PICOVEND EZ EXECUTIVE TO MDB CONVERTER

v2020-08-04 (fiscal ready)

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I. Introduction

This device was designed for an easy conversion of Executive machines to modern MDB payment systems. It can be also used to connect a computer, a PLC or a Raspberry Pi (and compatible SBC) to an Executive vending machine, in order to manage sales and other functions. It is driven by a simple ASCII protocol, that can be easily implemented in ant user application.

Standard package content:
- PICOVEND EZ EXECUTIVE TO MDB CONVERTER board
- Executive cable to connect to Executive VMC.

NOTE!!! - this device can handle one MDB bill validatory/recycler, one MDB coin acceptor/changer and one MDB cashless device (Level 2 or Level 3 with always idle cashless device). The second cashless address is not implemented and it will be the subject of a future update. **Also, it is not supporting MDB Level 1 cashless devices and there is no plan to add support for Level 1 on this device.**

During it's activity, the interface keeps some internal counters (total number of bills validated, total value of validated bills, coin, cashless transactions, product sales in price holding mode, etc.). At any moment, you can read those counters in order to obtain some statistics. Also, the counters may be used as a verification, if some messages are lost by the user application. For example, you may constantly poll for counters to check if you missed some bills or coins.

The converter is able to work with both Executive modes (prices set on the vending machine or "price holding" - with the prices stored on the interface). If you need to collect sales statistics with your external application, "price holding" mode is recommended. The interface is able to store up to 127 product individual counters. The counters can be read over USB interface, by using simple ASCII commands detailed later in this document.

II. Hardware

A. Board overview

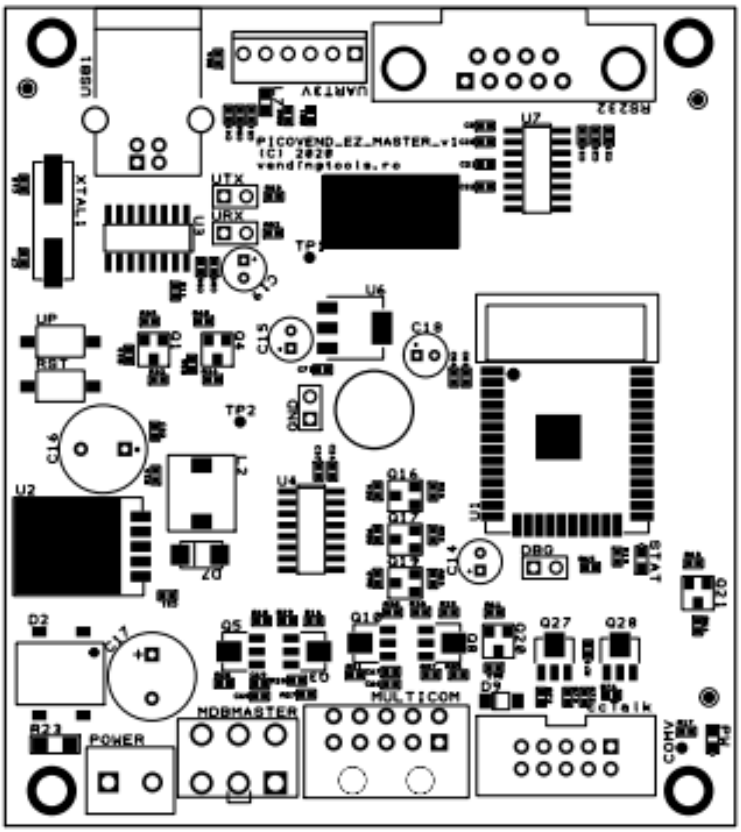


Figure 1 - Board overview

B. Connectors description

1. POWER – connect your external power supply to this connector in order to power the device and, also, the connected peripherals (MDB payment systems, ccTalk payment systems, etc.). You need to make sure your power supply is matching the connected MDB and ccTalk power requirements (voltage and current). The maximum momentary drained current simultaneously drained from MDB and ccTalk should not exceed 4A. AC power can be also applied on this connector, but you need to take car that the transformer can cover all current requirements and not exceed 24V on open terminals.
2. MDBMASTER – this connector allows the device interfacing with MDB peripherals (bill validator/recycler, coin acceptor/changer and cashless device);
3. MULTICOM – is a multipurpose interface connector, not used with this version. In future software versions it will offer Executive interface and ccTalk for non-standard connector peripherals. On this connector you will need to connect the included Executive cable.
4. ccTalk – this is the connector for standard 10pin ccTalk interfaces. It's pinout is the following:
- PIN #1 – ccTalk data;
- PIN #2 – N/C;
- PIN #3 – N/C;
- PIN #4 – GND;
- PIN #5 – N/C;
- PIN #6 – N/C;
- PIN #7 – VCC POWER;
- PIN #8 – GND;
- PIN #9 – N/C;

- PIN #10 – VCC POWER;

ccTalk functions are not implemented in this firmware.

5. RS232 – this is the connector for RS232 interface – used for Bluetooth activation in this version, by connecting the dedicated “Service mode” optional connector.

6. UART3V – this is the connector for 3V3 UART interface (requires special firmware to work, that will not support TTL 3V3, but will also support USB). The baudrate on this interface will is 115200.

- PIN #1 – N/C;
- PIN #2 – GND;
- PIN #3 – TXD;
- PIN #4 – RXD;
- PIN #5 – 3.3V out (max 100mA);
- PIN #6 – 5V out (max 300mA).

7. USB1 connector to use on USB hosts – requires some drivers to install on host, to emulate a virtual serial interface (default baudrate is 115200). If you are using Windows OS, you will need to install CH340G driver. For Linux (including Raspbian OS), the driver is already included in the latest Kernel and needs no additional driver installation.

II. Standalone working mode

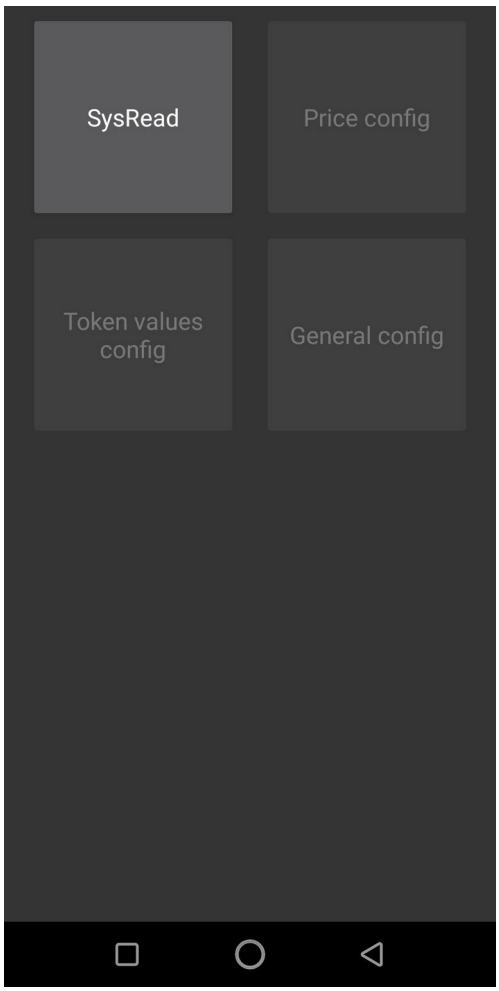
With this working mode, the device is a standalone converter from Executive vending machine to MDB payment systems. You need to configure the working parameters using the Android application.
Configuration is available by using an Android application only. There are no hidden menus and buttons on this device and the Android application is the easiest way to configure the device
The Android application is connecting over Bluetooth. The controller Bluetooth needs to be activated for configuring and deactivated after configuration finished.

A. Bluetooth activation

To activate the Bluetooth communication, you need to connect the optional “Bluetooth enable” DB9 connector on the RS232 interface, while the device is not powered.
Power up the device and using your Android device “Bluetooth” menu, pair with the PVEZEXE module in range. You will need to delete and follow the pairing procedure with any different PICOVEND EXECUTIVE TO MDB CONVERTER you may want to configure.

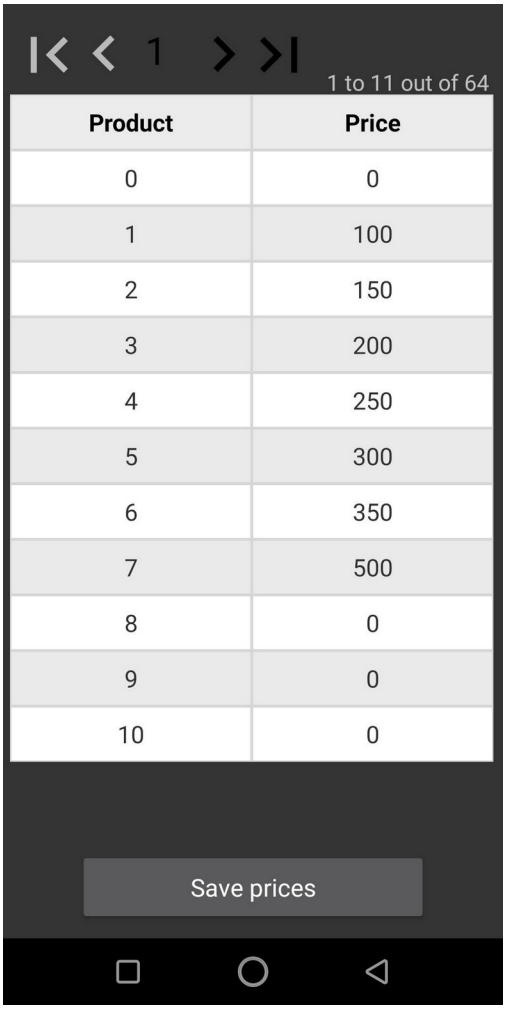
B. Android application flow

1. Start the application that will automatically try to connect to PVEZEXE device. If successful, you will get a message on your phone and the following screen will be displayed.



Press “SysRead” button, the application will read current controller settings. Some data will be displayed and some short beeps can be hear some short beeps. Please wait patiently while all data are retrieved.

Press “Back” button and go to “Price config” (for Executive price holding mode only).

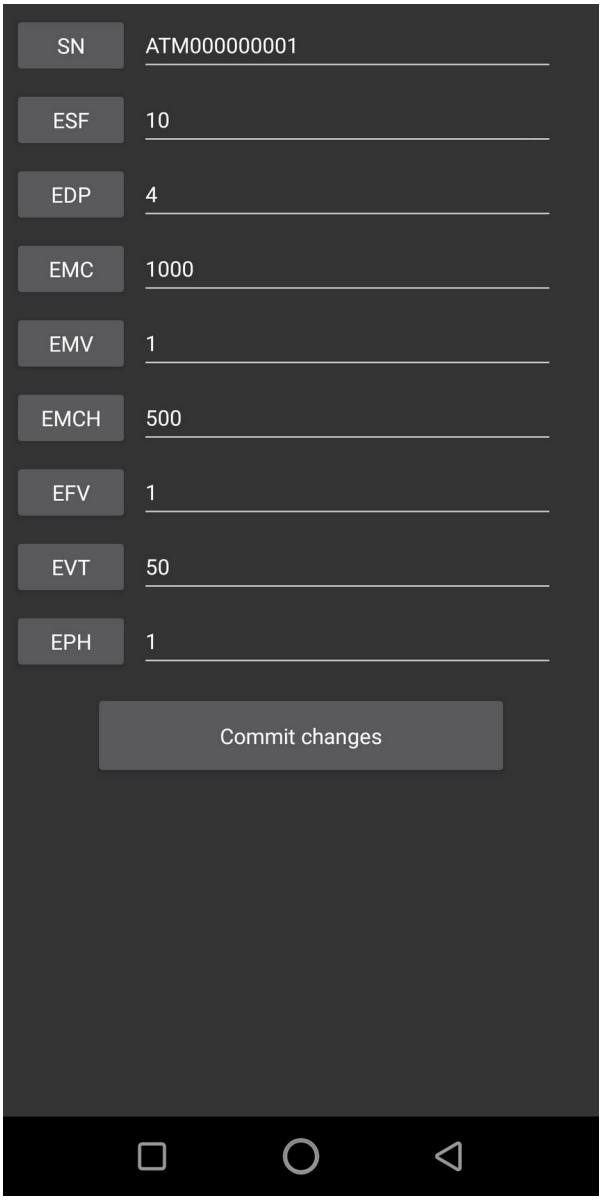


In the “Product” column there is the list containing products IDs. For each needed product ID you need to set the correct price (in cents) . For example, if you set the price to 150 for product ID #2, all VMC requests for this product requires a credit of 1.50EUR. This option is only important for “Executive price holding” working mode. It is ignored if the prices are set on the vending machine. You need to make sure that the machine is set in “Executive price holding” mode and the products IDs are matching with the interface settings.

After setting the desired values, press “Save prices” button and wait for data to be saved on the device.

The “Token values” option will set the tokens values, if the controller is connected with an MDB coin acceptor that receives tokens. The configuration depends on your coin acceptor settings and they must match (for example, set on channel #1 150 if your coin acceptor is sending a “token received” message on channel #1 for 1.50EUR tokens. Push “save token values” when you are done setting the token values, then hit “Back button to go back to the main screen.

The “General config” option allows you to set some general controller settings. Please take care on those settings, since they can brick your controller if don’t pay attention.



- **SN** is the controller serial number, that will be also periodically show on controller’s display. This string should be always 12 characters length, any other length will make the controller acting unpredictable. You can leave this parameter as default, unless you are using an MDB sniffer/telemetry that will send this value to the back-end for machines management.
- **ESF** – is the value for Executive scaling factor. All set credit and product prices are sent between the interface and the Executive vending machine multiplied/divided by this scaling factor. For most of the currencies, you may use a scaling factor of 10, which gives you a credit/price resolution of 10cents. For example, if your last digit will be always 0 (1.50, 2.30, 1.10, etc.), you will use a scaling factor of 10. If your last digit is significant (1.55, 2.34, 1.12, etc.), you will need to use a scaling factor of 1. Please note that the maximum credit you can send to the machine will vary, depending on the scaling factor. The maximum value you can send to the machine is 0xFFFF (65535). That means that for a scaling factor of 1, you will be able to send a maximum credit of 655.35 with 2 decimals settings on the interface and the machine and a

maximum credit of 655.30 in the same conditions, with the scaling factor being 10. Also, the maximum credit amount depends on your decimal point settings on the machine and on the interface. Please note that, if the machine has a scaling factor setting option in it's configuration menu, the value set on the machine and the value set on the interface must match. Otherwise, the credit value on the display will be incorrect.
- **EDP** – is the value for Executive decimal point. The value is binary sent and represents the position of the decimal point (for example, to have no decimals, the value should be 0, to have one decimal, the value should be 2 and to have two decimals, the value should be 4). You need to take care that the value set on the interface should match with the value set on the vending machine. Otherwise, you may get wrong values on the VMC display.
- **EMC** – is the value (cents) of the maximum cash credit accepted by the interface for transactions. When the customer has been inserted money corresponding with this set amount, all connected MDB payment systems will be inhibited. After a purchase, if the available credit falls below this value, the payment systems will be automatically enabled by the interface. If the bill is supporting escrow function, this will be automatically activated and the bills that will lead to a higher value will be returned to the customer.
- **EMV** – is the current set for multivend/single vend option. If this value is set to 0, the interface will work in single vend mode (it will automatically return change after each sale). If this value is set to 1, the interface will work in multivend mode, the remaining credit is kept on the machine to allow another selection, after each sale. To get the change, the customer must press the escrow lever on changer (usually the mechanical change button on the machine will push the lever or will activate a small motor that will push the lever).
- **EMCH** – is the value for the maximum change allowed to be returned to the customer after a transaction. If the remaining credit will be higher that this value after a transaction, the interface will not automatically return change (in single vend mode) and will not manually dispense change (in multivend mode). The remaining credit is kept on the machine to allow another selection. This option is usually used to avoid ing the machine as a change machine (for example if the customer is inserting bills or coins to the maximum credit value and is selecting a low price product in order to obtain coins).
- **EFV** – is the force vend option for the interface. If this value is set to 1, the machine will not return change if there the machine did not performed a vend. If the value is set to 0, the machine will return change in any situation where a credit is available. This parameter is used to avoid customers using the machine as a change machine (for example, inserting a bill or a bigger value coin, to get coins/smaller coins). If the value is set to 0, the machine will allow the usage as a change machine. There is one exception: when the machine is reporting a vend failed, the customer will be able to get the inserted amount as coins, if does not want to to select other product, due to machine malfunction.
- **EVT** – is the vend timeout (seconds). During a vend stage (product dispensing), if the interface will not receive a "vend success" or a "vend failed" answer from the machine. This may happen due to a machine temporary malfunction, for example. If the timeout interval has passed, the interface will return to the idle mode and the credit will be kept for future product selections. Since this is a backup method to avoid machine going out of order for not normal preparation duration, you need to make sure this time is covering the longest preparation time. For example, if the the hot drink preparation duration is 40 seconds, make sure you set this value to at least 60 seconds, because sometime the preparation duration can be longer (for example if one of the machine pump is out of parameters and cannot fill the tanks in a proper time.
- **EPH** – is the working mode setting. If this value is set to 1, the interface will work in price holding mode and it will use it's internal price list. If this value is set to 0, the interface is expecting prices from the machine. Make sure your machine and the interface settings are matching, otherwise, strange behavior is expected (wrong price calculation and credit substracting).

After modifying any of the above settings, push the label in front of the field to save it to the device. When finishing all modifications, push "Commit changes" to save all settings in the NV flash memory.

Remove the "Bluetooth enable" connector from the DB9 interface and rstart the device when all settings are done to allow the controller load and set the new configuration.

III. Assisted working mode (connected over USB to computer, PLB, or Raspberry Pi and compatible SBCs)

This working mode can be used for vending machines upgrade or remote credit loading. For example, you can use a Raspberry Pi (or compatible SBC) to send credit to the Executive vending machine, to receive and display credit information on a big screen, to display selected product name and price, to display the vend result (failed or succeeded), to send counters to a server, to receive remote settings and credit, etc. It may be a good start for a vending machines retrofit activity. There are a lot of commands for the interface and a lot of messages coming from the interface, in order to achieve this goal.

A. Bill validator related commands

1. Get last 10 bill status codes

Command	
BILLSTATUS?	This command will ask for the last 10 bill validator status codes. You application can use this to periodically ask the bill validator status, if it missed some unsolicited messages.
Possible answers	
- BILLSTATUS(A,B,C,D,E,F,G,H,I,J)	- A to J are some byte values, corresponding with the bill validator status bytes received on bill poll. You need to check with MDB documentation for the bytes interpretation. For example, 8 means “cashbox removed”. This vector is a FIFO loop and you may need to read it periodically.

2. Check if the bill validator was initialized by the interface

Command	
BILLINITED?	This command will check if the bill validator was initialized by the interface after power-up or after issuing BILLRESET command
Possible answers	
- BILLINITEDOK - BILLNOTINITED	- The bill validator was successfully initialized - The bill validator was not initialized (missing or not initialized, yet).

3. Check if the bill validator was enabled

Command	
BILLACTIVE?	This command will check if the bill validator was previously activated by a BILLENABLE or a BILLSELECTENABLE command.
Possible answers	
- BILLACTIVEOK - BILLNOTACTIVE	- The bill validator is currently enabled - The bill validator is not currently enabled

4. Get the bill validator configured bills values

Command	
BILLVALUES?	This command will read the bill validator configured bills values. This vector is read during automatic bill validator initialization phase, after a power-up or after issuing BILLRESET command.
Possible answers	
- BILLVALUES(A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P)	- A to P are the scaled values of the bills recognized and accepted by the bill validator. You can use this to obtain necessary information for selective bill activation in order to avoid accepting bills values higher thatn the maximum accepted credit.
- BILLNOTINITED	- The bill validator was not previously initialized and the bills values information is not available.

5. Get the bill validator information

Command	
BILLINFOREQ?	This command will read the bill validator information for statistics and payment systems inventory tracking. This information is read during automatic bill validator initialization phase, after a power-up or after issuing BILLRESET command.
Possible answers	
- BILLINFOREQ(A,B,C)	- A is the bill validator manufacturer code, fixed length – 3 characters (ASCII) - B is the bill validator internal serial number, fixed length, 12 characters (ASCII) - C is the bill validator internal model number, fixed length, 12 characters (ASCII)
- BILLNOTINITED	- The bill validator was not previously initialized and the information is not available

6. Get the bill validator settings

Command	
BILLSETTINGS?	This command will read the bill validator settings. This information is read during automatic bill validator initialization phase, after a power-up or after issuing BILLRESET command.
Possible answers	
- BILLSETTINGS(A,B,C,D,E,F)	- A is the bill validator feature level (decimal) - B is the bill validator country code (HEX) - C is the bill validator scaling factor (decimal) - D is the bill validator decimal places (decimal) - E is the bill validator stacker capacity (decimal) - F is the bill validator escrow support (1 if the bill validator supports escrow function or 0 if the bill validator does not support escrow function)
- BILLNOTINITED	- The bill validator was not previously initialized and the information is not available

7. Reset bill validator

Command	
BILLRESET	This command will reset the bill validator. The interface will automatically initialize the bill validator again and it will automatically enable it if the vendign machine is up and running. After issuing this command, you will receive some unsolicited messages while the interface is initializing the bill validator. You may receive the following messages: - BILLSTACKNOTFULL(X) - BILLREADY - BILLOK Please check the unsolicited messages information below in the “Interface unsolicited messages” section.
Possible answers	
- BILLRESETFAIL	- If the bill validator could not be reset when the BILLRESET is received, you will receive this answer. Possible reasons (but not limited to those) could be: bill validator was not initialized, bill validator already disabled, MDB communication error, etc.
- BILLRESETOK	- If the command is correctly received and interpreted by the interface.

B. Coin related commands

1. Reset coin acceptor

Command	
COINRESET	This command will reset the coin acceptor/changer. The interface will automatically initialize the coin acceptor/changer again and it will automatically enable if the vending machine is up and running. After issuing this command, you will receive some unsolicited messages while the interface is initializing the coin acceptor/changer. You may receive the following messages: - COINREADY - COINOK Please check the unsolicited messages information below in the “Interface unsolicited messages” section.
Possible answers	
- COINRESETFAIL - COINRESETOK	- If the coin acceptor/changer could not be reset when the COINRESET is received, you will receive this answer. Possible reasons (but not limited to those) could be: coin acceptor was not initialized, coin acceptor already disabled, MDB communication error, etc. - If the command is correctly received and interpreted by the interface.

2. Get total value of coins in tubes (for coin changers only)

Command	
COINTBSTATUS?	This command will get the total coins value in changer’s tubes. For changers with more than 255 same type coins on a tube or multiple tubes, the changer always returns 255 for a tube. Do not use this command for inventory management.
Possible answers	
- COINTBSTATUS(X) - COINTBSTATUSOK - COINTBSTATUSFAIL	- X is the total scaled value of the coins in the coin changer tubes. - If the command is correctly received and interpreted by the interface. - If the command was not correctly received and interpreted by the interface.

3. Dispense some coins (change) to the customer – obsolete, try to use COINAP command whenever the coin acceptor/changer supports it.

Command	
COINDISPENSE(X)	This command will start coin dispensing for the X value (for example, COINDISPENSE(120) will dispense 1.20EUR. Use this command instead of COINDISPENSE whenever the coin changer is supporting it.
Possible answers	
- COINDISPENSEOK	- If the command is correctly received and interpreted by the interface and, also, the changer managed to successfully or not dispensed the coins
- COINPAYBUSY	- You will receive this message until the changer manages to return the entire amount or fails for some reason (not enough change,
- COINDISPENSEFAIL	- If the command was not correctly received and interpreted by the interface or if the changer is returning an error.
- REMAINING(X)	- X is the total value that could not be dispensed by the changer (due to an internal error, missing coins stock, etc.)

4. Dispense some coins using MDB alternative payout method

Command	
COINAP(X)	This command will start coin dispensing for the X value (for example, COINDISPENSE(120) will dispense 1.20EUR. This command is obsolete end you must use COINAP instead it the coin changer supports it. Using this command is much slower than the COINAP command since it will dispense one coin at a time.
Possible answers	
- COINAPOK	- If the command is correctly received and interpreted by the interface and, also, the changer managed to successfully or not dispensed the coins
- COINPAYBUSY	- You will receive this message until the changer manages to return the entire amount or fails for some reason (not enough change,
- COINAPFAIL	- If the command was not correctly received and interpreted by the interface or if the changer is returning an error.
- REMAINING(X)	- X is the total value that could not be dispensed by the changer (due to an internal error, missing coins stock, etc.)

5. Check if the coin acceptor/changer was initialized by the interface

Command	
COININITED?	This command will check if the coin acceptor was initialized by the interface after power-up or after issuing COINRESET command
Possible answers	
- COININITEDOK - COINOTINITED	- The bill validator was successfully initialized - The bill validator was not initialized (missing or not initialized, yet).

6. Check if the coin acceptor/changer was enabled

Command	
COINACTIVE?	This command will check if the coin acceptor/changer was previously activated by a COINENABLE or a COINSELECTENABLE command.
Possible answers	
- COINACTIVEOK - COINNOTACTIVE	- The coin acceptor/changer is currently enabled - The coin acceptor/changer is not currently enabled

7. Get last 10 coin acceptor/changer codes

Command	
COINSTATUS?	This command will ask for the last 10 coin acceptor/changer status codes. You application can use this to periodically ask the coin acceptor/changer status, if it missed some unsolicited messages.
Possible answers	
- COINSTATUS(A,B,C,D,E,F,G,H,I,J)	- A to J are some byte values, corresponding with the coin acceptor/changer status bytes received on coin poll. You need to check with MDB documentation for the bytes interpretation. For example, 7 means “tube jam”. This vector is a FIFO loop and you may need to read it periodically.

8. Get the coin acceptor/changer configured coins values

Command	
COINVALUES?	This command will read the coin acceptor/changer configured coins values. This vector is read during automatic coin validator initialization phase, after a power-up or after issuing COINRESET command.
Possible answers	
- COINVALUES(A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P)	- A to P are the scaled values of the coins recognized and accepted by the coin acceptor/changer. You can use this to obtain necessary information for selective coin activation in order to avoid accepting coins values higher than the maximum accepted credit.
- COINNOTINITED	- The coin acceptor/changer was not previously initialized and the coins values information is not available.

9. Get the coin acceptor/changer information

Command	
COININFOREQ?	This command will read the coin acceptor/changer information for statistics and payment systems inventory tracking. This information is read during automatic coin acceptor/changer initialization phase, after a power-up or after issuing COINRESET command.
Possible answers	
- COININFOREQ(A,B,C)	- A is the coin acceptor/changer manufacturer code, fixed length – 3 characters (ASCII) - B is the coin acceptor/changer internal serial number, fixed length, 12 characters (ASCII) - C is the coin acceptor/changer internal model number, fixed length, 12 characters (ASCII)
- COINNOTINITED	- The coin acceptor was not previously initialized and the information is not available

10. Get the coin acceptor/changer settings

Command	
COINSETTINGS?	This command will read the bill validator settings. This information is read during automatic bill validator initialization phase, after a power-up or after issuing COINRESET command.
Possible answers	
- COINSETTINGS(A,B,C,D,E,F,G,H,I,J,K,L, M,N,O,P,Q,R,S)	- A is the coin acceptor feature level (decimal) - B is the coin acceptor country code (HEX) - C is the coin acceptor scaling factor (decimal) - D is the coin acceptor decimal places (decimal) - E to S are tube flags. Each coin type where the corresponding flag is set to 1, can be stored in changer's tubes and used for change. Each coin type where the corresponding flag is 0, cannot be stored in changer's tubes.
- COINNOTINITED	- The coin acceptor/changer was not previously initialized and the information is not available

11. Get the token values

Command	
TOKENVALUES?	This command will read coin tokens set into the interface memory.
Possible answers	
- TOKENVALUES(A,B,C,D,E,F,G,H,I,J,K,L, M,N,O,P)	- A to P are the value set for each token. These values are used if you have connected a coin acceptor/changer that is sending 0XFF for coin values if a token is accepted. You don't need to use ththat if your coin acceptor/changer is directly reporting the token value.
- COINNOTINITED	- The coin acceptor/changer was not previously initialized and the information is not available

12. Set the token values

Command	
- TOKENVALUES(A,B,C,D,E,F,G,H,I,J,K,L, M,N,O,P)	This command will set the token values in the interface. - A to P are the value set for each token. These values are used if you have connected a coin acceptor/changer that is sending 0xFF for coin values if a token is accepted. You don’t need to use ththat if your coin acceptor/changer is directly reporting the token value.
Possible answers	
- TOKENVALUESOK - COINNOTINITED	- The coin acceptor/changer have been set. - The coin acceptor/changer was not previously initialized and you cannot set this value.

C. Cashless related commands

1. Reset cashless device

Command	
CSLSRESET	This command will reset the cashless device After issuing this command, you will receive some unsolicited messages while the interface is initializing the cashless device. You may receive the following messages: - CSLSREADY - CSLSOK Please check the unsolicited messages information below in the “Interface unsolicited messages” section.
Possible answers	
- CSLSRESETFAIL	- If the cashless device could not be reset when the CSLSRESET is received, you will receive this answer. Possible reasons (but not limited to those) could be: cashless device was not initialized, MDB communication error, etc.
- CSLSRESETOK	- If the command is correctly received and interpreted by the interface.

2. Request cashless current revalue limit

Command	
CSLSREVALLIMITREQ?	This command will read the current revalue limit.
Possible answers	
- CSLSREVALLIMIT(X)	- X is the maximum revalue amount accepted by the cashless device for further CSLSREVALREQ (cashless revalue request) command.
- CSLSNOSESSION	- Cashless device is not in session so, the revalue is not available.
- CSLSNOREVALSUPPORT	- If the cashless device or media does not support revalue command
- CSLSREVALLIMITFAIL	- Revalue limit request command was not successfully excuted.

3. Request approval for a vend

Command	
CSLSVNDREQ(A,B)	This command will request a vend approval from the cashless device - A is the scaled price (16bit value maximum) - B is the item ID/selection number (16bit value maximum)
Possible answers	
- CSLSNOSESSION	- You will receive this answer if you are requesting for a vend approval and the cashless device is Level 2 or Level 3 without Always Idle support and a cashless session is not opened.
- CSLSVNDREQOK	- If the interface successfully received and parsed the command.
- CSLSVNDREQFAIL	- If the interface was not able to successfully receive and parse the command.

4. Confirm a success vend to the cashless device

Command	
CSLSVNDSUCC(A)	This command will confirm the product dispensing was successful - A is the item ID/selection number (16bit value maximum) that was successfully dispensed
Possible answers	
- CSLSNOSESSION	- You will receive this answer if you are trying to send ca vend success in a stage that is not expecting this command
- CSLSVNDSUCCOK	- If the interface successfully received and parsed the command.
- CSLSVNDSUCCFAIL	- If the interface was not able to successfully receive and parse the command.

5. Report a vend failure to the cashless device

Command	
CSLSVNNDFAIL	This command will report a vend failure to the cashless device. Usually, the cashless device must restore funds to the customer’s account.
Possible answers	
- CSLSNOSESSION	- You will receive this answer if you are trying to send ca vend failure in a stage that is not expecting this command
- CSLSVNDFAILOK	- If the interface successfully received and parsed the command.
- CSLSVNDFAILFAIL	- If the interface was not able to successfully receive and parse the command.

6. Report a cash sale to the cashless device

Command	
CSLSCASHSALE(A,B)	This command will report a cash sale to the cashless device. This is used for statistic purposes and not all cashless devices may recognize this command. You should test with the cashless device prior to use that. - A is the scaled price (16bit value maximum) - B is the item ID/selection number (16bit value maximum)
Possible answers	
- CSLSNOCASHSALESUPPORT	- You will receive this answer if you are trying to send a cashless cash sale command, but the cashless device is not supporting this sale subcommand.
- CSLSCASHSALEOK	- If the interface successfully received and parsed the command.
- CSLSCASHSALEFAIL	- If the interface was not able to successfully receive and parse the command.

7. Send a revalue request (the customer’s account amount refill)

Command	
CSLSREVALREQ(A)	This command will add some amount to customer’s account. - A is the scaled amount your application needs to add to customer’s account (16bit value maximum)
Possible answers	
- CSLSNOREVALSUPPORT	- You will receive this answer if you are trying to send a cashless revalue command, but the cashless device is not supporting revalue (is not able to load the amount to the customer’s account)
- CSLSNOSESSION	- If there is no cashless session opened, the cashless device will not be able to load any amount to customer’s account.
- CSLSREVALOVER	- The specified amount exceeds the cashless maximum revalue capacity for the current session.
- CSLSREVALREQOK	- If the interface successfully received and parsed the command.
- CSLSREVALREQFAIL	- If the interface was not able to successfully receive and parse the command.

8. Get last 10 cashless device codes

Command	
CSLSSTATUS?	This command will ask for the last 10 cashless device status codes. You application can use this to periodically ask the cashless device status, if it missed some unsolicited messages.
Possible answers	
- CSLSSTATUS(A,B,C,D,E,F,G,H,I,J)	- A to J are some byte values, corresponding with the cashless device status bytes received on cashless poll. You need to check with MDB documentation for the bytes interpretation. For example, 8 means “cashbox removed”. This vector is a FIFO loop and you may need to read it periodically.

9. Check if the cashless device was initialized by the interface

Command	
CSLSINITED?	This command will check if the cashless device was initialized by the interface after power-up or after issuing CSLSRESET command
Possible answers	
- CSLSINITEDOK - CSLSNOTINITED	- The cashless device was successfully initialized - The cashless device was not initialized (missing or not initialized, yet).

10. Check if the cashless device was enabled

Command	
CSLSACTIVE?	This command will check if the cashless was previously activated by a CSLSENABLE.
Possible answers	
- CSLSACTIVEOK - CSLSNOTACTIVE	- The cashless device is currently enabled - The cashless device is not currently enabled

11. Get the cashless device information

Command	
CSLSINFOREQ?	This command will read the cashless device information for statistics and payment systems inventory tracking. This information is read during automatic coin acceptor/changer initialization phase, after a power-up or after issuing CSLSRESET command.
Possible answers	
- CSLSINFOREQ(A,B,C)	- A is the cashless device manufacturer code, fixed length – 3 characters (ASCII) - B is the cashless device internal serial number, fixed length, 12 characters (ASCII) - C is the cashless device internal model number, fixed length, 12 characters (ASCII)
- CSLSNOTINITED	- The cashless device was not previously initialized and the information is not available

12. Get the cashless device settings

Command	
CSLSSETTINGS?	This command will read the cashless device settings. This information is read during automatic cashless device initialization phase, after a power-up or after issuing CSLSRESET command.
Possible answers	
- CSLSSETTINGS(A,B,C,D,E,F)	- A is the cashless device feature level (decimal) - B is the cashless device country code (HEX) - C is the cashless device scaling factor (decimal) - D is the cashless device decimal places (decimal) - E is the cashless device maximum application time (decimal) - F is the cashless device option bits as described in the MDB specifications: - b0 – if set, the payment media is able to accept revalue command; - b1 – if set, the cashless device is multivend capable; - b2 – if set, the cashless device has it's own display; - b3 – if set, the cashless device is supporting cash sale reporting
- CSLSNOTINITED	- The bill cashless device was not previously initialized and the information is not available

D. System and executive related commands

1. Interface reboot

Command	
- SYSRESET	This command will force interface reboot after 3 seconds.
Possible answers	
- SYSRESETOK	- The interface correctly received and parsed the command.

2. Check if the interface is up and running

Command	
- ALIVE?	This command will request a simple ACK response from the interface, in order to check it is normally working.
Possible answers	
- ALIVEACK	- The interface correctly received the message and is running.

3. Read internal counters

Command	
- CNTR?	This command will read interface's internal counters. Counters are automatically incremented on some events (bill validated, coin accepted, bill rejected, coin rejected, etc.)
Possible answers	
- CNTR(A,B,C,D,E,F,G,H,I,J,K,L)	- A is the total number of received bills. - B is the total value of received bills. - C is not used in this version. - D is the total number of rejected bills (you can monitor this counter in order to decide when you need to clean/recalibrate the bill validator). - E is the total number of received coins. - F is the total value of received coins. - G is the total number of cashless transactions. - H is the total value of the cashless transactions. - I is not used in this version. - J is the total number of received tokens. - K is the total number of rejected coins. - L is the total value of received tokens.

4. Read internal counters

Command	
- CNTR?	This command will read interface's internal counters. Counters are automatically incremented on some events (bill validated, coin accepted, bill rejected, coin rejected, etc.)
Possible answers	
- CNTR(A,B,C,D,E,F,G,H,I,J,K,L)	- A is the total number of received bills. - B is the total value of received bills. - C is not used in this version. - D is the total number of rejected bills (you can monitor this counter in order to decide when you need to clean/recalibrate the bill validator). - E is the total number of received coins. - F is the total value of received coins. - G is the total number of cashless transactions. - H is the total value of the cashless transactions. - I is not used in this version. - J is the total number of received tokens. - K is the total number of rejected coins. - L is the total value of received tokens.

5. Read product sales counter

Command	
- READPRODUCTCNTR(X)	This command will read the sales counter value for product X. Valid values for X are between 0 and 127
Possible answers	
- READPRODUCTCNTR(X,Y)	- The number of sold products for the product number X is Y

6. Set the price for a product (price holding mode only)

Command	
- WRITEPRICE(X,Y)	This command will set the product price for the product number X to the scaled value Y. For example, to set price 1.50 on product 8, you need to issue the command WRITEPRICE(8,150).
Possible answers	
- WRITEPRICEOK - WRITEPRICEFAIL	- If the product price successfully set - If the product price was not sucessfully set

7. Read product price (price holding mode only)

Command	
- READPRICE(X)	This command will read the price for the product number X
Possible answers	
- READPRICE(X,Y)	- The price for product X was read as Y

8. Sending some simulated cash credit to the VMC

Command	
- EXECREDIT(X)	This command will send some simulated cash credit to the vending machine. X is the scaled value for the credit you need to send to the machine. For example, to send 1.10 credit to the vending machine, you need to issue the command EXECREDIT(110)
Possible answers	
- EXECREDITOK	- The command were successfully received by the interface

9. Setting the interface scaling factor

Command	
- EXESCALE(X)	This command will set interface scaling factor. X is the new scaling factor and you need to use SAVESETTINGS command to make it persistent. Please take care on this value must match with the value set on the vending machine (if available in machine settings)
Possible answers	
- EXESCALEOK - EXESCALEFAIL	- If the interface correctly received and set the scaling factor. - If the interface did not correctly received and set the scaling factor.

10. Reading the interface scaling factor

Command	
- EXESCALE?	This command will read interface scaling factor. Please take care on this value must match with the value set on the vending machine.
Possible answers	
- EXESCALE(X)	- X is the current set scaling factor

11. Setting the interface decimal point position

Command	
- EXEDECIMAL(X)	This command will set interface decimal point. X is the new decimal point position and you need to use SAVESETTINGS command to make it persistent. Please take care on this value must match with the value set on the vending machine (if available in machine settings) The following values are accepted: - 0 → no decimals - 2 → one decimal - 4 → two decimals
Possible answers	
- EXEDECIMALOK - EXEDECIMALFAIL	- If the interface correctly received and set the scaling factor. - If the interface did not correctly received and set the scaling factor.

12. Reading the interface decimal point position

Command	
- EXEDECIMAL?	This command will read interface decimal point position. Please take care on this value must match with the value set on the vending machine.
Possible answers	
- EXEDECIMAL(X)	- X is the current set decimal point position

13. Setting the interface maximum allowed cash credit

Command	
- EXEMAXCREDIT(X)	This command will set interface maximum allowed cash credit for a transaction. X is the new maximum allowed cash credit for a transaction and you need to use SAVESETTINGS command to make it persistent. Please take care on this value must match with the value set on the vending machine (if available in machine settings).
Possible answers	
- EXEMAXCREDITOK - EXEMAXCREDITFAIL	- If the interface correctly received and set the scaling factor. - If the interface did not correctly received and set the scaling factor.

14. Reading the interface maximum allowed cash credit

Command	
- EXEMAXCREDIT?	This command will read interface maximum allowed cash credit for a transaction. Please take care on this value must match with the value set on the vending machine.
Possible answers	
- EXEMAXCREDIT(X)	- X is the current set maximum cash credit allowed for a transaction

15. Setting the interface vending mode (single/multi vend)

Command	
- EXEMULTIVEND(X)	This command will set interface working mode. X is the new the working mode and you need to use SAVESETTINGS command to make it persistent. Please take care on this value must match with the value set on the vending machine (if available in machine settings) Possible values are: - 0 → machine is working in single vend mode - 1 → machine is working in multivend mode
Possible answers	
- EXEMULTIVENDOK - EXEMULTIVENDFAIL	- If the interface correctly received and set the scaling factor. - If the interface did not correctly received and set the scaling factor.

16. Reading the interface vending mode (single/multi vend)

Command	
- EXEMULTIVEND?	This command will read interface vending mode. Please take care on this value must match with the value set on the vending machine.
Possible answers	
- EXEMAXCREDIT(X)	- X is the current set vending mode. Possible values are: - 0 → machine is working in single vend mode - 1 → machine is working in multivend mode

17. Setting the interface maximum allowed change

Command	
- EXEMAXCHANGE(X)	This command will set interface maximum allowed change for a transaction. X is the new maximum allowed change for a transaction and you need to use SAVESETTINGS command to make it persistent. Please take care on this value must match with the value set on the vending machine (if available in machine settings)
Possible answers	
- EXEMAXCHANGEOK - EXEMAXCHANGEFAIL	- If the interface correctly received and set the scaling factor. - If the interface did not correctly received and set the scaling factor.

18. Reading the interface maximum allowed change

Command	
- EXEMAXCHANGE?	This command will read interface maximum allowed change for a transaction. Please take care on this value must match with the value set on the vending machine.
Possible answers	
- EXEMAXCHANGE(X)	- X is the current set maximum change allowed for a transaction

19. Setting the interface force vend option

Command	
- EXEFORCEVEND(X)	This command will set interface force vend option. X is the new force vend option and you need to use SAVESETTINGS command to make it persistent. Please take care on this value must match with the value set on the vending machine (if available in machine settings) Possible values are: - 1 → machine needs at leas one successful transaction to return changer - 0 → machine will return change without any condition
Possible answers	
- EXEFORCEVENDOK - EXEFORCEVENDFAIL	- If the interface correctly received and set the scaling factor. - If the interface did not correctly received and set the scaling factor.

20. Reading the interface force vend option

Command	
- EXEFORCEVEND?	This command will read interface force vend option. Please take care on this value must match with the value set on the vending machine.
Possible answers	
- EXEFORCEVEND(X)	- X is the current force vend option

21. Setting the interface vend timeout

Command	
- EXEVNDTIMEOUT(X)	This command will set interface vend timeout. X is the new vend timeout and you need to use SAVESETTINGS command to make it persistent. Please take care on this value must match with the value set on the vending machine (if available in machine settings) - X is the value (seconds) that the machine will wait for a preparation/dispense to finish and answer with a vend success or vend failed message
Possible answers	
- EXEVNDTIMEOUTOK - EXEVNDTIMEOUTFAIL	- If the interface correctly received and set the scaling factor. - If the interface did not correctly received and set the scaling factor.

22. Reading the interface vend timeout

Command	
- EXEVNDTIMEOUT?	This command will read interface vend timeout. Please take care on this value must match with the value set on the vending machine.
Possible answers	
- EXEVNDTIMEOUT(X)	- X is the current set vend timeout

23. Setting the interface price working mode

Command	
- EXEPRICEHOLDING(X)	This command will set interface price working mode. X is the new price working mode and you need to use SAVESETTINGS command to make it persistent. Please take care on this value must match with the value set on the vending machine (if available in machine settings). Possible values are: - 0 → price list is kept on the vending machines - 1 → price list is kept on the interface (price holding mode)
Possible answers	
- EXEPRICEHOLDINGOK - EXEPRICEHOLDINGFAIL	- If the interface correctly received and set the scaling factor. - If the interface did not correctly received and set the scaling factor.

24. Reading the interface price working mode

Command	
- EXEPRICEHOLDING?	This command will read interface price working mode. Please take care on this value must match with the value set on the vending machine.
Possible answers	
- EXEPRICEHOLDING(X)	- X is the current set price working mode.

IV. Unsolicited messages

Unsolicited messages are messages that are coming as a result of the payment systems activity and not as a result of a command from your application. They may occur at any moment so your application is responsible to constantly listen on the serial or USB interface, parse unsolicited messages and react accordingly.

1. Power-up messages

Those messages are sent on interface power-up or reboot (SYSRESET command)

Message	Description
MDBMASTERSTART	- This message comes out on power-up
INITFSOK(A,B,C)	- A is the file system initialization mode - B is the file system used bytes - C is the file system total capacity (bytes)
CNTRINIT	- This message only occurs after using COUNTERSRESET command
CNTR(A,B,C,D,E,F,G,H,I,J,K,L)	- It is the counters vector, please check on CNTR? command for details.
VMCSETTINGS(A,B,C,D)	- It is the VMC settings vector, please check on VMCSETTINGS? command for details.
VMCINFOREQ(A,B,C)	- It is the VMC info vector, please check on VMCINFOREQ? command for details
VMCSWVER(A,B)	- It is the interface software version, A is the major release version and B is the minor release version
RECYCLERSETBILLS(A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P)	- It is the recycler info vector, please check RECYCLERSETBILLS? command for details
TOKENVALUES(A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P)	- It is the tokens velues vector, please check TOKENVALUES? command for details
CNTRWRERR	- May appear on boot after using COUNTERSRESET command, if the counters file could not be initialized. This is a fatal error and the device will not work properly.
CNTRRDERR	- May appear on boot if the counters file is corrupted. You may try to use COUNTERSRESET and a reboot to create a fresh counters file
LOADSETTINGSOK	- This ends the configuration auto loading messages batch
EXESCALINGFACTOR(10)	- The current value of the interface scaling factor

Message	Description
EXEDECIMALPLACES(4)	- The current value ot the decimal point position
EXEMAXCREDIT(1000)	- The current value of maximum allowed cash credit for a transaction
EXEMULTIVEND(1)	- The current vending mode
EXEMAXCHANGE(500)	- The current value for the maximum allowed change on a transaction
EXEFORCEVEND(1)	- The current force vend mode
EXEMINCHANGE(900)	- The minimum available change (not used in this version)
EXEVNDTIMEOUT(50)	- The current vending timeout
EXEDISPLAYPRICE(0)	- Display price if not enough credit (not used in this version)
EXEPRICEHOLDING(1)	- The current price working mode
NOBLUETOOTH	- Bluetooth not activated
BLUETOOTH	- Bluetooth active
HEAP(265672)	- Heap size after initialization
PRICESOK	- Price file exists
PRICESINIT	- Price fie does not exist setting to all 0 (free vend)
PRODUCTSCOUNTEROK	- Products counters file exists
PRODUCTSCOUNTERINIT	- Products counters file does not exist settings all to 0

2. Bill validator just reset time exceeded

Message	Description
BILLJRESETEXCEED	- The interface failed waiting for reset message from the bill validator. It will automatically reset all validator related variables and start sending bill reset message.

3. Bill validator setup time exceeded

Message	Description
BILLSETUPEXCEED	- The interface repeatedly failed to receive a valid answer on the MDB BILL SETUP command. It will automatically restore all validator related variables and start sending bill reset message to retry the bill initialization operation.

4. Bill validator expansion ID time exceeded

Message	Description
BILLEXPIDEXCEED	- The interface repeatedly failed to receive a valid answer on the MDB BILL EXPANSION ID command. It will automatically restore all validator related variables and start sending bill reset message to retry the bill initialization operation.

5. Bill validator expansion ID with options time exceeded

Message	Description
BILLEXPIDOPTEXCEED	- The interface repeatedly failed to receive a valid answer on the MDB BILL EXPANSION ID WITH OPTIONS command. It will automatically restore all validator related variables and start sending bill reset message to retry the bill initialization operation.

6. Bill validator optional feature enable time exceeded

Message	Description
BILLENOPTFEATEXCEED	- The interface repeatedly failed to receive a valid answer on the MDB BILL OPTIONAL FEATURES ENABLE command. It will automatically restore all validator related variables and start sending bill reset message to retry the bill initialization operation.

7. Bill validator with recycling support has been identified

Message	Description
BILLHASRECYCLER	- The interface identified a bill validator with recycling support during bill initialization phase.

8. Interface will try to enable the recycling support

Message	Description
BILLTRYENRECYCLER	- The interface will perform needed operations in order to enable bill recycling support for the bill validator/recycler

9. Bill recycler setup time exceeded

Message	Description
BILLRECYCLERSETUPEXCEED	- The interface repeatedly failed to receive a valid answer on the MDB BILL RECYCLER SETUP command. It will automatically restore all validator related variables and start sending bill reset message to retry the bill initialization operation.

10. Bill device has no support to recycler any known bills

Message	Description
BILLNOAVAILRECYCLINGBILLS	- The bill validator does not support recycling for any of the known (configured) bills.

11. Bill recycler enabling time exceeded

Message	Description
BILLRECYCLERENEXCEED	- The interface repeatedly failed to receive a valid answer on the MDB BILL RECYCLER ENABLED command. It will automatically restore all validator related variables and start sending bill reset message to retry the bill initialization operation.

12. Bill recycler enabling failed

Message	Description
BILLRECYCLERENFAIL	- The interface failed to enable the bill recycler functions.

13. Bill recycler function successfully enabled

Message	Description
BILLRECYCLERONOK	- The interface failed to enable the bill recycler functions.

14. Bill recycler answered with a NAK on enable function

Message	Description
BILLRECYCLERENACK	- The interface received a NAK while trying to enable bill recycler functions. It will retry until the bill recyler will correctly answer or until the retry time exceed.

15. Bill recycler reading dispense status time exceeded

Message	Description
BILLDISPENSESTATEXCEED	- The interface repeatedly failed to receive a valid answer on the MDB BILL RECYCLER DISPENSE STATUS command. It will automatically restore all validator related variables and start sending bill reset message to retry the bill initialization operation.

16. Bill recycler reading dispense status returned a NAK

Message	Description
BILLDISPENSESTATNAK	- The interface received a NAK while trying to obtain a dispense status. It will retry until the bill recycler will correctly answer or until the retry time exceed.

17. Bill recycler reading dispense status returned an ACK

Message	Description
BILLDISPENSESTATACK	- The interface received a simple ACK while trying to obtain a dispense status. It will retry until the bill recycler will correctly answer or until the retry time exceed.

18. Bill recycler reading dispense status returned an ACK

Message	Description
BILLDISPENSESTATACK	- The interface received a simple ACK while trying to obtain a dispense status. It will retry until the bill recycler will correctly answer or until the retry time exceed.

19. Bill recycler remaining stock value

Message	Description
RECYCLERSTOCKVALUE(X)	- X is the scaled total bills value remaining for recycling after the bill recycler finished dispensing bills.

20. Bill dispensing command time exceed

Message	Description
BILLDISPENSEVALUEXCEED	- The interface repeatedly failed to receive a valid answer on the MDB BILL RECYCLER DISPENSE command. It will automatically restore all validator related variables and start sending bill reset message to retry the bill initialization operation.

21. Bill dispensing command time exceed

Message	Description
BILLDISPENSETOTAL(X)	- X is the scaled total value of the bills to dispense

22. Bill dispensing command time exceed

Message	Description
BILLDISPENSED(X)	- X is the scaled total value of the dispensed bills.

23. Bill stacker status command time exceeded

Message	Description
BILLSTACKEXCEED	- The interface repeatedly failed to receive a valid answer on the MDB BILL STACKER command. It will automatically restore all validator related variables and start sending bill reset message to retry the bill initialization operation.

24. Bill stacker status – stacker full

Message	Description
BILLSTACKFULL(X)	- X is the number of the bills in the bill validator stacker and the stacker is reported full.

25. Bill stacker status – stacker not full

Message	Description
BILLSTACKNOTFULL(X)	- X is the number of the bills in the bill validator stacker and the stacker is not full, yet.

26. Bill is not ready

Message	Description
BILLNOTREADY	- Bill validator/recycler is not ready to execute the last received command, probably because it was not initialized, enabled or it's current status does not allow this command.

27. Bill validator/recycler failed to answer on poll command

Message	Description
BILLPOLLEXCEED	- The interface repeatedly failed to receive a valid answer on the MDB BILL POLL command. It will automatically restore all validator related variables and start sending bill reset message to retry the bill initialization operation.

28. Bill validator – one bill stacked

Message	Description
BILLSTACKED(A,B,C)	- One bill was successfully stacked - A is the scaled value of the last stacked bill - B is the number of total stacked bill (internal non-volatile counter) - C is the total value of the stacked bills (internal non-volatile counter)

29. Bill in escrow position

Message	Description
BILLESCROW(X)	- One bill is in the escrow position - X is the scaled value of the bill in escrow position. Your application should send a BILLACCEPT or a BILLREJECT command on this stage, depending on it's flow, maximum credit, etc

30. Bill returned to customer

Message	Description
BILLRETURNED(X)	- The bill in escrow position returned to customer - X is the scaled value of the returned bill.

31. Bill received in recycler

Message	Description
BILLTORECYCLER(X)	- A bill was received and stored in the recycling box - X is the scaled value of the stored bill.

32. A disabled bill was rejected

Message	Description
BILLDISREJ(X)	- A bill was rejected because it was previously disabled by the user application. - X is the scaled value of the rejected bill.

33. A bill was manually loaded to recycler

Message	Description
BILLRECMANFILL(X)	- A bill manually loaded to recycler stock - X is the scaled value of the loaded bill.

34. A disabled bill was manually dispensed from the recycler

Message	Description
BILLMANDISP(X)	- A bill was manually dispensed from the recycler - X is the scaled value of the dispensed bill.

35. A disabled bill was transferred from the recycler to cashbox

Message	Description
BILLTRANSFER(X)	- A bill was transferred from the recycler box to the cashbox - X is the scaled value of the transferred bill.

36. Bill validator is in normal condition

Message	Description
BILLOK	- Bill was correctly initialized after reset or has been recovered after an error.

37. Bill validator have a defective motor

Message	Description
BILLDEFMOTOR	- Bill validator encountered one of it’s motors failure

38. Bill validator have a defective sensor

Message	Description
BILLSENSORFAIL	- Bill validator encountered one of it’s sensors failure

39. Bill validator is busy

Message	Description
BILLBUSY	- Bill validator is in a busy state doing something

40. Bill validator ROM error

Message	Description
BILLROMERROR	- Bill validator encountered an internal ROM error

40. Bill validator jam

Message	Description
BILLJAM	- Bill validator encountered a bill jam error

41. Bill validator was reset

Message	Description
BILLRESET	- Bill validator has just been reset.

42. Bill removed from bill validator

Message	Description
BILLREMOVED	- A bill was removed from the bill validator

43. Bill validaor cashbox has been removed

Message	Description
BILLCSBOXREMOVED	- Bill validator’s cashbox has been removed

44. Bill validaor has been disabled by your application or by an internal error

Message	Description
BILLDISABLED	- Bill validator has been disabled by your application or due an internal error

45. Bill validator has been rejected a bill

Message	Description
BILLREJECTED(X)	- Bill validator has been rejected a bill - X is the total number of rejected bills.

46. Bill removed after it was credited

Message	Description
BILLCREDITEDREMOVED	- A bill was removed from the bill validator after it was credited.

47. A bill was inserted while the bill validator is deactivated

Message	Description
BILLINSERTWHILEDISABLED	- A bill was inserted while the bill validator is deactivated

48. Recycler has received a change request

Message	Description
RECYCLERCHGREQUEST	- Recycler has received a change request

49. Cash sale reported to the cashless device

Message	Description
CASHSALE(A,B)	- Cash sale was reported to the cashless device - A is the item price - B is the item ID/selection number

50. Cash sale successfully reported to the cashless device

Message	Description
CSLSCASHSALEOK	- A cash sale was successfully reported to the cashless device.

51. Cash sale reporting to the cashless device failed

Message	Description
CSHSCASHSALEFAIL	- A cash sale reporting to the cashless device failed.

52. Cashless device setup time exceeded

Message	Description
CSLSSETUPEXCEED	- The interface repeatedly failed to receive a valid answer on the MDB CASHLESS SETUP command. It will automatically restore all cashless device related variables and start sending cashless reset message to retry the cashless device initialization operation.

53. Cashless device max/min prices reporting time exceed

Message	Description
CSLSMAXMINEXCEED	- The interface repeatedly failed to receive a valid answer on the MDB MAX/MIN PRICES command. It will automatically restore all cashless device related variables and start sending cashless reset message to retry the cashless device initialization operation.

54. Cashless device poll time exceed

Message	Description
CSLSPOLLEXCEED	- The interface repeatedly failed to receive a valid answer on the MDB CASHLESS POLL command. It will automatically restore all cashless device related variables and start sending cashless reset message to retry the cashless device initialization operation.

55. Cashless device expansion request ID time exceed

Message	Description
CSLSEXPREQIDEXCEED	- The interface repeatedly failed to receive a valid answer on the MDB CASHLESS REQUST ID command. It will automatically restore all cashless device related variables and start sending cashless reset message to retry the cashless device initialization operation.

56. Cashless device expansion enable options time exceed

Message	Description
CSLSEXPENOPTEXCEED	- The interface repeatedly failed to receive a valid answer on the MDB CASHLESS EXPANSION ENABLE OPTIONS command. It will automatically restore all cashless device related variables and start sending cashless reset message to retry the cashless device initialization operation.

57. Cashless device have Always Idle support and it will be enabled

Message	Description
CSLSALWAYSIDLE	- The cashless device have Always Idle support and the interface will try to enable it

58. Cashless device writing date/time exceed

Message	Description
CSLSWRDTEXCEED	- The interface repeatedly failed to receive a valid answer on the MDB DATE/TIME command. It will automatically restore all cashless device related variables and start sending cashless reset message to retry the cashless device initialization operation.

59. Cashless device sent a display message

Message	Description
DISPMSG(A,B)	- The cashless device sent a display message to the interface - A is the time to keep message on display (A x 0.1sec) - B is the message to display

60. Cashless device sent a BEGIN SESSION message

Message	Description
CSLSBEGIN(A,B,C)	- The cashless device sent a BEGIN SESSION message to the interface - A is the scaled available credit value - B is the media ID (for example, the card serial number) - C is the media type

61. Cashless device sent a VEND APPROVED message

Message	Description
CSLSVNDAPP(A,B,C)	- The cashless device sent a VEND APPROVED message to the interface - A is the scaled approved value - B is the total number of cashless transactions (internal counter) - C the total scaled value of cashless transactions (internal counter)

62. Cashless device sent a VEND DENIED message

Message	Description
CSLSVNDDEN	- The cashless device sent a VEND DENIED message to the interface

63. Cashless device sent an END SESSION message

Message	Description
CSLSENDSESSION	- The cashless device sent an END SESSION message to the interface

64. Cashless device sent a CANCELED message

Message	Description
CSLSCANCELED	- The cashless device sent a CANCELED message to the interface

65. Cashless device is ready

Message	Description
CSLSREADY	- The cashless device was correctly initialized and is ready to be enabled.

66. Cashless device returned a malfunction error

Message	Description
CSLSMALFUNCTION(X)	- The cashless device returned a malfunction message - X is the internal malfunction code, it's value depends on the cashless device and you can find more information in it's manual

67. Cashless device returned COMMAND OUT OF SEQUENCE message

Message	Description
CSLSCMDOUTOFSEQ	- The cashless device returned a COMMAND OUT OF SEQUENCE message

68. Cashless device sent a REVALUE APPROVED message

Message	Description
CSLSREVALAPP	- The cashless device returned a REVALUE APPROVED message

69. Cashless device sent a REVALUE DENIED message

Message	Description
CSLSREVALDEN	- The cashless device returned a REVALUE DENIED message

70. Cashless device sent a REVALUE LIMIT message

Message	Description
CSLSREVALLIMIT(X)	- The cashless device returned a REVALUE LIMT message - X is the maximum amount it will accept for the next REVALUE REQUEST command

71. Cashless device sent a DATE/TIME request message

Message	Description
CSLSDTREQ	- The cashless device is requesting a date/time command to synchronize it internal RTC

72. Interface successfully sent date/time command to the cashless device

Message	Description
CSLSDTSENDOK	- The interface successfully sent date/time command to the cashless device.

73. Interface failed sending date/time command to the cashless device

Message	Description
CSLSDTSENDFAIL	- The interface failed sending date/time command to the cashless device.

74. Interface successfully enabled the cashless device

Message	Description
CSLSENABLED	- The interface successfully enabled the cashless device.

75. Interface successfully enabled the cashless device

Message	Description
CSLSENABLED	- The interface successfully enabled the cashless device.

76. Coin acceptor/changer just reset waiting time exceeded

Message	Description
COINJUSTRESETEXCEED	- The interface repeatedly failed to receive a valid answer on waiting for JUST RESET message. It will automatically restore all coin acceptor/changer related variables and start sending coin reset message to retry the coin acceptor/changer initialization operation.

77. Coin acceptor/changer setup time exceeded

Message	Description
COINSETUPEXCEED	- The interface repeatedly failed to receive a valid answer on COIN SETUP command. It will automatically restore all coin acceptor/changer related variables and start sending coin reset message to retry the coin acceptor/changer initialization operation.

78. Coin acceptor/changer expansion identification time exceeded

Message	Description
COINEXPIDEXCEED	- The interface repeatedly failed to receive a valid answer on COIN EXPANSION IDENTIFICATION command. It will automatically restore all coin acceptor/changer related variables and start sending coin reset message to retry the coin acceptor/changer initialization operation.

79. Coin acceptor/changer feature enable time exceeded

Message	Description
COINFTENABLEEXCEED	- The interface repeatedly failed to receive a valid answer on COIN FEATURE ENABLE command. It will automatically restore all coin acceptor/changer related variables and start sending coin reset message to retry the coin acceptor/changer initialization operation.

80. Coin acceptor/changer tube status time exceeded

Message	Description
COINTBSTATEXCEED	- The interface repeatedly failed to receive a valid answer on COIN TUBE STATUS command. It will automatically restore all coin acceptor/changer related variables and start sending coin reset message to retry the coin acceptor/changer initialization operation.

81. Coin acceptor/changer is not ready for the issued command

Message	Description
COINNOTREADY	- The coin acceptor/changer is not ready to execute the last issued command

82. Coin acceptor/changer tube status

Message	Description
COINTBSTATUS(X)	- The coin acceptor/changer returned the TUBE STATUS answer. - X is the total scaled value of the coins available for change. If the number of coins in a tube is bigger than 255, the coin changer will return 255 as a value for that tube. So, this command is not appropriate for coins stock management since it will return the same value for a tube until the number of coins in that tube falls below 255. But you can use it to set an alarm on lower coins stock, for example.

83. Coin acceptor/changer poll time exceeded

Message	Description
COINPOLLEXCEED	- The interface repeatedly failed to receive a valid answer on COIN POLL command. It will automatically restore all coin acceptor/changer related variables and start sending coin reset message to retry the coin acceptor/changer initialization operation.

84. Coin acceptor/changer is busy dispensing coins

Message	Description
COINPAYBUSY	- The coin acceptor/changer is busy dispensing coins following a COINDISPENSE or a COINAP command. This message will occur repeatedly until the coin changer finish the dispense operation. The number of those messages depends on the number of the coins it should dispense and the dispensing method (COINAP method is faster than COINDISPENSE).

85. Coin acceptor/changer temporarily unable to dispense coins

Message	Description
COINCHGNOTNOW	- The coin acceptor/changer is temporarily unable to dispense coins due to it's working stage. Your application should retry later.

86. Coin acceptor/changer has failed to dispense all or some of the required coins

Message	Description
CHANGEREMAINING(X)	- The coin acceptor/changer has failed to dispense all or some of the required coins. - X is the scaled value of the coins changer was unable to dispense for some reasons. You will use this value to display the remaining credit to the customer.

87. Coin acceptor/changer is reporting a manual coin dispense

Message	Description
COINMANDISP(A,B,C)	- The coin changer has manually dispensed one or more coins (usually by pressing one or more buttons on it's front panel). - A is the scaled coin type value - B is the total number of manually dispensed coins - C is the total number of coins remaining in tubes for the A type value

88. Coin acceptor/changer received a token

Message	Description
TOKENIN(A,B,C,D)	- One token has been received by the coin acceptor/changer - A is the token value (you need to set the token values correctly on the interface settings section) - B is the token routing (0 – to cashbox, 1 – to tubes, 3 - rejected) - C is the total number of received tokens (lifetime internal counter) - D is the total value of received tokens (lifetime internal counter)

89. Coin acceptor/changer received a coin

Message	Description
COININ(A,B,C,D,E)	- One coin has been received by the coin acceptor/changer - A is the scaled coin value - B is the token routing (0 – to cashbox, 1 – to tubes, 3 – rejected) - C is the total number of coins with the same value available in tubes - D is the total number of received coins (lifetime internal counter) - E is the total value of received coins (lifetime internal counter)

90. Coin acceptor/changer detected a slug

Message	Description
COINSLUG(A,B)	- One slug detected by the coin acceptor/changer - A is the slug counter, reported by the coin acceptor/changer - B is the total number of coins/tokens rejected by the coin acceptor/changer (lifetime internal counter)

91. Coin acceptor/changer is in normal condition

Message	Description
COINOK	- Coin was correctly initialized after reset or has been recovered after an error.

92. Coin acceptor/changer received a change request

Message	Description
COINCHGREQ	- Coin acceptor/changer has received a change request (usually by pressing the coin changer mechanical lever). Customer pressed the change lever in order to cancel the transaction or request the change after transaction. Your application should act accordingly.

93. Coin acceptor/changer received a coin that was not credited

Message	Description
COINNOTCRDT	- Coin acceptor/changer received a coin that was routed, but not credited.

94. Coin acceptor/changer has a defective tube sensor

Message	Description
COINDEFTBSENSOR	- Coin acceptor/changer detected a defective tube sensor.

95. Coin acceptor/changer detected a double arrival

Message	Description
COINDBLARRIVAL	- Coin acceptor/changer detected a double arrival (two or more coins/tokens were inserted too fast in order to allow the coin acceptor to validate them).

96. Coin changer detected an acceptor disconnection

Message	Description
COINACCUNPL	- Coin changer detected an acceptor disconnection.

97. Coin acceptor/changer detected a tube jam

Message	Description
COINTBJAM	- Coin acceptor/changer detected a tube jam

98. Coin acceptor/changer detected an internal ROM error

Message	Description
COINROMERR	- Coin acceptor/changer detected an internal ROM error

99. Coin acceptor/changer detected a routing error

Message	Description
COINROUTERR	- Coin acceptor/changer detected a routing error for the last accepted coin/token

100. Coin acceptor/changer detected reset condition

Message	Description
COINRST	- Coin acceptor/changer detected a reset condition

101. Coin acceptor/changer detected a coin jam

Message	Description
COINJAM	- Coin acceptor/changer detected a coin jam, most probably in the flight deck area. Your application can indicate the customer to press the escrow lever in order to release the blocked coins

102. Coin acceptor/changer detected the removal of a credited coin

Message	Description
COINCRREM	- Coin acceptor/changer detected the rmoval of a credited coin.

103. Vending machine is not answering

Message	Description
EXENOANS	- Vending machine is not answering on STATUS message

104. CRC error on message from the vending machine

Message	Description
EXECRCERR	- Last message from the vending machine fails on CRC

105. Unknown Executive answer

Message	Description
UNKEXE	- Last message from the vending machine was not recognized

106. The ID of the selected product (price holding mode)

Message	Description
SELECTION(X)	- The customer has selected a product and X is the product's ID.

107. The price of the selected product (prices on the machine)

Message	Description
SELECTIONPRICE(X)	- The customer has selected a product and X is the product's price

108. The session is active

Message	Description
ACTIVE	- The last credit sent to the machine is bigger than 0 so, the vending session is active

109. The session is inactive

Message	Description
INACTIVE	- The last credit sent to the machine is 0 so, the vending session is not active

110. The interface successfully sent the credit

Message	Description
EXECREDITOK	- The last credit send succeeded

111. The interface failed sending credit to the machine

Message	Description
EXECREDITFAIL	- The last credit sens command failed, interface will automatically retry sending it.

112. Last vending approval succeeded

Message	Description
EXEVENDSUCCESS	- The last product vending approval to the machine succeeded

113. Last vending approval failed

Message	Description
EXEVENDFAIL	- The last vending approval to the machine failed

114. Last product dispense succeeded

Message	Description
EXESALEOK	- The last product preparation/dispense succeeded

115. Last product dispense failed

Message	Description
EXESALEFAIL	- The last product preparation/dispense failed

116. The interface is ready to approve a sale

Message	Description
RDYTOSELL	- The interface determined that the available credit is enough to approve the vend request (either cash or cashless or combined)

117. Machine reported the sale was successful

Message	Description
SALEOK	- The machine has reported the last sale succeeded

118. Reporting vend success to the MDB cashless device

Message	Description
VNDSUCC	- The interface is reporting the vend success to the cashless device

Notes: