COP
CROSS-OVER PREVENTION

Alfons Haar

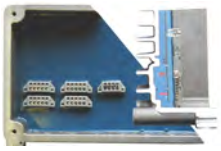
AUTOMATIC PREVENTION

of product cocktails, reliable and safe!

Strict compliance with DIN EN 14116

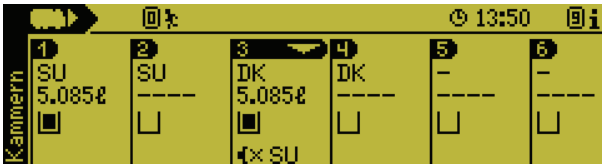
FEATURES

- Automatic read-in of product qualities from PRD, MultiPID, PID (Product Recognition Device, Multiple Product Identification Device, Product Identification Device) according to DIN EN 14116. Blocking of loading and delivery if product mixture impends.
- Automatic checking of compartment states and reconciliation with the loading products at the loading terminal to prevent cocktails in the tank compartments.
- Electronic compartment control by the X-MASTER. Opening of foot valves only when hoses are correctly connected and products are similar.
- On PC configurable definitions of product compatibilities for loading and delivery.
- High reliability electronic because of potting and burn-in testing of every component



- Progressive upgrade possibility - up to full automation of loading and delivery processes by use of tamper-proof bus system PreciCONTROL (see separate brochure)
- Data transfer to on-board computer or office via FTL-interface according to EN 15969-1

All information at a glance at central controller with “user-friendly” icons!



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SYSTEM DESCRIPTION

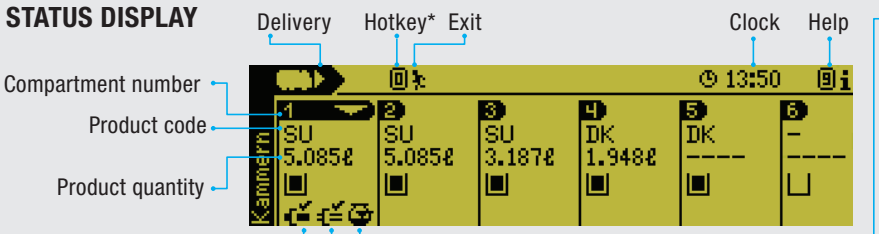
The Alfons Haar COP system (Cross Over Prevention) is a quality system for tank trucks to prevent product contamination during delivery or loading.

Before loading an empty check is carried out.
After coupling of loading arm and readout of MultiPID respectively PID, in addition the restrictions and product compatibilities for loading of compartments are checked.
Only when all conditions are met the loading release is given and the compartments can be loaded.
The product codes of the loaded products are read-in by compartment and stored.

Before loading the product codes of the compartments are compared by data transfer via conductive hoses with those of the connected tanks of the petrol station.

Alternatively, also the used magnet codings can be read out.
Only when the conditions for loading are fulfilled and the hoses are connected correctly, the bottom valves are opened.
The opening of the bottom valves is controlled via the controller. Therefore, an inadvertent opening by the operator is impossible.

STATUS DISPLAY



Product hose/Loading arm

- **Loading on product:** Compartment contains product but can be filled again.
- **O.k.:** Loading or delivery coupling is correctly connected. Compartment product and tank product are similar.
- **Fault:** Risk of product cocktail. Compartment product and tank product are not similar. The bottom valve of this compartment does not open!

Vapour recovery

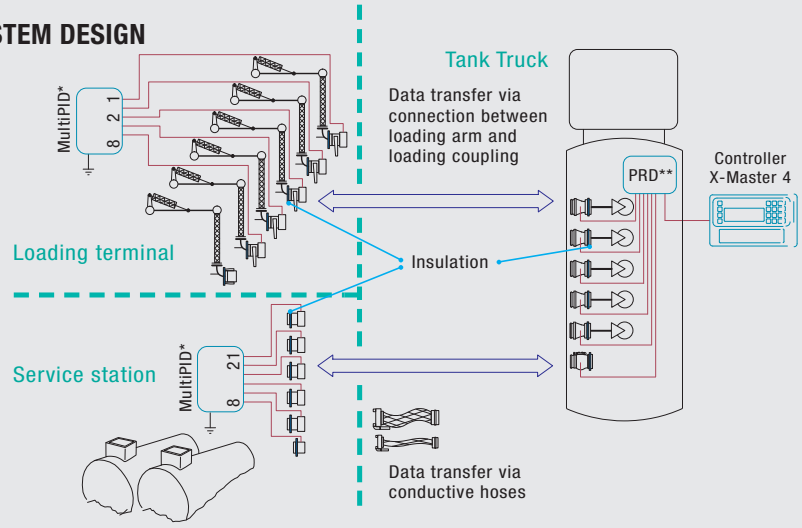
- **Ready:** Vapour recovery is required but vapour recovery coupling is not connected.
- **O.k.:** Vapour recovery coupling is correctly connected.

Overfill prevention system

- **Missing:** OPS is stipulated but not connected.
- **Heat up:** OPS sensor is heating up.
- **O.k.:** Fill monitor's OVP is connected
- **Full:** Tank is full, delivery is stopped.
- 123 **Assignment:** Number of dynamically assigned OPS.
- ? **No assignment:** Assignment of OPS is missing.
- D **Digital OPS:** OPS signal supplied by product identification device (PID)

* The hotkey allows the quick selection of function with only one keystroke.

SYSTEM DESIGN



The X-MASTER 4 can be extended by software upgrade:

- **DTMQ** (Devices for Transferring Measured Quantities)
- **SPDS** (Sealed Parcel Delivery System)
- **Measuring systems** *(for more information see separate brochures)*

* MultiPID or PID (Multiple Product Identification Device, Product Identification Device) according to DIN EN 14116

** PRD (Product Recognition Device) according to DIN EN 14116

ALFONS HAAR MASCHINENBAU GMBH & CO. KG • Fangdieckstrasse 67 • D-22547 Hamburg • TEL +49 40 83391-0 • FAX +49 40 844910
INTERNET www.alfons-haar.de • E-MAIL sales@alfons-haar.de
2459351 Subject to alteration / Updates online