VIVOTEK

A Delta Group Company

VORTEX

2022 Ver. 1.0

VSaaS "VORTEX"

## The Core That Converges Surveillance Video Flows

A Vortex is a circular, spiraling center in a fluid dynamics, converging surrounding objects & energy towards into it. In the natural world, a Vortex assimilates substances around it, then projects a powerful output.

Likewise, VIVOTEK brand-new VSaaS (Video Surveillance as a Service), leveraging the essence of Vortex, digests tons of video streams concurrently and transform the insights onto either the cloud or the edge. Embedded with cutting-edge Deep Learning AI technology, VORTEX builds up a real-time, all-inclusive video management, analytics and storage service, presenting endless enhancement to the customers.

VORTEX Hybrid Cloud Architecture

VORTEX–ready Camera

VORTEX Portal

VORTEX App
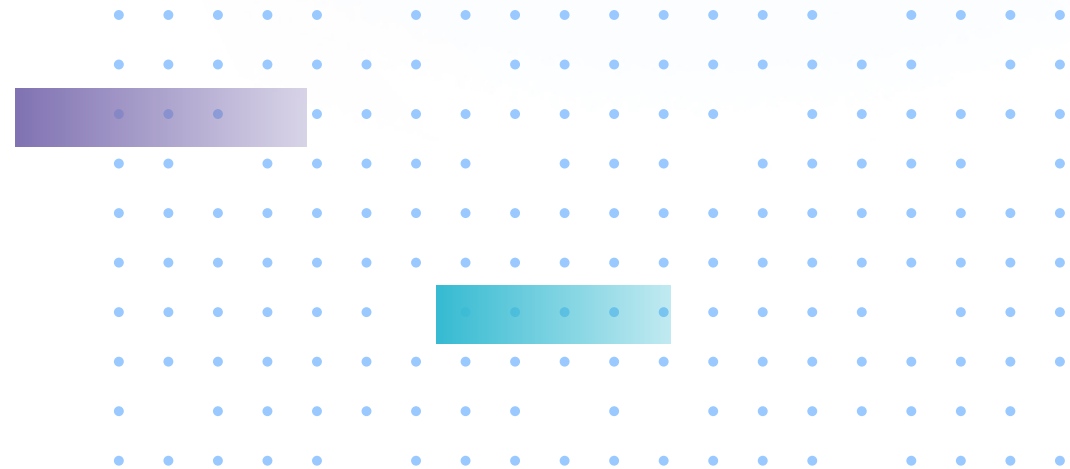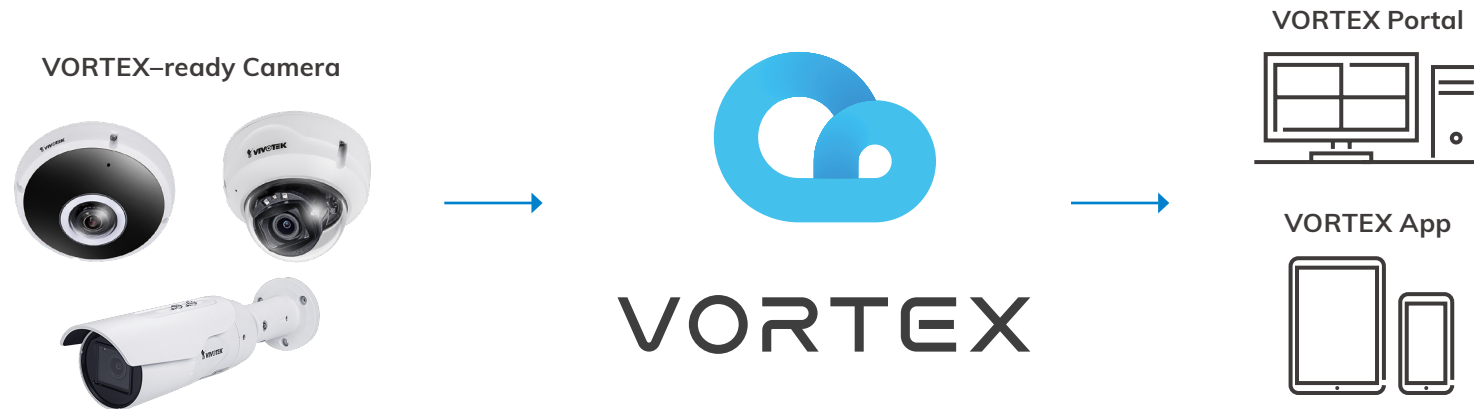
VORTEX hybrid cloud architecture enables a large extent of hardware compatibility, together with delicate analytics, always-on video recording and automatic software upgrade, making user's everyday surveillance a breeze.

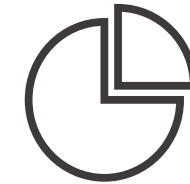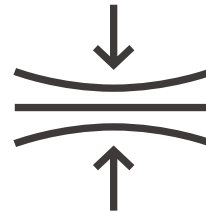| VORTEX Hybrid Cloud Architecture	
Video Management	· 24/7 recording in local storage of camera and optional backup in cloud
Configuration	· Zero configuration
Upstream Bandwidth	· Low bandwidth requirement due to on-board recording & edge AI
Analytics	· Strong In-camera analytics for real-time alerts and bandwidth efficiency
Internet Outage	· No impact on video recordings due to in-camera storage · Cloud backup recoveries when internet reconnects

VORTEX Key Benefits

| Ease of Use	Flexible Scalability	Sound Resilience	Variety Selection & Affordable Surveillance	Powerful AI Analytics
• Plug and play. • QR code registration. • Zero configuration. • Hassle-free setup & maintenance. • Anytime, anywhere cross-device remote access.	• Hybrid cloud video storage. • Multi-site, remote monitoring & management. • Automatic firmware & AI analytics update. • Low bandwidth requirement.	• 20+ years expertise in surveillance with sustaining commitment. • End-to-end data encryption. • Archive & cloud backup. • NDAA compliance.	• Sufficient camera / license combination matching varied needs. • Tailor-made cameras for a variety of usages. • Price scheme mapping lightweight to heavy users. • Economical for peace of mind.	• Scene Search using AI analytics on the edge. • Real-time notification & footage sharing. • Attribute Search for people / vehicles. • Re-Search a person of interest in the entire system. • People-based image quality enhancement.

Powerful People / Vehicle AI Analytics
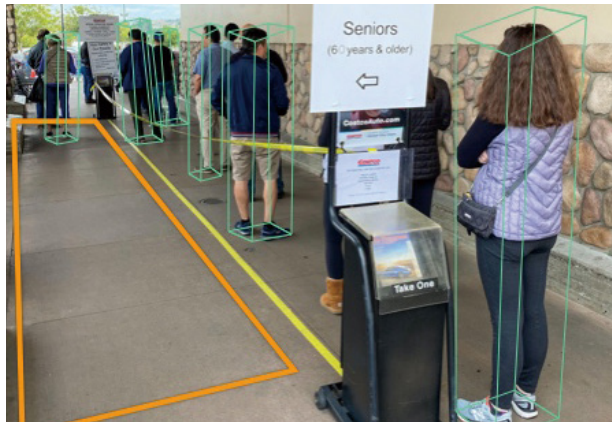
Intrusion Detection

Detection and notification of anomalous people / vehicle behaviors that intrude / leave the preset forbidden zones (e.g., surroundings of critical infrastructure, bank vaults, or confidential data centers).

Loitering Detection

Detect individual or a group of people who remain lingering in the surveillance scene for a specific time frame, causing security issues (e.g., graffiti on the wall of an office building).
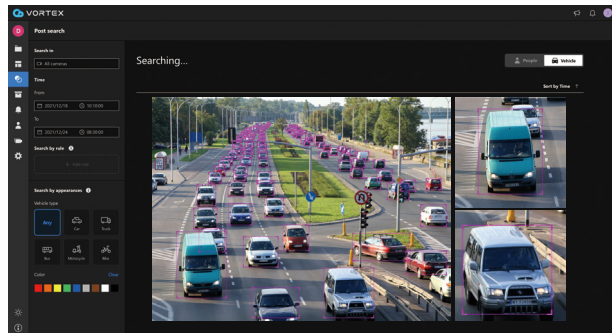
Line Crossing Detection

Monitor moving objects that cross a user-defined virtual line (e.g., crossing train tracks, entering driveways, or climbing a fence).
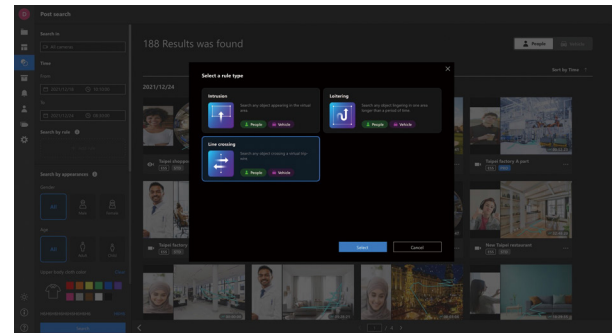
Sophisticated Deep Search

Attribute Search for People / Vehicles

Use People and Vehicles as search criteria utilizing multiple attributes (e.g., gender, age group, clothing or car color, vehicle type) to quickly find the person / vehicle of interest.

Scene Search

Through our one-of-a-kind scene search, users can search a specific scene using line crossing detection, intrusion detection, or loitering detection defined anytime.
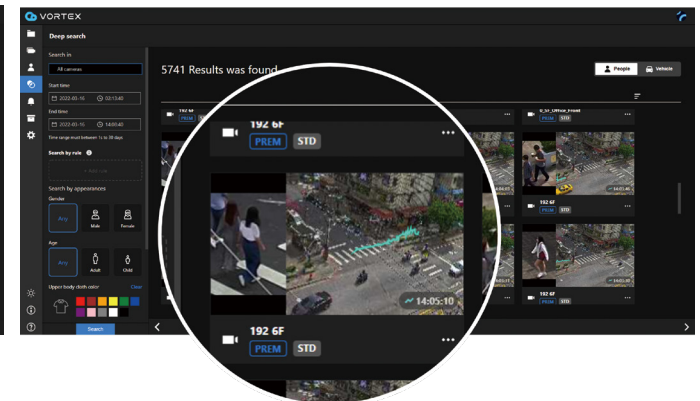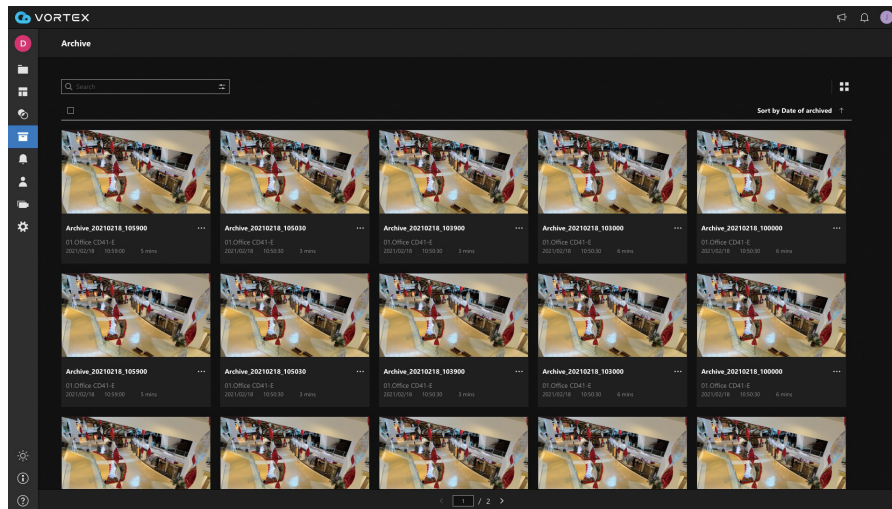
Re-Search

Match the person of interest across different cameras to track their presence in the entire surveillance system.
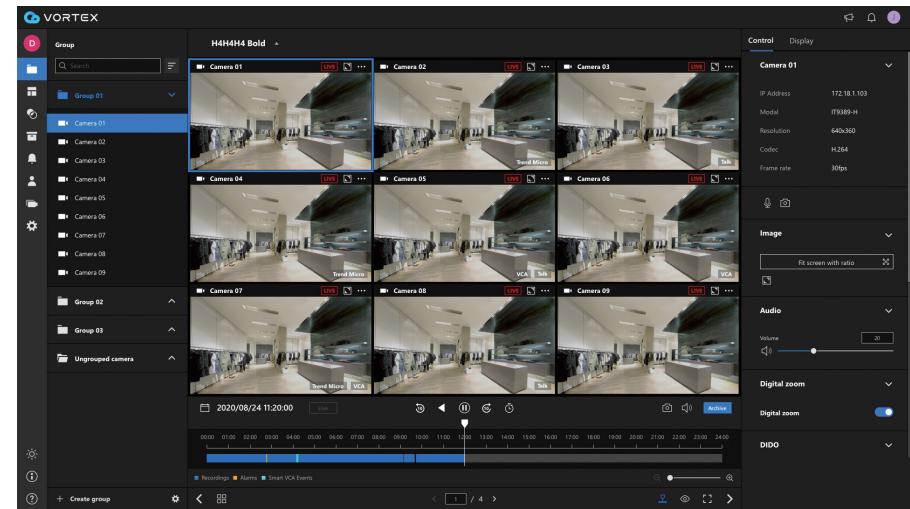
Secure Cloud Redundancy

Unlimited Archiving and Instant Sharing

Time-lapse thumbnails aggregate video footage in a screenshot. Users can preview thumbnails to monitor daily progress, and store unlimited video clips of critical events to the cloud archive as well as share clips with others.
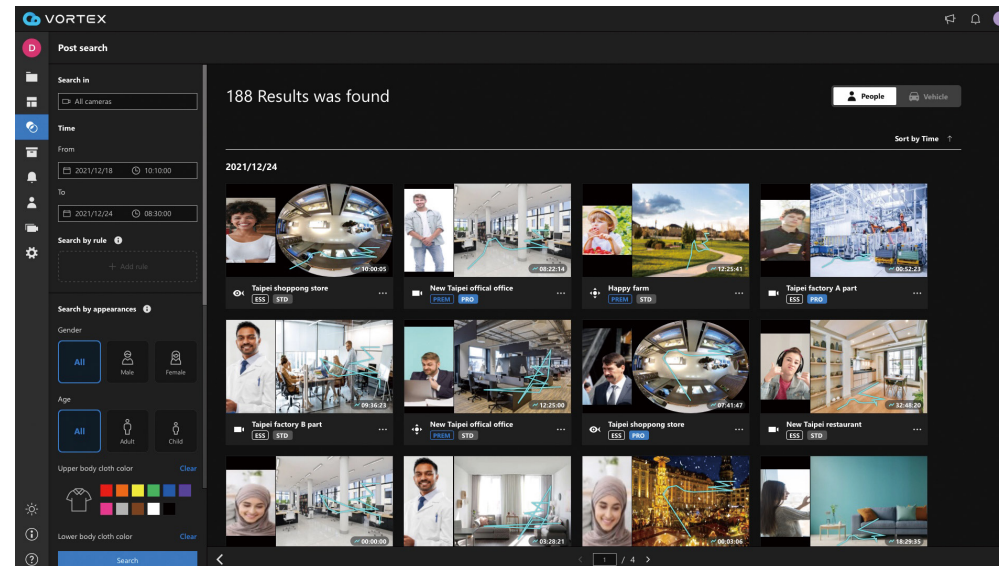
Automatic Cloud Backup

Do not worry about forensics loss due to file deletion. Automatic cloud backup replicates the footage on edge onto the cloud following user-defined criteria and time intervals. Never be anxious about video data loss and have peace-of-mind.
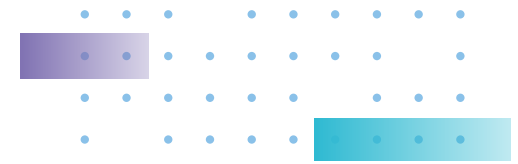
VORTEX Platform Snapshot

Designed for multi-site, remote centralized management.

Cross-Device Remote Access

• Accessible from desktops, laptops, and smartphones.
• Multi-browser support for web-based portal on PC – Chrome, Firefox and Edge.
• VORTEX app for iOS and Android.

Comprehensive Security Protection

• End-to-end encryption.
• Video encryption.
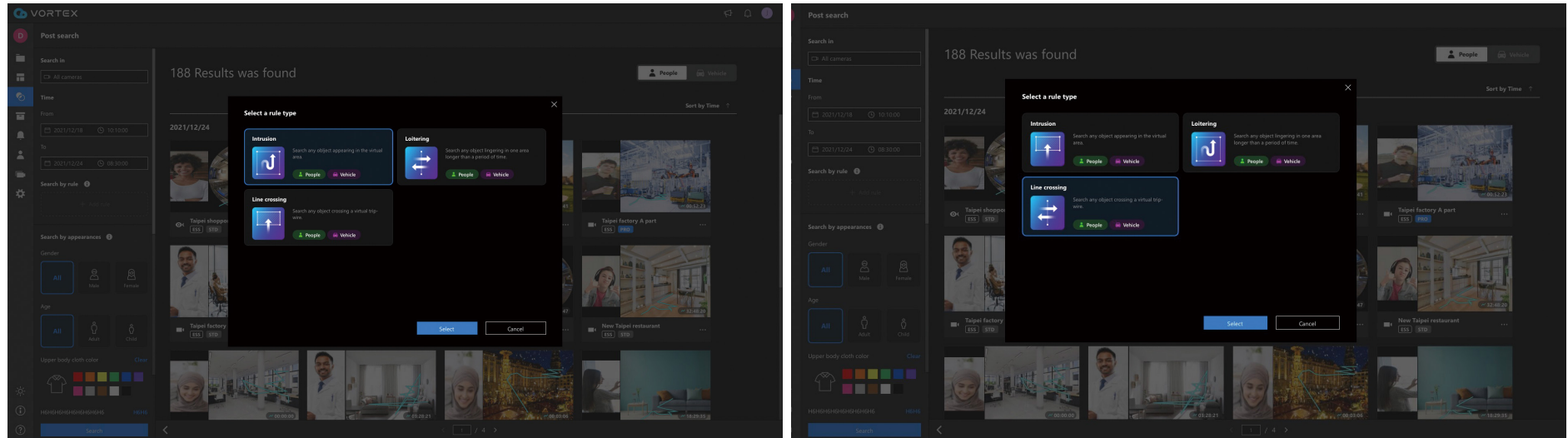• HTTPS transmission from camera to the cloud.

Intuitive User Interface

• Single platform for cross-device setting & management.
• Multi-channel, multi-mode live view monitoring.
• Thumbnail preview and search. Proactive event notification.

Archive & Backup

• Unlimited cloud archive.
• 30-day cloud backup.
• Easy footage export and share.

VORTEX AI Analytics Snapshot

Powerful AI Analytics fulfill automated security, forensic investigation and more.

Real-Time Edge Analytics

• People / vehicle detection.
• Intrusion / line-crossing / loitering detection.
• Live alarm notification.

Deep Search

• Attribute search for people / vehicles (gender / age group / type / clothing color / vehicle color…).
• Similarity-based Re-search to map the footprints of a person of interest in the entire surveillance system.
• Scene search enables users to define loitering / line-crossing / intrusion detection rules to search a specific scene.

Video Quality Enhancer

• People-based Smart IR.
• Bitrate reduction with object information.
• People-based deblurring.
• Bandwidth friendly with event triggered adaptive video quality.

Machine Learning

• Comprehensive metadata database.
• User feedback system for modeling refinement.
• Training by example.
• Continuous accuracy enhancement.

VORTEX Platform Snapshot

Utilitarian camera selection for 24/7 surveillance requirements.

Wide Camera Selection

- Various variations to meet different needs.
- From 2 MP up to 12 MP resolution.
- Domes, bullets, and 360 fisheyes, enabling from wide-range overviews to close-up detail tracking.

Crystal Clear Image Quality

- Smart IR enabled cameras for uniform, consistent night visibility.
- WDR captures every detail under high contrast condition.
- Night Vision reproduces high quality color image in low-light scene.
- Advanced Noise Reduction restores the true-world image without interferences.

Hassle-Free, Easy to Maintain

- QR codes for setup and configuration.
- Automatic firmware & AI analytics updates.
- Variety of form factors & accessories adapt for distinct applications and installation requirements.

Trustworthy Reliability

- IP66 / IK10 proof cameras for harsh environments.
- Subtle designs with minimal complexity.
- 20+ years expertise with continuous improvements.

VORTEX for Chain Stores & QSR's

Typical VSaaS use case for chains / QSR consists of 4 to 10 cameras (entry, checkout counter, goods, storage, parking lot...etc.) and up to 30-day video archives.

Multi-Site Management

Worried about complex configurations and maintenance of multiple locations? VORTEX remote centralized management brings you real-time live streams & on-site recordings of each operation, with just a finger click.

Onboard Recording, Cloud Redundancy

Recording on the camera and back up in the cloud, VORTEX hybrid cloud architecture offers business owners all-inclusive surveillance footage without concern about data loss under any conditions.

Peace of Mind

Real-time monitoring is a painstaking task in traditional surveillance deployments because one operator could handle only 4 screens at most. Through multiple AI analytics rules, security activates automatically. Effortlessly check safety for peace of mind.

Simple & Proactive Security

Real-time patrol, proactive notification, and intelligent search reduce time and efforts spent on surveillance and forensic investigation. Along with deep learning technology, detection skills are getting deeper and accurate. Turns out, the longer the subscription, the simpler for business' everyday security.

Typical VSaaS use case for SMB office consists of a dozen of cameras (reception desk, warehouse, public area, parking space...etc.) or so and 2-4 weeks video archives.

Hassle-Free, Easy to Maintain

You don't have to be an expert in cloud architecture. VORTEX easy setup, intuitive UI and sustaining maintenance let end users immediately and effortlessly enjoy the benefits of VSaaS (Video Surveillance as a Service).

Lower Total Cost of Ownership

By subscribing to VORTEX service, the total cost of ownership would be significantly reduced due to extra maintenance, equipment, and storage cost being covered under the cloud subscription.

Flexible Scalability

As your business operations expand, so will your surveillance demands. From more cameras to expanded cloud storage, VORTEX promises system scalability whenever you want, whenever you need.

Brand Reliability

Sustaining commitment is our mission. With VORTEX subscription, customers wouldn't have to be anxious over maintenance issues or service interruptions.

VORTEX Essential Camera Lineup & License

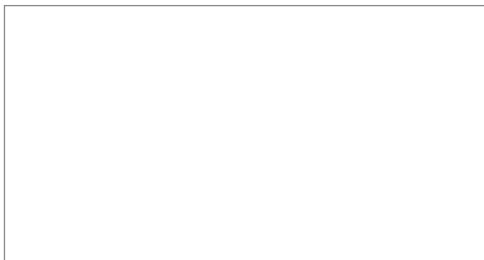| ESS VORTEX Camera Essential Series	FD639	IB639	IT839-H	FD819-H	FD839-EHV	IB839-EH	FD819-HT	FD839-EHTV	IB839-EHT
Camera Type	Dome	Bullet	Turret	Dome	Dome	Bullet	Dome	Dome	Bullet
Resolution	2MP		5MP		5MP		5MP		
Image Sensor	1/3.1" Progressive CMOS		1/2.7" Progressive CMOS						
Lens Type/Focal Length/ F-number	Fixed / f=2.8 mm / F2.0		Fixed / f = 2.8 mm / F2.0				Remote Focus / f = 2.8~10 mm / F1.8 ~ F2.74		
Field of View	116° (H)/65° (V)/140° (D)	118° (H)/65° (V)/140° (D)	103° (H)/76° (V)/134° (D)	103° (H)/76° (V)/134° (D)	103° (H)/76° (V)/134° (D)	76° (H)/56° (V)/100° (D)	95°~41° (H)/69°~31° (V)/127°~51° (D)	95°~41° (H)/69°~31° (V)/127°~51° (D)	95°~41° (H)/69°~31° (V)/127°~51° (D)
IR Illuminators	30m								
Audio	One-way Audio	-	One-way Audio	One-way Audio	One-way Audio	-	One-way Audio	One-way Audio	-
Pre-installed SD Card	128GB		256GB						
Indoor/Outdoor	IP66/IK10		IP66/IK10	Indoor	IP66/IK10		Indoor	IP66/IK10	
Dimensions	Ø110 x 85mm	Ø 91 x 182 mm	Ø 122 x 99 mm	Ø 130 x 95 mm	Ø 129 x 94 mm	Ø 86 x 300 mm	Ø 130 x 95 mm	Ø 129 x 94 mm	Ø 88 x 308 mm
Power Consumption	6.49W		7.4W	6.3W	8.55W	11W	9.7W	12.3W	12.95W
Operating Temp.	-30°C ~ 50°C (-22°F ~ 122°F)		-20°C ~ 50°C (-4°F ~ 122°F)	-10°C ~ 45°C (14°F ~ 113°F)	-40°C ~ 50°C (-40°F ~ 122°F)		-10°C ~ 45°C (14°F ~ 113°F)	-40°C ~ 50°C (-40°F ~ 122°F)	
Connectivity	10 Base-T/100 Base-TX Ethernet (RJ-45)								
WDR	WDR Enhanced		WDR PRO						
Video analytics	Real time alerting: Intrusion / Line-Crossing / Loitering Deep Search: Scene Search								
Compliance	FCC/CE/UL/NDAA		FCC/CE/UL/NDAA		FCC/CE/UL/NDAA		FCC/CE/UL/NDAA		
Standard License	Unlimited Archive								
Professional License	Unlimited Archive / 30-day Cloud Backup								

* All specifications are subject to change without notice.

VORTEX Premium Camera Lineup & License

	FD837-HTV	IB837-HT	FE912-H	FE931-EHV
PREM VORTEX Camera Premium Series				
Camera Type	Dome	Bullet	Fisheye	
Resolution	5M		12M	
Image Sensor	1/2.8" Progressive CMOS		1/2.3" Progressive CMOS	
Lens Type/Focal Length/ F-number	Remote Focus / f = 2.7~13.5 mm / F1.4 ~ F2.8		Fixed / f = 1.22 mm / F2.0	
Field of View	97°~27° (H)/70°~20° (V)/131°~34° (D)		180° (H)/180° (V)/180° (D)	
IR Illuminators	30m		-	20m
Audio	Two-way audio		One-way Audio	Two-way audio
Pre-installed SD Card	256GB		512GB	
Indoor/Outdoor	IP66/IK10		-	IP66/IK10
Dimensions	Ø 155 x 104 mm	Ø 118 x 294.6 mm	Ø 82 x 122 mm	Ø 150 x 68.2 mm
Power Consumption	27W	36W	9W	22.5 W
Operating Temp.	-40°C ~ 50°C(-40°F ~ 122°F)	-30°C ~ 50°C(-40°F ~ 122°F)	-10°C ~ 50°C (14°F ~122°F)	-40°C ~ 50°C (-40°F ~ 122°F)
Connectivity	10 Base-T/100 Base-TX Ethernet (RJ-45)			
WDR	WDR PRO			
Video analytics	Real time alerting: People / Vehicle detection for Intrusion / Line-Crossing / Loitering Deep Search: Attribute Search for People /Vehicles, Scene Search, Re-Search			
Compliance	FCC/CE/UL/NDAA			
Standard License	Unlimited Archive			
Professional License	Unlimited Archive / 30-day Cloud Backup			

Notes

Date:

VORTEX

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