# IPMX-E20F-IRW2
## 2MP Starlight Eyeball Network Camera

**IC REALTIME**

- 2MP, 1/2.8" CMOS image sensor, low illuminance, high image definition
- H.265&H.264 triple-steam encoding
- Outputs 2MP (1920 × 1080)@30 fps
- Intelligent Motion Detect and Perimeter Protection
- WDR(120dB), Day/Night(ICR), 3DNR,AWB,AGC,BLC,
- 2.8 mm fixed lens, Built-in Microphone
- Starlight support, Max. IR LEDs Length 164 ft
- Micro SD memory, IP67, PoE

## System Overview

The IPMX-E20F-IRW2  is an Eyeball dome camera featuring our latest generation of 1/2.8'' CMOS sensors capable of 1080P @30 fps with H.265 encoding. The upgraded hardware now supports Intelligent Motion Detect and a Starlight supported IR illumination up to 164'. Beyond this, the camera has Perimeter Protection with Tripwire and Intrusion, a built-in microphone, and IP67 weather protection.

Due to the larger image sensor, this camera supports a large dynamic range (120 dB), and is considered a 'True' WDR camera. On top of the image sensor sits a fixed, 2.8mm lens which offers up a 106 degree horizontal field of view. This makes the camera well suited for interior and exterior applications on commercial as well as residential installations.

Made in South Korea and conforms to the Trade Agreements Act (TAA).

## Functions

### Starlight Technology
Featuring Starlight Technology, this camera is ideal for applications with challenging lighting conditions. Its low-light performance delivers usable video with minimal ambient light. Even in extreme low-light conditions, Starlight Technology is capable of delivering color images in near complete darkness (0.002 lux).

### 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.

### Intelligent Video System (IVS)
With built-in intelligent video analytics, the camera has the ability to detect and analyze moving objects for improved video surveillance. The camera provides optional standard intelligence at the edge 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, ideal for business intelligence, and Facial Detection, for searching or identification of individuals.

### 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.

### Protection (IP67, wide voltage)
Subjected and certified to rigorous dust and water immersion tests, the IP67 rating makes it suitable for demanding outdoor applications. For environments with rain, sleet, snow and fog, an integrated wiper provides users with clear visibility at all times.Wide voltage: The camera allows ±30% input voltage tolerance (wide voltage range), and it is widely applied to outdoor environment with unstable voltage.

### Smart H.265+
Deliver high quality video without straining the network, Smart H.265+ is the optimized implementation of H.265. The Smart H.265+ encoding technology includes a scene adaptive encoding strategy, dynamic GOP, dynamic ROI, flexible multi-frame reference structure and intelligent noise reduction, providing saving of up to 70% of bandwidth and storage when compared with standard H.265.

### Wide Dynamic Range (WDR)
The camera achieves vivid images, even in the most intense contrast lighting conditions, using industry-leading wide dynamic range (WDR) technology. For applications with both bright and low lighting conditions that change quickly, True WDR (120 dB) optimizes both the bright and dark areas of a scene at the same time to provide usable video.

## Technical Specification

### Camera

| | |
|---|---|
| Image Sensor | 1/2.8" 2 Megapixel progressive scan CMOS |
| Effective Pixels | 1920(H) x 1080(V), 2 Megapixels |
| RAM/ROM | 256MB/128MB |
| Scanning System | Progressive |
| Electronic Shutter Speed | Auto/Manual 1/3 s–1/100000 s |
| Minimum Illumination | 0.002 Lux@F1.6 |
| S/N Ratio | > 56 dB |
| IR Distance | 50 m (164.0 ft) |
| IR On/Off Control | Auto / Manual |
| IR LEDs | 2 |

### Lens

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|---|---|---|---|---|
| Lens Type | Fixed focal | | | |
| Mount Type | M12 | | | |
| Focal Length | 2.8 mm | | | |
| Max. Aperture | F1.6 | | | |
| Angle of View | Horizontal:106°; vertical: 57°; diagonal: 126° | | | |
| Iris Type | Fixed aperture | | | |
| Focus Control | Fixed | | | |
| Close Focus Distance | 0.6 m (2.0 ft) | | | |
| DORI Distance | Lens | Detect | Observe | Recognize | Identify |
| | 2.8 mm | 126 ft | 50 ft | 25 ft | 12 ft |

### Pan/Tilt/Rotation

| | |
|---|---|
| Pan/Tilt/Rotation Range | Horizontal: 0°–360°; vertical: 0°–78°; rotation: 0°–360° |

### Intelligence

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|---|---|
| Perimeter Protection | Tripwire; intrusion (Recognition of human and vehicle) Works together with Smart NVRs to perform refined intelligent search, event extraction and merging to event videos |
| Intelligent Motion Detect | Support |

### Video

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|---|---|
| Compression | H.265; H.264; H.264H; H.264B; MJPEG (sub stream only) |
| Streaming Capability | 3 Streams |
| Resolution | 1080p (1920 × 1080); 1.3M (1280 × 960); 720p (1280 × 720); D1 (704 × 576/704 × 480); VGA (640 × 480); CIF (352 × 288/352 × 240) |
| Frame Rate | Main Stream: 1920 × 1080 @1–25/30 fps |
| | Sub Stream: 704 × 576 @1–25/30 fps |
| | Third Stream: 1280 × 720 @1–25/30 fps |
| Bit Rate Control | CBR/VBR |
| Bit Rate | H.264: 3 Kbps–8192 Kbps  H.265: 3 Kbps–8192 Kbps |
| Day/Night | Auto(ICR) / Color / B/W |
| BLC Mode | BLC / HLC / WDR(120dB) |
| White Balance | Auto/Natural/Street Lamp/Outdoor/Manual |
| Gain Control | Auto / Manual |
| Noise Reduction | 3D DNR |
| Motion Detection | Off / On (4 Zone, Rectangle) |
| Region of Interest | Off / On (4 Zone) |

| | |
|---|---|
| Electronic Image Stabilization (EIS) | N/A |
| Smart IR | Support |
| Starlight | Support |
| Digital Zoom | 16x |
| Flip | 0°/90°/180°/270° (Support 90°/270° with 1920 × 1080 resolution.) |
| Mirror | Off / On |
| Privacy Masking | Off / On (4 Area, Rectangle) |

### Audio

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|---|---|
| Compression | G.711a; G.711Mu; G726; AAC |

### Network

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|---|---|
| Ethernet | RJ-45 (10/100Base-T) |
| Protocol | HTTP; HTTPs; TCP; ARP; RTSP; RTP; UDP; SMTP; FTP; DHCP; DNS; DDNS; PPPOE; IPv4/v6; QoS; UPnP;NTP; Bonjour; 802.1x; Multicast; ICMP; IGMP; SNMP |
| Interoperability | ONVIF(Profile S/Profile G); CGI; P2P |
| Streaming Method | Unicast / Multicast |
| Max. User Access | 20 (Total bandwidth: 64 M) |
| Edge Storage | NAS, SFTP, Micro SD Card (support max. 256 GB) Local PC for instant recording |
| Web Viewer | IE, Chrome, Firefox, Safari |
| Management Software | SmartICRSS, DSS |
| Smart Phone | IOS, Android |

### Certifications

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|---|---|
| Certifications | CE-LVD: EN62368-1 CE-EMC: Electromagnetic Compatibility Directive 2014/30/EU FCC: 47 CFR FCC Part 15, Subpart BUL/CUL: UL60950-1 CAN/CSA C22.2 No.60950-1-07 |

### Interface

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|---|---|
| Video Interface | N/A |
| Audio Interface | Built-in MIC |
| RS485 | N/A |
| Alarm | N/A |

### Electrical

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|---|---|
| Power Supply | DC12V, PoE (802.3af) |
| Power Consumption | <7.7W |

### Environmental

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|---|---|
| Operating Conditions | -40°C to +60°C  (-40°F to +140°F)/ less than≤95% |
| Storage Conditions | -40°C to +60°C  (-40°F to +140°F) |
| Ingress Protection | IP67 |

### Construction

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|---|---|
| Casing | Metal |
| Dimensions | 99.1 mm × 121.9 mm (3.9" × 4.8") |
| Net Weight | 480 g (1.05 lb) |
| Gross Weight | 660 g (1.45 lb) |

## Accessories

## Dimensions (mm/in)

99.1 [3.9]

83.3 [3.28]

4-4.5 × 5.5

⌀84.0 [⌀3.31]

⌀121.9 [⌀4.8]

3-120°