Dual-spectrum Accurate Temperature Measurement Camera
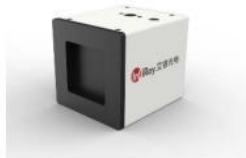
1 Overview

DTC300 is a dual-spectrum accurate temperature measurement camera, which is developed for the body temperature screening and has the characteristics of non-touch, high sensitivity and flexible installation etc. It can be used for quick temperature detection, and trigger the alarm system when the pedestrian who has abnormal body temperature passes through the orderly channel in public place (such as hospital, enterprise, school, community, mall and supermarkt etc.), with its integrated high precise infrared temperature measurement camera and accurate face recognition technology. It roles as a quick tool and provides accurate body temperature data during the period of fighting with epidemic.

2 Product and Accessories

■ The product and accessories are listed as followings.

Standard package		
DTC camera ×1	Type-C cable ×1	module connection cable ×1
High precise blackbody ×1	Tripod ×2	Extension shaft ×4

■ In order to work more effectively, following accessories also needed：

Computer performance: CPU higher than Intel i5-9500T/ at least 8G memory/ 64-bit win10 system(version higher than V201709) / Support Gigabit Ethernet/ Graphic card supports GPU and Vulkan/ Include at least 3 USB interfaces.

Display: 1920 × 1080 resolution.

3 Technical Parameters

Model	DTC300
Detector Parameters	
Detector type	VOx Uncooled Infrared FPA Detector
Resolution	384×288
Pixel pitch	17μm
Response spectrum	8～14μm
Lens Parameters	
Focal length	9.7mm
Focus type	Athermal
FOV(Horizon×Vertical)	37.2°×28.3°
IFOV	1.7mrad
Visible Light Parameters	
Resolution	1920×1080
Focal length	4.4mm
FOV	90°
Temperature Measurement Function	
Measuring range	0~60℃
Measuring accuracy [1]	±0.5℃@target temperature 33℃~42℃ (without BBS)
	±0.3℃@target temperature 33℃~42℃ (with BBS)
Effective measuring distance	1~3m

Interface	
Power supply	USB × 2（5V DC）
Communication interface	USB
Communication protocol	UVC（USB Video Class）
Physical Parameters	
Dimension	110mm×75mm×56mm
Environment Adaptation	

Operating temperature	-10℃~50℃
Storage temperature	-20℃～+65℃
Humidity	5~95%，no condensation
Software Function	
Face recognition	Support intelligent face recognition
Secondary development	Provide Windows SDK and development manual

4 Installation Guide

4.1 Mounting and Connecting Thermal Camera

■ As shown in right figure, there is a 1/4-20UNC hole at the bottom of camera, which is used to mount camera to a adapter bracket or quick shoe.
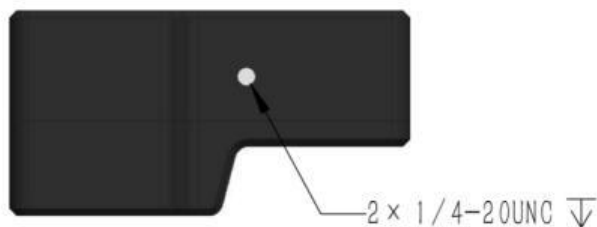
■ Install the quick shoe at the bottom of camera with a 1/4 screw, and install the camera on the PTZ of tripod, locking the screw at side. As shown in right figure.

■ Plug Type-C data cable to the left interface, and then plug the module cable to the right connector. As shown in right figure.

■ Plug the three USB interfaces at the other end to the computer which has installed DTS PC client. As shown in right figure.


■ After powering on computer, the camera startup automatically with the sound of shutter working. Please wait for 40 minutes before performing measuring to ensure the measurement accuracy.

4.2 Site Layout Solution

■ **Reference layout**

Refer to following Figure for the layout plan in a wide space area. The external reference blackbody is placed directly in front of the infrared camera and made it observable in the imaging field of view. Pedestrians need to be guided and make sure all of them can be observed with the thermal imaging camera.
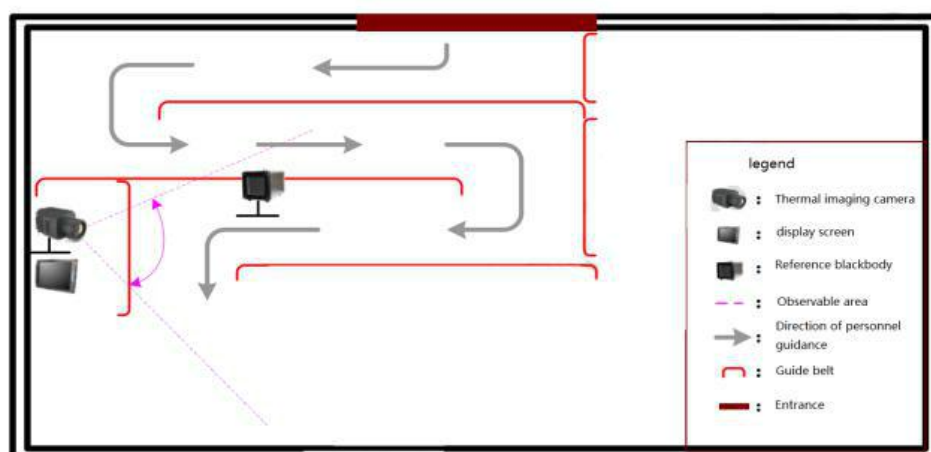

■ **Installation direction and height of camera**

The installation distance and height of the camera should be arranged according to the actual situation, the recommended distance is 2m, and the installation height should ensure that all of the observed pedestrians can appear in the field of view.

■ **Reference blackbody layout**

As shown in following Figure, adjust the direction and position of the infrared human body thermal imaging camera and the reference black body so that the reference black body appears in the 2/3 central area of the camera market and shall not be shielded by pedestrians.
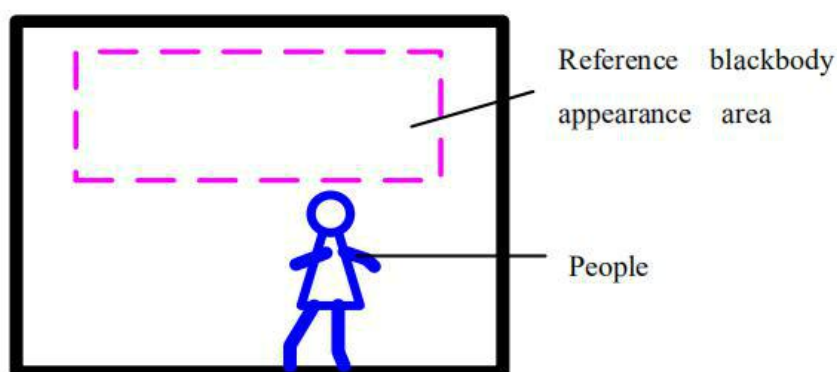
■ **Environmental requirements**

The infrared temperature measuring camera is arranged in an environment where the temperature is relatively constant and there is no direct sunlight, to avoid temperature measurement errors caused by the temperature changing environment affecting the human skin surface temperature. According to the above installation requirements, the following installation methods can be used to install equipment in halls and aisles.

4.3. Site Installation and Layout Considerations

■ **Avoid placing it at the entrance with airflow disturbance**

Avoid the temperature rise and fall caused by the air surface disturbance of the skin of the person being tested, which will affect the false alarm or miss alarm of the infrared temperature measuring camera.

■ **Select the right monitoring scenario**

Avoid using infrared cameras in environments with large areas of high temperature objects (such as electronic billboards, large area light boxes, glass walls that are exposed to the sun, etc.). These hot objects may cause false alarms or missed alarms.

■ **The ground of the monitoring site should not be too smooth**

Avoid the temperature rise and fall caused by the airflow disturbance on the skin surface of the person being tested, which will affect the false alarm or leakage of the infrared thermometers.

■ **Reserve a long enough channel**

Prevent the person being tested from entering the room and testing directly in a hot / cold outdoor environment. Since the skin temperature is higher or lower than real skin temperature when they first enter a room with a constant temperature from a hot / cold outdoor environment, at this time, a long enough channel needs to be reserved to allow the subject's body surface temperature to gradually stabilize before testing, to avoid false alarms or missed alarms of the infrared camera.