



## ACCELLA

- managing the flows

Accella is a module-based software offering unique functionality for automation, operation and administration for petroleum terminals and oil distribution. Accella can be configured for individual terminals as well as network-based solutions for the central operation of regional, national and global terminal chains.

Based on in-depth knowledge of the value-chain, we offer scalable systems and services with documented increase of efficiency and reduced cost of operation. In today's market, where the trends show tough margins and hard competition, it is essential for management to have web-based access to real-time information from Accella.

## Accella//TISB

### - Tank Inventory & Stock Balancing module

## FEATURES

Supports different tank gauging suppliers:

- SAAB
- Enraf
- Endress+Hauser

Handles product receipts and generates receipt reports

Automatically updates product characteristics after product receipt to tank

Compensates for metallic expansion, floating roof ++ when calculating net volume

Supports multiple "owners" of the tank product

Trending & Leakage Control (Historical Data)

### General

The Accella//TISB, Tank Inventory & Stock Balancing module, may be installed as a part of a complete Accella installation or as a stand-alone module. The module offers built-in interface drivers to communicate with industry standard tank gauging systems from SAAB, Enraf and Endress+Hauser, plus standardized fieldbus systems. Input to this module may include tank level, temperature, density and water level (if available).

### Graphical View of Tank Data

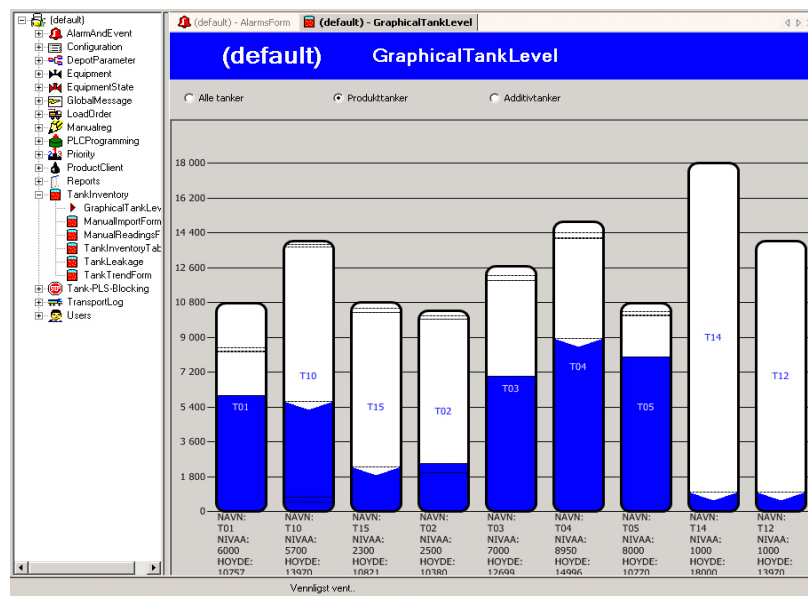


Figure 1: Graphical presentation of several tanks

This screenshot gives a graphical presentation of the level in several tanks simultaneously. Low- or high-level alarms are presented as coloured screen text and as an audible alarm. Arrows, as at tank T15 in figure 1, show level movement up or down.

# Accella//TISB - Tank Inventory & Stock Balancing module

Table View of Tank Data

| Status | Tank | TankID  | Level [m] | Temp [C] | Flow [m³/h] | Flow [kg/h] | Flow [t/h] | Flow [m³/d] | Flow [kg/d] | Flow [t/d] | Flowrate |
|--------|------|---------|-----------|----------|-------------|-------------|------------|-------------|-------------|------------|----------|
|        | T10  | GO 11 F | 10.0      | 10.0     | 10.0        | 10.0        | 10.0       | 10.0        | 10.0        | 10.0       | 10.0     |
|        | T11  | GO 12 F | 11.0      | 11.0     | 11.0        | 11.0        | 11.0       | 11.0        | 11.0        | 11.0       | 11.0     |
|        | T12  | GO 13 F | 12.0      | 12.0     | 12.0        | 12.0        | 12.0       | 12.0        | 12.0        | 12.0       | 12.0     |
|        | T13  | GO 14 F | 13.0      | 13.0     | 13.0        | 13.0        | 13.0       | 13.0        | 13.0        | 13.0       | 13.0     |
|        | T14  | GO 15 F | 14.0      | 14.0     | 14.0        | 14.0        | 14.0       | 14.0        | 14.0        | 14.0       | 14.0     |
|        | T15  | GO 16 F | 15.0      | 15.0     | 15.0        | 15.0        | 15.0       | 15.0        | 15.0        | 15.0       | 15.0     |
|        | T16  | GO 17 F | 16.0      | 16.0     | 16.0        | 16.0        | 16.0       | 16.0        | 16.0        | 16.0       | 16.0     |
|        | T17  | GO 18 F | 17.0      | 17.0     | 17.0        | 17.0        | 17.0       | 17.0        | 17.0        | 17.0       | 17.0     |
|        | T18  | GO 19 F | 18.0      | 18.0     | 18.0        | 18.0        | 18.0       | 18.0        | 18.0        | 18.0       | 18.0     |
|        | T19  | GO 20 F | 19.0      | 19.0     | 19.0        | 19.0        | 19.0       | 19.0        | 19.0        | 19.0       | 19.0     |
|        | T20  | GO 21 F | 20.0      | 20.0     | 20.0        | 20.0        | 20.0       | 20.0        | 20.0        | 20.0       | 20.0     |
|        | T21  | GO 22 F | 21.0      | 21.0     | 21.0        | 21.0        | 21.0       | 21.0        | 21.0        | 21.0       | 21.0     |
|        | T22  | GO 23 F | 22.0      | 22.0     | 22.0        | 22.0        | 22.0       | 22.0        | 22.0        | 22.0       | 22.0     |
|        | T23  | GO 24 F | 23.0      | 23.0     | 23.0        | 23.0        | 23.0       | 23.0        | 23.0        | 23.0       | 23.0     |
|        | T24  | GO 25 F | 24.0      | 24.0     | 24.0        | 24.0        | 24.0       | 24.0        | 24.0        | 24.0       | 24.0     |
|        | T25  | GO 26 F | 25.0      | 25.0     | 25.0        | 25.0        | 25.0       | 25.0        | 25.0        | 25.0       | 25.0     |
|        | T26  | GO 27 F | 26.0      | 26.0     | 26.0        | 26.0        | 26.0       | 26.0        | 26.0        | 26.0       | 26.0     |
|        | T27  | GO 28 F | 27.0      | 27.0     | 27.0        | 27.0        | 27.0       | 27.0        | 27.0        | 27.0       | 27.0     |
|        | T28  | GO 29 F | 28.0      | 28.0     | 28.0        | 28.0        | 28.0       | 28.0        | 28.0        | 28.0       | 28.0     |
|        | T29  | GO 30 F | 29.0      | 29.0     | 29.0        | 29.0        | 29.0       | 29.0        | 29.0        | 29.0       | 29.0     |
|        | T30  | GO 31 F | 30.0      | 30.0     | 30.0        | 30.0        | 30.0       | 30.0        | 30.0        | 30.0       | 30.0     |

Figure 2: Table

Another way to present the level, temperature etc. of several tanks is by using a traditional table. Arrows indicate the status of movement up or down in the tank. If a tank is out of order, a stop sign is shown.

## Trending, leakage

The **Trend** screen shows a graphical presentation of level or temperature over time. All measurement values are logged periodically, typically every 15 minutes. Several trend graphs may be presented simultaneously with different colours. The scales adjust automatically based on the time period on the X-axis and the measured value on the Y-axis.

The **Leakage** screen presents leakage status from all the tanks. Leakage is defined as a change in tank level during a period of no import or export. The leakage screenshot also shows historical leakage events.

## Stock balancing (Reconciliation)

A powerful function in this module is tank reconciliation. Level changes for a specific tank during a specific time period are compared to the actual export and import from the tank during the defined period. The time period is user configurable. A special reconciliation report is included in this module.

## Product receipt - Import

Start and stop of tank import is controlled by an import function within the module. Figures showing shipping from the tanker may be inserted. After an import is finished, an Import Report is generated with the following information:

- The name and references for the tanker & ship figures
- Level and temperature before and after the import
- Net imported volume and, if possible, weight
- Variance between imported volume and the ship figures

Upon simultaneous import to several tanks, a collected report could be presented for the total of those tanks.

When the imported values for weight (density), content of benzene, content of sulphur and other characteristics are entered in Accella, the new characteristic values for the tank is automatically calculated based on weighted average for the tank before and after the import.