measured distance between the blackbody unit and the camera (2 metres is a guideline distance to use). The distance is also displayed in feet and inches when the setting is changed.

In the **Blackbody** section, the **Standard deviation** control for the blackbody allows you to input a margin of error for temperature variations (if it is known). The **Temperature** control allows the expected temperature of the blackbody unit to be set (i.e. set this to the same temperature).

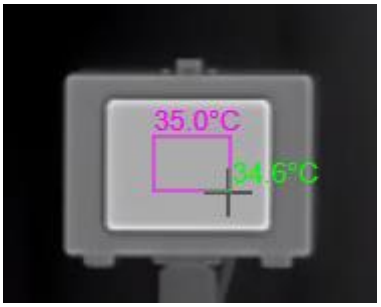
Non-Uniformity Correction (NUC) adjusts for minor detector drift (in the thermal camera) that occurs as the scene and environment change. The **NUC Auto** checkbox enables or disables this feature. A refresh interval (i.e. the time between refresh operations) can be set with the **NUC Interval** control. When a refresh occurs, the video stream may freeze temporarily.

4.4. Setting the blackbody unit's scanning position

The blackbody's scanning position can be defined by drawing a box on-screen. This should only need to be set (or re-set) occasionally.

Log into Admin mode and change the video display to the thermal camera (using the **Thermal** button).
Ensure that the **BB** button is selected and click the **BB-E** button.

With the mouse, draw a box in the area of the screen where the blackbody's heat emitter is located (example in following picture).



Draw the box so that it is centred on the heat emitter.

Note: Do not draw the box to the edge of the emitter's area (it is cooler at the edges, so may give an incorrect reading).

The box should correctly display the blackbody's temperature and be coloured pink. If it displays red, an error has occurred – so click the **Error** button and redraw the box. See also "Blackbody errors" on page 48.

Click the **BB-E** button again to exit the editing mode.

Change the video display to the daylight camera.
You may notice that the blackbody unit's scanning position is not in the correct position over the blackbody's heat emitter, when viewing daylight video. This is because the thermal camera and daylight camera do not have the same aspect ratio or resolution and are not always aligned perfectly.

Because of this video mismatch, you will need to adjust the box's position using the **Nudge** feature. Toggle the **Nudge** button to display (or hide) the positioning options.
Click the buttons repeatedly to move the box into position using small increments, until it is correctly positioned over the blackbody's heat emitter.
L = nudge left, **R** = nudge right
U = nudge up, **D** = nudge down

4.5. Setting the Region Of Interest (ROI)

The Region Of Interest is a defined area of the camera's Field of View, which is where the faces of the scanning subjects will appear (i.e. it is at head height for most people).

All items outside the Region Of Interest are not scanned.

The Region Of Interest can be defined by drawing a box on-screen.

In Admin mode, change the video display to the daylight camera. Ensure that the **ROI** button is selected and click the **ROI-E** button.
With the mouse, draw a box in the area of the screen where the faces will be scanned (see the dotted red box in the following example). Draw the box by clicking the left mouse button and dragging a red box on-screen.

Figure 17 – Drawing the ROI box

The box should be drawn to cover the area where people will pass next to the blackbody unit.

Note: Keep the ROI box as small as possible. A larger area requires more processing to be performed.

Release the mouse button to finish drawing the box and click on the **ROI-E** button again to exit the editing mode.

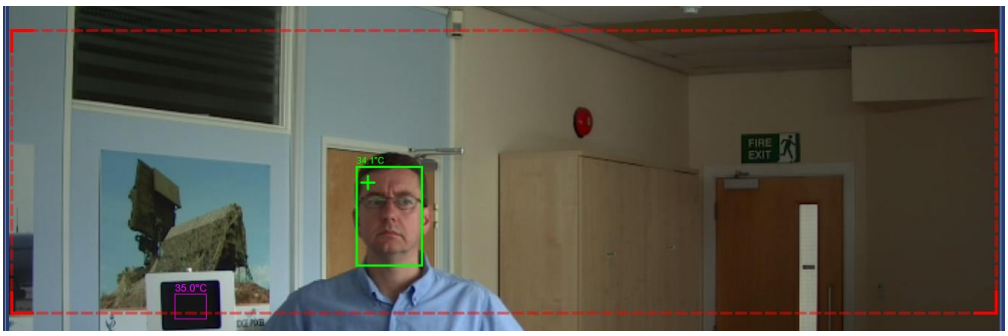
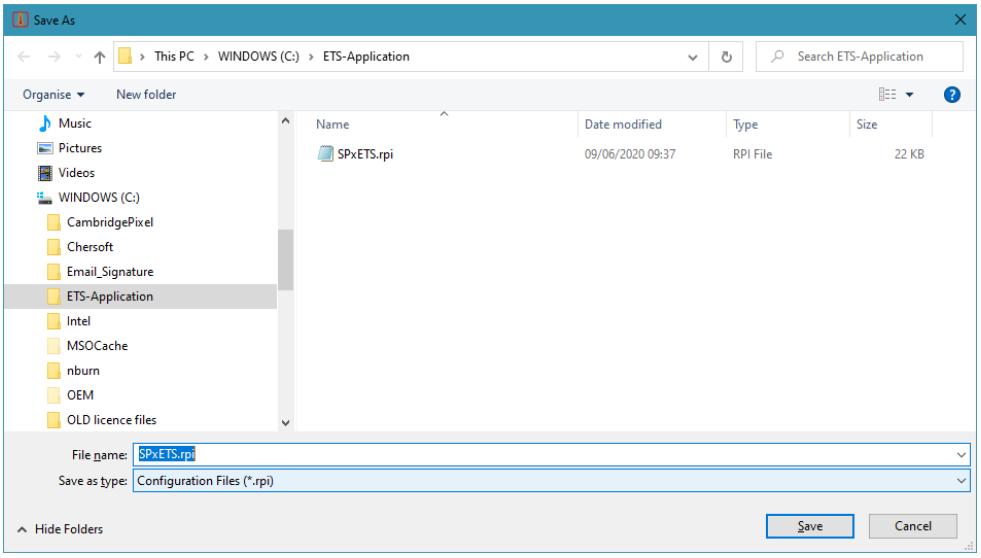


Figure 18 – Example of an ROI box in use

4.6. Saving the configuration

To save all settings, log into Admin mode then click the **Save** button or use the **File > Save** menu option (or press Ctrl + S).

To save all settings and give the configuration file a new name, use the **File > Save As...** menu option or press Ctrl + shift + S. The Save As dialog allows you to type in a new name for the file:


Save As
This PC › WINDOWS (C:) › ETS-Application
Search ETS-Application
Organise
New folder
Music
Pictures
Videos
WINDOWS (C:)
CambridgePixel
Chersoft
Email_Signature
ETS-Application
Intel
MSOCache
nburn
OEM
OLD licence files
Name
Date modified
Type
Size
SPxETS.rpi
09/06/2020 09:37
RPI File
22 KB
File name:
SPxETS.rpi
Save as type:
Configuration Files (*.rpi)
Hide Folders
Save
Cancel

5. User Interface

The Fever Detection Application runs as a full-screen application.

The layout of the elements within the main window is as follows:

Figure 19 – Parts of the main window

- **1** - Left button bar.
  See "Left button bar" on page 32 for details.

- **2** - Video pane.
  See "Video pane" on page 33 for details.

- **3** – Bottom button bar.
  See "Bottom button bar" on page 34 for details.

- **4** – Snapshot browser.
  See "Snapshot browser" on page 36 for details.

5.1. Left button bar

The button bar on the left of the window has controls that allow a certain amount of configuration to be performed. This button bar is split into 2 parts (top and bottom):

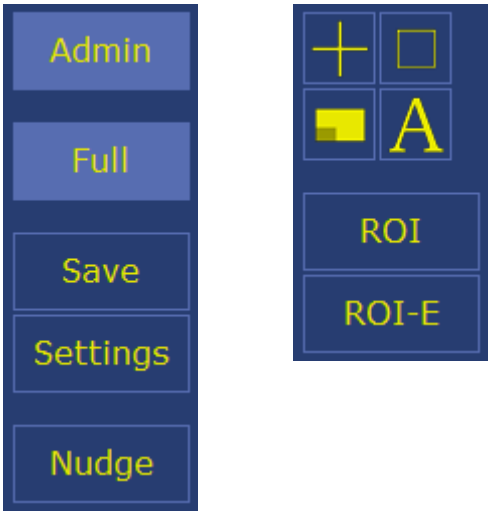


Figure 20 – Left button bar (top and bottom)

Note: Some of the following buttons may (or may not) appear in the left button bar (according to whether they have been enabled or disabled in the configuration file).

Admin – Click this button to log into Admin mode. See "Logging into Admin mode" on page 19.

Full – Toggle on to display the full set of on-screen controls or toggle off to display a simple set of controls.

Save – Click to save the current configuration (this button is only available in Admin mode).

Settings – Click to open the Settings dialog and edit the settings (this button is only available in Admin mode).

Error – Click to acknowledge errors. Errors may occur if (for example) the blackbody has been obscured or is out of alignment. **This button is only displayed if an error has occurred (and has not yet been cleared).**

Nudge – Toggle to display (or hide) the options that allow the blackbody detection area to be moved (as part of the blackbody calibration process). This button is only available in Admin mode.

Overlay Spot Temperature – Toggle to display or hide temperatures at the cursor position (example below).

Overlay Faces – Toggle to display or hide detection boxes.

Picture in Picture – Toggle to show a picture-in-picture video display. **This will do nothing if a thermal-only camera is configured.**

Caption – Toggle to display or hide the caption for the video feed (such as "Thermal" or "Daylight" – example below). If active, the caption is displayed at the top of the video display.

Region of Interest – Click to display or hide the Region Of Interest that has been defined.

Region of Interest Edit – Click to edit a region of interest. This button is only available when in Admin mode and daylight video is displayed. See "Setting the Region Of Interest (ROI)" on page 28.

5.2. Video pane

The main video pane displays a daylight video or thermal video feed from the body temperature detection camera.

In a daylight video view, face detection recognises a human face and draws a box to establish an area for heat sampling. Each detection box can also display a temperature reading and a facial detection confidence percentage (these are optional). In a thermal video view, this detection system extends to sense other body parts, such as arms and legs (and may consequently display detection boxes over those body parts).

The detection boxes can be displayed or hidden by using the **Overlay Faces** button, as mentioned above. The temperatures can be displayed or hidden by using the **Overlay Spot Temperature** button, as mentioned above.

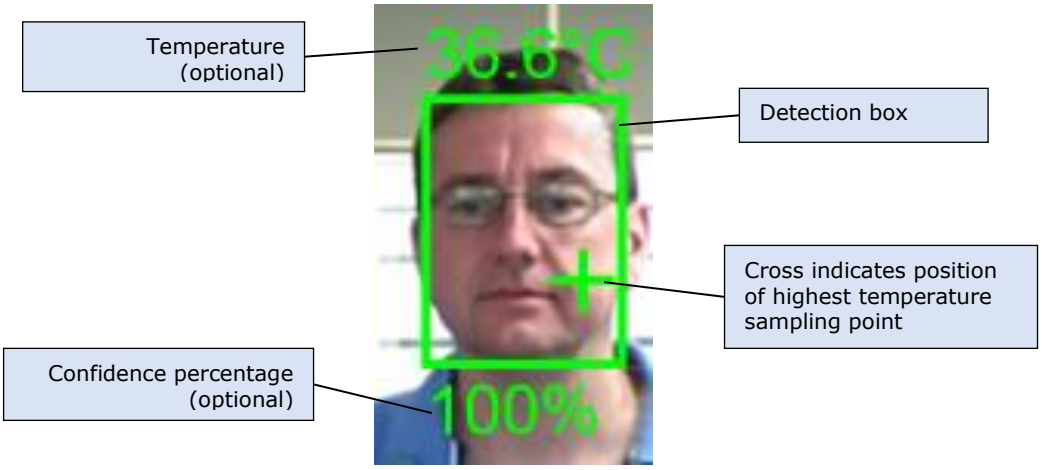


Figure 21 – Example of detection box

5.3. Bottom button bar

The button bar on the bottom of the window has buttons that allow the operator to specify the camera display. This button bar is split into 2 parts (thermal controls and video display options):

Figure 22 – Thermal controls

Note: Some of the following buttons may (or may not) appear in the bottom button bar (according to whether they have been enabled or disabled in the configuration file).

Information display – this panel displays the currently-set temperature threshold. Operational status is also displayed here.

Auto Focus – this button forces the thermal camera to focus automatically.

White Hot – this button sets the white pixels in the thermal image to represent heat (black and white are the inverse of the 'Black Hot' setting). See "White Hot" on page 37.

Black Hot – this button sets the black pixels in the thermal image to represent heat (black and white are the inverse of the 'White Hot' setting). See "Black Hot" on page 37.

Colour Palette – this button sets the thermal image to represent heat with false colours. See "Colour Palette" on page 38.

Blackbody Display – this button enables or disables the display of the blackbody's detection area in the video window.

Blackbody Edit – this button allows the detection area for the blackbody to be edited. This can only be selected when in admin mode and thermal video is displayed.

Blackbody Reset – this button allows the currently-saved detection area settings for the blackbody to be re-used (if the blackbody's line of sight has been obscured and this has generated an error). **This button is only displayed if such an error has occurred.**

Temperature Compensation – this button allows a temperature compensation to be quickly applied. This adds a compensation factor to allow for the fact that a human's core temperature is usually higher than skin temperature.

Reset Background Image – this button is only displayed if a thermal-only camera is configured (i.e. not a combined daylight/thermal video camera). If the operator notices poor performance (for example, because a sudden change has happened - such as the camera being moved without rebooting or

a new object being placed into view), then the **Reset B/G** button can be used to immediately reset the background image. It should only be used with a "clean" view (with no people in view, because those people will not be detected).

Figure 23 – Video display options

Note: Some of the following buttons may (or may not) appear in the button bar (according to whether they have been enabled or disabled in the configuration file). **These buttons are not available if a thermal-only camera has been configured.**

Thermal - this button shows only the thermal camera feed in the video pane. See "Thermal only" on page 39.

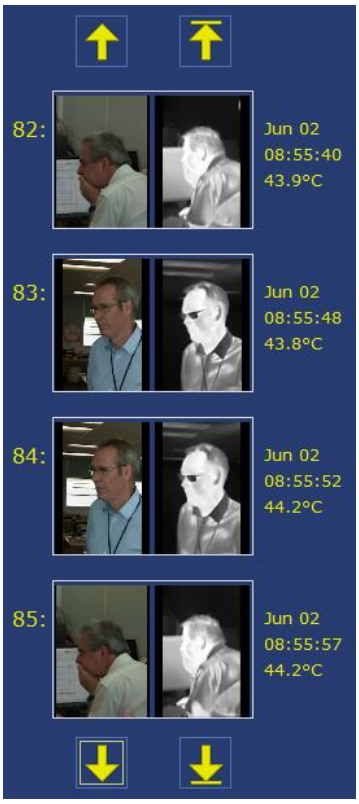
Daylight - this button shows only the daylight camera feed in the video pane. See "Daylight only" on page 40.

Side by Side - this button shows both the thermal and daylight camera feeds in the video pane. Both video feeds are displayed at the same size. This layout does not show the snapshot browser. See "Side by side" on page 40.

Dual (Daylight) - this button shows both the daylight and thermal camera feeds in the video pane. The daylight video is displayed in a larger frame than the thermal video. See "Dual (Daylight)" on page 41.

Dual (Thermal) - this button shows both the thermal and daylight camera feeds in the video pane. The thermal video is displayed in a larger frame than the daylight video. See "Dual (Thermal)" on page 41.

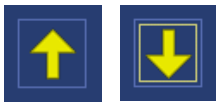
5.4. Snapshot browser



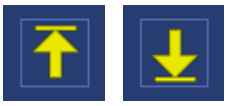
When a temperature exceeds the threshold, an alarm is generated and the camera takes a snapshot.

All snapshots are stored in the browser on the right of the screen.

The list of snapshots can be scrolled a line at a time using up and down arrow buttons:



Use the following buttons to jump to the beginning or end of the snapshot list:



Each line of the list shows a daylight and thermal snapshot, along with the date and time and the temperature recorded.

Each line in the list is numbered to aid with scrolling through the entries.

To see a more detailed view of a snapshot, click on the snapshot thumbnail. This will open a larger view (examples below):

Figure 24 – Examples of expanded snapshots – video and thermal

These expanded snapshot windows can be dragged into a different position or onto another screen (if one is attached to the PC). The snapshot window can be closed by clicking on the "X" button.

Occasionally, you may need to clear the pictures out of the snapshot browser to start a fresh scanning session. Using the **Tools > Clear Thumbnails** menu option or pressing Ctrl + T will clear the old pictures from the snapshot browser.

5.5. Thermal controls

5.5.1. White Hot

Using this setting, the white pixels in the thermal image represent heat. This is the default setting.

Click the button to switch the thermal video to "white hot" (see following example).

5.5.2. Black Hot

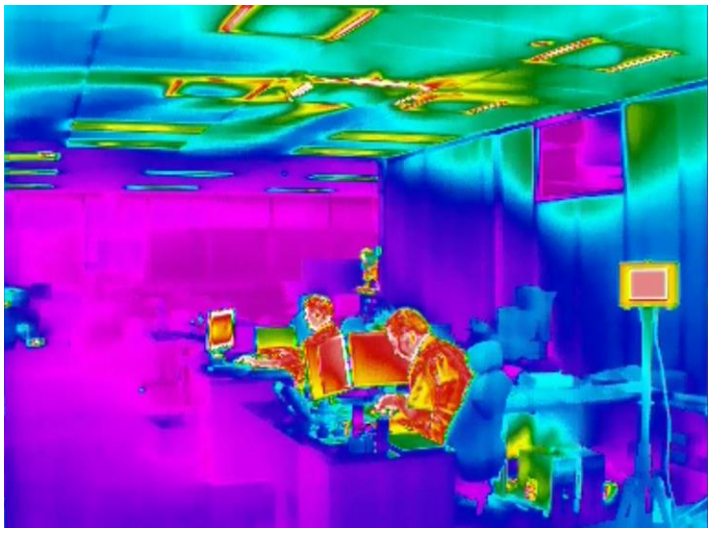
Using this setting, the black pixels in the thermal image represent heat.

Click the button to switch the thermal video to "black hot" (see following example).

5.5.3. Colour Palette

A false colour thermal display can be displayed to aid in inspection of thermal video.

Click the button to switch the thermal video to false colour (example below).



5.6. Video layouts

There are various options for displaying video panes on the screen:

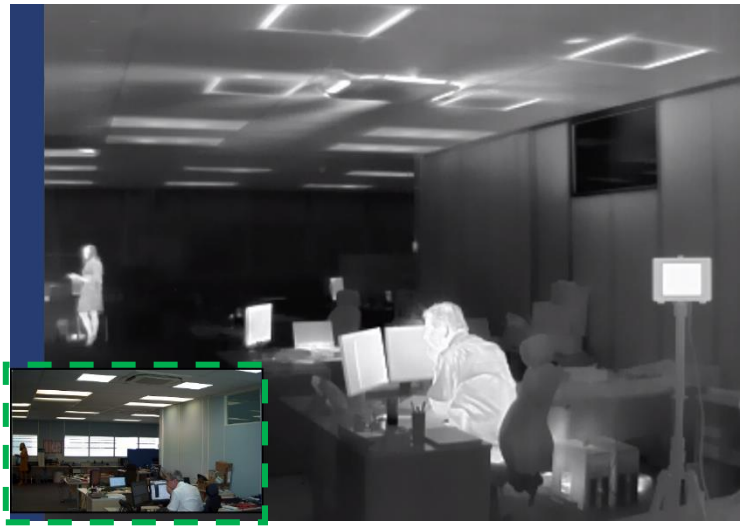
5.6.1. Picture-in-Picture

A picture-in-picture display shows the currently-selected primary video type with the other in a much smaller overlaid video pane.

Note: This button will do nothing if a thermal-only camera has been configured.

Click the button to toggle the picture-in-picture display on or off.

The following example shows the thermal video feed in the main video pane, while the daylight video is displayed in the smaller secondary video pane (outlined in green).



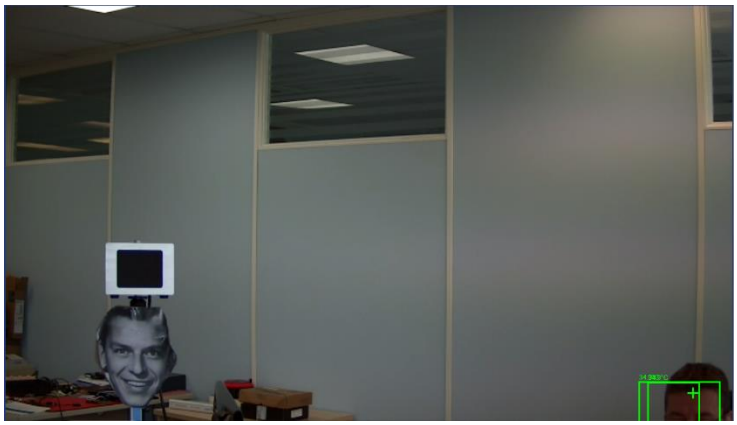
5.6.2. Thermal only

Click the **Thermal** button to display only the thermal video feed in the main video window.

Note: This is not available if a thermal-only camera has been configured.

5.6.3. Daylight only

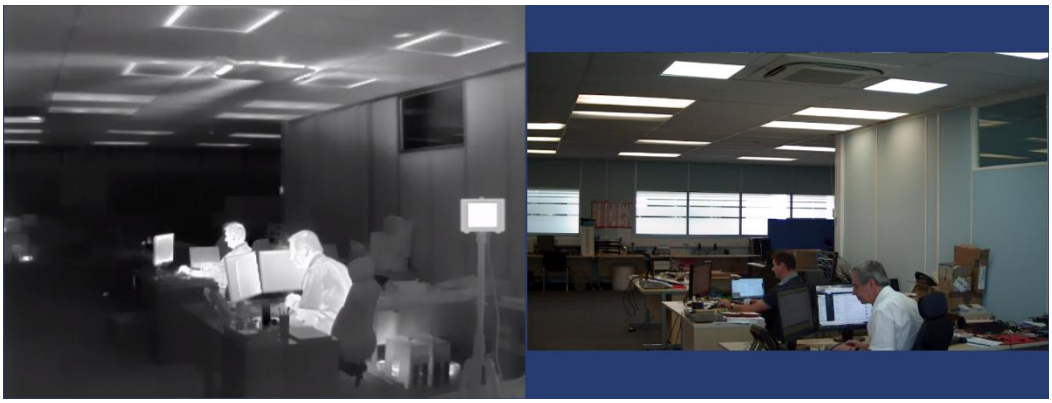
Click the **Daylight** button to display only the daylight video feed in the main video window.



Note: This is not available if a thermal-only camera has been configured.

5.6.4. Side by side

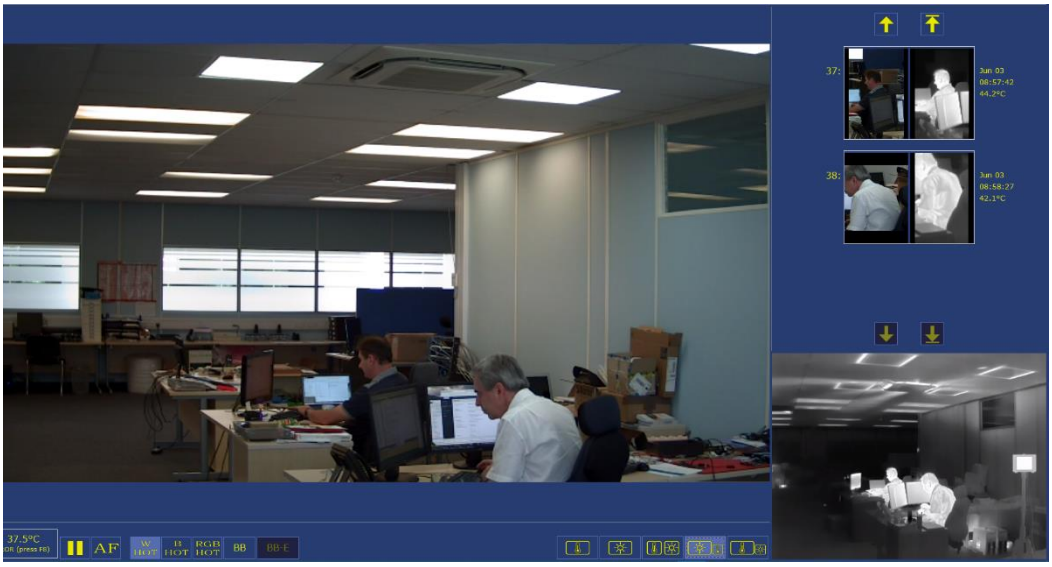
Click the **Side by Side** button to display both the thermal and daylight video feeds in the main video window. The video panes are displayed in a side by side arrangement.



Note: This is not available if a thermal-only camera has been configured.

5.6.5. Dual (Daylight)

Click the **Dual (Daylight)** button to display both the thermal and daylight video feeds in the main video window. The daylight video is displayed in the main window, while the thermal video is displayed in a smaller secondary window.



Note: This is not available if a thermal-only camera has been configured.

5.6.6. Dual (Thermal)

Click the **Dual (Thermal)** button to display both the thermal and daylight video feeds in the main video window. The thermal video is displayed in the main window, while the daylight video is displayed in a smaller secondary window.

Note: This is not available if a thermal-only camera has been configured.

6. Daily operation

This section discusses the regular daily tasks that an operator (i.e. non-Admin user) would typically use during a session.

6.1. Set the window to display full-screen

Press F11 to toggle the full-screen window size on or off.

Note: This can be set as a default window size in Admin mode, using the Setup Wizard.

6.2. Choose the user interface

An operator can choose between different user interfaces:

- **Full** – this displays all buttons on-screen.
- **Simple** – this is a simplified user interface with fewer buttons.

Toggle the **Full** button to show all buttons or a simplified view, according to the operator's personal preference.

6.3. Choose the video type and layout

During the course of a session, it may be necessary to change the video screen layout and type of video displayed. This is the personal choice of the operator.

A typical operator may use the full-sized daylight camera as the main viewing setup, occasionally flipping to the thermal camera if required.

Please refer to "Thermal controls" on page 37 and "Video layouts" on page 38 for further details.

6.4. Watch the screen and respond to alarms

As people walk in front of the camera, a detection box should be displayed around each person's face.

A **green** detection box is displayed if the subject's body temperature is below the threshold that has been set.

A **red** detection box is displayed if the subject's body temperature exceeds the threshold that has been set. This will trigger an alarm and add daylight and thermal snapshots to the snapshot browser. Depending upon the configuration of the application, the alarm may also be audible.

As the operator, you may need to ask a subject to step aside for more detailed health analysis if they have triggered an alarm.

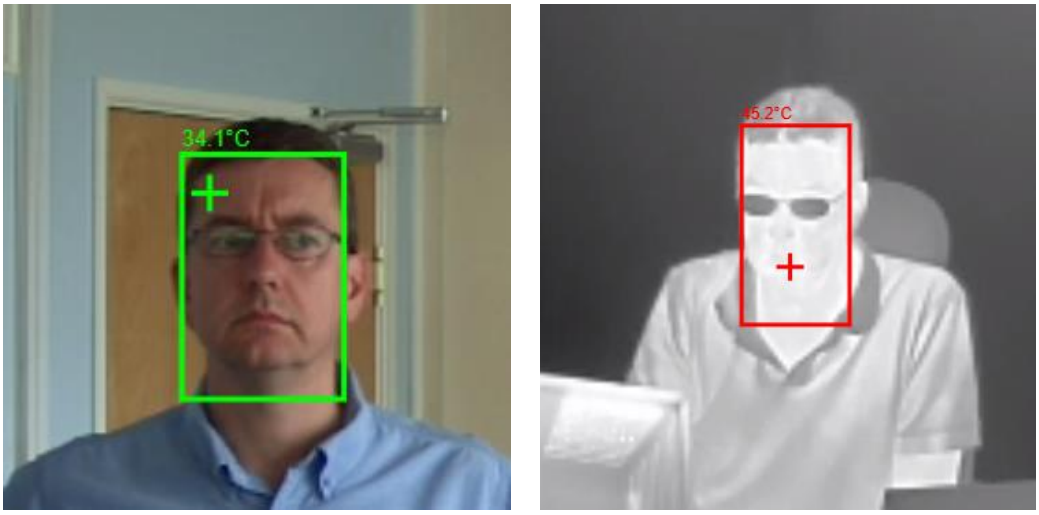


Figure 25 – Example of green and red detection boxes

The camera reads skin temperature, but the software compensates for the fact that this is lower than body temperature. Compensation can be toggled on or off using the **Comp** button if a skin temperature reading is required.

6.5. Log a message

During the course of a typical day, you may need to make notes and observations on what is happening. Press the Ctrl + L keys to enter a text message.

See "Logging a message" on page 47 for further details.

6.6. Handle snapshots

During the course of a session, the system may record snapshots of faces that register a temperature above the threshold that has been set.

Please refer to "Snapshot browser" on page 36 for full details of using the snapshot browser. Snapshots are stored as .jpg files in the `Snapshot` sub-folder where the application is installed.

6.7. Clear Thumbnails

Occasionally, you may need to clear the pictures out of the snapshot browser to start a fresh scanning session.

Pressing Ctrl + T will clear the old pictures from the snapshot browser.

6.8. Screen Grab

You may need to quickly take a screenshot of the video screen, to record a picture of the whole scene, including on-screen temperature measurements.

Press Ctrl + G to perform a screen grab.

Screen grabs created this way are saved as .jpg (JPEG) files in the application's installation folder. Each file has the time and date recorded in the filename. These images are not displayed in the snapshot browser.

6.9. Handle an error

An error may occur occasionally, most likely as a consequence of the blackbody unit being obscured (or in some cases, it may have moved).

If a blackbody error has occurred because its line of sight has been obscured, but the relative positions of the blackbody and camera have not changed, click on the **BB-R** (Blackbody Reset) button. This will use the same settings as before and there will be no need to redraw and reposition the blackbody detection area.

An **Error** button will be displayed on the left button bar if an error has occurred (and has not yet been cleared).

Press F8 to display the Messages window. This may provide useful information about the error that has occurred. See "Messages window" on page 47 for further details.

Click the **Error** button (or press Ctrl + E) to acknowledge the error and continue with scanning. If a problem persists, it may be necessary to get an Admin user to reset the settings for the blackbody unit (see "Blackbody errors" on page 48 and "Setting the blackbody unit's scanning position" on page 27 for further details).

When using a thermal-only camera, if there is poor performance (for example, because a sudden change has happened - such as the camera being moved without rebooting or a new object being placed into view), click the **Reset B/G** button to immediately reset the background image.

Note that it should only be used with a "clean" view (with no people present, because those people will not be detected).

6.10. Messages

You may wish to look at a list of alarms that have been generated, or view system-generated messages that may contain information about the application's functioning status (perhaps to aid in a support call).

Press F8 to open the Messages window.

For further information, see "Messages window" on page 47.

7. Admin tasks

This section discusses various regular admin tasks that an administration user will need to perform.

7.1. Messages window

To see any system-generated messages that may contain information about the application's functioning status, use the **View > Message Window...** menu option (or press F8) to open the Messages window:

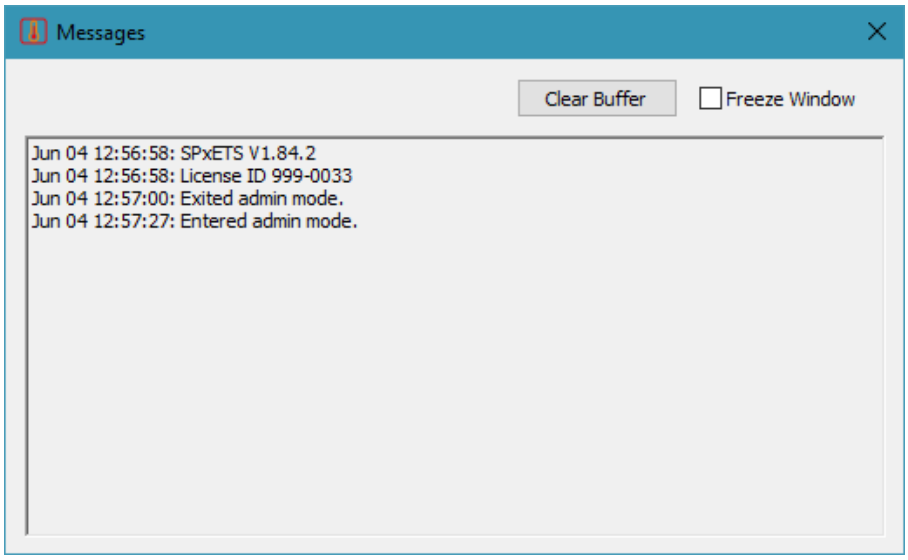


Figure 26 –Messages window

This window displays the following types of messages:

- Software version number
- Licence ID
- Admin mode entry or exit
- System error messages
- Errors with blackbody setup
- Alarms triggered by high temperature readings

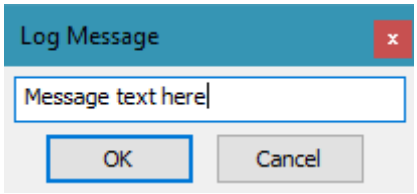
To clear any old messages from the list, click the **Clear Buffer** button.

To freeze the message display if messages are scrolling past, check the **Freeze Window** checkbox.

7.2. Logging a message

During the course of a typical day, you may need to make notes and observations on what is happening.

To log a message, select the **Tools > Log Message...** menu option, or press the Ctrl + L keys. This opens a Log Message dialog:



Type in the message you wish to record and click **OK**.

7.3. Blackbody errors

Occasionally, there may be circumstances when the blackbody unit becomes obscured or its temperature cannot be detected by the thermal camera.

In such circumstances, an error message will be displayed on-screen:

When this message is displayed, the blackbody detection area will need to be reconfigured. Also, a member of staff should ensure that the blackbody unit itself is switched on, is pointing directly at the camera and is not obscured.

If a blackbody error has occurred because its line of sight has been obscured, but the relative positions of the blackbody and camera have not changed, click on the **BB-R** (blackbody reset) button. This will use the same settings as before and there will be no need to redraw and reposition the blackbody detection area.

In the event of an error occurring, an **Error** button will be displayed. Click the button (or use the **Tools > Clear Error** menu option if in Admin mode) to acknowledge the errors.

See also "Setting the blackbody unit's scanning position" on page 27.

7.4. Screen Grab

You may need to quickly take a screenshot of the video screen, to record a picture of the whole scene, including on-screen temperature measurements.

Use the **Tools > Grab Screen** menu option or press Ctrl + G to perform a screen grab.

Screen grabs created this way are saved as .jpg (JPEG) files in the application's installation folder. Each file has the time and date recorded in the filename. These images are not displayed in the snapshot browser.

Appendix A. Shortcuts

The following table lists the keyboard shortcuts that have been assigned in the application:

In standard user mode:

Description or Function	Keys
Clear Error	Ctrl + E
Clear Thumbnails	Ctrl + T
Enter Admin Mode	Ctrl + A
Exit application	Alt + F4
Full Screen on/off	F11
Grab screen	Ctrl + G
Log Message	Ctrl + L
Message Window	F8
View Help	F1

In admin user mode:

Description or Function	Keys
Camera Config	Ctrl + shift + C
Clear Error	Ctrl + E
Clear Thumbnails	Ctrl + T
Exit application	Alt + F4
Full Screen on/off	F11
Grab Screen	Ctrl + G
Log Message	Ctrl + L
Message Window	F8
Parameter Control	Ctrl + P
Save	Ctrl + S
Save As	Ctrl + shift + S
Settings	F7
Setup Wizard	Ctrl + W
Video Input Config	Ctrl + shift + V
View Help	F1

Appendix B. Disclaimer

The following is the disclaimer text displayed at startup:

WARNING REGARDING CONDITIONS OF USE

This Device is not FDA cleared or approved for medical diagnosis of illness or symptoms of illness.

Device is intended to be used only:

i. for triage purposes to perform initial body temperature measurement.

ii. where an elevated body temperature measurement is confirmed in the context of use with secondary evaluation methods (e.g., non-contact infrared thermometer (NCIT) or clinical grade contact thermometer);

and

iii. where such devices do not create an undue risk in light of the public health emergency.

Per U.S. Food and Drug Administration ("FDA") guidance ("Enforcement Policy for Telethermographic Systems During the Coronavirus Disease 2019 (COVID-19) Public Health Emergency" (April 2020)):

i. the Device should not be solely or primarily relied upon to diagnose or exclude a diagnosis of COVID-19, or any other disease.

ii. public health officials, through their experience with the Device in the particular environment of use, should determine the significance of any fever or elevated temperature based on the skin Telethermographic temperature measurement.

iii. the system and technology should be used to measure only one subject's temperature at a time;

and

iv. visible thermal patterns are only intended for locating the points from which to extract the thermal measurement.

Displaying or hiding this message

Admin and configuration staff only

The disclaimer popup can also be displayed by entering Admin mode and using the **Help > Disclaimer...** menu option.

To turn the popup message off, edit the SPxETS.rpi configuration file to the following setting:

```
Application.ShowDisclaimer = 0
```

To turn the popup message on, edit the SPxETS.rpi configuration file to the following setting:

```
Application.ShowDisclaimer = 1
```

<End of Document>