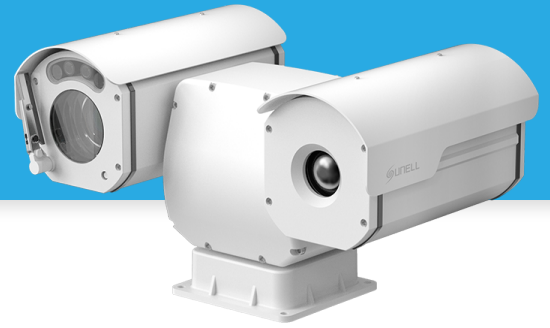


# SN-TPT6434QZ-M

Thermal & Optical Bi-spectrum Mini PTZ Camera



## Key Features

- Bi-Spectrum: 640 × 512 thermal and 5MP visible sensor
- Sensor: 12  $\mu\text{m}$  VOx uncooled thermal sensor, NETD  $\leq 20$  mK
- Optional motorized thermal lenses: 25 / 50 mm; 30× optical zoom visible lens
- Supports human/vehicle detection; smoking, smoke and flame detection, and fire spot detection
- Intelligent analytics: Intrusion, smart motion detection, single-line crossing, double-line crossing, loitering, wrong-way detection, enter area, leave area, and people counting
- Temperature monitoring and exception alarms
- Temperature measurement: spot, line, and area
- Temperature range: -20 °C to 150 °C; accuracy:  $\pm 2^\circ\text{C}$  /  $\pm 2\%$
- Compliance: NDAA compliant, IP66

## Specifications

| Camera                |                                                        |                                                                                                                                                                                            |
|-----------------------|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | Thermal                                                | Visible                                                                                                                                                                                    |
| Image Sensor          | Vanadium Oxide Uncooled Focal Plane Arrays             | 1/2.8" SRAVIS CMOS                                                                                                                                                                         |
| Max Resolution        | Sensor is 640×512, Image can be scaled up to 1280×1024 | 2592 (H)×1944 (V), 5MP                                                                                                                                                                     |
| Pixel Pitch           | 12μm                                                   | N/A                                                                                                                                                                                        |
| Spectral Range        | 8 to 14μm                                              | N/A                                                                                                                                                                                        |
| NETD                  | ≤ 20mK                                                 | N/A                                                                                                                                                                                        |
| Shutter Speed         | N/A                                                    | 1/5 to 1/100,000s                                                                                                                                                                          |
| Min Illumination      | N/A                                                    | Color: 0.005 Lux @(F1.6, AGC ON),<br>B/W: 0.0001 Lux (F1.6, AGC ON),<br>0 Lux with illuminator on                                                                                          |
| Day & Night           | N/A                                                    | Auto (ICR)                                                                                                                                                                                 |
| Lens                  |                                                        |                                                                                                                                                                                            |
|                       | Thermal                                                | Visible                                                                                                                                                                                    |
| Lens Type             | Fixed lens                                             | Motorized zoom lens                                                                                                                                                                        |
| Focal Length          | 25 mm, 50 mm optional                                  | 5.3 to 159 mm, 30x optical zoom                                                                                                                                                            |
| Max. Aperture         | F1.0                                                   | F1.6 to F4.4                                                                                                                                                                               |
| Field of View (FOV)   | 25 mm, H: 17°, V: 14°;<br>50 mm, H: 8°, V: 7°          | H: 56.8° to 2.6°, V: 42.7° to 2.0°                                                                                                                                                         |
| Focus Control         | Motorized focus                                        | Auto / Manual                                                                                                                                                                              |
| Illuminator           |                                                        |                                                                                                                                                                                            |
| Type                  | Warm light                                             |                                                                                                                                                                                            |
| Distance              | Up to 30 m (98.4 ft)                                   |                                                                                                                                                                                            |
| Control               | Auto / Manual                                          |                                                                                                                                                                                            |
| Intelligent Analytics |                                                        |                                                                                                                                                                                            |
|                       | Thermal                                                | Visible                                                                                                                                                                                    |
| AI Multi-Target       | Supports human / vehicle detection.                    | Supports face, human, and vehicle detection & capture.<br>Supports human and vehicle attribute detection.                                                                                  |
| Attribute Extraction  | N/A                                                    | - Human Attributes: Gender, age, glasses, hat, bag, upper clothing color & style, lower clothing color & style, reflective vest.<br>- Vehicle Attributes: Type, color, brand, orientation. |

|                           |                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                    |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Intelligent Analysis      | Intrusion detection, smart motion detection, single line crossing, double line crossing, loitering, wrong-way detection, enter/leave area detection.<br>- Supports accurate target classification (human/vehicle) | Intrusion detection, smart motion detection, single line crossing, double line crossing, loitering, wrong-way detection, area people limit, perimeter detection, illegal parking, running detection, fall detection, fight detection.<br>- Supports accurate target classification (human/vehicle) |
| Smoke and Flame Detection | N/A                                                                                                                                                                                                               | Supported                                                                                                                                                                                                                                                                                          |
| People Counting           | Supported                                                                                                                                                                                                         | Supported                                                                                                                                                                                                                                                                                          |
| Smoking Detection         | Supported                                                                                                                                                                                                         | N/A                                                                                                                                                                                                                                                                                                |
| Fire Spot Detection       | Supported                                                                                                                                                                                                         | N/A                                                                                                                                                                                                                                                                                                |

| Video & Audio            |                                                            |                                                                                                        |
|--------------------------|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
|                          | Thermal                                                    | Visible                                                                                                |
| Resolution               | Stream1: 1280×1024, 1280×720, 640×512<br>Stream2: D1, CIF  | Stream1: 2592×1944, 2592×1520, 1920×1080, 1280×720<br>Stream2: D1, VGA, CIF<br>Stream3: VGA, CIF, QVGA |
| Frame Rate               | Up to 25fps                                                | Up to 25/30fps                                                                                         |
| Bit Rate Control         | CBR/VBR                                                    | CBR/VBR                                                                                                |
| Bit Rate                 | Stream1: 100 Kbps to 8 Mbps,<br>Stream2: 10 Kbps to 6 Mbps | Stream1: 200 kbps to 12 Mbps<br>Stream2: 100 kbps to 6 Mbps<br>Stream3: 100 kbps to 3 Mbps             |
| Smart Encoding           | Supported                                                  | Supported                                                                                              |
| Region of Interest (ROI) | N/A                                                        | Supported                                                                                              |
| Audio Compression        | N/A                                                        | G.711 A-law, G.711 μ-law, RAW_PCM                                                                      |
| Audio Bit Rate           | N/A                                                        | 64 Kbps (G.711), 128 Kbps (RAW_PCM)                                                                    |

| Image                |                                                                                                                                                                               |                                                   |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
|                      | Thermal                                                                                                                                                                       | Visible                                           |
| Image Adjustment     | Brightness, Contrast, Sharpness                                                                                                                                               | Brightness, Saturation, Contrast, Sharpness       |
| Scene Mode           | Mirror                                                                                                                                                                        | Indoor, Outdoor, Mirror                           |
| Pseudo-color Setting | Up to 17 colors (White-hot / Black-hot / Rainbow / Iron red / HSV / Bone / Cool / Copper / Fire-hot / Pink / Spring / Summer / Autumn / Winter / Jet / Flame / Rose - Bengal) | N/A                                               |
| FFC Control          | Auto / Manual                                                                                                                                                                 | N/A                                               |
| Exposure Mode        | N/A                                                                                                                                                                           | Auto / Manual                                     |
| White Balance        | N/A                                                                                                                                                                           | Auto / Tungsten / Fluorescent / Daylight / Shadow |
| Day/Night Setting    | N/A                                                                                                                                                                           | Auto / Day mode / Night mode / Timer              |
| Noise Reduction      | 2D/3D DNR                                                                                                                                                                     | 2D/3D DNR                                         |
| Image Enhancement    | N/A                                                                                                                                                                           | WDR, HLC, BLC, Defog, Anti-shake                  |

|                                   |                                                                                                                                   |                 |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Wide Dynamic Range                | N/A                                                                                                                               | True WDR(120dB) |
| Privacy Masking                   | Supported                                                                                                                         | Supported       |
| Thermal Function                  |                                                                                                                                   |                 |
| Temperature Range                 | -20°C to 150°C (-4°F to 302°F)                                                                                                    |                 |
| Accuracy                          | ±2°C / ±2%                                                                                                                        |                 |
| Temperature Detection             | 3 temperature measurement rule types, 20 rules in total, 1 full screen, 19 others (spot, areas, line).                            |                 |
| Temperature Alarm                 | Supports threshold alarm, temperature difference alarm, range alarm, and temperature rise alarm.                                  |                 |
| Temperature Display               | Display in the lower left corner; follow the cursor display of the highest temperature, lowest temperature or average temperature |                 |
| Response Time                     | ≤ 30ms                                                                                                                            |                 |
| PTZ                               |                                                                                                                                   |                 |
| Pan/Tilt Range                    | Pan: 0° to 360° endless, Tilt: -90° to +90°                                                                                       |                 |
| Pan Speed                         | Pan: 0.01° to 20°/s, preset speed: 20°/s                                                                                          |                 |
| Tilt Speed                        | Tilt: 0.01° to 10°/s, preset speed: 10°/s                                                                                         |                 |
| Preset Accuracy                   | ± 0.1°                                                                                                                            |                 |
| Preset                            | 400                                                                                                                               |                 |
| Track                             | 6 tracks                                                                                                                          |                 |
| Scan                              | 8 scans                                                                                                                           |                 |
| Tour                              | 12 tours, up to 32 presets per tour                                                                                               |                 |
| Power-Off Memory                  | Supported                                                                                                                         |                 |
| 3D Positioning                    | Supported                                                                                                                         |                 |
| Idle Motion                       | The time can be set (1-240 minutes), and functions such as preset positions, patrols, scans, and tracks can be run.               |                 |
| Event                             |                                                                                                                                   |                 |
| Alarm Triggers                    | IVS, Temperature anomaly, Motion detection, Alarm input, Disk alarm, Network alarm                                                |                 |
| Event Actions                     | Alarm output, Alarm record, SMTP, FTP upload, Audible alarm output                                                                |                 |
| Network                           |                                                                                                                                   |                 |
| Protocols                         | IPv4/IPv6, HTTP/HTTPS, DNS, DDNS, DHCP, PPPOE, RTSP/RTP/RTCP, TCP/UDP, NTP, ARP, UPnP, FTP, SMTP, QoS, 802.1x, SNMP, Multicast    |                 |
| Application Programming Interface | ONVIF (Profile S/T/G/M), CGI, SDK                                                                                                 |                 |
| Max Concurrent Streams            | 10 channels                                                                                                                       |                 |
| User/Host Level                   | 32+ users, 3 levels: Administrator, Operator, Media user                                                                          |                 |
| Web Viewer                        | <IE11, Chrome, Firefox, Microsoft Edge                                                                                            |                 |
| 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)                             |
| Secure Communication   | HTTPS, WSS (WebSocket Secure), SRTP               |
| Access Control         | IP-based access control, Auto logout              |
| Data Protect           | Encryption credentials                            |
| Audit                  | Access / System / Event Log management            |
| Supply Chain Security  | SBOM                                              |

## Interface

|                   |                                                                                                           |
|-------------------|-----------------------------------------------------------------------------------------------------------|
| Network Interface | RJ-45 Ethernet (10/100BASE-T)                                                                             |
| Built-in Speaker  | Supported (visible)                                                                                       |
| Alarm Interface   | 1 input, 1 output (thermal)                                                                               |
| Control Interface | RS-485                                                                                                    |
| CVBS Output       | BNC (visible)                                                                                             |
| SD Card Slot      | MicroSD card slot (max. 1 TB)<br>*Memory card must be factory pre-installed and is not field-installable. |

## General

|                       |                                                                                                                                                    |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Language              | English, Chinese, Traditional Chinese, Polish, Italian, Portuguese, Spanish, Russian, French, Czech, Hungarian, Japanese, Korean. Default: English |
| Power Supply          | 12 VDC                                                                                                                                             |
| Power Consumption     | Typical: 18 W, Max 36 W                                                                                                                            |
| Operating Temperature | -40°C to 60°C (-40°F to 140°F)                                                                                                                     |
| Operating Humidity    | ≤ 95% RH (non-condensing)                                                                                                                          |
| Ingress Protection    | IP66                                                                                                                                               |
| Wiper                 | Supported                                                                                                                                          |
| Certifications        | CE-EMC<br>- EN 55032, EN IEC 61000-6-4, EN IEC 61000-3-2, EN 61000-3-3, EN 55035, EN 50130-4<br>FCC 47 CFR Part 15 Subpart B                       |
| Material              | Metal                                                                                                                                              |
| Dimensions            | 348 × 200 × 200 mm (13.7 × 7.87 × 7.87 inch)                                                                                                       |
| Net Weight            | Approx. 5 kg (11.0 lb)                                                                                                                             |

## DORI Distance (EN62676-4 standard)

|           |                                        |
|-----------|----------------------------------------|
| Detect    | 103 to 3,090 m (337.93 to 10,137.8 ft) |
| Observe   | 41.2 to 1,236 m (135.17 to 4,055.1 ft) |
| Recognize | 20.6 to 618 m (67.59 to 2,027.6 ft)    |
| Identify  | 10.3 to 309 m (33.79 to 1,013.8 ft)    |

## Thermal DRI Distance

|              |       |       |
|--------------|-------|-------|
| Thermal Lens | 25 mm | 50 mm |
|--------------|-------|-------|

|                                      |                      |                       |
|--------------------------------------|----------------------|-----------------------|
| Detection<br>(Human: 1.8×0.5 m)      | 1,042 m (3,418.6 ft) | 2,083 m (6,834.0 ft)  |
| Detection<br>(Vehicle: 4×1.5 m)      | 3,194 m (10,479 ft)  | 6,389 m (20,961.3 ft) |
| Recognition<br>(Human: 1.8×0.5 m)    | 260 m (853 ft)       | 521 m (1,709.3 ft)    |
| Recognition<br>(Vehicle: 4×1.5 m)    | 799 m (2,621.4 ft)   | 1,597 m (5,239.5 ft)  |
| Identification<br>(Human: 1.8×0.5 m) | 130 m (426.5 ft)     | 260 m (853 ft)        |
| Identification<br>(Vehicle: 4×1.5 m) | 399 m (1,309.1 ft)   | 799 m (2,621.4 ft)    |

**Note:**

*Distances are calculated based on Johnson's Criteria.*

*Detection: Object must be covered by  $\geq 1.5$  pixels.*

*Recognition: Object must be covered by  $\geq 6$  pixels.*

*Identification: Object must be covered by  $\geq 12$  pixels.*

### Thermal Smart Detection

|                                        |                      |                      |
|----------------------------------------|----------------------|----------------------|
| Lens                                   | 25 mm                | 50 mm                |
| VCA Detection<br>(Human: 1.8×0.5 m)    | 280 m (918.6 ft)     | 480 m (1,574.8 ft)   |
| Temperature Measurement<br>(1×1 m)     | 417 m (1,368.1 ft)   | 833 m (2,732.9 ft)   |
| Temperature Measurement<br>(0.2×0.2 m) | 83 m (272.3 ft)      | 167 m (547.9 ft)     |
| Fire Detection<br>(1×1 m)              | 1,042 m (3,418.6 ft) | 2,083 m (6,834.0 ft) |
| Fire Detection<br>(0.2×0.2 m)          | 208 m (682.4 ft)     | 417 m (1,368.1 ft)   |

**Note:**

*Values are for reference only. Actual detection range may vary with atmospheric conditions, target size, and installation environment.*

### Ordering Info

|             |                                                                                      |                                                                                      |
|-------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Model       | SN-TPT6434QZ-M25-ZSE30                                                               | SN-TPT6434QZ-M50-ZSE30                                                               |
| Description | Thermal Focal Length: 25 mm<br>Visible Focal Length: 5.3 to 159 mm, 30x optical zoom | Thermal Focal Length: 50 mm<br>Visible Focal Length: 5.3 to 159 mm, 30x optical zoom |

## Dimensions (mm)

