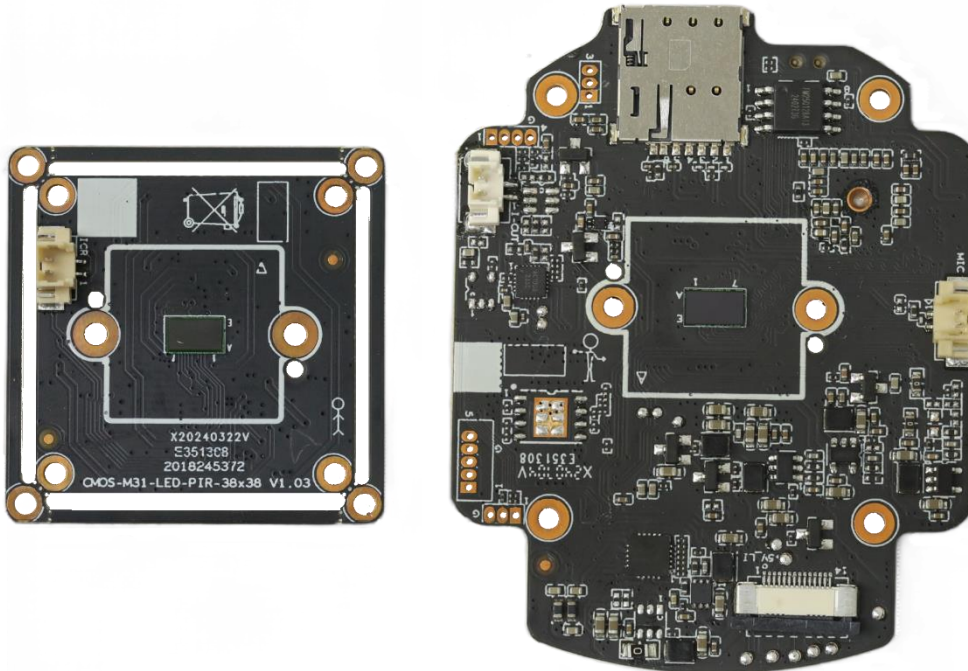


LPG-R4-4GEQ Module Specification

Document Version: 20241022



Introduction

LPG-R4-4GEQ is a 4MP AOV AI-ISP black light 4G battery bullet&PT camera module developed by our company. It supports 1 frame recording in 1 second (AOV state) + full frame rate recording (wake-up state). 4G network connection, supporting national standards and some Southeast Asian 4G standards and frequency bands (specific reference to the frequency band support list), lithium battery power supply, can monitor two different areas at the same time, mainly used in high-definition video surveillance cameras.

Main Features

- | | | | |
|---|--|--|---|
|  4G Connection |  Remote Wake-up |  Two-way Monitoring |  Dual-screen Preview |
|  All-day recording |  Point and See |  Human Detection |  Battery Powered |
|  Black light in full color |  Cloud Storage |  TF Card Storage | |

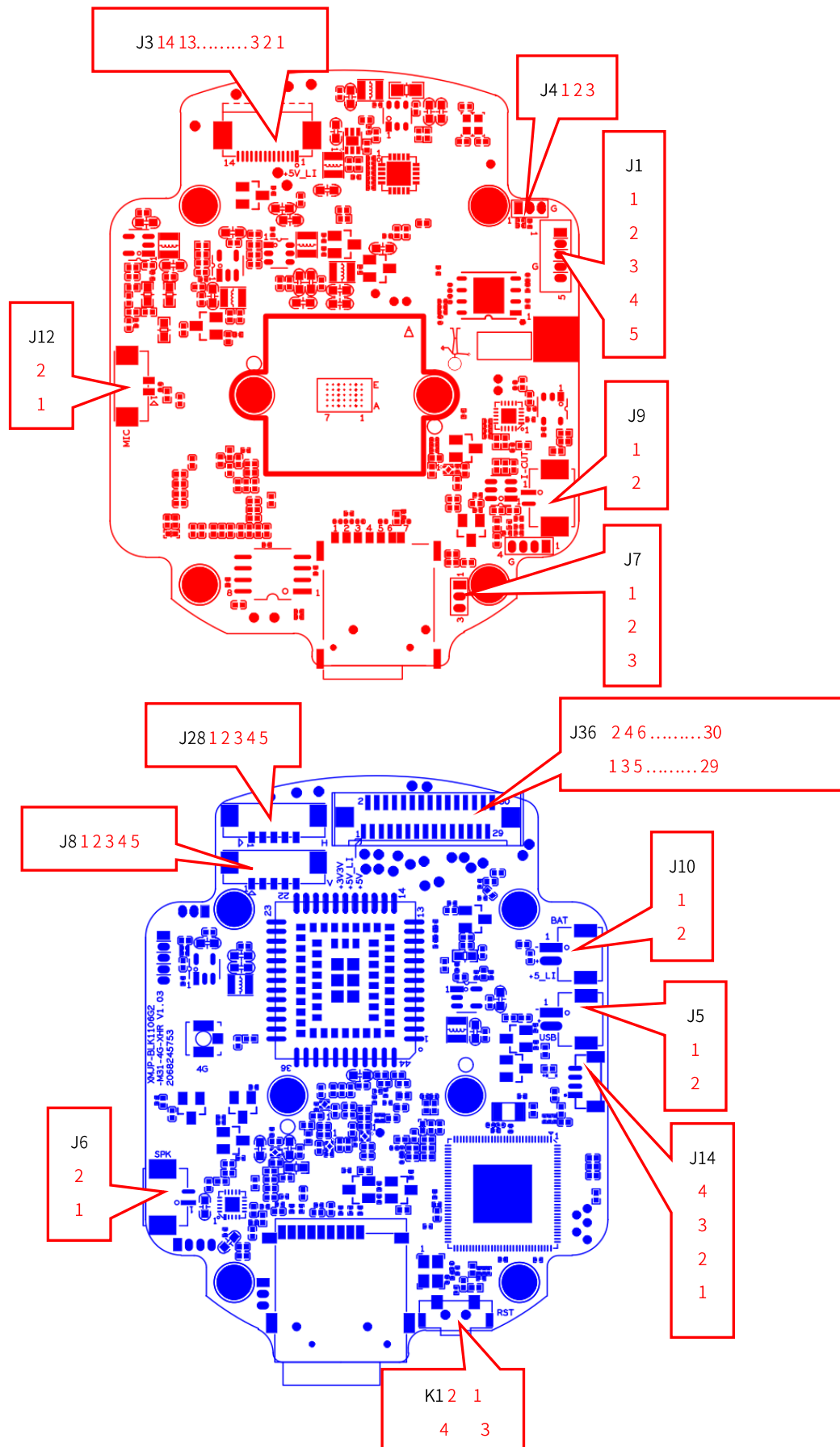
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1. Product Parameters

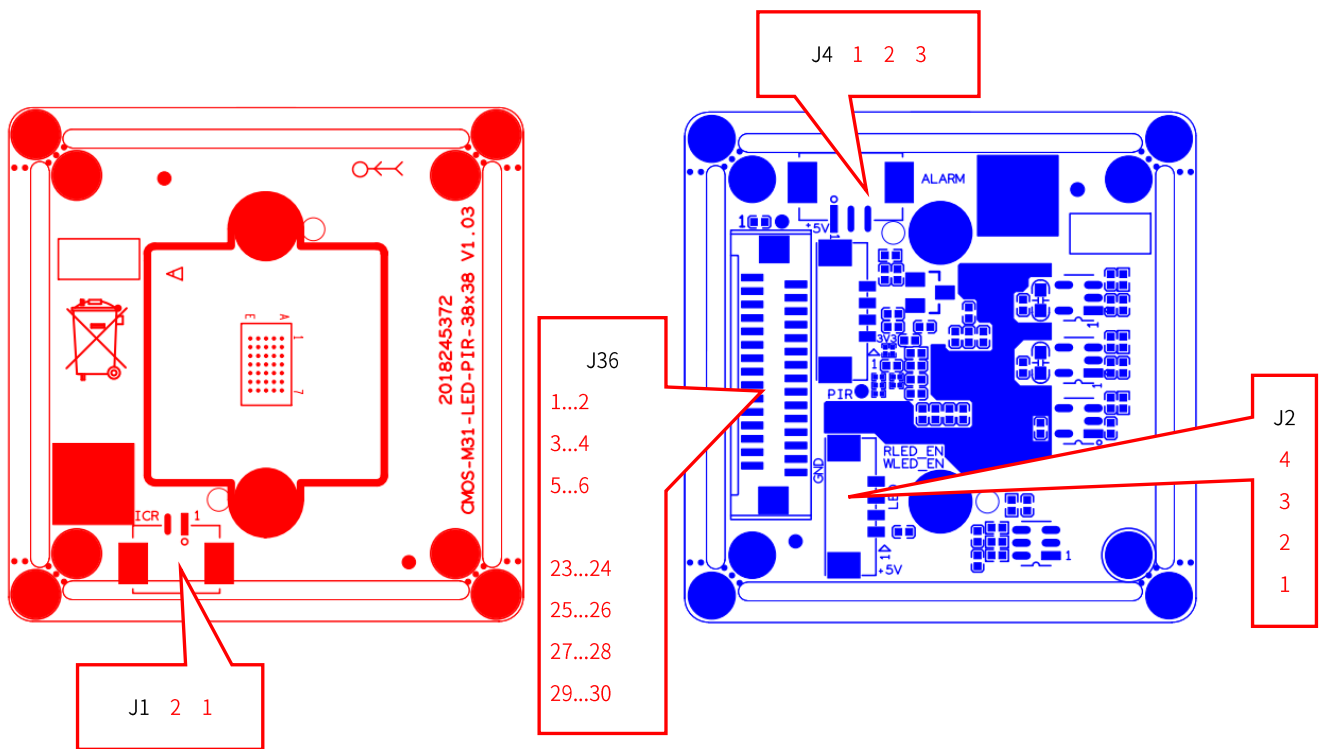
Model	LPG-R4-4GEQ
System Structure	dual-core 32-bit DSP, pure hard compression ,watch dog
Sensor	2*1/2.9" Low illumination CMOS Sensor
Min. Illumination	Color: 0.01Lux @(F1.2,AGC ON); 0 Lux with IR Black/White: 0.001 Lux @ (F1.2,AGC ON),0 Lux with IR
Video Compression	H.265AI
Image Output	Main stream: 1920*2160@12fps ; Sub-code stream: 800*896@12fps
Shutter	1/50(1/60)s to 1/10,000s
Day&Night	Support AI-ISP black 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*4G interface, support 4G CAT1 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 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	52mm*66.5mm+38mm*38mm

2. Interface Description



Silk Screen Number	Pin Number	Pin Definition	Function
J3	1	+5V_LI	Battery voltage 3.3-4.2V
	2	+5V_LI	Battery voltage 3.3-4.2V
	3	VCC_3V3	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
J4	1	DBG_RXD_1V8	The 4G module debugs the RX serial port
	2	DBG_TXD_1V8	The 4G module debugs the TX serial port
	3	GND	GND
J7	1	GND	GND
	2	UART_TXD	The main control debugs the serial port
	3	UART_RXD	The main control debugs the serial port
J9	1	OUT1	IRCUT signal
	2	OUT2	IRCUT signal
J12	1	MICIN_N	MIC-Signal
	2	MICIN_P	MIC+ signal
J10	1	GND	GND
	2	+5V_LI	Battery voltage 3.3-4.2V
K1	1	GND	GND
	2	SW_ON/OFF	Reset button
	3	GND	GND
	4	GND	GND
J14	1	CHG	Charging detection signal
	2	BAT_ADC	Battery voltage
	3	BAT_EN	Charging enabled
	4	+5V_POWER	+5V_POWER charging voltage
J1	1	+3.3V_MCU	+3.3V WIFI POWER SUPPLY
	2	PC7_SWDIO	Single-chip microcomputer debugging and burning port
	3	PD1_SWDCCLK	Single-chip microcomputer debugging and burning port
	4	GND	GND
	5	NRST	Single-chip microcomputer debugging and burning port
J5	1	GND	GND

	2	+5V_USB	+5V USB input power
J28	1	+5V_M2	Horizontal motor power supply
	2	4C	Horizontal motor signal
	3	3C	
	4	2C	
	5	1C	
J8	1	+5V_M1	Vertical motor power supply
	2	V_MOTO8	Vertical motor signal
	3	V_MOTO7	
	4	V_MOTO6	
	5	V_MOTO5	
J6	1	VOP	Horn signal
	2	VON	Horn signal
J36	1	VCC_3V3	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	PIR_OUT	PIR signal
	8	PIR_PULSE	PIR sensitivity adjustment
	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
J36	1	VCC_3V3	3.3V power supply
	2	SENSOR_PWDN2	Power Down signal input
	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	℃
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 RF Output Power

Frequency Band	Max	Min
LTE FDD B1/B3/B5/B8	23dBm +-2dB	< -44dBm
LTE TDD B34/B38/B39/B40/B41	23dBm +-2dB	< -42dBm

4.2 RF Conduction Sensitivity

Frequency Band	RX Sensitivity
LTE FDD B1(10M)	< -99dBm
LTE FDD B3(10M)	< -99dBm
LTE FDD B5(10M)	< -99dBm

LTE FDD B8(10M)	< -99dBm
LTE TDD B34(10M)	< -100dBm
LTE TDD B38(10M)	< -99dBm
LTE TDD B39(10M)	< -100dBm
LTE TDD B40(10M)	< -99dBm
LTE TDD B41(10M)	< -99dBm

4.3 Working Frequency

3GPP Band	TX	RX	Unit
LTE FDD B1	1920~1980	2110~2170	MHz
LTE FDD B3	1710~1785	1805~1880	MHz
LTE FDD B5	824~849	869~894	MHz
LTE FDD B8	880~915	925~960	MHz
LTE TDD B34	2010~2025	2010~2025	MHz
LTE TDD B38	2570~2620	2570~2620	MHz
LTE TDD B39	1880~1920	1880~1920	MHz
LTE TDD B40	2300~2400	2300~2400	MHz
LTE TDD B41	2555~2655	2555~2655	MHz