

AML Loading





AML Loading is one of the modules of the HINT AML suite. It is targeted at accounting and registering 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
- The increased handling capacity of the loading facilities
- Improved safety
- Reduced risk of errors, such as loading the wrong product
- Prevent loading by unauthorized customers
- Prevent customers from exceeding their quota

Main parameters impacting 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 a supervisory application, AML Loading is integrated with lower-level safety interlocks, access, and traffic control when loading into vehicles, interface to weighbridges, 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 weighbridges, 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 crewless operations

In most 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 a subsystem for interlocking- ing 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 crewless product loading facilities, where the vehicle's driver loads the product himself, the safety/control and logistic requirements can be pretty high. Depending on the degree of redundancy built into the system, facilities may be included to allow loading under manual control, with an update of the system after repairing a failed module or subsystem. For product movements via a pipeline, the application may include services such as pig handling.

Web-based interfaces

A key benefit of AML Loading is that all information can be made available via web-based interfaces. This means that a customer can see whether his driver has already arrived at the loading facilities or approved a change order online via his standard web browser. 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 logistics of product marketing, distribution, and supply chain management. AML Loading can generate the needed loading papers and road documents for the driver locally for applications of low complexity. 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, centralized. In these cases, AML Loading is a front-end to a centralized accounting and billing system 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, and badges. Hint can adjust this when a badge is 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 encryption when transferring loading information.

Functions Supported

- Identification of personnel, transport vehicles, products, or product batches
- Access control
- Weighbridge 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 export to various formats, HTML, PDF, CSV, Excel.

At the customer's request, Hint can define additional reports on the customer's request.

Benefits

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

