

Visual Temperature Screening

USER GUIDE

Version 1.0

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1 Introduction

Government has enforced Standard Operating Procedures (SOP) for all business sectors to resume business activities, as effort to slow down and prevent spread of the world pandemic coronavirus.

Among the SOPs, certain essential actions are required and common for all business sectors:

- To monitor record daily employees body temperature.
- To record visitors body temperature
- To record their names and contact number

Conventionally, body temperature measurement and the person's details are written on a logbook, using PEN, a medium which is a perfect nursery for spreading the virus, due to physically being contacted by many people.

Another major issue with this convention method of storing records is its 'searchability'. Logbooks have thousands and thousands of records, which is a great challenge when come to tracing any contact from it. Not to mention the difficulty in recognizing the handwriting.

Visual Temperature Screening (VTS) is all-in-one solution that fits in to comply to the SOP, harmoniously coupling the body temperature data with visitor's/employee's contact info. As these data are managed by Macula Video Management System (VMS), their faces are also being recorded altogether. VTS uses contactless method, so making the process much safer comparing to the logbook and pen method.

By digitalizing the process, the data is easily searchable on the Macula VMS by inserting contact names.

1.1 Essential components

VTS is comprised of the following key components:

- 1) A laptop with webcam (OR, a PC with external USB webcam).
- 2) A thermometer
- 3) Macula Video Management System (VMS)
- 4) SmartLogic VTS App
- 5) Laptop stand (optional)
- 6) USB webcam (optional)

2 System Requirement - Laptop / PC

Operating System

Windows 10 Home/Professional/Enterprise 64-bit
Update to version 1709, OS build 16299

Processor (CPU)

Intel Core i5, 4th Generation or above

Memory (RAM)

4GB minimum (8GB or above recommended)

Connectivity

100/100 Mbps ethernet network
Dual -band Wi-Fi, supporting 2.4GHz and 5GHz
Bluetooth V4 or above

Disk Space for software installation

3GB minimum

Disk Space for Data

500GB	for 30days
1TB	for 60 days
1.5TB	for 90 days

*Based on daily 1000 scans, 720p video, 15 frames per second, record only when there is temperature scanned.

Cameras Supported

Webcams, built-in to laptops
USB Webcam

Alternative Cameras Supported

iPad Air, and all iPads after
iPhone 6S, and all iPhones after
Android phones with minimum Android 8.0 (Oreo)
Network cameras (IP cameras)

3 Installation

3.1 Spacing

Spacing between people

To conform to the Standard Operating Procedures (SOP) of social distancing, the gap distance between every person in the queue is recommended to be **1 meter apart**.

Webcam positioning and spacing

The **recommended** distance of the webcam from the current person to be scanned is **1 meter**. This will provide optimal field-of-view of the person undergoing temperature measure.

Below figure is an illustration of the recommended camera position and spacing.

Note: It's highly recommended the Screening Officer to wear Personal Protective Equipment

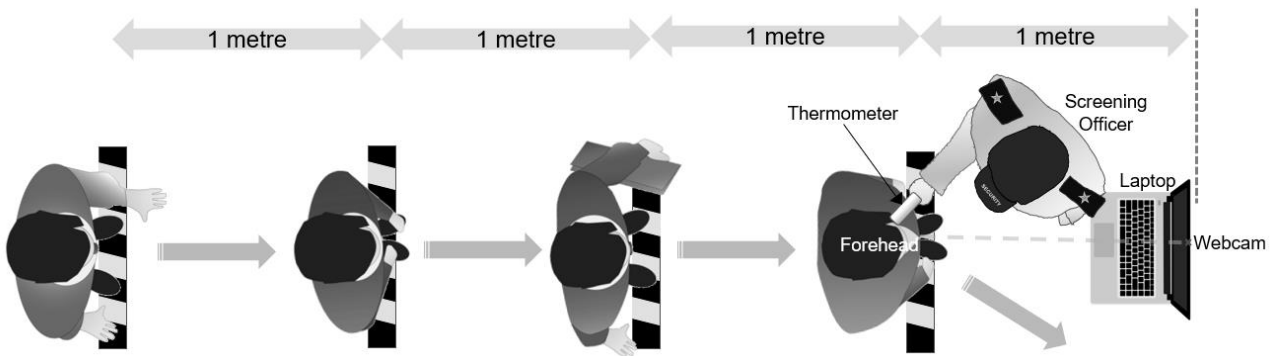


Figure 1 - Recommended camera position

Webcam height

The optimal height of the webcam shall be **1.5 metre**. It is recommended to mount the laptop on a laptop stand, so that you may adjust the height of the stand to suit your operation need.

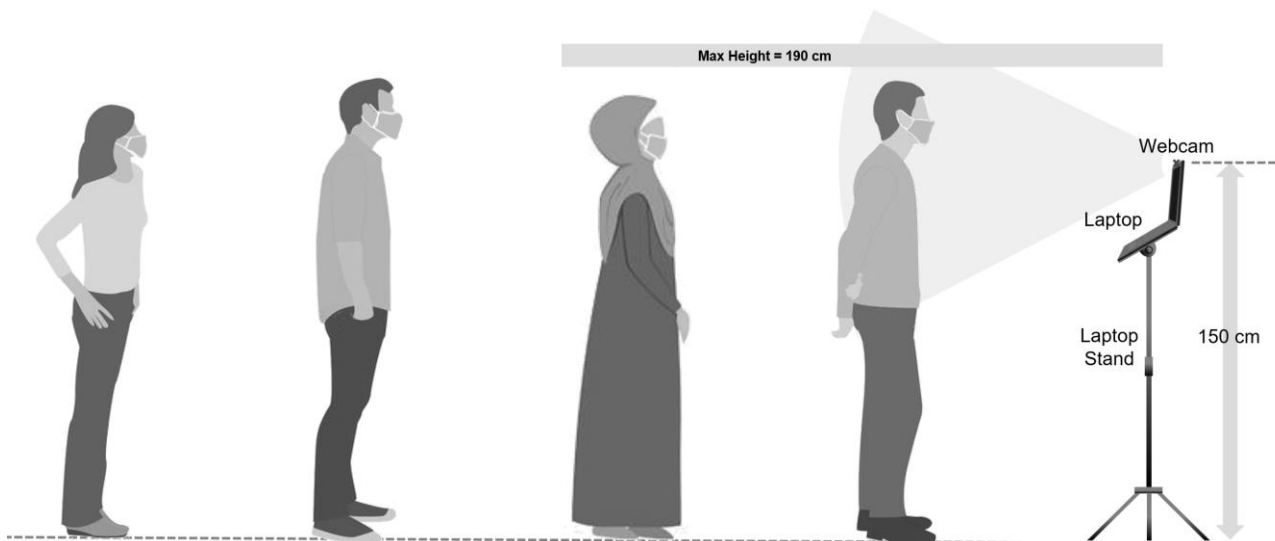


Figure 2 - Recommended Webcam height

4 Thermometer

Body temperature is measured via the surface of the forehead. The thermometer uses built-in infrared sensors, and related hardware and software to sense, analyse and record temperature.

4.1 Component

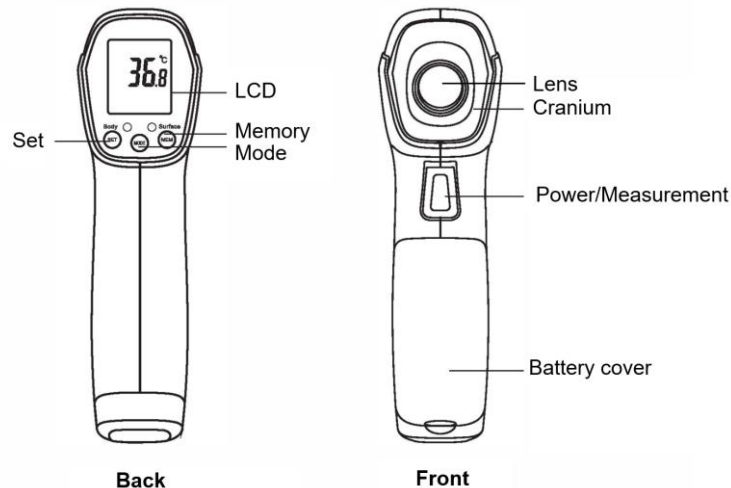


Figure 3 - Thermometer component

4.2 Setting

- 1) Turn on the thermometer by pressing the “Power/Measure” button.
- 2) To enter Setting mode, press and hold the “SET” key for 4 seconds. The thermometer will enter Settings Mode. The LCD Display will show the Alarm Temperature Value and “F-00”.
- 3) To modify the setting value, press the “MODE” or “MEM” key to change the value.
- 4) Switch to other setting options:
Press the “SET” key to switch to other item.
 - F-00: Alarm Temperature value.
 - F-01: Offset value for body mode
 - F-02: Temperature Unit (°C / °F)
 - F-03: NOT USED

4.3 Method of Measurement

- 1) **Keep the instrument’s temperature as the same as the surrounding**
- 2) **Use the thermometer in room temperature condition. DO NOT use the thermometer under strong sunlight.**
- 3) **Ensure the body temperature is not affected by external factors such as sun or wind.**
- 4) **Power on the Thermometer.** Press and hold the ‘Power/Measure’ button for two (2) seconds to turn on the thermometer.
- 5) **Select BODY temperature measurement mode.** Press “MODE” key to select ‘BODY’ Mode.

6) Measure forehead temperature.

1. Press and hold the “Power/Measure” button.
2. Move the thermometer and position the thermometer pointing toward the forehead directly at **distance of less than 2cm.**



Figure 4 - Point directly to the forehead



Figure 5 - Distance less than 2cm from forehead

3. Release the “Power/Measure” button to finish measurement.
4. The result is displayed on the LCD

NOTE: The thermometer will **TURN OFF** automatically when not used for 2 minutes.
To manually turn off, press and hold the “MEM” button for 3 seconds.

4.4 Cautions

- 1) Do NOT drop or shock the unit
- 2) Do NOT immerse the unit into water
- 3) Keep the unit out of reach of children
- 4) Avoid touching the lens
- 5) Do NOT use in areas with strong electromagnetic interference.
- 6) Consult your physician if the reading is out of normal body temperature range.
- 7) Remove the batteries from the thermometer if the unit will not be used for an extended period. This will prevent battery leakage causing damage to the thermometer
- 8) Do NOT disassemble the unit. Open the battery cover only when replacing batteries.

4.5 Cleaning and Care

Use a soft, dry cloth to clean the exterior of the thermometer.
70% alcohol swap can be use to disinfect the thermometer.

4.6 Batteries replacement

The thermometer uses “AA” type batteries. Battery replacement is required, when:

- 1) A battery symbol appears and flash on the screen
- 2) Low power warning reminder “beep-beep” sound is heard.

To replace the batteries, open the battery cover, and place the batteries in the correct “negative” and “positive” electrodes.

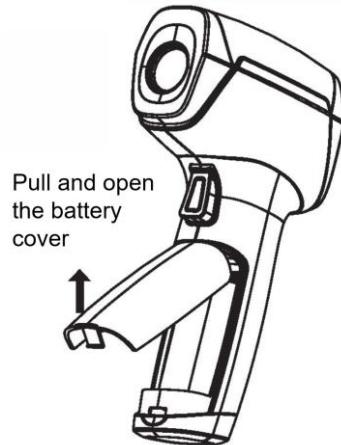


Figure 6 - Open battery cover

5 Operating Procedure

Procedure for VISITOR

1. Upon arriving at the premises, visitor shall use their mobile phones to scan the QR code provided at the temperature screening checkpoint.

***Note:**

- (1) Both Android and iOS are support, using their native camera apps.
- (2) Internet connection is required.

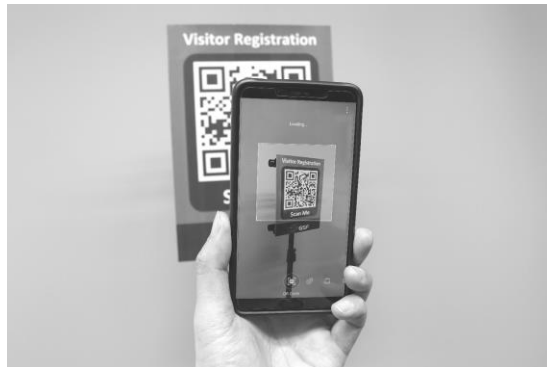


Figure 7 - Scan QR code using mobile phone for registration

2. When QR code is scanned successfully, the browser app on Visitor's phone will launch and then the registration form will be displayed.
3. Visitors are required to fill in their **Full Name** and **Phone number** then press **Generate**.
4. Visitor will receive an email with a QR code in it.

 A screenshot of a mobile browser showing a registration form. The form has a title "GSF Visual Temperature Screening Solutions". Below the title are two input fields: "FULL NAME*" with the instruction "As on IC or Passport" and "PHONE*" with the example "e.g. 0121234567". At the bottom of the form is a "Generate" button.

Figure 8 -
Visitors are required to fill up a simple form



Figure 9 - QR code

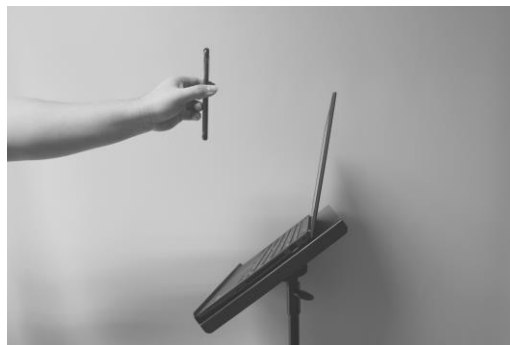
5. Visitor shall wait for their turn to be screened for body temperature.
6. Once reached their turn, display the QR code on the phone directly to the webcam, and wait for the webcam to scan the QR code.



Figure 10 - Scan QR code to the webcam

Procedure for SCREENING OFFICER

1. Guide the visitors to position their phone directly to the laptop webcam.



2. Guide the visitors to point their QR code at a parallel frontal manner to the webcam, so that the QR code appears as 'straight' as possible, and not 'skewed'. Please refer to example below:



3. When the QR code is successfully scanned, a 'Beep' tone can be heard from the VTS laptop or PC.

4. Now, use the thermometer, scan the visitor's forehead to measure their body temperature.
5. Press and HOLD the 'Measurement' button on Thermometer
6. Point the Thermometer lens to the forehead of visitor, keep 2cm away from their forehead. (as suggested in 4.3 - Method of Measurement)
7. Release the 'Measurement' button.
8. The measurement result will appear within 1 seconds.
9. Body temperature measurement will have either ONE of these results:

Condition	Result
Visitor body temperature is normal, below 37.5° Celcius	Normal Beep tone + "Normal body temperature" voice
Visitor body temperature is high, above 37.5° Celcius	Warning Beep tone + "Abnormal body temperature" voice

10. If 'abnormal body temperature is detected, you may measure the body temperature again as a confirmation.
11. For abnormal body temperature, please follow your instructed Standard Operating Procedure given from your management.

6 Frequently Asked Questions

1. Can the system support more than one thermometer simultaneously?

Yes, you may connect more than one thermometer to the system and use them simultaneously. However, please take note that each thermometer connection requires ONE (1) VTS license.

2. Where to get the QR code?

Method 1: Look for the QR code signs near the checkpoint. Scan it using your phone. Then register the e-Form to generate a personal QR code for yourself.

Method 2: Using your phone, go to gsfcorp.com/qr

3. I work here, do I need to fill up the e-Form again everyday or back from lunch?

No need. After your first registration, you can Save the QR code image to your phone device, or screenshot the QR code, for future re-use.

4. Do I Need to fill up form and create new QR code for every visit? Can I re-use the QR code? How to save the and reuse?

No need. Please refer to answer in in Question 3.

5. What if I don't have a smartphone or my phone is not supported?

You may use the device provided at the checkpoint to generate the QR code.

6. My phone is not working with your QR code.

You may use the device provided at the checkpoint to generate the QR code.

7. Many free online forms and QR check-in available, why I must pay for Macula VTS?

Macula VTS is NOT an online check-in solution. In Macula VTS, your personal details are not stored online. The information you provided in the e-Form is solely used for generation of the QR code. The QR code is then used at the checkpoint, so that the Macula VMS will pair your face appearance, with the information and also the body temperature.

8. Where is the report saved? How to export the report? How long should I keep it?

The report is saved in the Macula VTS database. To export the report, you need to have authorized login to the Macula VTS. Please refer to the Operation Manual for Macula VTS.

The recommended archive duration of the report is **3 months**.

9. Can I change the questions in the form from time to time?

Yes, you may change the questions. However, you must abide and choose from the fixed set of questions supported.

10. How do I view the check-in data?



Please refer to the answer in question 8.






7 Troubleshooting

7.1 General

	Symptoms	Potential Root Cause(s)	Solution
1	Thermometer display is empty	<p>Root cause 1 The thermometer has been idled for more than 2 minutes and auto power off.</p> <p>Root cause 2 The thermometer battery level is low.</p>	<p>For Root cause 1 Press and hold the 'scan' button for 2 seconds to power on the thermometer</p> <p>For Root Cause 2 1. Replace the batteries (2x AA size) 2. Press and hold the 'scan' button for 2 seconds to power on the thermometer.</p>
2	The temperature data does not appear on the video, after a scan	The thermometer is not connected to the VTS server	<ol style="list-style-type: none"> 1. Make sure thermometer is POWER ON. 2. Make sure the laptop or PC bluetooth is ENABLED.
3	Thermometer failed to be detected on VTS server	Windows update is currently running in the background	Wait for the windows update to complete
4	The QR code is difficult to be read by the webcam	<p>Root cause 1 Phone screen brightness is too dim or too bright</p> <p>Root cause 2 Visitor's phone screen is cracked</p> <p>Root cause 3 Visitor's phone screen is too small</p> <p>Root cause 4 Too much movement, hand not steady</p>	<p>For Root cause 1 Adjust the screen brightness to 30-50% and then try again.</p> <p>For Root cause 2 Register the visitor using logbook and pen.</p> <p>For Root cause 3 Move the phone close to the webcam and try again.</p> <p>For Root cause 4 Hold the phone steadily and do not move the hand.</p>
5	Visitor does not use a smart phone, therefore cannot scan QR code	Usually only smart phone support QR code reading	Register the visitor using logbook and pen.

7.2 Thermometer Display Message

Display Message	Root Cause	Solution
	Ambient temperature is out of operating (10°-40°C)	Allow the thermometer remain in room temperature (10°-40°C) for 30 minutes.
	Sensor error	Please contact TrueBlue Support

Display Message	Root Cause	Solution
	Memory error	Please contact TrueBlue Support
	The Ambient temperature is instability	Allow the thermometer to remain in room temperature (10°-40°C) for 30 minutes
	Temperature measured is higher than normal human temperature range (Body above 42. 2°C)	Wait for the person's temperature to normalize, then take a new measure
	Temperature measure is lower than normal human temperature range (Body below 34°C)	Wait for the person's temperature to normalize, then take a new measure
	Low battery	Replace batteries