Redvision™

NDAA Compliant

CCTV | IP PTZ

X4 COMMANDER – 4K





Key Features

- Tough, rugged camera, Marine-Grade finish as standard
- PoE 90W (802.3bt Midspan) Version available
- Adaptive White Light and IR (zoom-linked) operation – 500m target range.
- Intelligent, Auto- PTZ Tracking
- 4K (3840x2160), 1/1.8” CMOS Sensor
- 40x Optical Zoom
- VMS Integration, including Redvision VMS1000 & ONVIF Compatiblity
- Brushless Stepper Motors for Resilience and Durability
- SD Card recording option, up to 1TB.

ONVIF™ Member

X4 COMMANDER 4K Rugged Ball PTZ

The X4 COMMANDER 4K rugged, ball PTZ cameras are designed for tough, outdoor surveillance applications. The X4 COMMANDER 4K uses advanced production techniques and state-of-the-art imaging technology to deliver a world-class, 4K-resolution, rugged CCTV camera with a best-in-class feature set. The die-cast aluminium body is pre-treated before being powder-coated, making the camera exceptionally durable and resistant to environmental and malicious attack or vandalism.

Everything about the X4 COMMANDER 4K rugged ball PTZ is of the highest quality. All moving parts are engineered for long service life; from its long-life silicone wiper to the advanced motor technology used in its pan-tilt mechanism, and its 40× optical zoom 4K camera module with exceptional low-light performance. The camera is perfectly balanced, minimising component wear and delivering a mean time before failure (MTBF) rating of 7 years.

Intuitive, Operator Control

The X4 COMMANDER 4K provides intuitive operator control, with fast pan and tilt speeds of up to 180°/second, down to less than 0.1°/second for precise manual tracking. The COMMANDER 4K also features long-life, highly efficient, white-light and IR LED illumination technologies for enhanced night-time operation with 4K clarity.

3D positioning enables simple, responsive control of the X4 COMMANDER 4K PTZ. Quick setup is carried out directly from the enhanced Web User Interface, while operators can track targets by mouse-click from a compatible control platform. Improved processing ensures minimal latency and eliminates over-run.

VMS Integration Including Redvision VMS1000

Redvision's VMS1000 (powered by Digifort) is an ONVIF-compliant VMS capable of managing a wide range of IP cameras, with deep, SDK-level integration into all Redvision cameras. This enhanced integration gives users simple access to auxiliary functions such as wiper control, white-light activation, illumination settings, and advanced 4K-specific imaging parameters.

Simple Install, Maintenance Free

The X4 COMMANDER 4K is designed for rapid installation and configuration. A full range of brackets, mounts and cable extensions support upright installation in any environment, with optional RAL colour matching. Cantilever arms allow the camera to view directly downwards from pole or tower mounts.

The COMMANDER 4K uses a tooled silicone wiper system to keep the flat, scratch-resistant window clear of rain and debris. A linkage-free, sprung steel mechanism reduces wear, and a polycarbonate window is available for ultra-tough applications. Wiper activation is available via VMS systems, including the VMS1000, or by pre-set.

Extensive Features

The X4 COMMANDER 4K includes an extensive feature set:

- Four video streams for recording, visualisation, set-up and servicing
- 4K (8MP) resolution at up to 30fps, with additional sub-stream options
- H.265, H.264 and MJPEG compression
- Optional SD-card edge storage up to 1TB
- ONVIF Profile S, G and T compliance
- 400 presets, 12 tours, 12 scans, 6 tracks and 20 privacy masks
- Alarm inputs/outputs, motion detection, intelligent analytics and automatic PTZ tracking
- Operating temperature range: –40°C to +70°C
- 90W PoE version (802.3bt Midspan) for quick connectivity via RJ45, supporting a full 100m Cat 5e link

Night-time performance

X4 COMMANDER 4K PTZ cameras feature IR and white-light illumination using long-life, highly efficient LEDs. DORI (Detection, Observation, Recognition, Identification) testing shows performance up to 500m, with improved 4K clarity delivering sharper target identification.

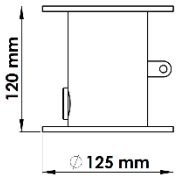
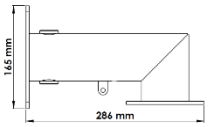
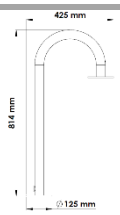
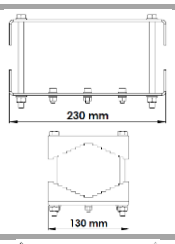
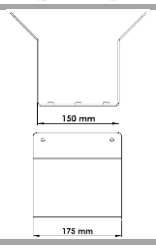
Using the latest sensor technology, the 1/1.8" CMOS Starlight 4K sensor offers exceptional low-light performance, with sensitivity down to approximately 0.005 Lux in colour and 0.001 Lux in monochrome, maintaining high detail at 4K resolution.

The X4 COMMANDER 4K features Osram adaptive illumination, automatically adjusting IR and white-light output according to zoom position and scene content. This ensures even, consistent coverage without over-exposure or bleaching. White-light can also be activated manually as a visible deterrent.

Intelligent auto-PTZ tracking

The X4 COMMANDER 4K includes advanced, intelligent auto-PTZ tracking. The camera automatically follows people or vehicles moving within the scene, continuously adjusting zoom, positioning and focus in real time—now enhanced by the extra detail provided by 4K resolution.

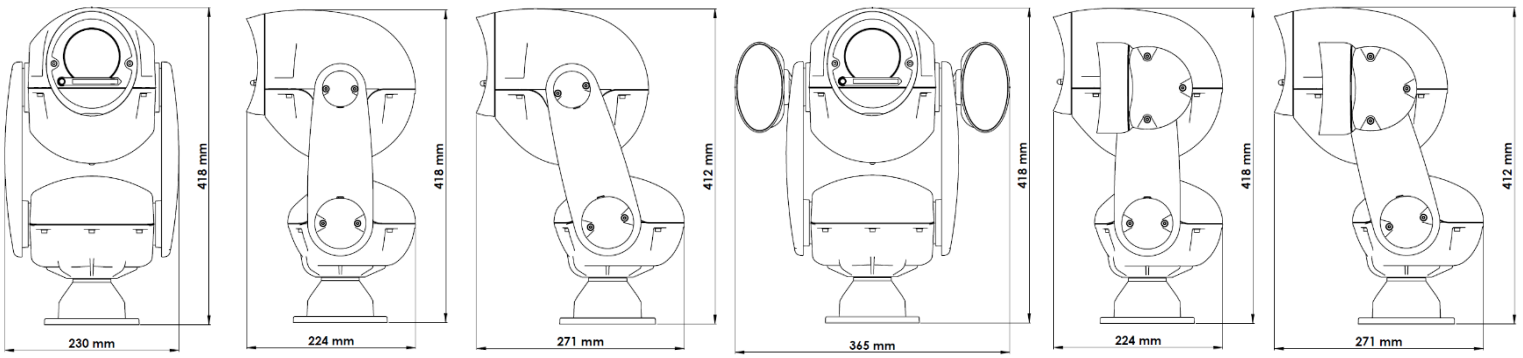
Image	Part Code and Description
	**RVX4K-G:** 40:1 4K Zoom Ball PTZ, WIPER - Light Grey **RVX4K-POE-G:** 40:1 4K Zoom Ball PTZ, WIPER. High-PoE (802.3bt Midspan) 60W - Light Grey **RVX4K-ALM-G:** 40:1 4K Zoom Ball PTZ, 4 alarm inputs, 2 alarm outputs, WIPER - Light Grey
	**RVX4K-B:** 40:1 4K Zoom Ball PTZ, WIPER - Black **RVX4K-POE-B:** 40:1 4K Zoom Ball PTZ, WIPER. High-PoE (802.3bt Midspan) 60W - Black **RVX4K-ALM-B:** 40:1 4K Zoom Ball PTZ, 4 alarm inputs, 2 alarm outputs, WIPER - Black
	**RVX4K-IR-G:** 40:1 4K Zoom Ball PTZ, IR, WIPER - Light Grey **RVX4K-POE-IR-G:** 40:1 4K Zoom Ball PTZ, IR, WIPER. High-PoE (802.3bt Midspan) 90W - Light Grey **RVX4K-ALM-IR-G:** 40:1 4K Zoom Ball PTZ, 4 alarm inputs, 2 alarm outputs, IR, WIPER - Light Grey
	**RVX4K-IR-B:** 40:1 4K Zoom Ball PTZ, IR, WIPER - Black **RVX4K-POE-IR-B:** 40:1 4K Zoom Ball PTZ, IR, WIPER. High-PoE (802.3bt Midspan) 90W - Black **RVX4K-ALM-IR-B:** 40:1 4K Zoom Ball PTZ, 4 alarm inputs, 2 alarm outputs, IR, WIPER – Black
	**RVX4K-IRX-G:** 40:1 4K Zoom Ball PTZ, Extra Long-Range IR up to 500m, WIPER - Light Grey **RVX4K-POE-IRX-G:** 40:1 4K Zoom Ball PTZ, Extra Long-Range IR up to 500m, WIPER. High-PoE (802.3bt Midspan) 90W - Light Grey **RVX4K-ALM-IRX-G:** 40:1 4K Zoom Ball PTZ, 4 alarm inputs, 2 alarm outputs, Extra Long-Range IR up to 500m, WIPER - Light Grey
	**RVX4K-IRX-B:** 40:1 4K Zoom Ball PTZ, Extra Long-Range IR up to 500m, WIPER - Black **RVX4K-POE-IRX-B:** 40:1 4K Zoom Ball PTZ, Extra Long-Range IR up to 500m, WIPER. High-PoE (802.3bt Midspan) 90W - Black **RVX4K-ALM-IRX-B:** 40:1 4K Zoom Ball PTZ, 4 alarm inputs, 2 alarm outputs, Extra Long-Range IR up to 500m, WIPER - Black
	**RVX4K-IRWL-G:** 40:1 4K Zoom Ball PTZ, IR/ White Light, WIPER - Light Grey **RVX4K-POE-IRWL-G:** 40:1 4K Zoom Ball PTZ, IR/ White Light, WIPER. High-PoE (802.3bt Midspan) 90W - Light Grey **RVX4K-ALM-IRWL-G:** 40:1 4K Zoom Ball PTZ, 4 alarm inputs, 2 alarm outputs, IR/ White Light, WIPER - Light Grey
	**RVX4K-IRWL-B:** 40:1 4K Zoom Ball PTZ, IR/ White Light, WIPER - Black **RVX4K-POE-IRWL-B:** 40:1 4K Zoom Ball PTZ, IR/ White Light, WIPER. High-PoE (802.3bt Midspan) 90W - Black **RVX4K-ALM-IRWL-B:** 40:1 4K Zoom Ball PTZ, 4 alarm inputs, 2 alarm outputs, IR/ White Light, WIPER - Black

Image	Part Code and Description	Drawing
	**RVX4-STANDOFF-G**: 120 mm Standoff mount bracket - Light Grey **RVX4-STANDOFF-B**: 120 mm Standoff mount bracket - Black	
	**RVX4-WALL-G**: Wall mount bracket - Light Grey **RVX4-WALL-B**: Wall mount bracket - Black	
	**RVX4-SWAN-G**: Swan mount bracket - Light Grey **RVX4-SWAN-B**: Swan mount bracket - Black	
	**RVX4-POLE-G**: Pole mount adaptor 60-90mm for Wall Bracket - Light Grey **RVX4-POLE-B:** Pole mount adaptor 60-90mm for Wall Bracket - Black	
	**RVX4-CNR-G**: Corner Mount adapter for Wall Bracket - Light Grey **RVX4-CNR-B**: Corner Mount adapter for Wall Bracket - Black	
	**RVX4-BIRD-SPIKE:** Multiple Anti-Perch Bird Spike Attachment	
	**RVX2-PSU**: 24V DC PSU for X2/X3/X4 non alarm and alarm ball PTZ	
Other	**RVX4-SD, RVX4-PC4, RV-POE-INJ-90W, RVX2-WASH**	

Redvision™ Technical Specification

Camera	
Image Sensor	1/1.8" Progressive Scan CMOS
Effective Pixels	3840(H) × 2160 (V)
Electronic Shutter	Auto/Manual, 1/5 ~ 1/20,000s
Min. illumination	Colour: 0.005 Lux @(F1.6, AGC ON), B/W: 0.001 Lux @(F1.6, AGC ON)
S/N Ratio	55 dB
Day/Night	Auto(ICR)/Day / Night/Timing
Wide Dynamic Range	True WDR
IR On/Off Control	Auto/Manual
Lens	
Focal Length	6.8 ~ 272 mm, 40x optical zoom
Max. Aperture	F1.63 ~ F4.94
Angle of View	H: 62.0°to 2.4°, V: 36.6°to 1.3°
Digital Zoom	16x
Focus Control	Auto/Manual/Semi-Automatic
PTZ	
Pan/Tilt Range	Pan: 360° continuous Tilt: +70° to -60° (Cantilever function gives 180° view range)
Manual Control Speed	Pan: 0.1° ~ 180°/s, Tilt: 0.1° ~ 90°/s
Preset Speed	Pan: 180°/s, Tilt: 90°/s
Presets	400
PTZ Mode	6 Track, 12 Scan, 12 Tour (up to 32 presets per tour)
3D Positioning	Supported
Power-Off Memory	Supported
PTZ Status Display	Supported
Idle Motion	Activate Preset/ Scan/ Tour/ Track if there is no command in the specified period
Installation Orientation	Upright, Upright arms canted (Hanging not available on RVX4K)
Video	
Encoding	H.264 / H.265 / MJPEG / Smart Encode
Max. Resolution	8MP (3840×2160)
Streaming Capability	3 Streams
Stream/Frame Rate	Stream1: 3840×2160, 2592×1520, 2304×1296, 1920×1080, 1280×720 @25/30fps Stream2: D1, VGA, CIF @25/30fps Stream3: VGA, CIF, QVGA @25/30fps
Bit Rate Control	CBR/VBR
Bit Rate	Stream1: 200 kbps to 16 Mbps Stream2: 100 kbps to 6 Mbps Stream3: 100 kbps to 3 Mbps
Image Setting	HLC / BLC / Defog / WDR / Anti-shake (DIS) / Brightness / Saturation / Sharpness / Contrast / Exposure Control / Scene
Noise Reduction	2D/3D DNR
Region of Interest	Off/On (8 Zone, Rectangle)
Privacy Masking	Up to 20 Masks
Event	
Alarm Triggers	IVA, Motion detection, Alarm input, Network alarm, SD alarm, Day/Night switch alarm
Event Actions	Alarm record, Alarm output, FTP upload, SMTP upload

Network	
Interface	Ethernet RJ45, 10-100 Base-T connection
Protocols	IPv4/IPv6, 802.1x, HTTP, HTTPS, TCP/IP, UDP/IP, RTSP, DHCP, NTP, RTCP/RTP, PPPoE, SMTP, DNS, UPnP, FTP, ARP, SNMP, TLS/SSL, IGMP, DNS, DDNS, ICMP, QOS
Interoperability	ONVIF (Profile S, G, T and M), SDK, CGI
Streaming Method	Unicast, Multicast
Max. User Access	10 Users
Edge Storage	Built-in Micro SD slot, up to 1TB
Web Viewer	Microsoft Windows: Chrome, Firefox, Microsoft Edge, Opera MacOS: Chrome, Firefox
Security	IP address filter, HTTPS, Illegal login lock, IEEE 802.1x
Intelligence & Alarm	
Auto Tracking	Supported
Alarm	Motion alarm, Disk alarm, Day/Night switch alarm, Network alarm, Audio abnormal alarm, Alarm push
Alarm I/O	4 in, 2 out (ALM Variant)
Object Detection	Face, human, vehicle detection and capture
Smoke and Fire Detection	Supported
Intelligent Analysis	Intrusion, Single line crossing, Double line crossing, Loitering, Wrong-way detection, Illegal parking, and Smart motion detection
Electrical and Physical	
Power Supply	24VDC (-15% to +20%) via RVX2 PSU module; input 100~240VAC 50/60Hz. PoE Version: RJ45 socket, takes power & data (90W)
Power Consumption	24VDC: 50W. PoE: 802.3bt Midspan 90W (LED models)
Dimensions	Non-LED models: H 340mm W 191mm LED models: H 340mm W 293mm
Weight	8kg without lamps, 10kg with lamps
Operating Temperature	-40°C ~ +70°C (Light colours only, Black: 50°C)
Impact Rating	Meets IK10 standards (with Polycarbonate window fitted)
Corrosion Testing	BS EN ISO 9227:2022 1000 Hours Salt Spray
Ingress Protection	Meets IP68 standards
Relative Humidity	≤95%, non-condensing
Vibration Testing	See Technical Standards
EMC	See Technical Standards
Camera Body	Marine finish as standard, Aluminium, die-cast alloy, with pretreated, powder coated finish
Wiper Blade	Tooled silicone
Colour	RAL 7035 Light-Grey or RAL 9005 Black. Custom RAL made to order.
Lighting & DORI	
Illumination Range	IR (850nm) to 500m (IRX Variant), 400m (IR/IRWL) White Light to 300m
DORI Category	Distances calculated as per IEC 62676-4:
Detection (25PPM)	Wide: 140m, Tele: 5,600m
Observation (62.5PPM)	Wide: 56m, Tele: 2,240m
Recognition (125PPM)	Wide: 28m, Tele: 1,120m
Identify (250PPM)	Wide: 14m, Tele: 560m



Environmental	
Cold Test	EN 60068-2-1:2007 Test Ae -40°C
Dry Heat Test	EN 60068-2-2:2007 Test Be +70°C
Damp Heat Test, Cyclic Test	EN 60068-2-30:2005 Test Db
Vibration Test	EN 50556:2018 Section 6.3.2 & Table 4 Class AL & Section 6.3.1.5 & EN 60068-2-64:2008 Test Fh
IPX8	IEC 60529:1989+A1:1999+A2:2013+COR1:2019
IP6X	IEC 60529:1989+A1:1999+A2:2013+COR1:2019
Salt Spray	BS EN ISO 9227:2022 1000 Hours Salt Spray

EMC Emission	
Conducted Emissions at Mains Power Port (150kHz-30MHz)	EN 55032:2015+A11:2020+A1:2020
Asymmetric Mode Conducted Emissions (150kHz-30MHz)	EN 55032:2015+A11:2020+A1:2020
Radiated Emissions (30MHz – 1GHz)	EN 55032:2015+A11:2020+A1:2020
Radiated Emissions (Above 1Ghz)	EN 55032:2015+A11:2020+A1:2020
Harmonic Current Emission	EN IEC 61000-3-2:2019+A1:2021
Voltage Fluctuations and Flicker	EN 61000-3-3:2013+A1:2019+A2:2021

EMC Immunity	
Electrostatic Discharge	EN 55035:2017+A11:2020 & EN 50130-4:2011+A1:2014
Radiated Immunity (80MHz-1GHz, 1800MHz, 2600MHz, 3500MHz, 5000Mhz)	EN 55035:2017+A11:2020
Radiated Immunity (80MHz-2.7GHz)	EN 50130-4:2011+A1:2014
Electrical Fast Transients & Burst at AC Power Port	EN 55035:2017+A11:2020 & EN 50130-4:2011+A1:2014
Electrical Fast Transients & Bursts at Signal Port	EN 55035:2017+A11:2020 & EN 50130-4:2011+A1:2014
Surge at AC Power Port	EN 55035:2017+A11:2020 & EN 50130-4:2011+A1:2014
Surge at Signal Port	EN 55035:2017+A11:2020 & EN 50130-4:2011+A1:2014
Conducted Immunity at AC Power Port (150kHz-80MHz)	EN 55035:2017+A11:2020 & EN 50130-4:2011+A1:2014
Conducted Immunity at Signal Port (150kHz-80MHz)	EN 55035:2017+A11:2020 & EN 50130-4:2011+A1:2014
Voltage Dips and Interruptions	EN 55035:2017+A11:2020 & EN 50130-4:2011+A1:2014
Mains Supply Voltage Variations	EN 50130-4:2011+A1:2014