LEADING THE WAY IN THERMAL IMAGING

Fever Screening System

CK350-F

www.satir.com
Infectious Diseases Serious Events

WHO shows in 2003, the SARS epidemic data statistics (data until 11th July 2003).

<table>
<thead>
<tr>
<th>Country</th>
<th>Cases</th>
<th>Fatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>349</td>
<td></td>
</tr>
<tr>
<td>Hong Kong</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>Taiwan</td>
<td>180</td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td>251</td>
<td>41</td>
</tr>
<tr>
<td>Singapore</td>
<td>238</td>
<td>33</td>
</tr>
</tbody>
</table>

Ebola virus data statistics

<table>
<thead>
<tr>
<th>Year</th>
<th>Cases</th>
<th>Fatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>7373</td>
<td></td>
</tr>
<tr>
<td>2007-2012</td>
<td>534</td>
<td>289</td>
</tr>
<tr>
<td>2000-2005</td>
<td>768</td>
<td>495</td>
</tr>
<tr>
<td>1994-1996</td>
<td>460</td>
<td>352</td>
</tr>
<tr>
<td>1976-1979</td>
<td>637</td>
<td>454</td>
</tr>
</tbody>
</table>

Close Connection between Infectious Diseases and Fever

According to clinical manifestations, among the 39 legal infectious diseases in China, 21 have premature fever symptoms.

Body temperature measurement is an important method for infection control.

Principles for Preventing and Controlling Infectious Diseases

- Early Discovery
- Early Report
- Early Treatment
- Early Isolation
- Cut off the infection path
- Prevent spreading

Temperature Measurement and Face Recognition System

Intelligent Facial Recognition
- Deep learning
- Quickly targets high or abnormal temperatures

Thermal Temperature Measurement
- No-contact temperature measurement
- Quickly measures multiple targets at a time

Big Data Analysis
- Health data
- Statistics report
- Analysis of epidemic trend

System Formations

- User Friendly Management
- Unified Management
- App
- Realtime
- Personal Information
- Health Management
- Alarm Management
- Report Management
System Functions

**Online monitoring for rapid temperature measurement**
- Simultaneous detection of up to 16 targets, at 20 fps
- Efficient temperature measurement

**Archives Management**
- Data management
- Batch import/export
- Self-learning algorithm, face library regular update

**Multilevel Distribution Architecture**
- 3 levels distribution deployment
- Servers and Clients management based on different project scale

**Health Archives Management**
- Temperature data
- Data structuring
- Health archives
- Health status
- Tips

**Mobile APP**
- Real-time health data monitoring
- Health data statistics, user receives health report

**Data Statistics Report**
- Statistic reports and analysis according to Age/Gender/Time/Type and illness/Location
Pre Warning Management

- Face recognition intelligent technology works in combination with temperature measurement technology, it provides the location of the over-temperature target solving a problem when over-temperature target information cannot be confirmed immediately, at the same time camera provides materials for a further supervision and sends a report.
- Audio support

System Management

System status monitoring, system configuration, operation log, abnormal log, debug information etc.

Solution - Education

Applications

- School
- Airport
- Custom
- Hospital

- Dormitory
- Library
System Diagram

Blackbody for real-time temperature calibration

1 to 5 meters

Camera

Wall bracket

Ceiling Bracket

Tripod

Network cable connect to PC/Laptop
**CK350-F Specification**

**Thermal Camera**
- Detector Type: Uncooled IRFPA Microbolometer
- Effective Pixels: 384(H) × 288(V)
- Pixel Size: 17um
- Effective Pixels (NETD): 40mK @ F1.0, 30K
- Spectral Range: 8-14um
- Image Setting: Polarity, LUT/ DVE/ Mirror/ FCC/ 3D DNR, Brightness/Contrast/ ROI

**Thermal Lens**
- Lens Type: Fixed
- Focus Control: Manual Focus
- Focal Length: 8mm
- F No.: F1.0
- Angle of View: H: 46°, V:35.3°

**Visible Camera**
- Image Sensor: 1/1.9” Sony CMOS
- Effective Resolution: 3MP
- Shutter Speed: 1/50 ~ 1/64,000s
- Wide Dynamic Range: True WDR 120dB
- S/N Ratio: More than 55dB
- Focus Control: Motorized

**Video and Audio**
- Compression: H.265, H.264, MJPEG
- Frame Rate: 25/30fps
- Bit Rate: 100Kbps~6Mbps
- Ration of Interest: Off / On (8 Zone, Rectangle)
- Digital Zoom: 16x
- Mirror: Support
- Deblur: Support
- Motion Detection: Support
- Privacy Masking: Off / On (4 Area, Rectangle)
- DVE Image Enhance: Support
- Audio Compression: G.711, AMR, RAW_PCM (Optional)

**Intelligence**
- Intelligent Functions: Motion detection, Disc alarm, I/O alarm, Temperature alarm
- IVS: Smart Body Detection, Perimeter, Single Virtual Fence, Double Virtual Fences, Object Left, Object Removed

**Temperature Detection**
- Detection Mode: Body temperature monitoring
- Detection Preset: Max 16 goals
- Temperature Alarm: Over temperature alarm, Temperature difference alarm
- Accuracy: ≤ 0.3 °C (Emission rate, distance, ambient temperature, etc.)
- Response Time: <30ms
- Theory of temperature measurement range: -20°C ~ 60°C (-4°F ~ 140°F)
- Temperature display mode: Temperature target >5 °C, Display absolute temperature value; Temperature target <5 °C, Display relative temperature value (temperature difference DEV = highest value - average)

**Network**
- Ethernet: RJ-45 (10/100Base-T)
- Protocols: IPv4/IPv6, HTTP, RTSP/RTP/RTCP, TCP/UDP, DHCP, DNS, PPPoE, SMTP, SIP, .802.1x
- Interoperability: ONVIF, CGI, SDK
- Streaming Method: Unicast
- Max. User Access: 10 Users
- Storage: Local PC for instant recording, Micro SD card 128GB
- Web Viewer: <IE11, Chrome, Firefox
- Web Language: English, Chinese, Polish, Italian, Portuguese, Spanish, Russian, French, Czech, Hungarian

**Interface**
- Ethernet: 1 Ethernet (10/100 Base-T) RJ-45 Connector
- Audio Interface: 1ch Audio In, 1ch Audio Out
- Alarm: 2ch Alarm In, 2ch Alarm Out
- RS485: Support
- BNC Output: N/A
- Reset Button: Support (Built-in)

**General**
- Power Supply: DC12V/POE (IEEE 802.3af)
- Power Consumption: Max 10W
- Operating Temperature: -30°C~60°C (-22°F~140°F)
- Storage Conditions: 0 ~ 90% RH
- Certifications: CE /FCC
- Ingress Protection: IP68
- Casing: Metal
- Dimensions: 212 × 182 × 136mm
- Net Weight: 2Kg

**Dimensions(mm)**

**Accessories**
- Wall bracket (Optional)
- Ceiling Bracket (Optional)
- Tripod (Optional)

**Wall/Ceiling bracket for camera and blackbody**
- Material: Alloy
- Color: White

**Ceiling bracket**
- Product Dimensions: Camera: ø140mm×700mm~ø140mm×120mm
  Blackbody: ø130mm×700mm~ø130mm×120mm
- Weight & Max. Load: 1020g~820g~5Kg

**Wall bracket**
- Product Dimensions: ø86mm×234mm×212mm
- Weight & Max. Load: 600g~6Kg
Blackbody Specification

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Range</td>
<td>40°C (Ambient temp. +5.0°C to 50°C)</td>
</tr>
<tr>
<td>Emissive Area</td>
<td>70mm x 70mm</td>
</tr>
<tr>
<td>Temperature Resolution</td>
<td>0.1°C</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±0.2°C (@40°C)</td>
</tr>
<tr>
<td>Stability</td>
<td>±(0.1~0.2) °C/30min</td>
</tr>
<tr>
<td>Emissivity</td>
<td>0.97 ± 0.02</td>
</tr>
<tr>
<td>Power Supply</td>
<td>220V AC 50Hz 50W</td>
</tr>
<tr>
<td>Dimension/Weight</td>
<td>W110mm x H120mm x D180mm, 1.8kg</td>
</tr>
<tr>
<td>Operating ambient temp.</td>
<td>0°C〜40°C / ≤80%RH</td>
</tr>
<tr>
<td>Option</td>
<td>RS485 communication</td>
</tr>
</tbody>
</table>

Description:
Product features: The application of these sources are calibrations of IR thermometers, IR sensors and thermal imagers which are used for human body temperature measurement.

A black body or blackbody is an idealized physical body that absorbs all incident electromagnetic radiation, regardless of frequency or angle of incidence. It does not only absorb radiation but can also emit radiation. The name "black body" is given because it absorbs radiation in all frequencies, not because it only absorbs. Blackbody radiation is radiation produced by heated objects, particularly from a blackbody. A blackbody is an object that absorbs all radiation (visible light, infrared light, ultraviolet light, etc.) that falls on it. This also means that it will also radiate at all frequencies that heat energy produces in it.

Why do Infrared camera require a blackbody for body temperature measurement?

The thermal camera system required the blackbody as a constant stable temperature source for real-time calibration to ensure the accuracy.

Calibration in different temperature environments has been set to default at factory, but the accuracy could be affected by the environment temperature difference.

Without the blackbody real-time calibration, the camera’s temperature reading could drift from ±1°C to ±2°C.

With the blackbody, a real-time homogeneity calibration will be performed by system to ensure and improve the accuracy of the system up to ±0.3°C.
**CK350-NVR32 Specification**

**System**
- Main Processor: Dual-core embedded processor
- Operating System: Embedded LINUX

**Video and Audio**
- IP Camera Input: 32 Channel
- Audio I/O: 1/1
- Two-way Talk: Yes

**Face Recognition**
- Performance: Max 20 face pictures /sec processing 32ch picture stream face recognition
- Stranger Mode: Detect strangers’ faces (not in device’s face database)
- Database Management: Up to 16 face databases with 10,000 face images in total
- Database Application: Every data can be applied to any channel
- Trigger Events: Buzzer, Alarm push, Alarm prompt, Email, Alarm Out, Compare the result simultaneously, etc.

**AI Recognition**
- Face: Face comparison results (registrant (name and ID), stranger, channel, similarity)
- Vehicle: Recently captured image display
- Human Body: Recently captured image display
- Non-motor: Recently captured image display
- AI Search: Time, Properties, Pictures, Gender, Riding style, Vehicle color, License plate

**Display**
- Interface: 2 HDMI, 1 VGA
- Resolution: HDMI 1: 1920×1080, 1440×900, 1280×1024
- HDMI 2: 3840×2160, 1920×1080, 1440×900, 1280×1024
- VGA: 1920×1080, 1440×900, 1280×1024
- Decoding: 32ch 720P, 16ch 1080P, 8ch 4MP, 4ch 8MP, 1ch 12MP
- Multi-screen Display: 1st Screen: 1/4/8/9/16/32/36
- 2nd Screen: 1/4/9/16/32/36

**Recording**
- Compression: H.265+/H.265/H.264/H.264
- Resolution: 12MP, 8MP, 6MP, 5MP, 4MP, 3MP, 1080P, 720P, D1 etc.
- Record Rate: 320Mbps
- Bit Rate: 128Kbps ~ 8192Kbps Per Channel
- Record Mode: Manual, Schedule (Regular, Continuous, Motion Detection, Video Loss, Camera Tamper, Alarm in, IVS)
- Record Interval: Post-record: 30 ~ 60 sec

**Video Detection and Alarm**
- Trigger Events: Recording, Buzzer, Push message, Pop up message.
- Video Detection: Motion Detection, Video Loss, Camera Tamper, IVS
- Alarm In/Out: 16/4

**Playback and Backup**
- Sync Playback: 16/9/4/1
- Search Mode: Time, Date, Alarm, Picture grid, Event
- Playback Function: Play, Pause, Stop, Rewind, Fast play, Slow play, Next File, Previous File, Next Camera, Previous Camera, Full Screen, Shuffle, Backup, Selection, Digital Zoom
- Backup Mode: USB Device

**Network**
- Max. User Access: 10 users
- Smart Phone: iPhone, iPad, Android
- Interoperability: ONVIF, SDK, CGI

**Storage**
- Internal HDD: 4 SATA Ports, up to 12TB for each HDD
- eSATA: Support
- Cloud Storage: Support

**Disk Array**
- Array Type: RAID 5, RAID 6, RAID 10

**Interface**
- Interface: 2 RJ-45 port (10/100/1000Mbps)
- PoE Interface: N/A
- PoE Max Power: N/A
- USB: 3 ports (USB 2.0 x2, USB3.0 x1)
- RS485: Support
- RS232: Support

**General**
- Power Supply: AC100V~240V
- Power Consumption: < 15W (without HDD)
- Operating Conditions: -10°C ~ 50°C (14°F ~ 122°F)
- Storage Conditions: Less than 90% RH
- Certifications: CE/ FCC
- Dimensions: 440×368.3×70mm
- Net Weight: 4.2kg (No disk)