

# Quick Start Guide

**MDBPro**

(P/N: 110-1100)

By

**DATAWRX**  
.com



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**WARNING:** Notes practices or circumstances that can cause personal injury or death, property damage, or economic loss



**ATTENTION:** Notes practices or circumstances that may be dangerous to persons or equipment.



**SHOCK HAZARD:** Notes practices or circumstances that may be dangerous to persons or equipment.

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**IMPORTANT:** Notes information that is critical for successful product application and understanding.

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NOTES:

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# 1. Product Overview

## 1.1 MDBPro Product Description

## 1.2 Compatible Devices

The MDBPro is compatible with the following types of devices:

MDB Level 2,3 Coin Changers

- MDB Level 1,2 Bill Validators
- MDB Version 4.0 Bill Recycler Support.

The MDBPro has been tested on the following devices (compatibility is not limited to this list):

- MEI AE Series Bill Validators
- MEI VN Series Bill Recyclers
- MEI CF7000 Coin Changer
- Coinco Guardian Series Coin Changer
- Coinco Bill Pro Series Bill Validators
- Coinco Vantage Series Bill Validators
- USA Technologies E-Port Cashless Reader
- USA Technologies G5 Cashless Reader
- USA Technologies G4 Cashless Reader
- MEI Cashless Device

## 2. Installation

### 2.1 Mounting

The MDBPro comes with a pre-cut section of DIN rail intended for mounting within an electrical enclosure. To mount, drill two 1/4" holes, 2 inches apart on center-horizontally, and bolt on the DIN rail with supplied hardware (Diagram 2.1.1). Finally snap fit the MDBPro on the secured DIN rail.



**Warning:** Use precaution when working within an electrical cabinet or near high voltage.

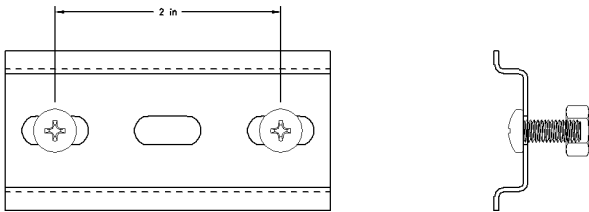


Diagram 2.1.1

### 2.2 Electrical



**ATTENTION:** Use only Datawrx.com supplied/approved power supply.

Power supply input Rated for US Only (100 - 240VAC, Single Phase, 50/60 Hz)

Vend Trigger / Inputs Voltage: 18-26VDC/VAC

Output: MAX 1A @ 24VDC/AC

SIG Output: 24VDC @ 100mA (Use only for switching digital signals)

# 3. Operator Interface

## 3.1 Indicator Lights, Display, and Buttons

There are four LEDs on the front of the operator interface(Diagram 3.1.1):

- "PWR" (on when the MDBPro has power)
- "COMM" (blinks when PLC communicates event occurs, solid off when PLC cannot communicate)
- "MDB" (always blinking when attempting/successfully communicating over the MDB bus)
- "STATUS" (normally off, blinking when event is communicated over MDB bus)



Diagram 3.1.1

The LCD Display (Diagram 3.1.2) will normally scroll through the main sales screens, as seen in Diagram 4.1.1. It is also where setting values will be displayed while in the configuration mode.



Diagram 3.1.2

There are four buttons on the front of the operator interface, "RESET", left arrow, right arrow, and "ENTER" (Diagram 3.1.3). These buttons will be used to navigate through setting screens, adjust setting values, and manage sales data.



Diagram 3.1.3



## 3.2 Configuration Menu Map

When the yellow “ENTER” button is pressed while the LCD Display is scrolling through the main sales screens, the MDBPro will go into configuration mode and display the top level configuration menu categories (Vend Prices, System Settings, and Comm Settings). Pressing the the left and right arrow buttons will scroll through the top level of the menu categories. Pressing “ENTER” while on a specific top level category will direct the display to the respective lower level category menu. To exit the top level menu or any lower level menu, scroll right until “<Exit” is shown on the LCD Display, the push “ENTER”. The configuration menu map below shows the complete screen level structure:

### Vend Prices

- Vend Price 0
- Vend Price 1
- Vend Price 2
- Vend Price 3
- Vend Price 4
- Vend Price 5
- Vend Price 6
- Vend Price 7
- Exit

### Sys Settings

- Quarter Changer
- Single Vend or Multi Vend
- Factory Reset
- Exit

### Comm Settings \*

- Modbus Enable
- Baud
- Parity
- Device ID
- Coils
- Holding Reg
- 1 Credit Reg
- Exit

### Exit

\* Note: Do not modify any fields in the “Comm Settings” menu unless advised to do so by the manufacturer or an authorized representative. Changing these settings can negatively affect the operation of the MDBPro.

### 3.3 Vend Prices

There are 8 possible vends with unique prices that can be programmed on the MDBPro. To program a specific vend price, follow the procedure described below in Diagram 3.3.1

Note: Setting a vend price to \$0.00 will disable the corresponding line item)

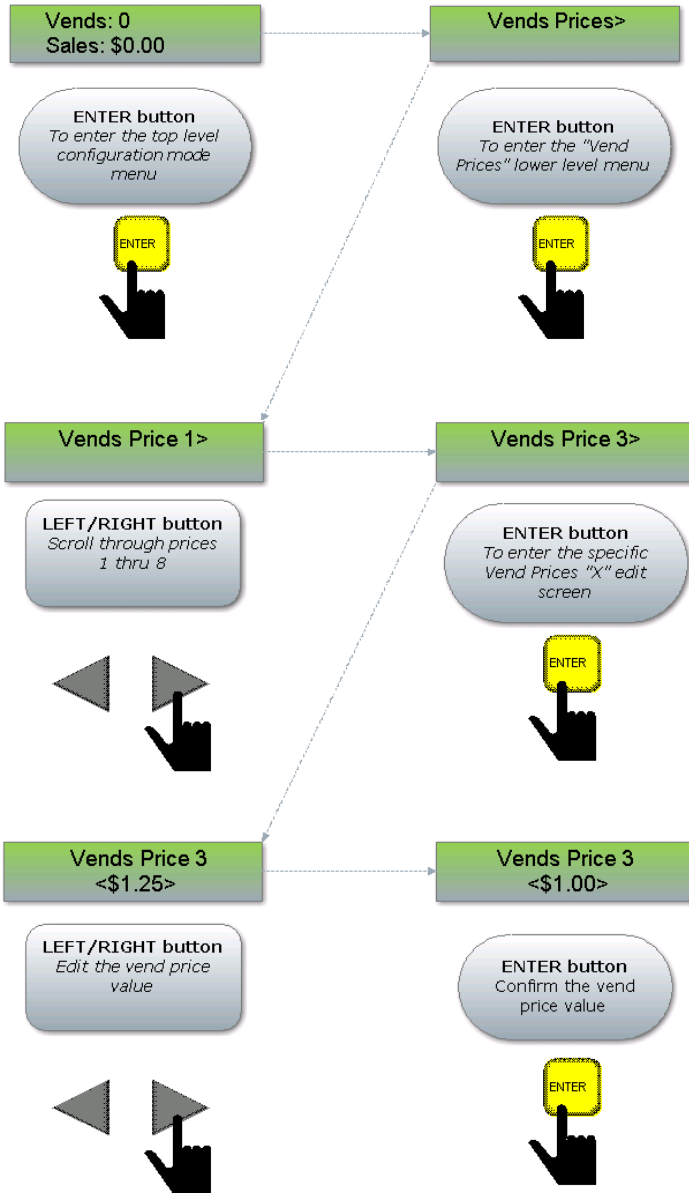


Diagram 3.3.1

### 3.3.1 Saving Settings

After making any setting changes you must back out of the menu to Save the changes. If you allow the menu to time out or reboot the settings will not be saved, follow the procedure described below in Diagram 3.3.2

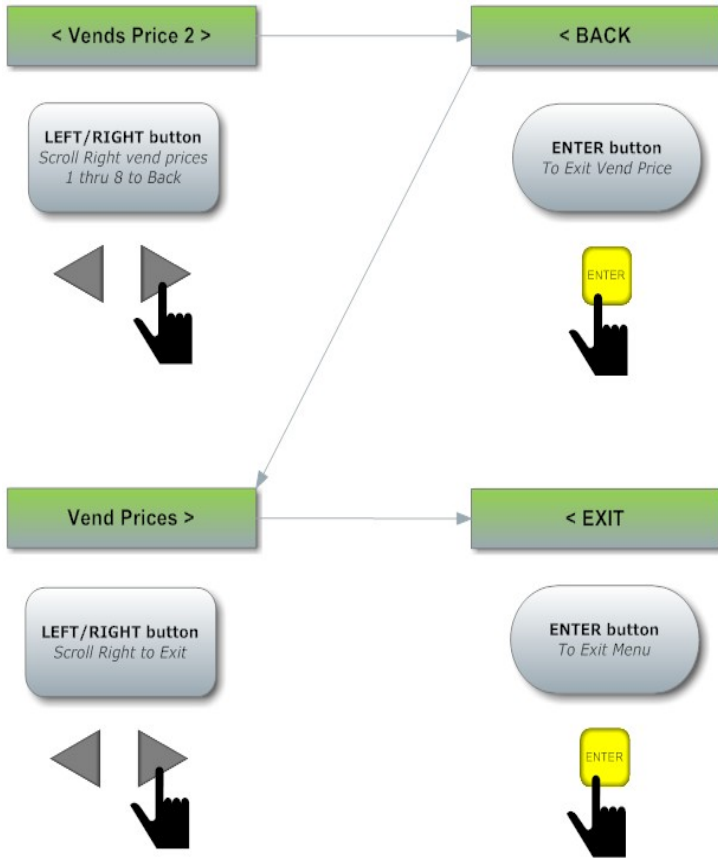
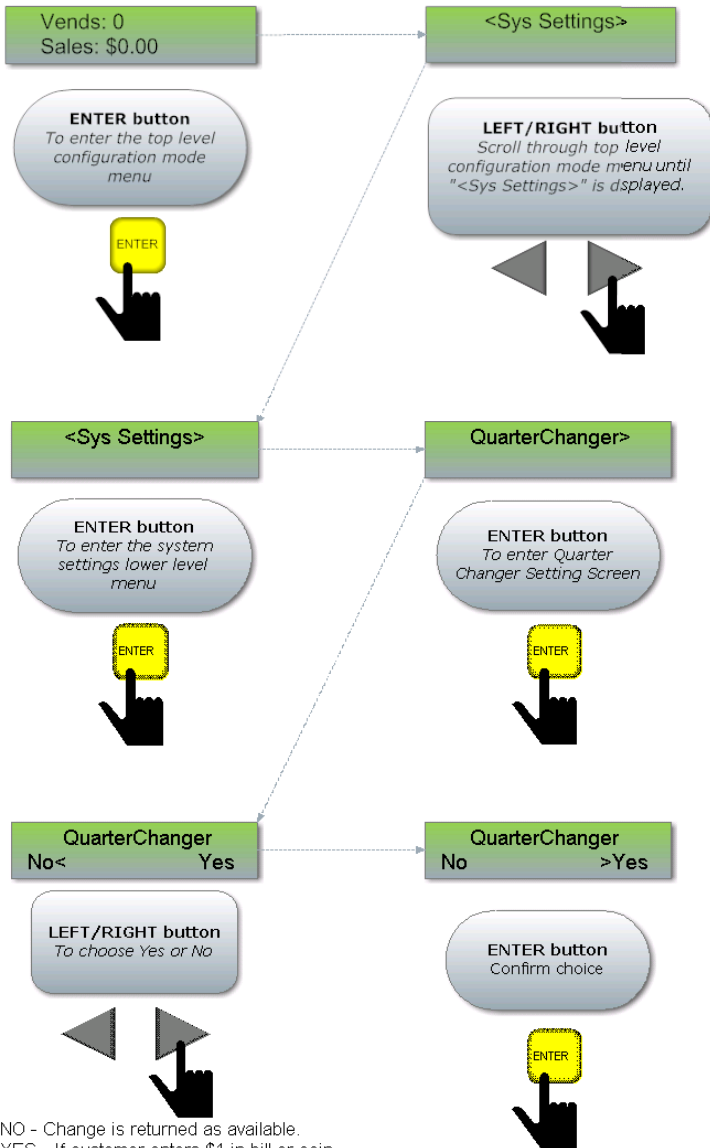


Diagram 3.3.2

### 3.4 System Settings

To change the quarter changer setting, follow the procedure below in Diagram 3.4.1:



NO - Change is returned as available.  
YES - If customer enters \$1 in bill or coin,  
4 quarters will be returned if available.

Diagram 3.4.1

To change the quarter changer setting, follow the procedure below in Diagram 3.4.2:

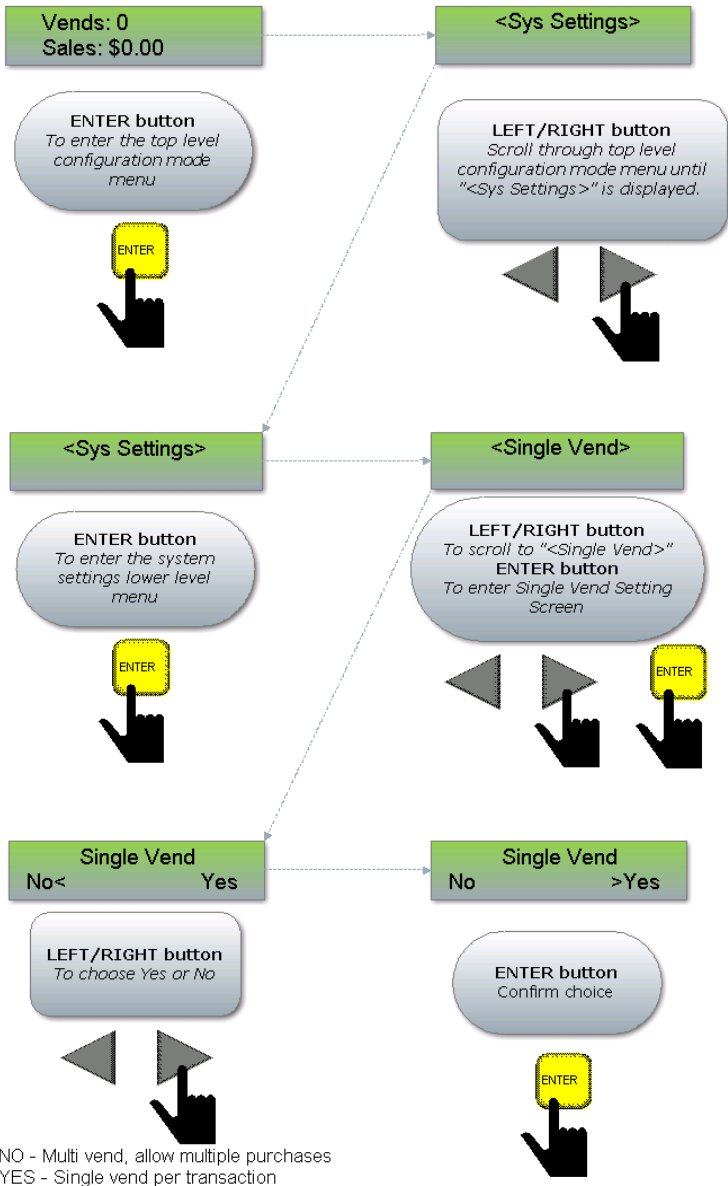
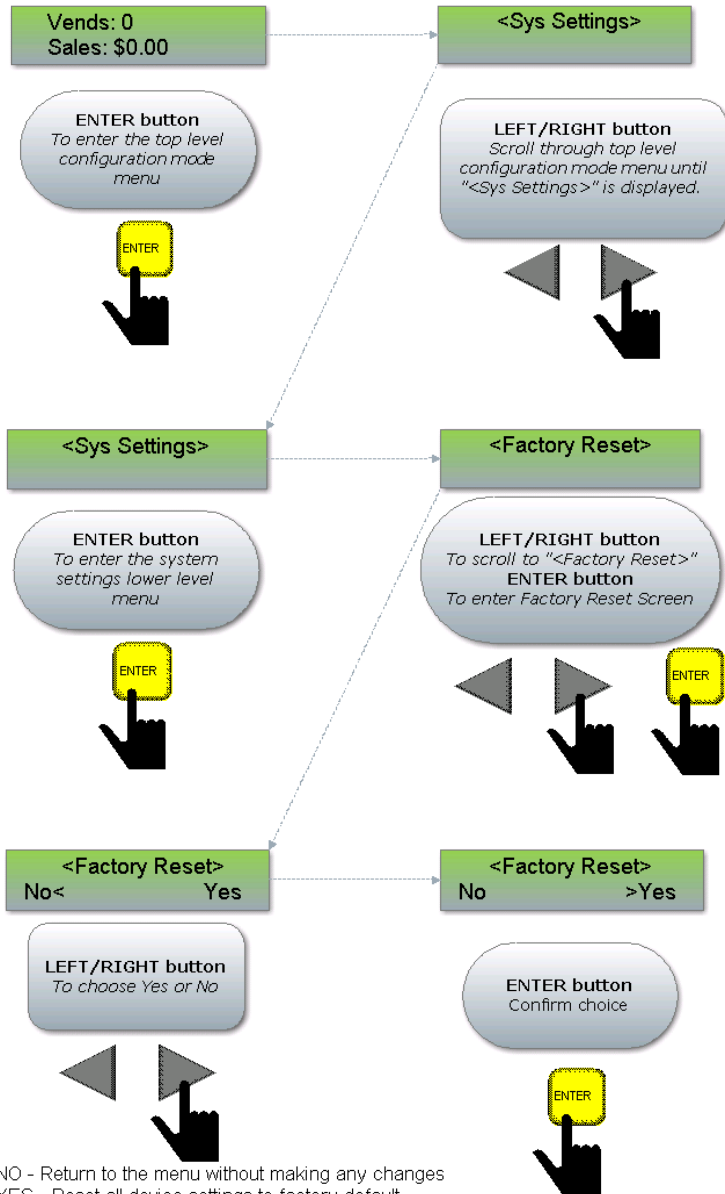


Diagram 3.4.2

To reset to the factory default settings, follow the procedure below in Diagram 3.4.3:



*NOTE: Choosing YES will erase all custom settings and reset system to factory default settings*

Diagram 3.4.3

## 4. Sales Data

### 4.1 Viewing Sales Data

The MDBPro stores and displays basic sales information on the internal display. The display will scroll through the following:

- Total Vend Count
- Total Value Count of Sales
- Value Count in Cash Box (coins)
- Value Count in Stacker (bills)
- Value Count of C Card Transactions (credit card / cashless)
- Vend Count of Token Transactions (token / coupon).

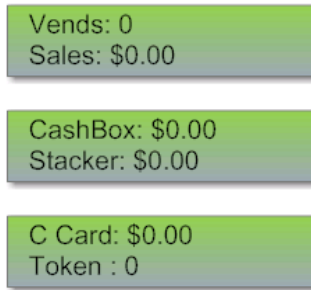


Diagram 4.1.1

Sales data can be reset see section 4.3.

### 4.2 Roll Over Points

Due to memory limitations some sales data will roll over after their counters have reached their high limits. For Example, if the rollover point for “Vends” is 65,000 vends, on vend number 65,001 the “Vends” count would go back to zero and start over. These points should be taken into consideration when determining machine service frequency. In the unlikely event of a rollover before data reset, the rollover points can be found below:

Data Field	Rollover Point
Vends	65,000
Sales	\$3,250.00
Cash Box	\$3,250.00
C Card	\$3,250.00
Bill Stacker	\$65,000.00
Token	65,000

Table 4.2.1

### 4.3 Sales Data Reset

Sales data can be reset by following the procedures below:

**Step 1** - Push in the gray “RESET” button on the User Interface of the MDBPro. Upon doing so, the LCD Display should show the text, “Reset Counts”.

**Step 2** - While the LCD Display shows, “Reset Counts”, push the right arrow button under “YES”. The pointer arrow on the LCD display should go from pointing to the “No” text to pointing to the “YES” Text.

**Step 3** - Push the yellow “ENTER” button to confirm the count reset. The screen will then return to the rolling sales data where all data fields should display “0” or “\$0.00”.

**Note:** When used with a Datawrx.com monitoring system, a reset will trigger a cashout and post these values to the machines real time log. If this is not happening, please contact Datawrx.com support to update DAC Software.

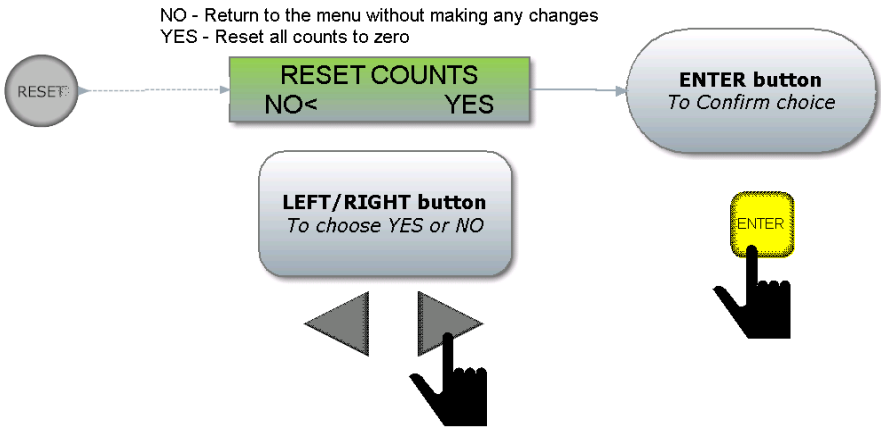


Diagram 4.3.1



# 5. Changer Status/Diagnostic Reports

## 5.1 Changer Status

A changer status is only reported if it is listed as a type 1 status in the MDB Protocol. This means that the status is sent one time per occurrence. The status will not be cleared until either a new status is received. In the case that the changer, or the MDB Pro is reset, the status will initially be 0. Below is an example of code "0" as it would read on the MDBPro LCD Display (Diagram 5.1.1):

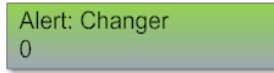


Diagram 5.1.1


The following is a table of all possible Changer Status's (Table 5.1.1):

Code No. (Displayed on MDBPro LCD)	Changer Status Description	Cause
0	No Coin-Mech	No Coin-Mech present.
3	No Credit	A coin was validated but did not get to the place in the system when credit is given.
4	Defective Tube Sensor	The changer has detected one of the tube sensors behaving abnormally.
5	Double Arrival	Two coins were detected too close together to validate either one.
7	Tube Jam	A tube payout attempt has resulted in jammed condition.
8	ROM Checksum Error	internal checksum does not match the calculated checksum.
9	Coin Routing Error	A coin has been validated, but did not follow the intended routing.
11	Changer was Reset	The changer has detected an Reset condition and has returned to its power-on idle condition.
12	Coin Jam1	A coin(s) has jammed in the acceptance path.
13	Possible Credited Coin Removal	There has been an attempt to remove a credited coin.

Table 5.1.1

## 5.2 Changer Diagnostic

The changer diagnostic is a near real time report of the changers current operational status. The status is updated every 20 seconds, while not in a vend cycle. Changer diagnostics are only available while using Level 3 changers. Below is an example of changer diagnostic “Powering Up” as it would read on the MDBPro LCD Display (Diagram 5.2.1):



Alert: Changer  
Powering UP

Diagram 5.2.1

The following is a table of all possible Changer Status's (Table 5.2.1):

Changer Diagnostic Description (Displayed on MDBPro LCD)	Cause
“Powering UP”	Changer powering up.
“Powering Down”	Changer powering down.
“KeypadShifted”	Mode key pressed and held so that LED flashes indicating keypad in shifted stat. Reverts to normal mode if no key pressed for 15 seconds.
“Manual Fill”	Payout active.
“New Inventory”	Changer not in Manual inventory mode, but new inventory information available.
“Disabled”	All coin acceptance inhibited at request of VMC.
“General Error”	Non specific error.
“Discriminator”	Non specific discriminator error.
“Accept Gate”	Non specific accept gate error.
“Separator”	Non specific separator error.
“Dispenser”	Non specific dispenser error.
“Cassette/Tube”	Non specific cassette error.

Table 5.2.1

# 6. Bill Validator / Bill Recycler Status

## 6.1 Status

The MDB Pro will only report a status if it is considered a type 3 status for the bill validator, or a type 4 status from the Bill Recycler. What this means is all of the reported statuses represent an error that has disabled the bill validator. The status will only be reset if the bill validator, or the MDBPro has been reset. It will no longer be reset upon a bill being inserted as it has in previous versions. Below is an example of bill validator status “Defective Motor” as it would read on the MDBPro LCD Display (Diagram 6.1.1):



Diagram 6.1.1

The following is a table of all possible Changer Status's (Table 6.1.1):

Bill Validator/Bill Recycler Status Description (Displayed on MDBPro LCD)	Cause
“Defective Motor”	One of the motors has failed to perform its expected assignment.
“Sensor Problem”	One of the sensors has failed to provide its response.
“Checksum Error”	The validators internal checksum does not match the calculated checksum.
“Bill Jammed”	A bill has jammed in the acceptance path.
“Just Reset”	Bill validator has just been reset.
“Cashbox Removed”	The validator has detected the cash box to be open or removed.
“Dispenser Sensor”	The dispenser has detected one of the dispenser sensors behaving abnormally.
“Dispenser Motor”	Dispenser did not start.
“Dispenser Jam”	A dispenser payout attempt has resulted in jammed condition.
“ROM checksum”	The dispensers internal checksum does not match the calculated checksum. (If separate from validator microprocessor.)
“DispenseDisabled”	Dispenser disabled because of error or bill in escrow position.

Table 6.1.1

# 7. Controller Status Register

## 7.1 Description

If the MDBPro is used in tandem with a Datawrx.com DAC system, the MDBPro can communicate the status of it's controller with Datawrx.com servers over the internet. This status data is accessible to those customers with the DAC system. For questions please contact Datawrx.com.

## 7.2 Controller Status Descriptions

Though not viable on through the operator interface, the following is a table of the controller status bits that can be monitored.

Bit	Changer Status	Description
0	Changer Active	Changer has been detected, and is active on the bus.
1	Bill Validator 0 Active	Bill Validator 0 has been detected, and is active on the bus.
2	Bill Recycler Active	Bill Validator 0 has identified MDB 4.0 recycler capability, and has been configured by the controller.
3	Cashless Active	Cashless device has been detected, and is active on the bus.
4	Bill Disabled	One or more bill types has been disabled due to low change.
5	Reserved	
6	Reserved	
7	Changer Payout Error	Changer reported that it could not complete payout. This may be all or part of the payout.
8	Bill Recycler Payout Error	Bill Recycler reported that it could not complete payout. This may be all or part of the payout.
9	Free Vend	Controller has been credited with Vend Token or Coupon. Bit gets set as soon as credit is received, and is cleared when vend process has been completed.
10	Credit Failed	Host machine did not accept credit.
11	Cashless Session	Attached cashless device has started a session. Any vends that occur while this bit is are credited from a cashless payment.
12	Acceptance Enabled	Controller has set all payment devices to accept.
13	Bill Validator 1 Active	Bill Validator 1 has been detected, and is active on the bus.
14	Reserved	
15	Vend in Process	The controller has successfully credited a vend, and is awaiting its completion.

# 8. Troubleshooting

## 8.1 Symptoms/Causes/Corrective Measures

Symptoms	Causes	Corrective Measures
Credit is greater than vend price, and Item selection will not issue credit to the machine	<ul style="list-style-type: none"> <li>- Physical connection between MDBPro and PLC is severed or wired incorrectly</li> </ul>	<ul style="list-style-type: none"> <li>- Check serial connection between MDBPro and the PLC</li> <li>- Verify wiring of vend trigger inputs</li> </ul>
Bill validator/recycler, changer, and cashless are disabled	<ul style="list-style-type: none"> <li>- PLC may have credit</li> <li>- MDBPro may have credit</li> <li>- Blocker input wiring may be severed or wired incorrectly</li> </ul>	<ul style="list-style-type: none"> <li>- Clear Credit in PLC by resetting it</li> <li>- Clear Credit in MDBPro by initiating a coin return</li> <li>- Verify wiring to blocker input</li> </ul>
Bill validator only disabled with error message “Disabled by VMC”, or bill validator is not accepting large bills	<ul style="list-style-type: none"> <li>- Bill validator has incorrect settings</li> <li>- Changer has too few coins or incorrect amount of coins</li> </ul>	<ul style="list-style-type: none"> <li>- Check bill validator settings (refer to BV user manual)</li> <li>- Check changer coin levels</li> <li>- Verify changer has correct reading of coin levels</li> </ul>
Bill validator is reporting “BV Just Reset”	<ul style="list-style-type: none"> <li>- Normal on power up</li> </ul>	<ul style="list-style-type: none"> <li>- This is normal and will occur on MDBPro, or bill validator power up.</li> </ul>
Changer is returning incorrect change	<ul style="list-style-type: none"> <li>- Prices are set incorrectly</li> <li>- Changer configured incorrectly</li> </ul>	<ul style="list-style-type: none"> <li>- Verify vend prices have been set properly</li> <li>- Verify changers cassette has been configured properly( refer to changer user manual)</li> </ul>
Cashless Device shows currently unable to accept	<ul style="list-style-type: none"> <li>- Device is not in MDB mode</li> <li>- Poor Cellular Coverage</li> </ul>	<ul style="list-style-type: none"> <li>- Verify device is in MDB mode(Refer to cashless user manual)</li> <li>- If cashless device is leveraging cellular communications, check antenna and signal strength</li> </ul>
MDBPro customer display is blank	<ul style="list-style-type: none"> <li>- Display's s-video cable is not plugged in securely</li> <li>- Display's s-video cable is defective</li> </ul>	<ul style="list-style-type: none"> <li>- Verify that s-video cable is properly connected between the customer display and MDBPro</li> <li>- Replace s-video cable</li> </ul>
MDBPro display occasionally shows non readable characters on the screen	<ul style="list-style-type: none"> <li>- Known non-critical bug</li> </ul>	<ul style="list-style-type: none"> <li>-This is normal and to be expected at infrequent intervals.</li> </ul>

# Appendix - A

## A.1 Glossary

**For Additional Support:**

Phone: (214)315-7252

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