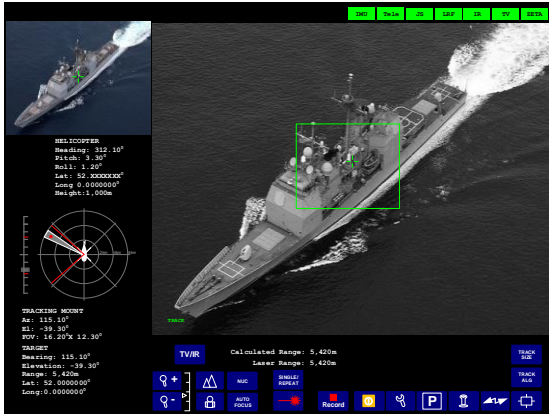


Comprehensive video management software tool

Electro-Optical System Control

GRIP View is a comprehensive video management software tool enabling the complete system control of electro-optical (EO) systems. The application is comprised of a number of standard software modules that can be custom configured to meet end user requirements. This modular approach enables the rapid and cost-effective deployment of sophisticated video management solutions with customers only needing to purchase those modules required for their particular-application.

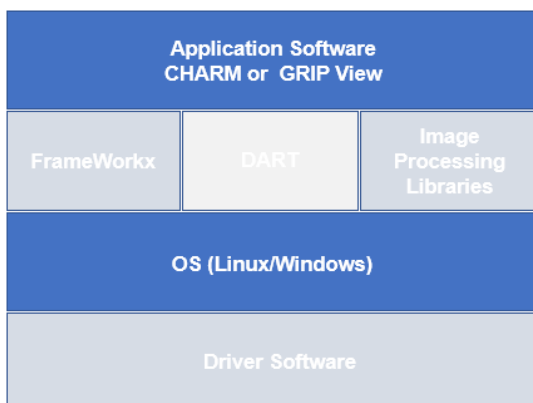


GRIP View Graphical User Interface

Flexible software architecture

The DART (Detection & Acquisition, with Robust Tracking) target tracking product is an embedded software- based tracker that can use either a Linux or Windows based systems for video tracking and image processing applications.

For OEM customers we can offer custom solutions tailored for specific or non-standard hardware platforms. GUI and Non GUI versions provide software that can also be tailored to meet specific customer requirements. A set of image processing libraries can be provided with example code for features such as video encoding, decoding and video streaming. Third party image processing software can be integrated with applications running on suitable CHARM hardware using the FrameWorkx software.



GRIP View structure

Key processing options:

DART: Software Video Tracking

- Multiple object moving target detection and tracking.
- Highly robust single target tracking modes for edge, centroid, and correlation tracking.

- Target Classification (DNN based) including flexible weight variants.

Panoramic Display

- High resolution 360° or sector persistent situational awareness from panning sensors or multiple TV/IR cameras.
- Real-time stitching with blended overlap regions performed on live video feeds.

Video Streaming

- Customized SD/HD video and metadata streams.
- IP Video server provides streaming over 100 or 1000 Base-Ethernet networks.
- Standards include Stanag 4609, RTSP and Def Stan 00-82.

Video compression and recording (H.264, M-JPEG)

- Recording and playback of multiple video channels.
- SD & HD video supported.
- Parallel recording of sensor metadata.
- Recording of full screen.

Electronic Image Stabilization (eStab)

- Compensates for sensor and platform movements using a combination of image processing algorithms and data from roll sensor inputs.

Image Enhancement

- Pixel level fusion of multiple video streams, including GPU accelerated rescaling and alignment algorithms.
- Contrast enhancement by high pass filtering and local contrast stretching.

Remote Access

- Remote operation and system control over LAN/WAN networks via UDP protocol.

Remote Designation

- Integration with GPS and data sources such as radar and AIS for target designation.

Electronic Image Stabilization (eStab)

- Compensation for sensor and platform movements using a combination of image processing algorithms and data from roll sensor inputs.

Multi-language support

- Software can be adapted to provide multi-language support.

Integration with IMUs and terrain databases

- Ability to provide full 3D target geo location.

Ballistic Computation and Geodetic positioning

- Calculation and modelling.

GRIP Hardware

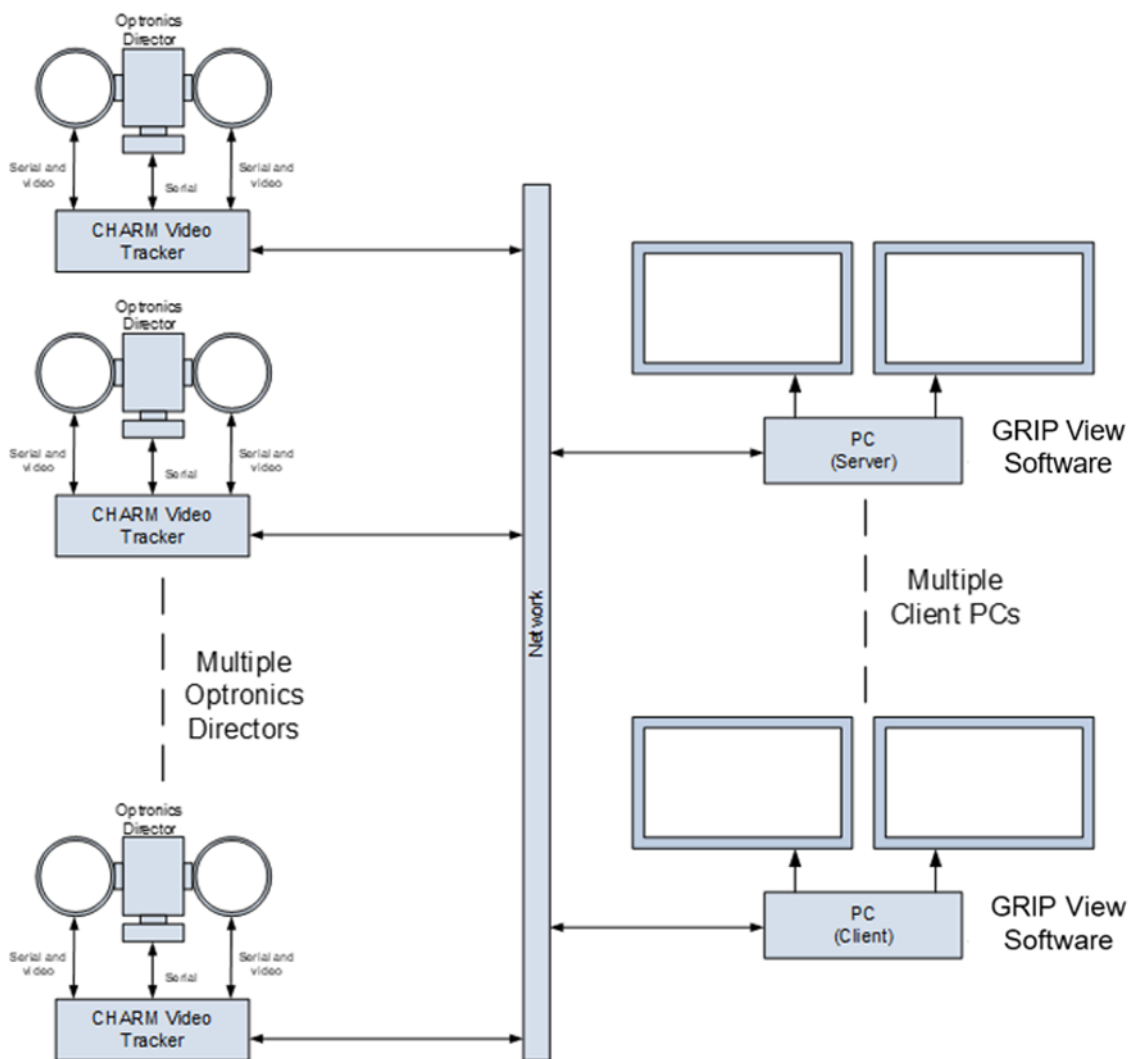
GRIP View has been designed to make use of the full capabilities of our ruggedized GRIP Computers, including the performance gains enabled by GPGPU processing, and allow seamless integration with GRIP DVR. This combination of hardware and software provides a complete rugged EO video management system suitable for deployment on a variety of manned and unmanned air, sea and land platforms.

In a Networked topology, the GRIP View software can run on a PC which is connected to one or more Optronics Directors through a network. Local control of the Optronics Director is performed using a Vision4ce CHARM Video Tracker which connects to the video and data interfaces of the Optroni

Director and then provides a network interface for remote control and output of steamed video.

Multiple PCs running GRIP View are also possible. In the example below the first PCs acts as a server to secondary client PCs. Here the server responsibilities include:

- Overall system control including negotiation and prioritisation of client requests
- Video recording
- Video distribution
- Systems diagnostic
- Panoramic image formation and storage (Optional)
- Interfacing to target designation devices, e.g. Radar, AIS (Optional).



Example system architecture showing a GUI based client solution

Designed and Manufactured in the UK

✓RoHS CE FC