

### BW-DS4228

# Thermal & Optical Bi-spectrum Network Speed Dome





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# **Thermal & Optical Bi-spectrum Network Speed Dome**

BW-DS4228 Thermal & Optical Bi-spectrum Network Speed Dome is applied to manufacture process supervision of pyrophoric materials in factories, electric substation, and hydropower station. The accurate temperature measurement system sends you alarms to protect you from property loss.

- Perimeter Protection function: line crossing, intrusion, region entrance and exit
- Temperature exception alarm for fire prevention, -20 °C to 550 °C (-4 °F to 1022 °F), Max. (± 2 °C, ± 2%)
- Fire detection algorithm
- 256  $\times$  192 (the resolution of output image is 1280  $\times$  720) resolution 12  $\mu$ m, VOx UFPA, NETD  $\leq$ 35 mK (25 °C, F# = 1.0)
- Image processing technology: Liner, histogram, and self-adaptive thermal AGC mode, DDE, 3D
- High quality detector with 10 years warranty
- Smart tracking: Panorama tracking, Event tracking and Multi-scene patrol tracking
- Smart tracking linkage: thermal view and optical view
- Smoke detection for fire prevention



# Specification

Specification				
Thermal Module				
Image Sensor	Vanadium Oxide Uncooled Focal Plane Arrays			
Resolution	256 $\times$ 192 (the resolution of output image is 1280 $\times$ 720)			
Pixel Interval	12 μm			
Response Waveband	8 μm to 14 μm			
NETD	Less than 35 mK (@25 °C,F#=1.0)			
Focal Length	7 mm			
Focus Mode	Athermalized			
IFOV	1.71 mrad			
Aperture	F1.0			
Field of View	25.0° x18.8° (H × V)			
Min. Focusing Distance	1.0m			
Digital Zoom	×2, ×4, ×8			
Optical Module				
Image Sensor	1/2.8" Progressive Scan CMOS			
Resolution	2688 × 1520, 4 MP			
Min. Illumination	Color: 0.05 Lux @(F1.2, AGC ON), B/W: 0.01 Lux @(F1.2, AGC ON)			
Field of View	58.8° × 34.4° (H × V) to 2.18° × 1.2° (H × V)			
Focal Length	4.8-153 mm, 32x			
Aperture (Range)	F1.2-F4.4			
Focus Mode	Auto/Semi-auto/Manual			
Shutter Speed	1s to 1/100,000s			
WDR	120 dB			
Optical Defog	No, support algorithmic defog			
Image Effect				
Picture in Picture	Display partial image of thermal channel on the full screen of optical channel			
Target Coloration	Supported in white hot and black hot mode.			
PTZ				
Movement Range	Pan: 360° Continuous Rotate; Tilt: From -5° to + 90° (auto flip)			
Pan Speed	Configurable, From 0.1°/s to 200°/s, Preset Speed: 240°/s			
Tilt Speed	Configurable, From 0.1°/s to 105°/s, Preset Speed: 200°/s			
Proportional Zoom	Yes			
Presets	300 in total, 273 are configurable.			
Patrol Scan	8; Up to 32 Presets Per Patrol			
Pattern Scan	4; More Than 10 Minutes Per Pattern			
Power Off Memory	Yes			
Park	Preset/Pattern Scan/Patrol Scan/Auto Scan/Tilt Scan/Random Scan/Frame Scan/Panorama Scan			
PT Status	Turn On/Turn Off			
Scheduled Task	Preset/Pattern Scan/Patrol Scan/Auto Scan/Tilt Scan/Random Scan/Frame Scan/Panorama Scan/Doom Reboot/Doom Adjust/Aux			
	Output			



IR Distance	Illuminator	
Smart Function         Support 4 VCA rule types (Line Crossing, Intrusion, Region Entrance, and Region Exiting), up to 10 scenes and 8 VCA rules for each scene (Emperature and Region Exiting), up to 10 scenes and 8 VCA rules for each scene (Emperature Region Exiting), up to 10 scenes and 8 VCA rules for each scene (Emperature Region Exiting), up to 10 scenes and 8 VCA rules for each scene (Emperature Region Exiting), up to 10 scenes and 8 VCA rules for each scene (Interpretation Properties of Emperature Accuracy Max (±2 °C, ±2 %)           Fire Detection         Dynamic fire detection, up to 10 fire points detectable.           Video and Audio         Optical channel           50 Hz:25 fps (2688 × 1520, 1920×1080, 1280×960, 1280×720)           Main Stream         60 Hz:30 fps (2688 × 1520, 1920×1080, 1280×960, 1280×720)           Thermal channel         25 fps (1280×720, 704 × 576, 640 ×512, 256 × 192)           Sub-stream         60 Hz:30 fps (704 × 576, 352 × 288)           Sub-stream         60 Hz:30 fps (704 × 576, 352 × 288)           Fremal channel         25 fps (704 × 576, 640 ×512, 256 × 192)           Video Compression         Main stream: H.265+H.264H.264+H.264           Sub-stream: H.265+H.265+H.264+J.267-26/PCM           Network         Frotocols           Protocols         JPv4/IPv6, HTTP, HTTPS, 802.1x, Qos, FTP, SMTP, UPnP, SNMP, DNS, DNS, SMB/CIFS), auto network replenishment (ANR)           API         MicroSD/SDHC/SDXC card (up to 256 G) local storage, and NAS (NFS, SMB/CIFS), auto network replenishment (ANR)	IR Distance	Up to 100m
VCA Support 4 VCA rule types (Line Crossing, Intrusion, Region Entrance, and Region Exiting), up to 10 scenes and 8 VCA rules for each scene (Temperature Support 3 temperature measurement rule types, 273 presets as scene, 21 rules of each scene (10 points, 10 areas, and 1 line)  Temperature Range	IR Intensity and Angle	Automatically adjusted
Temperature Support 3 temperature measurement rule types, 273 presets as scene, Measurement 21 rules of each scene (10 points, 10 areas, and 1 line)  Temperature Range -20 °C to 550 °C (-4 °F to 1022 °F)  Temperature Range -20 °C to 550 °C (-4 °F to 1022 °F)  Temperature Accuracy Max (±2 °C, ±2 %)  Fire Detection Dynamic fire detection, up to 10 fire points detectable.  Video and Audio  Optical channel 50 Hz:25 fps (2688 × 1520, 1920×1080, 1280×960, 1280×720)  Main Stream 60 Hz:30 fps (2688 × 1520, 1920×1080, 1280×960, 1280×720)  Thermal channel 25 fps (1280×720, 704 × 576, 640 ×512, 256× 192)  Optical channel 50 Hz:25 fps (704 × 576, 352 × 288)  60 Hz:30 fps (704 × 576, 352 × 288)  Thermal channel 25 fps (704 × 576, 640 ×512, 256 × 192)  Video Compression 50 Hz:25 fps (704 × 576, 640 × 512, 256 × 192)  Video Compression 61 Arian stream: Hz.265+Hz.264+Hz.264  Sub-stream: Hz.265+Hz.265+Hz.264+Hz.264  Sub-stream: Hz.265+Hz.264+MpPEG  Audio Compression 61 Arian stream: Hz.265+Hz.264+Hz.264  Sub-stream: Hz.265+Hz.264+MpPEG  Audio Compression 71 Arian stream: Hz.265+Hz.264+Hz.264  Sub-stream: Hz.265+Hz.264+Hz.265  Appear Sub-stream: Hz.265+Hz.264+Hz.264  Sub-stream: Hz.265+Hz.264+Hz.265  Sub-stream: Hz.265+Hz.264+Hz.265  Sub-stream: Hz.265+Hz.264+Hz.265  Sub-stream: Hz.265+Hz.264+Hz.265  Sub-stream: Hz.265+Hz.264+Hz.265  Sub-stream: Hz.265+Hz.264+Hz.265  Sub-stream: Hz.265+Hz.265+Hz.264+Hz.264  Sub-stream: Hz.265+Hz.265+Hz.264+Hz.264  Sub-stream: Hz.265+Hz.265+Hz.264+Hz.264  Sub-stream: Hz.265+Hz.265+Hz.265+Hz.264+Hz.264  Sub-stream: Hz.265+Hz.265+Hz.265+Hz.264+Hz.264  Sub-stream: Hz.265+Hz.265+Hz.266+Hz.266  Sub-stream: Hz.265+Hz.265+Hz.266+Hz.266  Sub-stream: Hz.265+Hz.265+Hz.266+Hz.266  Sub-stream: Hz.265+Hz.266+Hz.266  Sub-stream: Hz.265+Hz.266	<b>Smart Function</b>	
Measurement         21 rules of each scene (10 points, 10 areas, and 1 line)           Temperature Range         -20 °C to 550 °C (-4 °F to 1022 °F)           Temperature Accuracy         Max (±2 °C, ±2 %)           Fire Detection         Dynamic fire detection, up to 10 fire points detectable.           Video and Audio           Optical channel           50 Hz:25 fps (2688 × 1520, 1920×1080, 1280×960, 1280×720)           Thermal channel         25 fps (1280×720, 704 × 576, 640 ×512, 256×192)           Optical channel         50 Hz:25 fps (704 × 576, 352 × 288)           Sub-stream         60 Hz:30 fps (704 × 576, 352 × 288)           Thermal channel         25 fps (704 × 576, 640 ×512, 256 × 192)           Video Compression         Main stream: H.265/H.265/H.264+/ H.264           Sub-stream: H.265/H.265/H.264/MJPEG         Audio Compression           Audio Compression         G.711u/G.711a/G.722.1/MP2L2/G.726/PCM           Network           Protocols         DDNS, NTP, RTSP, RTCP, RTP, TCP, UDP, IGMP, ICMP, DHCP, PPDE           McrosD/SDHC/SDXC card (up to 256 G) local storage, and NAS (NFS, SMB/CIFS), auto network replenishment (ANR)           API         ISAPI, HIKVISION SDK, third-party management platform, ONVIF (Profile S, Profile G, Profile T)           Simultaneous Live View         Up to 32 users, 3 levels: Administrator, Operator, User <td>VCA</td> <td></td>	VCA	
Temperature Range         -20 °C to 550 °C (-4 °F to 1022 °F)           Temperature Accuracy         Max (±2 °C, ±2 %)           Fire Detection         Dynamic fire detection, up to 10 fire points detectable.           Video and Audio           Optical channel           50 Hz:25 fps (2688 × 1520, 1920×1080, 1280×960, 1280×720)           Main Stream         60 Hz:30 fps (2688 × 1520, 1920×1080, 1280×960, 1280×720)           Thermal channel         25 fps (1280×720, 704 × 576, 640 ×512, 256× 192)           Optical channel         50 Hz:25 fps (704 × 576, 352 × 288)           Sub-stream         60 Hz:30 fps (704 × 576, 352 × 288)           Thermal channel         25 fps (704 × 576, 640 ×512, 256 × 192)           Video Compression         Main stream: H.265+/H.264/MJPEG           Audio Compression         G.711u/G.711a/G.722.1/MP2L2/G.726/PCM           Network         Frotocols           Protocols         DDNS, NTP, RTSP, RTCP, RTP, TCP, UDP, IGMP, ICMP, DHCP, PPPOE           Network Storage         MicroSD/SDHC/SDXC card (up to 256 G) local storage, and NAS (NFS, SMB/CIFS), auto network replenishment (ANR)           API         ISAPI, HIKVISION SDK, third-party management platform, ONVIF (Profile S, Profile G, Profile T)           Simultaneous Live View         Up to 20 channels           User authentication (ID and password), MAC address binding, HTTPS encryption, IEEE 80.1x	· ·	
Temperature Accuracy         Max (±2 °C, ±2 %)           Fire Detection         Dynamic fire detection, up to 10 fire points detectable.           Video and Audio           Optical channel         50 Hz:25 fps (2688 × 1520, 1920×1080, 1280×960, 1280×720)           Main Stream         60 Hz:30 fps (2688 × 1520, 1920×1080, 1280×960, 1280×720)           Thermal channel         25 fps (1280×720, 704 × 576, 640 ×512, 256× 192)           Optical channel         50 Hz:25 fps (704 × 576, 352 × 288)           Sub-stream         60 Hz:30 fps (704 × 576, 352 × 288)           Fremal channel         25 fps (704 × 576, 640 ×512, 256 × 192)           Video Compression         Main stream: H.265+/H.265/H.264+/ H.264           Sub-stream: H.265/H.264/MJPEG         Audio Compression           Audio Compression         G.711u/G.711a/G.722.1/MP2L2/G.726/PCM           Network         IPV4/IPV6, HTTP, HTTPS, 802.1x, Qos, FTP, SMTP, UPnP, SNMP, DNS, DDNS, NTP, RTSP, RTCP, RTP, TCP, UDP, IGMP, ICMP, DHCP, PPP0E           Network Storage         MicroSD/SDHC/SDXC card (up to 256 G) local storage, and NAS (NFS, SMB/CIFS), auto network replenishment (ANR)           API         ISAPI, HIKVISION SDK, third-party management platform, ONVIF (Profile S, Profile G, Profile T)           Simultaneous Live View         Up to 32 users, 3 levels: Administrator, Operator, User           Security         User authentication (ID and password), MAC address binding, HTTPS encryptio		
Fire Detection Dynamic fire detection, up to 10 fire points detectable.  Video and Audio  Optical channel 50 Hz:25 fps (2688 × 1520, 1920×1080, 1280×960, 1280×720)  Main Stream 60 Hz:30 fps (2688 × 1520, 1920×1080, 1280×960, 1280×720)  Thermal channel 25 fps (1280×720, 704 × 576, 640 × 512, 256× 192)  Optical channel 50 Hz:35 fps (704 × 576, 352 × 288)  Sub-stream 60 Hz:30 fps (704 × 576, 352 × 288)  Thermal channel 25 fps (704 × 576, 640 × 512, 256 × 192)  Video Compression Main stream: H.265+H.265/H.264/H.264 Sub-stream: H.265/H.264/H.PEG Audio Compression 8	•	·
Video and AudioOptical channel50 Hz:25 fps (2688 × 1520, 1920×1080, 1280×960, 1280×720)Main Stream60 Hz:30 fps (2688 × 1520, 1920×1080, 1280×960, 1280×720)Thermal channel 25 fps (1280×720, 704 × 576, 640 ×512, 256 × 192)Optical channel 50 Hz:25 fps (704 × 576, 352 × 288)Sub-stream60 Hz:30 fps (704 × 576, 352 × 288)Hormal channel 25 fps (704 × 576, 640 ×512, 256 × 192)Video CompressionMain stream: H.265+H.265/H.264+/ H.264Sub-stream: H.265/H.264/MJPEGAudio CompressionG .711u/G.711a/G.722.1/MP2L2/G.726/PCMNetworkProtocolsIPv4/IPv6, HTTP, HTTPS, 802.1x, Qos, FTP, SMTP, UPnP, SNMP, DNS, DDNS, NTP, RTSP, RTCP, RTP, TCP, UDP, IGMP, ICMP, DHCP, PPP0EMicroSD/SDHC/SDXC card (up to 256 G) local storage, and NAS (NFS, SMB/CIFS), auto network replenishment (ANR)APIISAPI, HIKVISION SDK, third-party management platform, ONVIF (Profile S, Profile G, Profile T)Simultaneous Live ViewUp to 20 channelsUser/Host levelUp to 32 users, 3 levels: Administrator, Operator, UserSecurityUser authentication (ID and password), MAC address binding, HTTPS encryption, IEEE 802.1x access control, IP address filteringClientIVMS-4200, Hik-ConnectLive view (plug-in allowed): Internet Explorer 11Live view (plug-in free): Chrome 57.0 +, Firefox 52.0 +Local service: Chrome 57.0+, Firefox 52.0 +Local service: Chrome 57.0+, Firefox 52.0 +Local service: Chrome 57.0+, Firefox 52.0 +Alarm Input7-ch inputs (0-3.3 VDC)Alarm Output2-ch relay outputs, alarm res	•	
Optical channel   50 Hz:25 fps (2688 × 1520, 1920×1080, 1280×960, 1280×720)   Main Stream   60 Hz:30 fps (2688 × 1520, 1920×1080, 1280×960, 1280×720)   Thermal channel   25 fps (1280×720, 704 × 576, 640 ×512, 256×192)   Optical channel   50 Hz:25 fps (704 × 576, 352 × 288)   60 Hz:30 fps (704 × 576, 352 × 288)   Thermal channel   25 fps (704 × 576, 640 ×512, 256 × 192)   Optical channel   25 fps (704 × 576, 352 × 288)   Thermal channel   25 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   25 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   25 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   25 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   25 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   25 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   25 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   25 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   25 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   25 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   25 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   25 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   25 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   25 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   25 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   25 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   26 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   27 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   27 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   26 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   27 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   27 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   27 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   27 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   27 fps (704 × 576, 640 × 512, 256 × 192)   Optical channel   27 fps (704 × 576, 640 × 192, 27 fps (704 × 197, 27 fps (704 × 197, 27 fps (7		Dynamic fire detection, up to 10 fire points detectable.
S0 Hz:25 fps (2688 × 1520, 1920×1080, 1280×960, 1280×720)	Video and Audio	
Main Stream 60 Hz:30 fps (2688 × 1520, 1920×1080, 1280×960, 1280×720) Thermal channel 25 fps (1280×720, 704 × 576, 640 × 512, 256 × 192)  Optical channel 50 Hz:25 fps (704 × 576, 352 × 288) 60 Hz:30 fps (704 × 576, 352 × 288) Thermal channel 25 fps (704 × 576, 640 × 512, 256 × 192)  Video Compression Main stream: H.265+/H.265/H.264+/ H.264 Sub-stream: H.265+/H.265/H.264+/ H.264 Sub-stream: H.265/H.264/MJPEG  Audio Compression  Official channel 27 fps (704 × 576, 640 × 512, 256 × 192)  Video Compression  Official channel 28 fps (704 × 576, 640 × 512, 256 × 192)  Main stream: H.265+/H.265/H.264+/ H.264 Sub-stream: H.265/H.264/MJPEG  Audio Compression  Official channel 29 fps (704 × 576, 640 × 512, 256 × 192)  Main stream: H.265/H.264/MJPEG  Audio Compression  Official channel 29 fps (704 × 576, 640 × 512, 256 × 192)  Main stream: H.265/H.264/MJPEG  Audio Compression  Official channel 20 fps (704 × 576, 640 × 512, 256 × 192)  Metwork  Protocols  IPv4/IPv6, HTTP, HTTPS, 802.1x, Qos, FTP, SMTP, UPnP, SMMP, DNS, DDNS, NTP, RTSP, RTCP, RTP, TCP, UDP, IGMP, ICMP, DHCP, PPPOE  MicroSD/SDHC/SDXC card (up to 256 G) local storage, and NAS (NFS, SMB/CIFS), auto network replenishment (ANR)  API  Simultaneous Live View Up to 20 channels User/Host level Up to 32 users, 3 levels: Administrator, Operator, User  Security  User authentication (ID and password), MAC address binding, HTTPS encryption, IEEE 802.1x access control, IP address filtering  Client  VMS-4200, Hik-Connect  Live view (plug-in allowed): Internet Explorer 11  Live view (plug-in allowed): Internet Explorer 11  Live view (plug-in free): Chrome 57.0+, Firefox 52.0 +  Local service: Chrome 57.0+, Firefox 52.0 +  Compression  Official C		·
Thermal channel 25 fps (1280×720, 704 × 576, 640 ×512, 256× 192)  Optical channel 50 Hz:25 fps (704 × 576, 352 × 288)  Sub-stream  Optical channel 50 Hz:35 fps (704 × 576, 352 × 288)  Hnermal channel 25 fps (704 × 576, 640 × 512, 256 × 192)  Video Compression  Main stream: H.265+H.265/H.264+ H.264 Sub-stream: H.265+H.265/H.264+ H.264 Sub-stream: H.265/H.264/MJPEG  Audio Compression  Optical channel 25 fps (704 × 576, 352 × 288)  Main stream: H.265+H.265/H.264+ H.264 Sub-stream: H.265/H.264/MJPEG  Audio Compression  Optical channel 25 fps (704 × 576, 352 × 288)  Main stream: H.265/H.264+ H.264 Sub-stream: H.265/H.264/MJPEG  Audio Compression  Optical channel 25 fps (704 × 576, 352 × 288)  Main stream: H.265/H.264/MJPEG  Audio Compression  Optical channel 25 fps (704 × 576, 352 × 288)  Main stream: H.265/H.264/MJPEG  Audio Compression  Optical channel 25 fps (704 × 576, 352 × 288)  Main stream: H.265/H.264/MJPEG  Audio Compression  Optical channel 25 fps (704 × 576, 352 × 288)  Main stream: H.265/H.264/MJPEG  Audio Compression  Optical channel 25 fps (704 × 576, 352 × 288)  Main stream: H.265/H.264/MJPEG  Audio Compression  Optical channel 25 fps (704 × 576, 352 × 288)  Main stream: H.265/H.264/MJPEG  Audio Compression  Optical channel 25 fps (704 × 576, 352 × 288)  Main stream: H.265/H.264/H.264  Min stream: H.265/H.264/MJPEG  Audio Compression  Optical channel 25 fps (704 × 576, 352 × 288)  Main stream: H.265/H.264/MJPEG  Audio Compression  Optical channel 25 fps (704 × 576, 352 × 288)  Main stream: H.265/H.264/MJPEG  Audio Compression  Optical channel 25 fps (704 × 576, 352 × 288)  Main stream: H.265/H.264/MJPEG  Audio Compression  Optical channel 25 fps (704 × 576, 352 × 288)  Main stream: H.265/H.264/MJPEG  Audio Compression  Optical channel 25 fps (704 × 576, 352 × 288)  Audio Compression  Optical channel 25 fps (704 × 576, 352 × 288)  Audio Compression  Optical channel 25 fps (704 × 576, 640 × 512, 256 × 192)  Mel channel 26 fps (715) 26 fps (716) 27 fps		50 Hz:25 fps (2688 × 1520, 1920×1080, 1280×960, 1280×720)
Sub-stream  Optical channel 50 Hz:25 fps (704 × 576, 352 × 288) 60 Hz:30 fps (704 × 576, 352 × 288) Thermal channel 25 fps (704 × 576, 352 × 288) Thermal channel 25 fps (704 × 576, 640 × 512, 256 × 192)  Video Compression  Main stream: H.265/H.265/H.264+/ H.264 Sub-stream: H.265/H.264/MJPEG Audio Compression  G.711u/G.711a/G.722.1/MP2L2/G.726/PCM  Network  Protocols  IPv4/IPv6, HTTP, HTTPS, 802.1x, Qos, FTP, SMTP, UPnP, SNMP, DNS, DDNS, NTP, RTSP, RTCP, RTP, TCP, UDP, IGMP, ICMP, DHCP, PPPOE MicroSD/SDHC/SDXC card (up to 256 G) local storage, and NAS (NFS, SMB/CIFS), auto network replenishment (ANR)  API  ISAPI, HIKVISION SDK, third-party management platform, ONVIF (Profile S, Profile G, Profile T) Simultaneous Live View Up to 20 channels User/Host level  Up to 32 users, 3 levels: Administrator, Operator, User User authentication (ID and password), MAC address binding, HTTPS encryption, IEEE 802.1x access control, IP address filtering Client  iVMS-4200, Hik-Connect Live view (plug-in allowed): Internet Explorer 11 Live view (plug-in free): Chrome 57.0 +, Firefox 52.0 + Local service: Chrome 57.0+, Firefox 52.0 + Local service: Chrome 57.0+, Firefox 52.0 + Local service: Chrome 57.0+, Firefox 52.0 + Clarm Output  Alarm Output  Preset/Patrol Scan/Pattern Scan/SD Card Record/Relay Output/Smart capture/FTP upload/Email linkage	Main Stream	
Sub-stream  50 Hz:25 fps (704 × 576, 352 × 288) 60 Hz:30 fps (704 × 576, 352 × 288) Thermal channel 25 fps (704 × 576, 640 × 512, 256 × 192)  Main stream: H.265+/H.265/H.264+/ H.264 Sub-stream: H.265+/H.265/H.264+/ H.264 Sub-stream: H.265/H.264/MJPEG  Audio Compression  6 .711u/G.711a/G.722.1/MP2L2/G.726/PCM  Network  Protocols  IPv4/IPv6, HTTP, HTTPS, 802.1x, Qos, FTP, SMTP, UPnP, SNMP, DNS, DNS, NTP, RTSP, RTCP, RTP, TCP, UDP, IGMP, ICMP, DHCP, PPPoE  Network Storage  MicroSD/SDHC/SDXC card (up to 256 G) local storage, and NAS (NFS, SMB/CIFS), auto network replenishment (ANR)  API  ISAPI, HIKVISION SDK, third-party management platform, ONVIF (Profile S, Profile G, Profile T)  Simultaneous Live View Up to 20 channels User/Host level Up to 32 users, 3 levels: Administrator, Operator, User User authentication (ID and password), MAC address binding, HTTPS encryption, IEEE 802.1x access control, IP address filtering  Client  VMS-4200, Hik-Connect Live view (plug-in allowed): Internet Explorer 11 Live view (plug-in free): Chrome 57.0+, Firefox 52.0 + Local service: Chrome 57.0+, Firefox 52.0 + Local service: Chrome 57.0+, Firefox 52.0 + Local service: Chrome 57.0+, Firefox 52.0 + Constituted on the service of the service		25 fps (1280×720, 704 × 576, 640 ×512, 256× 192)
Video Compression  Main stream: H.265+/H.264/MJPEG  Audio Compression  G.711u/G.711a/G.722.1/MP2L2/G.726/PCM  Network  Protocols  IPv4/IPv6, HTTP, HTTPS, 802.1x, Qos, FTP, SMTP, UPnP, SNMP, DNS, DDNS, NTP, RTSP, RTCP, RTP, TCP, UDP, IGMP, ICMP, DHCP, PPP0E  Network Storage  MicroSD/SDHC/SDXC card (up to 256 G) local storage, and NAS (NFS, SMB/CIFS), auto network replenishment (ANR)  API  ISAPI, HIKVISION SDK, third-party management platform, ONVIF (Profile S, Profile G, Profile T)  Simultaneous Live View  Up to 32 users, 3 levels: Administrator, Operator, User  User authentication (ID and password), MAC address binding, HTTPS encryption, IEEE 802.1x access control, IP address filtering  Client  iVMS-4200, Hik-Connect  Live view (plug-in allowed): Internet Explorer 11  Web Browser  Live view (plug-in free): Chrome 57.0 +, Firefox 52.0 +  Local service: Chrome 57.0+, Firefox 52.0 +  Local service: Chrome 57.0+, Firefox 52.0 +  Local service: Chrome 57.0+, Firefox 52.0 +  Preset/Patrol Scan/Pattern Scan/SD Card Record/Relay Output/Smart capture/FTP upload/Email linkage	Sub-stream	50 Hz:25 fps (704 × 576, 352 × 288) 60 Hz:30 fps (704 × 576, 352 × 288) Thermal channel
Sub-stream: H.265/H.264/MJPEG  Audio Compression G .711u/G.711a/G.722.1/MP2L2/G.726/PCM  Network  Protocols IPv4/IPv6, HTTP, HTTPS, 802.1x, Qos, FTP, SMTP, UPnP, SNMP, DNS, DDNS, NTP, RTSP, RTCP, RTP, TCP, UDP, IGMP, ICMP, DHCP, PPPoE  MicroSD/SDHC/SDXC card (up to 256 G) local storage, and NAS (NFS, SMB/CIFS), auto network replenishment (ANR)  API ISAPI, HIKVISION SDK, third-party management platform, ONVIF (Profile S, Profile G, Profile T)  Simultaneous Live View Up to 20 channels  User/Host level Up to 32 users, 3 levels: Administrator, Operator, User  Security User authentication (ID and password), MAC address binding, HTTPS encryption, IEEE 802.1x access control, IP address filtering  Client iVMS-4200, Hik-Connect  Live view (plug-in allowed): Internet Explorer 11  Web Browser Live view (plug-in free): Chrome 57.0 +, Firefox 52.0 + Local service: Chrome 57.0+, Firefox 52.0 + Local service: Chrome 57.0+, Firefox 52.0 + Local service : Chrome 57.0+, Firefox 52.0 + Preset/Patrol Scan/Pattern Scan/SD Card Record/Relay Output/Smart capture/FTP upload/Email linkage		
Protocols  IPv4/IPv6, HTTP, HTTPS, 802.1x, Qos, FTP, SMTP, UPnP, SNMP, DNS, DDNS, NTP, RTSP, RTCP, RTP, TCP, UDP, IGMP, ICMP, DHCP, PPPoE  MicroSD/SDHC/SDXC card (up to 256 G) local storage, and NAS (NFS, SMB/CIFS), auto network replenishment (ANR)  API ISAPI, HIKVISION SDK, third-party management platform, ONVIF (Profile S, Profile G, Profile T)  Simultaneous Live View Up to 20 channels User/Host level Up to 32 users, 3 levels: Administrator, Operator, User User authentication (ID and password), MAC address binding, HTTPS encryption, IEEE 802.1x access control, IP address filtering  Client iVMS-4200, Hik-Connect Live view (plug-in allowed): Internet Explorer 11 Live view (plug-in free): Chrome 57.0 +, Firefox 52.0 + Local service: Chrome 57.0 +, Firefox 52.0 + Local service: Chrome 57.0 +, Firefox 52.0 +  Interface  Alarm Input 7-ch inputs (0-3.3 VDC)  Alarm Output 2-ch relay outputs, alarm response actions configurable  Preset/Patrol Scan/Pattern Scan/SD Card Record/Relay Output/Smart capture/FTP upload/Email linkage	Video Compression	· · · · · · · · · · · · · · · · · · ·
Protocols  IPv4/IPv6, HTTP, HTTPS, 802.1x, Qos, FTP, SMTP, UPnP, SNMP, DNS, DDNS, NTP, RTSP, RTCP, RTP, TCP, UDP, IGMP, ICMP, DHCP, PPPoE  MicroSD/SDHC/SDXC card (up to 256 G) local storage, and NAS (NFS, SMB/CIFS), auto network replenishment (ANR)  API ISAPI, HIKVISION SDK, third-party management platform, ONVIF (Profile S, Profile G, Profile T)  Simultaneous Live View Up to 20 channels User/Host level Up to 32 users, 3 levels: Administrator, Operator, User User authentication (ID and password), MAC address binding, HTTPS encryption, IEEE 802.1x access control, IP address filtering  Client iVMS-4200, Hik-Connect Live view (plug-in allowed): Internet Explorer 11 Live view (plug-in free): Chrome 57.0 +, Firefox 52.0 + Local service: Chrome 57.0 +, Firefox 52.0 + Local service: Chrome 57.0 +, Firefox 52.0 +  Interface  Alarm Input 7-ch inputs (0-3.3 VDC)  Alarm Output 2-ch relay outputs, alarm response actions configurable  Preset/Patrol Scan/Pattern Scan/SD Card Record/Relay Output/Smart capture/FTP upload/Email linkage	Audio Compression	G .711u/G.711a/G.722.1/MP2L2/G.726/PCM
Protocols  DDNS, NTP, RTSP, RTCP, RTP, TCP, UDP, IGMP, ICMP, DHCP, PPPoE  MicroSD/SDHC/SDXC card (up to 256 G) local storage, and NAS (NFS, SMB/CIFS), auto network replenishment (ANR)  API ISAPI, HIKVISION SDK, third-party management platform, ONVIF (Profile S, Profile G, Profile T)  Simultaneous Live View Up to 20 channels  User/Host level Up to 32 users, 3 levels: Administrator, Operator, User  Security User authentication (ID and password), MAC address binding, HTTPS encryption, IEEE 802.1x access control, IP address filtering  Client iVMS-4200, Hik-Connect  Live view (plug-in allowed): Internet Explorer 11  Live view (plug-in free): Chrome 57.0 +, Firefox 52.0 +  Local service: Chrome 57.0+, Firefox 52.0 +  Local service: Chrome 57.0+, Firefox 52.0 +  Alarm Input 7-ch inputs (0-3.3 VDC)  Alarm Output 2-ch relay outputs, alarm response actions configurable  Preset/Patrol Scan/Pattern Scan/SD Card Record/Relay Output/Smart capture/FTP upload/Email linkage	Network	
Network Storage  SMB/CIFS), auto network replenishment (ANR)  ISAPI, HIKVISION SDK, third-party management platform, ONVIF (Profile S, Profile G, Profile T)  Simultaneous Live View Up to 20 channels User/Host level Up to 32 users, 3 levels: Administrator, Operator, User User authentication (ID and password), MAC address binding, HTTPS encryption, IEEE 802.1x access control, IP address filtering  Client IvMS-4200, Hik-Connect Live view (plug-in allowed): Internet Explorer 11 Live view (plug-in free): Chrome 57.0 +, Firefox 52.0 + Local service: Chrome 57.0+, Firefox 52.0 +  Interface  Alarm Input 7-ch inputs (0-3.3 VDC) Alarm Output 2-ch relay outputs, alarm response actions configurable Preset/Patrol Scan/Pattern Scan/SD Card Record/Relay Output/Smart capture/FTP upload/Email linkage	Protocols	
API  (Profile S, Profile G, Profile T)  Simultaneous Live View  Up to 20 channels  User/Host level  Up to 32 users, 3 levels: Administrator, Operator, User  Security  User authentication (ID and password), MAC address binding, HTTPS encryption, IEEE 802.1x access control, IP address filtering  Client  iVMS-4200, Hik-Connect  Live view (plug-in allowed): Internet Explorer 11  Live view (plug-in free): Chrome 57.0 +, Firefox 52.0 +  Local service: Chrome 57.0+, Firefox 52.0 +  Interface  Alarm Input  7-ch inputs (0-3.3 VDC)  Alarm Output  Alarm Action  Preset/Patrol Scan/Pattern Scan/SD Card Record/Relay Output/Smart capture/FTP upload/Email linkage	Network Storage	, , , , , , , , , , , , , , , , , , , ,
User/Host level  Up to 32 users, 3 levels: Administrator, Operator, User  User authentication (ID and password), MAC address binding, HTTPS encryption, IEEE 802.1x access control, IP address filtering  Client  iVMS-4200, Hik-Connect  Live view (plug-in allowed): Internet Explorer 11  Live view (plug-in free): Chrome 57.0 +, Firefox 52.0 +  Local service: Chrome 57.0+, Firefox 52.0 +  Interface  Alarm Input  7-ch inputs (0-3.3 VDC)  Alarm Output  2-ch relay outputs, alarm response actions configurable  Preset/Patrol Scan/Pattern Scan/SD Card Record/Relay Output/Smart capture/FTP upload/Email linkage	API	
Security  User authentication (ID and password), MAC address binding, HTTPS encryption, IEEE 802.1x access control, IP address filtering  iVMS-4200, Hik-Connect  Live view (plug-in allowed): Internet Explorer 11  Live view (plug-in free): Chrome 57.0 +, Firefox 52.0 +  Local service: Chrome 57.0+, Firefox 52.0 +  Interface  Alarm Input  7-ch inputs (0-3.3 VDC)  Alarm Output  2-ch relay outputs, alarm response actions configurable  Preset/Patrol Scan/Pattern Scan/SD Card Record/Relay Output/Smart capture/FTP upload/Email linkage	Simultaneous Live View	Up to 20 channels
Client iVMS-4200, Hik-Connect  Live view (plug-in allowed): Internet Explorer 11  Web Browser Live view (plug-in free): Chrome 57.0 +, Firefox 52.0 +  Local service: Chrome 57.0+, Firefox 52.0 +  Local service: Chrome 57.0+, Firefox 52.0 +  Interface  Alarm Input 7-ch inputs (0-3.3 VDC)  Alarm Output 2-ch relay outputs, alarm response actions configurable  Preset/Patrol Scan/Pattern Scan/SD Card Record/Relay Output/Smart capture/FTP upload/Email linkage	User/Host level	Up to 32 users, 3 levels: Administrator, Operator, User
Live view (plug-in allowed): Internet Explorer 11 Live view (plug-in free): Chrome 57.0 +, Firefox 52.0 + Local service: Chrome 57.0+, Firefox 52.0 +  Interface  Alarm Input 7-ch inputs (0-3.3 VDC)  Alarm Output 2-ch relay outputs, alarm response actions configurable  Preset/Patrol Scan/Pattern Scan/SD Card Record/Relay Output/Smart capture/FTP upload/Email linkage	Security	, , , , , , , , , , , , , , , , , , , ,
Web Browser Live view (plug-in free): Chrome 57.0 +, Firefox 52.0 + Local service: Chrome 57.0+, Firefox 52.0 +  Interface  Alarm Input 7-ch inputs (0-3.3 VDC)  Alarm Output 2-ch relay outputs, alarm response actions configurable  Preset/Patrol Scan/Pattern Scan/SD Card Record/Relay Output/Smart capture/FTP upload/Email linkage	Client	iVMS-4200, Hik-Connect
Alarm Input 7-ch inputs (0-3.3 VDC)  Alarm Output 2-ch relay outputs, alarm response actions configurable  Preset/Patrol Scan/Pattern Scan/SD Card Record/Relay Output/Smart capture/FTP upload/Email linkage	Web Browser	Live view (plug-in free) : Chrome 57.0 +, Firefox 52.0 +
Alarm Output  2-ch relay outputs, alarm response actions configurable  Preset/Patrol Scan/Pattern Scan/SD Card Record/Relay Output/Smart capture/FTP upload/Email linkage	Interface	
Alarm Action Preset/Patrol Scan/Pattern Scan/SD Card Record/Relay Output/Smart capture/FTP upload/Email linkage	Alarm Input	7-ch inputs (0-3.3 VDC)
capture/FTP upload/Email linkage	Alarm Output	
Audio Input LINE_IN Input/MIC Input; Peak: From 2 to 2.4V[p-p]; Output	Alarm Action	
	Audio Input	LINE_IN Input/MIC Input; Peak: From 2 to 2.4V[p-p]; Output



### BW-DS4228

	Impedance: 1KΩ±10%		
Audio Output	Linear Level; Impedance: 600 $\Omega$		
Communication Interface	1, RJ45 10 M/100 M Self-adaptive Ethernet interface.		
Communication Interface	1, RS-485 interface		
Analog Video Output	1.0 V [p-p]/75 Ω		
General			
	32 languages		
	English, Russian, Estonian, Bulgarian, Hungarian, Greek, German,		
Web Client Language	Italian, Czech, Slovak, French, Polish, Dutch, Portuguese, Spanish,		
Web Client Language	Romanian, Danish, Swedish, Norwegian, Finnish, Croatian, Slovenian,		
	Serbian, Turkish, Korean, Traditional Chinese, Thai, Vietnamese,		
	Japanese, Latvian, Lithuanian, Portuguese (Brazil)		
	24VAC ± 20%, two-core terminal block		
Dower Supply	36VDC ± 20%, two-core terminal block		
Power Supply	48VDC ± 20%, two-core terminal block		
	Hi-PoE		
Power Consumption	Max 30 W		
Working Temperature/Humidity	-30°C to 60°C (-22°F to 140°F), 90% or less		
Protection Level	IP66 Standard; TVS 6000V Lightning Protection, Surge Protection and		
Protection Level	Voltage Transient Protection		
Dimension	305 mm × 185 mm × 163 mm (12.01 " × 7.28 " × 6.42 ")		
Weight	Approx. 3.9Kg (8.6lb)		

# · Range Table

VCA Range (Vehicles: 1.4 × 4.0 m)	VCA Range (Humans: 1.8 × 0.5 m)	Temperature Measuremen t (Object: 0.5 × 0.5 m)	Temperature Measuremen t (Object: 0.2 × 0.2 m)	Fire Detection (Object: 2 × 2 m)	Fire Detection (Object: 1 × 1 m)
168 m	56 m	58 m	23 m	583 m	292 m

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- \* The table is only for reference and the performance may vary according to different environment.
- \* The optimal human 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.

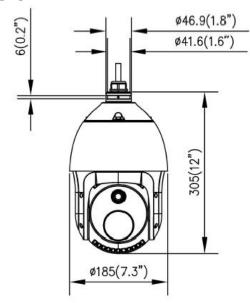
Identification Range: In order to identify the object and describe it in details, the object must be covered by 12 or more pixels.

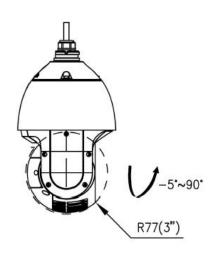
Detection	Detection	Recognition	Recognition	Identificatio	Identificatio
Range	Range	Range	Range	n Range	n Range
(Vehicles:	(Humans: 1.8	(Vehicles:	(Humans: 1.8	(Vehicles:	(Humans: 1.8
1.4 × 4.0 m)	× 0.5 m)	1.4 × 4.0 m)	× 0.5 m)	1.4 × 4.0 m)	× 0.5 m)
894 m	292 m	224 m	73 m	112 m	36 m

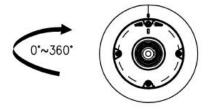
### · Available Model

BW-DS4228

### Dimension







# Accessory

# Optional

DS-1604ZJ-BOX- CORNER Wall mount	DS-1604ZJ-box Wall mount	DS-1660ZJ Wall mount	DS-1661ZJ Pendant Mount	DS-1662ZJ Pendant Mount
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### **BW-DS4228**

DS-1667ZJ Pendant Mount	DS-1673ZJ Vertical pole mount	DS-1604ZJ-BOX- POLE Vertical pole mount	DS-1604ZJ-pole Vertical pole mount	DS-1663ZJ In-ceiling mount
	B			
DS-1604ZJ-corne r Corner mount	DS-1619ZJ Others	DS-1602ZJ Wall mount		

COMPLIANCE NOTICE: The thermal series products might be subject to export controls in various countries or regions, including without limitation, the United States, European Union, United Kingdom and/or other member countries of the Wassenaar Arrangement. Please consult your professional legal or compliance expert or local government authorities for any necessary export license requirements if you intend to transfer, export, re-export the thermal series products between different countries.

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