# RSO977-TH Series

Gyroscope Stabilization Multispectral Anti-corrosion Network Thermal PTZ Camera



RSO977 is a surveillance camera designed for maritime observation and forest fire prevention. Its dual-axis gyro-stabilized electro-optical pan-tilt system incorporates advanced attitude sensors, which automatically adjust the camera's position based on real-time environmental vibrations, minimizing image instability—ideal for maritime applications.Equipped with proprietary AI algorithms, the camera enables real-time fire and smoke detection. Combined with 360° intelligent scanning, it achieves full-area fire monitoring, making it a reliable solution for fire prevention.The lens features an auto-sensing rain wiper and supports optical with algorithmic defogging, significantly reducing environmental interference for clearer imaging. Additionally, the base includes a built-in level meter and ergonomic handle for easier installation and deployment.

## Key Features

▪ **High-Resolution Imaging**

Featuring an 4MP progressive scan CMOS sensor, the SO977 delivers 2688x1520 Ultra HD resolution, ensuring sharp and highly detailed video. The 40x optical zoom provides clear magnification of distant subjects, while a wide field of view allows efficient coverage of large areas.

▪ **Superior Night Vision**

Equipped with IR LED illumination, the camera offers up to 150m visibility in total darkness. The IR intensity automatically adjusts based on zoom levels, ensuring optimal brightness and contrast for night-time surveillance.

▪ **Rugged and Weatherproof Design (IP67)**

Designed for harsh environments, the IP67-rated housing makes the camera fully dustproof and waterproof, withstanding -40°C to +70°C. This ensures reliable operation in extreme conditions, from freezing cold to high heat

▪ **Advanced PTZ (Pan, Tilt, Zoom) Control**

With 360° endless pan and -50° to 90° tilt, the camera provides smooth, precise movement across a surveillance area. It supports 255 preset positions and automated patrol routes, enhancing monitoring efficiency.

▪ **Optimized Video Compression and Streaming**

Supporting H.265 and H.264 compression, the camera reduces bandwidth usage while maintaining high-quality video. Three video streams enable efficient remote monitoring and recording across different platforms.

▪ **Enhanced Protection Features**

With TVS 6000V lightning and surge protection, the camera withstands power fluctuations and extreme weather, ensuring long-term durability for outdoor and mobile surveillance.

ONVIF

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## Technical Specifications

### Thermal Module

| | |
|---|---|
| Image Sensor | Vanadium Oxide Uncooled Focal Plane Arrays |
| Resolution | 640x512 |
| Pixel interval | 12μm |
| Response Waveband | 8μm to 14μm |
| NETD | ≤35mK @ F1.0, 300 K |
| Focal Length | 50mm, 75mm |
| IFOV | 50mm: 0.240mrad, 75 mm: 0.160mrad |
| Field of View | 50mm: 8.8°×7.0° (H × V), 75 mm: 5.9°x 4.7° (H × V) |
| Min. Focusing Distance | 50mm: 3m, 75mm: 5m |
| Aperture | F1.0 |
| Focus Mode | Motorized, Auto /Manual |
| Digital Zoom | From 1.0 x to 8.0 × Continuing zooming (Step 0.1 x), Zoom in any area |
| Color Palettes | Up to 13 palettes. Supported in White Hot/Black Hot mode/RainBow mode/Tricolor mode/Blue Red Yellow Mode/Blue Purple Red mode/Blue Green Red mode/Gray Red mode/Blue Orange mode/Blue Red mode/Gradual Red mode/Gradual Green mode/Gradual Blue mode |

### Optical Module

| | |
|---|---|
| Image Sensor | 1/1.8" Progressive Scan CMOS |
| Max. Resolution | 52x: 2688x1520 (4MP), 40x: 2688x1520 (4MP) |
| Min. Illumination | 52x: Color: 0.005Lux@(F1.5, AGC ON), B/W: 0.0005Lux@(F1.5, IR ON)<br>40x: Color: 0.0001Lux@(F1.6, AGC ON), B/W: 0.00005Lux@(F1.6, AGC ON) |
| Shutter Speed | 1/25 s to 1/100,000 s, Support slow shutter |
| Focal Length | 52x: 6.1mm to 317mm, 40x: 6.6mm to 264mm |
| Field of View | Horizontal: 52x: 65.5°~1.8°, 40x: Horizontal: 59.2° × 1.93° |
| Aperture Range | F1.61 to F5.19 |
| Focus Mode | Auto /Semi-auto /Manual |
| WDR | Yes |
| Optical Defog | Yes |

### PTZ

| | |
|---|---|
| Movement Rang | Pan: 360° Continuous Rotate; Tilt: From -50° to +90° (From -50° to +90°when take wiper off) |
| Pan Speed | Configurable, From 0.05°/s to 300°/s |
| Tilt Speed | Configurable, From 0.05°/s to 150°/s |
| Presets | 255 in total |
| Patrol Scan | 16 patrols; Up to 32 presets per patrol |
| Pattern Scan | Up to 16 apple peel scanning patrols with 16 gears |
| PT Status | Turn On/Turn Off |
| Scheduled Task | Preset/Pattern Scan/Patrol Scan |

### Laser Illuminator

| | |
|---|---|
| Working Distance | 1000m, 800m |

### Gyro-stabilization

| | |
|---|---|
| Gyro Stabilization Type | 2-Axis |
| Stabilized Frequency | ≤1HZ |
| Gyro Steady-state Accuracy | 0.5° |

### Smart Function

| | |
|---|---|
| VCA (Video Content Analysis) | Depth Perimeter (Intrusion, Hover, Stay, Transboundary, Leave), Fire-smoke Recognize (Smoke, High Temperature, Fire, Night High Temperature), Electronic Fence, Any Surface Shielding Area, Crossing Detection |
| Fire Detection | Dynamic fire detection, up to 5 fire points detectable |

### Video

| | |
|---|---|
| Video Stream | Thermal channel: 640x512<br>Optical channel: 2560x1440, 1920x1080 |
| Video Compression | H.265 /H.264 |

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| Network | |
|---|---|
| Protocols | TCP, UDP, HTTP, FTP, DNS, RTP, RTSP, NTP, IPv4 |
| API | SOAR SDK, ONVIF Profile S |
| Simultaneous Live View | Up to 5 channels |
| Security | User authentication (ID and password), MAC address binding, IEEE 802.1x access control, IP address filtering |
| Web Browser | Internet Explorer |

| Interface | |
|---|---|
| Communication Interface | 1, RJ45 10M/100M Self-adaptive Ethernet interface.<br>1, RS-422 interface |
| Analog Video Output | 1.0 V [p-p]/ 75 Ω, BNC for thermal channel |

| General | |
|---|---|
| Power | IP66 |
| Power Consumption | Typical consumption: 28W; Turn on PTZ and heat up: 60W; Full functions on in clouding laser: 92W |
| Working Temperature/Humidity | -40°C to 70°C (-40°F to 158°F) / 95% or less |
| Wiper | Yes, Auto /Manual |
| Protection Level | IP67 Standard<br>TVS 6000V lightning protection, Surge protection, Reverse connection protection |
| Dimension | 326mm × 326mm × 441mm (12.83" × 12.83" × 17.36") |
| Weight | Approx. 18kg (39.68lb) |

## DORI Distance

| Target Object | Human (1.8m x 0.5m) | | | Vehicle (1.4m x 1.4m) | | | Vessel (10m x 5m) | | |
|---|---|---|---|---|---|---|---|---|---|
| Focus Lens | Detection | Recognition | Identification | Detection | Recognition | Identification | Detection | Recognition | Identification |
| 50mm | 2,653m | 659m | 329m | 6,573m | 1,643m | 822m | 19,642m | 4,910m | 2,455m |
| 75mm | 3,953m | 988m | 494m | 9,860m | 2,465m | 1,233m | 29,463m | 7,366m | 3,683m |

## Ordering Information

| | | |
|---|---|---|
| **Thermal Camera** | RSO977-TH650B40 | Thermal: 50mm;<br>Visible: 6.6mm to 264mm, 40x |
| | RSO977-TH675B52 | Thermal: 75mm;<br>Visible: 6.1mm to 317mm, 52x |
| | RSO977-CB4252LS10 | Visible: 6.1mm to 317mm, 52x;<br>Laser Illuminator : 1000m |

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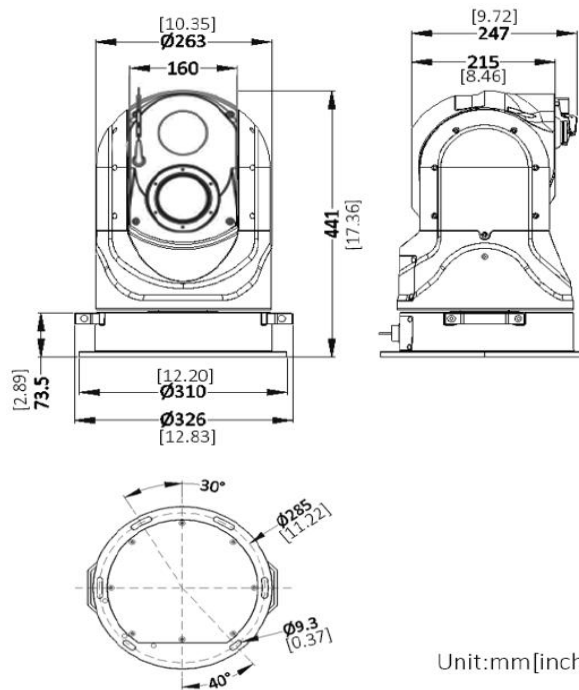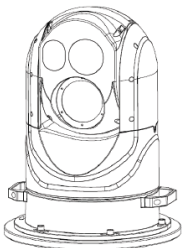
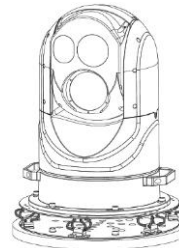## Accessories (included)



DC24V/5A Power Adapter



Cable

## Dimensions (mm)



Unit:mm[inch]

## Installation



Desk Mounted



Vehicle Mounted with Anti-vibration Base