



# SN-TPT4233LPZ-M

Thermal & Optical Bi-spectrum PTZ Camera



## Key Features

- 400 × 300 resolution, 17  $\mu\text{m}$ , VOx UFPA, NETD  $\leq 40$  mK
- Thermal: 75/100mm motorized lens optional; Visible: 37x optical zoom module
- Detection capabilities: Human/vehicle, smoke & flame, and fire point detection
- Intelligent analytics: Intrusion, single/double line crossing, loitering, wrong-way, enter/leave area detection, smart motion detection, and people counting
- Support 3 temperature measurement rule types (spot, line, area)
- Temperature monitoring & alarm:  $-20^{\circ}\text{C}$  to  $150^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$  to  $302^{\circ}\text{F}$ )
- Accuracy:  $\pm 2^{\circ}\text{C}$  /  $\pm 2\%$
- Laser distance up to 800m
- Anti-frozen, NDAA Compliance, IP66



## Specification

| Camera                    | Thermal                                                                                                                                                                                                         | Visible                                                                                                                                                                                                   |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Image Sensor              | Vanadium Oxide Uncooled Focal Plane Arrays                                                                                                                                                                      | 1/1.8" STARVIS CMOS                                                                                                                                                                                       |
| Resolution                | Sensor is 400×300, Image can be scaled up to 704×576                                                                                                                                                            | 2592 (H)×1520 (V), 4MP                                                                                                                                                                                    |
| Pixel Pitch               | 17μm                                                                                                                                                                                                            |                                                                                                                                                                                                           |
| Spectral Range            | 8 to 14μm                                                                                                                                                                                                       |                                                                                                                                                                                                           |
| NETD                      | ≤ 40mK                                                                                                                                                                                                          |                                                                                                                                                                                                           |
| Min. Illumination         |                                                                                                                                                                                                                 | Color: 0.001 Lux @(F1.5, AGC ON),<br>B/W: 0.0005 Lux (F1.5, AGC ON)                                                                                                                                       |
| Shutter Speed             |                                                                                                                                                                                                                 | 1/5 to 1/20,000s                                                                                                                                                                                          |
| Lens Type                 | Fixed lens                                                                                                                                                                                                      | 37x optical zoom                                                                                                                                                                                          |
| Focal Length              | 75 mm, 100 mm optional                                                                                                                                                                                          | 6.8 to 251 mm                                                                                                                                                                                             |
| Max. Aperture             | F1.0                                                                                                                                                                                                            | F1.5                                                                                                                                                                                                      |
| Focus Control             | Motorized focus                                                                                                                                                                                                 | Auto/Manual/Semi-automatic                                                                                                                                                                                |
| Field of View (FOV)       | 75 mm:<br>- H: 5.1°, V: 3.8°<br>100 mm:<br>- H: 3.8°, V: 2.3°                                                                                                                                                   | H: 60.7° to 2.33°, V: 36.8° to 1.38°                                                                                                                                                                      |
| IVS                       |                                                                                                                                                                                                                 |                                                                                                                                                                                                           |
| AI Multi-Target           | Human / Vehicle detection ( Ship detection optional)                                                                                                                                                            | Face / Human / Vehicle detection and capture                                                                                                                                                              |
| Intelligent Analysis      | Intrusion, Single Line Crossing, Double Line Crossing, Loitering, Wrong-Way Detection, Enter Area, Leave Area, Smart Motion Detection<br>Support alarm triggering by specified target types (human and vehicle) | Intrusion, Single Line Crossing, Double Line Crossing, Loitering, Wrong-Way Detection, illegal parking , Smart Motion Detection<br>Support alarm triggering by specified target types (human and vehicle) |
| Smoke and Flame Detection |                                                                                                                                                                                                                 | Support                                                                                                                                                                                                   |
| Fire Point Detection      | Support                                                                                                                                                                                                         |                                                                                                                                                                                                           |
| People Counting           | Support                                                                                                                                                                                                         | Support                                                                                                                                                                                                   |
| Video and Audio           |                                                                                                                                                                                                                 |                                                                                                                                                                                                           |
| Stream/Frame Rate         | Stream1: D1 (704×576) @25/30fps<br>Stream2: CIF @25/30fps                                                                                                                                                       | Stream1: 2592×1520, 2304×1296, 1920×1080, 1280×720 @25/30fps<br>Stream2: D1, VGA, CIF @25/30fps<br>Stream3: VGA, CIF, QVGA @25/30fps                                                                      |
| Bit Rate Control          | CBR/VBR                                                                                                                                                                                                         | CBR/VBR                                                                                                                                                                                                   |
| Bit Rate                  | Stream1: 100 Kbps to 6 Mbps,<br>Stream2: 10 Kbps to 1.5 Mbps                                                                                                                                                    | Stream1: 200 kbps to 12 Mbps<br>Stream2: 100 kbps to 6 Mbps<br>Stream3: 100 kbps to 3 Mbps                                                                                                                |
| Region of Interest        | Off/On (8 Zone, Rectangle)                                                                                                                                                                                      | Support                                                                                                                                                                                                   |
| Audio Compression         | G.711 A-law, G.711 μ-law, PCM                                                                                                                                                                                   | G.711 A-law, G.711 μ-law, PCM                                                                                                                                                                             |
| Audio Bit Rate            | 64 Kbps (G.711), 128 Kbps (PCM)                                                                                                                                                                                 | 64 Kbps (G.711), 128 Kbps (PCM)                                                                                                                                                                           |
| Image                     |                                                                                                                                                                                                                 |                                                                                                                                                                                                           |
| Image Setting             | Brightness, Contrast, Sharpness                                                                                                                                                                                 | Brightness, Saturation, Contrast, Sharpness                                                                                                                                                               |
| Mirror                    | Horizontal / Vertical / Horizontal+Vertical                                                                                                                                                                     | Horizontal / Vertical / Horizontal+Vertical                                                                                                                                                               |

|                       |                                                                                                                                                                              |                                                            |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| 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) |                                                            |
| FFC Control           | Auto / Manual                                                                                                                                                                |                                                            |
| White Balance         |                                                                                                                                                                              | Auto / Tungsten / Fluorescent / Daylight / Shadow / Manual |
| Day/Night             |                                                                                                                                                                              | Auto / Day mode / Night mode / Timer                       |
| Noise Reduction       | 2D/3D DNR                                                                                                                                                                    | 2D/3D DNR                                                  |
| Image Enhancement     |                                                                                                                                                                              | WDR, HLC, BLC, Defog                                       |
| Wide Dynamic Range    |                                                                                                                                                                              | True WDR                                                   |
| OSD                   | Up to 8 OSD                                                                                                                                                                  | Up to 8 OSD                                                |
| Privacy Masking       | Support                                                                                                                                                                      | Support                                                    |
| Illuminator           |                                                                                                                                                                              | Laser:<br>- Up to 800 m (2,624.7 ft)                       |
| 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     | Temperature difference alarm, Threshold alarm, 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/Tilt Speed        | Pan: 0.01° to 60°/s, Tilt: 0.01° to 30°/s                                                                                                                                    |                                                            |
| Wiper                 | Support                                                                                                                                                                      |                                                            |
| Preset Accuracy       | ± 0.1°                                                                                                                                                                       |                                                            |
| Presets               | 400                                                                                                                                                                          |                                                            |
| Scan                  | 8 scans                                                                                                                                                                      |                                                            |
| Patrol                | 12 patrols, up to 32 presets per patrol                                                                                                                                      |                                                            |
| Track                 | 6 tracks                                                                                                                                                                     |                                                            |
| 3D Positioning        | Support                                                                                                                                                                      |                                                            |
| Speed Setup           | Auto/Manual (0-8)                                                                                                                                                            |                                                            |
| Power Off Memory      | Support                                                                                                                                                                      |                                                            |
| 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, Abnormal sound detection                                                                 |                                                            |
| Events Actions        | Alarm out, Alarm record, SMTP, FTP upload, Audible alarm                                                                                                                     |                                                            |
| 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                     |
| Compatible Integration         | ONVIF (Profile S/T/G/M), CGI, SDK                                                                                                                  |
| Max Concurrent Streams         | 10 channels                                                                                                                                        |
| User/Host Level                | 32+ users, 3 levels: Administrator, Operator, Media user                                                                                           |
| Security                       | IP address filter, HTTPS, Illegal login lock, IEEE 802.1x                                                                                          |
| Web Viewer                     | <IE11, Chrome, Firefox, Microsoft Edge                                                                                                             |
| <b>Interface</b>               |                                                                                                                                                    |
| Network Interface              | 1 Ethernet (10/100 Base-T) RJ-45 Connector                                                                                                         |
| Audio Interface                | 2ch input, 2ch output                                                                                                                              |
| Alarm Interface                | 9ch input, 4ch output                                                                                                                              |
| BNC Interface                  | 1 (CVBS output for visible)                                                                                                                        |
| SD Card Slot                   | Built-in, up to 512 GB                                                                                                                             |
| Reset Button                   | Built-in                                                                                                                                           |
| <b>General</b>                 |                                                                                                                                                    |
| Language                       | English, Chinese, Traditional Chinese, Polish, Italian, Portuguese, Spanish, Russian, French, Czech, Hungarian, Japanese, Korean. Default: English |
| Power Supply                   | 36 VDC                                                                                                                                             |
| Power Consumption              | Max 150 W                                                                                                                                          |
| Working Temperature / Humidity | -40°C to 60°C (-40°F to 140°F)<br>Humidity: Less than 90% RH                                                                                       |
| Certifications                 | CE-EMC<br>- EN 55032, EN IEC 61000-6-3, EN IEC 61000-3-2, EN 61000-3-3, EN 55035, EN 50130-4<br>FCC 47 CFR Part 15 Subpart B                       |
| Ingress Protection             | IP66                                                                                                                                               |
| Material                       | Metal                                                                                                                                              |
| Dimensions                     | 594 × 350 × 337 mm (23.39 × 13.78 × 13.27 inch)                                                                                                    |
| Net Weight                     | ≤ 26.6 Kg (58.6 lb)                                                                                                                                |
| <b>Ordering Information</b>    |                                                                                                                                                    |
| <b>Model</b>                   | <b>Description</b>                                                                                                                                 |
| SN-TPT4233LPZ-M75-ZSD37        | Thermal Focal Length: 75 mm<br>Optical Focal Length: 6.8 to 251 mm, 37x optical zoom                                                               |
| SN-TPT4233LPZ-M100-ZSD37       | Thermal Focal Length: 100 mm<br>Optical Focal Length: 6.8 to 251 mm, 37x optical zoom                                                              |

## Thermal DRI Range Table

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

**Note:** The optimal 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.

| DRI Distance Table                            |                       |                       |
|-----------------------------------------------|-----------------------|-----------------------|
| Focal Length                                  | 75 mm                 | 100 mm                |
| Detection Distance<br>(Humans: 1.8×0.5m)      | 2,206 m (7,237.5 ft)  | 2,941 m (8,172.6 ft)  |
| Detection Distance<br>(Vehicles: 4×1.5m)      | 6,765 m (22,194.9 ft) | 9,020 m (29,593.2 ft) |
| Recognition Distance<br>(Humans: 1.8×0.5m)    | 551 m (1,807.7 ft)    | 735 m (2,411.4 ft)    |
| Recognition Distance<br>(Vehicles: 4×1.5m)    | 1,691 m (5,547.9 ft)  | 2,255 m (7,398.3 ft)  |
| Identification Distance<br>(Humans: 1.8×0.5m) | 276 m (905.5 ft)      | 368 m (1,207.4 ft)    |
| Identification Range<br>(Vehicles: 4×1.5m)    | 846 m (2,775.6 ft)    | 1,127 m (3,697.5 ft)  |

## Thermal Smart Detection Range Table

**Note:** The table is for reference only. The distances within it are subject to actual conditions including atmospheric conditions, target size, the installation site, and more.

| Detection Range Table                           |                    |                    |
|-------------------------------------------------|--------------------|--------------------|
| Focal Length                                    | 75 mm              | 100 mm             |
| Temperature Measurement<br>(Object: 0.2 × 0.2m) | 176 m (577.4 ft)   | 235 m (771 ft)     |
| Fire Detection<br>(Object: 0.2 × 0.2m)          | 441 m (1,446.9 ft) | 588 m (1,929.1 ft) |

## Visible DORI Range Table

**Note:** DORI (Detect, Observe, Recognize, and Identify) is a standard system (EN-62676-4) for defining the ability of a person viewing the video to distinguish persons or objects within a covered area. The numbers in this table do not reflect intelligent function distances. For intelligent function distances, refer to installation and commissioning manual/project design tool.

| DORI Distance             |                                        |
|---------------------------|----------------------------------------|
| Lens                      | 6.8 to 251 mm                          |
| DORI Distance (Detection) | 95 to 3,515 m (311.68 to 11,532.15 ft) |
| DORI Distance (Observe)   | 38 to 1,406 m (124.67 to 4,612.86 ft)  |
| DORI Distance (Recognize) | 19 to 703 m (62.34 to 2,306.43 ft)     |
| DORI Distance (Identify)  | 9.5 to 351.5 m (31.17 to 1,153.22 ft)  |

Dimensions (mm)

