FIXED MODUM ITS SOFTWARE GUIDE

Version: V1.7
Date: 06/07/2020

CONDITIONS OF RELEASE

RECORD OF CHANGES

This is a controlled document and will be uncontrolled once issued; additional controlled copies can be obtained through the issuing authority. In the event of copying locally, including electronically, each document should be marked 'Uncontrolled Copy'. Full issues and page amendments are identified on this page. Any proposals for change should be forwarded, in writing, to the issuing authority.

Issue	Date	Detail of Changes	Amended by
Draft 1v1	14 Apr 2020	Initial Issue (Draft)	Matthew Short
Issue1v2	18 Apr 2020	Various Corrections & Change of Title	Matthew Short
Issue1v3	21 Apr 2020	Various Corrections & Change of Title	Matthew Short
Issue1v4	15 May 2020	Various Corrections & Change of Title	Matthew Short
Issue1v5	20 May 2020	Add content related to Blackbody obstruction	Xueer Lin
Issue1v6	30 May 2020	Add PC IP address configuration instruction	Xueer Lin
Issue1v7	06 July 2020	Rename ETS to ITS.	Xueer Lin

LIST OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

INTELLIGENT TEMPERATURE SCREENING (ITS) - BASIC USER GUIDE

PREREQUISITES

Please refer to the help desk to ensure you have the latest version of the software applications and user guides;

https://silentsentinelhelp.helpdocs.com/fixed-modum

INTRODUCTION

1   The aim of this document is to detail the steps required to configure and operate the ITS System and associated capability.

SYSTEM OVERVIEW

2   The entire ITS System has several components required to provide its entire capability as follows:

    2.1   **Local Viewing**. The local viewing capability allows the local operation and detection of objects from a 2 to 5 metre range. A local operator is deployed at the front end with the equipment providing a first layer mechanism of viewing and alerting. The local viewing equipment consists of:

        2.1.1   MODUM Camera (Thermal & HD Daylight).

        2.1.2   Equipment Enclosure.

        2.1.3   Local Viewing Laptop running the Intelligent Screening Software.

        2.1.4   Blackbody Temperature Sensor.

        2.1.5   Transportable Equipment Platform / Housing.

NETWORK ARCHITECTURE

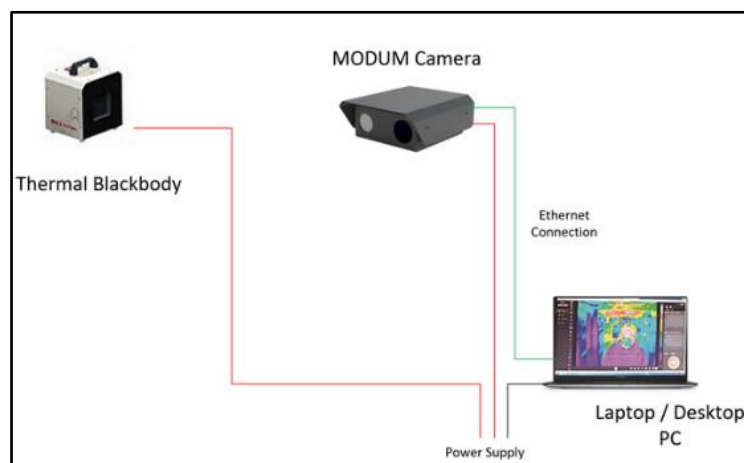3   Figure 1 shows the system architecture/ connectivity of the capability.

Figure 1: ITS System Architecture

IP ADDRESSES

4   Junction Enclosure IP addresses (for all Junction Enclosures) are shown at Table 1. The laptop should be given a static IP address other than 192.168.1.101 and 192.168.1.100. A detailed instruction of how to configure laptop IP address can be found in Appendix A – Setting laptop ip address.

Device	IP Address	Default Gateway	Subnet Mask
Thermal Camera	192.168.1.101	192.168.1.1	255.255.255.0
HD Camera	192.168.1.100		

Table 1:   System IP Address Scheme

SYSTEM OPERATION

5   The following sections detail basic user operating instructions to enable the User to receive a system and configure it for use prior to deployment to an operational scenario[1]. It covers the following components:

5.1   Local Viewing Capability.

Local Viewing Capability

6   This section of the User guide details how to connect, configure, and operate the Intelligent Screening application installed on the supplied laptop.

Version Number

7   Please check the helpdesk to ensure you are running the latest version of the ITS Application;

7.1   https://silentsentinelhelp.helpdocs.com/fixed-modum

System Operation Pre-requisites

8   The following are the pre-requisites / requirements required prior to using the user guide:

8.1   A MODUM camera powered up and connected to the Laptop via Ethernet (direct or via a network switch).

8.2   A Laptop meeting, or exceeding, the specification detailed at Para 9 connected to the same network/subnet as the MODUM camera.

8.3   Intelligent Screening Software installed on the Laptop at Para 8.2.

8.4   The Blackbody Temperature Reference device deployed with the FoV of the MODUM unit, at roughly the distance as the required detection and set to 35°.

System Requirements

9   Platform System requirements for the software are as follows:

    9.1   **Operating System**.   Microsoft Windows 10.

    9.2   **Processor[2]**.   32 or 64-bit Intel i5 or equivalent processor.

    9.3   **Memory**.   8GB RAM.

    9.4   **Monitor Resolution**.   High Definition

    9.5   **Hard Drive Capacity**.   >= 256GB

Software Operation (Intelligent Screening Software)

10   Carry out the following steps to connect the application to the thermal camera:

    10.1   Ensure the system is connected as per Figure 1 and the Laptop is powered up.

    10.2   Ensure the laptop had set to a fixed IP address.

    10.3   Double-click the icon as shown at Figure 2
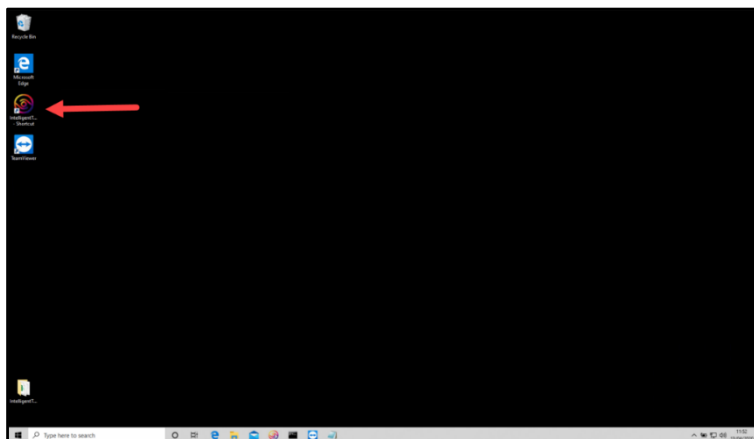

Figure 2:   Software Short-cut Location

    10.4   From the resulting screen, select *Connect* - as shown at Figure 3.

---

[2] The CPU processer should have a benchmark score of greater than 7500 - www.cpubenchmark.net
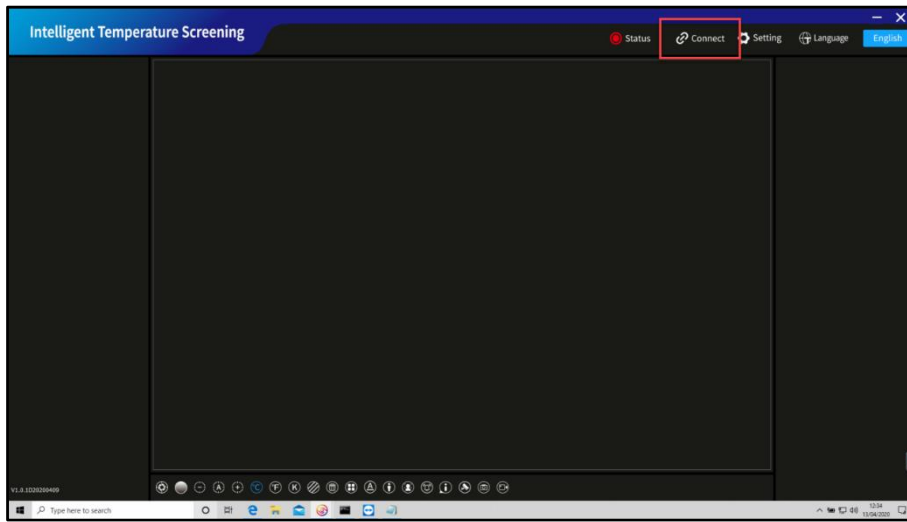
Figure 3: Software to Camera Connection

10.5   Enter the IP Address of the thermal camera and password into the resulting screens - as shown at Figure 4.

      10.5.1   Default IP: 192.168.1.101

      10.5.2   Password: admini

Figure 4: Software to Camera Connection Authorisation

11   Selecting 'Remember Password' and 'Automatic Login' will cause the software to bypass the login screen on subsequent launches.

12   If the IP Address and Password have been entered correctly, the software should connect to the camera and commence operation with the screen showing as per Figure 5 - note the green *Status*.

Figure 5: Successful Camera/Software Connection

Software Interface - Home Screen

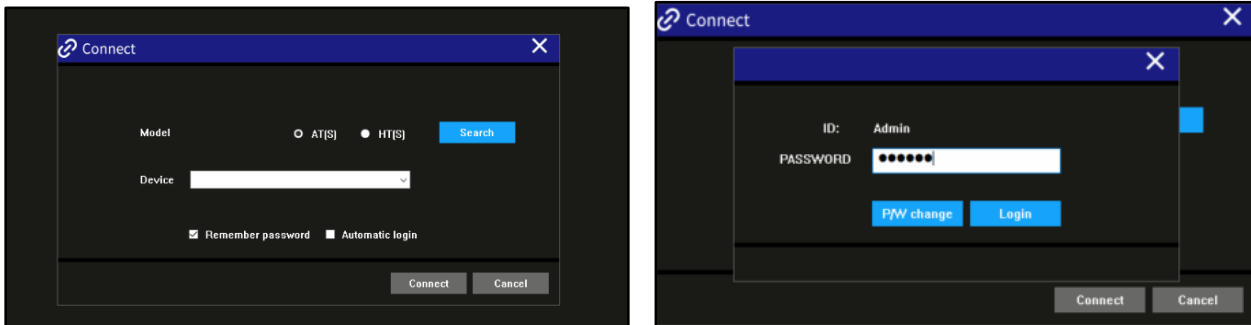13   The home screen carries the follow user configurable settings across the bottom of the main video interface - as shown and described in Figure 6.

Figure 6: User Configurable Software Settings

Icon	Icon Description / Purpose	Icon	Icon Description / Purpose
	Enable / Disable Shutter		Whole Frame Measurement Tool
	Switch Colour Palette		Measurement Rectangle Colour Change
	Focus Near / Focus Far		Standard measurement / Body Temperature Compensation Mode
	Auto-focus		Face Detection On / Off Toggle
	Display Temp - Celsius[3]		Audio Alarm On / Off Toggle
	Display Temp - Fahrenheit		Alarm Window On / Off Toggle
	Display Temp - Kelvin		Alarm Snapshot On / Off Toggle
	Add a Rectangle Measuring Area		Current Image & Overlay Snapshot
	Remove Rectangle Measuring Area		Current Image & Overlay Video Recording (Start then Stop)

Basic Operational Settings   **Table 2: Basic Settings Description**

14   Select *Setting* from the Video Interface Home page; as shown at Figure 7; this will allow the following sub-menu settings:

　　　　　　14.1.1   Environmental Parameters.

---

[3] Blue Highlighted Icon shows Current Selection.

14.1.2   System Mode.

14.1.3   Shielded Area

14.1.4   Temp-Measurement Mode.

14.1.5   Blackbody Area (initially hidden).

Figure 7:   Basic Operational Settings Selection

Environmental Parameters

15   This page allows the user to enter certain environmental parameters, which are then factored into the correction algorithms used by the software to allow for various environmental considerations; these are shown at Figure 8 and described in Table 3.
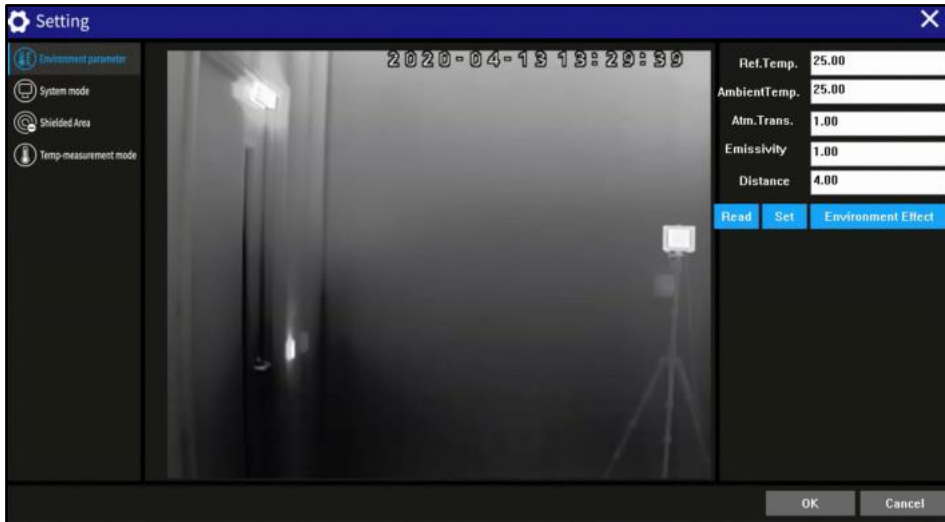

Figure 8:   Environmental Parameters Settings

Selection	Description
Ref. Temp	Reflection temperature (set the same as Ambient Temp)
Ambient Temp	Environment temperature of surroundings

Atm. Trans.	Atmospheric transmittance (set to 1.00)
Emissivity	Emissivity of human skin (set to 0.98)
Distance	Required range - recommended distance ranges from 1m to 5m.

Table 3: Environmental Parameters Settings Description

16   The parameters can be managed using the settings as follows:

    16.1   **Read**.   Read the current settings.

    16.2   **Set**.   Change the settings to the user required figures entered.

    16.3   **Environment Effect**.   TBC.

System Mode

17   This page - Figure 9 - allows the user to change the network details of the camera as well as the *Alarm* file output path (to the local Laptop); descriptions at Table 4.

Figure 9:   System Mode Settings

Selection		Description
IP		Reflection temperature (set the same as Ambient Temp)
Gateway		Environment temperature of surroundings
Dropdown Selection	Alarm	Alarm Triggered Snapshot - saved to local path
	Capture	Alarm Triggered Image Frame - saved to local path
	Video	Alarm Triggered Video - saved to local path

Table 4:   System Mode Settings Description

18   The parameters are managed using the settings as follows:

    18.1   **Set**.   Change the settings to the user required figures entered.

18.2 **Path Selection**. Defines the output path for the .csv file and thumbnails on the local Laptop.

Shielded Area

19   This allows a default area(s) of the camera's Field of View (FoV) to be ignored by the FaceDetect algorithm running as part of the software and general temperature measurements.

20   To set a shielded area - carry out the steps below:

20.1   Select **Shielded Area** from the **Setting** menu - as shown at Figure 10.

Figure 10:   Shielded Area Settings Selection

20.2   Follow the instructions described in Table 5 - also shown in the highlighted red area in Figure 11.

Step	Instructions
1	Click the **Shielded Area Switch** icon [ ] to turn the editing function ON.
2	Click the Set Measurement Rectangle [ ] to allow an area to be created.
3	Click on an area of the Video to start the area then release the mouse button.
4	Move the mouse to the end of the area and click once more.
5	Select **OK**.
6	Click the **Shielded Area Switch** icon [ ] to turn the editing function OFF.

Table 5: Shielded Area Instructions

Figure 11: Shielded Area Settings Selection

20.3   Multiple shielded areas can be selected; plus, the selected area can be edited, including moving, re-sizing, deleting and other operations.

Temp-Measurement Mode

21   This allows the user to select between measurement modes, as shown at Figure 12 and described at Table 6.

Figure 12: Temp-Measurement Mode Settings Selection

Selection	Description
Mode	N = Standard. Returns the true temperature of the area with no compensation. C = Compensated. This value has been adjusted to deliver a more accurate algorithm-based approximation of the temperature.
Alarm	Enable / Disable the High Temperature alarm.

Capture Interval (Seconds)	When the snapshot switch is enabled (Para 13), a picture will be saved to the configured Alarm Path (Para 18.2) at the configured time interval.
Alarm Thresh	Alarm Threshold Temperature - alarm raised above this value.
AutoDetectLow	Minimum temperature for FaceDetect Algorithm.
AutoDetectHigh	Maximum temperature for FaceDetect Algorithm.

Table 6:   Temp-Measurement Settings Description

Blackbody Area

22   The Blackbody Area configuration settings are hidden behind an Administrator password; to unlock and configure - carry out the following steps:

22.1   From the keyboard, press the following:

Ctrl > Shift > r

22.2   Enter the correct password into the resulting window - as shown at Figure 13.

22.2.1   DEFAULT PASSWORD: admin123

Figure 13:   Blackbody Area Administrative Password

23   After conducting the steps from Para 22, the Blackbody Area will be available from the *Setting* tab - as shown at Figure 14, with relevant settings described at Table 7.

Figure 14:   Blackbody Area Settings Selection

Selection	Description
Switch	On - Blackbody correction enabled. Off - Blackbody correction disabled.
Checkbox: Draw	Drawing Mode enabled.
Draw: Box & Slider	Enables and allows the size of the drawings box to be altered.
LX | LY | RX | RY	Pixel coordinates of the blackbody area.
Temp.	Blackbody Temperature Reference (Set to that as displayed on the rear of the Blackbody unit).

Table 7: Blackbody Area Settings Description

24   The parameters can be managed using the settings as follows:

24.1   **Read**. Read the current settings.

24.2   **Set**. Change the settings to the user required figures entered.

25   To configure the Blackbody correction area (with reference to Table 7)[4]:

25.1   Switch on the Blackbody correction.

25.2   Tick the **Draw** box.

25.3   Mark the area where the Blackbody is located on the image with the annotated red rectangle, keeping the rectangle in the centre of the blackbody area. The marking rectangle can be re-sized by moving the slider - recommended setting is 5.

25.4   Left click the mouse to confirm and update the coordinates in software.

25.5   Untick the **Draw** box.

25.6   Click **Set** and **OK**.

Blackbody Obstruction

26   When the blackbody is blocked or moved, the software will pop up a reminder as shown at Figure 15.

Figure 15: Blackbody Obstruction Warning

[4] Any positional changes to either the Camera or Blackbody will necessitate the repetition of these steps.

27   Usually this reminder will disappear as soon as the obstruction is removed. Occasionally, if the blackbody is blocked for long time, the thermal software will automatically turn off blackbody correction function and give a message as shown in Figure 16.
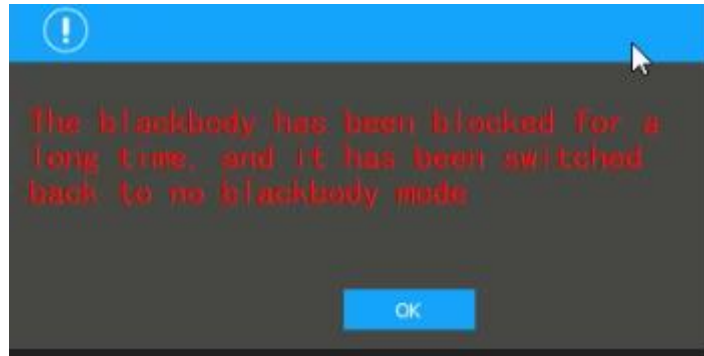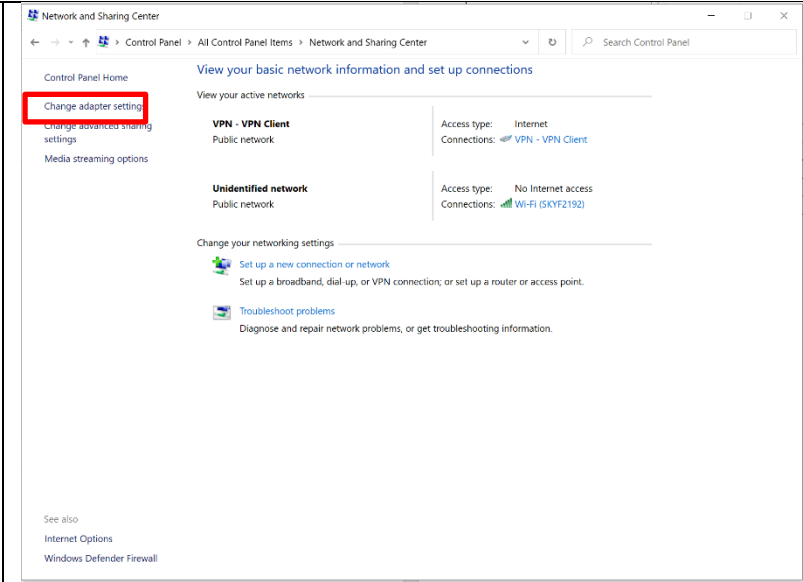

Figure 16: Blackbody Obstruction Timeout Message

28   When scenario like Para 27 happens, one needs to reset the coordinate of the blackbody by repeating Para 25. Noted that the Switch should be kept OFF while re-drawing the blackbody area. Only switch back ON AFTER finishing re-drawing and untick the Checkbox: Draw.

APPENDIX A – SETTING LAPTOP IP ADDRESS

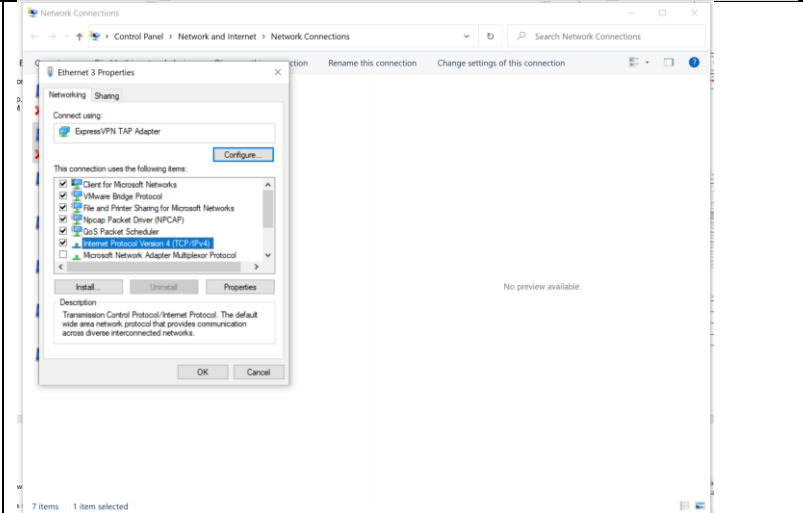|	
Select the Start Button and Type 'Control Panel'	
Select Network and Sharing Center	

Select Adapter Options	
Double Click on the relevant network adapter	
Double Click on 'Internet Protocol Version 4 (TCP/IPv4)	
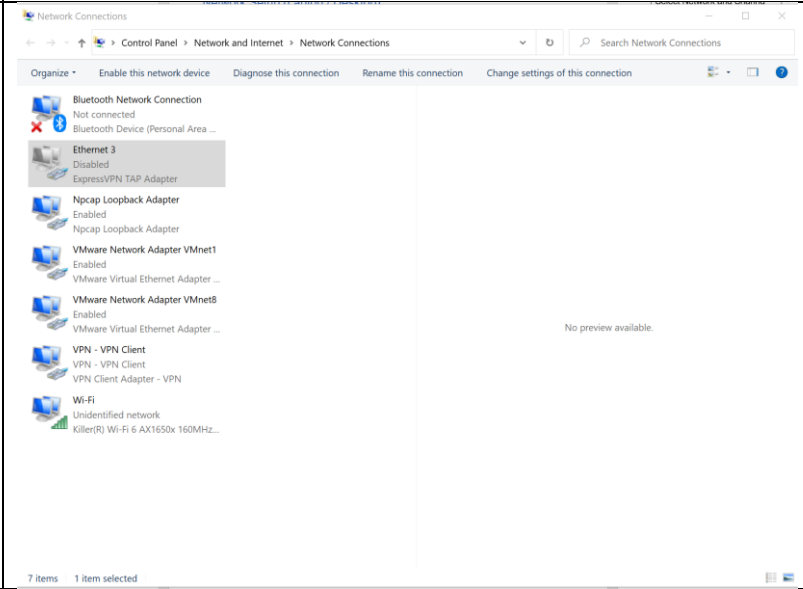
Select the radio button named 'Use the following IP address'

Enter the information shown in the image to the right.

Select 'Okay' and the 'Okay' on the sub menu.