

# TCP-50

## Spherical Tracking Photoelectric Turntable

TCP-50 is a remote photoelectric detection system, multi-spectrum detection modules such as HD visible light camera, uncooled thermal camera, near infrared laser illumination, etc. are integrated, and modules such as laser ranging, positioning and navigation, electronic compass, automatic tracking, intelligent analysis, etc. can also be selected as required, thus realizing the functions of all-weather, all-time and all-dimensional target discovery, positioning, following, identification and tracking.

The photoelectric turntable adopts military quality design, and the overall shell adopts integrated die-casting mold processing technology. The structure is rigid, light in weight, good in sealing performance, the ball bin is filled with nitrogen, and the whole machine can reach IP67 protection level, effectively ensure the long-term stable operation of the equipment in harsh outdoor environment.

### Features

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The thermal image detector is based on the new generation MEMS technology, NETD  $\leq 50\text{mk}$ , the picture quality is more delicate, and it is less affected by fog, rain and snow weather

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Wide detection spectrum: Integrated HD visible light, medium wave/long wave thermal imaging/near infrared laser, complementary advantages of multi band detection

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The automatic tracking module designed with a variety of advanced target acquisition algorithms and tracking algorithms, supplemented by high-precision servo control, has a tracking accuracy of  $\pm 0.5\text{mrad}$ ; The positioning accuracy of pan/tilt can reach 0.02

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Fast turning speed: the turning speed can reach  $80^\circ/\text{s}$ , the acceleration can reach  $100^\circ/\text{s}^2$ , the start-stop is fast, the

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operation is smooth, and it is helpful to capture and track the fast moving target

SDE image detail enhancement technology, the image is smooth and noise-free, a variety of pseudo-color and hot black, hot white polarity image mode switching, strong adaptability, easy to find low contrast hidden targets

Strong environmental adaptability, high-strength cast aluminum material, internal temperature monitoring, directional industrial defrosting, spraying three-proof paint, IP67 protection, rain-proof, dust-proof, corrosion-proof, electromagnetic interference-proof, suitable for various harsh environments.

## Applications

Border and coastal defense, military base security

Port monitoring, grassland and river monitoring

Airport control and forest fire prevention

## Technical Specifications

Item	TCP-50
Detector Data	
Detector type	The fifth generation vanadium oxide vox uncooled focal plane detector
IR resolution	640×512
Pixel pitch	17μm
Spectral range	8 ~ 14μm
NETD/Sensitivity	≤50mK
Infrared lens	
Lens type	Electric continuous zoom lens or dual-field lens
Focal distance	25 ~ 75mm, 21 ~ 105mm, 30 ~ 120mm, 31 ~ 155mm, 38 ~ 190mm, 22 ~ 230mm continuous zoom lens can be selected, or 25mm/110mm, 50mm/150mm dual FOV
Focusing	Electric zoom manual/automatic focusing, adaptive active focusing algorithm, supporting multiple trigger modes, accurate and high speed
Focusing	High infrared transmittance, no virtual focus in zoom process, small axis
Infrared imaging performance	
Image enhancement	Second generation SDE digital image enhancement algorithm, improving image details, NUC correction: automatic/manual correction, background correction
Image parameters	AGC automatic gain control, brightness, contrast
Frequency	50Hz
Electronic Zoom	2X, 4X, supports global synchronous display
Polarity/LUT mode	Black hot/White hot 16 kinds of pseudo-color images
Contrast/Brightness	Automatic/Manual

Thermal imaging spot detection alarm	
Alarm threshold	Level 255 can be set
Target Size	The range can be set to automatically identify targets of different sizes
Number of Alarm	1-16 settable to automatically select the most prominent target display
Alarm mode	Video overlay alarm box + switch value (or data return) multiple alarm modes, the alarm is intuitive and easy to read
Front-end algorithm	Optimized front-end fast processing algorithm, based on the analysis of each frame of the original heat map data, the alarm response is 0.1 s, and there is no delay and no information loss
Remote parameter adjustment	All alarm parameters and indications can be remotely set through the video OSD menu, which has strong universality
CCD Video Camera	
Resolution	1920×1080 200W pixels
CCD type	1/1.8" target starlight CMOS, integrated ICR dual filter day and night switching, illuminance: color 0.05 Lux@F1.6
Lens Data	8 ~ 320mm, HD electric zoom, 40X optical zoom (there are also various focal lengths of 15 ~ 500mm, 22 ~ 750mm and 16.7 ~ 1000mm) with optical infrared correction design, and the focus is consistent day and night; Fog transmission enhancement, optical and electronic double fog transmission
Coding	H.265/H.264/MPEG4/MIPEG video format with multi-stream support
U-shaped photoelectric turntable	
Rotation range	Horizontal: N×360° continuous rotation, which can be mechanically locked after power failure to prevent rotation
	Pitch:-90 ° ~ +90 °
	Limit: Pitch has soft limit function, and the program can be set
Rotating speed	Horizontal speed: 0.01° ~ 80°/s
	Pitching speed: 0.01° ~ 60°/s
	Acceleration: horizontal 100°/s <sup>2</sup> , pitch 100°/s <sup>2</sup>
	Speed adaptation: It has intelligent induction speed change function and supports lens focal length speed adaptation function
	Driving mode: use high torque rare earth permanent magnet synchronous motor direct drive, high-speed start-stop, smooth tracking with radar linkage
Positioning accuracy	Up to 0.02°, high-frequency fine-tuning pulse precision motor drive, digital angle sensor servo, positioning time: less than 4s* high-end version 0.002°
Functions	Panoramic splicing, radar linkage, cruise scanning, data return and tracking mode (software is required)

Reliability	Whole machine IP67 complies with RoHS certification
Interface	
Format	Military grade aviation waterproof plug, protection grade IP67
Network interface	1 RJ45 10M/100M adaptive Ethernet port (including thermal image + HD visible light + RS422/485 control)
Power System	
Working voltage	Equipped with ultra-wide input power adapter, AC90V ~ 305V to DC48V
Power consumption	The maximum power consumption of the turntable is $\leq 500W$ , and the stable power consumption is $\leq 150W$
Environment Parameters	
Operating temperature range	$-40^{\circ}C \sim +60^{\circ}C$ humidity < 90%RH
Storage temperature	$-45^{\circ}C \sim +70^{\circ}C$
Lightning surge protection	Power supply 4000V, communication video signal 2000V
Anti-salt fog	When C5-M registration is reached, the surface does not change after continuous spraying for 700 hours at a pH value of 6.5 ~ 7.2
Physical data	
Size	Outline dimension: $\Phi 480mm \times H825mm$
Weight	$\leq 70kg$ (excluding optical load)
Packing	
Standard	Photoelectric turntable, connecting cable, user manual, warranty card, packing box
Option	Laser ranging (accuracy $\pm 3 m$ ), laser illumination module (808nm/940nm optional), tracking module, electronic compass (pitch accuracy: $0.1^{\circ}$ roll accuracy: $0.1^{\circ}$ ),