NVR-FX16POE-1U16MP1

16 Channel 1U PoE Network Video Recorder

- Smart H.265+/H.265/Smart H.264+/H.264
- Up to 16MP Resolution for Preview and Playback
- AI By NVR: IVS, iMD, Perimeter Protection, Face Detection and Recognition
- Rack Mountable, Built-in 16 Port PoE with Bridge Mode
- 256 Mbps Incoming Bandwidth, 4K Display Support
- 2 SATA III Ports, Up to 16TB capacity for each HDD
- Made In South Korea And Conforms To The Trade Agreements Act (TAA)

System Overview

The NVR-FX16POE-1U16MP1 is a compact, rack-mountable 16 channel NVR with 16 port built-in PoE. This NVR supports both H.264 and H.265 encoding as well as 4K HDMI output IPC support up to 16MP resolution. Up to 2x 16TB HDDs can be installed for maximum storage of 32TB.

This NVR also sports onboard AI support Intelligent Motion Detect and Perimeter protection for Human/ Vehicle Recognition and Face Recognition/ Detection with on-board database.

Functions

AI IVS (Intelligent Video System) by NVR

The new generation of AI recorders come equipped with an onboard AI chip for video processing. It will essentially take any none AI camera and convert into an AI based camera. That is not the only benefit, if you use AI by camera instead you unlock other advanced features that was only available on elite hardware such as License Plate databasing with an ANPR (Automatic Number Plate Recognition) camera.

IVS by camera

Working with IVS-enabled IP cameras, the NVR recognizes and records video that contains IVS data on all IP channels. The NVR records standard intelligence at-the-edge features, as well as premium IVS features that detect abandoned or missing objects, Tripwire violations, and intrusion violations. The NVR is also capable of recording business analysis data – Audio Detect, People Counting and Heat Map – from IP cameras with built-in Intelligent Business Analytics.

Smart H.265+

Smart H.265+ is the optimized implementation of the H.265 codec that uses a scene-adaptive encoding strategy, dynamic GOP, dynamic ROI, flexible multi-frame reference structure and intelligent noise reduction to deliver high-quality video without straining the network. Smart H.265+ technology reduces bit rate and storage requirements by up to 70% when compared to standard H.265 video compression.

iMD (Intelligent Motion Detect)

This is an upgraded version of motion detection currently known as Intelligent Motion Detection (iMD). The upgraded Plus version greatly improves alarm accuracy by pre-loading a deep learning algorithm that recognizes people and vehicles. Motion detection alerts containing a human and/or vehicle intrusion event are now possible with up to 95% accuracy. Eliminate false alarms, save time and keep stress levels low knowing you're protected.

Perimeter Protection

IC Realtime's Perimeter Protection features significantly improve detection accuracy. The benefits of Perimeter Protection include up to a 90% reduction in false alarms. Other advantages include a decrease in pixel count requirement for object detection, which translates into more efficiency with less strain on the system. Perimeter Protection options let you customize tripwires based on the object type and allow intelligent automation within a limited area of access such as pedestrian or vehicle-only zones. The combination of advanced AI analytics and real-time alerts maximizes efficiency & balance of the total systems capacity and resources resulting in greater surveillance system efficiency.

Technical Specification

System

Main Processor	Industrial-grade embedded processor
Operating System	Embedded LINUX, ICR 4.0

Video

Max IP Channels	16 Channels (up to 16MP)
Bandwidth	**AI disabled:** 256 Mbps incoming, 256 Mbps recording and 256 Mbps outgoing
	AI enabled: 180 Mbps incoming, 180 Mbps recording and 180 Mbps outgoing
Video Compression	Smart H.265+; H.265; Smart H.264+; H.264; MJPEG
Image Resolution	16 MP; 12 MP; 8 MP; 6 MP; 5 MP; 4 MP; 3 MP; 1080p; 960p; 720p; D1; CIF
Record Mode	Manual, Schedule (Regular, Motion Detection , Alarm, IVS), Stop
Record Interval	1 ~ 120 min (default: 60 min), Pre-record: 1 ~ 30 sec, Post-record: 10 ~ 300 sec
Display Decode	**AI disabled:** 2-channel 16 MP@30 fps; 2-channel 12 MP@30 fps; 4-channel 8 MP@30 fps; 6-channel 5 MP@30 fps; 8-channel 4 MP@30 fps; 16-channel 1080p@30 fps
	AI enabled: 1-channel 16 MP@30 fps; 2-channel 12 MP@30 fps; 3-channel 8 MP@30 fps; 4-channel 5 MP@30 fps; 6-channel 4 MP@30 fps; 12-channel 1080p@30 fps

Audio

Interface	1/1 (RCA)
Two-way Talk	Supported
Audio Compression	G.711a; G.711u; PCM; G726

Display

Interface	1 HDMI, 1 VGA (Configurable simultaneous/ heterogeneous video sources output for VGA and HDMI)
Resolution	HDMI: 3840 × 2160, 1920 × 1080, 1280 × 1024, 1280 ×720
	VGA: 1920 × 1080, 1280 × 1024, 1280 × 720
Display Split	1st Screen: 1/4/9/16 2nd Screen: 1/4/9 /16
OSD	Camera title, Time, Video loss, Camera lock, Motion detection, Recording

Playback & Backup

Multi-channel Playback	Up to 16 channels
Record Mode	General, motion detection; intelligent; alarm; POS
Playback Functions	Play, Pause, Stop, Rewind, Fast play, Slow Play, Next File, Previous File, Next Camera, Previous Camera, Full Screen, Backup Selection, Digital Zoom
Backup Mode	USB Device/Network

Alarm

Alarm Input / Output	Input: 4 Channel
	Output: 2 Channel
General Alarm	Motion detection; privacy masking; video loss; scene changing; PIR alarm; IPC external alarm
Anomaly Alarm	Camera disconnection; storage error; disk full; IP conflict; MAC conflict; login locked; and cybersecurity exception
Intelligent Alarm	Face detection; face recognition; perimeter protection; iMD; people counting; stereo analysis; heat map
Alarm Linkage	Record; snapshot; IPC external alarm output; audio; buzzer; log; preset; email

Network

Ethernet	1x (10/100/1000 Mbps Ethernet port, RJ-45)
PoE	16 ports, 10/100 Mbps, IEEE 802.3 af/at
PoE Switch Bridge Mode	Supported
Network Functions	HTTP; HTTPS; TCP/IP; IPv4/IPv6; RTSP; UDP; SNMP; NTP; DHCP; DNS; SMTP; UPnP; IP Filter; PPPoE; FTP; DDNS; Alarm Server; IP Search (Supports IC Realtime IP cameras, DVR, NVS, etc.); Multicast; P2P; Auto Registration
Smart Phone	Android, iOS (App Name: ICVIEW+)
Interoperability	ONVIF 22.06 (Profile T; Profile S; Profile G); CGI; SDK
Browser Compatibility	Chrome, IE 9 or later, Edge, Safari, Firefox

Storage

Internal HDD	2 SATA III Ports, Up to 16 TB capacity for each HDD
eSATA	1 eSATA
External HDD	N/A
RAID	N/A

Auxiliary Interface

USB	2 (1 front USB 2.0 port, 1 rear USB 2.0 port)
RS232	1 Port, for PC Debug Communication
RS485	N/A

General

Power Supply	100–240 VAC, 47-63 Hz
Power Consumption	Total output of NVR is <10 W(without HDD) Total output power of PoE is 130W, the maximum output power of a single port is 25.5W
Operating Humidity	10%–93% (RH)
Working Environment	14 °F to +131 °F (–10 °C to +55 °C)
Installation Type	Rack mountable
Dimensions (W×D×H)	17.3" × 15.7" × 1.7 (440 mm × 399.7 mm × 43.7 mm)
Weight	10.2 lb (4.6kg) (without HDD)
Gross Weight	13.3 lb (6kg)(without HDD)

Certifications

Certifications	FCC: Part 15 Subpart B, UL Certified

AI Features

AI Capabilities

AI by Recorder	Face detection, face recognition, perimeter protection, and iMD
AI by Camera	Face detection; face recognition; perimeter protection; iMD; ANPR; people counting; 3D analysis; heat map

Perimeter Protection

Capabilities	Tripwire & intrusion; Recognition of human and vehicle
Performance (AI by Recorder)	2 channels, 10 IVS rules for each channel
Performance (AI by Camera)	16 channels
AI Search	Search by target classification (Human, Vehicle)

Intelligent Motion Detect (iMD)

Capabilities	Secondary filtering for human and motor vehicle , reducing false alarms caused by leaves, rain and lighting condition change
Performance (AI by Recorder)	4 channels
Performance (AI by Camera)	16 channels
AI Search	Search by target classification (Human, Vehicle)

Face Detection

Capabilities	Gathers **Face attributes:** Gender; age group; glasses; expressions; face mask; beard
Performance (AI by Recorder)	1 channel (up to 12 face images/s each channel)
Performance (AI by Camera)	8 channels

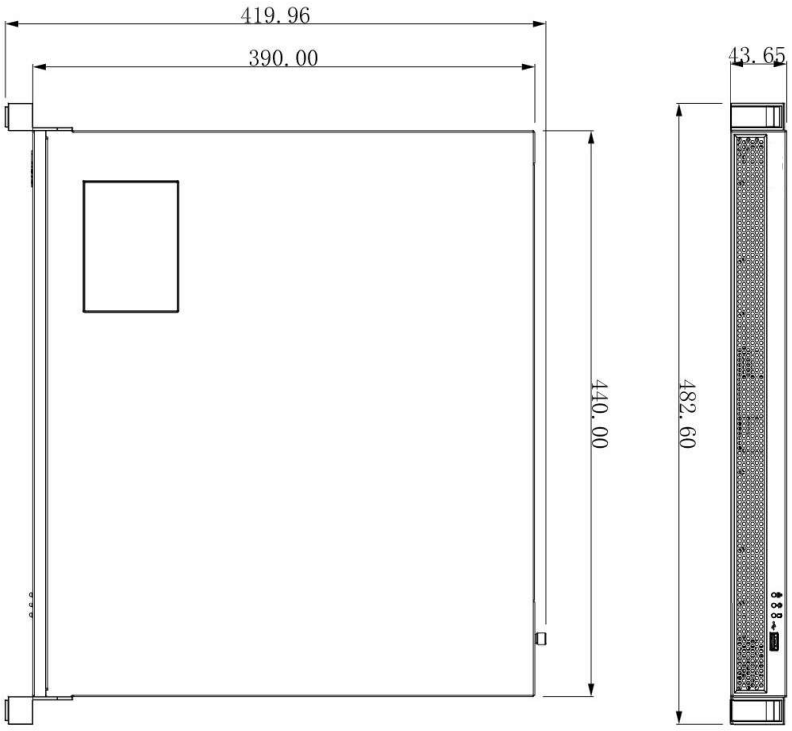
Face Recognition

Capabilities	Captures faces within camera images and compares them to an internal database.
Performance (AI by Recorder)	1. 8-channel FD (by camera) + FR (by recorder), image stream: 12 face images/s 2. 1-channel FD (by recorder) + FR (by recorder), video stream: 12 face images/s
Performance (AI by Camera)	8 channels
Stranger Mode	Detect strangers' faces (not in device's face database).Similarity threshold can be set manually
AI Search	Similarity threshold can be set for each target face image during search
Database Management	Up to 10 face databases with 200,00 images, with a total capacity of 2.5 G. Name, gender, birthday, address, credential type, credential No., countries & regions and state can be added to each face image
Database Application	Each database can be applied to video channels independently

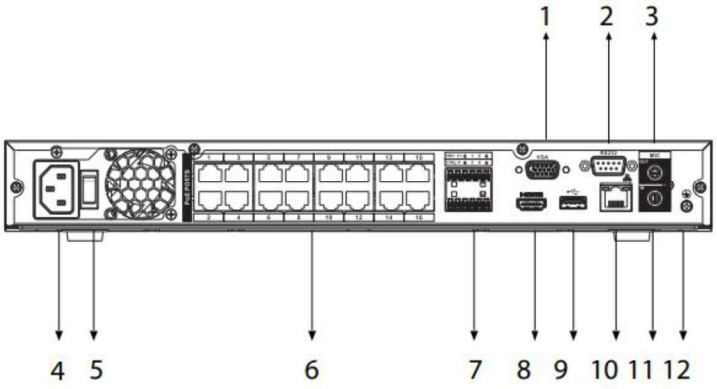
Vehicle License Plate Comparison

Capabilities	Compares License Plates captured from motor Vehicles
Performance (AI by Camera)	**4 channel**
Database Management	1. Create up to 20,000 plate numbers 2. Blocklist and allowlist creation

Dimensions (mm/in)



Panels



1	VGA Port	2	RS-232 Port
3	AUDIO OUT, RCA Connector	4	Power Input
5	Power Switch	6	PoE Ports
7	Alarm In/Out	8	HDMI Port
9	USB Port	10	Network Port
11	AUDIO IN, RCA Connector	12	Ground