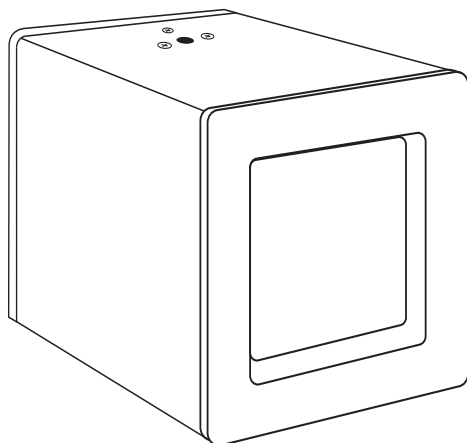


# TEMPERATURE REFERENCE SOURCE I - MINI

## USER MANUAL

### FOR SERIES IR CAMERAS

PLEASE READ THIS MANUAL BEFORE SWITCHING THE UNIT ON.  
IMPORTANT SAFETY INFORMATION INSIDE.



**THIS DEVICE IS INTENDED FOR ADJUNCTIVE USE WITH OTHER CLINICAL DIAGNOSTIC PROCEDURES TO MEASURE HUMAN BODY TEMPERATURE VIA NON-CONTACT SKIN MEASUREMENTS VISUALIZED FROM THE HUMAN FACE. NOT MEANT FOR STANDALONE CLINICAL DIAGNOSTIC PROCEDURES OR TO TREAT OR DIAGNOSE PATIENTS.**

ICI cameras fall under US Federal Law and Export Control.

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## 1. General Description

The Temperature Reference Source I - Mini a 35 mm (1.375") isothermal target specially designed to measure between 35 °C to 37 °C (95 °F to 98.6 °F). It is highly accurate making it a perfect temperature reference for non-contact calibration and associated applications.

## 2. Safety Information

- This device must be installed by qualified service personnel or system installation personnel. Installation zone should be free of oil pollution and chemicals, free of flammable and explosive items.
- The use of ambient temperature of 5 °C to 35 °C (41 °F to 95 °F).
- The distance between the surrounding objects should not be less than 10 cm.
- Do not touch the Temperature surface.
- Do not place any objects on the power cord, and do not place the device where the power cord can be easily touched.
- Do not drop or throw the device. Do not put the product into a fire.
- Do not submerge the device in water. Protect the device from heavy seas and projecting jets of water. Rated for environments of 80% relative humidity.
- Always use a ground ingress socket to prevent accidental electric shock. Prior to start of the device, make sure that the power supply is properly connected. If the power supply is connected incorrectly, the device may be damaged.
- Do not change the range of the Temperature References Source to avoid damaging the equipment or causing a safety accident.
- Do not disassemble or modify the Temperature References Source.
- Temperature References Sources cannot be used for purposes other than temperature testing and calibration.
- It is recommended to calibrate the device annually.
- If the device operates abnormally, please contact the supplier and do not dismantle the device on your own.

## 3. Intended Use

Temperature Reference Sources are used as an adjunct to other clinical diagnostic procedures for elevated body temperature screening based on the skin surface temperature visualized from the human face.

Patient population: All age groups

Environment of use: hospitals, sub-acute healthcare settings, public areas, i.e., airports.

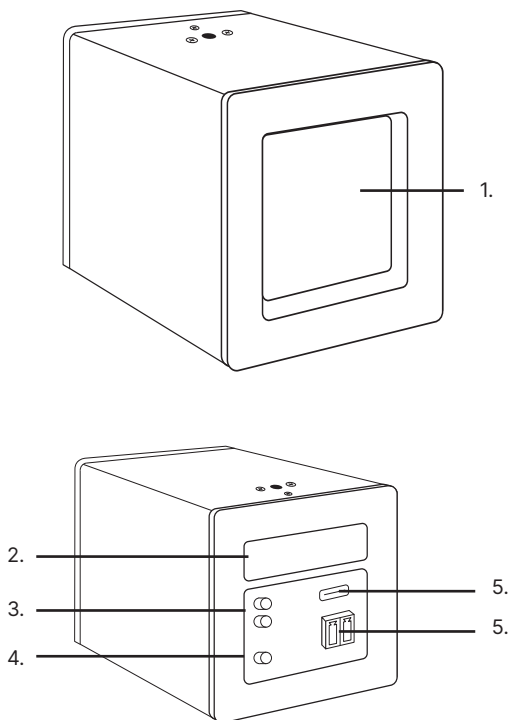
## 4. Technical Specifications

**SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE**

Temperature Range	35 °C to 37 °C (95 °F to 98.6 °F)
Operation Range	5 °C to 35 °C (41 °F to 95 °F)
Storage Range	-40 °C to 70 °C (-40 °F to 158 °F)
Accuracy	± 0.2 °C @ 100 °C (0.36 °F @ 212 °F)
Stability	± 0.1 °C to 0.3 °C/30 minutes (± 0.18 °F to ± 0.54 °F/30 minutes)
Target Size	35 mm ± 0.5 mm (1.375" ± 0.02")
Resolution	0.1 °C (0.18 °F)
Emissivity	0.97 ± 0.02
Power	11V~25V
Dimensions	60 mm x 60 mm x 68 mm (L x W x H ± 0.5 mm) (2.36" x 2.36" x 2.68" (L x W x H ± 0.02"))
Weight	392 g (13.8 oz)
Humidity	80%, relative
Interface	USB Type-C/WiFi

## 5. Structure

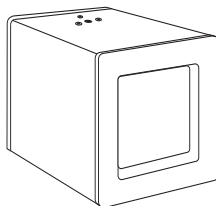
### 5-1 Appearance and Definitions of Housing Interface



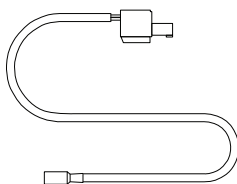
1. Temperature surface
2. Screen
3. Temperature controls (+ and -)
4. Temperature settings (set)
5. USB Type-C interface
6. Wurth connector interface

## 6. Package Contents

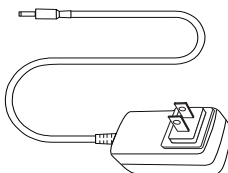
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Temperature Reference



Wurth Power Cord



Power Adapter

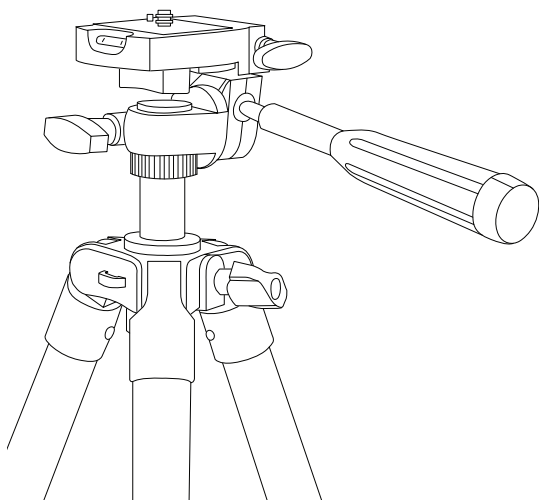
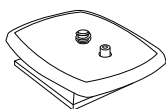
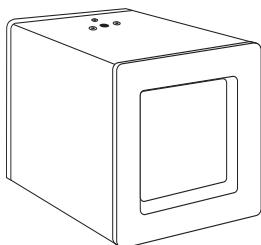
**ENSURE ALL SYSTEM EQUIPMENT AND COMPONENT ITEMS ARE  
PRESENT BEFORE BEGINNING INSTALLATION**

## 7. Installation Instructions

**SELECT AN APPROPRIATE AREA FREE OF IMMEDIATE AIRFLOW FROM DOORWAYS AND AIR CONDITIONING/VENTILATION SYSTEMS. THE SELECTED AREA SHOULD HAVE A STABLE AMBIENT TEMPERATURE BETWEEN 20 °C AND 24 °C (68 °F AND 75.2 °F) AND RELATIVE HUMIDITY RANGE FROM 10% TO 50%.**

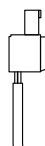
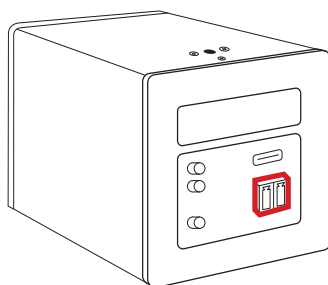
**A.**

Mount the Temperature Reference to a tripod using the ¼-20 mount.



**B.**

Plug Wurth power cord into Temperature Reference.



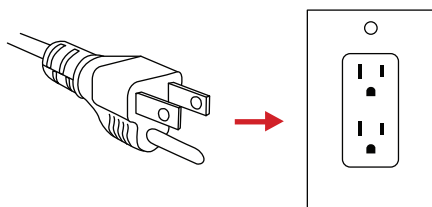


**C.**

Plug the jack end of the power adapter into the barrel cable attached to Wurth power cord.

**D.**

Plug power cord into a 110/120V electrical outlet.



**DEVICE POWERS ON AUTOMATICALLY WHEN PLUGGED INTO ELECTRICAL OUTLET.**

**MAKE SURE TRIPODS DO NOT BLOCK THE DIRECT PATH OF PERSON(S) TO BE IMAGED TO ENSURE THE EQUIPMENT WILL NOT BE MOVED OR KNOCKED DOWN. USING A DIVIDING BARRIER WILL HELP KEEP TRIPODS SEPARATE FROM THE PATH.**

**ENSURE THE CAMERA LENS AND TEMPERATURE REFERENCE SOURCE ARE FACING EACH OTHER ON PARALLEL PLANES. MAKE SURE CAMERA TARGET AREA IS FACING A NON-REFLECTIVE BACKGROUND.**

**ALLOW AT LEAST 45 MINUTES FOR THE TEMPERATURE REFERENCE SOURCE TO WARM UP. THIS WILL PROVIDE THE MOST ACCURATE SKIN TEMPERATURE MEASUREMENTS.**

## CRITICAL INFORMATION

- The technology should be used to measure only one subject's temperature at a time.
- Measurements should not be solely, or primarily, relied upon to diagnose or exclude a diagnosis of any disease.
- Elevated body temperature should be confirmed with secondary evaluation methods (e.g., an NCIT or clinical grade contact thermometer).
- Signage should instruct for the removal of glasses, headwear, and masks.
- Read the current government guidance regarding the use of telethermographic systems for skin temperature measurements. Additional information can be found by reading IEC 80601-2-59:2017 Medical electrical equipment — Part 2-59: Particular requirements for the basic safety and essential performance of screening thermographs for human febrile temperature screening and ISO/TR 13154:2017 Medical electrical equipment - Deployment, implementation and operational guidelines for identifying febrile humans using a screening thermograph.

## CRITICAL INFORMATION

## 8. Operation Instructions

### 8-1 Change the Setting Temperature

To change the set temperature:

1. Click "set" button. The screen display will show the current set temperature and the first number will start flashing;
2. Click "+" or "-" key to change the number;
3. Click "set" key again and the next number will start flashing;
4. Click "+" or "-" key to continue to change the set temperature until the display conforms to the desired temperature.

Temperature locks in after 3 seconds of inactivity.

**ICI ADVISES AGAINST CHANGING THE TEMPERATURE REFERENCE SOURCE SETTINGS.**

### 8-2 Key Locking Function

The key locking function is to prevent accidental changes to the system. The key locking function is divided into key locking and key unlocking.

#### 8-2-1 Key locking function

- Press the "+" and "-" keys at the same time until the green LED light goes off and then on again.

The key functions are now locked until unlocked.

#### 8-2-2 Key locking function

- Press the key "set" and "+" at the same time until the green LED light and the screen turn off and then turn on again.

The key functions are now unlocked until locked.

## 9. Cleaning and Maintenance

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### 9-1 Cleaning the Temperature Reference Surface

Do not use corrosive chemicals on the unit. The Temperature Reference Source surface is susceptible to grease and fingerprints which will lead to a decline in performance, or cause scratches. If dirt is found, please use the following method:

- Use a soft brush to clean the dust from the Temperature Reference Source surface and never wipe it with a cleanser.

### 9-2 Disinfecting the Camera Surface

Do not use cleaning solutions on the Temperature Reference Source heating surface, i.e. the 35 mm (1.375") area. It is recommended to disinfect the body of the Temperature Reference Source regularly with a non-corrosive sanitizing product. Follow the directions provided by the manufacturer of the cleaning solution. Adhere to the sanitation protocols and cleaning schedule set forth by the employer.

### 9-3 Device Calibration

It is recommended to have your device re-calibrated annually. Contact customer service to schedule maintenance.

### 9-4 Storage

When the equipment is not in use, the Temperature Reference Source should be placed in a dust-free and moisture-free environment with a stable temperature and humidity.

## 10. Troubleshooting

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### 10-1 Device is not powering on or warming up

- Reconnect power cables
- Ensure the device has been powered on for a few minutes
- Unplug the power cable from the wall and plug it back in

**WHEN THE TEMPERATURE OF THE TEMPERATURE REFERENCE SOURCE SURFACE IS NOT WARMED UP TO THE SET TEMPERATURE THE RED LED LIGHT WILL BE ON CONTINUOUSLY. AFTER THE TEMPERATURE CONTROL IS STABLE THE RED LED LIGHT WILL TURN OFF.**

## 11. Site and System Setup Validation Checklist

**Site:** \_\_\_\_\_

**System:** \_\_\_\_\_

**Contact Person:** \_\_\_\_\_

**Date:** \_\_\_\_\_

\*\*Site and system setup validation requires an infrared camera and IR Flash STM software.

\*\*\*All those tasked with the initial setup of the temperature screening equipment must be present during this training.

\*\*\*\*This portion of the validation requires a live video feed with the instructors.

### 11-1 The Screening Area

- ☐ Ensure that this area is free from:
  - Any direct or indirect (reflected) sunlight
  - Warm or cold conductive airflow
    - HVAC vents/intakes
  - Any radiant energy from electrical sources
  - Direct or indirect lighting on individual being screened
- ☐ Room temperature is 20 °C - 24 °C (68 °F - 75 °F)
- ☐ Relative humidity is within 10% – 50%

### 11-2 The Screening Background

- ☐ Placement is parallel and perpendicular to screening camera. See your camera's manual for recommendations.
- ☐ Consists of a non-IR reflective homogeneous background
  - Minimum size is 10' x 8'
  - White to gray flat finish
- ☐ The Temperature Reference Source is in front of background (direct line of sight to the screening camera) and is framed within the screening image

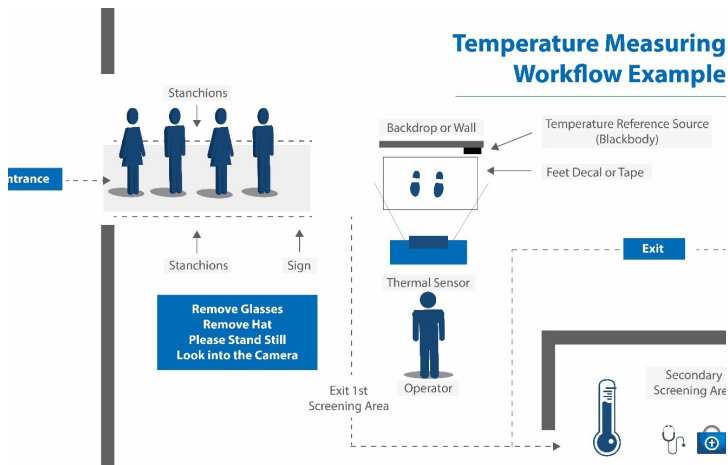
### 11-3 The Traffic Flow

- ☐ Establish a guided pathway from the entrance to the screening area

Continues

- ☐ Design this pathway so there is an equilibration time
- ☐ No restrooms on ingress pathway
- ☐ Signage should instruct for removal of glasses, headwear, and masks
- ☐ Mark the point of measurement on the floor ("V/X" or a set of footprints)
- ☐ The distance is unique to each screening system
- ☐ Ensure the line of sight from the Temperature Reference Source to the camera is never blocked by an individual entering or leaving the point of measurement
- ☐ The secondary screening area should be setup near the screening area

#### 11-4 Typical traffic flow illustration:



#### 11-5 IR Camera Placement

- ☐ Level on tripod or other suitable support
- ☐ Perpendicular to floor and individual being screened
- ☐ Height of camera
  - ☐ Average male 70 ± 4 inches; Average female 65 ± 4 inches
  - ☐ 5'4" – 5'8" will image 4'8" to 6'4" individual
  - ☐ Larger will require a height adjustment to camera

Continues

- ☐ Distance of camera to individual being screened is determined by the camera. See camera's manual.
  - ☐ The individual's face and Temperature Reference Source should be in the frame
- ☐ Distance from camera to Temperature Reference Source is determined by the camera. See camera's manual.
  - ☐ Behind the individual being screened yet visible within the frame of the image
- ☐ Protect the camera from exposure to direct sunlight to avoid damage to the camera sensor

#### **11-6 Temperature Reference Source**

- ☐ On tripod or other stable stand, in front of background, and positioned for visibility within the frame of the image
- ☐ Temperature is set at 35 °C or 37 °C (95 °F to 98.6 °F)
- ☐ Warm-up time is 15 minutes. Recommended 45 minutes to ensure accuracy.

#### **11-7 Software**

- ☐ Set up the software according to the instructions
- ☐ Documentation can be found online on the IR Flash STM web page under the Downloads section or at this address:

<https://infraredcameras.com/ir-flash-stm-manual/>

#### **11-8 Final Step**

Final validation is dependent upon a signed copy of this checklist from each person responsible for each site.

Upon completion please sign below:

**ICI representative:**

**Company representative:**

Signature: \_\_\_\_\_ Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_ Print Name: \_\_\_\_\_

Date: \_\_\_\_\_

## 12. About ICI

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You may reach a representative by phone or email Monday – Friday 8:00AM - 5:00PM CST.

ICI manufactures complete systems and software. We can provide complete engineering, software, and OEM solutions. Our Fortune 500 clients rely on us for infrared equipment and thermography training (which we offer through the Infrared Training Institute).

In addition to providing custom germanium, silica, and sapphire optics, we also build windows for enclosures, as well as custom pan and tilt units. We can even provide customizable explosion-proof systems.

Our knowledge and experience stems from years of using infrared imaging and temperature measurement instruments to provide solutions to: managers, engineers, scientists, inspectors and operators in space, power companies, medical, pulp and paper, food industry, research and development, and various process industries. You can see our products and services used in industrial, commercial, and government applications worldwide. Originally named Texas Infrared (still DBA), Infrared Cameras, Inc. has been in business since March, 1995.

Thank you for your dedicated and continued support.