O²-PID
Overfill Prevention and Product Identification
for fuel drop at petrol stations
O²-PID
Overfill Prevention &
Product Identification

Application
The O²-PID System is a safety device to prevent the overfilling of storage and bunker tanks when filled with petrol, diesel or fuel oil. The system consists of an optical liquid detector with product identification (O²-PID) in the storage tank and an evaluation system (PRD) in the road tanker. The detector continuously monitors the filling of the tank. The evaluation system (PRD) detects the correct hose connection (ASS/HCC), the product quality (QSS/COP) and the condition of the overfill prevention sensor. Unwanted mixing of products due to wrong connection is prevented.

Benefits of the overfill and cross over prevention system with O²-PID

- Much easier handling of the fuel drop
- No extra cable at the road tanker is needed for the overfill prevention
- The connection to the O²-PID detector is realized by electrically conductive hoses
- Automatic hose connection control (HCC)
- Reliable low power optical overfill prevention sensor
- According to EN 13616 and EN 14116
- Product mix is no longer possible because of product identification
- The product code is stored in the O²-PID and can easily be changed by the customer
The System

There are three important tasks that are served by the new O²-PID

- Overfill prevention for the fuel drop
- Product identification (PID) for cross over prevention (QSS/COP)
- Hose connection control (HCC)

Function

The typical fuel drop at a petrol station is shown in the 1st figure: the fuel (blue) displaces the vapour in the storage tank (yellow) and leads it back into the compartment of the road tanker. The road tanker is connected to the storage tank via electrically conductive hoses (see figure 2).

The connection couplings of the hoses are electrically isolated. Therefore it is possible to supply the O²-PID fluid detector with an intrinsic safe current and to read its measured values. The status of the detector is interrogated 10 times per second. If a liquid touches the optical prism of the O²-PID detector, the status of the detector changes and a corresponding signal is transmitted to the road tanker electronics (PRD). Every evaluation in accordance with EN 14116 can read the PID and overfill information!

A typical filling at a petrol station

The O²-PID system
Technical Data of O²-PID

Operating data
» Temperature range: -40 °C to +60 °C
» Pressure range: 0,1 MPa

Optical detection principle
» Prism: Polysulfon

Materials
» Wetted parts: Stainless steel 1.4301 (304); Brass; Viton; Polysulfon

Dimensions
» Diameter of sensor tube: 16 mm
» Length: 600 mm
» Screw-in unit G 1
» Cable connection: 2 m of two wire lead

Approvals
» Overfill prevention device EN 13616
» Communication of PID: EN 14116
» ATEX: II 1 G Ex ia IIB T4 Ga

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