RadarVision

Radar Data Converted to a Video Stream

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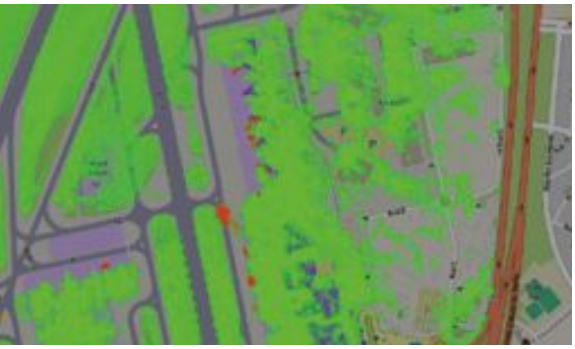
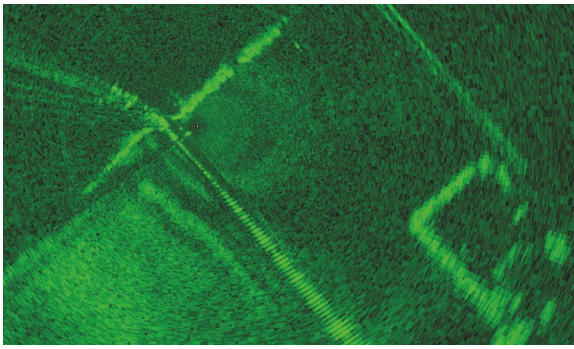
RadarVision

A Video Management System (VMS) interfaces to analog and IP cameras to show live video. Increasingly, radar is being incorporated into security solutions, so the question arises of how the radar can be visualised in the VMS. RadarVision is a novel solution to this problem.



“ RadarVision enhances situational awareness by incorporating radar data into the security display ”

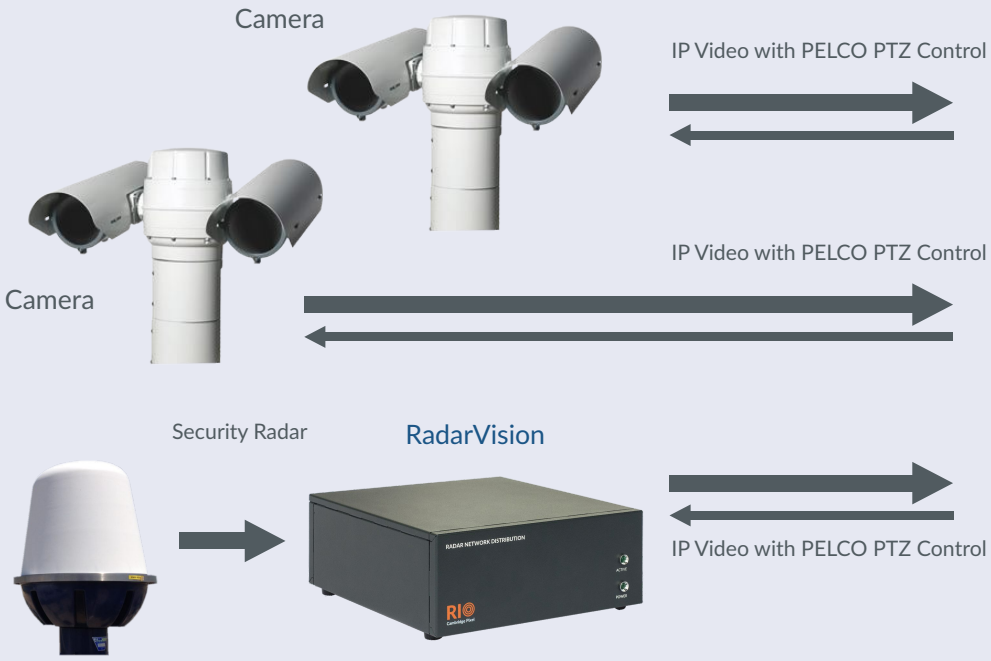


RadarVision connects to a radar and converts the radar data into an IP data stream that is identical to that from a camera. This means that any VMS can easily interface to a radar and display the radar picture.
RadarVision can show a basic image of the radar picture, or it can superimpose the radar data on a map and display a composite picture, allowing targets from the radar to be seen in context.
RadarVision presents its data in a camera-like IP stream, but also responds to instructions from the VMS to emulate a PTZ camera. An operator can move a joystick, as if controlling a PTZ camera, to interact with the radar picture.
RadarVision interfaces to a wide range of security, maritime and specialist radars to allow a situational awareness picture to be presented on a VMS or viewed on any Windows or Linux computer.

RadarVision Key Features

Available as a software application or a box-level product, RadarVision provides a wide range of radar acquisition, processing and display options that incorporate Cambridge Pixel's award-winning radar technology.

- Software application or compact desk-top box solution
- Radar input from network or signals
- Radar input as video or plot data
- Radar processing functions
- Track display
- Scan conversion of radar data to plan view
- High fidelity radar image
- Full control of radar image presentation
- Geo-referenced map underneath the radar
- User defined maps
- Overlay symbols
- Web control interface for confguration
- Fully autonomous operation
- ONVIF Compliant
- Multi-stream output (for example, separate main and zoom view)
- RTSP video output at SD or HD resolutons
- PELCO control of radar video (pan, zoom of image)
- Direct connection with Video Management Systems
- Radar display with any media player
- No client side software licensing



The VMS system receives inputs from multiple cameras, including RadarVision

RadarVision sits between the radar and the display system. It receives radar data (video, plots or tracks) and converts the data into an image with maps and symbols which is then sent to the video display system.

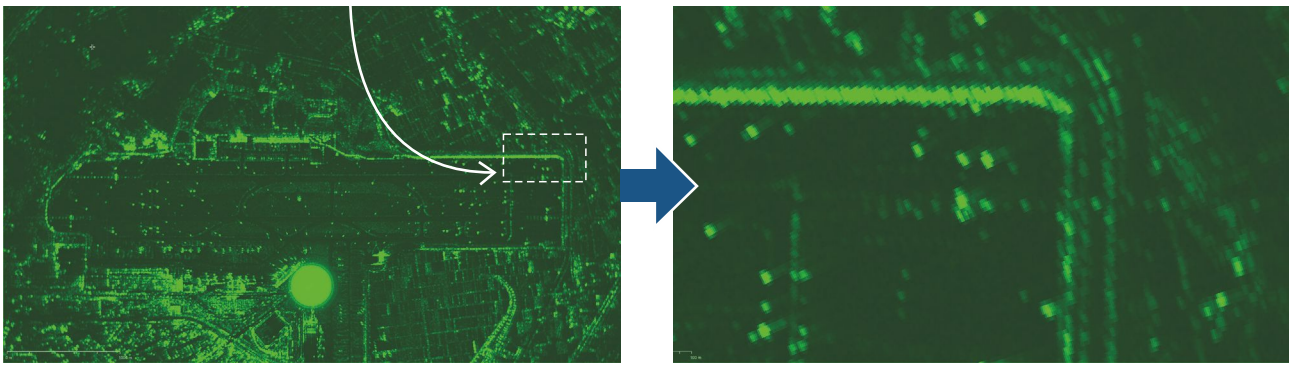
"RadarVision allows virtually any radar to be interfaced to a video display system, either a VMS or a standard computer running a media player"

RadarVision Control

A PTZ camera can be moved using joystick input from the video display system. RadarVision receives the same joystick instructions through a PELCO-D interface to manipulate the radar image. An operator is able to pan and zoom the radar picture using the joystick. The radar picture is automatically rescaled in real-time to provide radar data at the optimum scale. The operator is able to interact with the radar image in exactly the same way, and through exactly the same interface, as if controlling a PTZ camera. The full resolution of the radar data is available on the display.

The operator observes an area of interest and uses the VMS's joystick to select it and zoom in for a closer view.

RadarVision updates the image to reflect the new area of interest. The view change is fully interactive.

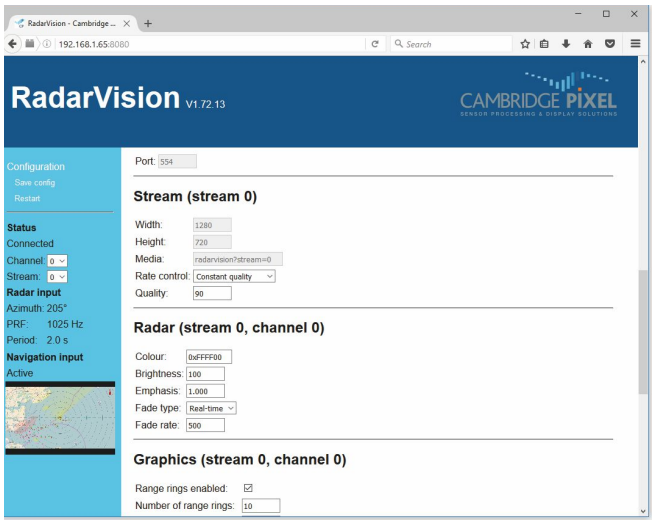


Radar Interfacing

Cambridge Pixel has many years of experience interfacing to different radar types, including maritime, security, navigation and specialist military radars. The radars may provide data as analogue signals or as network data, either in a standard or proprietary format.

Configuration

A standard web browser may be used to configure and monitor RadarVision. The browser window allows RadarVision to be configured, including the desired output details and any intermediate processing of the radar prior to display.



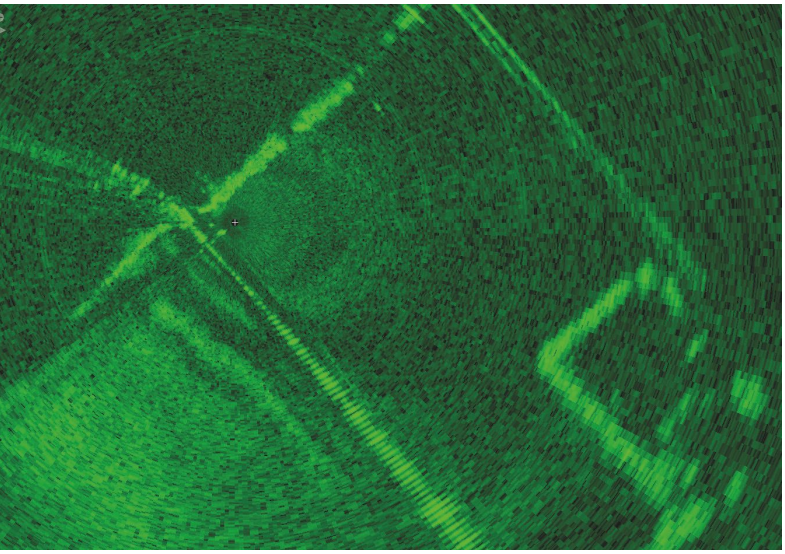
RadarVision adds high fidelity radar imagery into a security display, allowing camera and radar to be viewed together. The high-resolution radar image may be zoomed and panned using an on-screen or physical joystick.

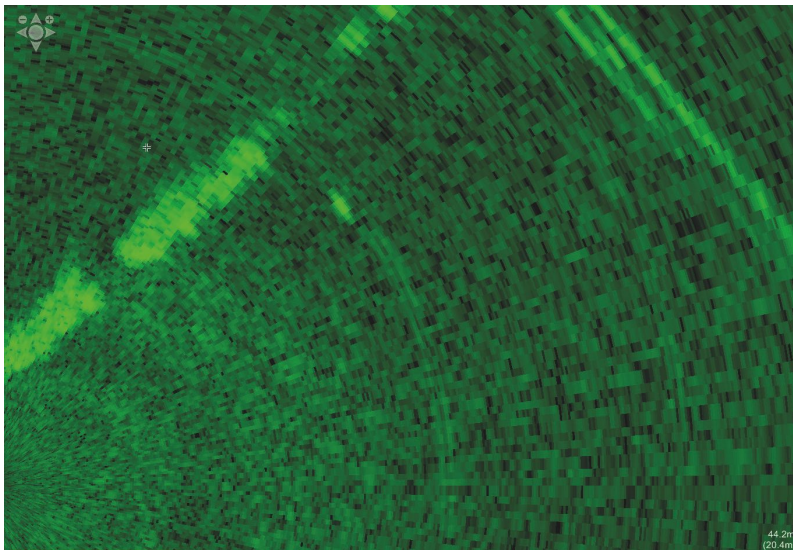
“ RadarVision can display a simple radar image or a complex multi-layered display of radar with maps and targets ”

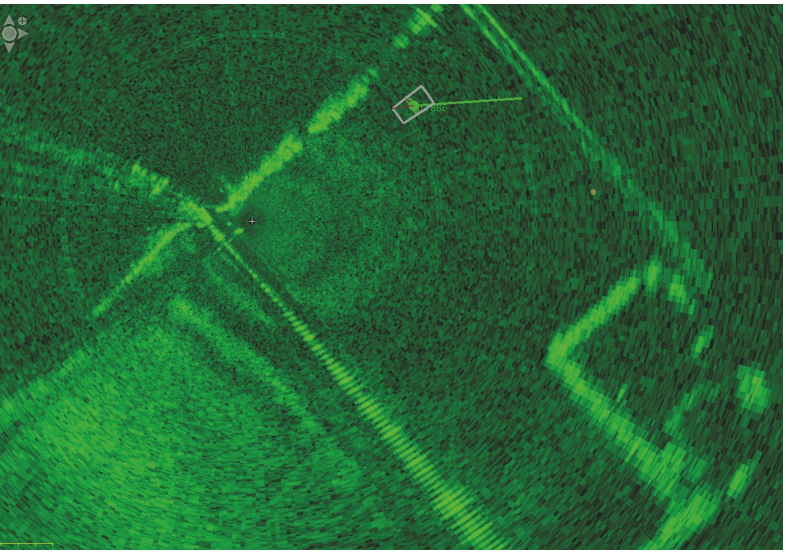
RadarVision Display

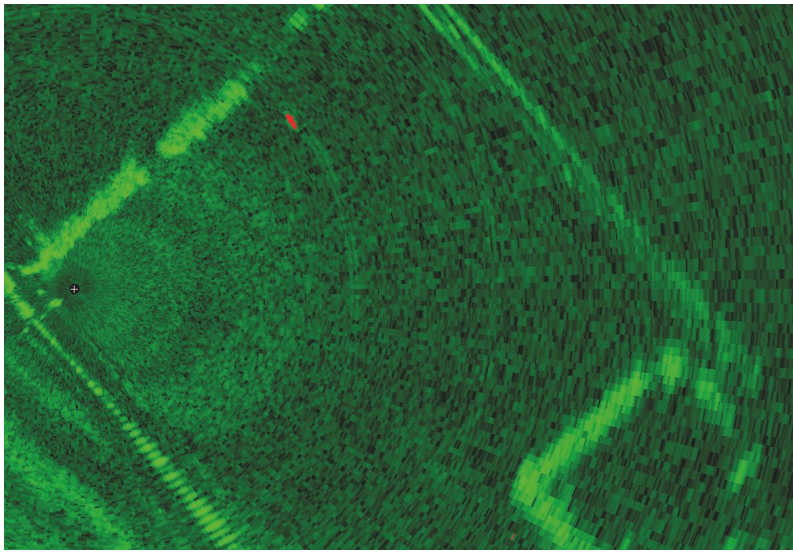
RadarVision takes the radar data from the sensor and creates a picture. The radar picture can comprise any combination of the following:

- Radar video – If the radar provides raw detection video, this can be converted into a radar image
- Radar plots – If the radar provides plots (detections) these are shown as symbols
- Radar tracks – If the radar provides tracks (correlated detections) these are shown as symbols
- Map – A map can be shown as an underlay to the radar. The map can be customised to show only essential features, or can be a geo-referenced map downloaded (and cached) from the Internet
- Symbols and graphics – Overlay symbols can be added to annotate the radar image to provide useful information such as range markers, range rings and user-defined overlays.









High resolution radar display allows the full fidelity of the radar to be displayed (top left image) with real-time updates as the radar sweeps. The image can be zoomed to see close-up detail (top right image). If plots or tracks are available (either from the radar directly or from an intermediate tracker) these can be displayed (bottom left image). Radar processing can be enabled to provide an enhanced display of moving targets (shown in red on bottom right image). The display can be configured with any combination of raw video, detections, tracks, maps and clutter-processed video.

Product Specifications		
Desktop Unit	Size	200 x 200 x 80mm
	Weight	1kg
	Power input	110-230 VAC
	Temperature	0 to 40C
Sofware Application	System requirements	Windows 10 (consult factory for further system requirements)
Radar Input	Signals	Wide range of radar signal types supported using HPx-200 series hardware. Consult HPx-200 data sheet for details of radar input signals supported.
	Network	Supports ASTERIX CAT-240 and SPx plus many proprietary standards for video, plots and tracks (consult factory for details)
	Test sources	Includes test pattern generator and moving target scenario generator
	Multiple inputs	Up to two independent radar inputs may be specified and combined on each output stream
Track Input	Format	ASTERIX CAT-10, 48 or SPx (other proprietary plot and track formats are supported; consult factory for details)
	Display	Track symbols displayed as overlay
Other Inputs	Navigation input	NMEA-0183 input (network or serial) for GPS location and moving platform support
Radar Processing	Radar pre-processing functions	Gain/offset adjustment (HPx-200 input) Optional correlation for data reduction Area blanking and coastline blanking STC/FTC filtering Suppression of interference from other radars
Radar Display	Radar scan conversion	High resolution radar scan conversion at up to HD resolution
	Zoom and pan	Continuous zoom and pan
	Radar colour	Configurable colour and brightness
	Persistence	Trails or new data only
	Clutter processing	Static clutter removal
Video Output	Format	RTSP H.264 encoded video
	Resolution	Programmable up to 1920 x 1080
	Frame rate	Up to 30fps
	Bitrate	Configurable to trade resolution for network load
	Number of outputs	Up to two independent output streams
	Graphics	Range rings and range scale Own ship marker and North marker
Configuration and Control	Image control	PELCO-D interface supports pan, tilt and zoom of radar image and PELCO presets to implement shortcuts to display functions
	Configuration	Browser interface for initial configuration and monitoring
Mapping	User maps	User-defined maps loaded from files
	Geo-referenced	Tiled maps (downloaded from the Internet then cached)

Product Options		
RadarVision-SW (340-500)	A software application that can be installed on an existing computer (Windows 10). If the radar provides network data then no special radar interface hardware is needed. If the radar is providing signals (video, trigger, azimuth) then Cambridge Pixel's HPx-200, 200e, 250 or 400 radar interface card is needed.	
RadarVision-SL (340-502)	A software application that can be installed on an existing computer (Linux). If the radar provides network data then no special radar interface hardware is needed. If the radar is providing signals (video, trigger, azimuth) then a Cambridge Pixel radar interface card is needed.	
RadarVision-B (340-100)	A compact desktop box product. It interfaces to the radar over a network interface. Consult Cambridge Pixel to confirm compatibility of your network radar.	
RadarVision-BR (340-200)	A compact desktop box product that interfaces to radar signals using an internal interface card. Consult Cambridge Pixel to confirm compatibility of your radar signals.	

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