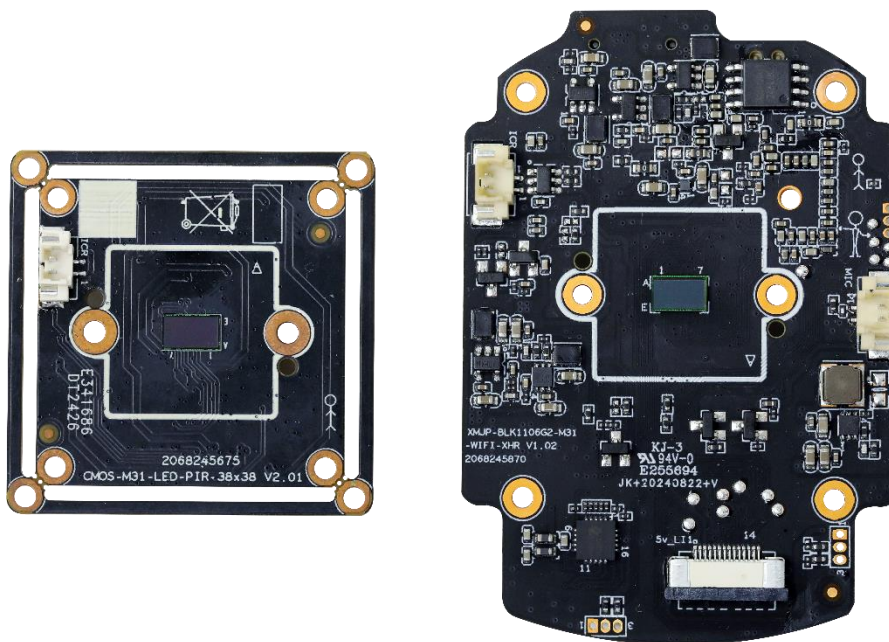


LPG-R4C-WEQ Module Specification

Document Version: 20250106



Introduction

LPG-R4C-WEQ is a 4MP AOV Wi-Fi dual-light Bullet&PT camera module developed by our company, which supports 1 second 1 frame video recording (AOV status, customizable frame rate) + full frame rate recording (wake-up state). Wi-Fi network connection, powered by lithium battery, can monitor two different areas at the same time, mainly used in high-definition video surveillance cameras.

Main Features



Bluetooth
networking



Remote Wake-up



Two-way
Monitoring



Dual-screen
Preview



All-day recording



Point and See



Human Detection



Battery Powered



Cloud Storage



TF Card Storage

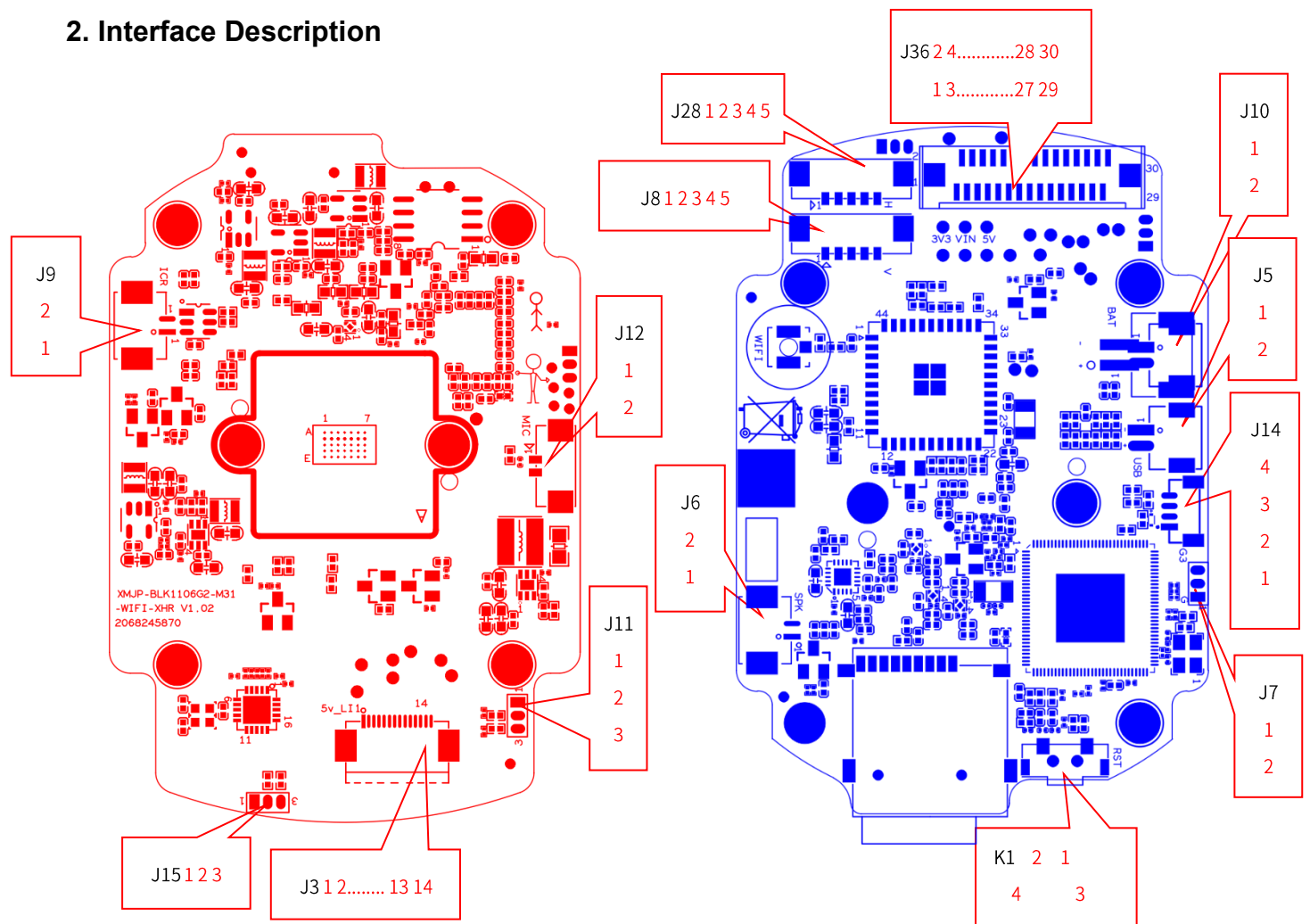
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1. Product Parameters

Model	LPG-R4C-WEQ
System Structure	dual-core 32-bit DSP, pure hard compression, watch dog
Sensor	2*1/3" Low illumination CMOS Sensor
Min. Illumination	Color: 0.01Lux @(F1.2,AGC ON); 0 Lux with IR Black/White: 0.001 Lux @ (F1.2,AGC ON), 0 Lux with IR
Video Compression	H.265AI
Image Output	Main stream: 1920*2160@12fps ; Sub-code stream: 800*896@12fps
Shutter	1/50(1/60)s to 1/10,000s
Day&Night	Support dual-light full-color night vision
DNR	Support 2D/3D noise reduction
WDR	Support
Audio Process	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
Network Interface	1*Wi-Fi interface, support Wi-Fi 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
TF card interface	1*TF card interface
Storage Mode	Local TF card, up to 512G; cloud storage
Reliability	Comprehensive lightning protection, in line with national and international standards; 3*24 hours high-temperature test stability and reliability
Smart Alarm	Supporting human detection, support to customizing other intelligent functions
Value-added Services	It supports value-added services such as cloud storage and scene AI (outdoor security), which need to be activated at your own expense on the APP side
Mobile Monitoring	Support (iOS, Android)
Power Supply	4.2V lithium battery power supply
Dimension	45mm*66mm+38mm*38mm

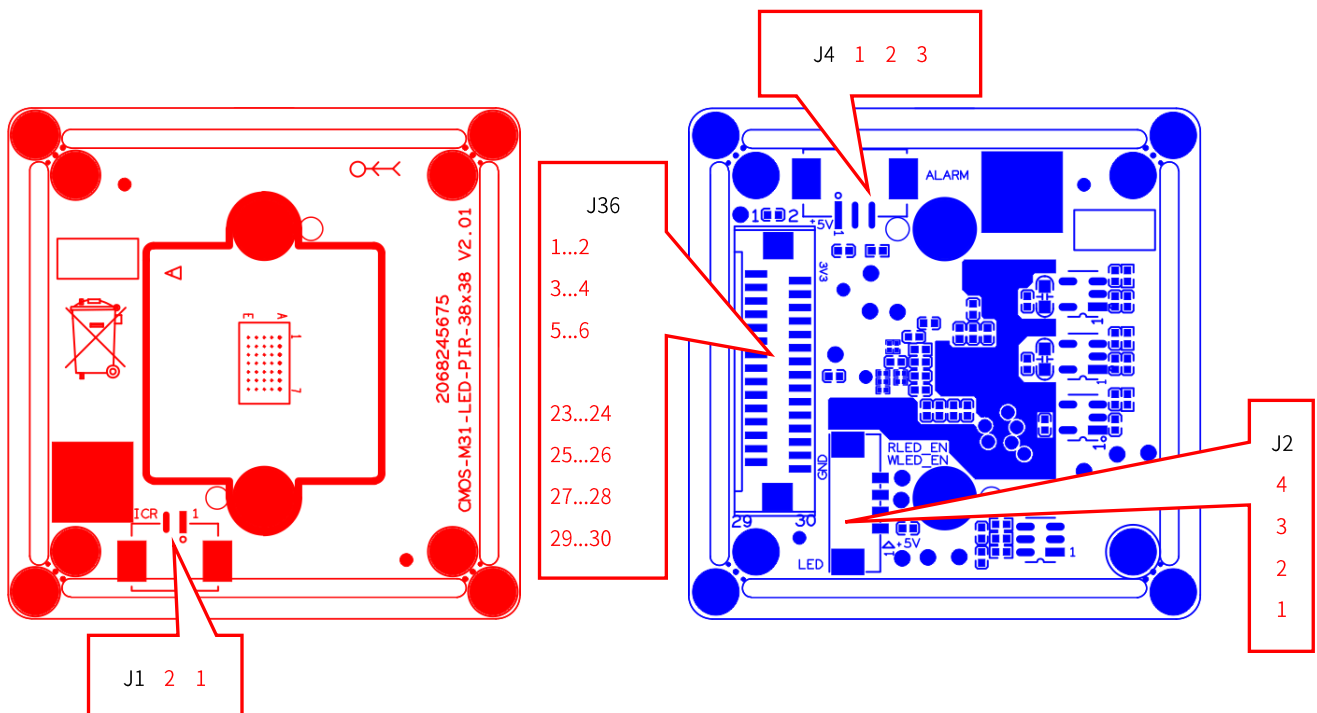
2. Interface Description



Silk Screen Number	Pin Number	Pin Definition	Function
J9	1	OUT1	IRCUT signal
	2	OUT2	IRCUT signal
J15	1	GND	GND
	2	UART0_TXD0	Single-chip microcomputer debugging and burning port
	3	UART0_RXD0	Single-chip microcomputer debugging and burning port
J3	1	+5V_LI	Battery voltage 3.3-4.2V
	2	+5V_LI	Battery voltage 3.3-4.2V
	3	VCC_3.3V	3.3V photosensitive power supply
	4	+5V_POWER	+5V_POWER charging voltage
	5	GND	GND
	6	GND	GND
	7	WLED_EN	White light signal
	8	RLED_EN	Infrared signal
	9	GND	GND
	10	ADC_IN	Photosensitive signal
	11	MCU_LED1	Blue light distribution network indicator signal
	12	LED1	Red light low battery indicator signal
	13	CHG_LED	Charging indicator signal
	14	NC	NC

J11	1	GND	GND
	2	UART0_TXD	Serial port 0
	3	UART0_RXD	Serial port 0
J12	1	MICIN_N	MIC-Signal
	2	MICIN_P	MIC+ signal
K1	2	SW_ON/OFF	Reset button
J7	1	GND	GND
	2	UART_TXD	The main control debugs the serial port
	3	UART_RXD	The main control debugs the serial port
J14	1	CHG	Charging detection signal
	2	BAT_ADC	Battery voltage
	3	BAT_EN	Charging enabled
	4	+5V_POWER	+5V_POWER charging voltage
J5	1	GND	GND
	2	+5V_USB	+5V USB input power
J10	1	GND	GND
	2	+5V_LI	Battery voltage 3.3-4.2V
J28	1	+5V_M2	Horizontal motor signal
	2	4C	
	3	3C	
	4	2C	
	5	1C	
J8	1	+5V_M1	Vertical motor signal
	2	V_MOTO8	
	3	V_MOTO7	
	4	V_MOTO6	
	5	V_MOTO5	
J6	1	VOP	Horn signal
	2	VON	Horn signal
J36	1	VCC_3.3V	3.3V power supply
	2	SENSOR_PWDN2	Power Down signal input
	3	+5V_LI	Battery voltage 3.3-4.2V
	4	+5V_LI	Battery voltage 3.3-4.2V
	5	+5V	4.2V voltage
	6	GND	GND
	7	NC	NC
	8	NC	NC
	9	STA_LED	Alarm lights
	10	3.3V	3.3V power supply
	11	WLED_EN	White light signal
	12	RLED_EN	Infrared signal
	13	IRCUT_A	IR_CUT control signals
	14	IRCUT_B	IR_CUT control signals
	15	SENSOR_RST2-1	Reset signal input

16	SENSOR_SCL	SensorI2C
17	SENSOR_SDA	SensorI2C
18	GND	GND
19	SEN1_MCLK	SENSOR clock signal
20	GND	GND
21	GND	GND
22	SEN_CLK1N	MIPI clock negative signal
23	SEN_CLK1P	MIPI clock positive signal
24	GND	GND
25	SEN_D2N	MIPI data 2 negative signal
26	SEN_D2P	MIPI data 2 positive signal
27	GND	GND
28	SEN_D3N	MIPI data 3 negative signal
29	SEN_D3P	MIPI data 3 positive signal
30	GND	GND



Silk Screen Number	Pin Number	Pin Definition	Function
J1	1	OUT1	IRCUT signal
	2	OUT2	IRCUT signal
J2	1	+5V	Battery voltage
	2	GND	GND
	3	WLED_EN	White light signal
	4	RLED_EN	Infrared signal
	1	VCC_3.3V	3.3V power supply
	2	SENSOR_PWDN2	Power Down signal input

J36	3	+5V_LI	Battery voltage
	4	+5V_LI	Battery voltage
	5	+5V	4.3V voltage
	6	GND	GND
	7	PIR_OUT	NC
	8	PIR_PULSE	NC
	9	STA_LED	Alarm lights
	10	3.3V	3.3V power supply
	11	WLED_EN	White light signal
	12	RLED_EN	Infrared signal
	13	IRCUT_A	IR_CUT control signals
	14	IRCUT_B	IR_CUT control signals
	15	SENSOR_RST2-1	Reset signal input
	16	SENSOR_SCL	SensorI2C
	17	SENSOR_SDA	SensorI2C
	18	GND	GND
	19	SEN1_MCLK	MIPI clock signal
	20	GND	GND
	21	GND	GND
	22	SEN_CLK1N	MIPI clock negative signal
	23	SEN_CLK1P	MIPI clock positive signal
	24	GND	GND
	25	SEN_D2N	MIPI data 2 negative signal
	26	SEN_D2P	MIPI data 2 positive signal
	27	GND	GND
	28	SEN_D3N	MIPI data 3 negative signal
	29	SEN_D3P	MIPI data 3 positive signal
	30	GND	GND
J4	1	+5V	4.3V voltage
	2	GND	GND
	3	STA_LED	Alarm lights

3. Electrical Parameters

3.1 Absolute Electrical Parameters

Parameter	Description	Min	Max	Unit
Ts	Storage temperature	-40	90	℃
VCC	Power supply voltage	-0.3	4.2	V
Static electricity discharge voltage (Air)	TAMB-25℃	-6	6	KV
Static electricity discharge voltage (Contact)	TAMB-25℃	-3	3	KV

3.2 Working Conditions

Parameter	Description	Min	Max	Unit
Ta	Working temperature	-20	65	°C
VCC	Power supply voltage	3.3	4.2	V
VOL	I/O low-level output	0	0.7	V
VOH	I/O high-level output	2.5	3.6	V

4. RF parameters

4.1 Basic RF Performance

Parameter	Description
Wi-Fi standard	IEEE 802.11 b/g/n/ax Wi-Fi compliant
Frequency Range	2.400 GHz ~ 2.4835 GHz (2.4 GHz ISM Band)
Number of Channels	2.4GHz: Ch1 ~ Ch13
Antenna Type	External IPEX interface

4.2 Basic Bluetooth Performance

Parameter	Description
Bluetooth standard	BLE 5.3
Frequency Range	2.400 GHz ~ 2.4835GHz
Number of Channels	Ch0 ~ Ch39
Modulation	GFSK
Transmit power	14dBm, Typical
Sensitivity @PER=30.8% for LE(1Mbps)	-97dBm, Typical
Sensitivity @PER=30.8% for LE(2Mbps)	-93dBm, Typical
Sensitivity @PER=30.8% for LE(S2)	-98dBm, Typical
Sensitivity @PER=30.8% for LE(S5)	-101dBm, Typical
Maximum Input Level	0dBm

4.3 Wi-Fi RF Performance

4.3.1 Wi-Fi TX Performance

Mode	Rate	Power	EVM
802.11b	1Mbps	20dBm±2dB	≤-10.5dB
	11Mbps	20dBm±2dB	≤-15.5dB
802.11g	6Mbps	20dBm±2dB	≤-5dB
	54Mbps	18dBm±2dB	≤-25dB
802.11n	HT20/MCS0	19dBm±2dB	≤-5dB
	HT20/MCS7	17dBm±2dB	≤-27dB
	HT40/MCS0	19dBm±2dB	≤-5dB

	HT40/MCS7	17dBm±2dB	≤-27dB
802.11ax	HE20/MCS7	19dBm±2dB	≤-5dB
	HE20/MCS9	14dBm±2dB	≤-32dB

4.3.2 Wi-Fi RX Performance

Working State	Rate	RX Sensitivity (Test Value)
(802.11b, 20MHz) @8%PER	1Mbps	< -97dBm
	11Mbps	< -89dBm
(802.11g, 20MHz) @10% PER	6Mbps	< -94dBm
	54Mbps	< -76dBm
(802.11n, 20MHz) @10% PER	HT20/MCS0	< -93dBm
	HT20/MCS7	< -74dBm
(802.11n, 40MHz) @10% PER	HT40/MCS0	< -91dBm
	HT40/MCS7	< -71dBm
(802.11ax, 20MHz) @10% PER	HE20/MCS7	< -94dBm
	HE20/MCS9	< -69dBm