



SOLUTION DATA SHEET

AVALON ROADSIDE PLATFORM

MLFF IN THE BOX – INTEGRATED FIELD INTELLIGENCE

A complete roadside solution for MLFF

AVALON is a modular, pre-integrated roadside platform for MLFF and ETC projects. It brings vehicle classification, identification, event correlation, local storage, power, communications and system monitoring into one coordinated operating environment.

WHY AVALON

MLFF integrators often need to combine cameras, RFID, axle sensors, LiDAR, controllers, networks, power systems and software from multiple suppliers. AVALON reduces this field-side integration burden by delivering a tested system architecture and a single engineering responsibility.

The platform also allows data sources to support and cross-check one another, improving passage validation and the quality of the record delivered to the Back Office



SOLUTION AT A GLANCE

- Integrated MLFF roadside hardware and software
- Axle, shape or hybrid vehicle classification
- One trusted vehicle-passage record for each event
- Project-defined redundancy, network and power continuity
- Customer-selected protocols and approved third-party devices
- Centralized health monitoring, diagnostics and local protection
- Modular expansion without replacing the full platform

ENGINEERED AVAILABILITY

Designed for up to 99.99% system availability when the selected configuration, SLA, site power and secure network conditions are satisfied

INVIS

GET IN TOUCH

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OUR OFFICE

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HOW AVALON WORKS

FROM FIELD EVENTS TO A TRUSTED VEHICLE-PASSAGE RECORD



FIELD EVIDENCE

- Axle sensors
- 2D LiDAR
- AEROS ANPR
- RFID reader
- GPS / time source

AVALON COORDINATION

- AVC processing
- NEXOR correlation
- Local storage
- Health diagnostics
- Protocol adaptation

TRUSTED RECORD

- Vehicle class
- Plate and ANPR
- RFID identity
- Dimensions / speed
- Quality and time flags

SUPPORTED CLASSIFICATION APPROACHES

1. AXLE-BASED

Surface-installed piezo or fiber-optic sensors measure axle count and spacing.

2. SHAPE-BASED

2D LiDAR provides vehicle profile, length, height, width-related and speed data.

3. HYBRID FUSION

Axle evidence and LiDAR geometry are combined for stronger classification and validation.

DESIGN BOUNDARIES

Vehicle classification by weight is not included. Axle counting is performed with road-surface sensors; camera-only AI axle counting is not used as the primary classification method. The Back Office remains outside the platform scope; AVALON securely supplies the validated passage record to it.



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SOLUTION BUILDING BLOCKS

INVIS AND APPROVED THIRD-PARTY TECHNOLOGIES IN ONE OPERATING ENVIRONMENT

Everything required at the roadside

FIELD ACQUISITION

- AEROS embedded ANPR cameras
- VILUM IR illuminators
- 2D LiDAR with INVIS processing
- Piezo or fiber-optic axle sensors
- Approved RFID reader and antennas
- Optional surveillance cameras

PROCESSING & DATA

- AVALON AVC engine
- NEXOR Zone Controller
- Passage correlation and validation
- Local storage and store-and-forward
- GPS / NTP / IEEE 1588 time support
- Remote monitoring and diagnostics

SITE INFRASTRUCTURE

- IP66 cabinet with active cooling/heating
- Industrial Ethernet switching
- ELION24 intelligent DC PDU
- AC PDU, ATS and UPS 10-3 kVA
- SPD, MBS and power protection
- Cabinet environment monitoring
- Optional secure 4G APN backup

OPEN WHERE THE PROJECT NEEDS IT

The customer may specify the project-approved RFID reader, approved cameras or other compatible field devices. INVIS adapts the interfaces, passage-data format and communication method required by the integrator or Back Office.

PRE-INTEGRATED. MODULAR. PROJECT-CONFIGURABLE.

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CONFIGURE THE SOLUTION

SELECT CAPABILITY LEVELS – NOT A FIXED FOUR-MODEL PRODUCT FAMILY



PROJECT CONFIGURATION FRAMEWORK

AVALON is configured around operational requirements. Standardized modules and validated combinations are used, while the customer selects the required depth in each capability area.

CLASSIFICATION	Axle-based LiDAR shape-based Hybrid fusion
PROCESSING CONTINUITY	Single processing path Recommended redundant AVALON AVC and NEXOR ZC
FIELD-DEVICE REDUNDANCY	Optional redundancy for LiDAR, axle sensors, AEROS cameras, RFID and network paths
CONNECTIVITY	Secure primary Ethernet / fiber Redundant switching Optional secure 4G APN backup
POWER CONTINUITY	Single or dual input with ATS UPS 10–3 kVA Project-defined backup runtime Intelligent DC distribution
DEVICE SELECTION	INVIS ecosystem Approved third-party devices Customer-specified project RFID reader
DATA INTEGRATION	Customer protocol and database format Secure Back Office delivery Local store-and-forward
MONITORING & SERVICE	Central health status Cabinet monitoring Remote diagnostics Project-specific SLA and support

INCLUDED IN THE SOLUTION

- System design, integration and configuration
- Installation drawings and installation supervision
- Commissioning support and agreed passage-data KPI responsibility

PROJECT BOUNDARY

Physical installation, civil works and their costs are excluded unless separately contracted. Reliable input power and a secure primary network remain project prerequisites.

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