



**AGRITECHNICA**  
**PRESS KIT**  
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## ABOUT ACTIA

The ACTIA Group is an Intermediate-Sized Company created in 1986, a family-owned and international mid-sized company whose head office is located in France. This family character guarantees the sustainability of the Group and its independence in an ever-renewed entrepreneurial dynamic. ACTIA's business is to design, manufacture and operate electronics for the management of systems in the particularly demanding fields of automotive, rail, aeronautics, space, defense, energy and telecommunications.

ACTIA's commitments are expressed in the Group's ambitious orientations in the service of societal issues: mobility, connectivity, security and the environment. Mastery of the production and design of ACTIA products is a real guarantee of quality. All of the group's employees share this quality requirement in a fully certified environment.

### KEYS FIGURES

ACTIA Group 2022 turnover: €499.8 million  
More 3,700 staff worldwide  
25 companies in 16 different countries  
14-18% of annual turnover invested in R&D

# SUMMARY

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# ACTIA AT AGRITECHNICA 2023

At **Agritechnica 2023**, ACTIA's stand will be showcasing its comprehensive expertise in **Augmented Architecture** and **Vehicle Lifecycle Management**, driven by the **Group's technological and industrial excellence**.

ACTIA is a leading equipment supplier specialising in E/E architecture and on-board systems, helping vehicle manufacturers to design vehicles based on a new on-board architecture known as SDV (Software Defined Vehicle) architecture. ACTIA's Augmented Architecture and its range of services based on the use of vehicle data to manage the vehicle's lifecycle form the basis of solutions for its manufacturer partners and, by extension, for farmers.

ACTIA is therefore reinforcing its strong value proposition for all professionals in the agricultural sector.



**AGRI**  
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THE WORLD'S NO. 1



**PART 1**

**ACTIA EXPERTISE FROM  
AUGMENTED ARCHITECTURE TO  
VEHICLE LIFECYCLE  
MANAGEMENT**

## THE NEW E/E ARCHITECTURE: TOWARDS ZONAL ARCHITECTURE

Innovation in the automotive industry has led to major advances in vehicle safety, performance, and comfort. In response, manufacturers are moving their vehicles towards a centralised architecture, organised by domain, which groups the vehicle's functions into communicating domains, otherwise known as zonal architecture.

### **1-Fewer cables, less hardware, and more performance**

This approach arranges the vehicle's functions into zones defined according to their location, minimising the distance between each device and its assigned zone controller. These zone controllers are then connected to the central ECU via a cable network, thereby offering considerable advantages, including a reduction in the number of cables required and improved data transmission speed.

### **2-The four layers of zonal architecture**

We are therefore in the midst of a structural change in the automotive market, something which ACTIA, an expert in the field, has clearly understood. 'Four-tier' vehicle architecture is a fundamentally new approach for the industry, redefining the way in which vehicles are designed, operated, and connected.

·The first tier is the hardware, i.e., the ECUs: This layer represents the essential electronic and computer hardware, including the ECUs, which power the car's equipment and enable it to operate.

·The second tier is the middleware, or the operating system: it operates all the car's equipment, including the engine, chassis, digital controls, and GPS. Middleware plays a central role in the development and operation of vehicles incorporating the new architecture also known as SDV (Software-Defined Vehicle) architecture.

·The third tier is the applications, which manage all the car's equipment, creating a brand-specific user experience with an intuitive, user-friendly interface.

·The fourth tier is the Cloud, which is at the heart of V-to-X data management since all vehicles are now connected.

The advent of middleware in vehicles is changing the business model for both vehicle manufacturers and equipment manufacturers. ACTIA is preparing for this paradigm shift with its Augmented Architecture approach, in which software plays a key role.

### **3-The evolution of middleware**

Previously, no vehicle models were equipped with an operating system (in the computer sense of the term), this concept having really been introduced to the market by Tesla with its electric vehicles.

With the increasing digitalisation of vehicle cockpits, the importance of the Cloud, and the growing demand for data for driver assistance systems, it has become more practical for manufacturers to implement an operating system. This makes it easy to improve and update applications from one vehicle model to another. This is a significant structural change in the automotive industry for the benefit of end customers and users.

#### **4-The benefits of the Augmented Architecture**

The transition to an architecture based on the Software-Defined Vehicle (SDV) offers a multitude of significant advantages for the automotive industry. This new technological paradigm is revolutionising the way vehicles are designed, used, and maintained.

In particular, the SDV architecture will make it possible to:

- update the vehicle's ECUs continuously using FOTA (Firmware Over The Air) technology
- optimise the vehicle architecture with digital twin technology
- collect vehicle data more accurately and securely, opening up a range of Data-Driven services
- offer an advanced, ergonomic cockpit: the digital cockpit
- develop a cybersecurity system offering functional safety.

#### **5-ACTIA: the partner of choice for new architectures**

By combining its skills in vehicle architecture, diagnostics, telematics, and data management, ACTIA has developed a thorough understanding of the vehicle's digital ecosystem. The Group is strengthening its development resources to offer bus and coach manufacturers a high-performance environment they can trust. ACTIA is preparing its systems and services for the new architecture with its Augmented Architecture approach. This is designed to be comprehensive, flexible, robust, and resilient. ACTIA's ambition is to clearly maintain its prominent position with manufacturers of commercial and industrial vehicles for on-board architecture.

# CHOOSE ACTIA FOR CYBER-SECURE, ON-BOARD ARCHITECTURE OFFERING FUNCTIONAL SAFETY.

With SDV architecture and vehicle connectivity, designing and developing high-performance on-board solutions is a real challenge, particularly when it comes to securing them. This concept of "securing" translates into the growing requirements for both safety and cybersecurity. ACTIA is fully aware of the issues at stake and is developing an electronic architecture for vehicles compatible with cybersecurity standards - ISO 21434 and UNECE R155-156 – and functional safety standards – ISO 2626-2.

The Group also assists its vehicle manufacturer customers with training on these highly regulatory issues. This standards framework must cover three areas of application; middleware, the hardware platform, and applications, the latter opening up the system and third-party applications. Vehicle-specific information is therefore shared with an ever-increasing number of stakeholders, with widely differing levels of maturity and practices, particularly with regard to cybersecurity.

## **1-The ISO 2626-2 standard: in response to the needs of SAFETY functions**

The ISO 2626-2 standard makes it possible to comply with the directives of the Global Safety Regulation, adopted by the European Union in November 2019 with the objective of reducing the risks of road accidents. It is a methodology and a best practice guide that provides a framework for developing the safety functions of a vehicle architecture and the components responsible for these functions.

Although this standard is not binding, it is nonetheless becoming the standard required by manufacturers, in the same way as for environmental standards. It enables top performance and guarantees customers reliability and longevity for their architecture.

## **2-ACTIA is committed to a global approach to cybersecurity**

Automotive manufacturers are actively working on a global standard defining the state of the art for vehicle cybersecurity engineering: the ISO/SAE 21434 standard.

It will be used in particular to provide the necessary evidence to comply with European regulations UN-ECE 155 and 156. Work on establishing a vehicle safety certification plan will soon start under the auspices of ENISA (European Information Security Agency) within the framework of the EU Cybersecurity Act. ACTIA is actively involved in the work on automotive cybersecurity regulations and standards. The aim is to incorporate the requirements set out in these standards into the company's processes as they are developed.

## **3-Product cybersecurity**

The integrity and confidentiality of information carried on the networks is a critical issue for SDV vehicles. As a result, ACTIA natively integrates data and communication protection requirements and measures from the very start, and throughout the lifecycle of the vehicle architectures and systems.

As a Tier 1 supplier of telematics solutions, ACTIA has high standards in terms of cybersecurity.

With its product cybersecurity team, ACTIA assists project teams and customers in order to take into consideration all aspects related to cybersecurity. For example, the TGU-R telematics unit, dedicated to commercial and industrial vehicles including the Bus & Coaches market, comes with a "cybersecurity manual", which allows customers to independently develop their applications, using product security services appropriately.

## **4-ACTIA helps its customers achieve cybersecurity compliance.**

ACTIA is 27001-certified and able to support its customers in these integrated cybersecurity approaches, acting as a real partner when it comes to these subjects. To this end, ACTIA uses a risk analysis methodology and requirement traceability tools, which make it easier to manage these aspects throughout the lifecycle of the product. These tools highlight the need for intensive collaboration with all of the stakeholders, and the emergence of a new service-based economic model: monitoring, control and patches related to new threats.



# ACTIA PRESENTS ITS NEW RANGE OF MPS MASTER ON-BOARD COMPUTERS AT AGRITECHNICA

...focused on operational safety and cybersecurity.

It is through heavy investments that ACTIA has developed its new generation of on-board computers, the MPS range. These products respond to manufacturers' requirements in terms of both operational safety and cybersecurity for their new agricultural vehicles.

## 1-Towards a new vehicle safety and cyber architecture

A leading equipment manufacturer, specializing in E/E architecture and embedded systems, ACTIA helps vehicle manufacturers design vehicles based on a new embedded architecture called SDV architecture for Software Design Vehicle. **ACTIA's Augmented Architecture** and its service offering based on the use of vehicle data to manage the vehicle's life cycle, are the basis of the solutions for its OEM partners and by extension for agricultural operators.

**MPS 33 and MPS 48** are the first two computers of this generation. These on-board computers allow you to control the electrical functions of a vehicle. They have the particularity of being able to meet regulatory standards in terms of:

- **Cybersecurity**, UN ECE R155 specifically for off-road vehicles. It essentially consists of providing guidelines and best practices for managing cybersecurity risks throughout the life cycle of automotive systems. The complete life cycle therefore includes design, development, production, operation, but also maintenance and dismantling of the vehicle.

- **Operational safety**, ISO 26262 (ASIL B). This standard makes it possible to meet the directives of the Global Safety Regulation, adopted by the European Union in November 2019 and whose objective is to reduce the risk of road accidents. It is a methodology, a guide to good practices, which frames the development of the safety functions of a vehicle architecture and the components that provide them.

## 2-A new development platform

The development of the MPS range is based on a new software development platform: CESAM. This tool, developed within ACTIA's design offices, ensures the consistency and globalization of software solutions. The platform allows, among other things, the management, updating and maintenance of software developments. It ensures significant performance gains in the development phases of all ACTIA group "real-time" solutions: calculators, telematics modules or HMI.

Through the synergy of its skills in **vehicle architecture, diagnostics and connectivity**, ACTIA has developed a good understanding of the digital vehicle ecosystem. The group is able to strengthen its development resources to offer manufacturers an efficient environment of trust.

The electronic architecture of tomorrow is intended to be robust and resilient, essential to adapt to threats. Also, with this new architecture, ACTIA's ambition is to maintain its leading position in embedded architecture with manufacturers of commercial and industrial vehicles.

The compatibility of the new ACTIA architecture with the previous generation of ACTIA architecture opens up great prospects for the group's historic customers. The solution has already been chosen by several manufacturers, who have renewed their confidence in ACTIA solutions.

# THE NEW RANGE OF SPU IS FOCUSED ON FUNCTIONAL SAFETY AND CYBERSECURITY

Faced with this profusion of data managed by agricultural machinery, designing and developing on-board solutions is a real challenge in terms of securing on-board systems. Like all products developed and manufactured by ACTIA, the new range of SPUs, presented at the AGRITECHNICA show, integrates the levels of functional safety AND cybersecurity requirements.

## **1-Security by Design: securing from design and development phases**

The concept of "securing" translates into the growing requirements for both safety and cybersecurity. ACTIA therefore develops its on-board ECU that are compatible with the standards of these two requirements, right from the design phase.

In terms of cybersecurity more specifically, the security of ACTIA products is based on a pragmatic approach based on analysis, risk management and their continuous monitoring.

ACTIA is constructing a CTI (Cyber Threat Intelligence) process that consists in collecting, organising, and analysing information related to cybersecurity risks and threats.

This process, used upstream of the life cycle, allows attacks and threats to be considered in the initial risk analysis, and appropriate protective measures to be defined from the design and development phases. In the series production phase, it guarantees orchestrated resiliency, adaptation of the architecture to changes in these new attacks or vulnerabilities.

At the same time, ACTIA is embedding cybersecurity requirements and best practice into its design and development processes. Integrity and confidentiality of information carried on the networks is a critical issue for connected vehicles. As a result, ACTIA natively integrates software & data protection requirements and measures from the very start, and throughout the life cycle of the vehicle architectures and systems.

## **2-ACTIA is involved int the current standards framework**

The security needs of architectures and embedded systems require ensuring the authenticity and integrity of components. ACTIA is able to integrate them into its technologies in advance. Thus, the 2nd generation of SPU box takes into account these constraints of both safety and cybersecurity UN ECE R155.

### **Cyber protections taken into account**

- Firewall and flow-filtering functions in interfaces with external networks;
- Intrusion attempt or other threat (virus) detection and prevention functions;
- Securing the vehicle's CAN bus, the system boot and updates;
- Protection of integrity of vehicle diagnostic inputs (OBD, etc.);
- Protection of internal communications (between ECUs), of communications between the vehicle and information systems, or communications between vehicles and infrastructure (V2X), particularly with encryption and electronic signature;
- Protection of the integrity of on-board ECUs (including data and program protection);
- Globally, securing the information systems involved in the operation of connected and autonomous vehicles.

### **3-Cyber threats**

In concrete terms, these protective measures meet the objectives of protecting the system from a set of threats, such as reprogramming ECUs through unauthorised access, or modification to communications through network attacks. These threat scenarios can lead to incidents affecting vehicle operation (able to cause accidents or financial losses), or users (theft of personal data).

ACTIA is able to support our customers in these integrated cybersecurity approaches, acting as a real partner when it comes to these subjects. To this end, ACTIA uses a risk analysis methodology and requirement traceability tools, which make it easier to manage these aspects throughout the life cycle of the product. These tools highlight the need for intensive collaboration with all stakeholders, and the emergence of a new service-based economic model: monitoring, control and patches related to new threats.





**PART 2**  
**NEW STANDARD OF**  
**DRIVING POSITION:**  
**DIGITAL CABIN**

## DIGITAL CAB BY ACTIA

ACTIA's digital cab transforms the driving experience by offering advanced functions, intuitive ergonomics, and seamless connectivity.

### 1-The digital cab is part of the augmented architecture

The augmented architecture provides a solid basis for managing and developing the digital cockpit. It allows greater flexibility, increased customisation, easier integration of new functions and more efficient updates, improving the driving experience and the overall value of the vehicle for drivers.

### 2-Greater safety comfort

To satisfy the surge in demand for on-board comfort and safety in vehicles, numerous control and command functions have been developed and can be accessed from the driver cockpit. These functions require more and more on-board equipment (cameras, sensors, screens, etc.), systems, and multi-mode controls (manual and tactile). Thanks to its ultra-ergonomic, optimised approach, the digital cockpit simplifies the configuration, management, and control of the driver's cab. For the farmer, it's an invaluable driving aid. It's also the answer to new standards of comfort and safety for everyone. Having made significant inroads in the light vehicle market, the digital dashboard is now the new cockpit standard for special machinery.

### 3-New digital cab standard

ACTIA is unveiling a major innovation at the **Agritechnica** show, where the company is presenting its digital cabin. This advance consists in connecting the Activision range of touchscreens to a central infotainment and on-board systems management unit, called ACTiVi-R. This combination results in improved comfort in the driver's cab, by optimising the machine's infotainment functions. This reflects the Group's ongoing commitment to technological innovation for mobility, while underscoring its long-standing expertise in vehicle and driver cockpit architecture, not to mention on-board systems.

ACTiVi-R clearly demonstrates how it helps to address the crucial challenges facing the agricultural machinery sector. This innovation transforms the agricultural cockpit into a technology hub, perfectly tailored to farmers' growing needs in terms of comfort, connectivity, safety, and profitability.

By integrating a host of cutting-edge digital technologies into the cabs of these vehicles, ACTiVi-R provides farmers with real-time access to essential information, enabling them to make informed decisions. This change transforms the cockpit into a multifunctional digital office, while retaining its role as a living space.

Moreover, ACTiVi-R places comfort at the heart of its approach, providing an optimum working environment for farmers. Precision plot management, connectivity, and data sharing, including interconnectivity with hitched equipment, are just some of the extended functions and essential services available to farmers. Finally, safety is a priority thanks to the interaction between the machine and its environment (VtoX). With ACTiVi-R, agricultural machinery is at the forefront of the technological revolution, ready to provide a comprehensive response to the contemporary needs of this fast-changing sector.

The ACTiVi-R control unit configures the digital dashboard by centralising and distributing the functions managed on the control displays.

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Thanks to its ultra-ergonomic, optimised approach, the Digital Cab simplifies the configuration, management, and control of the driver cockpit. For the farmer, it's an invaluable driving aid. It's also the answer to new standards of comfort and safety for everyone.

Having made significant inroads in the light vehicle market, the digital dashboard is now the new cockpit standard for agricultural machinery. It meets farmers' growing needs in terms of driving comfort, connectivity, safety, and efficiency. With ACTiVi-R and its digital cab, ACTIA is positioning itself with a high-performance response tailored to this new market standard.

## ACTIVI-R: ACTIA HIGHLIGHTS TECHNOLOGICAL INNOVATION AT AGRITECHNICA 2023

At the heart of the agricultural machinery cockpit revolution, ACTIA is unveiling ACTIVI-R, the on-board central control unit dedicated to infotainment and functionality management for agricultural vehicles, at Agritechnica 2023. ACTIVI-R embodies the long-awaited innovation that is transforming the agricultural cockpit, meeting farmers' growing needs for comfort, connectivity, safety and profitability.

### **1-ACTIVI-R fits in perfectly with the new standard for the driving position: digital cabin**

The digital cabin in agricultural machinery refers to the integration of numerous advanced digital technologies into the cab of these vehicles. These technologies aim to improve the efficiency, productivity, safety and comfort of the farmer, while providing real-time information for informed decision-making.

Farmers spend all day behind the wheel of their machine, making the cabin both a digital office and a place to live.

### **2-ACTIVI-R enhances comfort, safety and profitability with advanced connectivity**

Offering optimum comfort, ACTIVI-R fits in perfectly with this development, as it is connected to displays and to the vehicle's other ECUs (SPU, MPS, etc.). ACTIVI-R opens up a range of extended functionalities and services that are essential for farmers, such as :

- **Infotainment and comfort functions for the driver:** in-cab audio/video display and broadcast, radio, smartphone connection with Android Auto/Apple Carplay, air conditioning & heating management, etc.
- **A wide range of connectivity options:** CAN, LIN, BT, WIFI, ETHERNET, GMSL2, USB, enabling the same connectivity in the vehicle cab as in the office: possibility of accessing the internet network on the ACTIVI (thanks to the TGU-R telematics unit).
- **Management of all the vehicle's equipment, peripherals and tools** (planter/seeder, etc.), with the option of saving configurations (tilt/rotation, etc.) according to the type of use, for maximum productivity.
- **Precise plot display and management for maximum profitability**  
ACTIVI-R enables precise management of plots and work areas thanks to geolocation and advanced visualisation. Farmers can optimise their farming operations to maximise farm profitability.
- **Real-time feedback on the vehicle's overall activity**, with a multitude of activity indicators, and a diagnosis of its state of health with alerts/pop-ups directly visible from the ACTIVI-R.
- **Safety**, thanks in particular to the interaction between the machine and its environment (VtoX).  
The proliferation of sensors and cameras on agricultural machinery is increasing the safety of operations. With ACTIVI-R, operators can view all the vehicle's cameras in relation to their activity & manoeuvres, improving safety on board the vehicle.

### **3-Simplified, flexible and scalable vehicle architecture**

ACTIVI-R considerably simplifies the architecture of agricultural vehicles by centralising a wide range of on-board functions. This streamlined approach facilitates maintenance, reduces operating costs and guarantees flexibility and scalability.

Manufacturers who choose to integrate ACTIVI-R into their machines benefit from the consistency of this centralised architecture across their entire range of machines, resulting in more efficient management and reduced development costs. ACTIVI-R is designed to fit a variety of agricultural machines, offering a secure solution that complies with **UNE-155 and 156** standards, and also enables remote ECU updates thanks to **Firmware Over-The-Air (FOTA)** technology.

#### **4-ACTiVi-R: a compact, modular and robust solution**

ACTiVi-R's compact, modular approach not only simplifies its integration into a variety of vehicles and dashboard configurations, but also offers easy customisation to meet the specific connectivity needs of each vehicle.

Finally, ACTiVi-R is designed to withstand harsh environments with its IP66 protection rating. Its robustness guarantees exceptional reliability, even in the most demanding conditions.

ACTiVi-R embodies ACTIA's vision of offering cutting-edge technological solutions that alleviate the constraints of its manufacturer customers and those of the end-users, the farmers. By positioning itself as an expert technological and industrial partner in the off-highway vehicle market, ACTIA is helping to shape the future of the agricultural cockpit with ACTiVi-R, a reality that is already within reach.



## **ACTIVISION: REDEFINING THE USER EXPERIENCE WITH A TOP-OF-THE-RANGE ACTIA DISPLAY**

### **A new product presented at the Agritechnica 2023 show.**

A major breakthrough has been made in the off-highway vehicle driving experience with the introduction of the ACTIA ACTIVISION-R range of ergonomic displays. Operating in tandem with a smart display (Multic FSX) or a central ECU (ACTIVI), the ACTIVISION-R, for 'Remote,' opens up new opportunities for both drivers and manufacturers of agricultural vehicles. This innovative combination offers advanced user interfaces, interchangeability in the enhanced range and unprecedented connectivity, redefining the standards of the on-board experience of these vehicles.

### **1-Combining comfort and performance**

#### **Technical performance of the ACTIVISION-R range**

ACTIVISION-R offers a host of technical features that significantly enhance the user experience. The touch-sensitive displays offer intuitive, responsive interaction, giving drivers easy access to information and control of the vehicle's various functions.

The performance of the display ensures a fast, smooth response, for a seamless user experience.

#### **Meticulous design**

The meticulous design of the ACTIVISION-R range, which has thin edges and lies flat in the dashboard, ensures seamless integration into the cab environment, while providing a perception of quality and visual sophistication. The sleek finish, with a painted aluminium frame, also gives the screens a high-end look. Furthermore, the high-quality materials used in the manufacture of the displays guarantee that they are durable and reliable, even in the most demanding environments.

#### **Rugged displays for industrial vehicle cab applications**

ACTIVISION-R has been designed to support cab applications in harsh vehicle environments. The displays can withstand extreme temperatures and tough working conditions, ensuring reliable operation in all situations.

The ACTIVISION-R range of displays guarantees optimum visibility even in bright conditions, thanks to its high luminance and specific screen treatments: this means drivers can easily read the information displayed, even in direct sunlight.

In addition, ACTIVISION-R displays feature anti-fingerprint technology, ensuring a clean surface with no visual interference.

#### **A range of ergonomic displays**

With its ACTIVISION-R range, ACTIA offers an ergonomic design: the well-defined contours of the screen provide drivers with a pleasant tactile experience.

Agricultural vehicle drivers benefit from intuitive control and easy handling. The displays have a user-friendly interface, giving drivers quick access to essential information and easy control of the vehicle's various functions. It also makes it easier for drivers to concentrate on the task at hand, optimising productivity and guaranteeing safety on the road.



## **2-ACTIVISION: a range of Off-The-Shelf ergonomic displays**

The displays are available in three sizes: 8, 10 and 12.8 inches. Manufacturers choose the size best suited to their vehicle cabs.

These off-the-shelf displays have been specially designed to cater for the specific needs of the industry. They are an optimised solution for agricultural vehicle cabs.

### **Cost and time savings**

By opting for ACTIVISION-R displays, manufacturers can make significant savings in terms of development and manufacturing costs. Instead of designing and producing bespoke displays, they can simply integrate existing ACTIVISION-R displays, reducing R&D costs and production times.

This approach allows manufacturers to save precious time in their off-highway vehicle development process.

### **Simple integration and easy deployment**

The ACTIVISION-R range is easy to integrate and should be used in conjunction with an existing ACTIA ECU. Coupling it with the ACTIA ECU is necessary to ensure optimum compatibility and seamless integration into vehicles. Thanks to a standardised interface and compatible communication protocols, the integration of these displays with ACTIA ECUs is smooth and straightforward, making it an efficient and functional solution for manufacturers.

### **Flexibility and interchangeability**

ACTIVISION-R offers exceptional flexibility in terms of customisation to meet the specific needs of off-highway vehicle manufacturers. Thanks to its remarkable interchangeability with the other products in the range, ACTIVISION-R is a versatile display solution that ensures seamless integration and optimum use for manufacturers. This flexibility and interchangeability make ACTIVISION-R an ideal choice for manufacturers seeking to customise their user experience while benefiting from the advantages of a pre-existing display solution.

### **Maintaining a familiar cab environment**

The ACTIVISION-R range provides manufacturers and users with continuity of experience across a whole range of agricultural vehicles. ACTIVISION-R off-the-shelf displays are designed to maintain a familiar cab environment, enabling manufacturers to offer ergonomic and visual consistency across different vehicle models or within the same range. This makes it easier for operators to get to grips with and use the cabs, while providing a recognisable brand identity for manufacturers.

In conclusion, the ACTIA ACTIVISION-R is the ideal choice for new, constantly evolving vehicle architectures. Thanks to its seamless integration with ACTIA's advanced ECUs and smart displays, ACTIVISION-R is an optimised display solution that addresses the growing demands for ergonomics, connectivity and data transfer in off-highway vehicles.

This clever combination of off-the-shelf displays and smart displays paves the way to the cockpit of the future, in which drivers will benefit from an immersive driving experience, a better understanding of their environment, and an unrivalled level of customisation.





**PART 3**  
**VEHICLE LIFECYCLE**  
**MANAGEMENT**  
**IN PRECISION FARMING**



## VEHICLE LIFECYCLE MANAGEMENT IN PRECISION FARMING

ACTIA's Augmented Architecture represents a major advance in vehicle connectivity, paving the way for the deployment of Data-Driven Services. One of the key areas to benefit from this connectivity is Precision Farming. This approach is based on the use of real-time data from agricultural vehicles to optimise farming operations, thereby improving productivity and sustainability. By collecting and analysing data from machinery and attachments, farmers can make accurate and efficient adjustments to parameters such as fertiliser distribution, irrigation, and crop monitoring.

ACTIA's architecture means full use can be made of this data, offering manufacturers and users of these vehicles considerable competitive advantages, and contributing to smarter, more environmentally friendly farming.

### **1-Continuous vehicle updates**

Among the possibilities offered by Augmented Architecture, a major technology is emerging - Firmware Over the Air (FOTA) - which enables ECUs to be updated remotely to improve vehicle safety and comfort.

#### **Firmware Over the Air (FOTA)**

Firmware Over the Air (FOTA) represents a major development in the maintenance and updating of vehicle ECUs and plays a crucial role in maintaining vehicles in operational condition in accordance with UNECE R 155 and 156. This standard requires cybersecurity activities to be incorporated throughout the automotive manufacturers' value chain. This approach guarantees optimum safety and preserves the vehicle's health.

#### **ACTIA's remote updating and maintenance solutions for optimum vehicle lifecycle management**

By leveraging FOTA technology, ACTIA is already offering its customers solutions that enable them to carry out updates and maintenance remotely, for advantages in terms of economy, safety, and comfort. Combined with software and cloud platforms, these massive data processing capabilities are at the heart of a range of services, from remote software updates to predictive maintenance and other services designed to efficiently manage the vehicle's lifecycle, thus ensuring maximum availability. These continuous updates also help to increase the vehicle's residual value, while complying with rigorous standards.

### **2-Connected services for agricultural sector**

The revolution in agriculture is under way, and ACTIA's Data-Driven Services are one of its spearheads. Our augmented architecture is opening up new horizons for services based on vehicle data management, covering the vehicle's entire lifecycle. Thanks to these technological advances, farmers and agricultural machinery manufacturers can now optimise their operations by collecting data in real time.

#### **Remote diagnostics and predictive maintenance**

Telematics is used to obtain all vehicle data remotely and in real time. The use of all relevant data by manufacturers improves the monitoring of vehicles throughout their lifecycle, from design to operations and maintenance. The power of data and its scope of application remain to be explored, yet one goal is shared by all manufacturers: improving vehicle performance and reliability.

#### **Improving the vehicle's cost of ownership (TCO)**

ACTIA is able to help manufacturers explore the potential of data. The ACTIA Model Driven Telemetry solution is based on the on-board ACTIA TGU-R telematics unit and the ACTIA D2HUB Cloud platform. It is accessible in SaaS (Software As A Service) mode and used to operate telemetry data simply and securely.

These vehicle data processing solutions will ultimately be used to anticipate breakdowns, enabling manufacturers to guarantee their customers the best possible total cost of ownership (TCO). This is referred to as vehicle maintenance and predictive diagnostics. Thanks to the massive feedback and management of data collected from the vehicle offered by the Software Defined Vehicle, vehicle maintenance will be easier as issues can be understood and handled remotely, without immobilising the vehicle. Vehicle diagnostics are no longer carried out solely in the workshop, but via the on-board telematics unit: this is remote diagnostics.

### **Predictive maintenance**

Real-time data feedback also helps to ensure an optimum operating rate by constantly monitoring maintenance parameters. This is preventive maintenance. This predictive maintenance aims to limit the vehicle's downtime and improve its operating rate (TCO).

Optimising the vehicle's service rate by taking into account its diagnostics and maintenance in advance is a key asset for vehicle manufacturers as well as for their farmer customers. These remote solutions help to optimise operating costs, acting immediately with faster data exchange, reducing operating costs, periods of inactivity and machine downtime, thereby increasing the vehicle availability rates.

### **3-Telematics units**

#### **Telematic gateway**

ACTIA's TGU-R WorldWide represents a major development in vehicle telematics at Agritechnica. Designed to meet growing connectivity needs, this digital solution retains the features that have contributed to the success of the TGU-R range, while offering enhanced performance. It boasts more extensive 4G network coverage and greater data processing power. The TGU-R 4G W has already obtained certification for use in nearly 72 countries, making it a top choice in the industrial vehicle and special machinery markets.

#### **Radio certification of products**

Aware of the complex challenges involved in the radio certification of its products, ACTIA has set up a team specialising in worldwide certification. This team is made up of experts with extensive experience in radio certification. Their in-depth knowledge of regulations and certification processes is essential to ensure that ACTIA's products comply with current standards. Thanks to this organisation and these skills, ACTIA is able to anticipate regulatory changes, save time and guarantee that its products comply with radio certification requirements in the various countries where they are marketed.

#### **Commitment to cybersecurity for products such as TGU-R: support teams and expertise dedicated to protecting systems**

ACTIA is determined to offer a top-quality service around its products, which is why we have set up Support Services teams and expertise. We are fully committed to ensuring compliance with the most rigorous cybersecurity standards. Protecting our customers' systems and data is our number one priority.

We are also investing in the construction of cyber-robust machines. This means that our solutions are designed to withstand potential threats and cyber-attacks, ensuring seamless business continuity for our customers. The robustness of our systems is a guarantee of reliability in a constantly evolving digital environment.

Finally, we offer a dedicated operational cyber security maintenance service, ensuring that our products remain up to date, secure and high performing. We constantly monitor technological developments to ensure that our customers benefit from the latest advances in cybersecurity.

#### **E-Track**

E-TRACK is an on-board control unit for telematics applications, enclosed in a reinforced, sealed IP67 housing. A flexible and cost-effective telematics solution that can be adapted to a large range of off-road equipment.

#### **The ACTIAFleet Agriculture portal**

ACTIAFleet Agriculture is the fleet management telematics portal, designed specifically to manage activities in the agricultural sector, optimise vehicle use, and maximise productivity with:

- Fleet monitoring in real time
- Analysis of the data collected to optimise operating costs
- Remote diagnostics and maintenance.

#### **The Diag Agri kit**

Equipped with a multiprotocol VCI and a dedicated diagnostic software, the kit makes it possible to immediately receive and analyse vehicle data, effectively reducing downtime and repair costs, for an optimised vehicle availability rate. This solution was developed for KOHLER and ARGOTractors, in particular.

Connected architecture, diagnostics, remote diagnostics & telematics solutions, with dedicated services, ACTIA understands the needs of the agricultural sector.

#### **4-ISOBUS compliance for worldwide Off-Road machinery**

ACTIA systems have earned a worldwide reputation as the benchmark for ISOBUS compliance for off-road machinery. Their commitment to the ISOBUS standard, which facilitates the interoperability of agricultural equipment, extends internationally. Thanks to their technological expertise, ACTIA systems enable off-road machinery all over the world to operate smoothly, improving the efficiency, productivity, and durability of these machines in varied and demanding environments.

#### **5-Reducing Time-To-Market for agricultural machinery via telematics**

ACTIA's connectivity, in particular the functions offered by telemetry, is also proving to be an invaluable asset for agricultural machinery manufacturers. By considerably shortening time-to-market, it gives manufacturers a significant competitive advantage. Data collected in real time from machinery in operation is analysed and shared effectively among the design, test, and production teams. This makes it easy to quickly identify where improvements are needed, optimise performance, and ensure compliance with the latest standards. As a result, machines reach the market faster, meeting changing customer needs and regulatory requirements, while reducing development costs. ACTIA connectivity is a key catalyst for accelerating the lifecycle of agricultural machinery and boosting manufacturers' competitiveness.

#### **To sum up:**

With its Augmented and, of course, connected Architecture, ACTIA is playing a key role in helping the automotive industry move towards the new SDV vehicle architecture. This transition to a new-generation electrical/electronic (E/E) architecture is taking place gradually, through methodical preparation. The approach involves upgrading the existing architecture to comply with future regulations, such as cybersecurity, functional safety, and connected services based on data use and the digital cockpit.

This development is part of a process in which ACTIA supports the upgrading of instrument clusters, command control modules and, of course, on-board telematics units to meet safety and cybersecurity requirements.

ACTIA is thereby facilitating the transition to an augmented, connected, comprehensive, scalable and flexible architecture. As a major player in the agricultural machinery industry, ACTIA is not only a solution provider but also a trusted partner for both manufacturers and their farmer customers, attentive to the needs of all market players in a rapidly changing technological and commercial context.

Our company is underpinned by three essential pillars: innovation, operational agility, and a people-centred culture. We firmly believe that constant innovation is the key to our success, enabling us to meet the evolving needs of our stakeholders, particularly our customers, while staying ahead of the game.

By putting our customers at the heart of everything we do, we are committed to meeting the technological and industrial challenges associated with innovative, value-creating, and sustainable electronics: electronics moving forward.



**ELECTRONICS IN MOTION**