

# FLOW INSTRUMENTS



## LIQUID FLOW METER UPGRADE FOR TANKERS

### CASE STUDY #8

#### Customer Project Description

Flow meter with integrated PumpSmart™ functionality yields savings on pump maintenance and increased reliability of trailer. A major global gas supplier with one of their air separation plants located in Delaware, USA, supplies customers in the greater Philadelphia area with cryogenic liquids. The distribution is done utilizing a fleet of cryogenic tankers equipped with hydraulically driven pumps. Maintenance on the equipment is generally performed on site in a dedicated workshop.

#### Test Challenges

Cryogenic pumps require maintenance on seals and bearings at intervals which depend on a variety of factors such as proper cool down, cavitation and loss of prime events, plumbing layout and the skills of the operator. Typical maintenance intervals run from a few months up to a year whereas pump rebuilds cost up to \$2000 USD (parts and labor) plus trailer downtime. Always ensuring proper cool down of cryogenic pumps and operation according to the pump manufacturer's specification is a requirement toward increased lifetime of the equipment.

#### Test Solution

Introducing an automated monitoring of cool-down temperature, time and other parameters combined with a pump interlock (pump power locked-out unless all sensors are a go) has the potential to dramatically increase the maintenance interval and thereby reduce maintenance cost. This task requires some logic, sensors, and electronics, which should be rated for automotive applications. A flow meter is required for measuring the delivered amount of liquid, which is an ideal hardware platform at minimal cost to supply these features. The Flowcom 2000 flow metering system has the capability of providing the required functionality also referred to as PumpSmart™.



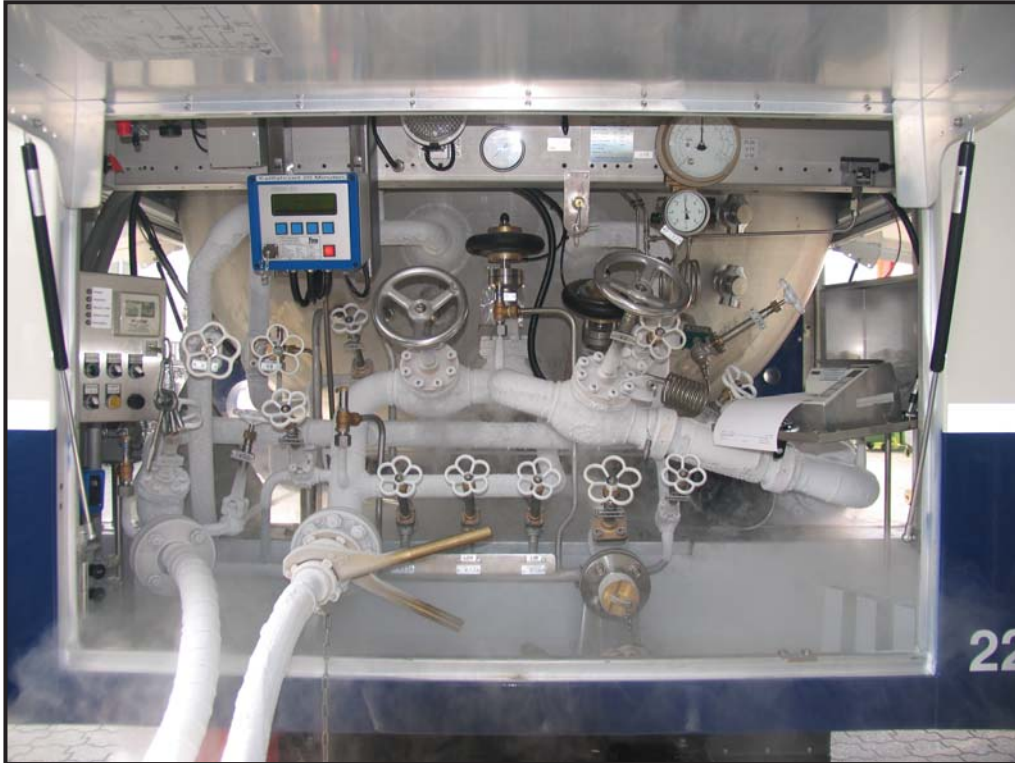
Typical cryogenic tanker plumbing with traditional turbine flow meter system.

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Typical plumbing updated with Flowcom 2000 meter system.

### Test Results/Benefits

In November 2008, a Flowcom 2000 flow metering system was installed on a semi-trailer in LIN service. Its pump had already been in service for one year. The PumpSmart™ logic was tied into the trailer's pump control circuit, enabling the Flowcom to prevent the pump from being run outside its spec. One year later, the maintenance record of the trailer showed that the pump had still not been serviced after being in use for two years.



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