- Multi-core embedded processor
- Max 32 IPC inputs, Max 1024Mbps Incoming Bandwidth, H.265/H.264/MJPEG support
- Up to 32MP Resolution for Preview and Playback
- Supports up to 4K and 8K Display and quad HDMI output
- Supports IVS, Face Detect, Perimeter Protection and Intelligent Motion Detect (by NVR)
- Dual 10/100/1000 Ethernet ports
- 8 SATA III Ports, Up to 16TB capacity for each HDD, RAID 0/1/5/6/10 Support

## System Overview

IC Realtime's NVR-EL32-2U32MP1 features dual gigabit network ports, 4K resolution dual HDMI output and up to 12MP IP camera support in a robust, 2U rack mountable package. This 32 channel NVR is built to handle high resolution cameras with 4 HDMI ports, a hot swappable front panel housing up to 128TB of total storage as well as RAID 0/1/5/6/10 support.

This recorder's powerful AI processor and incredible throughput enables Perimeter Protection with Tripwire and Intrusion, Intelligent Motion Detect and Face Recognition by NVR. Other features include ANPR support for License Plate Recognition cameras, Fisheye Dewarp and N+M Hot standby for storage backup and redundancy. The NVR is also ONVIF compliant, making it compatible to most third party IP camera manufacturers.

## Functions

### RAID 0/1/5/6/10
Offering a balance between storage performance, storage capacity, and data integrity, the NVR features RAID 0/1/5/6/10 for faster and safer recording.

### 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.

### Intelligent Video System (IVS)
With built-in intelligent video analytics, the NVR has the ability to detect and analyze moving objects for improved video surveillance. The NVR supports optional standard intelligence allowing detection of multiple object behaviors such as abandoned or missing objects. IVS also supports Tripwire analytics, allowing the camera to detect when a predetermined line has been crossed, People Counting, ideal for business intelligence, and Facial Detection, for searching or identification of individuals.

### 4K Resolution
4K resolution is a revolutionary breakthrough in image processing technology. 4K delivers four times the resolution of standard HDTV 1080p cameras and offers superior picture quality and image details. 4K resolution improves the clarity of a magnified scene to view or record crisp forensic video from large areas.

### 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.

### Fisheye Dewarp
The NVR features multiple fisheye dewarping modes to make viewing video easy whether its live or during playback.

## Technical Specification

### System

| | |
|---|---|
| Main Processor | Multi-core embedded processor |
| Operating System | Embedded LINUX, ICR 4.0 |

### Video

| | |
|---|---|
| Max IP Channels | 32 Channels (up to 32MP) |
| Throughput | **All by Camera:** 1024 Mbps incoming, 1024 Mbps recording and 800 Mbps outgoing |
| | **Object Search/ All by NVR:** 512 Mbps incoming, 512 Mbps recording and 400 Mbps outgoing |
| Video Compression | Smart H.265+/H.265/Smart H.264+/H.264/MJPEG |
| Image Resolution | 32 MP; 24 MP; 16 MP; 12 MP; 8 MP; 5 MP; 4 MP; 1080p; 720p; D1 |
| Record Mode | Manual; alarm; motion detection; scheduled |
| Record Interval | 1 ~ 120 min (default: 60 min), Pre-record: 1 ~ 30 sec, Post-record: 10 ~ 300 sec |

### Audio

| | |
|---|---|
| Interface | 1 input, 2 output (RCA) |
| Two-way Talk | Supported |
| Audio Compression | G.711a; G.711u; PCM; G726 |

### Display

| | |
|---|---|
| Interface | 2x VGA, 4x HDMI video output. |
| Resolution | **Simultaneous mode:** max. resolution of VGA1 and VGA2: 1080p, max. resolution of HDMI1 and HDMI2: 4K max. resolution of HDMI3: 8K max. resolution of HDMI4: 1080p |
| | **Mixed mode:** Simultaneous video source output for VGA1 & HDMI1 Simultaneous video source output for VGA2 & HDMI2 max. resolution of VGA1 and VGA2: 1080p, max. resolution of HDMI1, HDMI2 and HDMI3: 4K max. resolution of HDMI4: 1080p |
| Display Decode | 2-channel 32 MP@30 fps; 2-channel 24 MP@30 fps; 4-channel 16 MP@30 fps; 8-channel 8 MP@30 fps; 16-channel 4 MP@30 fps; 32-channel 1080p@30 fps |
| Display Split | Main screen: 1/4/8/9/16/25/36 Sub screen: 1/4/8/9/16/25/36 |
| OSD | Camera title, Time, Video loss, Camera lock, Motion detection, Recording |

### Playback & Backup

| | |
|---|---|
| Multi-channel Playback | Up to 16 channels |
| Record Mode | Manual; alarm; motion detection; scheduled |
| Playback Functions | 1. Play, pause, stop, fast forward, fast backward, rewind, play by frame 2. Full screen, backup (cut/file), partially enlarge, audio on/off |
| Backup Mode | Portable hard drive, eSATA disk, burner, USB device and network |

### Alarm

| | |
|---|---|
| Alarm Input / Output | Input: 16 Channel |
| | Output: 8 Channel |
| General Alarm | Motion detection; video tampering; video loss; scene changing, PIR alarm, IPC external alarm |
| Anomaly Alarm | Camera offline; storage error; disk full; IP conflict; MAC conflict; login lock; abnormal behavior of fan |
| Intelligent Alarm | Face detection; perimeter protection; face recognition; video metadata (human, motor vehicles, and non-motor vehicles); iMD; stereo analysis; crowd distribution; people counting; ANPR; vehicle density; heat map |
| Alarm Linkage | Record; snapshot; IPC external alarm output; buzzer; log,preset; email |

### Network

| | |
|---|---|
| Ethernet | 2 RJ-45 Ports (10/100/1000Mbps) |
| PoE | N/A |
| Network Functions | HTTP; HTTPS; TCP/IP; IPv4; RTSP; UDP; NTP; DHCP; DNS; SMTP; UPnP; DDNS; Alarm Server; IP Search (Supports IC Realtime IP cameras, DVR, NVS, etc.); Multicast; P2P; Auto Registration, ISCSI |
| Smart Phone | Android, iOS, iPhone |
| Interoperability | ONVIF (Profile S/profile T/Profile G); CGI; SDK |
| Browser Compatibility | Chrome, IE 9 or later, Edge, Safari, Firefox |

### Storage

| | |
|---|---|
| Internal HDD | 8 SATA III Ports, Up to 16 TB capacity for each HDD |
| eSATA | 1 eSATA |
| External HDD | N/A |
| RAID | RAID 0,1,5,6,10 Support |

### Auxiliary Interface

| | |
|---|---|
| USB | 4 (2 front USB 2.0 ports, 2 rear USB 3.0 ports) |
| RS232 | 1 Port |
| RS485 | 2 (1 port for half-duplex serial communication, 1 port for full-duplex serial communication) |

### General

| | |
|---|---|
| Power Supply | 100-240 VAC, 50/60 Hz |
| Power Consumption | ≤ 18 W (without HDD) |
| 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) | 17.48" × 17.98" × 3.74" (570.0 mm × 570.0 mm × 226.0 mm ) |
| Weight | 14.11 lb (6.4kg) (without HDD) |
| Gross Weight | 22.82 lb (10.35kg) (without HDD) |

### Certifications

| | |
|---|---|
| Certifications | FCC: Part 15 Subpart B, UL Certified |

## AI Features

### AI Capabilities

| | |
|---|---|
| AI by Recorder | Face detection; face recognition; video metadata (human, motor vehicles, and non-motor vehicles); iMD |
| AI by Camera | Face detection; face recognition; video metadata (human, motor vehicles, and non-motor vehicles); iMD; 3D analysis; crowd distribution; people counting; ANPR; vehicle density; object monitoring |

### Perimeter Protection

| | |
|---|---|
| Capabilities | Tripwire & intrusion; Recognition of human and vehicle |
| Performance (AI by Recorder) | **24 channels**, 10 IVS rules for each channel |
| Performance (AI by Camera) | **32 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) | **32 channels** |
| Performance (AI by Camera) | **32 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) | 4 channels (up to 12 face images/s each channel) |
| Performance (AI by Camera) | 32 channels |

### Face Recognition

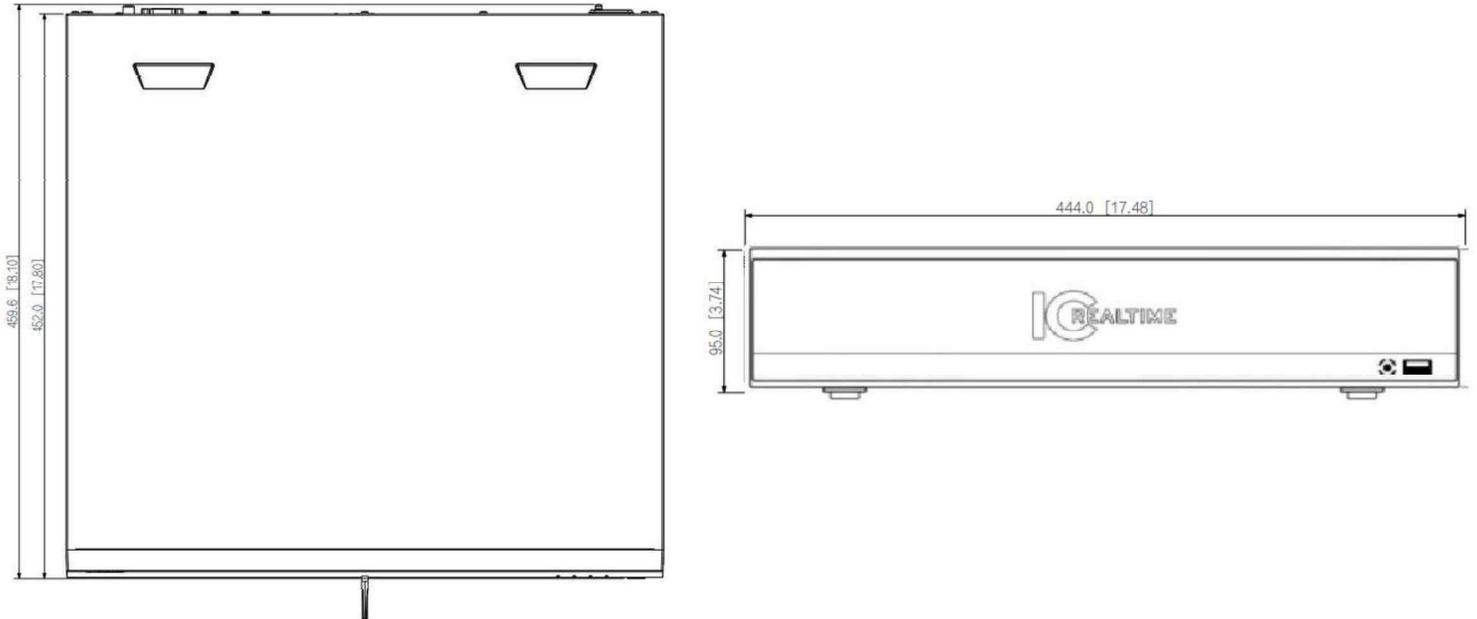| | |
|---|---|
| Capabilities | Captures faces within camera images and compares them to an internal database. |
| Performance (AI by Recorder) | 1. 20-channel FD (by camera) + FR (by recorder), image stream: 20 face images/s<br>2. 4-channel FD (by recorder) + FR (by recorder), video stream: 12 face images/s |
| Performance (AI by Camera) | **32 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 40 face databases with 300,000 images, with a total capacity of 4.8 GB. 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 |

### Video Metadata

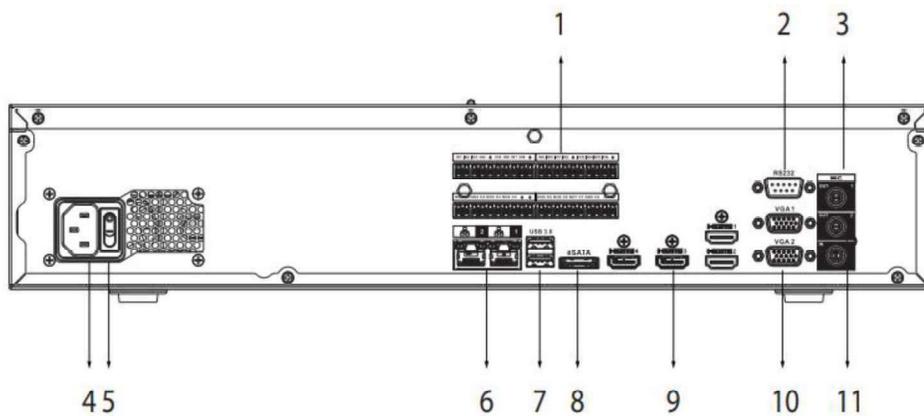| | |
|---|---|
| Capabilities | Gathers **Human attributes**: Top color, top type, bottom color, bottom type, hat, bag, age, gender and umbrella |
| | Gathers **Motor Vehicle attributes:** License plate, plate color, vehicle body, vehicle model, vehicle logo, calling, seatbelt, vehicle interior, vehicle registration location. |
| | Gathers **Non-Motor attributes:** Vehicle model, vehicle color, number of persons, helmet. |
| Performance (AI by Recorder) | **8 channels** |
| Performance (AI by Camera) | **32 channels** |

### Vehicle License Plate Comparison

| | |
|---|---|
| Capabilities | Compares License Plates captured from motor Vehicles |
| Performance (AI by Camera) | **8 channels** |
| Database Management | 1. Create up to 20,000 plate numbers<br>2. Blocklist and allowlist creation |

3

## Dimensions (mm/in)



## Panels



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