WORKSWELL®
INFRARED CAMERAS AND SYSTEMS

640PX
THERMAL RESOLUTION

<25 MK
SENSITIVITY

60HZ
FRAME RATE

INTEL FPGA



MADE IN EU
EU
QUALITY GUARANTEED

TÜV SÜD
ISO 9001

WORKSWELL WEOM

ITAR-FREE THERMAL IMAGING CAMERA CORE

Datasheet

Release date: 12th of July 2026

Version: 260712

WORKSWELL®
INFRARED CAMERAS AND SYSTEMS

WEOM VGA thermal imaging core specification

WEOM VGA 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 as 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, defense, security and many more.

Advanced FPGA processing provides outstanding image quality and scene visualization with high performance **sensitivity of <25 mK and resolution of 640 x 480 px (VGA)**. WEOM offers small dimensions, low weight, variety of lenses and exchangeable interfaces (HDMI, CVBS, USB-C, CMOS, GigE, Smart Ethernet) for integrators.

Technical specification

Detector type	Uncooled LWIR detector, microbolometer
Spectral band	8 – 14 µm
Detector resolution	640 x 480 px
Detector pixel size	17 µm (*Compared to a 12 µm pixel pitch in a 640-pixel detector, a 17 µm pixel provides approximately 2x the pixel area, allowing it to collect approximately 100% more thermal radiation per pixel. This enables improved signal-to-noise ratio (SNR), lower NETD, and higher sensitivity)*
Sensitivity (NETD)	<25 mK, <30 mK or <50 mK
Image frame rate	9 Hz, 30 Hz or 60 Hz full frame rate
Scene temperature range	Super Gain mode -32 °C to 80 °C (-25.6 °F to +176 °F) High Gain mode up to +160 °C (up to +320 °F) Low Gain mode up to +600 °C (up to +1 112 °F)
Non-uniformity correction (NUC)	Integrated shutter, factory calibrated
SNUC (SuperNUC)	Advanced Image Correction via WEOM GUI with Blackbody BB200
Fixed focus lenses (M25)	FOV 42° (H) x 32° (V), focal length 14 mm, f/1.2 FOV 17° (H) x 13° (V), focal length 35 mm, f/1.1
Fixed focus lenses (M34)	FOV 90° (H) x 70° (V), focal length 7 mm, f/1.0 FOV 50° (H) x 36° (V), focal length 13 mm, f/1.0 FOV 32° (H) x 20° (V), focal length 19 mm, f/1.0 FOV 25° (H) x 19° (V), focal length 25 mm, f/1.0 FOV 19° (H) x 16° (V), focal length 35 mm, f/1.0 FOV 12° (H) x 9° (V), focal length 50 mm, f/1.05 FOV 8° (H) x 6° (V), focal length 75 mm, f/0.9 (available on request) FOV 6° (H) x 4° (V), focal length 100 mm, f/1.0
Lens-less delivery	WEOM can be supplied without a lens (M25 or M34 lens holder)
Control software & SDK	Control desktop software WEOM GUI and SDK libraries
Standard REST API	Allows full control using OpenAPI compatible interface over HTTP
ROS control	Support for ROS1 & ROS2 operating system

Workswell WEOM

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All pictures are only for illustration.
Real values may vary.

Image orientation	Invert (Flip the image vertically), Mirror (Flip the image horizontally)
Smart Spatial image filter	Median full frame 60Hz spatial filter for improved image quality
Smart Temporal image filters	Advanced 2nd-Generation Temporal Filter for Enhanced Image Quality
AGC	Automatic Image Gain Control (Plateau Histogram equalization)
MGC	Manual Gain Control function (Brightness, Contrast)
Image palettes	14 image palettes available in total (2 definable by the user)
Dead Pixel Correction	User Dead Pixel correction in WEOM GUI wizard
Temperature drift compensation	Factory calibrated for temperature drift compensation
Video outputs and control	
Video and data plugins	WEOM provides a variety of exchangeable plugins
CVBS plugin (analog video NTSC)	1x MCX (micro coaxial connector) for video output 1x JST connector - synchronization input/output triggers 1x JST control, power supply & video output 1x USB-C connector for camera control & power supply
Micro-HDMI plugin (digital video)	1x micro-HDMI connector for video output 1x JST connector - synchronization input/output triggers 1x JST control & power supply 1x USB-C connector for camera control & power supply
USB-C plugin (optional with cable screw mounting)	1x USB-C connector for video UVC output & power supply 1x JST connector - synchronization input/output triggers Video format Pre-IGC RAW MONO 14bit, Post-coloring YCbCr
GigE plugin	1x RJ-45 connector for video output & power supply (PoE) Video format Pre-IGC RAW MONO 14bit, Post-coloring YCbCr
Ethernet (PoE)	Ethernet, RJ45 (PoE), 1Gb/s (100Mb/s compatible) 2-pin power supply connector Harting 14110213001000 8-pin AUX connector Pheonix 1780837 (DI, DO, RS485, Termination)
Video stream via Ethernet	RTSP, H264 encoded video, real-time stream in web-client User definable video output data stream via API – Pre-IGC RAW MONO 14-bit data or Post-IGC coloring data
Thermal core control via Ethernet	ONVIF supported for the third-party software inter-compatibility Web server camera interface
PTZ control	PELCO D protocol via RS485 Baudrate and address configurable via webserver Relative and absolute positioning Continuous movement with speed control Presets
Network settings	Static IP or DHCP functionality MAC Address configuration HTTPS (importa self-signated/authority certificate)
CMOS	14-bit parallel video (50-pin Hirose), primary electronic interface
Serial communication	UART serial communication channel for WEOM control

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Time to start	< 5 sec
Physical attributes	
Mounting holes	6 x M2 mounting holes (CMOS, USB-C, HDMI, CVBS versions) 4 x M2 mounting holes (GigE version) 12 x M3 mounting holes (Smart Ethernet plugin)
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	< 65 g (2.29 oz) without the lens/plugin
Power supply	
Input voltage	4.8 to 5.2 VDC
Input voltage for Smart Ethernet	External 12-24 VDC or PoE (IEEE 802.3af)
Power dissipation	CMOS: Typically 1.9 W, 2.1 W peak USB: Typically 2.0 W, 2.2 W peak HDMI: Typically 2.1 W, 2.3 W peak CVBS: Typically 2.3 W, 2.5 W peak GigE PoE: Typically 4.3 W, 4.6 W peak Smart Ethernet plugin: Typically 6W, 7.5 W peak
Environmental data	
IP rating (Encapsulation)	IP67 (at front of lens)
Operating temperature	-32°C to +70°C (-25.6 °F to 158 °F) according to MIL-810 standard
Storage temperature	-50°C to +90°C (-58 °F to 194 °F)
Humidity	5% to 95% non-condensing
Vibration	Operating Random Vibration Test 5-500Hz, 3.0Grms
Shock	Operating Shock Test 15G, 11ms duration
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
14 mm (M25)	520 m	130 m	70 m	1 260 m	320 m	160 m	270 m	70 m	30 m
35 mm (M25)	1 300 m	330 m	160 m	3 160 m	790 m	390 m	690 m	170 m	90 m
7 mm (M34)	280 m	70 m	35 m	675 m	170 m	85 m	150 m	35 m	25 m
13 mm (M34)	480 m	120 m	60 m	1 170 m	290 m	150 m	250 m	60 m	30 m
19 mm (M34)	710 m	180 m	90 m	1 710 m	430 m	210 m	370 m	90 m	50 m
25 mm (M34)	930 m	230 m	120 m	2 250 m	560 m	280 m	490 m	120 m	60 m
35 mm (M34)	1 300 m	330 m	160 m	3 160 m	790 m	390 m	690 m	170 m	90 m
50 mm (M34)	1 860 m	470 m	230 m	4 510 m	1 130 m	560 m	980 m	250 m	120 m
75 mm (M34)	2 790 m	700 m	350 m	6 760 m	1 690 m	850 m	1 470 m	370 m	180 m
100 mm (M34)	3 730 m	930 m	470 m	9 020 m	2 250 m	1 130 m	1 960 m	490 m	250 m

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

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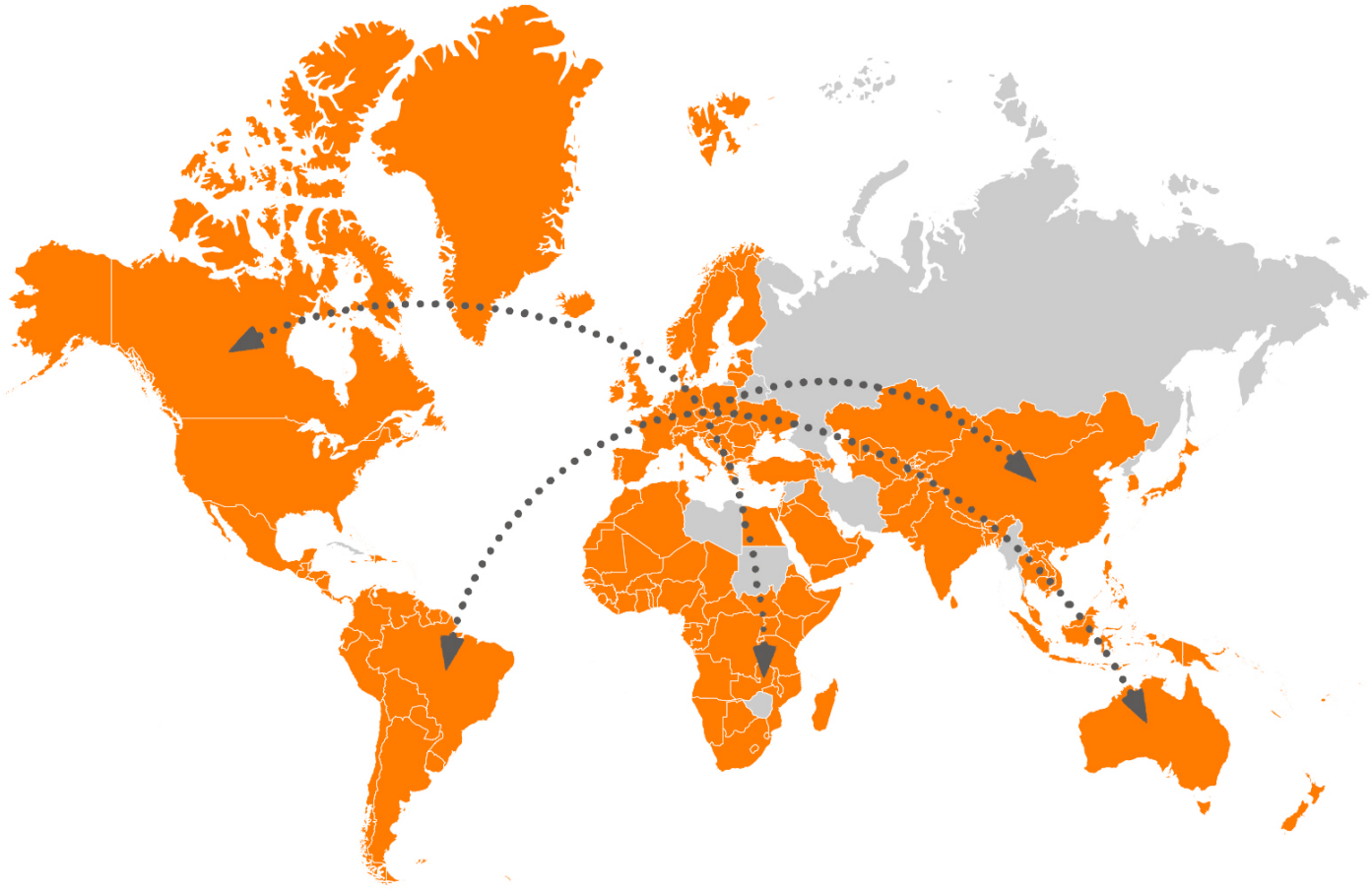
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