



O²-PID

Overfill Prevention and Product Identification

for the fuel drop at gasoline stations



O²-PID

Overfill Prevention & Product Identification



EN 13616
EN 14116

Application

The filling sensor is a safety mechanism to prevent overfilling of storage and bunker tanks, when they are filled with gasoline, diesel, and fuel oil from road tankers. It consists

of a level sensor inside the tank and a QSS/COP (Cross Over Prevention) system inside the road tanker.

The QSS/COP and the ASS functionality are part of the

O²-PID safety system that prevents the blending of products due to a faulty connection and checks the hose connection to the road tanker during the filling process.

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

- Much easier handling of the fuel drop
- No extra cable at the tank truck is needed for the overfill prevention
- The electrical connection is realized by the conducting hoses
- Automatic realization of the hose connection control
- Reliable low power optical sensor
- According 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

- Control of correct connection of hoses (ASS)
- Product identification for cross over prevention (QSS)
- Overfill prevention for the fuel drop

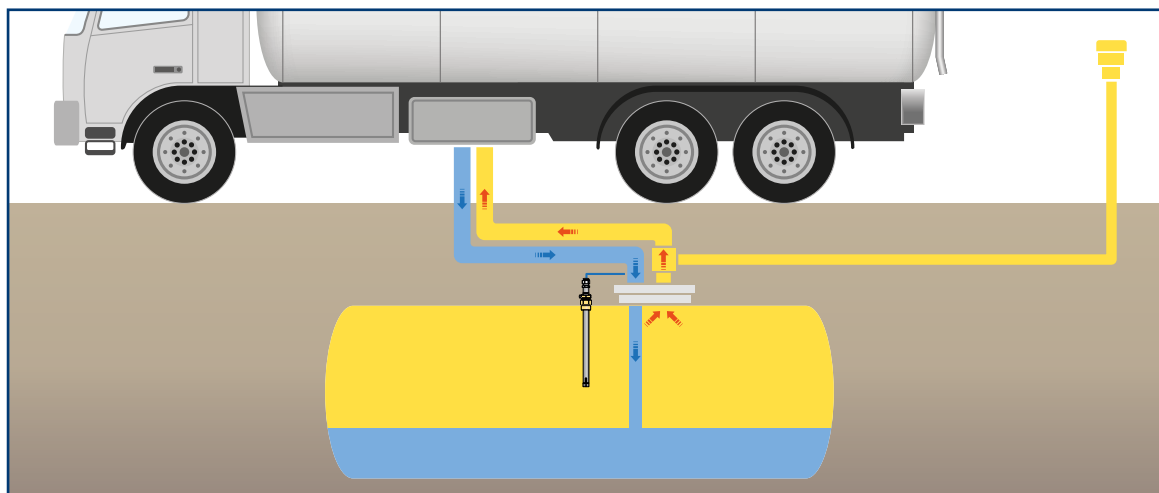
Function

A typical fuel drop at a station with remote filling is shown in the first figure. The fuel (blue color) displaces the vapours in the tank (red color). The vapour is pushed back into the compartment of the tank truck. The mechanical connection of the hoses is electrically isolated

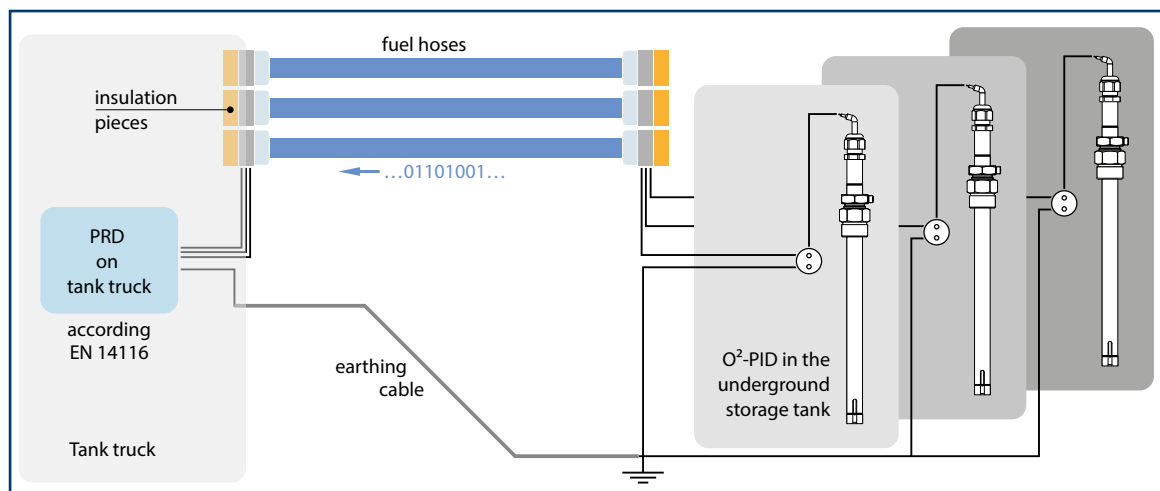
as is shown schematically in the next figure. Therefore it is possible to drive an intrinsic safe current across the hoses to the O²-PID unit. This current is sufficient to supply and read out the PID and to operate the optical fluid detector. The status of the detector is interrogated

10 times per second. If a liquid touches the optical prism, the status changes and the corresponding overfill bit is set and transferred to the tank truck electronic PRD. Each electronic according EN 14116 can read the PID and overfill information!

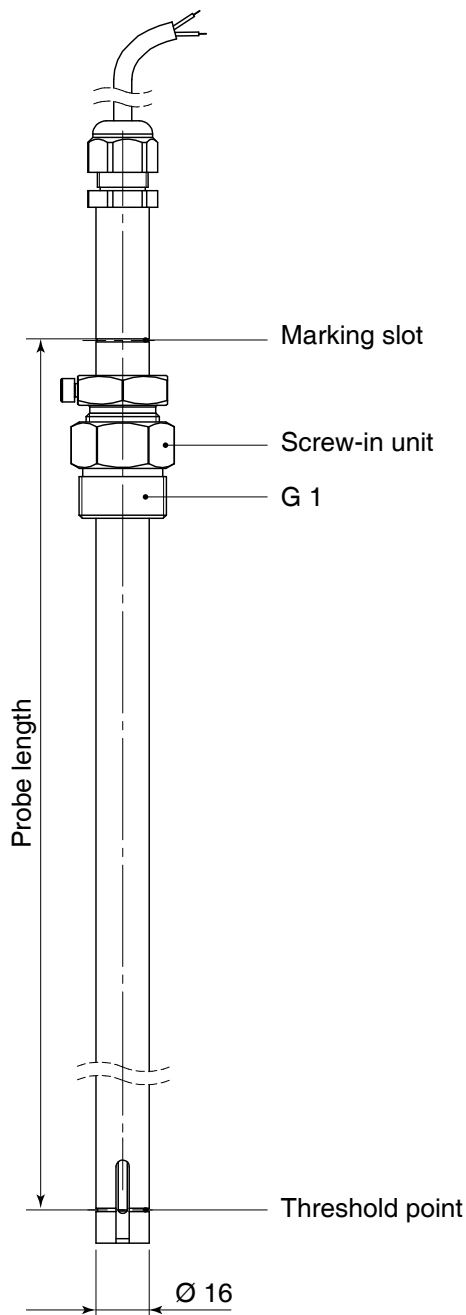
A typical filling of a gas station



The O²-PID system



O²-PID



Dimensions in mm

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

- » Parts in contact with fluid:
stainless steel 1.4301; 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:
EN 13616
- » Communication of PID:
EN 14116
- » ATEX: II 1 G Ex ia IIB T4 Ga



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