

VAE CONTROLS GROUP

TAMAS

Tank Management System

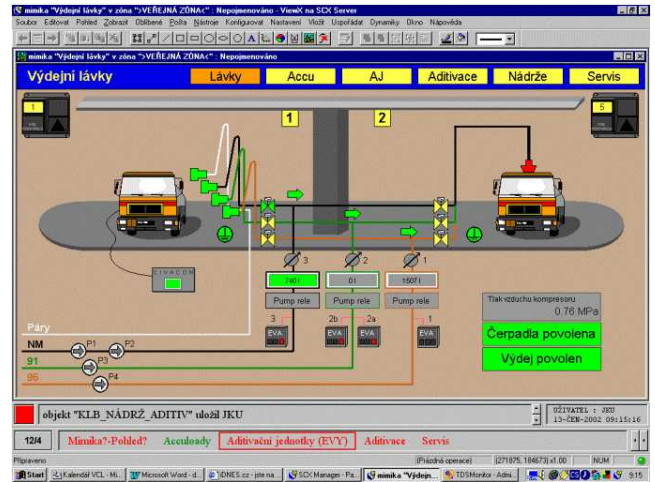
Tank Farm Automation And Administration



TAMAS (T**ANk** M**A**nagement S**Y**stem) is a computer based system for tank farm and terminal automation, process visualisation, database and administration management

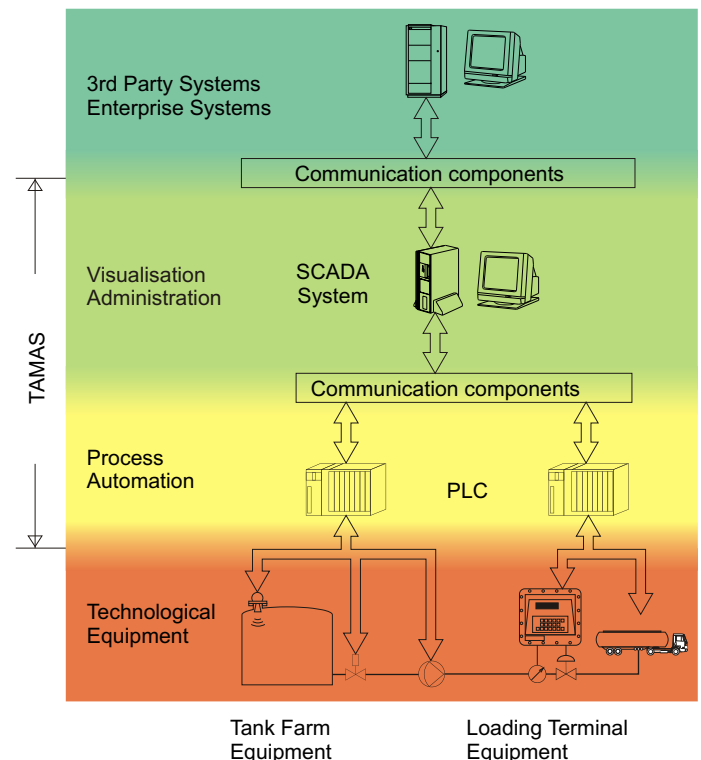
Features

- Automatic operation of the technological process
- Process visualisation
- Dispatching control
- Alarm and event handling
- Distributed intelligence
- Safety procedures control
- Archivation of data
- Self-service operation using identification cards
- Custody transfer; Volume, mass and density measurement
- Pressure and temperature compensation
- Recalculation of the volume at reference temperature
- Printing of the bill of delivery
- Prevention of products cross-over mixing
- Additive dosing control
- Vapour recovery and recuperation control
- Emmission limits control
- Tanks level and pressure monitoring
- Leakage protection
- Environmental protection
- Prouct pipe-lines handling, product recognition
- Tank farm administration
- Communication with other information systems



System Design

TAMAS is designed as multi-level system as shown on the diagram below.



Conception of the system

Fuel terminals are technological units designed to place high demands on the reliability and safety of operating systems and providing quick access to technological data. Working with highly flammable and hazardous materials puts these systems among those designated Mission Critical Systems which must provide reliable operations even during special situations, such as power brak-down or failure of several system components. TAMAS is fully integrated control system which interfaces all technological equipment and provides its automation and dispatching control.

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TAMAS is extremely reliable system thanks the multi-level architecture design that guarantees safety operation of the technological equipment even if some of the upper level fails.

Process Automation

This term refers to a system of one or more programmable PLC devices which ensure basic algorithms and blockades. All input and output signals as well as the communication lines are led to these PLCs. So, the PLCs have Front-End-Driver (FED) function.

To provide a sturdy system with ease possibility of expansion and maintenance, each technological part is operated by a separate PLC. These devices communicate mutually and with the upper SCADA system via redundant bus, mostly based on fiber optic cables.

Typical tasks provided by PLC level:

- Measuring levels and other quantities in tanks
- Identification system
- Communication with flow-computers and additive units during the fuel loading
- VRU control
- Controlling the acceptance and loading of products via pipelines

SCADA System

The architecture of the system is client/server based. Optional installation of the hot-stand-by server ensures a smooth operation even during a power outage or disconnection of one of the servers. System of individual users and passwords ensures safety access to data and services, various levels of user privileges as well as administration and development of the system.

Servers and clients run PC computers with Windows XP operating system and Serck Controls SCX SCADA system. TAMAS uses the functions of SCX inclusive the comfortable user interface, data visualisation, report printing, alarm handling and a collection of technological data stored in the database.

SCX SCADA delivered with the TAMAS system is world-wide used standard system with multi-language support, which guarantees expandability and service of the system in future.

Administration part of the system provides tools for database handling, batch processing and cooperation with enterprise system. Main functions of the application are registration and identification of drivers, clients, trucks and transactions, contract evaluation, loading permissions, certification, configuration of products and additives, printing of loading lists and exporting data to an enterprise system (SQL Server, ORACLE, ODBC).

