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**World's  
Lightest  
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Class\***

# LWIR 3X Zoom Lens for VGA (17 $\mu$ m Pixel Pitch) Detectors

\* Among commercially available LWIR zoom lenses with focal lengths of 100mm or longer. Based on market research by Tamron, Feb. 2014.



**35-105mm** [ Model LVZ3X3516N  
Model LVZ3X3516A ]

Photo shows Model LVZ3X3516N

## Revealing a 3X LWIR zoom lens for a totally new surveillance system

This new product has the lightest weight with a compact size that rivals any commercially available fixed focal telephoto lens. Designed in a compact chassis that provide versatility in installations, applications, and system integration. It covers most commonly used focal length range of 35-105mm, with a constant maximum aperture of F/1.6 throughout the entire range. Optical zoom is the best method for achieving the highest quality image magnification, but also convenient for setting up an ideal field of view for the area of interest. With these features, this product will allow the users to build a totally new surveillance system that is ideal for their application.

## Optical zoom

The optimum area of interest can be fine tuned even after installation, creating a new surveillance system with a flexible field of view that is impossible to achieve with only fixed focal lenses.

Optical zoom is convenient when the area of interest changes, or when the installation site need to be moved.

Maintaining focus while zooming into the object of interest is the utmost for any optical zoom lens.

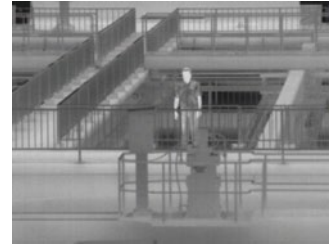
Maintaining the highest quality image while changing magnification is critical for acquiring accurate pixel data and reducing false alarms, and this is the key difference compared to digital zoom.



Optical zoom 35mm



Optical zoom 70mm (2x)



Optical zoom 105mm (3x)



Digital zoom (3x)



Optical zoom (3x)

## Compact and lightweight

Mechanical dimensions of 82mm front diameter (which is about the same diameter as a common fixed focal lens for telephoto range) and the 131mm barrel length from top to mount flange enhances its flexibility for camera integration for existing gimbal system, not to mention conventional camera housings. With a gross weight of 490g (1.1lbs), the dynamic load on the pan & tilt unit or gimbal system is significantly reduced, which will ensure increased longevity of the electro-mechanical system.

## Water and dustproof construction

Sealing rated at IP67, and with diamond-like carbon (DLC) coating on the front element, there is no need for a germanium window that was conventionally used to protect the lens, resulting in reduced overall cost for the surveillance system.

## Ease of handling

The lens comes with two types of coating; DLC coating on the front element coupled with IP67-compliant construction; Or, with AR coating. Serial communication is employed for controlling the focus and zoom, which facilitates integration with a majority of camera systems.

## 35-105mm [ Model LVZ3X3516N Model LVZ3X3516A ]



Photo shows Model LVZ3X3516N

Model	LVZ3X3516N	LVZ3X3516A		
Optical specs	Spectral wave length	8-14μm		
	Focal length	35-105mm		
	F number	F/1.6		
	Zoom ratio	3X		
	Flange back focal distance	9.7mm±0.3mm (in Si) (Barrel rear edge to image plane)		
	Detector package window	(Si) t=0.66mm		
	Back focal distance	WIDE	: 28.211 mm	
		TELE	: 28.100 mm	
	Effective image circle dia.	≥φ14.5mm		
	FOV (Note *1)	H	WIDE : 18.0° / TELE : 5.9°	
V		WIDE : 14.3° / TELE : 4.8°		
D		WIDE : 23.1° / TELE : 7.6°		
Focusing system	Internal focusing system			
MOD (Minimum object distance)	WIDE : 7.0m / TELE : 7.0m			
Max. object distance	WIDE : 1013m / TELE : 3083m (Note *2)			

Model	LVZ3X3516N	LVZ3X3516A	
Mechanical	Max. barrel dia. x length	ø82mm x 130.1mm	
	Weight	490g	
	Optical image stabilization	N/A	
	Optical zoom	Motorized	
	Focus control	Motorized	
	Active Athermalization	YES	
	Mount type	threaded, M34 x P0.5	
Electronic/Electric	Power supply	9V DC	
	Power consumption	≤0.7A	
	Communication	Full duplex asynchronous serial communication	
Reliability	Operating temp.(Performance)	-10°C - 70°C 20 - 90%RH	
	Operating temp.(Function)	-20°C - 80°C 20 - 90%RH	
	Water & dust proof	IP67 (front lens only)	
Front element coating	DLC coating	AR coating	

(Note \*1) The field of view have been calculated based on a sensor size of 10.88mm(V) x 8.7mm(H) (13.9mm diagonal), (VGA 17.0μm pixel pitch)  
 (Note \*2) The max. object distance (detection) is a theoretical value calculated for seeing human sized objects based on Johnson's criteria under the assumption that VGA-17μm pixel pitch sensor is used. It is not an actual measured value.  
 \*Product specifications are subject to change without notice. \*Custom-made lenses are available according to customers' requested design/manufacturing specifications. Please feel free to inquire.

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