

SPDS

SEALED PARCEL DELIVERY SYSTEM

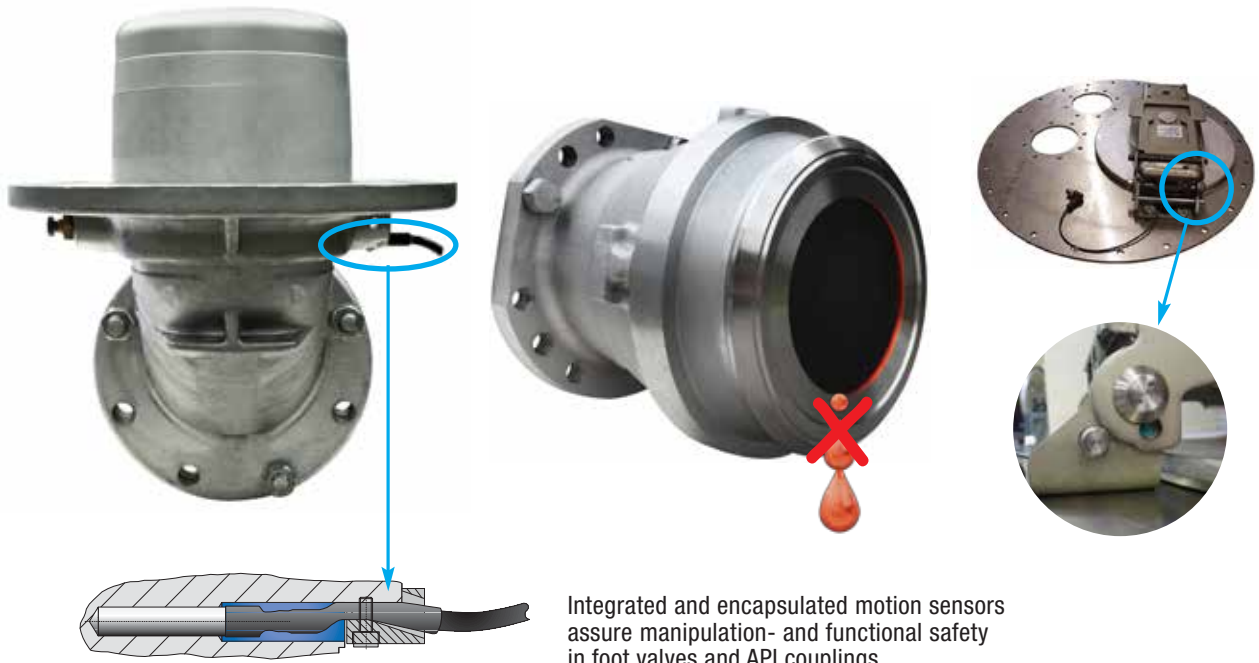


Alfons Haar

Automatic tampering recognition

No additional analysis of report data in the office!

- Complete sealing from disconnection of loading arm up to delivery
- Strict compliance with DIN EN 15208



Integrated and encapsulated motion sensors assure manipulation- and functional safety in foot valves and API couplings

- Automatic, electronic sealing of the individual compartment directly at disconnection of loading arm
- Power fail periods do not interrupt the continuous monitoring of foot valve, API/MAPI, empty state sensor and fill hole cover
- Manipulations of cables and plugs are recognized reliably by monitoring of a permanent current flow, independent of switching state, according to EN 60947-5-6.
- Memory of SPDS data for at least one week
- Progressive upgrade possibility - up to full automation of loading and delivery processes by use of tamper-proof bus-system PreciCONTROL (see separate brochure)
- The controller detects manipulation independently and does not only display valve status
- Data transfer to on-board computer or office via FTL-interface according to EN 15969-1

SPDS SEALED PARCEL DELIVERY SYSTEM



SYSTEM DESCRIPTION

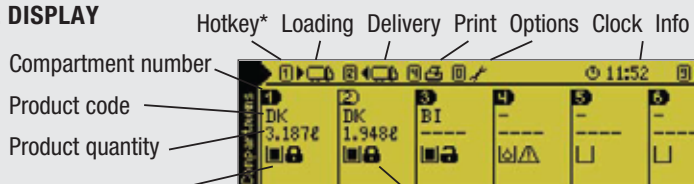
Embedded in the Alfons Haar PreciCONTROL system the SPDS is based on the intrinsically safe Alfons Haar PreciBUS technology. By use of encapsulated electronics and integrated manipulation recognition, a maximum safety standard is achieved. All sensors are directly integrated in the fittings. They work with analog signals and detect manipulation at cables (e.g. short-circuit, piercing of cable with steel wire or similar) by monitoring permanent current flow.

The integrated accumulator assures the monitoring for several days, also in case of power interruption.

Automated operations and plain status displays are used to assist the driver during all tasks. Drain protection of pipework is provided by a special designed API valve poppet. Therefore the sensor function is secured which avoids any malfunction also by bad road impact.

The Alfons Haar SPDS solution does strictly comply with DIN EN 15208 ("Tanks for transport of dangerous goods – Sealed parcel delivery systems"). Full upgradeability and guaranteed future is provided.

LOADING STATE DISPLAY




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

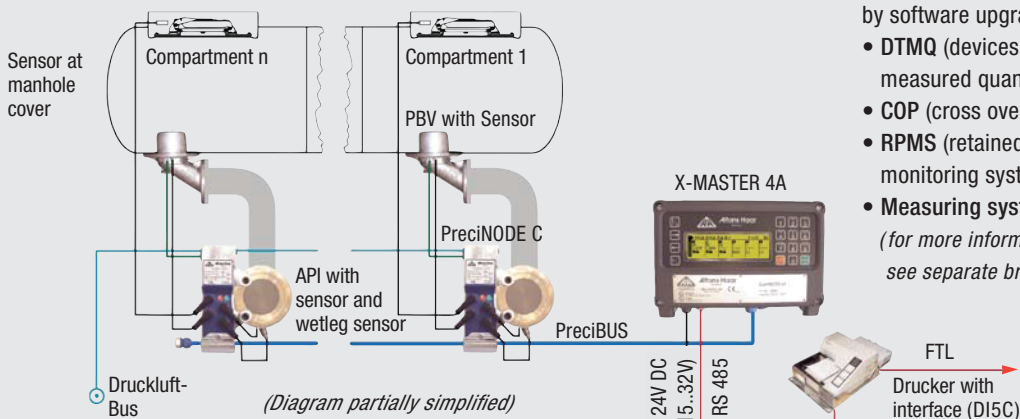
Compartment state

- Loading:** The compartment contains product.
- Not empty:** The compartment contains remaining quantity or was filled by wrong operation.
- Empty:** The compartment is empty.
- Loading is in process**
- Delivery is in process**
- Sensor fault:** One or more sensors of this compartment failed.

Sealing status

- Sealed:** The compartment is electronically sealed.
- Seal broken:** A regular delivery was made at this compartment.
-  **Tampered:** The system has recognized automatically a deviation in regular loading or delivery process. An unauthorized product unloading was possible.

SYSTEM DESIGN



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

- DTMQ (devices for transferring measured quantities)
 - COP (cross over prevention)
 - RPMS (retained product monitoring system)
 - Measuring systems
- (for more information see separate brochures)