

# Visix LR-1000-PTZi

## LRS long-range surveillance with laser illumination

Built for Border Control and Homeland Security



### Features

- Camera zoom range 30mm to 1000mm (33x)
- Digital video output (Streaming IP)
- Laser illuminator bore-sighted to camera
- Fast Pan, Tilt, Zoom (PTZ) operation
- 808nm semi-conductor laser
- True day/night operation
- Wide temperature range, -40°C to +70°C
- Active back focus temperature compensation



The VISIX LR-1000-PTZi is an integrated, ruggedised, military grade, high-precision PTZi camera, with built-in laser illuminator. The laser illuminator uses the same type of optics as the zoom lens for optimal field of view at all zoom settings. The camera and laser unit are bore-sighted, ensuring optimal scene illumination regardless of distance to the object, making it ideal for day or night surveillance for border protection, costal protection, camp perimeter protection, homeland security, and critical infra-structure protection (CIP) applications.

### Optical system

The VISIX LR-1000-PTZi optical system has been developed specifically for use in long-range surveillance. It features continuous zoom, with a powerful zoom ratio of 30 to 1000 mm, plus auto-iris and focus adjustment from 3 m to infinity. The "Auto-Focus on Demand" focuses the camera system automatically at the push of a button. The lens design incorporates oil-free, low-friction surfaces with special coatings, high-speed motors with zero backlash and high-precision feedback potentiometers.

### Fog penetration

The fog penetration function is designed to automatically increase visibility under conditions including fog, haze and fire smoke. The camera continuously analyses the picture and once it detects a low-contrast condition, it will automatically enhance the contrast. The Digital Noise Reduction (DNR) in the camera system is a function that analyses the video image and reduces noise, particularly in low-light conditions. The analysis is based on a 2- and 3-dimensional algorithm.

### Graphic Overlays

The VISIX LR-1000-PTZi system has a built-in graphic overlay generator that allows arbitrary graphic overlays to be inserted into the image output. Typical overlays are text strings, showing azimuth, elevation, GPS data or hair crosses or other reticles. Graphic overlays can be customised to suit specific user requirements. Below is a typical example of a graphic overlay:



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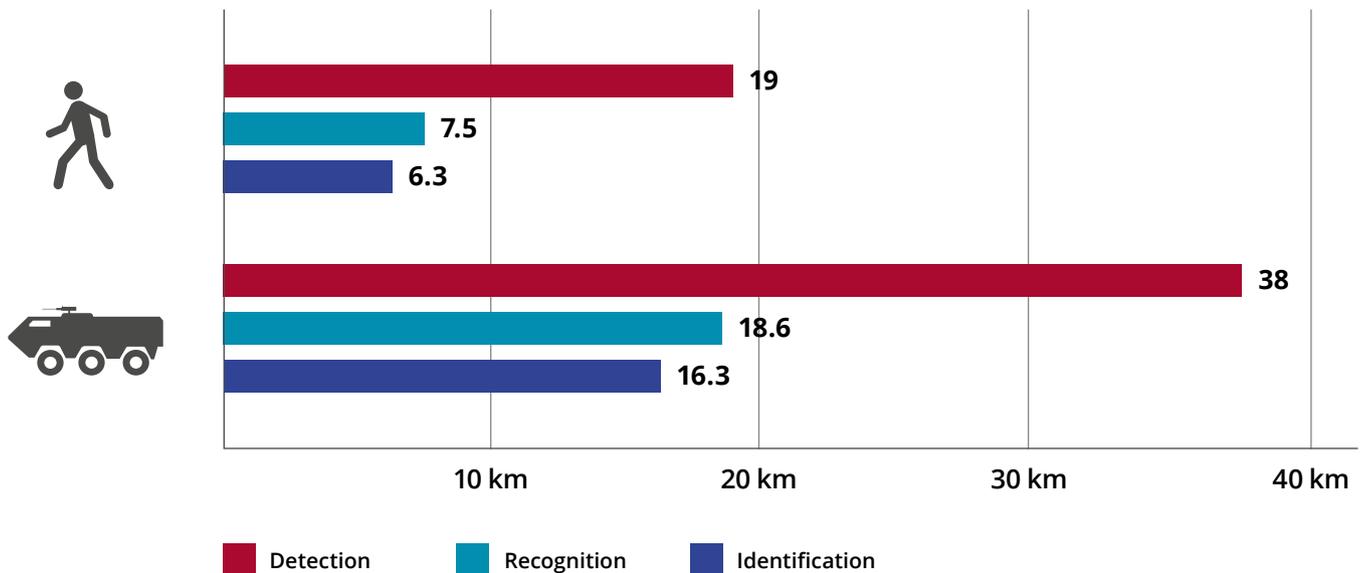
## LRS long-range surveillance with laser illumination

### Easy installation and operation

The VISIX LR-1000-PTZi camera and laser unit has been developed for easy installation and operation in complex surveillance applications. Video output is via IP and the unit is controlled via RS-485 with Pelco-D protocol. The unit can also be controlled locally with keyboard and has an analogue video output.



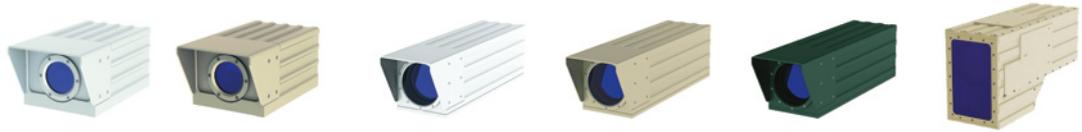
### Visual Range Performance



Conditions for SSIP CAM program: Contrast 30%, Over cast daylight, Sky ratio 3, Visibility 80km, 50% probability, NFOV 0,3° (H), Dimensions Man: 0.45m × 1.7m. Vehicle dimensions NATO target 2.3m × 2.3m

## Visix LRC Family

Comparison of key parameters for Visix family of medium-range and long-range zoom camera systems



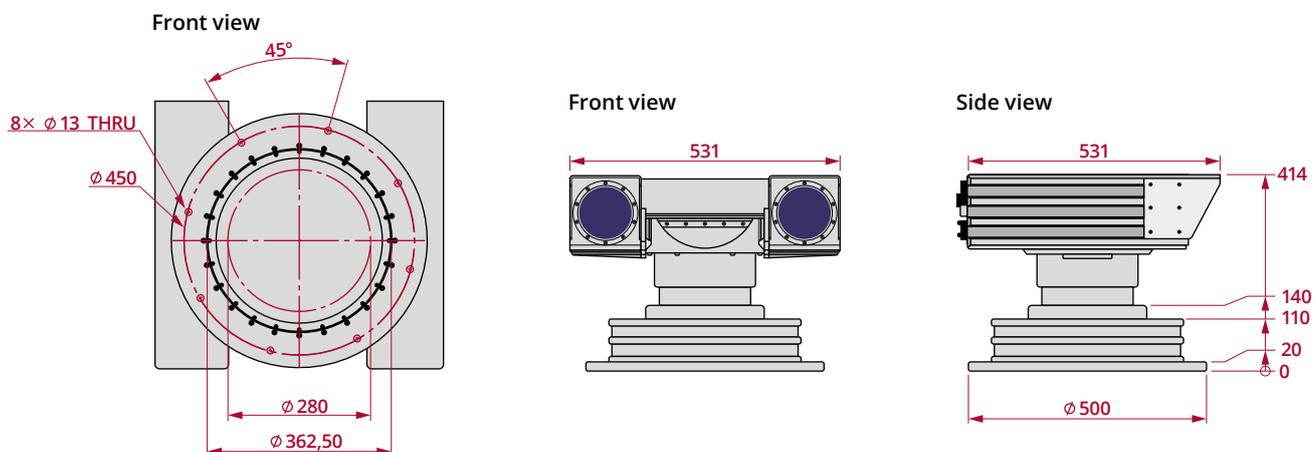
Parameter	LR-165	LR-200	LR-375	LR-750	LR-1000 LR-1000-HD	LR-1000-DUO LR / SR
Resolution CCD (PAL)	976 × 582 px	976 × 582 px	976 × 582 px	976 × 582 px	976 × 582 px 1296 × 736 px	976 × 582 px
Video output	Composite video	Composite video	Composite video	Composite CVBS, 1 Vpp, 75 ohm	Composite video HD-SDI	Composite CVBS, 1 Vpp, 75 ohm
Optical zoom range	5.5-165 mm (30×)	11-200 mm (18×)	15-375 mm (25×)	30-750 mm (25×)	30-1000 mm (33×)	30-1000 mm (33×) 14 mm
HFOV range	47° to 1.7°	32° to 1.9°	17° to 0.7°	9° to 0.4°	9° to 0.3°	*
Detection distance (human)	8800 m	11000 m	15700 m	18000 m	19000 m 19900 m	*
Recognition distance (human)	2200 m	2900 m	4600 m	6400 m	7500 m 8500 m	*
Dimensions – mm (W×H×L) excluding connectors	120 × 123 × 341	120 × 123 × 341	148 × 156 × 530.5	148 × 156 × 530.5	148 × 156 × 530.5	157 × 236 × 436.5
Graphical overlays	Yes	Yes	Yes	Yes	No	Yes

\* see product datasheet for detailed features and specifications

### Common features:

- All cameras are available in white, beige, green and black
- -40°C to +70°C operating temperature range
- True Day to Night Mode (switchable color/mono + Near-IR)
- High speed motorised zoom with Autofocus-On-Demand
- Hermetically sealed protective housing
- Highly accurate bore sight retention (line of sight stability)

### Mechanical outline and dimensions



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### Technical Specifications

<b>Image system</b>	
Sensor	High sensitivity 1/3" CCD sensor with complementary mosaic
Effective pixels (H×V)	976 × 582
Aspect ratio	4:3
Video output	Video CVBS
Focal length / Horizontal field of view	30 to 1000mm zoom (33×) / 9° to 0.3°
System video resolution	540 TVL (15% video modulation, with lens)
Sensitivity	0,030 Lux, 25% video, F4.5
Spectral response	Visible + Near-IR (Switchable IR-cut filter)
Signal to noise ratio	> 52 dB, AGC off
Gamma correction	0.45 / 1.0
Focus range	3 m to ∞ (Active back focus temperature compensation)
Image stabilisation	Optional
<b>Laser illuminator</b>	
Laser type / optical power	Laser diode / 8 W
Wavelength	808nm
Range	> 6km
Divergence	9.3° to 0.37° (synchronous to the camera zoom)
NOHD	29m for wide beam, 239m for narrow beam
MTBF	10,000 hours @ 100% ≈ 3 years @ normal operation
<b>Pan / Tilt</b>	
Speed, Pan (Azimuth)	Maximum 60° per second, Minimum 0.03° per second – continuous speed at 25°
Speed, Tilt (Elevation)	Maximum 60° per second, Minimum 0.03° per second – continuous speed at 25°
Position resolution	0.01°
Range of motion, Pan	365°
Range of motion, Tilt	+40° to -45°
Gear head backlash	None
<b>Electrical specifications and functions</b>	
Video output	Streaming IP (H.264 or MJPEG), Composite CVBS, 1 Vpp, 75 ohm
Commands/status	IP Pelco-D Protocol
<b>Mechanical</b>	
Overall dimensions - mm (W×H×L)	414 × 568 × 531
Mounting holes	8 × Ø13mm
Net weight	52kg
<b>Environmental</b>	
Operating voltage	24 VDC ±10% MIL-1275
Maximum current consumption	Day: 1.5A + 2A for heater, Night: 6.5A + 2A for heater
Maximum current consumption, moving	Day: 5.5A + 2A for heater, Night: 10.5A + 2A for heater
Connectors (power, control)	In accordance with MIL 38999
Shock/vibrations	Vibration 3.05 Grms and chock 11ms 30g
Operating temperature	-40°C to +70°C
Storage temperature	-46°C to +75°C
Surface treatment	Chromit AL TCP / Painting
Protection	IP 65
Bore- sighting retention	±0.2 mRad ≈ ± 2m @ 10km
Bore sight relation Camera/Laser	±0.5 mRad

\*Specifications are subject to change, without prior notice.

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