

ENGINEERING DOCUMENTATION

Industrial Ethernet Stereo Vision Camera

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-CV-C00-S002-V001	DRAFT-08 / 28 Aug 2026	Engineering Integration Reference

Integration Overview

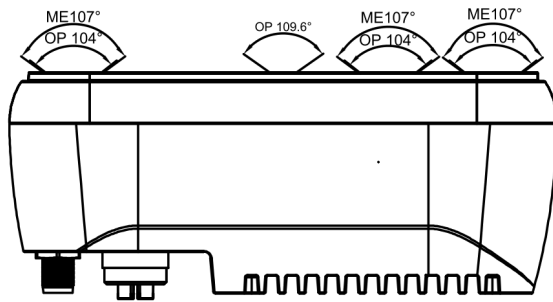
Industrial stereo vision camera for networked depth sensing and extended working-distance integration. This guide supports optical-envelope, mounting, Ethernet, PoE, I/O, thermal, ingress and commissioning planning for ES-CV-C00-S002-V001.

Key Integration Facts

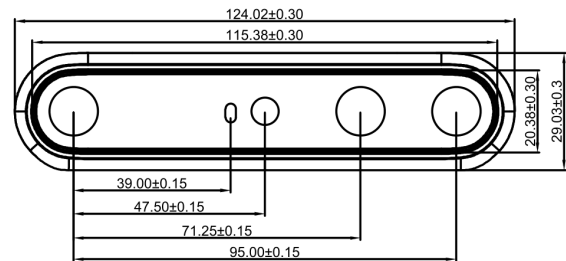
INTEGRATION ITEM	VALUE
Depth Technology	Stereo Vision
Depth Resolution and Frame Rate	Up to 1280 x 800 @ 30fps
Operating Range	0.25 - 20m+
Depth Field of View	90° x 65° ± 3° @ 2m (1280 x 800)
Baseline	95 mm
Data Connection	Gigabit Ethernet
Ingress Protection Rating	IP67
Dimensions	124 x 29 x 50 mm

Product Structure & Views

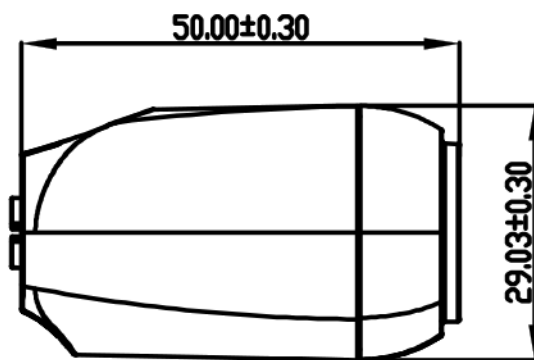
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



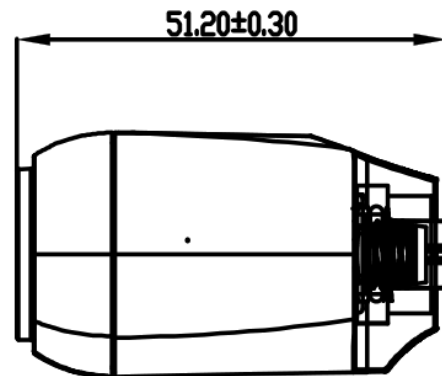
Optical Field Geometry



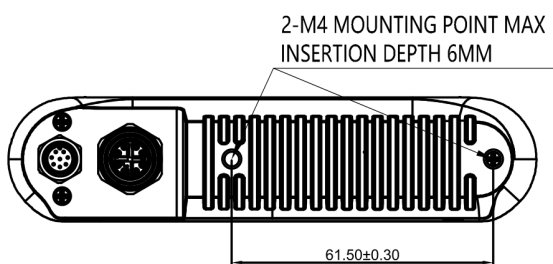
Front Envelope and Baseline



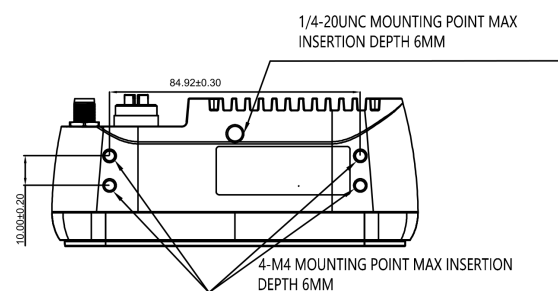
Side Envelope View



Connector-Side Envelope



Rear Mounting and Connector Interface



Bottom Mounting Interface

VIEW	FIELD	VALUE
Optical Field Geometry	Left ME angle	ME angle 107°
	Left OP angle	OP angle 104°
	Center OP angle	OP angle 109.6°
	Middle-right ME angle	ME angle 107°
	Middle-right OP angle	OP angle 104°
	Right ME angle	ME angle 107°
	Right OP angle	OP angle 104°
Front Envelope and Baseline	M4 mounting point quantity and thread specification	2 × M4 mounting points, maximum
	Maximum insertion depth for M4 mounting points	Maximum insertion depth 6 mm
	Mounting point spacing or locating distance	61.50 ± 0.30 mm
Side Envelope View	Overall length	51.20 ± 0.30
Connector-Side Envelope	Overall external length	124.02 ± 0.30 mm
	Inner profile length	115.38 ± 0.30 mm
	Overall external height	29.03 ± 0.30 mm
	Center distance between left and right end circular holes	95.00 ± 0.15 mm
Rear Mounting and Connector Interface	Overall length	50.00 ± 0.30
	Overall height	29.03 ± 0.30

Technical Specifications

PARAMETER	VALUE	UNIT
Operating Range	0.25 - 20m+	
Baseline	95	mm
Depth Field of View	90° x 65° ± 3° @ 2m (1280 x 800)	
Depth Technology	Stereo Vision	
Depth Filter	Visible + NIR-Pass	
Ideal Range	0.25 - 6m	
Spatial Precision	≤0.8% (1280 x 800 @ 2 m & 80% x 90% ROI) ± 1.6% (1280 x 800 @ 4 m & 80% x 80% ROI)	
Depth Resolution and Frame Rate	Up to 1280 x 800 @ 30fps	

Technical Specifications - Continued

PARAMETER		VALUE		UNIT	
Color Resolution and Frame Rate		Up to 1280 x 800 @ 60fps			
Color Field of View		Aspect ratio 16:10 94° x 68° + 3° Aspect ratio 16:9 94° x 62° + 3° Aspect ratio 4:3 82° x 66° + 3°			
ASPECT RATIO		FIELD OF VIEW (H X V)		STATED VARIANCE	
16:10	94° x 68°		+3°		
16:9	94° x 62°				
4:3	82° x 66°				
HDR Depth		Supported			
Camera Image Sensor Type		IR: Global Shutter Color: Global Shutter			
Power Consumption		POE: Average < 5.0W (Peak < 12.0W) DC: Average < 4.0W (Peak < 8.5W)			
POWER MODE		AVERAGE POWER		PEAK POWER	
PoE		< 5.0 W		< 12.0 W	
DC input		< 4.0 W		< 8.5 W	
Power Supply		POE: IEEE 802.3af DC: 1A @ 9V - 24V			
POWER INPUT		SPECIFICATION			
PoE		IEEE 802.3af			
DC input		9-24 V DC, minimum 1 A			
Weight		220 ± 3		g	
Installation Interface		Back: 2x M4, Max Torque: 0.4 Nm, Max Insertion Depth: 6mm Bottom: 4x M4, Max Torque: 0.4 Nm, Max Insertion Depth: 6mm Or 1x 1/4-20 UNC, Max Torque: 4.0 Nm, Max Insertion Depth: 8mm			
LOCATION		INTERFACE		MAX TORQUE	MAX INSERTION DEPTH
Back		2 x M4		0.4 Nm	6 mm
Bottom		4 x M4			
		1 x 1/4-20 UNC		4.0 Nm	8 mm

Technical Specifications - Continued

PARAMETER		VALUE	UNIT
Data Connection		Gigabit Ethernet	
Interface		M12, 8-pin, X-coded connector for data transmission and POE M8, 8-pin, A-coded connector for DC power in async in/out and RS485	
INTERFACE	CONNECTOR	FUNCTION	
Ethernet / PoE	M12, 8-pin, X-coded	Data transmission and PoE	
Power / I/O / RS485	M8, 8-pin, A-coded	DC power, asynchronous I/O and RS485	
Supported Functions		Hardware Spatial Alignment of Depth to Color Hardware Timestamps, Multi-camera Sync PTP Timing RS485	
IMU		6 DoF, Gyroscope/Accelerometer Sample range: 50 - 1,000Hz	
Operating Environment		-10°C ~ 50°C @ 15fps, -10°C ~ 45°C @ 30/60fps, 5% ~ 90 % RH (non-condensing)	
OPERATING MODE	TEMPERATURE	RELATIVE HUMIDITY	CONDITIONS
15 fps	-10 °C to 50 °C	5%-90% RH	Non-condensing
30/60 fps	-10 °C to 45 °C		
Use Environment		Suitable for indoor and protected outdoor environments	
Backside Case Temperature		-10°C ~ 65°C	
Storage Environment		Short Term: -20°C ~ 70°C, 5%-90% RH (non-condensing) Long Term: 0°C ~ 60°C, 5%-90% RH (non-condensing)	
STORAGE PERIOD	TEMPERATURE	RELATIVE HUMIDITY	CONDITIONS
Short term	-20 °C to 70 °C	5%-90% RH	Non-condensing
Long term	0 °C to 60 °C		

Technical Specifications - Continued

PARAMETER	VALUE			UNIT
Ingress Protection Rating	IP67			
Design Lifespan	5			years
ESD Performance	Class A Contact discharge:±8kV, Air discharge: ±15kV			
TEST ITEM	CLASSIFICATION	TEST LEVEL / MARGIN	CONDITIONS	
Contact discharge	Class A	±8 kV	ESD	
Air discharge		±15 kV		
EMC Performance	ESD: Class A; contact discharge:±8 kV; air discharge: ±15 kV; radiated emissions:±6 dB			
Radiated Emissions	±6			dB
Dimensions	124 x 29 x 50			mm

Coordinate and Optical Reference

- Use a right-handed product coordinate frame with +X to the right, +Y downward and +Z forward when viewed from the optical face.
- Preserve the calibrated relationship between the imaging coordinate frame, the inertial frame and the host robot frame.
- Treat the nominal optical field, connector service space and cable bend envelope as separate integration volumes.

Ethernet, PoE and Industrial I/O Integration

PARAMETER	VALUE		UNIT
Power Supply	POE: IEEE 802.3af DC:±A @ 9V - 24V		
POWER INPUT		SPECIFICATION	
PoE		IEEE 802.3af	
DC input		9-24 V DC, minimum 1 A	
Data Connection		Gigabit Ethernet	
Interface		M12, 8-pin, X-coded connector for data transmission and POE M8, 8-pin, A-coded connector for DC power in async in/out and RS485	
INTERFACE	CONNECTOR	FUNCTION	
Ethernet / PoE	M12, 8-pin, X-coded	Data transmission and PoE	
Power / I/O / RS485	M8, 8-pin, A-coded	DC power, asynchronous I/O and RS485	
Supported Functions		Hardware Spatial Alignment of Depth to Color Hardware Timestamps, Multi-camera Sync PTP Timing RS485	
IMU		6 DoF, Gyroscope/Accelerometer Sample range: 50 - 1,000Hz	
Operating Environment		-10°C ~ 50°C @ 15fps, -10°C ~45°C @ 30/60fps, 5% ~ 90 % RH (non-condensing)	
OPERATING MODE	TEMPERATURE	RELATIVE HUMIDITY	CONDITIONS
15 fps	-10 °C to 50 °C	5%-90% RH	Non-condensing
30/60 fps	-10 °C to 45 °C		
Ingress Protection Rating		IP67	

- Use a CAT6A Ethernet cable wired to the required T568B topology and validate the complete cable run in the final network and EMC environment.
- Reserve independent mating, locking, bend-radius and service-clearance envelopes behind both industrial connectors.
- Define the network and power topology during integration planning, including the selected PoE or DC path and every required I/O function.
- When timing or multi-device operation is required, validate PTP, hardware timestamps, synchronization and RS485 behavior in the final host architecture.
- Confirm connector mating, unused-interface protection and enclosure sealing in the final configuration before relying on the ingress rating.

Range and Ingress Configuration Conditions

Working Range Qualification

SPECIFIED RANGE	ENGINEERING INTERPRETATION
0.25 - 20m+	The 0.25 m near limit is nominal. The 20 m+ notation identifies a scene-dependent far range rather than a guaranteed accuracy boundary: for targets with reflectivity above 10%, depth data may be available at approximately 20 m, while availability and accuracy vary with distance, target properties, scene geometry and operating conditions. Validate the intended scene and selected mode before integration planning.

IP67 Configuration Conditions

POWER PATH	REQUIRED CONFIGURATION
PoE	Use an IP67-rated M12 X-coded cable assembly, fully mate and lock the M12 connection, and install the specified waterproof cap on the unused M8 A-coded interface.
DC power	Use IP67-rated M12 X-coded and M8 A-coded cable assemblies and fully mate and lock both interfaces.

Mounting, Optical, Thermal and Environmental Integration

- Preserve the documented camera and inertial coordinate conventions and verify the active calibration and timestamps before transforming data into the host frame.
- Confirm connector mating, unused-interface protection and enclosure sealing in the final configuration before relying on the ingress rating.
- If an external housing is used for front-face dust control, use a suitable compliant interface seal without loading or obscuring the optical face.
- Support the product only at its documented mounting points and avoid applying installation loads to the chassis or connector bodies.
- Protect the product from impact and mechanical stress, and do not open or modify the chassis as part of normal integration.
- Avoid touching optical surfaces during installation and service because contamination can affect image performance.
- Inspect the product and connectors before installation and do not apply power when visible external damage is present.
- The 0.25 m near limit is nominal. The 20 m+ notation identifies a scene-dependent far range rather than a guaranteed accuracy boundary: for targets with reflectivity above 10%, depth data may be available at approximately 20 m, while availability and accuracy vary with distance, target properties, scene geometry and operating conditions. Validate the intended scene and selected mode before integration planning.
- Keep direct heat sources away and provide adequate free volume or another validated thermal path inside an external housing.
- Account for sustained surface temperature and the selected frame-rate mode when validating the final enclosure.

Integration Checklist

- | | |
|----|--|
| 01 | Confirm the 124 x 29 x 50 mm product envelope against the host assembly. |
| 02 | Confirm the selected mounting face, thread engagement and insertion depth for the host interface. |
| 03 | Inspect the product and connectors before installation and do not apply power when visible external damage is present. |
| 04 | Support the product only at its documented mounting points and avoid applying installation loads to the chassis or connector bodies. |
| 05 | Avoid touching optical surfaces during installation and service because contamination can affect image performance. |
| 06 | Keep the optical field clear of enclosure walls, protective windows and adjacent equipment. |
| 07 | Confirm thermal and environmental limits in the final enclosure. |
| 08 | Confirm the selected Ethernet and power topology, connector coding, mating assemblies and host network capability. |
| 09 | Validate PTP, hardware timestamps, synchronization and RS485 behavior when those functions are used by the host system. |
| 10 | Confirm that every unused or unmated interface is protected as required by the final enclosure design. |
| 11 | Record the selected mounting face, cable, enclosure and thermal configuration in the integration record. |

[View SKU Product Datasheet](#) [Request controlled 2D drawing](#) [Request controlled STEP review](#) [Request a Quote](#)

Engineering Use and Verification Notice

01. This Dimensional & Integration Guide applies only to EmbodyStack SKU ES-CV-C00-S002-V001 and is intended for dimensional evaluation and preliminary integration. It is not a manufacturing drawing, camera application approval, optical-performance guarantee, network-design approval, wiring definition, machinery risk assessment, safety validation or production authorization. Before design freeze, installation or energization, verify all dimensions, mounting and locating features, optical fields, connector geometry, cable envelopes, power and data interfaces, calibration, timing, environmental boundaries, thermal condition, ingress configuration, maintenance access and fault response against the current EmbodyStack product documentation for this exact SKU. Validate the complete installed system under intended operating and fault conditions.