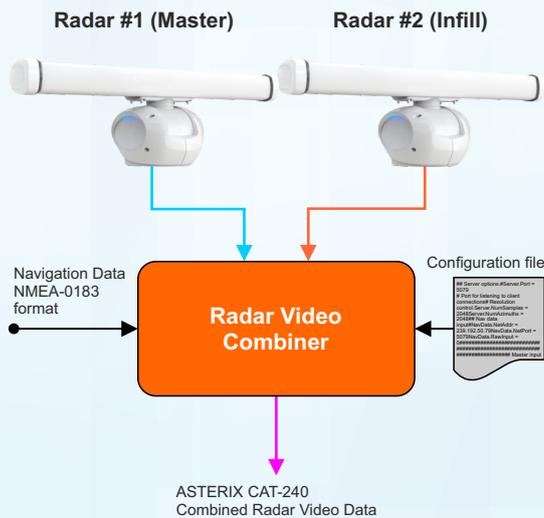


# Radar Video Combiner

## Combine Two Network Radar Video Streams Into One



### Key Features:

- Ready-made application for Windows 10 or Linux
- Dual ASTERIX CAT-240 network input
- Combined ASTERIX CAT-240 network output
- 8-bit and 16-bit video sample support (input and output)
- Raw or Zlib compressed video data
- Low latency for master radar video
- Automatic failover between input videos
- Navigation data input for north/heading-up adjustment
- Support for North-up and heading-up inputs and output
- Mosaicking of overlap coverage
- Configuration file support
- Simple network socket control interface
- Heartbeat messages
- Consult factory for advanced API option

Cambridge Pixel's Radar Video Combiner application takes in two streams of network radar video and combines them into a single, unified radar video output. The Radar Video Combiner is the ideal solution for merging independent radar feeds together, to form a seamlessly-blended data stream.

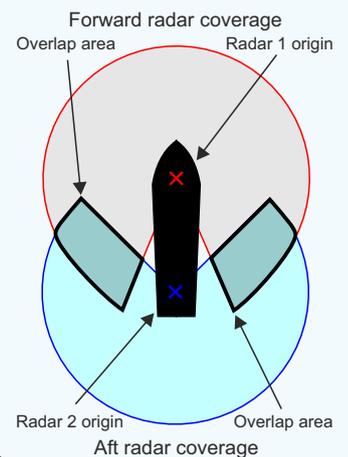
Output radar video data is still in the polar domain and therefore appears as if it were a real radar feed to any receiving software. Any display system capable of receiving and displaying the input video streams will be capable of receiving and displaying the Radar Video Combiner's output.

Additionally, since the output network stream is fully configurable, independently of the input streams, the Radar Video Combiner may be used as a lightweight distribution server.

The radars providing the input videos may be completely independent, operating asynchronously and physically offset from each other. Additionally, there is no requirement for the radars to be operating at the same range or even to have the same rotation rate. The output data is slaved to the rotation of one of the radars, designated the "master" radar, in order to minimise latency.

Where the radars have overlaps in their coverage the Radar Video Combiner can select which data is used, effectively mosaicking the inputs together and preventing timing artefacts. Furthermore, video samples may be "tagged" with the input source, allowing receivers to know which radar contributed to the sample and process/display them differently if required.

In the event of loss of either input channel, the Radar Video Combiner degrades gracefully, outputting the best available data at the time. This means the Radar Video Combiner may be used to offer a level of redundancy if fed with inputs derived from the same radar source. Alternatively, it can be used as an automatic failover switch between a main radar and an auxiliary one.

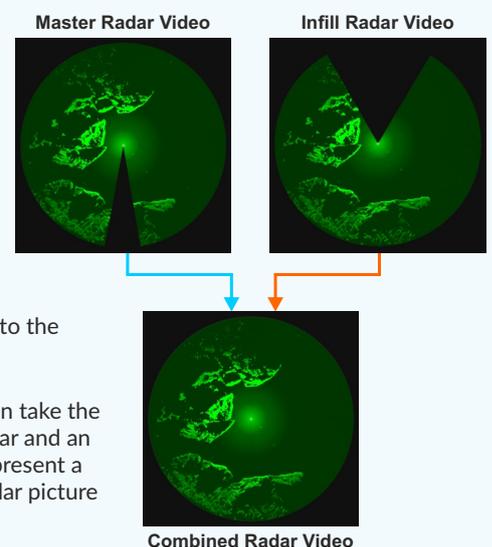


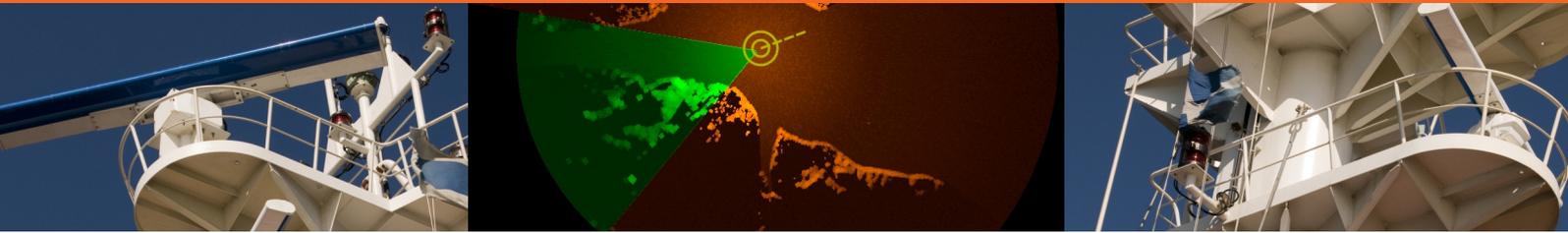
### Infill Solutions

A typical use for the Radar Video Combiner is to present an operator with a radar image for the full 360° coverage where the main radar's coverage is interrupted by a persistent obstacle.

For example, on board a ship the navigation radar may often have a blind sector due to the ship's superstructure.

The Radar Video Combiner can take the video from the navigation radar and an infill radar, mounted aft, and present a continuous, uninterrupted radar picture to the display.





## Radar Data Format and Control

The radar video packets are output in ASTERIX CAT-240 format, which is published, so may freely be received and decoded by external code. The data format is also fully compatible with Cambridge Pixel's SPx software, meaning that it may be received and displayed by a number of ready-made applications, as well as being supported by the SPx Development library.

Lossless Zlib compression may be employed in the Radar Video Combiner output to reduce the network bandwidth, without loss of video quality.

The Radar Video Combiner is configured at start-up via a human-readable configuration file. Runtime control, if required, is then provided via a simple network socket interface. The SPx software library is available to provide a convenient C++ control class for this interface.

The standard Radar Video Combiner is supplied as a ready-made application; however, the functionality may also be provided to developers in the form of a C++ API. Please consult Cambridge Pixel for details of this option.

## Specifications

<b>Operating Systems:</b>	Windows 10, Linux
<b>Number of Input Channels:</b>	2 x ASTERIX CAT-240
<b>Number of Output Channels:</b>	1 x ASTERIX CAT-240
<b>Navigation Data Input:</b>	NMEA-0183 sentences ("HDT"/"HDG", "RMC") via network
<b>Radar Video Data</b>	
<b>Format:</b>	ASTERIX CAT-240
<b>Resolution:</b>	Programmable in range and azimuth
<b>Compression:</b>	Uncompressed, Zlib compressed
<b>Sample Depth:</b>	8-bits or 16-bits per sample
<b>Referencing:</b>	North-up, heading-up (independent control for inputs and output)

## Combiner Processing

<b>Programmable Input Gains:</b>	Yes
<b>Programmable Input Thresholds:</b>	Yes
<b>Mosaicking of Overlap Coverage:</b>	Yes
<b>Automatic Input Failover:</b>	Yes
<b>Output Timing:</b>	Slaved to master input

## Control

Configuration file, network control protocol (SPx library support)

## Software Support

- Open format data input and output
- SPx Development Library (C++ library)
- RadarView, RadarWatch, ASD-100 and USVx Client Display Applications
- SPx Server

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