SENSORS

TENUM® 1280 Uncooled Camera Module

The New Frontier for Uncooled Infrared

The 10-micron technology behind the all new Tenum®1280 puts Leonardo DRS significantly ahead of its competitors in the race to smaller pixel pitch and lower cost products among manufacturers of infrared detectors. The Tenum®1280 is the first high-resolution 10-micron thermal camera core from Leonardo DRS.

The 10-micron Vanadium Oxide (VOx) microbolometer design is approximately 30% smaller than competing 12-micron FPAs. The design supports a variety of different lens configurations and the smaller pixel pitch of Tenum®1280 enables smaller, lower cost optical lens assemblies. Tenum®1280 offers backward compatibility with existing Tamarisk® products with similar interface, software protocols, feature sets, and camera control software.

Leonardo DRS maintains its position of leadership through continuous innovation and a commitment to ensuring that the product performance is never compromised for lower cost solutions. As evidence, Tenum®offers a proven 1280 x 1024 sensor capable of incredible sensitivity that is ideal for a variety of OEM applications.

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HIGHLIGHTS

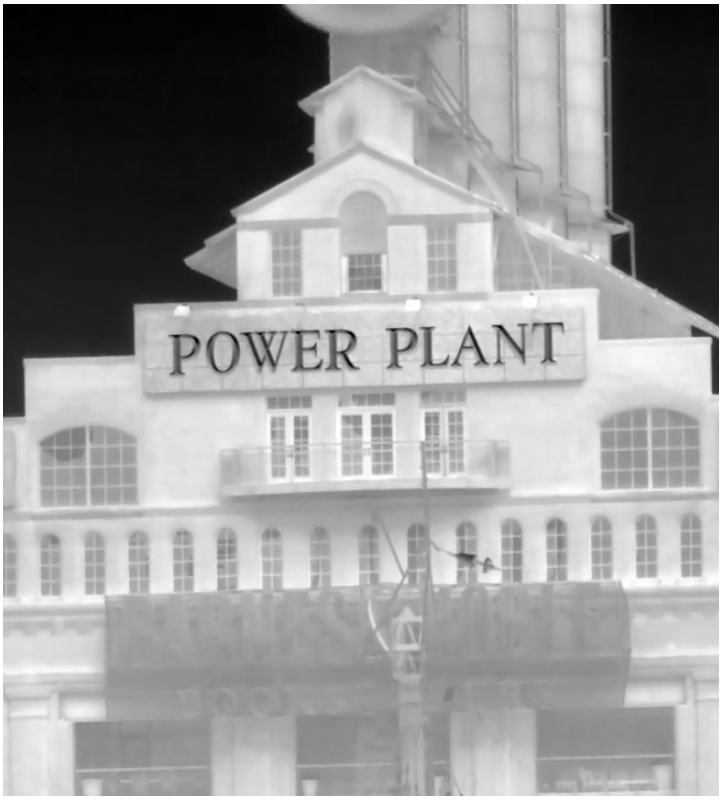
- 10-micron pixel pitch technology
- No-lens module weighs less than 70 grams
- 1280 x 1024 (SXGA), 14-bit Video
- Unmatched image quality with DRS' Patented Advanced Absorber Microbolometer Superstructure
- Maximum array size of 1312 x 1056 provides additional pixels allowing for the infrared image to be shifted within the display area

STANDARD FEATURES

- Image Contrast Enhancement (ICE™) with gain and level bias controls
- External sync
- 24-bit RGB color
- White Hot/ Black Hot polarity image control
- Orientation invert and revert image control
- Six predefined color palettes and one customizable color palette
- -40°C to 100°C dynamic range

OPTIONAL FEATURES

- Custom lens calibration includes memory storage with one custom lens:
  - 5 custom lenses or
  - 5 operation temperatures



FOCAL PLANE ARRAY

Component	*Description*
Detector Type	Uncooled VOx Microbolometer
Array Size	1280 x 960 1280 x 1024 (SXGA) default 1312 x 1056 max
Pixel Pitch	10 µm
Spectral Band	8–14 µm
Thermal Sensitivity	<30 mK

VIDEO FORMAT

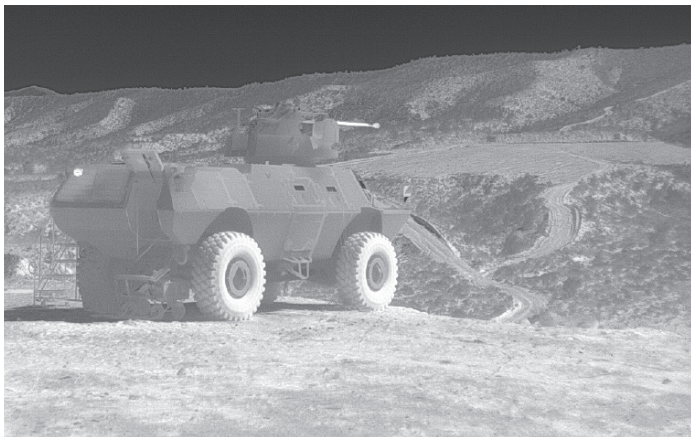
Frame Rate	30 fps / 9 fps
Digital Video	14-bit/8-bit LVCMOS/Camera Link
Automatic Gain and Level	User defined with retained settings through power cycles
Digital Zoom and Pan	Region of interest E-zoom from 1X to 4x
Time to first image	<3.0 secs
Non–Uniformity Correction	1–point with shutter or through lens

POWER

Input Voltage	3.0–5.5V base configuration 4.5–18V with feature board
Power Dissipation Typical	2.3 W base configuration 2.5 W with feature board
Power Dissipation Maximum	2.7 W base configuration 2.8 W with feature board
PoUSB (Power Over USB)	Requires feature baord
Coolant flow rate	7 gpm (3.5 gpm per stator)

ENVIRONMENTAL

Operating Temp Range	-40°C to +70°C (-40°F to 158°F)
Shock/Vibration	75 G (all axis)/4.43g_{rms} (3 axis)
EMC Radiation	FCC Class A digital device
Humidity	5 to 95%, non-condensing
Standard Compliance	ROHS and WEEE
Sealed lens/lens mount	IP 67 at M34 lens mount into face



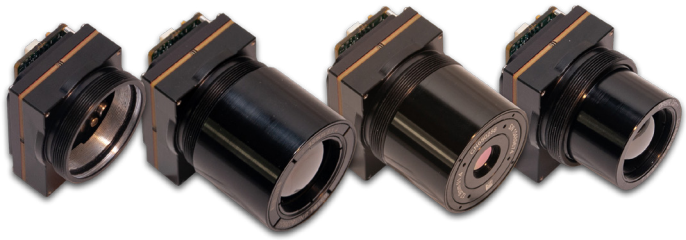
CAMERA MODULE CONFIGURATIONS

- Base configuration includes detector, bias board, and processor board
- With feature board includes base configuraiton with the feature board

LENS OPTIONS

Configurations	*Dimensions* (H x W x D)*	*Weight*
M34 Mount (No Lens)	46 x 40 x31 mm	<70 g
21° HFOV Lens	47 x 41 x 64 mm	145 g
30° HFOV Lens	46 x 40 53 mm	127 g
60° HFOV Lens	46 x 40 x 59 mm	149 g

** (±0.5mm)*



LEFT TO RIGHT: NO LENS, 21° (35MM – F/1.4 LENS), 60° (12.8MM – F/1.4 LENS), 30° (25MM – F/1.2 LENS) ALL SHOWN WITH THE FEATURE BOARD ATTACHED

CONFIGURE YOUR TENUM®

USE THE TABLE BELOW TO BUILD YOUR CUSTOM TENUM®1280. PART NUMBER = 1026792 - [4 DIGIT CUSTOM CONFIGURATION]00000

Lens	*Lens FOV*	*Feature Board*	*Frame Rate*
0 = Lens	0 = 21°	0= No Feature Board	3 = 30 Hz
L= Lens	1= 30°	1 = Feature Board	9 = 9 Hz
	2 = 60°		

OUR TECHNOLOGY

Leonardo DRS is the industry leader for thermal sensors technology. We build our products from the ground up with state of the art detectors manufactured in our Dallas, Texas facility. We offer both cooled and uncooled camera cores to defense and commercial customers alike, meeting a wide variety of needs in many sectors.

TENUM® ACCESSORIES

Part	*Name*	*Description*	*Part Number*
	Feature Board	Optional feature board provides power S-232 and USB 2.0serial command and control through a single 30-pin conntector	1034369-101
	Breakout Box	For use with camera modules equipped with the optional feature board.	1003785-001
	Camera Interface	12” 30-pin cable terminated on Cable Unterminated, one end	1010590-001
	Camera Interface Cable Terminated	12” 30-pin cable terminated on both ends	1002775-001
	Tenum Tripod Mounting Bracket	Anodized aluminum with 1/4 – 20 thread in base	1017276-SP
	Custom Lens Calibration	Available for all cameras. Enables custom lens solutions to work with the Tenum® core	1014868-100

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