Partner For Level & Flow Measurement

Situation

- When a rail car of crude vegetable oil / finished vegetable oil arrives at the plant / storage terminal, it is important to know that the receiving storage tank will have sufficient room to accommodate the oil shipment.
- While delivery of the finished vegetable oil to various industrial users, it is essential to know the amount of the oil available at that time and is unloaded from the tank i.e., the oil sold.

Current Practice

- At many plants, storage tank levels are measured manually. This requires an employee to climb to the top of a tank and take a level measurement.
- Since product shipments are calculated on the basis of mass, the difference needs to be calculated in kgs of product in order to determine if sufficient oil was available for the oil transfer or to determine the amount of oil delivered to the users.

Challenges

- Lack of accurate and timely data to make realtime decisions
- Man power requirement to manually check the level of oil in tanks and do the calculations
- Limited availability of personnel and skill sets

SBEM's Solution

- Monitor tank farm for up to any number of tanks
- Display of Level
- Display of Volume (with the help of strapping tables which relate the liquid level to volume)
- Display of mass (with manual entry of density)
- Display of temperature
- Easy installation - Narrow beam Pulse Radar, 138K56 allows installation practically anywhere in the tank
- Proven in various industrial environment
- Graphical Display
  Single tank at a time with all parameters data
  Selection of Tank No. to view a particular tank data
- Data logging and Trending
- Operator friendly software

Extended features

Keeps informed ..

- SMS Alerts (Time / Event driven). All concerned to get SMS of tank status at predetermined interval or on the occurrence of alarm.
- Information of every transaction without being on site or in control room.

Benefits to Customer

- Delivers right product to right transport at right time; reduces waste and re-work
- Goods transferred without delay or waiting, shipments are in time.
- Delivery of the right quantities..
- Accurate billing based on shipped goods.

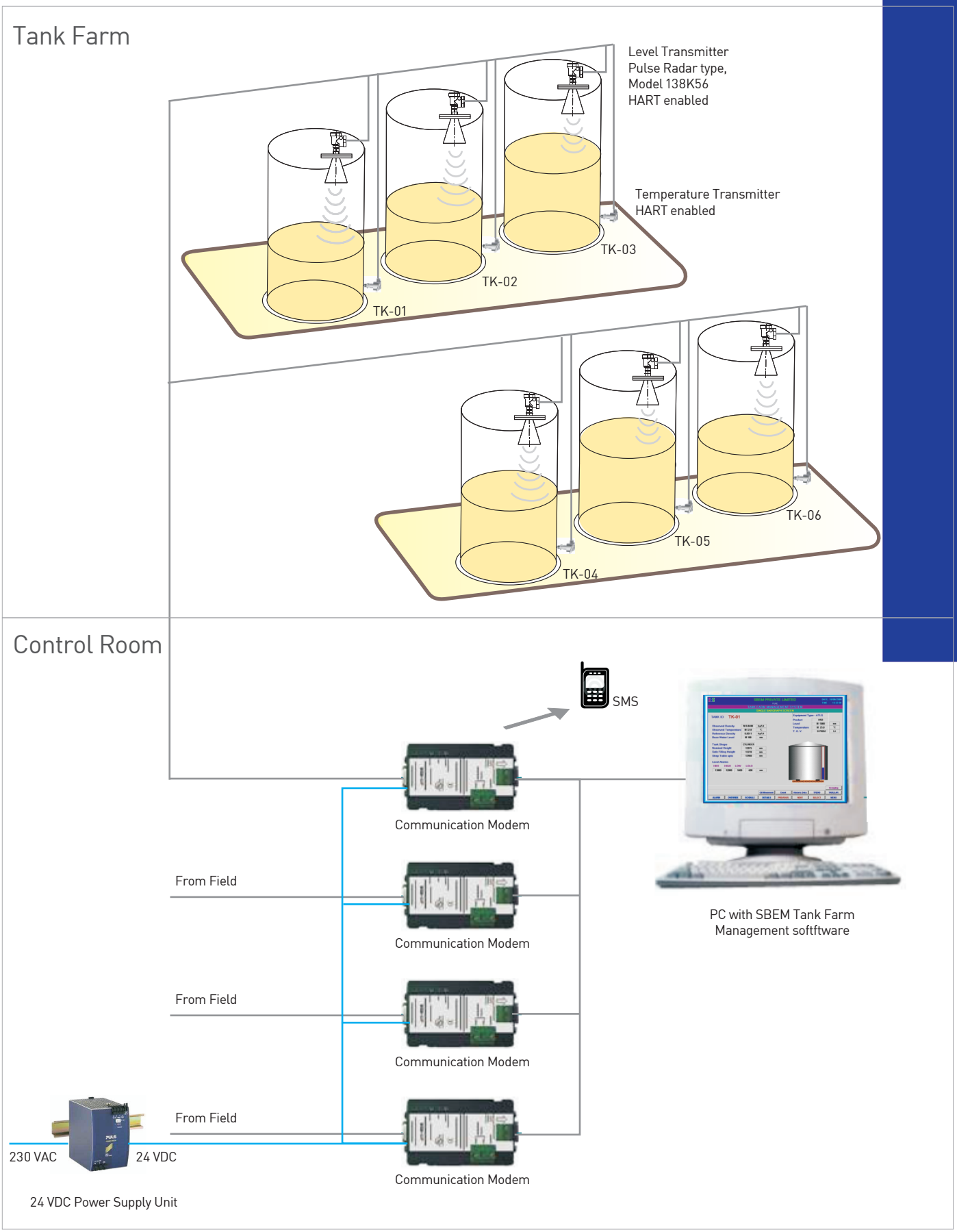


Fig. 1 Tank monitoring system using 138 K56 PULSE Radar Level Transmitter, Temperature Transmitter & SBEM Tank Farm Management Software, TFMS

Level measurement

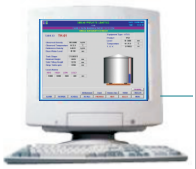
The level in each storage tank is measured with a 138K56 PULSE RADAR Level Transmitter. The 138K56 instrument provides continuous monitoring of liquid levels up to 30 mtr with a 1 mm resolution. It is a loop-powered device available with a 4-20 mA analog output signal. For this application, the 4-20 mA output with HART communications model is used and the transmitter needs to be configured using SBEM TFMS software via a HART modem. The output signal is configured to indicate the storage tank level in mm. It can either be used to indicate the outage level (distance) in mm from the design full level mark.

Temperature measurement

As the density of the oil changes w.r.t. temperature, it is essential to measure temperature so that the correct density is considered for mass calculations. The temperature in each tank is measured with a temperature transmitter using an RTD sensor. The temperature transmitter is a loop-powered transmitter that provides a 4-20 mA output signal and supports HART communications.

Data Acquisition & Monitoring system

The SBEM tank farm monitoring system consists of a PC running Tank Farm Management Software, TFMS. Operator Interface software,TFMS is a graphical software package that provides a dynamic interface and real-time data for process monitoring and supervision. In a traditional system, the system would read the level and temperature signals directly as 4-20 mA analog input signals. In addition, the system can handle the volume, density and mass calculations, and the PC would be an operator interface.



SMS on Mobile phones

Total 10 reporting mobile numbers can be configured. Configuration via preformatted SMS. Status reporting at a predetermined interval of time. Alarms as per the configured set points. Current tank status can be known at any time.

Benefits

Cost Savings

Easy to Install

Increased Productivity

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