

Terminal Automation System for Petro / Gas Depots

Elements

- ERP interface (with manual entry as a backup)
- We can also provide ERP system, in case required.
- Touchscreen panel, Scale controller, PLC etc. mounted in a panel (if desired).
- Driver's License (DL) or some other ID Scanner , Telephone/Speaker system for communicating with truck driver
- UPS, Laser Printer, Video Surveillance system, archiving videos, generating BOL, etc. (if desired)
- The system could work with meters as well as scales.
- Possibility of multiple products loaded on the same truck, with multiple compartments.
- Support for mobile devices is available, depending on the requirements.

Operation

The ERP system will be in live touch with the loading system. The ERP will provide most of the loading validation data to the loading system. The loading system will maintain database of truck drivers, shippers, consignees, in addition to several other database tables. The system will have secure access for different users with appropriate access. The local operator is also allowed to update the data as a backup to the ERP system. The local operator will also be able to override certain actions.



The truck drives up to the gate and swipes his Driver's License (DL) on the scanner (alternate solutions could be provided if driver's license cannot be used). The info from the DL (or alt solution) is compared and validated with data from ERP system. Once validated, the gate will open & the truck pulls up to the scales (if used) that are available. The scale will weigh the truck. As an alternate a meter may be used. The scale house will contain the loading control system & the user interface touch-screen, a second DL (or alt solution) scanner, which lets them select the type of product, quantity etc. after similar verification & validation. The loading system will create a system record transaction. The truck driver then proceeds to the loading rack and can start the loading process.

Each product has its own unique hose that must be used to fill the truck compartment and before the loading process starts, the truck needs to be grounded, overfill protection and the vapor recovery hose must be attached. The loading system will verify the safety permissives & will turn on the green light. The system will also calculate approximate volume for the shutoff of the delivery for the flow meter.

After these steps are verified, the driver will press start button. The appropriate pump is started and the truck continues to fill the required amount of product after which the supply is stopped. The metering is done by the product meter. The system will employ a dribble technique before the full product amount is dispensed. The product flow can be stopped at any time by pressing the 'Stop' or ESD buttons. The ESD button actuates the ESD system & the emergency shutoff valves.

Required number of pumps could be configured in this system, one for each. Any of the pumps including standby pump can be assigned to any product service from the PC HMI. The valves in between the tanks



& the loading rack are operated manually by the on-site operator who will also aid the truck driver in any case. The correct line-up of the valves will be the operator's responsibility, if the valves are manual, else complete valve automation will be provided. The ESD valves will be shut down in case of any ESD condition. ESD may be system invoked or manually invoked from the ESD buttons. ESD will need to be reset from the HMI.

Once the loading process is complete, the truck driver disconnects the hoses, waits for green light. Then drives to the Scale for full weight, visits the scale house to collect the

BOL. The BOL is printed on a regular paper via a laser printer. This completes the account transaction. The ERP system is updated with the status, local history is updated & reports will be available to the local user. A telephone/speaker will be available at the gate & scale house.

The driver pulls to the inside gate loop, the gate opens via local loop and departs the facility.

Video surveillance is done with cameras which will record continuously and store data for a period of one month. It will be integrated with the loading system.

End user will provide the strapping tables or volume formulas if tank volume inventory reports are desired. End user will also provide details on their ERP system & a sample BOL report, if desired.



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/22/16