

# AML Loading

AML Loading is one of the modules of the HINT AML suite. It is targeted at accounting and registration of the quantity and quality of the delivered products, when loading materials into trucks, railcars, barges and pipelines.



## Loading Control

Automated control of product loading in plants and product terminals offers significant advantages and can contribute in the following areas:

- Reduced inventories
- Increased handling capacity of the loading facilities
- Improved safety
- Reduced risk of errors, such as loading the wrong product
- Prevent loading by unauthorised customers
- Prevent customers from exceeding their quota

Main parameters impacting on the complexity of a loading system include:

- Loading by volume or by additional weighing
- Vehicle identification (badges RFID, Vision, etc.)
- Identification of customers and the products (paper, badges, barcodes, etc.)
- How many different products/additives are involved?
- Number of loading islands
- How many trucks per day, peak-load per hour?
- How many shifts does the terminal operate?
- Number of customers

## Integration

As supervisory application, AML Loading is integrated with lower level safety interlocks, access and traffic control when loading into vehicles, interface to weigh



bridges, badge-readers, truck, trailer and railcar identification RFID tag, etc. For custody transfer applications based on volumetric loading, AML Loading makes use of approved flow computers. If the registration of the delivered products is via weigh bridges, AML-Loading can use AML Metering PC based flow computing.

Peripherals and subsystems for loading automation systems have to satisfy a combination of the following constraints:

- Intrinsic safety requirements
- Custody transfer approval
- Tamperproof
- Environmental harshness and suitability for un-manned operations

In the majority of cases such subsystems are intelligent and allow a serial readout connection via TCP/IP or Modbus. For safety related parts of the application we frequently apply a PLC as subsystem for interlocking items such as:

- Grounding of the truck
- Position of ladder
- Resetting the volume counter
- Position of the loading arm
- Selection of the right additive
- Product code matching order and truck/compartment
- Weight matching truck capacity

For un-manned product loading facilities, where the driver of the vehicle loads the product himself, the safety/control and logistic requirements can be quite high. Depending on the degree of redundancy built into the system, facilities may be included to allow loading under manual control, with update of the system after repair of a failed module or subsystem. For product movements via a pipeline the application may include services such as pig handling.

# AML

Analysers Management, Metering & Loading

When quality information for the loaded product is required, quality data on the tank from which the product was loaded can be retrieved from a Laboratory Information Management System (LIMS) or Tank Information System (TIS). If the recipient requires information from an on-line analyser, AML Analyser Management can be included in the application to show that the quality information is valid.

#### *Web-based interfaces*

A key benefit of AML Loading is that all information can be made available via web-based interfaces. This means e.g. that a customer can see via his standard web browser, whether his driver has already arrived at the loading facilities or approve a change order online. Obviously all this happens at the highest level of cyber security.

### Supply Chain Management

Automation of a loading facility must be seen as part of the overall logistics of product marketing, distribution and supply chain management. For applications of low complexity AML Loading can generate the needed loading papers and road documents for the driver locally. Equally the application can support data entry forms to define the products and quantities to be loaded.

In most cases a loading terminal operates as one of several within the concept of a central inventory scheduling and planning system. Equally order processing and billing are in most instances centralised. In these cases AML Loading is a front-end to a centralised accounting and billing systems at the ERP level.

### Security Issues

As loading operations are related to high amounts of money, attempts for fraud need to be prevented. Hint can provide a function for maintaining up to date information on customers, truck drivers, trucks, badges and to adjust this when e.g. a badge has been lost, or a driver has shown up without valid papers.

For the same reason a very secure system for maintaining passwords should be part of the local loading system.

The system should further meet the highest standards of cyber security and the use of encryption, when transferring loading information.



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### Functions Supported

- Identification of personnel, transport vehicles, products or product batches
- Access control
- Weigh bridge interfaces
- Vehicle identification (RFID, badges, keys, bar-codes, transponders)
- All metering functionality
- Secure storage of loading information
- Logistics
- Generation of Loading documents

### Reports

Next to loading documents and road papers, AML Loading offers a set of predefined reports that can be exported to various formats, e.g. HTML, PDF, CSV, Excel.

Additional reports are defined on customer's request.

### Benefit

- PC based flow computer
- Hardware independent
- Scalable
- Remote maintenance
- Web-based, meaning access anywhere by authorised users
- Interfacing with ERP, LIMS and Process Automation Systems



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