





ACTIA®

Systems Expertise

Buses and Coaches have become tremendously successful, and are now one of the key modes of transport for today and tomorrow. They sit at the heart of urban planning, environmental, safety and, more generally, economic issues, being ideally matched to society's expectations for modern passenger transport. The whole sector - operators, manufacturers, coachbuilders and equipment manufacturers - must, more than ever, step up to meet these expectations.

ACTIA® Group has been a vehicle on-board systems specialist for over 20 years, and is the partner of the major manufacturers and operators, always striving to meet the challenges of the transport world: safety, profitability, comfort and environment.

ACTIA® offers integrated solutions for city and intercity passenger transport. Innovative mobility solutions to transport people in a highly cost effective, fast, ecological and safe manner.

These challenges require a global approach to the vehicle, and support throughout its life cycle; this is the meaning of the systems expertise offered by the ACTIA® Group.



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(RTPI-AVL)



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P.8 Efficient Driving



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P.11 Safety



P.4 Architecture



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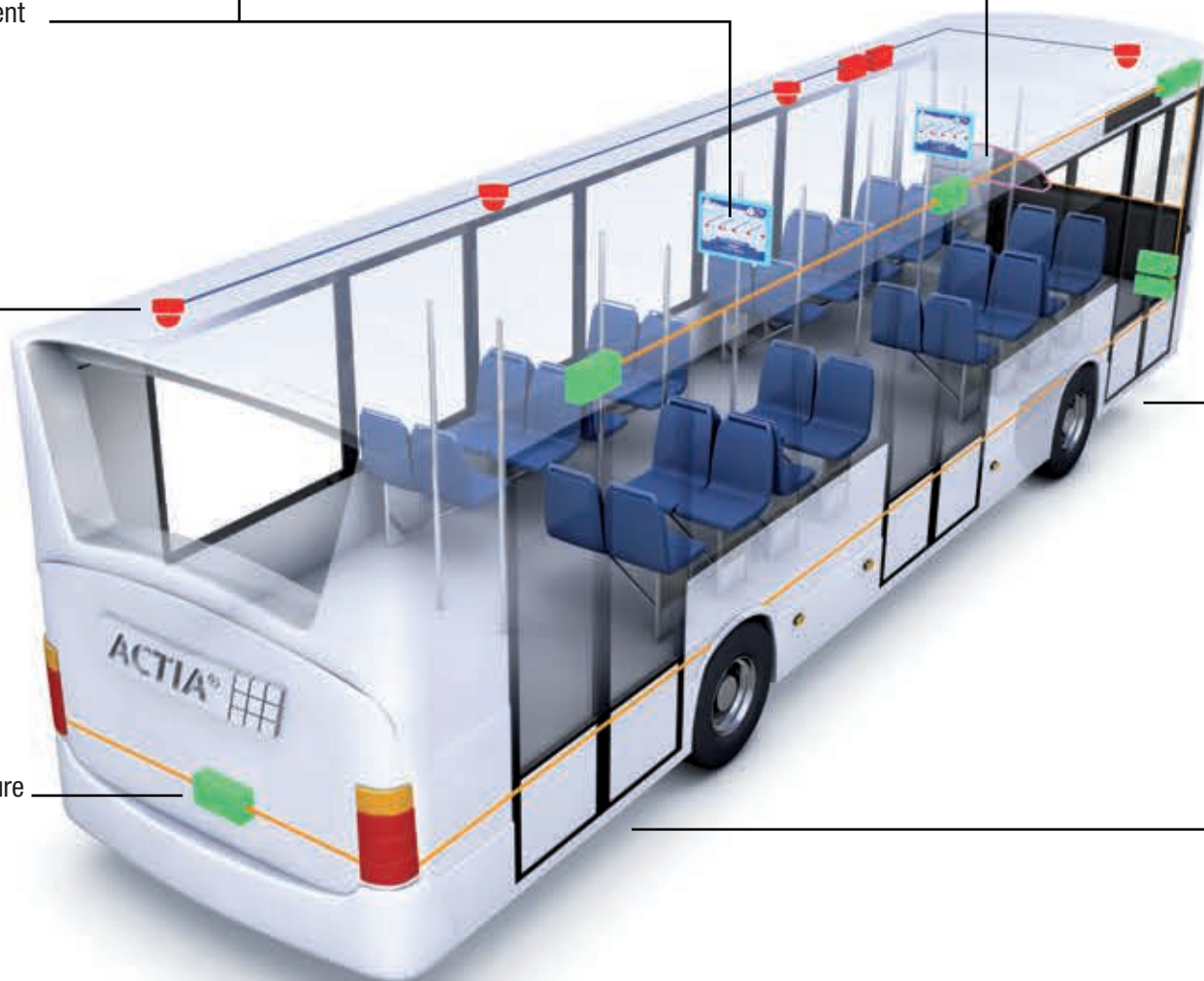
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commitments



COMMUNICATION



MULTIMEDIA



DIAGNOSTICS



SAFETY



Increasingly R E L I A B L E vehicles

ACTIA® VEHICLE ARCHITECTURE EXPERTISE

Our expertise lies in adapting complex systems and architectures to the difficult environment of commercial and industrial vehicles. It involves highly innovative specialist skills in multiplexed architectures, telematics or multimedia. This know-how enables ACTIA® to make its manufacturing expertise available to operators and integrators.

Our mastery of vehicle architecture - conventional or multiplexed - guarantees a global approach to the vehicle's functions and systems. It is based on a universal offer of electrical and instrumentation management modules to construct a modular, high performance and optimised architecture adapted to each customer's needs. ACTIA® can also work with Bus and Coach manufacturers in the development and validation of vehicle architectures.

ACTIMUX System

The ACTIMUX system is the third generation universal multiplexed architecture. This new system integrates all the experience developed over the previous 2 generations and includes:

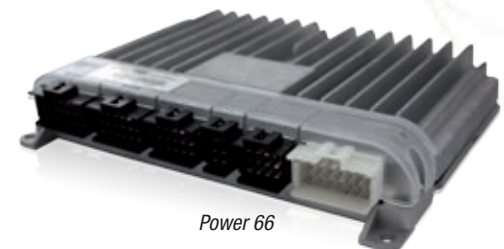
- Hardware platform compatible with distributed or centralised architectures
- Improved adaptation of the input/output interfaces to the vehicle electrical architecture
- New technology giving precise control of the current in the loads
- Multiple communications interfaces for improved connection to the vehicle systems
- Ethernet connection for operator functions
- Development of the application software using the ActiGRAF tool (IEC 61131-3 language)
- Level 1 diagnostics integrated in the control unit
- Centralised diagnostics of the vehicle's electrical architecture



Power 15



Power 33



Power 66

MANAGEMENT

of the vehicle electrical functions

POWER CONVERSION

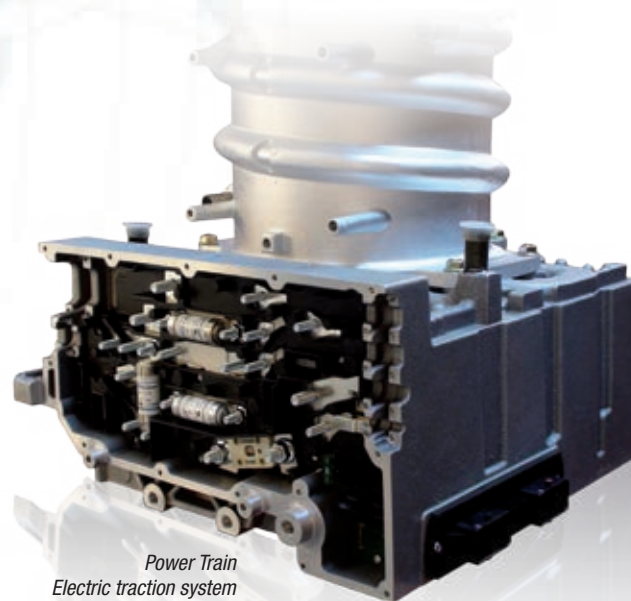
ACTIA® experience in power management enables us to develop universal solutions dedicated to power conversion.

Many power management solutions are produced in large quantities for industrial vehicles (trucks, construction vehicles). These solutions are adapted to the passenger transport environment and are used for the charging function of Li-Ion batteries used in electric traction.

In association with industrial partners, ACTIA® is the prime contractor in the development, industrialisation and manufacture of complex mechatronic systems.



24v/12v 20A converter



Power Train
Electric traction system



ERGONOMIC

instrumentation modules

PODIUM DASHBOARD

Modular dashboard meeting the requirements of European regulations (VDV 234 and ISO 16121-3 standards) with a modern ergonomic design. Dashboard with height and depth adjustment offering:

- An instrumentation cluster and a colour screen for the vehicle's technical data
- Integrated and backlit controls
- Free space for installing a driver control panel

A customisable platform offering a range of equipment for custom functions: retarder, speed regulator, steering lock, management of all vehicle functions

- Retarder
- Speed regulator
- Ignition key with or without steering lock
- Steering wheel angle sensor for EPS
- Over 150 switch references dedicated to passenger transport functions

Integration of the Driver AID driver feedback function with its gauge and dedicated display.

MULTIC

MultiBUS Instrumentation Cluster

Range of instrumentation clusters available in several formats and with a large number of custom options:

- Up to 6 instruments
- Up to 26 LED indicators
- 5.5" (1/4 VGA) or 7" (VGA) TFT screen
- Backlit LCD odometer
- Up to 4 video inputs
- Built-in loudspeakers
- LED bar graph dedicated to the Driver AID driver feedback display
- Ethernet connection for operator functions

On the 2nd generation Multic, the chassis functions and the vehicle's different communication systems are managed by a 32-bit CPU.

The application programme is developed by the ActiGRAF software package (IEC 61131-3 language).

Universal SWITCH PACK

Switch modules connectable to a CAN J1939 communication network (SPGM master module) or LIN communication network (SPGE slave module):

- Very high flexibility thanks to the separation of the mechanical part (switches) from the electronic platform
- Up to six 2- or 3-position backlit switches
- Compatible with APEM switches (CSM and KR series)
- Water run-off protection



Podium



Switch Pack

The vehicle remains **C O N N E C T E D** wherever it is

COMMUNICATING SOLUTIONS

ACTIA SODIELEC offers a range of modules dedicated to advanced communication and telematic functions for passenger transport vehicles. These modules meet the operators' requirement for having vehicles increasingly "connected". The ACTIA® telematic module range is based on a PC or ARM core and is equipped with new communication technologies (GPRS, UMTS, WIFI, etc) complete with vehicle interfaces (CAN, Ethernet, etc). These modules optimise vehicle fleet management and social and technical data management (driver behaviour monitoring, fuel consumption, remote diagnostics, etc).

BROADBAND WI-FI SOLUTION: WRM 100

WLAN 802.11n industrial modem and rack format card for services platform AP or client mode for harsh environments, compact and upgradeable.

The WRM100 and V-WRM modem range offers all the services associated with broadband wi-fi, notably on-board internet, real-time video surveillance, passenger entertainment and passenger information. Vehicles are permanently connected to the back office via a highly secure communication service with a large bandwidth.

TNT TO IP RECEIVER: VIR 100

The VIR 100 module is based on the latest digital broadcasting technologies and uses the DVB-T standard which provides continuous and uninterrupted TV all along a transport route. The digital receiver developed by ACTIA SODIELEC manages broadcasting, even on the move. This service can be used to broadcast an internal or external TV channel for passenger information, or for commercial, tourist or advertising information.

GLOBAL POSITIONING TELEMATIC PLATFORM

TGU (Telematic Gateway Unit)

The ACTIA® TGU is a software/hardware platform equipped with a GPS receiver and which has mobile communications capability (GPRS). It can be connected to the vehicle's CAN network for communication with the onboard computers. The ACTIA® TGU is approved by vehicle manufacturers.

Possible applications:

- Bus, coach and utility vehicle fleet management (positioning, route, speed, geo-fencing, etc).
- Safety and security (alarm, real-time vehicle diagnostics, stolen vehicle tracking, etc).
- Driver / transported goods management (remote downloading of tachograph data, consumption monitoring, tyre pressures, goods temperature and weight checks, etc).

The TGU can be supplied with or without on-board application programme to allow integration by the customer if desired.

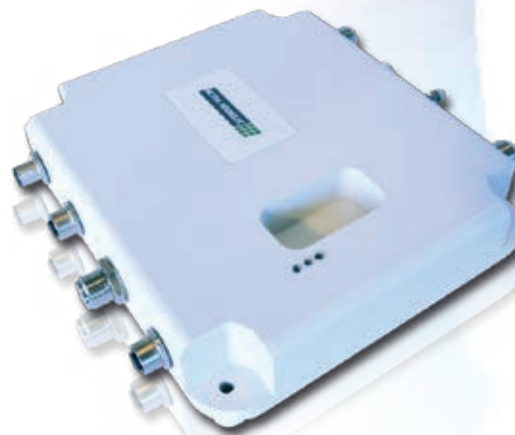
VIR 100



DVB T



GPS



WRM 100



TGU

Improved CONTROL of fuel and pollutant emissions

ECO-DRIVING SOLUTIONS

On-board software and hardware driving aid solution for the driver which:

- Monitors the driver's performance (in real time) from the standard parameters of the vehicle CAN-FMS network: engine rpm, instantaneous consumption, vehicle speed, accelerator pedal position, and passenger comfort by analysing the sideways movement (accelerometer option).
- Transmits driving data to the management centre
- Produces reports, statistics and performance monitoring data per driver, per journey, etc
- Reduces fuel consumption
- Reduces vehicle maintenance costs
- Improves passenger comfort and makes public transport an attractive option
- Improves driving safety
- And in the long term, reduces CO2 emissions



Driver AID display

SOLUTIONS FOR MANUFACTURERS

The manufacturer's solution integrates a specific Driver AID gauge in the PODIUM dashboard's central cluster, which:

- Analyses and displays consumption, braking and acceleration parameters on the PODIUM dashboard's gauge
- Displays end-of-operation reports on the central screen: fuel consumption during driving and braking, engine at idle, passenger comfort.
- MultiC bargraph

Combined with a telematic solution (TGU, PC CAR, etc.), Driver AID allows data to be transmitted to the back office and reports to be printed: driver performance, consumption, etc.

AFTERMARKET SOLUTION

The aftermarket solution consists of an additional Driver AID LED display and a data recording and feedback module which sends data to a dedicated web application and which:

- Displays vehicle parameters: overspeed, operating consumptions, sudden acceleration or braking, sudden manoeuvres (accelerometer option)
- Analyses and displays real-time technical data thanks to the integration of the eco-driving algorithm in Driver AID, and to the transmission via a communicating solution (TGU, PC CAR)
- Displays customised fuel consumption and driver performance reports by connecting to the ACTIA® Fleet web application



MultiC Driver AID

Guaranteeing a LONG VEHICLE LIFE

ADVANCED MAINTENANCE SOLUTIONS

In 1985, ACTIA® invented the first diagnostic tool and the Group is now the diagnostics partner of the major manufacturers. This know-how is essential for vehicle maintenance and guarantees maximum vehicle availability. ACTI-DIAG®, the diagnostics platform developed by ACTIA®, integrates all the solutions for on-board diagnostics, remote diagnostics, after-sales diagnostics and assembly line diagnostics to guarantee vehicle reliability throughout its life cycle.

ACTIA® is one of the world leaders in the development of complete maintenance solutions: hardware (rugged PC, Vehicle Communications Gateway, garage equipment) and software solutions.

INTEGRATED MAINTENANCE AID SYSTEM

SAMI HARDWARE SOLUTION

SAMI benefits from the recognised dual expertise of the ACTIA® Group: on-board systems and vehicle diagnostics. SAMI is available in 3 versions and handles the acquisition of vehicle technical data.

- **SAMI FMS** acts like an FMS gateway and is used to read vehicle CAN / J1939 network data without interfering with the manufacturer's network. SAMI FMS directly connects to the Ethernet IP network for a simple FMS data transfer by the operator
- **SAMI DIAG** includes the FMS gateway functions of SAMI FMS, plus an interface to manufacturers' proprietary buses (J1708, 16 K lines, RS232) for full vehicle diagnostics. It can also interface with sensors to check specific vehicle functions, such as a current sensor to monitor battery condition

- **SAMI DIAG+** pushes diagnostics one step further. It includes the SAMI DIAG functions and a "Black Box" function with a memory of up to 4Gb, allowing detailed technical parameters to be recorded, as well as a Bluetooth connection for communication with off-vehicle tools. Combined with a telematics solution, SAMI can carry out full remote diagnostics of vehicles to optimise vehicle use and control operating costs. ACTIA® Fleet is connected to the diagnostics web application and provides complete vehicle maintenance reports

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MULTI-DIAG® TRUCKS

- For all makes and all systems
- Integrates the key maintenance and electronic repair functions: read / delete faults, actuator tests, etc
- On the main vehicle systems: injection, ABS, EBS, EDC, suspension, retarder, gearbox, braking, etc
- Simple and practical
- Robust and wireless
- Updates several times per year
- An access guide to the maintenance and repair functions
- Integrated documentation
- Designed for workshops and "roadside" operations

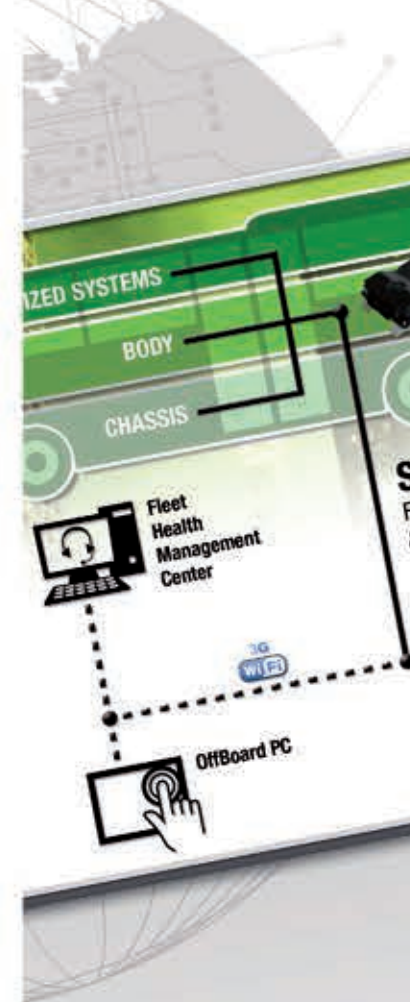
Multi-Diag® web site: www.multidiag.com



SAMI



Multi-Diag® Trucks



RANGE OF ON-BOARD PCS DEDICATED TO RTPI-AVL

ACTIA® offers a complete range of PC platform solutions for the transport world. Our PC Car, SAM and IHM-I systems are both compact and robust. They have been selected by major operators and integrators and are tried and tested, have a long lifetime, and allow all SAE, SIV or other projects to be implemented rapidly. Each standard product can be adapted to the customer's specific requirement to give the most efficient solution at the lowest possible price. Our on-board PCs are multi-OS and designed for all applications: SIV, SAE, data hub, etc.

PC CAR 3

The PC Car system combines global positioning and communication, and can be connected to a driver's console.

SAM

The SAM system is a compact version of the PC Car and combines positioning, multimedia communications and driver interface.

RTPI-AVL DRIVER'S CONSOLE: 7" 44 LVDS, 7" VGA, 7"

The ACTIA® range of drivers' consoles enable interfacing with RTPI-AVL control units available on the market. They integrate perfectly into the ACTIA® "Podium" dashboard for optimum ergonomics.

I-HMI

The I-HMI system with its concentrated performance, combines an on-board PC, all the modes of communication, wi-fi, 3G+, Bluetooth and an especially high performance screen / driver interface.

It ideally complements the PC Car and SAM systems:

- Simple and user-friendly communications gateway: Internal Bluetooth module, USB hub
- Ambient light sensor and manual brightness adjustment for comfortable use both day and night

- Integrated loudspeakers
- Simplified installation: OPEN LVDS interface and single cable
- Integrates many options giving it an extreme versatility for perfect integration in the most complete architectures

PASSENGER LCD DISPLAYS

- Single or dihedral TCP/IP 19" LCD screen: roof-mounted or fixings behind the screen
- Motorised LED 15.4" & 19" LCD screen: automatically folding roof-mounted
- Manual design 15" LCD screen: manually folding roof-mounted
- Fixed LED 15", 19" & 22" LCD screen: fixed roof-mounted
- OEM LCD screen: size, signal, mechanical system and mounting according to specifications for bus, coach, tram and train applications

SLAVE AMPLIFIERS

The ACT 350 amplifier is compliant with the regulations brought in on 3 May 2007 relating to public transport and persons of reduced mobility. The ACT 350 amplifies sound according to the ambient noise level (+5 dB) on the line, using the external loudspeaker as an ambient microphone when broadcasting vehicle destination.

Calibration of the external speaker and adjustment of levels are performed by its software. The ACT 350 also carries out the slaving inside the vehicle.



PC Car



I-HMI

GUARANTEEING

user safety

VIDEO SURVEILLANCE SOLUTIONS

The safety of passengers, drivers and persons is a major preoccupation in the transport world. The ACTIA® video surveillance solutions are particularly efficient and specially designed to comply with the new regulations and requirements relating to the safety of persons in public transport.

A RANGE OF RECORDERS

The BOP range integrates equally well in centralised security PC-type systems and in self-contained individual vehicle management systems.

These performances allow offences and anti-social behaviour to be rapidly identified in order to act as quickly as possible. ACTIA® offers a complete range of tailor-made services to optimise processing of video surveillance data, for example, the system can be interfaced with the telematics systems.

- **BOP HD** is compact and robust, and is easily integrated. It allows image acquisition in high definition (up to 25 images/s in MPEG- 4/H264 format). Its complete connectivity enables it to be interfaced with and communicate with all the ground and on-board systems:
 - MPEG4 / H264 format - Resolution 4 CIF
 - Up to 16 camera inputs
 - Up to 1000 hours of recording at 25 images/s for 4 cameras
 - EN50155 certification

STATION AND SOFTWARE

ACTIA® offers you a full range of custom services to optimise the processing of video surveillance data.

- **BOP REVIEWER STATION (Docking Station for Back-Office Reviewing)**
The recorded data is analysed on the BOP Reviewer Station with its Reviewer software application. It operates standalone from BOPs used for recording.

With its centralised data analysis and protected working environment, this system is designed to comply with the data protection regulations.

- **BOP REVIEWER (Analysis software application)**

The ACTIA® Automotive BOP Reviewer enables full analysis of the recorded data. It is easy to use and ergonomic, and allows the administrator to review video and audio sequences recorded on the vehicle.

Images are encrypted and can only be viewed by authorised persons using the BOP Reviewer. The large number of parameters available allows fast search through the data.

- **BOP camera**

The BOP camera range is compliant with the video protection requirements for passenger transport vehicles: high definition images, day / night function, vandal-proof and on-board standards (norms). Several different mechanical and design configurations are available for optimum integration: mini-dome, midi-dome, dome, mini-card, etc.



Camera



BOP HD



I N F O R M

and entertain passengers

ON-BOARD MULTIMEDIA SOLUTIONS

The experience gained by ACTIA® in the management of entertainment on board coaches allows us to offer highly innovative, complete and efficient systems with fast access to all the multimedia & navigation functions, as well as top-of-the-range on-board entertainment.

The new ACT range for coach has brought simplified operation with improved ergonomics, new functionality and significantly reduced costs. Radio DVD-USB, radio CD-USB, DVD-USB reader, TFT screens, VOD, individual seat audio, amplifiers, microphones, reversing system, mini cameras and DataVOX multilingual systems, the ACTIA® multimedia range satisfies all the passengers' entertainment and information needs for all vehicle types: tourist, intercity, school, city bus, city tour, etc.



ENOS II

- **ENOS II (Multimedia and navigation unit with hard drive and integral Bluetooth hands-free kit)**
 - Top of the range entertainment
 - Europe-wide GPS navigation for coach
 - User-friendly and customisable display
 - Multi-source connectivity
 - Music library
- **VOD (Individual multimedia screen with hard drive)**
 - Top of the range entertainment on demand
 - Multi-source facility: films, news, advertising, etc
 - Very wide choice of programmes
 - User-friendly and customisable display
 - Passenger comfort
- **ACT 500 (Radio DVD USB and dual zone amplifier)**
 - Complete entertainment module (ISO format)
 - Driver and passenger dual zone management
 - Multi-format radio RDS / DVD / CD / USB
 - 4x20W amplifier
 - 2 microphone inputs
 - User-friendly and simple
 - Steering wheel-mounted control and multi-display
- **WIRELESS GUIDE MICROPHONE (860 MHz 12/24V)**
 - Excellent audio quality
 - Several frequencies available
 - Option to couple 2 vehicles with the same frequency
 - Guide microphone and amplifier inputs
- **MOTORISED DESIGN LED 19" & 15" LCD SCREENS**
 - Automatically folding roof-mounted support
 - Ultraslim thanks to LED backlighting
 - Aluminium and ABS design



ACT 500

A complete and customisable

S E R V I C E

o f f e r

ACTIA Fleet is the ACTIA® service solution. It is based around the different professional functions which form ACTIA® Group's expertise: efficient driving, advanced vehicle maintenance and diagnostics, remote download of tachograph data.

EFFICIENT DRIVING

(Monitoring fuel consumption and driver performance)

The ACTIA® Fleet web application allows a certain number of reports to be printed per journey for fuel consumption and CO₂, and also for driver performance. The data is transmitted directly by GPRS from the on-board equipment (TGU, PC Car, etc.), processed by our servers and displayed in different formats.

The fleet operator therefore knows his total fuel consumption per journey, per vehicle, and the average consumptions. The driver reports indicate harsh acceleration and braking, rpm, pedal position and also harsh cornering.

REMOTE DIAGNOSTICS

(Optimisation of vehicle maintenance)

The ACTIA® Fleet web application is based on ACTIA® diagnostics expertise and connected to the SAMI on-board unit; it provides optimum monitoring of vehicle technical data to optimise vehicle use.

The solution allows real remote vehicle monitoring by sending vehicle fault codes to the back office, and by providing alerts on certain vehicle components.



A complete and customisable service offer

EASYTACH®

(Remote download of social data. Save time and reduce costs)

EasyTach® downloads the legal data from digital tachographs automatically and remotely: it is a major innovation for Operators, enabling them to optimise their time and management costs.

Associated with a tachograph with a Remote download capability, EasyTach® TGU (Telematic Gateway Unit) and the EasyTach® software application downloads digital tachograph and driver card data without the Operator having to go to the vehicle.

The Company card is remotely authenticated and connected to the management workstation. The scheduled downloads are directly received from the vehicle wherever it is (even in traffic) and made available on a secure server.

For more information: www.actiatachographs.com

A FLEXIBLE AND OPEN SOLUTION

The ACTIA® Fleet solution adapts to the needs of all transport operators, whatever the size of their fleet. Whether complete or modular, it integrates in the company's existing equipment: tachographs and on-board information systems, Telecom operators, data servers, archiving software applications, etc.

ACTIA® Fleet is therefore a guarantee of an upgradeable and long-term investment.



OUR COMMITMENTS

PROXIMITY

ACTIA® is there to accompany you throughout your project:

- A pre-sales support team analyses your requirements: our team of experts accompanies you right from the start of the project to help you define your needs
- A resident engineer is made available: true technical support throughout your project
- Local after-sales support on all continents: hot line, on-site intervention, after-sales service, etc
- Customisation and adaptation of our solutions to the customer's requirements, etc

The ACTIA® Group's worldwide deployment (15 subsidiaries and a dealer network) is your guarantee of a speedy and efficient intervention to keep your vehicle fleet in operational condition.

QUALITY AND ENVIRONMENT

ACTIA® guarantees you the highest quality levels at all stages of development and production:

- ACTIA® products are developed in the Group's design departments
- All our products are assembled and integrated on our production sites (France and Tunisia) which have a medium and long production run capability compliant with the quality standards of the automobile, aviation and rail sectors
- ACTIA® is part of an advanced environmental approach: lead-free production, RoHS, etc
- The medium size of the ACTIA® Group also ensures that your supplies are safe by retaining maximum flexibility

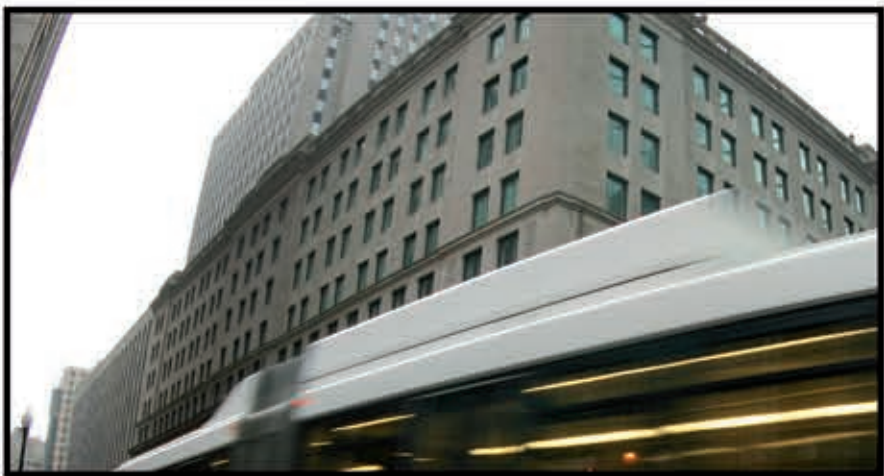
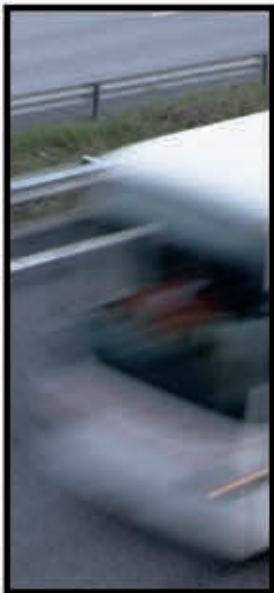
INNOVATION

ACTIA® is a forerunner, particularly in electronic diagnostics and multiplexed systems for vehicles. It anticipates the new expectations of its customers thanks to its professional expertise and its ability to innovate, guaranteed by major Research and Development investments. The creation of a scientific and technological committee bringing together recognised experts in electronics, software, mechanical engineering or components, and a strong partnership with different research laboratories place ACTIA® at the forefront of its various areas of activity.

ACTIA® has, in particular, played a major role within the EBSF project "The European bus system of the future", a research project undertaken by the European Commission, to improve the attractiveness and the image of bus transport with a systems approach. Associated with equipment manufacturers like ACTIA®, the project involves public transport operators, the organising authorities, bus manufacturers and research laboratories.

Keeping one step ahead, that is ACTIA® Group's motto.





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