



Level



Pressure



Flow



Temperature



Liquid  
Analysis



Registration



Systems  
Components



Services



Solutions

## Tankvision – It's all in the Cube

The browser based inventory management system  
for Tank Gauging



## Tankvision – Get your flexibility, functionality, profitability

Tankvision is a state-of-the-art tank inventory system with unique features, making your inventory data easier to access. Based on webservice technology, Tankvision allows access from any PC within the network.

### **A standardized platform for collaboration**

The system is highly modular, resulting in a scalable solution adaptable to your needs. The system is really PC software independent – no longer are you dependent patches and updates.





Tank inventory management requires accurate monitoring of multiple parameters from the tank and then displaying this data effectively to your operator. The features of Endress+Hauser solutions are based on the content and application of individual tanks and groups of tanks from custody transfer to inventory control.







## Tankvision – Thinking of everyone and seeing the individual!

Tankvision is ideally suited for small tank farms with only a couple of tanks, but also for large refineries with hundreds of tanks and demanding host interfaces

### Web Server Technology

- Open connectivity, based on LAN (Ethernet) and XML
- Operating System (O/S) independent (Windows & Linux)
- Total Web page based User Interface (HTML)
- Cross Browser compatible (IE Explorer, Netscape, Opera)
- Suitable for W&M applications
- The user interface is via web pages in the Tankvision – any browser can access data.
- No software to install
- No limitations to certain PC's on the network
- Local & Remote connectivity is possible – as long as company policy and firewall permits so
- All configuration is done via web pages – but configuration files – in XML format – can be uploaded/downloaded – even modified
- Multiple users at the same time are allowed

### The following 'components' are part of the Tankvision concept:

- Tankscanner with optional Inventory Calculations
- Data Concentrator
- Host Link
- OPC Server
- Alarm & Printing Agent





# Tankvision – Visionary in concept

## Architecture

### Tankvision – Tank Scanner

The Tankvision Tank Scanner connects multiple tank gauges via one field-loop. It can handle a maximum of 15 tanks. Several gauge protocols are supported. Most used are:

- Endress+Hauser Modbus
- Sakura V1

Optionally, the Tank Scanner can be equipped with a full set of tank inventory calculations. The calculations are based on various International Standards, such as API, ASTM, IP and many others. It is possible to do full conversion from level to TOV, GOV, NSV, weight and mass, etc. with many special corrections such as S&W, CTSh, floating roof, LPG vapor, etc. A total of more than 85 different methods are implemented in exact compliance with the relevant documents and standards. As stated earlier the, Tank Scanner can be used stand-alone for small tank farms or be integrated into a large system for use in refineries.

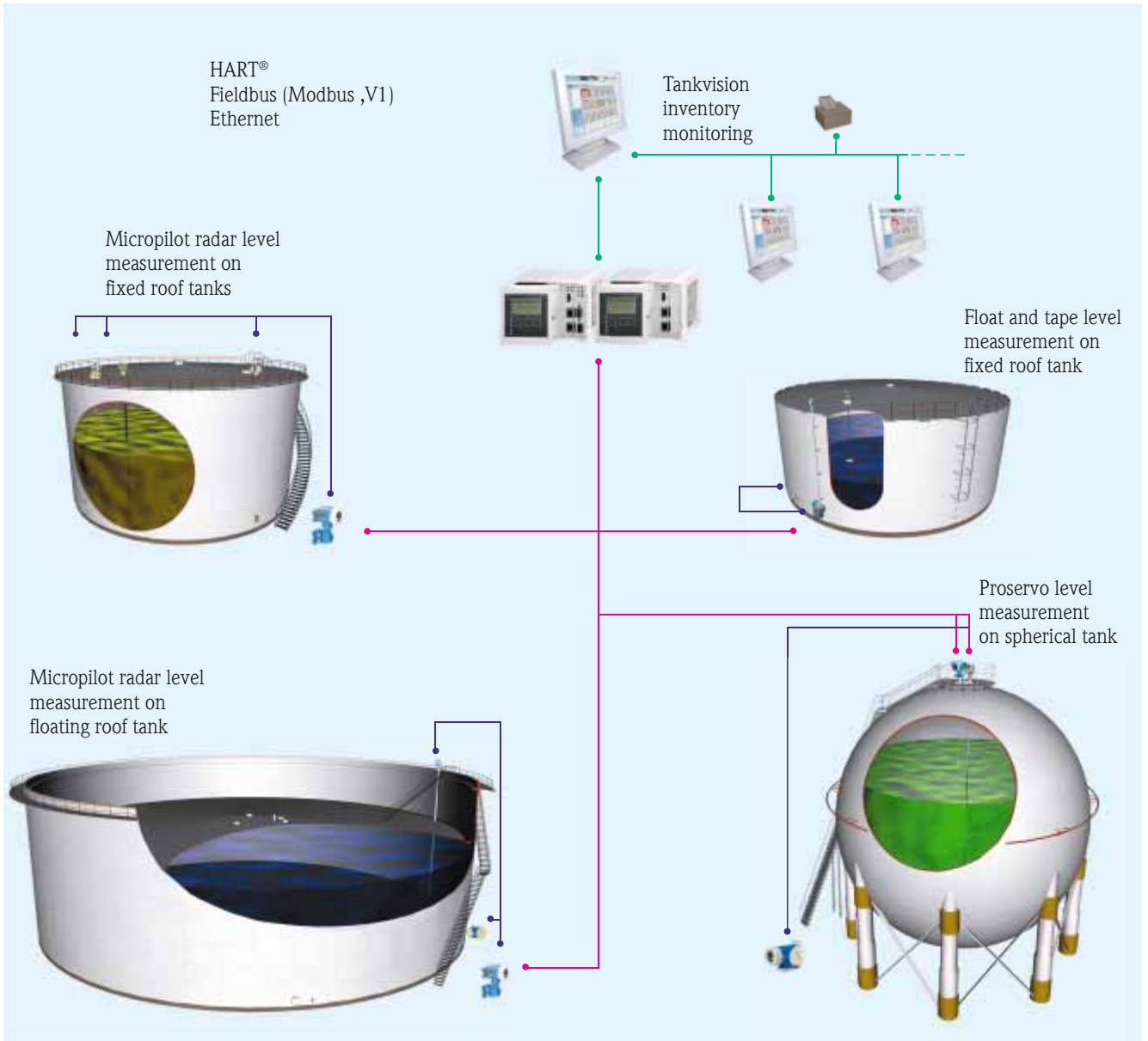
### Tankvision – Data Concentrator

The Data Concentrator is the enhanced solution for large tank farms and refineries (hundreds of tanks). It collects the data of several Tank Scanners and allows the ability to reconcile and totalize tank data of many or all tanks. The ‘Grouping Function’ enables you to create both static and dynamic groups. Static Groups with fixed Tank membership, while in dynamic groups the tank membership can be defined on basis of real-time tank data. These groups are a single access point to tanks and help the operator(s) to have an easy overview of the inventory of your tank farm.



### Tankvision – Host Link

The Host Link enables you to connect your inventory system via modbus to your DCS/PLC system. All measured and calculated data, complete with status and measured units, are available for the host computer system for control, automation, logistical or administrative purposes. If necessary, multiple Host Links can be deployed. Each Host Link unit is completely independent of the others. Using the Host Link, the ‘data map’ can be fine-tuned exactly to your needs. Host Links are already available with modbus, both serial and TCP/IP. This is an ideal solution for connection to computer systems of customers or suppliers.



# Tankvision – Consider different points of view!



## Applications

### Marketing and Tank Terminals

#### Tankvision for management and technicians

##### Monitoring level and inventory

Level and other measured and calculated data, such as temperature, mass, pressure, density, rate of flow and gross and net standard volumes are displayed at the local operator workstation. Full API/ASTM compliant calculations ensure accurate and real-time inventory data of your liquid hydrocarbon stock for inventory control and custody transfer.

##### Graphical user interface

Each screen provides a graphical representation of your tank or tank farm that is easy to interpret and intuitive to use. Displays are fully configurable to meet your specific requirements. Standard tank objects are provided for ease of configuration with standard templates for various tank types. Full color support is provided with unlimited customization.

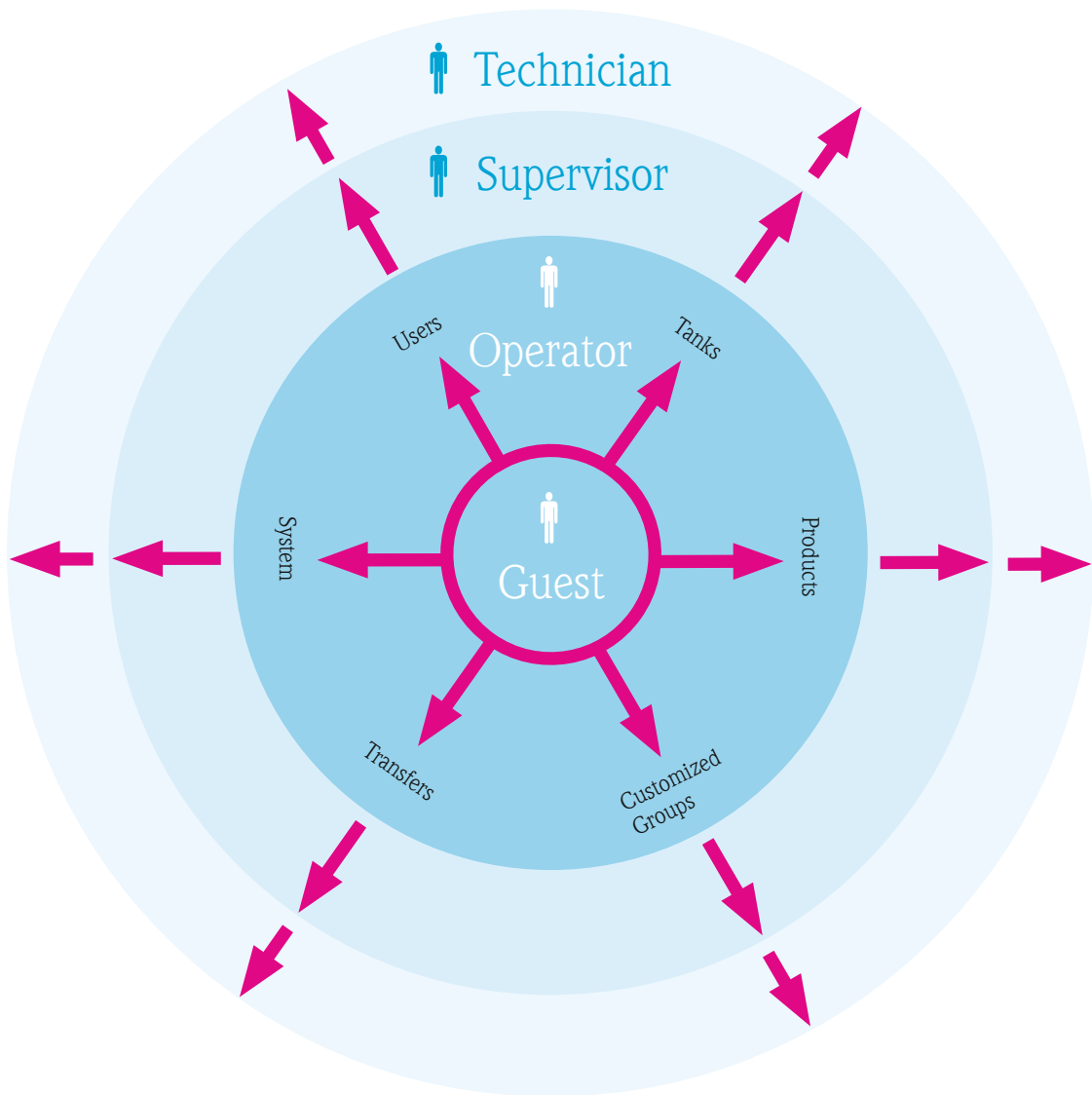
##### Configuration and navigation:

- Access dependable configuration rights
- Coloring indicates configuration possibilities
- Intuitive configuration concept
- Configuration level separated from operating level

##### Remote configuration

Direct access to gauge via HART® access.





■ Layer model for easy navigation and configuration

# Tankvision – Focus on your standard

## Redundancy:

- Full hot standby redundancy – for data, field scan & settings
- SYNC link for 'data replication between primary and secondary
- Switch-over is full-automatic on fail; switch-back is manual
- Redundancy is per unit



■ Host Link



■ Data Concentrator



■ Tank Scanner +  
Inventory  
Calculations



# Integration

## Integration to DCS/MIS systems

Tankvision inventory management system connects to terminal software and DCS/MIS systems. A dedicated OPC server provides data to any process control system that supports an OPC client interface, including DCS/MIS and SCADA systems. Terminal and tank farm operators can:

- Access measured and calculated tank data via a host link
- Interface to host systems (DCS) that provide OPC client

## Integration to enterprise computing systems

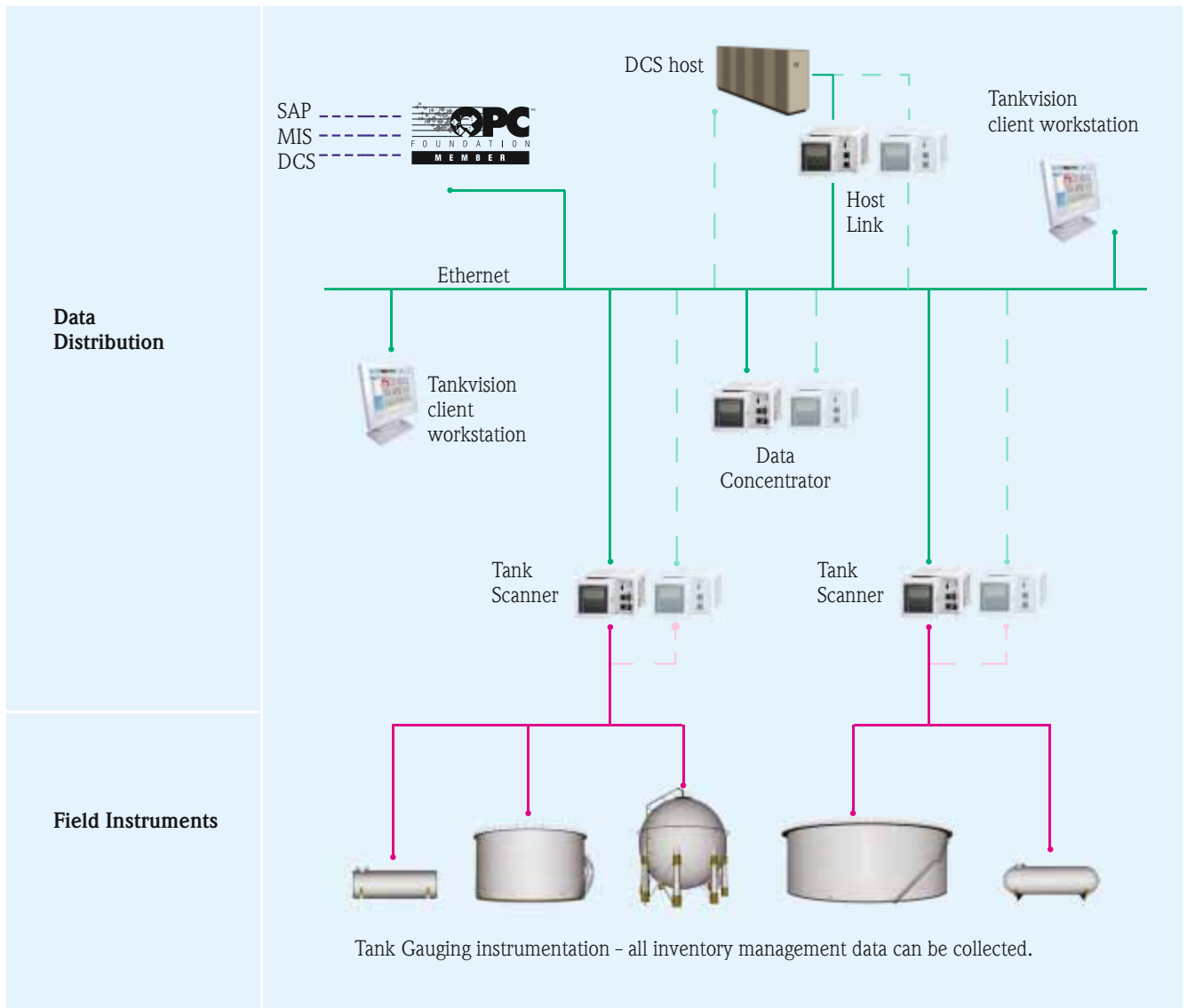
In various applications, data is distributed via networks or host computer systems, allowing effective communication to management and enterprise level systems. Extensive network capabilities offer the opportunity to have real-time data at any connected location for administrative and accounting purposes. This delivers the means to monitor and control product movement throughout its entire journey, from storage at tank farms to distribution at marketing terminals into trucks, trains or marine vessels.

## Redundancy

Tankvision can be easily installed as a redundant system, in order to support automatic and manual switch over. Only a secondary unit must be added

## Other features

- Volume correction
- Historical trending
- Oil movement capabilities
- “What if” tank calculations
- External alarm management
- Remote systems support
- Online configuration and diagnostics
- Overfill protection



# Endress+Hauser – working with you every step of the way



Endress+Hauser is a major supplier of measurement instrumentation and inventory control systems for monitoring and controlling bulk liquids during processing, transportation and storage. Within your refinery or tank terminal, this includes design, production, installation and servicing of instrumentation, data acquisition and control systems. Endress+Hauser has the

largest installed base of instrumentation throughout tank farms, depots and terminals worldwide.

With Endress+Hauser, you have the choice of tank gauging instrumentation and systems that are compatible with various communication protocols. All this, from a company with a full range of process instru-

mentation as well. With so many options to consider, you can count on Endress+Hauser to work with you every step of the way to help you choose the best solution to satisfy your application requirements.

[www.tank-gauging.endress.com](http://www.tank-gauging.endress.com)

## Instruments International

12.06/1.1

Endress+Hauser  
Instruments International AG  
Kaegenstrasse 2  
4153 Reinach  
Switzerland  
Tel. +41 61 715 81 00  
Fax +41 61 715 25 00  
<http://www.endress.com>  
[info@ii.endress.com](mailto:info@ii.endress.com)