

Benzene Exposure Protection Module

Top loading fuel into a tanker truck presents a real danger of benzene exposure to the operator. Whilst bottom loading is now the preferred practice, there are many facilities worldwide still utilising top loading. Providing the means to allow drivers to load a top loading vehicle without standing on the truck barrel during the actual filling process, while still achieving safety interlocks and other operational standards, has considerable benefit to personnel and to the industry.

Exposure to benzene takes place when an operator monitors the top loading of road tankers whilst standing on top of the truck barrel. Part of this monitoring responsibility is to ensure there is no overflow of product from the compartment as a result of overfilling. The operator must close a manual "deadman" valve to shut down the flow when the liquid level reaches the maximum filling capacity of the compartment. The operator is also required to ensure the filling arm remains in the correct position during the loading procedure.

DKI have developed a benzene module that allows top loading to continue whilst ensuring the operator is well away from the truck barrel hatch.

The benzene module allows the loading process to be performed with the operator on the top loading platform away from the loading hatches rather than on top of the vehicle barrel. It is designed to be easily retrofitted to existing top loading gantries by being electrically independent of the control system in place.

The benzene module includes functions to provide overflow monitoring, product slowing and stopping control, arm down monitoring (positioning & locking) and deadman monitoring (operator attendance during loading).

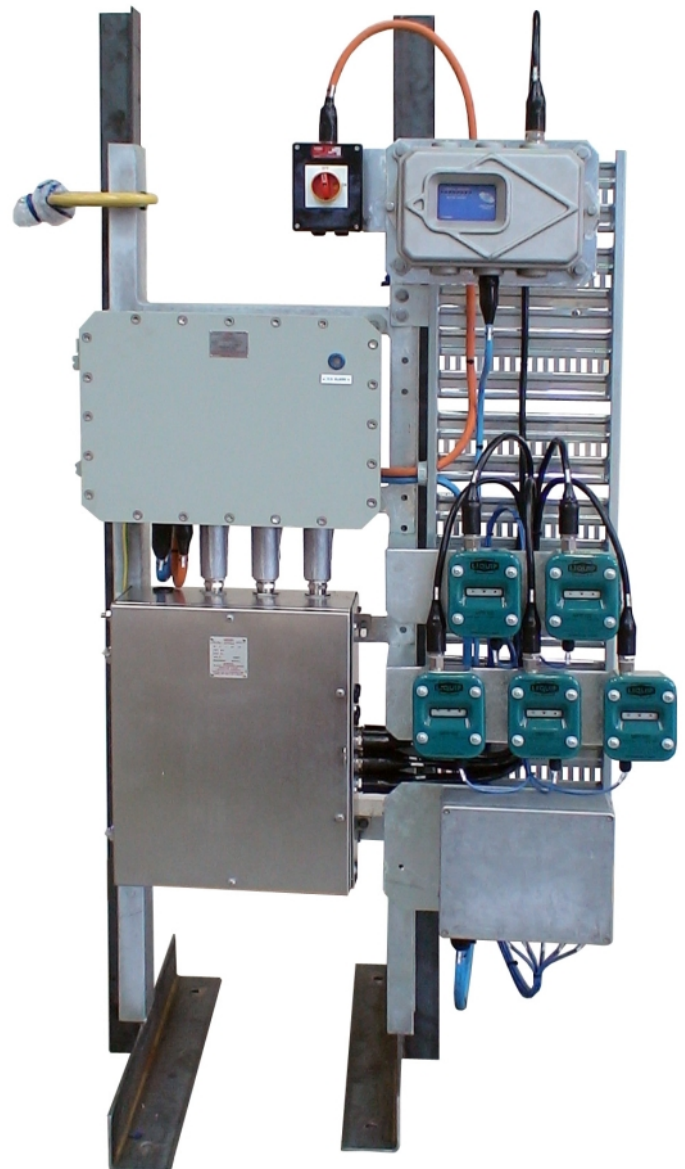
The module comprises a control Panel for up to an 8 arm configuration, deadman switch/indicator (per arm or side), sliding collar (3" & 4" arm options) - hi level probe, hi-hi level probe and arm down sensing, arm brake (per arm), authorisation valve (per arm) and butterfly valve (per arm).

During loading, the system automatically senses product level in the compartment and provides slowdown and shutoff at two separate levels. Visual indicators show the status of the level sensing.

DKI is committed to providing equipment, that enables operators to safely manage the loading process. The benzene module provides the distance required between the operator and the vapour source to reduce the short term exposure limit down to acceptable international standards.

Features

- Allows remote monitoring of top filling modules.
- Total turnkey solution, prefabricated and pre-tested, incorporating all framework, galvanising, electrical, pipework, painting, instrumentation, hydraulics, air reticulation and control system.
- All manufacturing and fit out disciplines are completed, inspected and tested under AS/NZS ISO9001:2008 Quality Controlled procedures at Diamond Key International works.
- Complete customer Factory Acceptance Test reporting and witnessing if required. FAT covers complete turnkey solution from hydrostatic testing through to control and network testing.
- All components are certified for use in Class 1 Zone 1 Hazardous areas.



Safety

- Integrated Overfill Protection System
- Emergency stop systems are fully integrated into the design and are installed and tested as part of the turnkey process.
- All pipework and wiring is constructed, inspected and tested to all relevant Hazardous Area Standards.

Wiring

All wiring is carried out to Class 1, Zone 1 Hazardous Area Standards. Only specifically trained and qualified Electricians are employed and all work is carried out to AS/NZS ISO9001:2008 controlled procedures.

- Steel wire armoured cabling for all high voltage wiring.
- All Intrinsic Safe wiring to International Standards for separation, identification, termination and cable type.
- Mechanical protection and integrity for wiring designed for simplicity and ease of maintenance.
- Cable tagging and identification of all terminations.
- 100% Factory tested for validation of correct operation and assembly.
- Fully glanded Explosion Proof connections to all Ex'd enclosures.

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