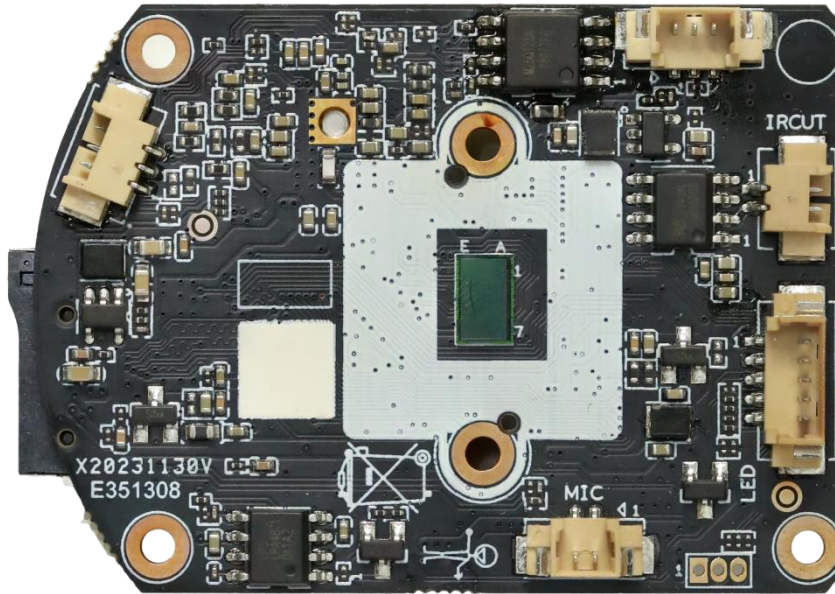


# IPG-X3-WR-V-BL Module Specification

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## Introduction

IPG-X3-WR-V-BL is a 3MP low-illumination Wi-Fi PT camera module developed by our company, which supports docking with video screens and Bluetooth fast network configuration, and is mainly used in high-definition video surveillance cameras.

## Main Features



Bluetooth Network Configuration



Support Screens



Two-way video talk



Human Detection



PT Control



Mobile Remote



Infrared Night Vision



Regional Alert



TF Card Storage



Cloud Storage



H.265AI

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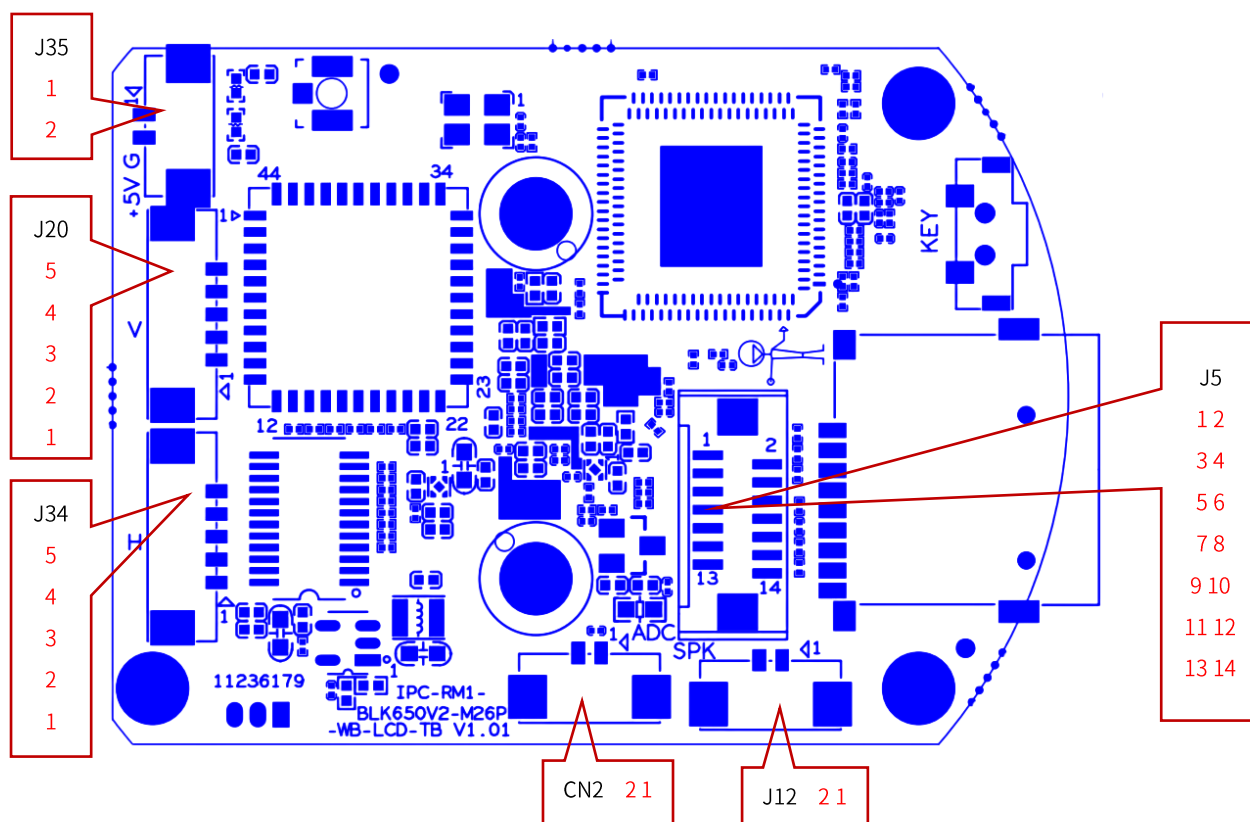
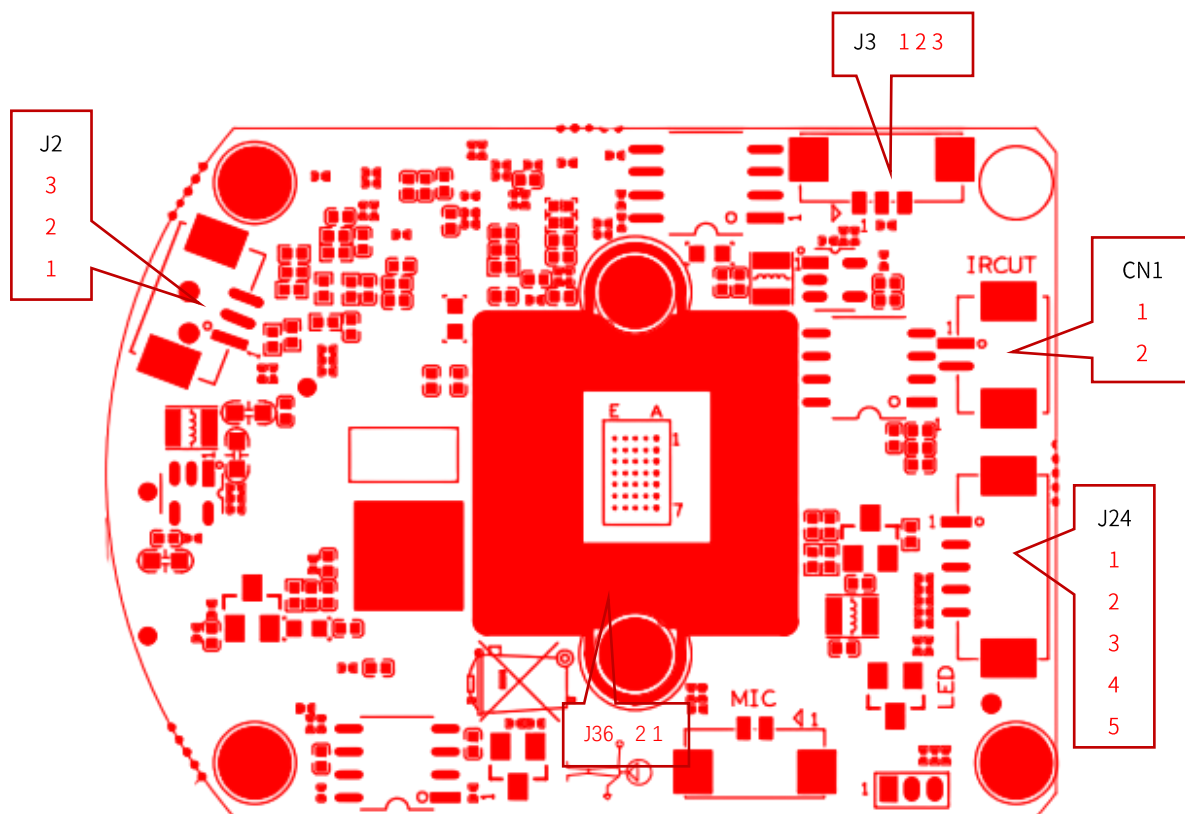
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## 1. Product Parameters

|                   |                                                                                                                                                          |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Model             | IPG-X3-WR-V-BL                                                                                                                                           |
| System Structure  | dual-core 32-bit DSP ( XM650V200) ,pure hard compression ,watch dog                                                                                      |
| Sensor            | 1/3" Low illumination CMOS Sensor                                                                                                                        |
| Min. Illumination | Color: 0.01Lux @(F1.2,AGC ON); 0 Lux with IR<br>Black/White: 0.001 Lux @ (F1.2,AGC ON),0 Lux with IR                                                     |
| Video Compression | H.265AI                                                                                                                                                  |
| Image Output      | Main stream: 2304*1296@12fps; Sub-code stream:800*448@12fps                                                                                              |
| Shutter           | 1/50(1/60)s to 1/10,000s                                                                                                                                 |
| Day&Night         | Support IR-CUT(Recommended: 5V standard voltage IR-CUT)                                                                                                  |
| DNR               | Support 2D/3D noise reduction                                                                                                                            |
| WDR               | Support                                                                                                                                                  |
| Audio Compression | G.711A codec standard, support dual voice talkback, audio and video synchronization                                                                      |
| Audio Interface   | 1 channel input, support microphone input; 1 channel output, support speaker output playback                                                             |
| Screen interface  | support 2.8/2.4 inch SPI interface RGB screen, resolution is 240*320, vertical screen, other sizes need to be customized                                 |
| Network Interface | 1*Wi-Fi antenna interface to support wireless network connection                                                                                         |
| Signal Interface  | 1*photoresistor interface, 1*IR-CUT driver interface, support photoresistor input signal and IR-CUT, IR lamp linkage                                     |
| Motor Interface   | 1* horizontal motor interface, 1*vertical motor interface                                                                                                |
| Reset Interface   | 1*reset interface                                                                                                                                        |
| Storage Mode      | Local TF card, up to 256G; cloud storage                                                                                                                 |
| Reliability       | Comprehensive lightning protection, in line with national and international standards;<br>3*24 hours high-temperature test stability and reliability     |
| Smart Alarm       | Supporting human detection support to customizing other intelligent functions                                                                            |
| Functions         | Support two-way video intercom; It supports remote monitoring of mobile client, push message after alarm of human detection, and supports MJPEG capture; |
| ONVIF             | Unsupport                                                                                                                                                |
| Mobile Monitoring | Support (iOS, Android)                                                                                                                                   |
| Power Supply      | DC5V                                                                                                                                                     |
| Dimension         | 38mm*53mm                                                                                                                                                |

## 2. Interface Description



| Silk Screen Number | Pin Number | Pin Definition | Function                         |
|--------------------|------------|----------------|----------------------------------|
| CN1                | 1          | IR-CUT         | IR-CUT drive signal              |
|                    | 2          | IR-CUT         | IR-CUT drive signal              |
| J24                | 1          | 5V             | 5V power supply                  |
|                    | 2          | GND            | GND                              |
|                    | 3          | ADC1_IN        | Hard photosensitive input signal |
|                    | 4          | RLED           | Infrared light control signal    |
|                    | 5          | WLED           | White light control signal       |
| J36                | 1          | MIC_N          | Mike signal                      |
|                    | 2          | MIC_P          | Mike signal                      |
| J2                 | 1          | CHRG           | Charge status signal             |
|                    | 2          | PGOOD          | Full of status signals           |
|                    | 3          | 5V_Li          | Fuel level detection             |
| J3                 | 1          | GND            | GND                              |
|                    | 2          | TS_DATA        | Temperature sensor signal        |
|                    | 3          | 3V3            | 3.3V power supply                |
| J35                | 1          | GND            | GND                              |
|                    | 2          | 5V             | 5V power supply                  |
| J20                | 1          | 5V             | 5V power supply                  |
|                    | 2          | OUT1           | Motor drive signal               |
|                    | 3          | OUT2           | Motor drive signal               |
|                    | 4          | OUT3           | Motor drive signal               |
|                    | 5          | OUT4           | Motor drive signal               |
| J34                | 1          | 5V             | 5V power supply                  |
|                    | 2          | OUT1           | Motor drive signal               |
|                    | 3          | OUT2           | Motor drive signal               |
|                    | 4          | OUT3           | Motor drive signal               |
|                    | 5          | OUT4           | Motor drive signal               |
| CN2                | 1          | GND            | GND                              |
|                    | 2          | ADC1_IN        | Key signal                       |
| J12                | 1          | SPKN           | Horn signal                      |
|                    | 2          | SPKP           | Horn signal                      |
| J5                 | 1          | AVDD           | Analog power supply              |
|                    | 2          | GND            | GND                              |
|                    | 3          | RST            | Reset signal                     |
|                    | 4          | CS             | Chip selection signal            |
|                    | 5          | GND            | GND                              |
|                    | 6          | SCL            | Clock signals                    |
|                    | 7          | GND            | GND                              |
|                    | 8          | SDA            | Data Signals                     |
|                    | 9          | GND            | GND                              |
|                    | 10         | TE             | Tear effect signal               |

|  |    |       |                        |
|--|----|-------|------------------------|
|  | 11 | D/C   | Data/command selection |
|  | 12 | LEDK  | Backlit cathode        |
|  | 13 | LEDA  | Backlit anode          |
|  | 14 | VCCIO | IO power supply        |

### 3. Electrical Parameters

#### 3.1 Absolute Electrical Parameters

| Parameter                                         | Description          | Min | Max | Unit |
|---------------------------------------------------|----------------------|-----|-----|------|
| Ts                                                | Storage temperature  | -40 | 150 | ℃    |
| VCC                                               | Power supply voltage | 4.5 | 5.5 | V    |
| Static electricity discharge voltage<br>(Air)     | TAMB-25℃             | -6  | 6   | KV   |
| Static electricity discharge voltage<br>(Contact) | TAMB-25℃             | -3  | 3   | KV   |

#### 3.2 Working Conditions

| Parameter | Description           | Min | Max | Unit |
|-----------|-----------------------|-----|-----|------|
| Ta        | Working temperature   | -20 | 65  | ℃    |
| VCC       | Power supply voltage  | 4.5 | 5.5 | V    |
| VOL       | I/O low-level output  | 0   | 0.7 | V    |
| VOH       | I/O high-level output | 2.6 | 3.3 | V    |

### 4. RF Parameters

#### 4.1 Basic Wi-Fi Performance

| Parameter          | Description                              |
|--------------------|------------------------------------------|
| Wi-Fi standard     | IEEE 802.11 b/g/n                        |
| Frequency Range    | 2.412 GHz ~ 2.4835GHz (2.4 GHz ISM Band) |
| Number of Channels | 2.4GHz: Ch1 ~ Ch14                       |
| Antenna Type       | External IPEX interface                  |

#### 4.2 Basic Bluetooth Performance

##### 4.2.1 General Performance

| Parameter          | Description         |
|--------------------|---------------------|
| Bluetooth standard | BLE 5.0 of 1Mbps    |
| Frequency Range    | 2402 MHz ~ 2480 MHz |
| Number of channels | 39 channels         |

#### 4.2.2 RF Performance

| Parameter                                  | Min(dBm)             | Typical(dBm) | Max(dBm) |
|--------------------------------------------|----------------------|--------------|----------|
| Transmit power (Class 1)                   | 2                    | 5            | 8        |
| sensitivity @ BER=0.1%<br>for GFSK (1Mbps) | /                    | -90          | -70      |
| Maximum Input Level                        | GFSK (1Mbps): -20dBm |              |          |

#### 4.3 Wi-Fi RF Performance

##### 4.3.1 Wi-Fi TX Performance

| Mode    | Rate   | Power     | EVM    |
|---------|--------|-----------|--------|
| 802.11b | 11Mbps | 18dBm±2dB | ≤-10dB |
| 802.11g | 54Mbps | 15dBm±2dB | ≤-25dB |
| 802.11n | MCS7   | 15dBm±2dB | ≤-28dB |

##### 4.3.2 Wi-Fi RX Performance

| Working State               | Rate | RX Sensitivity (Test Value) | RX Sensitivity (Standard Value) |
|-----------------------------|------|-----------------------------|---------------------------------|
| (802.11b, 20MHz)<br>@8%PER  | 1M   | -94dBm                      | ≤-83dBm                         |
|                             | 2M   | -92dBm                      | ≤-80dBm                         |
|                             | 5.5M | -91dBm                      | ≤-79dBm                         |
|                             | 11M  | -88dBm                      | ≤-76dBm                         |
| 802.11g, 20MHz) @10%<br>PER | 6M   | -89dBm                      | ≤-85dBm                         |
|                             | 9M   | -88dBm                      | ≤-84dBm                         |
|                             | 12M  | -87dBm                      | ≤-82dBm                         |
|                             | 18M  | -84dBm                      | ≤-80dBm                         |
|                             | 24M  | -81dBm                      | ≤-77dBm                         |
|                             | 36M  | -78dBm                      | ≤-73dBm                         |
|                             | 48M  | -73dBm                      | ≤-69dBm                         |
|                             | 54M  | -71dBm                      | ≤-68dBm                         |
| 802.11n, 20MHz) @10%<br>PER | MCS0 | -89dBm                      | ≤-85dBm                         |
|                             | MCS1 | -86dBm                      | ≤-82dBm                         |
|                             | MCS2 | -84dBm                      | ≤-80dBm                         |
|                             | MCS3 | -80dBm                      | ≤-77dBm                         |
|                             | MCS4 | -77dBm                      | ≤-73dBm                         |
|                             | MCS5 | -72dBm                      | ≤-69dBm                         |
|                             | MCS6 | -71dBm                      | ≤-68dBm                         |
|                             | MCS7 | -70dBm                      | ≤-67dBm                         |
| 802.11n, 40MHz) @10%<br>PER | MCS0 | -89dBm                      | ≤-82dBm                         |
|                             | MCS1 | -85dBm                      | ≤-79dBm                         |
|                             | MCS2 | -83dBm                      | ≤-77dBm                         |