

Integrating MDBPro with a PLC based vending machine

Ice Vending Machines



If you live in the southern part of the US, you've probably seen one of these ice vending machines. They are self contained manufacturing plants and retail stores, capable of producing 6,500 lbs of ice per day and dispensing packaged bags of ice automatically, all controlled by a single PLC.

The PLC (Programmable Logic Controller) is the controller of choice for many industries and a common sight in manufacturing plants, heavy industries and engineering firms. PLC programming is a familiar art to technicians and combined with their extreme reliability and easy availability the perfect choice for development of a new vending concept.

The Problem

PLC's do not communicate with MDB devices. They communicate over common industrial protocols like Modbus but have no provision to talk to cash acceptance devices like bill acceptors and credit card readers, also:

- The MDB protocol is extremely difficult to implement, it requires in depth knowledge of the MDB protocol.

- Using a MDB to RS232 translation device would still require complex ladder logic and would involve too much time and effort to create, if someone were brave enough to even try.
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- Simple devices which transmit pulses to the PLC to initiate a vend are too simple, unable to handle multiple vends, price lines and vend failures.

The Solution

The MDBPro differs from everything else by managing the complexity of the MDB protocol and communicating with the PLC over serial in it's native Modbus protocol. The ladder logic is now only required to dispense the product and does not have to be programmed to handle the monetary transaction.

By being a controller as opposed to a simple MDB to RS232 relay the MDBPro allows the PLC programmer to concentrate on core functionality of the machine this speeds up development, reduces cost and gets your concept to market faster.

With the MDBPro the ice vending machine now is able accept payment in the form of:

- Cash, from \$1 to \$20 bills, returning change in bills or coin
- Coins, from 5c to \$1
- Credit or debit card
- Coupons
- Pre-paid value cards

It is also able to support up to 8 price lines for multiple products e.g. 16lb bag, 8lb bag, 20lb bulk, 1 gal. Water, 5 gal water etc. and allow the customer to multi vend.

Additional Advantage

- The MDBPro is the only MDB controller capable of supporting 2 MDB bill acceptors.
- The MDBPro includes a customer credit display and an operator interface which displays a vend audit trail as well as error messages.
- The vend failed input allows the MDBPro to reverse a transaction and return money to the customer.

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