



Network

Thermal

## TNM-C2712TDR

Early Fire Detection Bi-spectrum Thermal Camera



### Key Features

- QVGA Thermal Resolution
- 3MP Visible Resolution
- -10°C~450°C Temperature Detection
- Early Fire Detection Flame, Temperature
- Bi-spectrum Multi-Channel: QQVGA Thermal & 3MP Visible Sensor
- Max. Framerate: Visible 30fps, Thermal 8fps
- Angular Field of View : Thermal H: 95° / V: 69° / D: 119°  
& Visible H: 100° / V: 73° / D: 129°
- Early fire detection (Analytics events based on AI engine)  
, Temperature difference detection
- IP66/IP67, IK09 (except lenses in front)
- PoE: Max 10.8W, typical 6.2W

## TNM-C2712TDR

Early Fire Detection Bi-spectrum  
Thermal Camera



### Specifications

| Video                   |                       | Ch 1                                                                                                    | Ch 2                               |
|-------------------------|-----------------------|---------------------------------------------------------------------------------------------------------|------------------------------------|
| Imaging Device          | Size                  | 1/2.8"                                                                                                  |                                    |
|                         | Type                  | CMOS                                                                                                    | Uncooled micro bolometer (160x120) |
| Resolution              |                       | 2048x1536, 1920x1080, 1280x960, 1280x720, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240 | 640x480, 320x240                   |
| Max. Framerate          | H.265/H.264           | 30fps/25fps(60Hz/50Hz)                                                                                  | 8fps                               |
|                         | MJPEG                 | 5fps                                                                                                    | 5fps                               |
| Spectral Range          |                       |                                                                                                         | 8~14 $\mu$ m                       |
| NETD                    |                       |                                                                                                         | $\leq$ 50mK                        |
| Pixel Size              |                       |                                                                                                         | 12 $\mu$ m                         |
| Min. Illumination (Lux) | Color(1/30sec, 30IRE) | 0.06                                                                                                    |                                    |
|                         | BW(1/30sec, 30IRE)    | 0.06                                                                                                    |                                    |

### Lens

|                               |            |             |               |
|-------------------------------|------------|-------------|---------------|
| Focal Length (mm)             |            | 3.06        | 1.2           |
| Max Aperture Ratio (F number) | Wide       | F1.6        | F1.1          |
| Angular Field of View         | Horizontal | 100         | 95            |
|                               | Vertical   | 73          | 69            |
|                               | Diagonal   | 129         | 119           |
| Min. Object Distance          |            | 1.1m(3.6ft) | 0.15m(0.49ft) |
| Focus Control                 |            | Fixed       | Fixed         |

### Pan / Tilt / Rotate

|                           |        |         |
|---------------------------|--------|---------|
| Pan / Tilt / Rotate Range | Pan    | 0°~360° |
|                           | Tilt   | 0°~70°  |
|                           | Rotate | 0°~360° |

### Operational

|                        |                  |
|------------------------|------------------|
| Day & Night            | Auto(Electrical) |
| Backlight Compensation | BLC, WDR, SSDR   |

## Operational

|                                          |                |                                                                                                                                                                                                                                           |                              |
|------------------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| Wide Dynamic Range (dB)                  |                | 120                                                                                                                                                                                                                                       |                              |
| Digital Noise Reduction                  |                | SSNR V                                                                                                                                                                                                                                    |                              |
| Motion Detection                         | Quantity       | 8ea                                                                                                                                                                                                                                       | 8ea                          |
|                                          | Shape          | 8point Polygonal zones                                                                                                                                                                                                                    | 8point Polygonal zones       |
| Privacy Masking                          | Quantity       | 6ea                                                                                                                                                                                                                                       | 6ea                          |
|                                          | Shape          | Rectangular zones                                                                                                                                                                                                                         | Rectangular zones            |
|                                          | Color / Option | Gray, Black, White                                                                                                                                                                                                                        | Gray, Black, White           |
| Gain Control                             |                | Low, Middle, High                                                                                                                                                                                                                         |                              |
| White Balance                            |                | ATW, AWC, Manual, Indoor, Outdoor                                                                                                                                                                                                         |                              |
| LDC                                      |                | Support                                                                                                                                                                                                                                   |                              |
| Electronic Shutter                       | Mode           | Minimum, Maximum, Anti flicker                                                                                                                                                                                                            |                              |
|                                          | Speed Range    | 1/5~1/12,000sec                                                                                                                                                                                                                           |                              |
| Video Rotation                           |                | Flip, Mirror                                                                                                                                                                                                                              | Flip, Mirror                 |
| Alarm Interface                          | In/Out         | Input 1ea, Output 1ea                                                                                                                                                                                                                     |                              |
| Alarm Triggers                           |                | Analytics, Network disconnect, Alarm input, MQTT subscription                                                                                                                                                                             |                              |
| Alarm Events When Alarm Trigger Occurred |                | File upload(image): e-mail/FTP, Notification: e-mail, Recording: SD/SDHC/SDXC or NAS recording at event triggers, Alarm output, Handover: PTZ preset, send message by HTTP/HTTPS/TCP, Audio clip playback, MQTT: publication, Light alarm |                              |
| Audio In                                 |                | Selectable(mic in/line in)                                                                                                                                                                                                                |                              |
| Audio Out                                |                | Line out                                                                                                                                                                                                                                  |                              |
| Color Palettes                           |                |                                                                                                                                                                                                                                           | Whitehot, Sepia, Red, Custom |

## Radiometry

|                                 |                |                                            |
|---------------------------------|----------------|--------------------------------------------|
| Temperature Detect Range        |                | -10°C~450°C                                |
| Temperature Accuracy            |                | Greater of $\pm 10^{\circ}\text{C}$ or 10% |
| Temperature Detection ROI Zones | Quantity       | 2ea                                        |
|                                 | Shape / Option | Rectangle                                  |
| Spot Temperature Reading        |                | Support                                    |
| ROI Condition Monitoring        |                | Above, Below, Increase, Decrease           |

## Security

|                        |  |                                                    |
|------------------------|--|----------------------------------------------------|
| OS / Firmware Protect  |  | Encrypted firmware, Secure boot, Signed firmware   |
| User authentication    |  | Digest authentication, Prevent brute-force attack  |
| Network authentication |  | IEEE 802.1X(EAP-TLS, EAP-LEAP, EAP-PEAP, MSCHAPv2) |
| Secure Communication   |  | HTTPS, WSS(WebSocket Secure), SRTP                 |

## Security

|                |                                           |
|----------------|-------------------------------------------|
| Access Control | IP-based access control                   |
| Data Protect   | Encryption credentials                    |
| Audit          | Access / System / Event Log management    |
| Device ID      | Device certificate(Hanwha Vision Root CA) |
| Secure Storage | SDcard partition encrypt(AES-256)         |

## General

|              |                    |                    |
|--------------|--------------------|--------------------|
| Memory       | RAM                | 2GB                |
|              | Flash              | 512MB              |
| Edge Storage | Micro SD/SDHC/SDXC | Max. 512GB x 1slot |

## Environmental & Electrical

|                     |             |                                        |
|---------------------|-------------|----------------------------------------|
| Operating Condition | Temperature | -30°C~+55°C(-22°F~+131°F)              |
|                     | Humidity    | 0~95% RH(non-condensing)               |
|                     | Others      | Start up should be done at above -10°C |
| Storage Condition   | Temperature | -40°C~+60°C(-40°F~+140°F)              |
|                     | Humidity    | 0~95% RH(non-condensing)               |
| Input Voltage       |             | PoE(IEEE802.3af, Class3)               |
| Power Consumption   | PoE         | Max 10.8W, typical 6.2W                |

## Mechanical

|                     |                        |
|---------------------|------------------------|
| Color               | White                  |
| Material            | Aluminum               |
| RAL Code            | RAL9003                |
| Product Dimensions  | Ø110x97mm(ø4.33x3.82") |
| Product Weight      | 650g(1.43lb)           |
| Compatible Gang Box | Single                 |

## Certifications & Standards

|             |                                                                                                                                                                                                          |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EMC         | FCC 47 CFR 15 Subpart B Class A, ICES-3(A)/NMB-3(A), CE/UKCA - EN55032 Class A, EN 50130-4, EN 61000-3-2, EN 61000-3-3, VCCI CISPR 32 Class A, RCM AS-NZS CISPR 32 Class A, KS C 9832 Class A, KS C 9835 |
| Safety      | UL 62368-1, CAN/CSA C22.2 NO. 62368-1, IEC 62471                                                                                                                                                         |
| Environment | IEC/EN 63000, IEC 60529 IP66, IEC 60529 IP67, IEC 62262 IK09                                                                                                                                             |

## DORI (EN62676-4 standard)

|                           |      |                |  |
|---------------------------|------|----------------|--|
| Detect (25PPM/ 8PPF)      | Wide | 34.4m(112.8ft) |  |
| Observe (63PPM/ 19PPF)    | Wide | 13.7m(44.9ft)  |  |
| Recognize (125PPM/ 38PPF) | Wide | 6.9m(22.6ft)   |  |

DORI (EN62676-4 standard)

|                             |      |              |  |
|-----------------------------|------|--------------|--|
| Identify (250PPM/<br>76PPF) | Wide | 3.4m(11.1ft) |  |
|-----------------------------|------|--------------|--|

Thermal Detection Range

|                       |  |             |
|-----------------------|--|-------------|
| Temperature Detection |  | 7m(22.96ft) |
| Early Fire Detection  |  | 7m(22.96ft) |

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CAD

Unit: mm [inch]

