B2.0 EVALUATION UNITS

INNOVIZTWO

High-Performance Automotive-Grade LiDAR

InnovizTwo is a high-performance, automotive-grade LiDAR sensor with unsurpassed 3D perception performance that is targeted at mass-production of Level 2 to Level 5 autonomous vehicles.

The rugged, reliable, functionally safe, and cost-effective LiDAR is lightweight, low-power, and resilient to sunlight and weather conditions. The sensor delivers a dense, highly accurate, 3D point cloud with unrivaled angular resolution at a high frame rate for distances up to 250m.

InnovizTwo's firmware is delivered with pre-configured functionality. The Condor scanning configuration is ideal for front-facing consumer vehicle applications that require higher resolution in the ROI.

KEY PERFORMANCE METRICS

2m-250m	0.1°x 0.05°	120°x28.8°	20 FPS
Detection Range	Maximum Angular Resolution (HxV)[1]	Maximum Field of View (HxV)[1]	Pre-Configured Frame Rate
7.296M Pixels/Second	IP66	51.5x141x140.5mm	-10°C to +65°C
Maximum Pixel Rate	Ingress Protection	Dimensions (HxWxD)	Operating Temperature

Maximum configuration values are subject to overall design considerations and constraints.

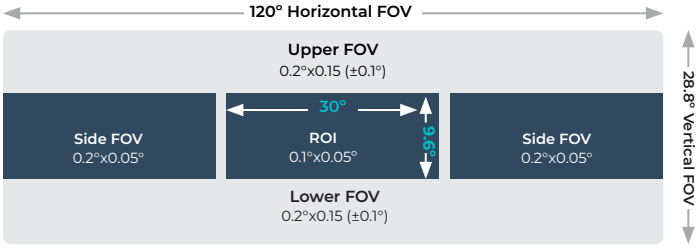
MARKET APPLICATIONS

Consumer Vehicles · Robotaxis and Shuttles · Trucking · Heavy Machinery · Smart Cities · Logistics · Construction

UNIQUE FEATURES

- Regions of Interest
- Pre-configured FOV
- Resilient to Sunlight & Weather Conditions
- GMSL Interface
- PPS Time Synchronization

SCANNING CONFIGURATION



Condor Configuration

SPECIFICATIONS

SYSTEM

	Condor Configuration
Maximum Angular Resolution (HxV)[1]	0.1°x0.05°
Field of View (HxV)	120°x28.8°
Region of Interest (HxV)	30°x9.6° (center ROI)
Frame Rate	20FPS
Scanned Lines within FOV	320
Detection Range	2m-250m
Wavelength	905nm
Laser Product Class	Class 1, Eye-safe (IEC-60825-1)
Power Consumption	19W (typical)
Time Synchronization	PPS

[1] Maximum resolution of 0.05°x0.05° can be configured across the entire FOV based on trade-offs between frame rate, FOV, range, and power consumption.

OPTICAL PERFORMANCE

			Condor Configuration	
		Resolution	**@10% Reflectivity**	**@50% Reflectivity**
Long-Range Detection[1]	Inside ROI	ROI Center FOV (Condor: 30°x9.6°)	180m (@0.1°x0.05°)	240mm (@0.1°x0.05°)
	Outside ROI (Side FOV)	0.2°x0.05°	120m	170m
	Upper and Lower FOV	0.2°x0.15° ± 0.1°	120m	170m
Range Resolution[1]			1cm	
Long-Range Accuracy (Bias)[2]			15cm	
Range Precision[2]			ROI - Max (10cm, 0.5% of GT) @1σ Out of ROI - Max (5cm, 0.5% of GT) @1σ	
Angular Resolution Accuracy			0.5 x Angular Resolution (in nominal conditions[1])	
Angular Resolution Precision			0.5 x Angular Resolution @1σ (in nominal conditions[1])	

NOTES:

[1] 25°C ambient temperature; 20FPS; 10% Lambertian target; 100Klux ambient lighting; defined scanning configuration; native VFOV setting; 0° LiDAR roll/pitch; clear weather; no blockage on window; LiDAR is operating in Normal power mode. True Positives = 90% per pixel and False Positives = 1% per pixel based on the above configuration for long-range detection. False positives are pre-configured in the firmware from 0.01% to more than 10%.

[2] Based on a normal target with Lambertian reflectivity up to 100%.

INTERFACES

Data	MIPI CSI-2 interface (3Gbps data rate) aggregated over a two-wire GMSL high-speed LVDS interface
Command and Control	SPI slave interface and GPIO signals aggregated over two-wire GMSL high-speed LVDS interface

OUTPUTS

	Condor Configuration
Points Returned per Second for Full FOV @ 1 Reflection	4.416M
Point Cloud Reflections	1
Pixel Latency	<25ms[1]
Time Stamp	10 µsec accuracy for every pixel (with GPS input)

NOTES

[1] From first laser pulse of the pixel until pixel data is sent over the data interface.

MECHANICAL/ELECTRICAL

Power Consumption[1]		25W
Operating Voltage	Continuous	8.5VDC to 17VDC
	Transient	6.5VDC to 32VDC
Electrostatic Discharge (ESD)		6kV
Electromagnetic Immunity (EMI)		200-3000MHz @ 10V/m
Dimensions (HxWxD)		51.5x141x140.5mm (HxWxD)
Weight		1.2kg
Connector		Rosenberger 99S11T-40MT5-Y (Power, data, and control)
Temperature	Operating	-10°C to +65°C
	Storage	-40°C to 105°C

NOTES

[1] Depends on environmental temperature.

REGULATORY COMPLIANCE

	Standard
Component-Level Safety and Reliability	ASIC: AEC-Q100 (Grade 2)
Laser Safety	IEC 60825-1 – Safety of laser products
Environmental	DIN/EN/IEC 60068-2; Directives 2011/65/EU and (EU) 2015/863 (RoHS); REACH

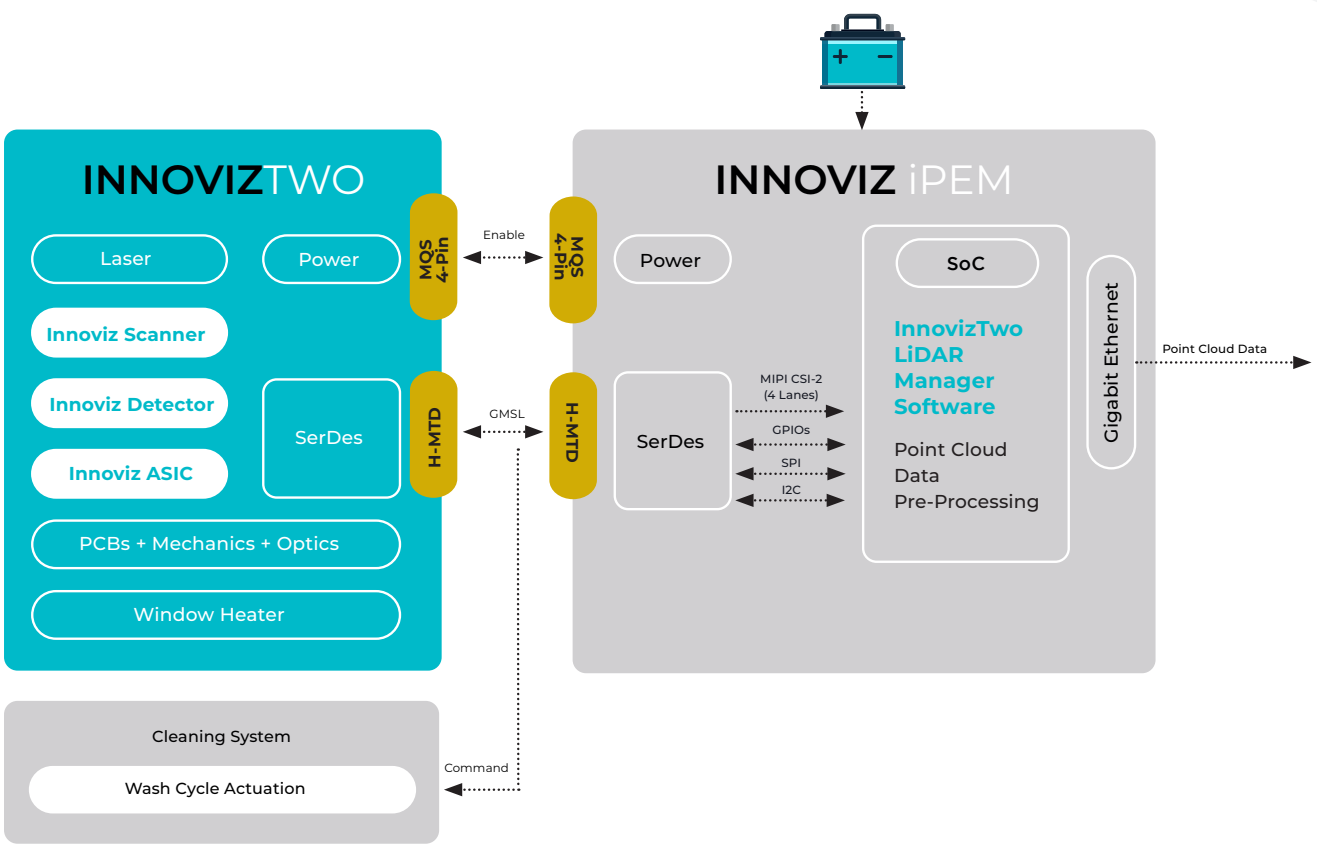
ORDERING INFORMATION

Model	**Part Number**
Condor	INN2-B2-GMSL0-CNDR-A1

INNOVIZTWO

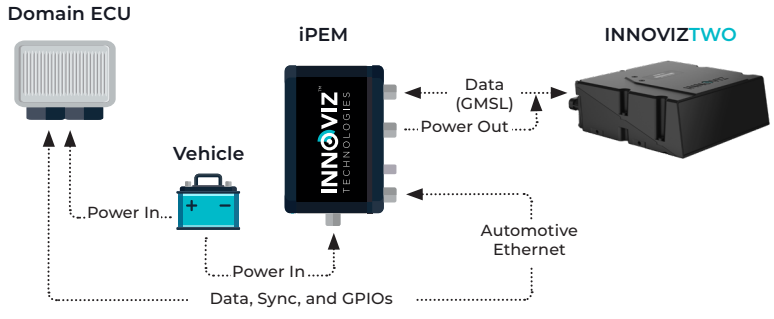
- The LiDAR's GMSL data output aggregates various communication channels and protocols.
- Innoviz's LiDAR Manager software runs on the iPEM and enables command and control of the LiDAR.

SYSTEM ARCHITECTURE



InnovizTwo data packets must be converted to the format used by the OEM's perception software. This packet format conversion can be done in an external component (such as the Innoviz iPEM) or directly in the OEM's ECU.

INNOVIZTWO CONNECTED TO ECU VIA INNOVIZ iPEM



INNOVIZTWO DIRECTLY CONNECTED TO ECU