

# 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         | <b>AI disabled:</b> 256 Mbps incoming, 256 Mbps recording and 256 Mbps outgoing<br><b>AI enabled:</b> 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    | <b>AI disabled:</b> 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<br><b>AI enabled:</b> 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<br>VGA: 1920 × 1080, 1280 × 1024, 1280 × 720 |
| Display Split | 1st Screen: 1/4/9/16<br>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<br>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<br>(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 <b>Face attributes</b> : 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                                                                                 |

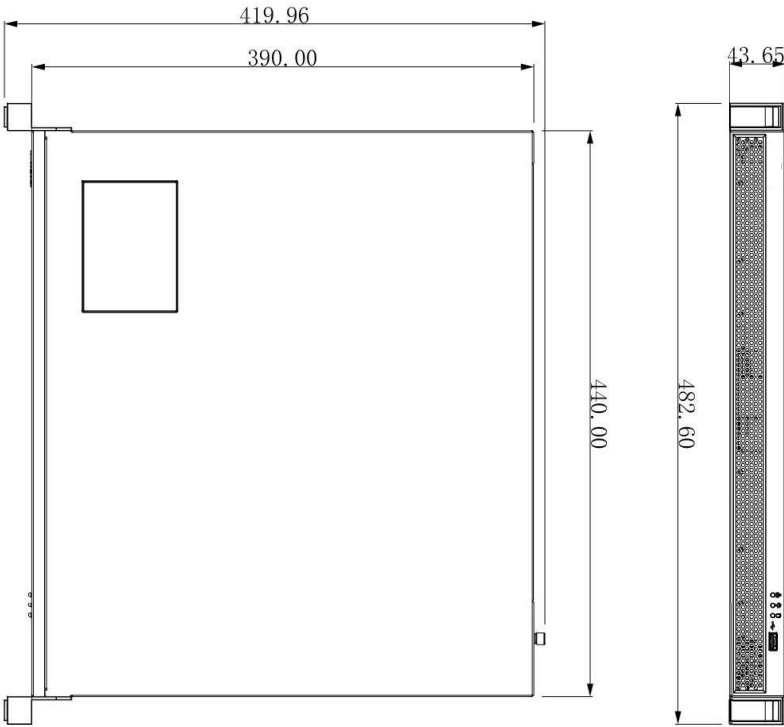
### Face Recognition

|                              |                                                                                                                                                                                                             |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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<br>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                                                                                                                                                |

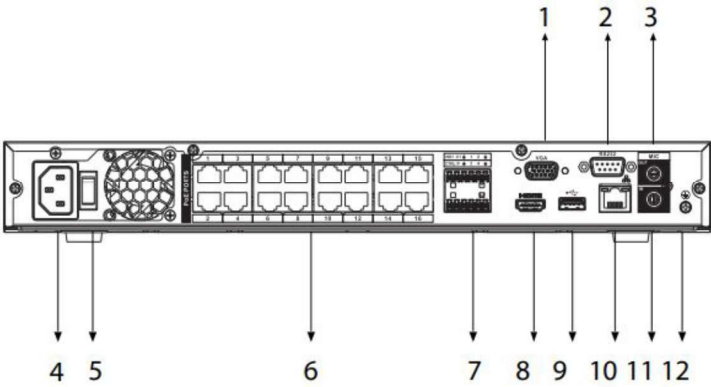
### Vehicle License Plate Comparison

|                            |                                                                             |
|----------------------------|-----------------------------------------------------------------------------|
| Capabilities               | Compares License Plates captured from motor Vehicles                        |
| Performance (AI by Camera) | <b>4 channel</b>                                                            |
| Database Management        | 1. Create up to 20,000 plate numbers<br>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       |