

## DS-2TD4228-7/S2 Thermal & Optical Bi-spectrum Network Speed Dome



Hikvision DS-2TD4228-7/S2 Thermal & Optical Bi-spectrum Network Speed Dome is applied to manufacture process supervision of pyrophoric materials in factories, electric substation, and hydropower station. The accurate temperature measurement system sends you alarms to protect you from property loss.

- Perimeter Protection function: line crossing, intrusion, region entrance and exit
- Temperature exception alarm for fire prevention,  $-20^{\circ}\text{C}$  to  $150^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$  to  $302^{\circ}\text{F}$ ),  $\pm 8^{\circ}\text{C}$  ( $\pm 14.4^{\circ}\text{F}$ )
- Fire detection algorithm
- $256 \times 192$  (the resolution of output image is  $1280 \times 720$ ) resolution  $12\ \mu\text{m}$ , VOx UFPA, NETD  $\leq 35\ \text{mK}$  ( $25^{\circ}\text{C}$ ,  $F\# = 1.0$ )
- Image processing technology: Liner, histogram, and self-adaptive thermal AGC mode, DDE, 3D DNR
- High quality detector with 10 years warranty
- Smart tracking: Panorama tracking, Event tracking and Multi-scene patrol tracking
- Smart tracking linkage: thermal view and optical view
- Smoke detection for fire prevention

## ▪ Specification

| Thermal Module         |                                                                                                                             |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Image Sensor           | Vanadium Oxide Uncooled Focal Plane Arrays                                                                                  |
| Resolution             | 256 × 192 (the resolution of output image is 1280 × 720)                                                                    |
| Pixel Interval         | 12 μm                                                                                                                       |
| Response Waveband      | 8 μm to 14 μm                                                                                                               |
| NETD                   | Less than 35 mK (@25 °C, F#=1.0)                                                                                            |
| Focal Length           | 7 mm                                                                                                                        |
| Focus Mode             | Athermalized                                                                                                                |
| IFOV                   | 1.71 mrad                                                                                                                   |
| Aperture               | F1.0                                                                                                                        |
| Field of View          | 25.0° x 18.8° (H × V)                                                                                                       |
| Min. Focusing Distance | 1.0m                                                                                                                        |
| Digital Zoom           | ×2, ×4, ×8                                                                                                                  |
| Optical Module         |                                                                                                                             |
| Image Sensor           | 1/2.8" Progressive Scan CMOS                                                                                                |
| Resolution             | 2688 × 1520, 4 MP                                                                                                           |
| Min. Illumination      | Color: 0.05 Lux @(F1.2 , AGC ON), B/W: 0.01 Lux @(F1.2 , AGC ON)                                                            |
| Field of View          | 58.8° × 34.4° (H × V) to 2.18° × 1.2° (H × V)                                                                               |
| Focal Length           | 4.8-153 mm, 32x                                                                                                             |
| Aperture (Range)       | F1.2-F4.4                                                                                                                   |
| Focus Mode             | Auto/Semi-auto/Manual                                                                                                       |
| Shutter Speed          | 1s to 1/100,000s                                                                                                            |
| WDR                    | 120 dB                                                                                                                      |
| Optical Defog          | No, support algorithmic defog                                                                                               |
| Image Effect           |                                                                                                                             |
| Picture in Picture     | Display partial image of thermal channel on the full screen of optical channel                                              |
| Target Coloration      | Supported in white hot and black hot mode.                                                                                  |
| PTZ                    |                                                                                                                             |
| Movement Range         | Pan: 360° Continuous Rotate; Tilt: From -5° to +90° (auto flip)                                                             |
| Pan Speed              | Configurable, From 0.1°/s to 200°/s, Preset Speed: 240°/s                                                                   |
| Tilt Speed             | Configurable, From 0.1°/s to 105°/s, Preset Speed: 200°/s                                                                   |
| Proportional Zoom      | Yes                                                                                                                         |
| Presets                | 300 in total, 273 are configurable.                                                                                         |
| Patrol Scan            | 8; Up to 32 Presets Per Patrol                                                                                              |
| Pattern Scan           | 4; More Than 10 Minutes Per Pattern                                                                                         |
| Power Off Memory       | Yes                                                                                                                         |
| Park                   | Preset/Pattern Scan/Patrol Scan/Auto Scan/Tilt Scan/Random Scan/Frame Scan/Panorama Scan                                    |
| PT Status              | Turn On/Turn Off                                                                                                            |
| Scheduled Task         | Preset/Pattern Scan/Patrol Scan/Auto Scan/Tilt Scan/Random Scan/Frame Scan/Panorama Scan/Doom Reboot/Doom Adjust/Aux Output |
| Illuminator            |                                                                                                                             |
| IR Distance            | Up to 100m                                                                                                                  |
| IR Intensity and Angle | Automatically adjusted                                                                                                      |

| Smart Function          |                                                                                                                                                                                                                    |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VCA                     | Support 4 VCA rule types (Line Crossing, Intrusion, Region Entrance, and Region Exiting), up to 10 scenes and 8 VCA rules for each scene                                                                           |
| Temperature Measurement | Support 3 temperature measurement rule types, 273 presets as scene, 21 rules of each scene (10 points, 10 areas, and 1 line)                                                                                       |
| Temperature Range       | -20 °C to 150 °C (-4 °F to 302 °F)                                                                                                                                                                                 |
| Temperature Accuracy    | ± 8 °C (±14.4 °F)                                                                                                                                                                                                  |
| Fire Detection          | Dynamic fire detection, up to 10 fire points detectable.                                                                                                                                                           |
| Video and Audio         |                                                                                                                                                                                                                    |
| Main Stream             | Optical channel<br>50 Hz:25 fps (2688 × 1520 , 1920×1080, 1280×960, 1280×720)<br>60 Hz:30 fps (2688 × 1520 , 1920×1080, 1280×960, 1280×720)<br>Thermal channel<br>25 fps (1280×720, 704 × 576, 640 ×512, 256× 192) |
| Sub-stream              | Optical channel<br>50 Hz:25 fps (704 × 576, 352 × 288)<br>60 Hz:30 fps (704 × 576, 352 × 288)<br>Thermal channel<br>25 fps (704 × 576, 640 ×512, 256 × 192)                                                        |
| Video Compression       | Main stream: H.265+/H.265/H.264+/ H.264<br>Sub-stream: H.265/H.264/MJPEG                                                                                                                                           |
| Audio Compression       | G .711u/G.711a/G.722.1/MP2L2/G.726/PCM                                                                                                                                                                             |
| Network                 |                                                                                                                                                                                                                    |
| Protocols               | IPv4/IPv6, HTTP, HTTPS, 802.1x, Qos, FTP, SMTP, UPnP, SNMP, DNS, DDNS, NTP, RTSP, RTCP, RTP, TCP, UDP, IGMP, ICMP, DHCP, PPPoE, SRTP                                                                               |
| Network Storage         | MicroSD/SDHC/SDXC card (up to 256 G) local storage, and NAS (NFS, SMB/CIFS), auto network replenishment (ANR)                                                                                                      |
| API                     | ISAPI, HIKVISION SDK, third-party management platform, ONVIF (ProfileS, ProfileG, ProfileT)                                                                                                                        |
| Simultaneous Live View  | Up to 20 channels                                                                                                                                                                                                  |
| User/Host level         | Up to 32 users, 3 levels: Administrator, Operator, User                                                                                                                                                            |
| Security                | User authentication (ID and password), MAC address binding, HTTPS encryption, IEEE 802.1x access control, IP address filtering                                                                                     |
| Client                  | iVMS-4200, Hik-Connect                                                                                                                                                                                             |
| Web Browser             | Live view (plug-in allowed): Internet Explorer 11<br>Live view (plug-in free) : Chrome 57.0 +, Firefox 52.0 +<br>Local service : Chrome 57.0+, Firefox 52.0 +                                                      |
| Interface               |                                                                                                                                                                                                                    |
| Alarm Input             | 7-ch inputs (0-3.3 VDC)                                                                                                                                                                                            |
| Alarm Output            | 2-ch relay outputs, alarm response actions configurable                                                                                                                                                            |
| Alarm Action            | Preset/Patrol Scan/Pattern Scan/SD Card Record/Relay Output/Smart capture/FTP upload/Email linkage                                                                                                                 |
| Audio Input             | LINE_IN Input/MIC Input; Peak: From 2 to 2.4V[p-p]; Output Impedance: 1KΩ±10%                                                                                                                                      |
| Audio Output            | Linear Level; Impedance: 600 Ω                                                                                                                                                                                     |

|                              |                                                                                                                                                                                                                                                                                                                                              |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Communication Interface      | 1, RJ45 10 M/100 M Self-adaptive Ethernet interface.<br>1, RS-485 interface                                                                                                                                                                                                                                                                  |
| Analog Video Output          | 1.0 V [p-p]/75 $\Omega$                                                                                                                                                                                                                                                                                                                      |
| <b>General</b>               |                                                                                                                                                                                                                                                                                                                                              |
| Web Client Language          | 32 languages<br>English, Russian, Estonian, Bulgarian, Hungarian, Greek, German, Italian, Czech, Slovak, French, Polish, Dutch, Portuguese, Spanish, Romanian, Danish, Swedish, Norwegian, Finnish, Croatian, Slovenian, Serbian, Turkish, Korean, Traditional Chinese, Thai, Vietnamese, Japanese, Latvian, Lithuanian, Portuguese (Brazil) |
| Power Supply                 | 24VAC $\pm$ 20%, two-core terminal block<br>36VDC $\pm$ 20%, two-core terminal block<br>48VDC $\pm$ 20%, two-core terminal block<br>Hi-PoE                                                                                                                                                                                                   |
| Power Consumption            | Max 30 W                                                                                                                                                                                                                                                                                                                                     |
| Working Temperature/Humidity | -40°C to 70°C (-40°F to 158°F), 90% or less                                                                                                                                                                                                                                                                                                  |
| Protection Level             | IP66 Standard; TVS 6000V Lightning Protection, Surge Protection and Voltage Transient Protection                                                                                                                                                                                                                                             |
| Dimension                    | 305 mm $\times$ 185 mm $\times$ 163 mm (12.01 " $\times$ 7.28 " $\times$ 6.42 ")                                                                                                                                                                                                                                                             |
| Weight                       | Approx. 3.9Kg (8.6lb)                                                                                                                                                                                                                                                                                                                        |
| <b>Detection Range Table</b> |                                                                                                                                                                                                                                                                                                                                              |
| VCA Range for Humans         | 56 m                                                                                                                                                                                                                                                                                                                                         |
| VCA Range for Vehicles       | 168 m                                                                                                                                                                                                                                                                                                                                        |

## ▪ Range Table

| VCA Range<br>(Vehicles: 1.4 $\times$ 4.0 m) | VCA Range<br>(Humans: 1.8 $\times$ 0.5 m) | Temperature<br>Measurement<br>(Object: 0.5 $\times$ 0.5 m) | Temperature<br>Measurement<br>(Object: 0.2 $\times$ 0.2 m) | Fire Detection<br>(Object: 2 $\times$ 2 m) | Fire Detection<br>(Object: 1 $\times$ 1 m) |
|---------------------------------------------|-------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|--------------------------------------------|--------------------------------------------|
| 168 m                                       | 56 m                                      | 58 m                                                       | 23 m                                                       | 583 m                                      | 292 m                                      |

## ▪ DORI

\* The table is only for reference and the performance may vary according to different environment.

\* The optimal human detection, recognition, and identification distances are calculated according to Johnson's Criteria.  
Detection Range: In order to distinguish an object from the background, the object must be covered by 1.5 or more pixels.  
Recognition Range: In order to classify the object (animal, human, vehicle, etc.), the object must be covered by 6 or more pixels.

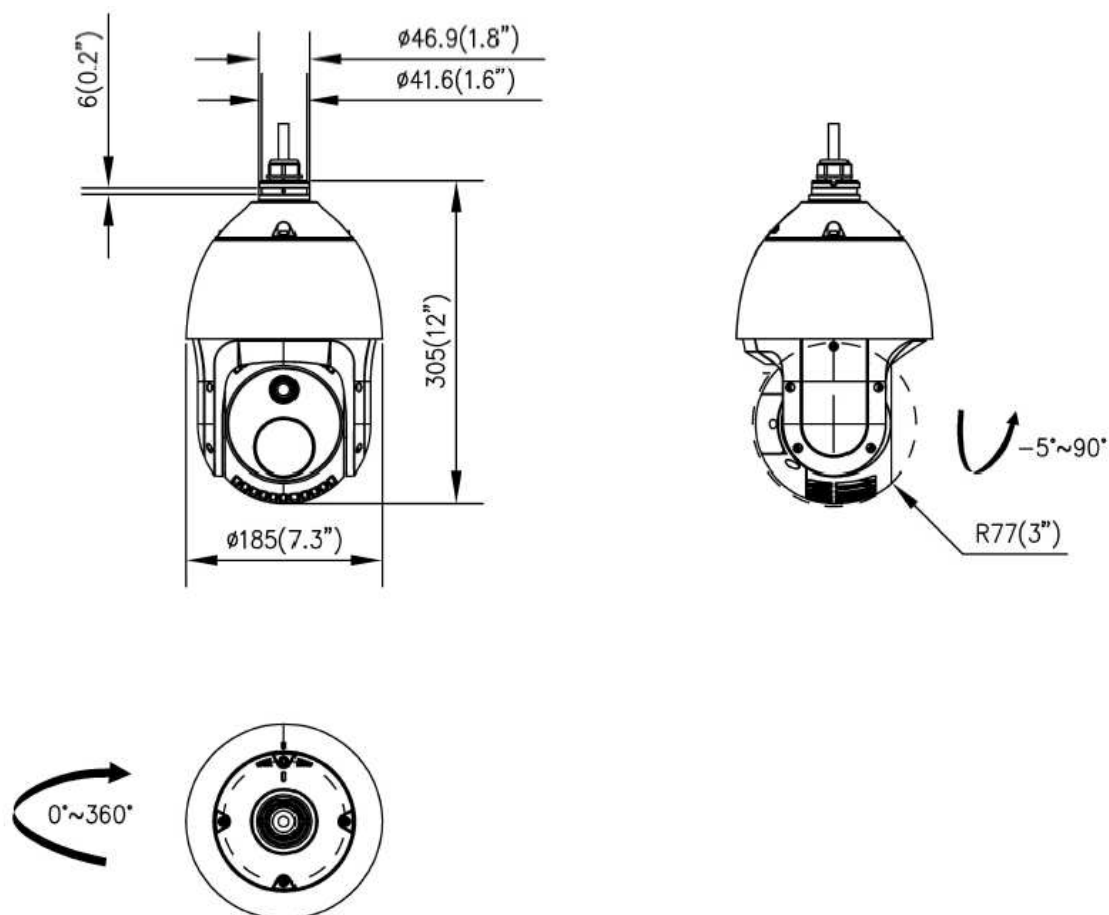
Identification Range: In order to identify the object and describe it in details, the object must be covered by 12 or more pixels.

| Detection Range<br>(Vehicles: 1.4 $\times$ 4.0 m) | Detection Range<br>(Humans: 1.8 $\times$ 0.5 m) | Recognition<br>Range (Vehicles:<br>1.4 $\times$ 4.0 m) | Recognition<br>Range (Humans:<br>1.8 $\times$ 0.5 m) | Identification<br>Range (Vehicles:<br>1.4 $\times$ 4.0 m) | Identification<br>Range (Humans:<br>1.8 $\times$ 0.5 m) |
|---------------------------------------------------|-------------------------------------------------|--------------------------------------------------------|------------------------------------------------------|-----------------------------------------------------------|---------------------------------------------------------|
| 894 m                                             | 292 m                                           | 224 m                                                  | 73 m                                                 | 112 m                                                     | 36 m                                                    |

## ▪ Available Model

DS-2TD4228-7/S2

## ▪ Dimension



▪ Accessory

▪ Optional

| DS-1663ZJ          | DS-1604ZJ-BOX-CORNER | DS-1660ZJ     | DS-1662ZJ | DS-1604ZJ-corner |
|--------------------|----------------------|---------------|-----------|------------------|
|                    |                      |               |           |                  |
| DS-1604ZJ-BOX-POLE | DS-1667ZJ            | DS-1604ZJ-box | DS-1673ZJ | DS-1604ZJ-pole   |
|                    |                      |               |           |                  |
| DS-1619ZJ          | DS-1602ZJ            | DS-1661ZJ     |           |                  |
|                    |                      |               |           |                  |



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