kappa

Kappa Defense Land

Superior Vision and Awareness for Defense Vehicles

Armor Eye

DVE and SAS Systems

- Superior day & night vision
- High-resolution, multispectral sensors
- Full situational awareness under the hatch
- Fully digital real-time performance | ultra-low latency
- Outstanding DRI performance
- Ruggedized and MIL-STD qualified
- Scalable solutions | retrofit & new programs

realize visions .

Leading edge DVE & SAS solutions for Defense Ground Vehicles

Kappa's advanced Driver Vision Enhancer (DVE) and Situational Awareness Systems (SAS) enable the superior, efficient and secure operation of Defense Ground Vehicles while the crew operates safe under hatch.

Fully digital signal processing with up to 60 frames per second, optimized horizontal and vertical viewing angles, and excellent multi-sensor views with various overlay capabilities provide an outstanding, state-of-the-art situational crew awareness for ultra-fast reactions and greatly improved mission and crew safety. Our reliable vision systems gained a high reputation and are greatly welcomed by defense crews worldwide.

We are your partner: Let us discuss your DVE/SAS requirements and shape the best functional and economic system solution for you. We will support you with system integration and stand at your side from initial trails through the whole system service life.

Enhance your life critical mission!

- Superior vision capabilities for day and night situations
- Long range threat detection, recognition & identification
- Enables ultra-fast decision making
- Low noise, high dynamic against nausea & fatigue situations
- Designed for the whole life cycle, sustainable investment

Field-proven design: thinking ahead!

- Rugged and MIL STD 810/MIL STD 461 qualified designs
- Modular and scalable product approach
- Long-term availability and service support
- Interfaces designed for easy integration and service
- Road homologation roadmap available
- Constant product & system evolutions for future upgrades
- ITAR-free component selection and design

Use the best powerful technology!

- Fully digital sensor, extremely sensitive DVE/SAS solutions
- F-HD low-light CMOS day and advanced thermal LWIR night sensors
- Day & night vision using an extreme broad spectral range
- Ultra-fast processing for lowest glass to glass latency
- Continuous, crisp and sharp images even under heavy vibrations
- DRI / FoV characteristics, optimized and fit for mission
- High-performance multiple camera stitched views
- Image fusion and tactical overlays enhance operability
- Powerful image processing unit (VDU) for up to 20 camera signals
- Wide range of rugged control displays clear and crisp image under all conditions

Scalable turnkey solutions for tracked & wheeled vehicles, retrofit or new programs!

Main References | In the Field

Tracked high performance pioneer and engineering tank

- Multi-camera 360° DVE/SAS and Excavator
- Enhanced side line coverage
- Day and night operation
- Qualified for arctic environment
- In service at Royal Norwegian Army

Advanced tracked infantry fighting vehicle

- Multi-camera systems for 360° DVE/SAS coverage
- Day and night operation
- Extreme fast mobility and high-speed manoeuvre
- In service at several nations

Wheeled armored personnel carrier, IFV, NBC, C4I and ambulance platforms

- Optimized DVE indirect driving system
- Day and night operation
- Integrated rear-view mirror solution for best awareness on public roads
- In service at multiple nations

Combat proven 4x4 for protected mobility in multiple mission roles

- Optimized DVE indirect driving system
- Day & night vision for front and rear with sensor fusion capability
- Optimized field of view performance for high driving
- IR illuminator option
- Safe and alert driver guidance lines
- In service at multiple nations

Superior vision and awareness

Versatile Armor Eye product line for rugged DVE & SAS solutions

Modular camera range for scalable solutions. All system designs are based on high-performance and qualified ruggedized components.

Kappa's Armor Eye product family of advanced rugged camera solutions offers maximum flexibility for customized and program-specific DVE and SAS designs and integrations. The high-performance vision solutions can be specifically configured according to the vehicle type and the mission tasks. For day and night operations scenarios we offer our affordable wide dynamic Entry Level (EL) and very sensitive High Quality (HQ) camera products. Benefit from our project-specific flexibility to adapt view angles and DRI performance for the best operational performance.

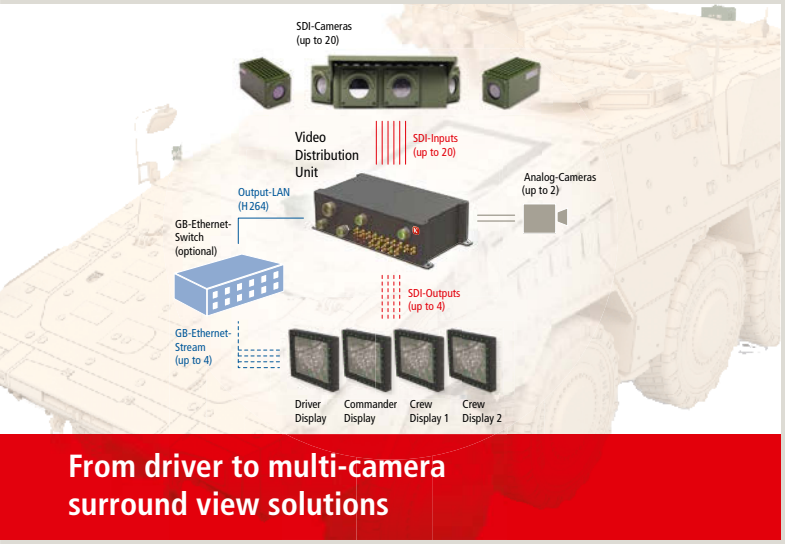
Armor Eye MIL-STD qualified camera portfolio

Single

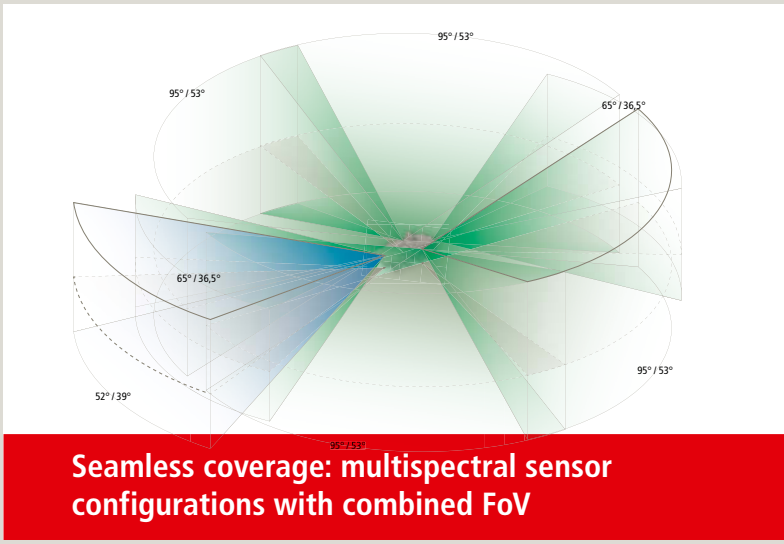
Duo parallel

Duo angled 180°

Quad



From driver to multi-camera surround view solutions



Seamless coverage: multispectral sensor configurations with combined FoV

Advanced Digital Video Distribution Unit (VDU)

DVE systems with up to two cameras can be built as direct camera-monitor systems (CMS). For the integration of a larger number of cameras, our advanced VDU represents the signal processing core for all Kappa's turnkey AE DVE & SAS systems. This high-speed and digital FPGA based processing core offers multiple HD-SDI camera inputs and several HD-SDI outputs for lowest system latency performance glass-to-glass. Additional control and H.264 IP streaming interfaces greatly increase the VDU flexibility and enable information sharing between vehicles. Controlled by the crew or the gearbox switch, the VDU processes the selected camera channels, mixes and scales multiple camera information, performs driver assistance and tactical overlays of text and icons, and finally routes the selected view data to the respective cockpit monitors. Best in class signal processing techniques and scaling algorithms guarantee the low latency generation of crisp and sharp images even under severe difficult ambient light conditions.

Installation (example)

"We have never had a better driver vision system! We are now using this DVE-system instead of the standard angle mirrors to drive safely, ergonomically and fast under the hatch."

Customer Experience

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In the field: next-level driver vision for safe operations

Video capturing

Selectable preconfigured views for maximum operational performance

Superior night view driver experience

Outstanding DRI capabilites, day and night

Visit our website for product videos and video footage from the field!

Your partner !
Kappa optronics | Defense Land

Kappa has over 40 years of experience in developing and manufacturing application-specific cameras and vision systems in extremely robust and certifiable designs for harsh environments. The Defense Land business unit focuses on high-performance driver vision enhancers and situational awareness solutions as well as inspection systems for high-caliber gun barrels. Our zero-latency, multispectral vision solutions with day and night vision are based on high-quality LWIR and CMOS sensors. Modularity, scalabilty and adaptability characterize our systems.

In cooperation with our customers our DVE and SAS solutions are designed and deployed for best vision performance and reliable operation during critical operations. We achieve safety levels for approvals in regulated markets with standardized design assurance procedures in hardware and software development, e.g., up to SIL 2/ASIL-B/DAL-B, ISO 26262, MIL-STD 810/461/1275, NATO Supplier Code C4792.

Extremely rugged design | Scalable Solutions | High integration capability | ITAR-free | Certifiable maximum safety | Ultra-low latency | Long-term availability | Day & night vision, 24/7

ARMED WITH POWERFUL VISION

kappa

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