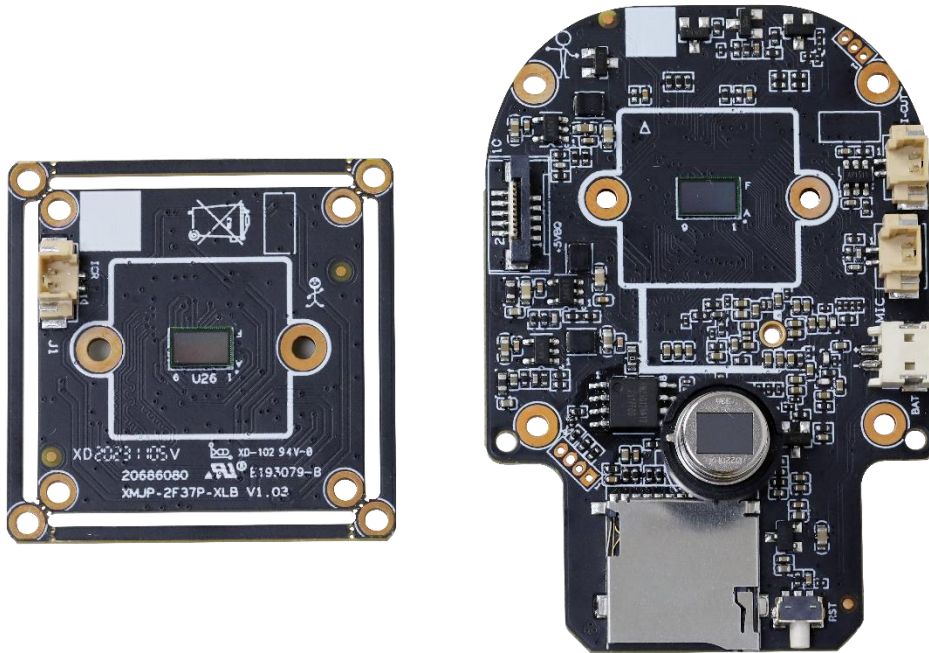


LPG-X4-WEQ Module Specification

Document Version : 20230920



Introduction

LPG-X4-WEQ is an 4MP Wi-Fi Bullet&PT battery camera module developed by our company, powered by lithium battery, which can monitor two different areas at the same time, mainly used in high-definition video surveillance cameras.

Main Features



Wi-Fi Connection



Remote Wake-up



Two-way
Monitoring



Dual-screen
Preview



Bullet&PT
Linkage



Point and See



PIR Detection



Battery Powered



H.265AI



Cloud Storage



TF Card Storage

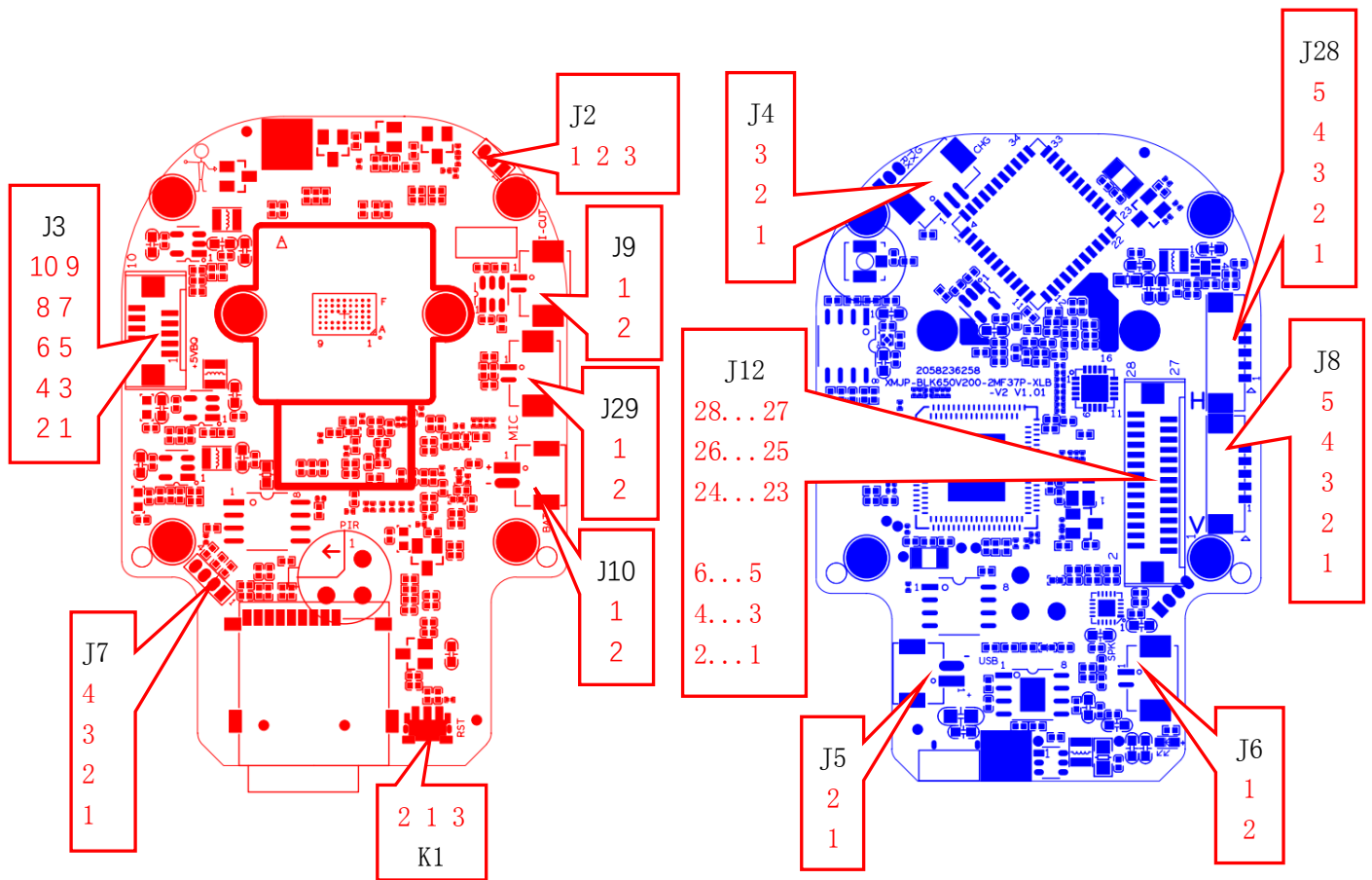
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1. Product Parameters

Model	LPG-X4-WEQ
System Structure	dual-core 32-bit DSP (XM650V200) ,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:640*720@12fps
Shutter	1/50(1/60)s to 1/10,000s
Day&Night	Support 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*input interface, support microphone input (MIC: selection range -28dB~-36dB, -33dB specification recommended); 1*output interface, support speaker output playback (speaker: 8Ω 2W specification recommended)
Network Interface	1*Wi-Fi antenna interface, 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 128G; 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 PIR detection support to customizing other intelligent functions
Functions	It supports remote monitoring of mobile client, push message after alarm of human detection, and supports MJPEG capture;
Mobile Monitoring	Support (iOS, Android)
Power Supply	4.2V lithium battery power supply
Dimension	44mm*58mm+38mm*38mm

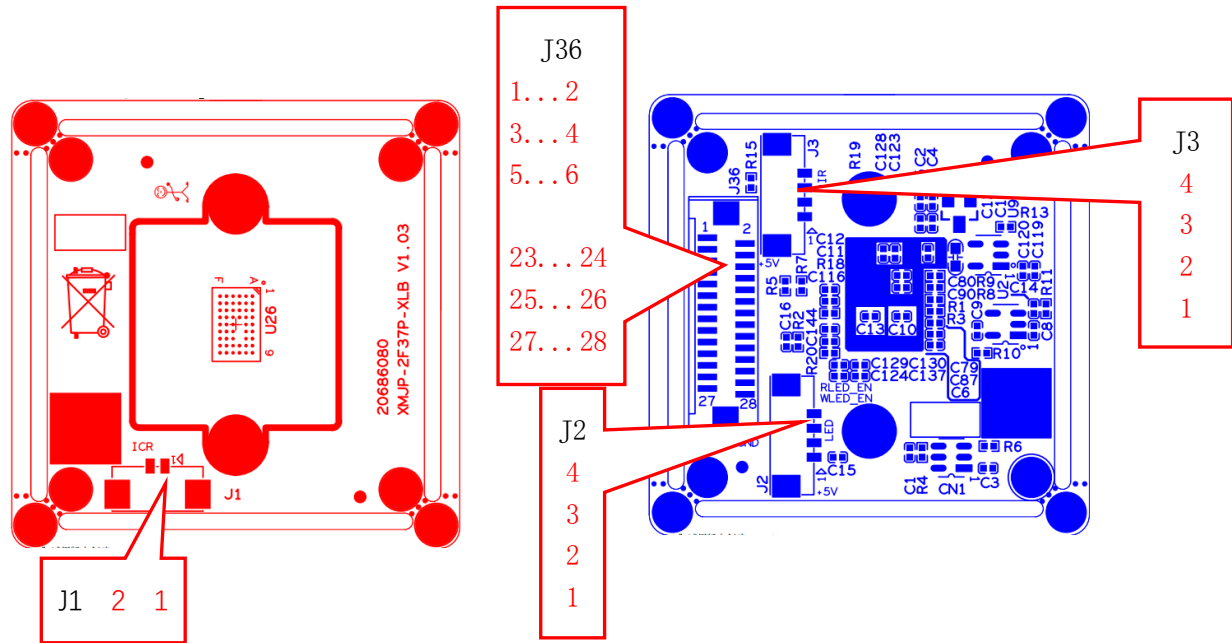
2. Interface Description



Silk Screen Number	Pin Number	Pin Definition	Function
J3	1	+5V_LI	+5V power supply
	2	+5V_LI	+5V power supply
	3	3V3	3V3 power supply
	4	GND	GND
	5	GND	GND
	6	WLED_EN	White light signal
	7	RLED_EN	Infrared signal
	8	ADC_IN	Photosensitive signal
	9	MCU_LED1	Blue light distribution network indicator
	10	MCU_LED2	Red light low battery indicator
J9	1	OUT1	IRCUT signal
	2	OUT2	IRCUT signal
J29	1	MIC_G	MIC signal
	2	MIC_IN	MIC signal
J10	1	+5V_LI	Battery voltage
	2	GND	GND
K1	1	SW_ON/OFF	Reset button
	2	GND	GND
	3	GND	GND
	4	GND	GND

	5	GND	GND
	6	GND	GND
	7	GND	GND
J5	1	+5V_USB	+5V USB power supply
	2	GND	GND
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	Horn signal	Horn signal
	2	Horn signal	Horn signal
J2	1	UART_RXD	Serial port reception
	2	UART_TXD	Serial port sending
	3	GND	GND
J7	1	GND	GND
	2	UART_TXD	Serial port sending
	3	UART_RXD	Serial port reception
	4	BOOTSEL_0	Debugging features
J4	1	CHG	Charge detection
	2	BAT_ADC	Battery voltage
	3	BAT_EN	Charging enabled
J12	1	3.3V	3.3V power supply
	2	1.8V	1.8V power supply
	3	+5V_LI	+5V power supply
	4	+5V_LI	+5V power supply
	5	GND	GND
	6	GND	GND
	7	PIR_OUT	PIR signal
	8	RLED_EN	Infrared signal
	9	WLED_EN	White light signal
	10	PULSE	PIR sensitivity adjustment
	11	IR_CUT_GPIO72	IR_CUT control signals
	12	GND	GND
	13	GND	GND
	14	SENSOR_SCL	SensorI2C
	15	SENSOR_SDA	SensorI2C
	16	SENSOR_RSTN	Sensor reset signal
	17	GND	GND

	18	SENSOR_CLK1	MIPI clock signal
	19	GND	GND
	20	SEN_CLK0N	MIPI clock negative signal
	21	SEN_CLK0P	MIPI clock positive signal
	22	GND	GND
	23	SEN_D0N	MIPI data 0 negative signal
	24	SEN_D0P	MIPI data 0 positive signal
	25	GND	GND
	26	SEN_D1N	MIPI data 1 negative signal
	27	SEN_D1P	MIPI data 1 positive signal
	28	GND	GND



Silk Screen Number	Pin Number	Pin Definition	Function
J1	1	OUT1	IRCUT signal
	2	OUT2	IRCUT signal
J3	1	+3.3V_PIR	+3.3V power supply
	2	GND	GND
	3	PIR_OUT	PIR signal
	4	PULSE	PIR sensitivity adjustment
J2	1	+5V	Battery voltage
	2	GND	GND
	3	WLED_EN	White light signal
	4	RLED_EN	Infrared signal
J36	1	3.3V	3.3V power supply
	2	1.8V	1.8V power supply
	3	+5V	Battery voltage
	4	+5V	Battery voltage
	5	GND	GND
	6	GND	GND

	7	PIR_OUT	PIR signal
	8	RLED_EN	Infrared signal
	9	WLED_EN	White light signal
	10	PULSE	PIR sensitivity adjustment
	11	IR_CUT_GPIO72	IR_CUT control signals
	12	GND	GND
	13	GND	GND
	14	SENSOR_SCL	SensorI2C
	15	SENSOR_SDA	SensorI2C
	16	SENSOR_RSTN	Sensor reset signal
	17	GND	GND
	18	SENSORCLK1	Sensor Clock
	19	GND	GND
	20	SEN_CLK0N	MIPI clock negative signal
	21	SEN_CLK0P	MIPI clock positive signal
	22	GND	GND
	23	SEN_D0N	MIPI data 0 negative signal
	24	SEN_D0P	MIPI data 0 positive signal
	25	GND	GND
	26	SEN_D1N	MIPI data 1 negative signal
	27	SEN_D1P	MIPI data 1 positive signal
	28	GND	GND

3. Electrical Parameters

3.1 Absolute Electrical Parameters

Parameter	Description	Min	Max	Unit
Ts	Storage temperature	-40	150	℃
VCC	Power supply voltage	3.3	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	2.6	3.3	V

3.3 RF Power Consumption

Mode	Power (mA) (VCC=3.3V)
Sleep Mode	5uA
TX Test mode (2.4G HT20@17dbm)	288
RX Test mode (2.4G HT20)	53

4. RF Parameters

4.1 Basic Wi-Fi Performance

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

4.2 Wi-Fi RF Performance

4.2.1 Wi-Fi TX Performance

Mode	Rate	Power	EVM
802.11b	11Mbps	16dBm $\pm$ 1.5dB	$\leq$ -10dB
802.11g	54Mbps	16dBm $\pm$ 1.5dB	$\leq$ -25dB
802.11n	MCS7	16dBm $\pm$ 1.5dB	$\leq$ -28dB

4.2.2 Wi-Fi RX Performance

Working State	Rate	RX Sensitivity (Test Value)	RX Sensitivity (Standard Value)
(802.11b, 20MHz) @8% PER	1Mbps	-97dBm	$\leq$ -85dBm
	2Mbps	-95dBm	$\leq$ -85dBm
	5.5Mbps	-92dBm	$\leq$ -85dBm
	11Mbps	-90dBm	$\leq$ -85dBm
(802.11g, 20MHz) @10% PER	6Mbps	-94dBm	$\leq$ -85dBm
	9Mbps	-92dBm	$\leq$ -85dBm
	12Mbps	-91dBm	$\leq$ -85dBm
	18Mbps	-88dBm	$\leq$ -85dBm
	24Mbps	-85dBm	$\leq$ -85dBm
	36Mbps	-82dBm	$\leq$ -85dBm
	48Mbps	-79dBm	$\leq$ -85dBm
	54Mbps	-77dBm	$\leq$ -85dBm
(802.11n, 20MHz) @10% PER	MCS=0	-93dBm	$\leq$ -85dBm
	MCS=1	-90dBm	$\leq$ -85dBm
	MCS=2	-89dBm	$\leq$ -85dBm
	MCS=3	-85dBm	$\leq$ -85dBm
	MCS=4	-82dBm	$\leq$ -85dBm
	MCS=5	-78dBm	$\leq$ -85dBm
	MCS=6	-76dBm	$\leq$ -85dBm
	MCS=7	-73dBm	$\leq$ -85dBm