

Visix LR-1000 DUO

LRS dual long-range surveillance

Built for Border Control and Homeland Security



Features

- Dual long-range & short-range camera system
- High sensitivity 1/3" colour CCD camera
- Long-range zoom lens 30mm to 1000mm (33x)
- Fixed 20 degree WFOV
- Factory pre-aligned bore sighting
- Hermetically sealed housing
- Autofocus-on-demand
- Serial interface to control camera
- Active back-focus temperature compensation



VISIX LR-1000 DUO is an integrated unit, based on two highly sensitive colour CCD cameras, each with integrated zoom lenses. One camera for long-range (narrow FOV) and the other for short-range (wide FOV), providing the ideal configuration for day/night coastal surveillance, camp perimeter protection, protection of sensitive infrastructures and similar applications.

The VISIX LR-1000 DUO is designed to deliver high-performance images, even under the harshest conditions and in temperatures ranging from -40°C to +70°C.

Optical system

The optical system was 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 meters to infinity for the long-range channel. The short-range channel provides continuous optical zoom from 4.8 to 48 mm.

The "Auto-Focus on Demand" allows the camera to control the focus at the touch of a button.

The lens design incorporates oil-free, low-friction surfaces with special coatings. All lens elements are surface coated for high response throughout the visible spectrum.

Bore sighted

The VISIX LR-1000 DUO has factory prealigned bore sighting. The optical axis of each camera is aligned in parallel with the optical reference axis of the system, which makes for easy onsite installation.

Typical bore sighting deviation is ± 0.2 milliradians, the equivalent to staying within a target area of ± 20 cm, at a distance of 1 km.

Expanded Hi-Dynamic Range (XDR)

XDR is useful in conditions where there are large variations in brightness in the picture, for example, when there are very dark and very bright areas in the picture. XDR amplifies the signal level in dark areas and reduces it in very bright areas, thereby improving visibility in the picture.

Fog penetration

The fog penetration function is designed to automatically increase visibility under conditions such as fog, haze and fire smoke. The camera continuously analyses the picture and when it detects a low-contrast condition, it will automatically enhance the contrast.

Digital Noise Reduction (DNR)

The Digital Noise Reduction in the VISIX LR-1000 DUO camera system analyses the video image and reduces the noise, particularly in low-light conditions. The analysis is based on a 2- and 3-dimensional algorithm.

Optional Wiper and Sunshield

VISIX LR-1000 DUO can be configured with a wiper on the side for applications where probability of rain, sea splash or similar conditions are high.

An optional sunshield is also available.

fibrenetix

Visix LR-1000 DUO

LRS dual long-range surveillance

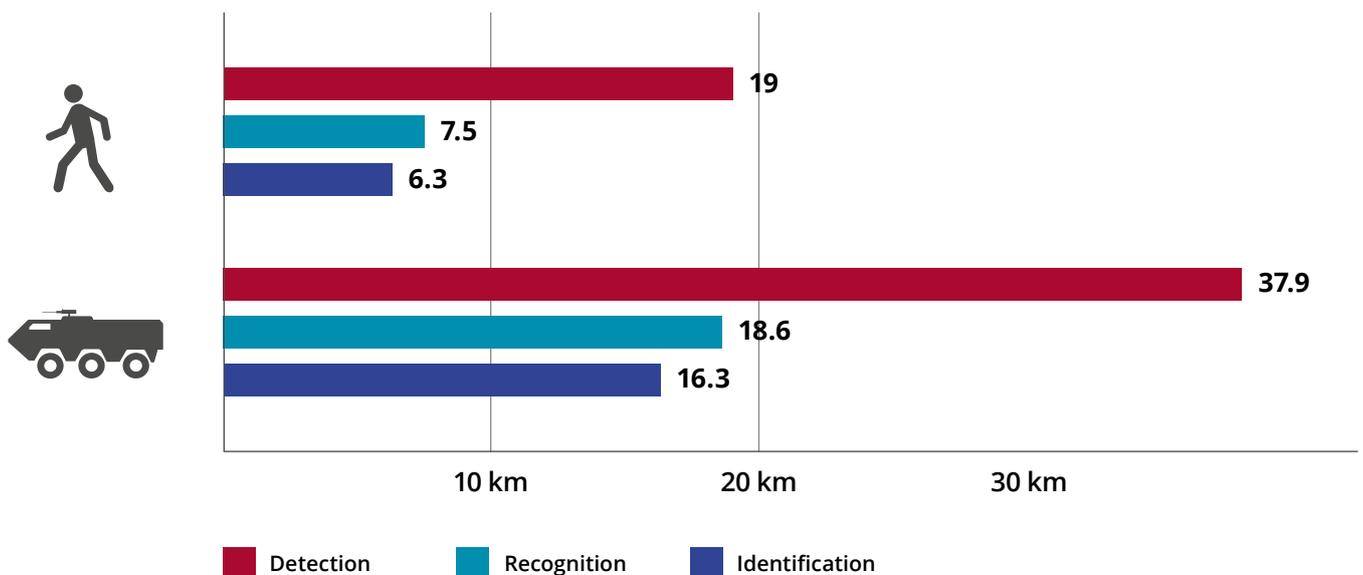
Graphic overlays

The camera 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 status of weapon systems and symbols, such as hair crosses or other reticles. Programming the graphic overlay engine is done via the RS-422 / CAN-BUS interface. Graphic overlays can be customised to suit specific user requirements.



Photo by Tracy Q / CC BY

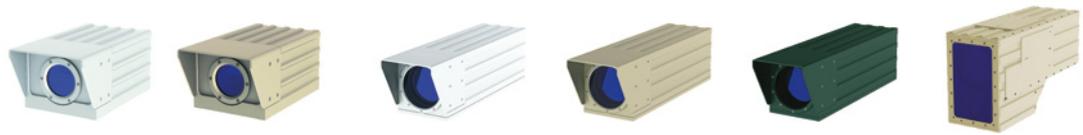
Visual Range Performance



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

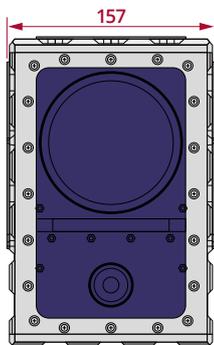
* see technical specifications

Common features:

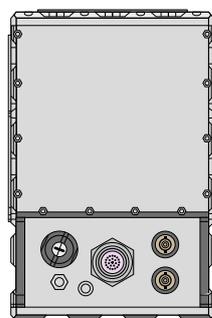
- All cameras are available in white, beige, green and black
- -40°C to +70°C operating temperature range
- True Day to Night Mode (switchable color/mono + Near-IR)
- High speed motorised zoom with Autofocus-On-Demand
- Hermetically sealed protective housing
- Highly accurate bore sight retention (line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

Mechanical outline and dimensions

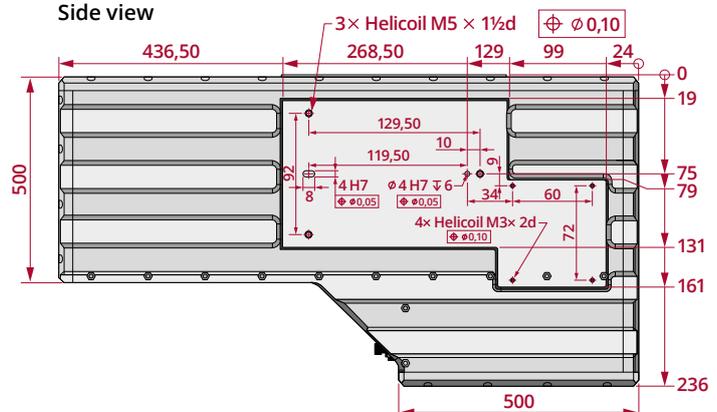
Front view



Rear view



Side view



Visix LR-1000 DUO

LRS dual long-range surveillance

Technical Specifications

	Long-range zoom	Short-range zoom
Image System		
Sensor	High sensitivity 1/3" CCD sensor with complementary mosaic	
Effective pixels (H × V)	976 × 582	
Aspect ratio	4:3	
Video output	Composite CVBS, 1 Vpp, 75 ohm include SBS (side by side)	
Video resolution, CVBS	560 TVL (15% video modulation, with lens)	
Sensitivity	100 mLux, 25% video, F4.5	7 mLux, 25% video, F1.2
Spectral response	Visible	
Signal to noise ratio	> 52 dB, AGC off	
Scanning system	2:1 Interlac	
Horizontal frequency	15.625 kHz	
Vertical frequency	50 Hz	
Focal length	30mm to 1000mm zoom (33×)	14mm
Field of view	Narrow: Horizontal 0.28°, Vertical 0.21° Wide: Horizontal 9.3°, Vertical 7.00°	Horizontal 20°, Vertical 15°
Focus range	3m to ∞	2.0m to ∞ (narrow FOV)
Iris range	f/4.5 to 1400 (including spot filter) at WFOV	f/1.8 to 360 including Spot filter
Zoom control, travel time	≤ 5 seconds (25°C, both ways, wide to narrow FOV)	No zoom
Focus control, travel time	≤ 8 seconds (25°C, both ways, 2.5m to ∞)	Not applicable
Functions		
Electronic shutter, fixed	OFF, 1/50 to 1/10,000 seconds	OFF, 1/50 to 1/10,000 seconds
Gamma correction	0.45 / 1.0	
Automatic gain control range	0 to +36 dB	
White balance	Automatic, Tracking	
Noise reduction	2D and 3D Digital Noise Reduction	
Fog penetration	Image contrast enhancement	
Digital zoom	Up to 2 × zoom	
Auto focus	On demand	
Video overlays	On screen text and reticles (customisable)	
Configuration, serial interface	RS-422 (galvanic separation), VISCA protocol	
Mechanical		
Overall dimensions - mm (W × H × L)	157 × 236 × 436.5	
Net weight	52kg	
Housing material	Aluminium with corrosion protection coating	
Protective housing integrity	IP 65	
Connector (power, data, control)	22-pin circular - In accordance with MIL 38999	
Bore-sighting retention	±0.2 milliradians (at the prime horizontal FOV)	
Environmental		
Operating voltage	15 to 36VDC (power supply ground isolated from camera housing)	
Power consumption	< 15W	
Operating temperature / humidity	-40°C to +70°C (see note) 20% to 95%, non-condensing	
Storage temperature	-40°C to +70°C	
Vibration	3,05 Grms	
Shock	30g at 6ms	
Inside Pressure	0,2 bar	

*Specifications are subject to change, without prior notice.