



Understanding the MDB/ICP Standard

*Multi-Drop Bus/Internal Communications
Protocol Interface Standard*

NAMA

Serving the Vending, OCS and Foodservice Management Industries

Dedicated to a Changing World



What is the MDB/ICP Standard?

The Multi-Drop Bus/Internal Communication Protocol is an Interface Standard that allows the various components of a vending machine to communicate to the Vending Machine Controller. It is a way for the Electronic Controller to learn what coins were accepted by the Coin Changer, what bills were accepted by the Bill Acceptor, and how much credit is available through the Card Reader. It is a way for the Controller to “tell” the Coin Changer how much change to pay out or to “tell” the card reader how much credit to return to the card. There are other devices the Controller can communicate to through this interface and, the option for even additional devices exist for the future.

Why another Interface Standard?

There are lots of “standards” being used to interface with each of the components outlined above. Why add yet another one? Historically the manufacturer of the components had defined the interfaces to various vending machine components (coin changers, bill acceptors, card readers, etc.). Each manufacturer provided their own interface and often times tried to keep their interface proprietary. This would have the effect of “locking in” their customers. Hence, if a machine manufacturer wanted to offer a choice of payment systems, they would have to offer several different interfaces on the Vending Machine Controller. Multiplied by the growing number of devices that are available to interface with vending machines, the added cost and complexity of the machines would have become unwieldy. Clearly over the years, some of the interfaces have become *ex post facto* standards. Nonetheless, the number of interfaces being supported by each machine is still large.

This is the ONE interface

The MDB/ICP Standard has for the first time established a communications method that will allow all the devices in a Vending Machine to use a common interface. Many devices can tie into the same interface and still work independently of all the other devices on the interface. This is because each device is assigned an address. The device knows that the Controller is communicating with it when its unique address is being used. Communications to other devices on the interface are ignored.

This is the COMMON interface

The MDB/ICP Standard also differs from the other standards in that it is being maintained

through the NAMA Technical Committee. Since this committee consists of members from many of the device manufacturers, there is strong incentive to ensure the standard is supportable by each member’s company and products.

This is the EXPANDABLE interface.

The MDB/ICP Standard can have additional device types defined, messages to devices defined, and responses from devices defined. Requests for new devices, messages, or responses are reviewed by the NAMA Vending Technology Standards Committee, and if agreed, are added to the specification. New additions to the MDB/ICP Standard will likely have little or no impact on existing equipment.

This is the INTERNATIONAL interface.

The MDB/ICP Standard has already been expanded to anticipate the requirements of the international vending community. Through the cooperating efforts of NAMA (National Automatic Merchandising Association) in the US and EVA (European Vending Association) and the EVMMA (European Vending Machine Manufacturers Association) in Europe, the MDB/ICP Standard includes provisions to allow any accepted currency types, any dispensed currency types and flexibility in determining which device (Vending Controller or Payment Device) calculates the type of change payout.

What advantages does the MDB/ICP Standard offer?

Value-based buying decisions

Vending Machines that support the MDB/ICP Standard allow the Operator to choose payment and other devices based on reliability, performance, and price. No longer is the Operator forced to limit their choice based on available interfaces.

Competition

A significant barrier for new companies entering the Vending Industry on the equipment supply side has been the difficulty and expense of dealing with the myriad of interfaces that had to be supported. The MDB/ICP Standard reduces the challenge to a single well documented specifica-

tion that is easy to obtain. Expect more competition among equipment suppliers, more product options and new innovations. Even existing manufacturers will be able to take advantage of producing equipment with this single interface saving time and money.

And the future too

Since the MDB/ICP Standard establishes the way the Controller communicates with devices in the Vending Machine, the way these devices interconnect has also been standardized. That is, the connection to each device used in the machine is identical. Every device has two

MDB/ICP connectors to allow it to connect to the MDB/ICP bus and offers a connection to another device in the machine. This minimizes the number of connectors in the machine as well as always allowing for one more device. If a new device is developed that uses the MDB/ICP Standard, the hardware and connectors are already in the machine. In many cases a software update will allow the Vending Machine to support the new device. Of course, consideration must be given to any new physical or mounting requirements for a new device.

What is the role of NAMA in the MDB/ICP Standard?

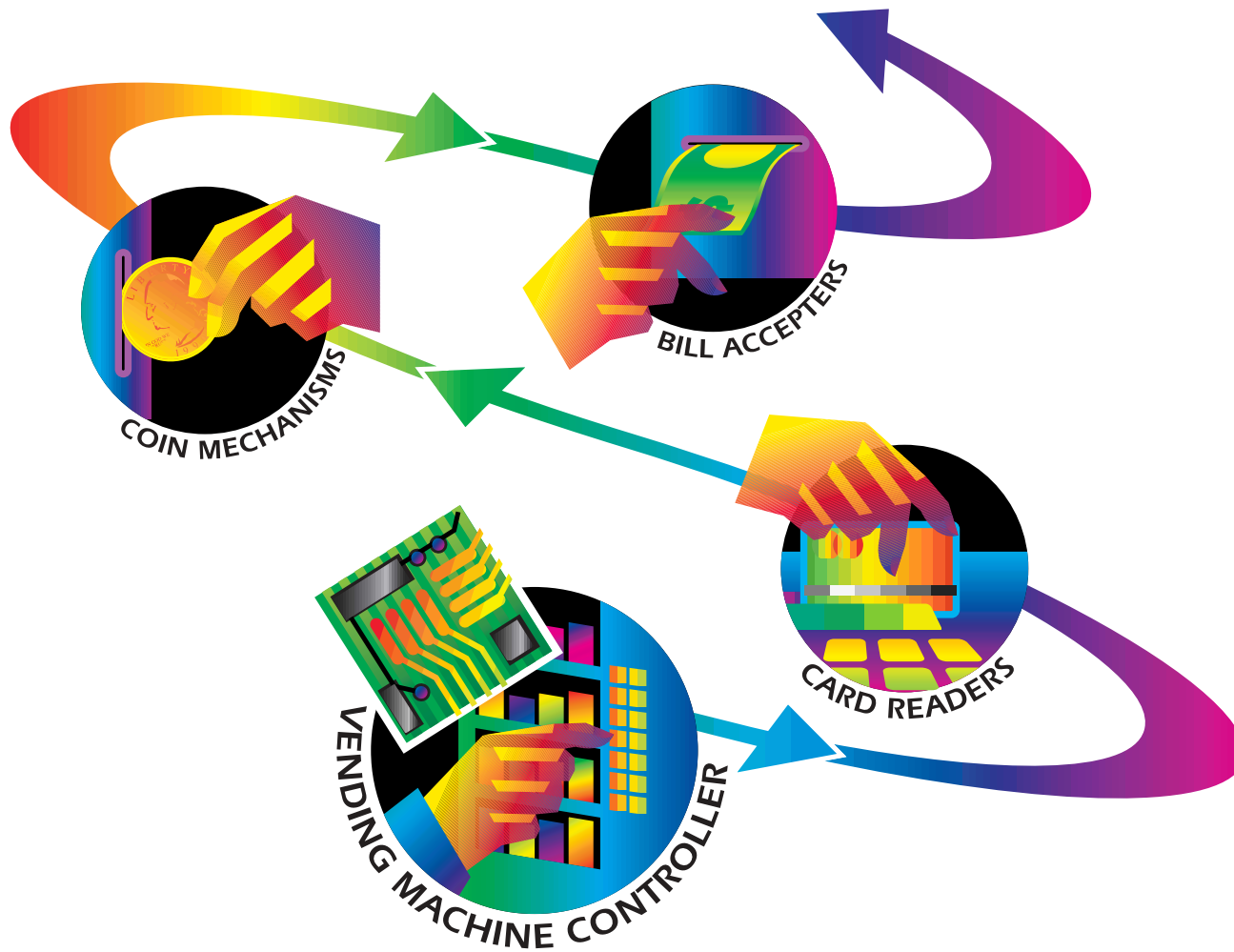
NAMA is responsible for maintaining the MDB/ICP Standard and supporting the Vending Technology Standards Committee in their work to keep this Standard current. This is done in close co-operation with the EVA and EVMMA in Europe. Information on and marketing of the MDB/ICP standard is done through NAMA. A hardcopy or an electronic copy of the Standard can be purchased from NAMA by calling our Chicago office or visiting our web site at www.vending.org.

Anyone wishing to be a member of this Committee should submit their request to the Director of Technical Services at NAMA. The only requirement is that the company must be actively involved in supporting the vending industry that supports the MDB/ICP.

How are revisions or new devices brought to the Committee for consideration?

Anyone wanting to submit revisions or new devices with regards to the MDB/ICP Standard

should submit them to the Director of Technical Services at NAMA. Upon receipt this information will be forwarded to the committee for their consideration at their next meeting. All inputs to the MDB/ICP Standard that are received before October 1 of each year, will, if accepted, be included in the following update of the Standard which will be issued in the first quarter of the following year.





Serving the Vending, OCS and Foodservice Management Industries

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