



## Cyprus Petroleum Refinery Tank Gauging Inventory Management

### Description of works

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Supply and supervision of installation and putting in to operation of a tank gauging system consisting of:

FIELD INSTRUMENTATION.

INTERFACING UNITS.

CONNECTION TO SUPERVISORY UNIT.

For:

23 Tanks, viscosity below 1000cst. (Servo Gauge with displacer)

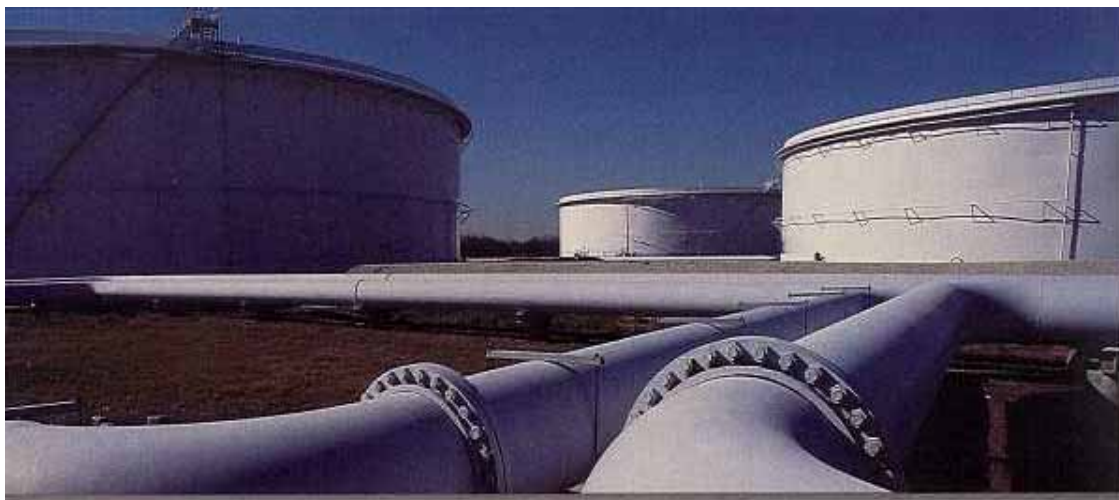
11 Tanks, viscosity above 1000cst. (Radar Level Gauge)

For field instrumentation we have selected servo-gauges, Endress+Hauser PROSERVO, for 23 tanks containing products with viscosity below 1000cst and radar level gauges, Endress+Hauser MICROPILLOT, for 11 tanks that contain products with viscosity above 1000cst (bitumen).

Measurement with PROSERVO servo-gauges provides highest reliability and best measuring accuracy of  $\pm 0,7\text{mm}$  over the full measuring range. Furthermore the PROSERVO has the ability to measure level, density, as well as interface between two media, i.e. crude oil and water.

Additionally, an averaging temperature probe, wired directly to PROSERVO at the tank top, provides temperature compensated volumes, which are mandatory for inventory control and custody transfer functions.

MICROPILLOT radar gauges combine the advantages of the contactless level measurement in harsh industrial environments with high accuracy and performance safety.

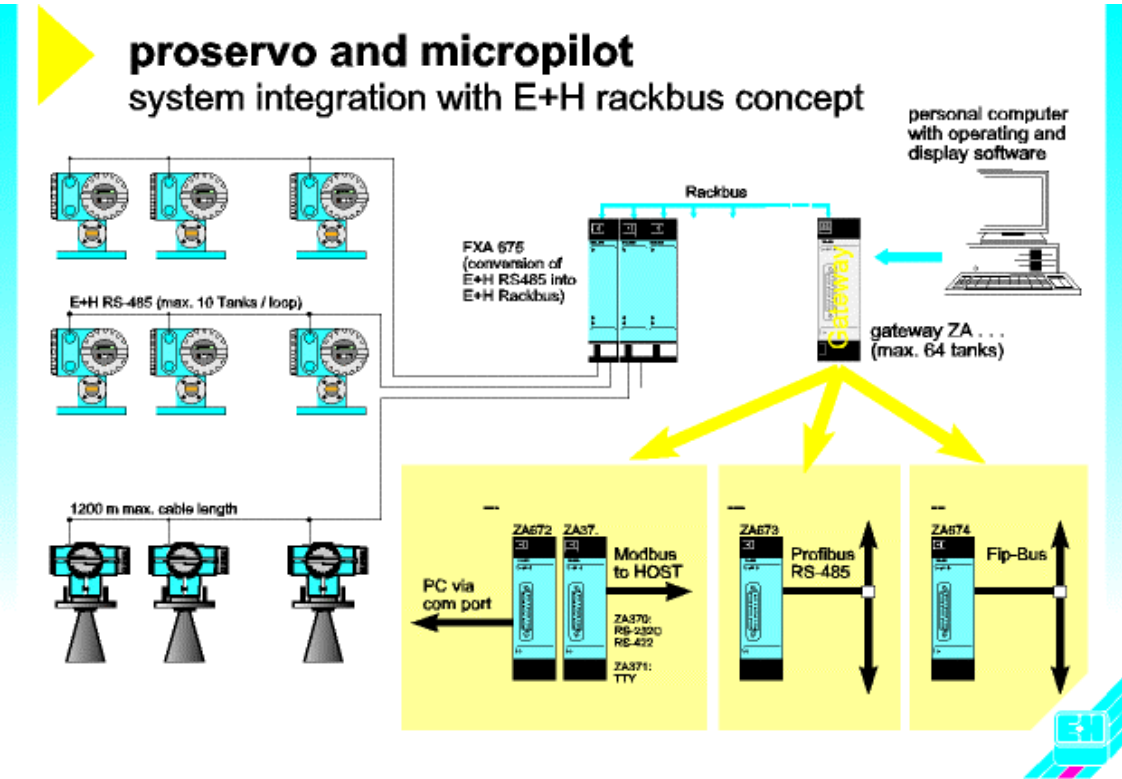


All information from PROSERVO's and MICROPILOT's are transferred via RS485 (twisted pair signal cable, maximum 1200m loop) to a personal computer in the control room.

RS485 loops are handled by 3 interface electronic cards FXA 675, two loops of 10 gauges each per card and the data traffic between the instruments and the personal computer is controlled by one gateway card ZA672 for RS232 connection with standard MODBUS protocol.

Special software packages COMMUWIN II and SAKUWIN support the whole system.

Future expandability of the system is accomplished, simply by adding measuring points on the existing or new RS485 loops and new interface cards. Furthermore interface with other supervisory systems through protocols other than MODBUS i.e. PROFIBUS, FIP etc., is as simple as replacing the gateway card ZA672 with other cards from the Endress+Hauser range.



Micropilot