WORKSWELL®
INFRARED CAMERAS AND SYSTEMS

640px THERMAL RESOLUTION

30mK SENSITIVITY

60Hz FRAME RATE

INTEL FPGA

CVBS ANALOG

WORKSWELL WEOM CVBS

ITAR-FREE THERMAL IMAGING CAMERA CORE

Datasheet

Release date: 3rd of March 2025

Version: 250303

WORKSWELL®
INFRARED CAMERAS AND SYSTEMS

WEOM CVBS thermal imaging core specification

WEOM CVBS thermal imaging camera core key features description

ITAR-free thermal imaging camera module designed and produced in Europe with unmatched quality suitable for all types of demanding applications such an unmanned vehicle (UAV/UGV), thermal monocular/binocular, thermal fixed industrial and security cameras, maritime thermal cameras, machine vision thermal cameras, monitoring and intelligent systems, driving systems, defence, security and many more.

Advanced FPGA processing provides outstanding image quality and scene visualization with high performance **sensitivity of 30mK and resolution of the detector 640 x 480 px**. WEOM CVBS offers small dimensions, weight, variety of lenses for any desired application.

Technical specification

Detector type	Uncooled LWIR detector, microbolometer
Spectral band	8 – 14 µm
Detector resolution	640 x 480 px
Detector pixel size	17 µm (up to 30% higher sensitivity than 12 µm detector)
Detector sensitivity	<30 mK or <50 mK
Image frame rate	9 Hz, 30 Hz or 60 Hz full frame rate
Scene temperature range	High Gain mode -50 °C to +160 °C, Low Gain mode -50 °C to 600 °C) High Gain mode -58 °F to +320 °F, Low Gain mode -58 °F to 1 112 °F)
Non-uniformity correction (NUC)	Integrated, factory calibrated
Fixed focus lenses (M25)	FOV 42° (H) x 32° (V), focal length 14 mm, f/1.2 FOV 24° (H) x 18° (V), focal length 25 mm, f/1.2 FOV 17° (H) x 13° (V), focal length 35 mm, f/1.1
Fixed focus lenses (M34)	FOV 91° (H) x 74° (V), focal length 7.5 mm, f/1.2 FOV 44° (H) x 33° (V), focal length 14.25 mm, f/1.2 FOV 24° (H) x 18° (V), focal length 25 mm, f/1.2 FOV 17° (H) x 13° (V), focal length 35 mm, f/1.2 FOV 12° (H) x 9° (V), focal length 50 mm, f/1.2 FOV 8° (H) x 6° (V), focal length 73.1 mm, f/1.05
Version without the lens	Delivery of WEOM is available without lens (M25 or M34 lens holder)
Image orientation	Invert (Flip the image vertically), Mirror (Flip the image horizontally)
Control software	Control software WEOM GUI
Spatial image filter	Median full frame 60Hz spatial filter for improved image quality
Temporal image filters	Time-domain 2x, 4x moving average filter for improved image quality
AGC	Automatic Image Gain Control (Plateau Histogram equalization)
MGC	Manual Gain Control function (Brightness, Contrast)

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Temperature drift compensation	Factory calibrated for temperature drift compensation
WEOM CVBS video outputs and control	
CVBS plugin (analog video NTSC)	1x MCX (micro coaxial connector) for video output 1x JST connector for AUX signals 1x JST control, power supply & video output 1x USB-C connector for camera control & power supply
CMOS	14-bit parallel video (50-pin Hirose)
Serial communication	UART serial communication channel for WEOM control
Image palettes	14 image palettes available in total (2 definable by the user)
Dead Pixel Correction	User Dead Pixel correction wizard
Time to start	< 5 sec
Physical attributes	
Mounting holes	6 x M2 mounting holes
Dimensions (CMOS version)	40.1 (h) x 37.8 (w) x 42.6 (l) mm (1.57 x 1.48 x 1.67 in) without the lens
Weight	< 80.5 g (2.83 oz) including the CVBS plugin (without the lens)
Power supply	
Input voltage	5 VDC
Primary electronic interface	CMOS (50-pin Hirose)
Power dissipation	CMOS: Typically 1.9 W, 2.1 W peak CVBS: Typically 2.3 W, 2.5 W peak
Environmental data	
IP rating (Encapsulation)	IP67 (at front of lens)
Operating temperature	-30°C to +70°C (-22 °F to 158 °F)
Storage temperature	-50°C to +90°C (-58 °F to 194 °F)
Humidity	5% to 95% non-condensing
Housing material	Durable aluminum body
ROHS, REACH, WEEE, CE	Compliant

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DRI information for WEOM lenses

The calculations are based on the "Johnson Criteria" that is used for DRI (Detection, Recognition, and Identification). According to the Johnson Criteria, the minimum resolution, pixels on target, required to achieve a 50% probability for an observer to discriminate an object are:

(D) Detection:
If a target is found in the field of view, the image of the target must account for more than 1.5 pixels in the critical dimension direction.
(R) Recognition:
The target is classified to identify whether the target is a car, truck or person, which means that the image of the target must occupy more than 6 pixels in the critical dimension direction.
(I) Identification:
The definition of identification is that the model and other characteristics of the target can be distinguished. The image of the target must occupy more than 12 pixels in the critical dimension direction.

Lens	Human (1.8 m x 0.5 m) (5.90 ft x 1.64 ft)			Vehicle (2.3 m x 2.3 m) (7.54 ft x 7.54 ft)			Drone (0.5 m x 0.5 m) (1.64 ft x 1.64 ft)		
	D	R	I	D	R	I	D	R	I
7.5 mm	280 m	70 m	35 m	675 m	170 m	85 m	150 m	35 m	25 m
14.25 mm	520 m	130 m	70 m	1 260 m	320 m	160 m	270 m	70 m	30 m
25 mm	930 m	230 m	120 m	2 250 m	560 m	280 m	490 m	120 m	60 m
35 mm	1 300 m	330 m	160 m	3 160 m	790 m	390 m	690 m	170 m	90 m
50 mm	1 860 m	470 m	230 m	4 510 m	1 130 m	560 m	980 m	250 m	120 m
73.1 mm	2 720 m	680 m	340 m	6 580 m	1 650 m	820 m	1 430 m	360 m	180 m

* Real values may vary based on environmental conditions and integration.

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