



# AI Smart Camera

- | CQ38W-1126B(Commercial)
- | CQ38W-1126BJ(Industrial)

V1.0 2026-4-16

FIREFLY TECHNOLOGY



# Product features



## High-performance AI vision processor RV1126B

Equipped with the quad-core 64-bit high-performance AI vision processor RV1126B, based on the ARM Cortex-A53 core, integrated with NEON advanced SIMD and FPU (Floating Point Unit), with a main frequency up to 1.6GHz and performance more than twice that of same-class chips, providing powerful support for high-performance computing and multi-tasking.



## Integrated 8MP AI-ISP

Integrated 8MP AI-ISP to save NPU resources; combined with AI Remosaic technology for adaptive day/night dual-mode operation, paired with 6-DOF digital image stabilization to eliminate high-frequency jitter—meeting the demands for high-definition perception and stable vision in security surveillance and other scenarios.



## 3T NPU for smooth operation of large models

Built-in 3TOPS NPU enables seamless running of large language models (LLMs) and multimodal models with  $\leq 2B$  parameters (e.g., Qwen Series, Gemma2-2B, Phi2, MiniCPM). It supports weight sparsification, W4A16/W8A16 mixed-precision quantization and Transformer optimization, enabling accurate target recognition in complex scenarios and cross-modal information fusion.



## Intelligent encoding engine

Integrated intelligent encoding engine supports 8M@45fps UHD encoding; dynamic bitrate optimization cuts bitstream by 50% vs. traditional CBR mode, doubling recording time with the same storage space.

# Product features



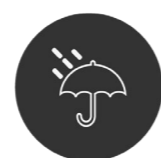
## 5MP/3MP HD Camera

5/3 Megapixel lens is optional. The camera has high sensitivity, high signal-to-noise ratio and low-light imaging capability, outputs high-definition image quality and accurately captures the details of highlights and shadows in dynamic scenes.



## Self-adaptive 100M Ethernet port

Equipped with a self-adaptive 100M Ethernet port, it intelligently adapts network speed for stable and smooth transmission, featuring excellent anti-interference and link reliability, easily adapting to complex network environments such as security monitoring.



## IP67 Waterproof aluminum alloy housing

IP67 waterproof housing with built-in heat sink, weight  $\leq 350\text{g}$ , compatible with wall mounting, ceiling mounting and other installation methods.



## A wide range of applications

Facial recognition, gesture recognition, gate access control, smart security, IP cameras, self-service terminals, smart finance, smart construction sites, smart transportation, and more.

# Specifications



		CQ38W-1126B/CQ38W-1126BJ (3MP)	CQ38W-1126B/CQ38W-1126BJ (5MP)
Basic Specifications	SoC	CQ38W-1126B: Rockchip RV1126B CQ38W-1126BJ: Rockchip RV1126BJ	
	CPU	Quad-core 64-bit ARM Cortex-A53, integrated with NEON and FPU, maximum main frequency of 1.6GHz	
	NPU	3TOPS NPU, supporting INT4/INT8/INT16/FP16 mixed-precision computing	
	ISP	Built-in 12MP ISP with multiple algorithm accelerators including HDR, 3A, LSC, 3DNR, 2DNR, sharpening, defogging, fisheye correction, gamma correction and feature point detection. Integrated 8MP AI-ISP enables day-night dual-mode adaptation with AI Remosaic technology; supports 6-DOF digital image stabilization.	
	Decoding/Encoding	Encoding: 12M@30fps H.265/H.264 Decoding: 4K@30fps H.265/H.264	
	RAM	LPDDR4/LPDDR4X (1GB/2GB/4GB Optional)	
	Storage	eMMC (8GB/16GB/64GB Optional)	
	OS	Supports Debian 12 and Linux systems built with Buildroot+QT GUI	
	Size	69.72mm × 69.72mm × 174.21mm	
	Power	DC 12V (5.5mm × 2.1mm)	
	Protection rating	IP67 waterproof and dustproof design	
	Size	69.72mm × 69.72mm × 174.21mm	
	Weight	≈336g	
	Environment	Operating temperature: -20°C ~ 50°C, Operating humidity: 15% ~ 90%RH (non-condensing)	
	Camera	Image sensor	SONY SC3336
CMOS size		1/2.8"	
Pixel		3-megapixel (2304×1296)	5-megapixel (2592×1944)
Aperture		F2.0	F2.56
Field of view		98.3°	95°
Focal length		3.95mm	4mm
Distortion		< 33%	≤ -9.5%
Maximum frame rate		2304×1296@30fps	2592×1944@30fps
Focusing method		Manual focus	Fixed focal length
Camera type		Color	
Network	Ethernet	One 10/100M Ethernet (RJ45)	
Serial Port	RS485	1 × RS485 (Led out via 2Pin-3.5mm Phoenix terminal block)	

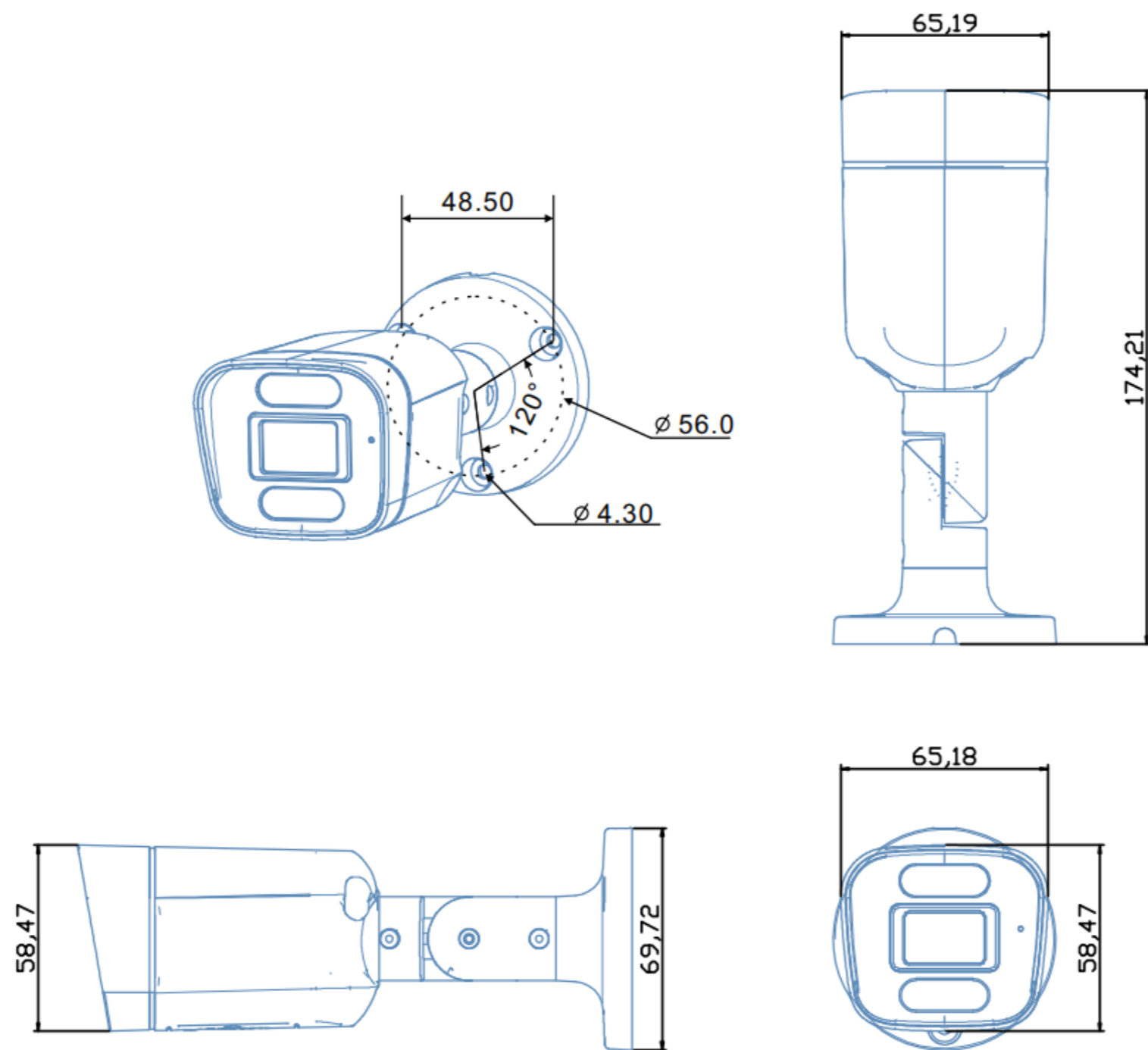
# Interface description



Interface	PIN	Definition	Attribute	Description
100M Ethernet	1	DC 12V	Power	DC power supply positive input
	2	DC GND	GND	DC power supply negative input
	3	No signal input		
	4	No signal input		
	5	RJ45_RX-	Input	Network signal input (RJ45_6, green)
	6	RJ45_RX+	Input	Network signal input (RJ45_3, white-green)
	7	RJ45_TX-	Output	Network Signal Input (RJ45_2, orange)
	8	RJ45_TX+	Output	Network signal input (RJ45_1, white orange)

Interface	PIN	Definition	Attribute	Description
RS485	1	485_A	Differential	RS485-A
	2	485_B	Differential	RS485-B


# Dimension







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