

**PICOVEND EZ BRIDGE  
(MASTER only)  
v2022-05-23**

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# I. Introduction

This device was designed for an easy MDB payment systems management, development and integration. It is acting as a vending machine controller (VMC) for the MDB payment systems.

Depending on the loaded firmware, it offers the possibility to connect and develop an MDB master controller device by connecting it to:

- a computer over USB;
- a single board computer (like Raspberry Pi, Orange Pi, etc.) over USB serial interface.

The device is using a simple ASCII protocol over USB interfaces. There is no need for you to have deep MDB knowledge, however, some knowledge about MDB will help you faster and better understand the interface functionality.

Standard package content:

- PICOVEND EZ MDB BRIDGE board, no cables provided.

NOTE!!! - this device can handle one MDB bill validator/recycler, one MDB coin acceptor/changer and two MDB cashless devices (Level 2 or Level 3 with always idle cashless device) plus up to 8 relay boards.

During its activity, the interface keeps some internal counters (total number of bills validated, total value of validated bills, coin, cashless transactions, 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. For example, you may constantly poll for counters to check if you missed some bills or coins. Both RS232 and USB serial interfaces are using same communication parameters:

- baudrate – 115200bps;
- data bits – 8;
- stop bits – 1;
- parity – none;
- flow control – no flow control (either hardware or software).

USB interface is using a driver for Windows OS. For Raspberry Pi (or compatible) and most of the Linux distributions with new kernels, the OS will automatically load the correct kernel modules.

All commands must end with <CR> and <LF> (0x13, 0x10)

Also, all answers have <CR> and <LF> at the end. If you are using non-buffered serial interface reading, make sure your application reads until <LF>.

Sometimes, more than one message will be received (for example, a response to your command and an unsolicited message or an answer with the reason of the command fail). You need to receive the entire message and parse it by checking against all command answers related to your last command and also against all available unsolicited message (see unsolicited messages description below).

## II. Hardware

### A. Board overview

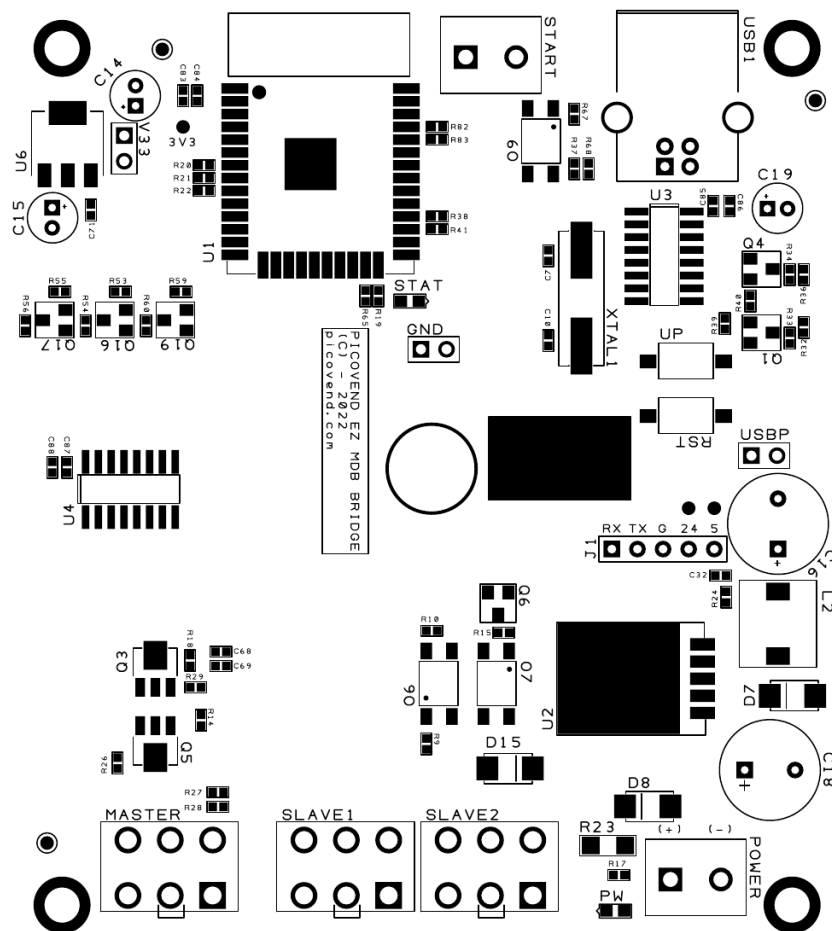


Figure 1 - Board overview

### B. Connectors description

- 1. USB1** – is the main USB connector to interface with the computer, Raspberry Pi, android tablet, etc. Requires an USB-B cable (not included in the package);
- 2. START** – on this connector you can plug a NO push button, in order to begin a cashless session by a button press (for Level 2 vending machines or for machines with Level 3, but no Always Idle support);
- 3. MASTER** – it is the MDB master connector. Here must be connected all the payment systems you need to manage.
- 4. SLAVE1 and SLAVE2** – those connectors are used to interface with the vending machine controller. It does not matter which one of them is connected to the vending machine. The free one can be used to connect the MDB payment systems you want to be managed by the vending machine itself and not by you.
- 5. POWER** – it is used to power the device (only when used as a standalone MDB master to USB interface). When the interface is connected to a vending machine controller by any of the SLAVE connectors, it does not need external power.

## C. Communication interfaces

USB serial interface is practically an USB to serial converter embedded on the board and is using the following communication parameters:

- baudrate – 115200bps;
- data bits – 8;
- stop bits – 1;
- parity – none;
- flow control – no flow control (either hardware or software).

USB interface is using a driver for Windows OS. For Raspberry Pi (or compatible), Android and most of the Linux distributions with new kernels, the OS will automatically load the correct kernel modules.

All commands must end with <CR> and <LF> (0x13, 0x10)

Also, all answers have <CR> and <LF> at the end. If you are using non-buffered serial interface reading, make sure your application reads until <LF>.

Sometimes, more than one message will be received (for example, a response to your command and an unsolicited message or an answer with the reason of the command fail). Your application needs to receive the entire message and parse it by checking against all command answers related to your last command and also against all available unsolicited message (see unsolicited messages description below), breaking the entire payload to substrings/messages.



### III. Communication protocol

#### A. MDB master related commands and answers

Commands are case-sensitive and you must use all upper case or all lower case for a command. No mixed characters accepted.

For simplicity, we will only use upper case in our documentation.

Answers are always upper case.

#### B. Bill validator/recycler related commands

##### 1. Enable bill validator

| Command          |   |
|------------------|---|
| BILLENABLE       | This command will enable all supported bill acceptance on the bill validator. If the bill validator is supporting escrow function, it will be automatically activated.  |
| Possible answers |   |
| - BILLENABLEFAIL | - If the bill validator could not be enabled when the BILLENABLE is received, you will receive this answer. Possible reasons (but not limited to those) could be: bill validator was not initialized, bill validator already enabled, MDB communication error, etc. |
| - BILLENABLEOK   | - If the command is correctly received and interpreted by the interface.  |

##### 2. Selective bills enable

| Command                |   |
|------------------------|---|
| BILLSELECTENABLE(X)    | This command will enable some of supported bill acceptance on the bill validator. If the bill validator is supporting escrow function, it will be automatically activated.<br>- X is a 16bit number corresponding with MDB BILL TYPE COMMAND (0x34) BILL ENABLE parameter. Bit 0 correspond with bill type 0 and bit 15 correspond with the bill type 15. This command allows your application to enable only specific bill/bills. You can obtain bill type values after the interface is automatically initialized the bill validator/recycler using BILLVALUES? command, explained later below. |
| Possible answers       |   |
| - BILLSELECTENABLEFAIL | - If the bill validator could not be enabled when the BILLSELECTENABLE is received, you will receive this answer. Possible reasons (but not limited to those) could be: bill validator was not initialized, bill validator already enabled, MDB communication error, etc.   |
| - BILLSELECTENABLEOK   | - If the command is correctly received and interpreted by the interface.  |

### 3. Disable bill validator

| Command           |  |
|-------------------|--|
| BILLDISABLE       | This command will disable all bills acceptance. Your application may disable the bill validator when the maximum allowed credit value has been reached, when a malfunction occurs or during product dispensing/preparation   |
| Possible answers  |  |
| - BILLDISABLEFAIL | - If the bill validator could not be disabled when the BILLDISABLE 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. |
| - BILLDISABLEOK   | - If the command is correctly received and interpreted by the interface.   |

### 4. Reset bill validator

| Command          |  |
|------------------|--|
| BILLRESET        | This command will reset the bill validator. The interface will automatically initialize the bill validator again and your application needs to enable or selective enable it do make it available for receiving bills.<br>After issuing this command, you will receive some unsolicited messages while the interface is initializing the bill validator. You may receive the following messages:<br>- BILLSTACKNOTFULL(X)<br>- BILLREADY<br>- BILLOK<br>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.   |

## 5. Approve bill acceptance while a bill is in escrow position

| Command                                |  |
|--|--|
| BILLACCEPT                             | This command will send the ACCEPT command to the bill validator after the BILLESCROW(X) unsolicited message was received.  |
| Possible answers                       |  |
| - BILLACCEPTFAIL<br><br>- BILLACCEPTOK | - If the bill validator could not be reset when the BILLACCEPT 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.<br>- If the command is correctly received and interpreted by the interface. |

## 6. Reject bill while a bill is in escrow position

| Command                                |  |
|--|--|
| BILLREJECT                             | This command will send the REJECT command to the bill validator after the BILLESCROW(X) unsolicited message was received.  |
| Possible answers                       |  |
| - BILLREJECTFAIL<br><br>- BILLREJECTOK | - If the bill validator could not be reset when the BILLACCEPT 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.<br>- If the command is correctly received and interpreted by the interface. |

## 7. 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. |

## 8. 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<br>- BILLNOTINITED | - The bill validator was successfully initialized<br>- The bill validator was not initialized (missing or not initialized, yet). |

## 9. Check if the bill validator was enabled

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

## 10. 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)<br><br>- BILLNOTINITED | - 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 than the maximum accepted credit.<br>- The bill validator was not previously initialized and the bills values information is not available. |

## 11. 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)<br><br>- BILLNOTINITED | - A is the bill validator manufacturer code, fixed length – 3 characters (ASCII)<br>- B is the bill validator internal serial number, fixed length, 12 characters (ASCII)<br>- C is the bill validator internal model number, fixed length, 12 characters (ASCII)<br>- The bill validator was not previously initialized and the information is not available |

## 12. 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)<br><br>- BILLNOTINITED | - A is the bill validator feature level (decimal)<br>- B is the bill validator country code (HEX)<br>- C is the bill validator scaling factor (decimal)<br>- D is the bill validator decimal places (decimal)<br>- E is the bill validator stacker capacity (decimal)<br>- 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)<br>- The bill validator was not previously initialized and the information is not available |

## 13. Get the bill recycler bill type values

| Command   |  |
|---|--|
| RECYCLERBILLS?  | This command will read the bill recycler accepted bills values. This information is read during automatic bill recycler initialization phase, after a power-up or after issuing BILLRESET command.   |
| Possible answers  |  |
| - RECYCLERBILLS(A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P)<br><br>- BILLNOTINITED | - A to P is the flag for the bills that the bill recycler can recycle (can give back to the customers for payout/change). If the value is 0, the corresponding bill value is not available for recycling. If the value is 1, the recycler can use the corresponding bill For recycling. Use BILLVALUES to obtain the real bills value.<br>- The bill validator was not previously initialized and the information is not available |

## 14. Get the bills set for recycling by the user application

| Command   |  |
|---|--|
| RECYCLERSETBILLS?                                   | This command will read the bills enabled for recycling, by the user application  |
| Possible answers                                    |  |
| - RECYCLERSETBILLS(A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P) | - A to P is the value for recycling mode:<br>- 0 – this bill is not enabled for recycling;<br>- 1 – only high quality bills are enabled for recycling;<br>- 2 – only high and medium bills are enabled for recycling;<br>- 3 – use all possible bills for recycling (this is the recommended option) |

## 15. Set the bills set for recycling by the user application

| Command   |  |
|---|--|
| RECYCLERSETBILLS(A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P) | This command will set the bills enabled for recycling, by the user application<br>- A to P is the value for recycling mode:<br>- 0 – this bill is not enabled for recycling;<br>- 1 – only high quality bills are enabled for recycling;<br>- 2 – only high and medium bills are enabled for recycling;<br>- 3 – use all possible bills for recycling (this is the recommended option) |
| Possible answers                                  |  |
| - RECYCLERSETBILLSOK                              | - The bill enabled for recycling were successfully set.  |

## 16. Get tot total value of bills available for recycling

| Command                 |   |
|-------------------------|---|
| RECYCLERSTOCKVALUE?     | This command will read the total value of the bill available for recycling in the bill recycler |
| Possible answers        |   |
| - RECYCLERSTOCKVALUE(X) | - X is total value of the bills available for recycling in the bill recycler                    |

## 17. Dispense bills as a change to customer

| Command  |  |
|--|--|
| BILLDISPENSEVALUE(X)                             | This command will start the bill dispensing operation.<br>- X is the value that bill recycler should dispense to the customer. |
| Possible answers                                 |  |
| - BILLDISPENSEVALUEOK<br>- BILLDISPENSEVALUEFAIL | - If the command is successfully sent to the bill recycler<br>- If the command fails while sending to recycler                 |

## 18. Dispense bills as a change to customer

| Command   |  |
|---|--|
| BILLDISPENSEVALUE(X)  | This command will start the bill dispensing operation.<br>- X is the value that bill recycler should dispense to the customer.                                 |
| Possible answers  |  |
| - BILLDISPENSEVALUEOK<br>- BILLDISPENSEVALUEFAIL<br>- BILLDISPENSERNOTENABLED | - If the command is successfully sent to the bill recycler<br>- If the command fails while sending to recycler<br>- if the dispensing function was not enabled |

## 19. Get current bill stacker status

| Command  |  |
|--|--|
| BILLSTACKER?   | This command will read the current bill stacker status   |
| Possible answers   |  |
| - BILLSTACKER(X)<br>- BILLSTACKEROK<br>- BILLSTACKERFAIL | - X is the number of bills currently in the bill validator stacker.<br>- If the command is successfully sent to the bill validator.<br>- If the command fails while sending to the bill validator. |

## C. Coin acceptor/changer related commands

### 1. Enable coin acceptor/changer

| Command          |  |
|------------------|--|
| COINENABLE       | This command will enable all supported coins acceptance on the coin acceptor.  |
| Possible answers |  |
| - COINENABLEFAIL | - If the coin acceptor/changer could not be enabled when the COINENABLE is received, you will receive this answer. Possible reasons (but not limited to those) could be: coin acceptor was not initialized, coin acceptor already enabled, MDB communication error, etc. |
| - COINENABLEOK   | - If the command is correctly received and interpreted by the interface.   |

### 2. Selective coins enable

| Command                |   |
|------------------------|---|
| COINSELECTENABLE(X)    | This command will enable some of supported coins acceptance on the coin acceptor. If the coin acceptor is supporting change function, the manual coin dispense will be automatically enabled<br>- X is a 16bit number corresponding with MDB COIN TYPE COMMAND (0x0C) COIN ENABLE parameter. Bit 0 correspond with bill type 0 and bit 15 correspond with the bill type 15. This command allows your application to enable only specific coin/coins. You can obtain coin type values after the interface is automatically initialized the coin acceptor/changer using COINVALUES? command, explained later below. |
| Possible answers       |   |
| - COINSELECTENABLEFAIL | - If the coin acceptor could not be enabled when the COINSELECTENABLE is received, you will receive this answer. Possible reasons (but not limited to those) could be: coin acceptor was not initialized, coin acceptor already enabled, MDB communication error, etc.  |
| - COINSELECTENABLEOK   | - If the command is correctly received and interpreted by the interface.  |



### 3. Disable coin acceptor

| Command           |  |
|-------------------|--|
| COINDISABLE       | This command will disable all coins acceptance. Your application may disable the coin acceptor when the maximum allowed credit value has been reached, when a malfunction occurs or during product dispensing/preparation  |
| Possible answers  |  |
| - COINDISABLEFAIL | - If the bill validator could not be disabled when the BILLDISABLE 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. |
| - COINDISABLEOK   | - If the command is correctly received and interpreted by the interface.   |

### 4. Reset coin acceptor

| Command          |   |
|------------------|---|
| COINRESET        | This command will reset the coin acceptor/changer. The interface will automatically initialize the coin acceptor/changer again and your application needs to enable or selective enable it do make it available for receiving coins.<br>After issuing this command, you will receive some unsolicited messages while the interface is initializing the bill validator. You may receive the following messages:<br>- COINREADY<br>- COINOK<br>Please check the unsolicited messages information below in the "Interface unsolicited messages" section. |
| Possible answers |   |
| - COINRESETFAIL  | - 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.  |
| - COINRESETOK    | - If the command is correctly received and interpreted by the interface.  |

### 5. 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)  | - X is the total scaled value of the coins in the coin changer tubes.   |
| - COINTBSTATUSOK   | - If the command is correctly received and interpreted by the interface.  |
| - COINTBSTATUSFAIL | - If the command was not correctly received and interpreted by the interface.   |

## 6. 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<br>- COINPAYBUSY<br>- COINDISPENSEFAIL<br>- REMAINING(X) | - If the command is correctly received and interpreted by the interface and, also, the changer managed to successfully or not dispensed the coins<br>- You will receive this message until the changer manages to return the entire amount or fails for some reason (not enough change,<br>- If the command was not correctly received and interpreted by the interface or if the changer is returning an error.<br>- X is the total value that could not be dispensed by the changer (due to an internal error, missing coins stock, etc.) |

## 7. 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 and you must use COINAP instead if 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<br>- COINPAYBUSY<br>- COINAPFAIL<br>- REMAINING(X) | - If the command is correctly received and interpreted by the interface and, also, the changer managed to successfully or not dispensed the coins<br>- You will receive this message until the changer manages to return the entire amount or fails for some reason (not enough change,<br>- If the command was not correctly received and interpreted by the interface or if the changer is returning an error.<br>- X is the total value that could not be dispensed by the changer (due to an internal error, missing coins stock, etc.) |

## 8. 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<br>- COINOTINITED | - The bill validator was successfully initialized<br>- The bill validator was not initialized (missing or not initialized, yet). |

## 9. 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<br>- COINNOTACTIVE | - The coin acceptor/changer is currently enabled<br>- The coin acceptor/changer is not currently enabled                     |

## 10. Get last 10 coin acceptor/changer codes

| Command                           |  |
|-----------------------------------|--|
| COINSTATUS?                       | This command will ask for the last 10 coin acceptor/changer status codes. Your 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. |

## 11. 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)<br><br>- COINNOTINITED | - 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.<br>- The coin acceptor/changer was not previously initialized and the coins values information is not available. |

## 12. 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)<br>- B is the coin acceptor/changer internal serial number, fixed length, 12 characters (ASCII)<br>- 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  |

## 13. 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)<br>- B is the coin acceptor country code (HEX)<br>- C is the coin acceptor scaling factor (decimal)<br>- D is the coin acceptor decimal places (decimal)<br>- 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   |

## 14. 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)<br><br>- COINNOTINITED | - 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.<br>- The coin acceptor/changer was not previously initialized and the information is not available |

## 15. 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.<br>- 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<br>- COINNOTINITED             | - The coin acceptor/changer have been set.<br>- The coin acceptor/changer was not previously initialized and you cannot set this value.   |

## D. Cashless related commands

All commands and messages have the following format CSLS<X>CMD where <X> can be “1” or “2”, depending on the cashless number you want to address, for example CSLS1RESET or CSLS2RESET.

### 1. Reset cashless device

| Command                                    |   |
|--|---|
| CSLS<X>RESET                               | This command will reset the cashless device<br>After issuing this command, you will receive some unsolicited messages while the interface is initializing the cashless device. You may receive the following messages:<br>- CSLS<X>READY<br>- CSLS<X>OK<br>Please check the unsolicited messages information below in the “Interface unsolicited messages” section. |
| Possible answers                           |   |
| - CSLS<X>RESETFAIL<br><br>- CSLS<X>RESETOK | - If the cashless device could not be reset when the CSLS<X>RESET 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.<br>- If the command is correctly received and interpreted by the interface.   |

### 2. Enable cashless device

| Command                                      |   |
|--|---|
| CSLS<X>ENABLE                                | This command will enable the cashless device.   |
| Possible answers                             |   |
| - CSLS<X>ENABLEFAIL<br><br>- CSLS<X>ENABLEOK | - If the cashless device could not be enabled when the CSLS<X>ENABLE is received, you will receive this answer. Possible reasons (but not limited to those) could be: cashless device was not initialized, cashless device already enabled, MDB communication error, etc.<br>- If the command is correctly received and interpreted by the interface. |

### 3. Disable cashless device

| Command  |  |
|--|--|
| CSLS<X>DISABLE                                 | This command will disable the cashless device.   |
| Possible answers                               |  |
| - CSLS<X>DISABLEFAIL<br><br>- CSLS<X>DISABLEOK | - If the cashless device could not be disabled when the CSLS<X>DISABLE is received, you will receive this answer. Possible reasons (but not limited to those) could be: cashless device was not initialized, cashless device already disabled, MDB communication error, etc.<br>- If the command is correctly received and interpreted by the interface. |

## 4. Cancel current cashless activity

| Command             |   |
|---------------------|---|
| CSLS<X>CANCEL       | This command will cancel all current cashless device activities.  |
| Possible answers    |   |
| - CSLS<X>CANCELFAIL | - If the cashless device could not be disabled when the CSLS<X>CANCEL is received, you will receive this answer. Possible reasons (but not limited to those) could be: cashless device was not initialized, cashless device already idle, MDB communication error, etc. |
| - CSLS<X>CANCELOK   | - If the command is correctly received and interpreted by the interface.  |

## 5. Request cashless current revalue limit

| Command                 |   |
|-------------------------|---|
| CSLS<X>REVALLIMITREQ?   | This command will read the current revalue limit.   |
| Possible answers        |   |
| - CSLS<X>REVALLIMIT(X)  | - X is the maximum revalue amount accepted by the cashless device for further CSLS<X>REVALREQ (cashless revalue request) command. |
| - CSLS<X>NOSESSION      | - Cashless device is not in session so, the revalue is not available.   |
| - CSLS<X>NOREVALSUPPORT | - If the cashless device or media does not support revalue command  |
| - CSLS<X>REVALLIMITFAIL | - Revalue limit request command was not successfully executed.  |

## 6. Request approval for a vend

| Command             |  |
|---------------------|--|
| CSLS<X>VNDREQ(A,B)  | This command will request a vend approval from the cashless device<br>- A is the scaled price (16bit value maximum)<br>- B is the item ID/selection number (16bit value maximum)         |
| Possible answers    |  |
| - CSLS<X>NOSESSION  | - 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. |
| - CSLS<X>VNDREQOK   | - If the interface successfully received and parsed the command.   |
| - CSLS<X>VNDREQFAIL | - If the interface was not able to successfully receive and parse the command.   |

## 7. Confirm a success vend to the cashless device

| Command  |   |
|--|---|
| CSLS<X>VNDSUCC(A)  | This command will confirm the product dispensing was successful<br>- A is the item ID/selection number (16bit value maximum) that was successfully dispensed  |
| Possible answers   |   |
| - CSLS<X>NOSESSION<br>- CSLS<X>VNDSUCCOK<br>- CSLS<X>VNDSUCCFAIL | - You will receive this answer if you are trying to send a vend success in a stage that is not expecting this command<br>- If the interface successfully received and parsed the command.<br>- If the interface was not able to successfully receive and parse the command. |

## 8. Report a vend failure to the cashless device

| Command  |   |
|--|---|
| CSLS<X>VNDFAIL   | 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   |   |
| - CSLS<X>NOSESSION<br>- CSLS<X>VNDFAILOK<br>- CSLS<X>VNDFAILFAIL | - You will receive this answer if you are trying to send a vend failure in a stage that is not expecting this command<br>- If the interface successfully received and parsed the command.<br>- If the interface was not able to successfully receive and parse the command. |

## 9. Report a cash sale to the cashless device

| Command  |   |
|--|---|
| CSLS<X>CASHSALE(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.<br>- A is the scaled price (16bit value maximum)<br>- B is the item ID/selection number (16bit value maximum) |
| Possible answers   |   |
| - CSLS<X>NOCASHSALESUPPORT<br>- CSLS<X>CASHSALEOK<br>- CSLS<X>CASHSALEFAIL | - 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.<br>- If the interface successfully received and parsed the command.<br>- If the interface was not able to successfully receive and parse the command.                        |



## 10. Send a revalue request (the customer's account amount refill)

| Command                 |   |
|-------------------------|---|
| CSLS<X>REVALREQ(A)      | This command will add some amount to customer's account.<br>- A is the scaled amount your application needs to add to customer's account (16bit value maximum)                                    |
| Possible answers        |   |
| - CSLS<X>NOREVALSUPPORT | - 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) |
| - CSLS<X>NOSESSION      | - If there is no cashless session opened, the cashless device will not be able to load any amount to customer's account.  |
| - CSLS<X>REVALOVER      | - The specified amount exceeds the cashless maximum revalue capacity for the current session.   |
| - CSLS<X>REVALREQOK     | - If the interface successfully received and parsed the command.  |
| - CSLS<X>REVALREQFAIL   | - If the interface was not able to successfully receive and parse the command.  |

## 11. Get last 10 cashless device codes

| Command                              |   |
|--------------------------------------|---|
| CSLS<X>STATUS?                       | 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                     |   |
| - CSLS<X>STATUS(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. |

## 12. Check if the cashless device was initialized by the interface

| Command            |   |
|--------------------|---|
| CSLS<X>INITED?     | This command will check if the cashless device was initialized by the interface after power-up or after issuing CSLSRESET command |
| Possible answers   |   |
| - CSLS<X>INITEDOK  | - The cashless device was successfully initialized  |
| - CSLS<X>NOTINITED | - The cashless device was not initialized (missing or not initialized, yet).  |

### 13. Check if the cashless device was enabled

| Command                                 |  |
|---|--|
| CSLS<X>ACTIVE?                          | This command will check if the cashless was previously activated by a CSLSENABLE.            |
| Possible answers                        |  |
| - CSLS<X>ACTIVEOK<br>- CSLS<X>NOTACTIVE | - The cashless device is currently enabled<br>- The cashless device is not currently enabled |

### 14. Get the cashless device information

| Command   |   |
|---|---|
| CSLS<X>INFOREQ?                                   | 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                                  |   |
| - CSLS<X>INFOREQ(A,B,C)<br><br>- CSLS<X>NOTINITED | - A is the cashless device manufacturer code, fixed length – 3 characters (ASCII)<br>- B is the cashless device internal serial number, fixed length, 12 characters (ASCII)<br>- C is the cashless device internal model number, fixed length, 12 characters (ASCII)<br>- The cashless device was not previously initialized and the information is not available |

### 15. Get the cashless device settings

| Command  |   |
|--|---|
| CSLS<X>SETTINGS?   | 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   |   |
| - CSLS<X>SETTINGS(A,B,C,D,E,F)<br><br>- CSLS<X>NOTINITED | - A is the cashless device feature level (decimal)<br>- B is the cashless device country code (HEX)<br>- C is the cashless device scaling factor (decimal)<br>- D is the cashless device decimal places (decimal)<br>- E is the cashless device maximum application time (decimal)<br>- F is the cashless device option bits as described in the MDB specifications:<br>- b0 – if set, the payment media is able to accept revalue command;<br>- b1 – if set, the cashless device is multivend capable;<br>- b2 – if set, the cashless device has it's own display;<br>- b3 – if set, the cashless device is supporting cash sale reporting<br>- The bill cashless device was not previously initialized and the information is not available |

## 16. Cashless force session complete

| Command  |  |
|--|--|
| CSLS<X>SESSCOMPLETE?                                 | This command will force closing current cashless session. For multi vend cashless devices there is no effect, since they will immediately begin a new session if the media support still inserted. Usually if the cashless device is configured with single vend option, it will automatically close the current session right after settlement. Still there are some poorly implemented cashless devices on the market that may require this command. CSLS<x>RESET can be also used as a workaround for those cashless device that are not automatically request session closing. |
| Possible answers                                     |  |
| - CSLS<X>SESSCOMPLETEOK<br>- CSLS<X>SESSCOMPLETEFAIL | - Command successfully sent<br>- Command could not be sent   |

## E. Interface (VMC) system related commands

### 1. Get VMC settings

| Command                |   |
|------------------------|---|
| VMCSETTINGS?           | This command will read interface internal settings.   |
| Possible answers       |   |
| - VMCSETTINGS(A,B,C,D) | <ul style="list-style-type: none"><li>- A is the VMC configured feature level (this interface can only work as a Level 2 and level 3 VMC)</li><li>- B is number of characters on display/columns (maximum 16). If this value is set to 0, the VMC will inform cashless devices that it is not supporting display messages.</li><li>- C is the number of rows on display</li><li>- D is the display type, according to MDB specifications, cashless display message section.</li></ul> |

### 2. Set VMC settings

| Command  |  |
|--|--|
| - VMCSETTINGS(A,B,C,D)   | <p>This command will set interface internal settings</p> <ul style="list-style-type: none"><li>- A is the VMC configured feature level (this interface can only work as a Level 2 and level 3 VMC)</li><li>- B is number of characters on display/columns (maximum 16). If this value is set to 0, the VMC will inform cashless devices that it is not supporting display messages.</li><li>- C is the number of rows on display</li><li>- D is the display type, according to MDB specifications, cashless display message section.</li></ul> |
| Possible answers   |  |
| <ul style="list-style-type: none"><li>- FTLVLERROR</li><li>- VMCSETTINGSOK</li></ul> | <ul style="list-style-type: none"><li>- The VMC feature level you mentioned in parameters is invalid.</li><li>- Command correctly received and parsed.</li></ul>   |

### 3. Set VMC manufacturer code

| Command   |  |
|---|--|
| - VMCSETMFCODE(AAA)   | <p>This command will set interface internal manufacturer code that it is reporting to cashless device during automated initialization phase.</p> <ul style="list-style-type: none"><li>- AAA is a fixed length, 3 characters (ASCII) value</li></ul> |
| Possible answers  |  |
| <ul style="list-style-type: none"><li>- VMCSETMFCODEERR1</li><li>- VMCSETMFCODEOK</li></ul> | <ul style="list-style-type: none"><li>- The VMC manufacturer code length you mentioned as a parameter is invalid.</li><li>- Command correctly received and parsed.</li></ul>   |

## 4. Set VMC internal serial number

| Command                        |   |
|--------------------------------|---|
| - VMCSETSN(AAAAAAAAAAAAA)      | This command will set interface internal serial number that it is reporting to cashless device during automated initialization phase.<br>- AAAAAAAAAAAAA is a fixed length, 12 characters (ASCII) value |
| Possible answers               |   |
| - VMCSETSNERR1<br>- VMCSETSNOK | - The VMC interface serial number length you mentioned as a parameter is invalid.<br>- Command correctly received and parsed.   |

## 5. Set VMC internal model number

| Command                        |  |
|--------------------------------|--|
| - VMCSETMN(AAAAAAAAAAAAA)      | This command will set interface internal model number that it is reporting to cashless device during automated initialization phase.<br>- AAAAAAAAAAAAA is a fixed length, 12 characters (ASCII) value |
| Possible answers               |  |
| - VMCSETMNERR1<br>- VMCSETMNOK | - The VMC interface model number length you mentioned as a parameter is invalid.<br>- Command correctly received and parsed.   |

## 6. Read the last error

| Command               |  |
|-----------------------|--|
| - LASTERROR?          | This command will read the last error value. You can use this command to obtain some additional error codes after a command fails. You can find details about last error codes in the Appendix I, II and III |
| Possible answers      |  |
| - LASTERROR(ERR_CODE) | - The interface will return last known error code.   |

## 7. Clear the last error

| Command            |   |
|--------------------|---|
| - CLEARLASTERROR   | This command will clear the last error value. You may use this to clear last error code variable in order to keep it up to date. After issuing this command, the LASTERROR? command will read LASTERROR(NOERR). |
| Possible answers   |   |
| - CLEARLASTERROROK | - The interface correctly received and parsed the command.  |

## 8. Reset interface internal counters

| Command                                  |   |
|--|---|
| - COUNTERSRESET                          | This command will clear all internal counters. The interface will automatically reboot 3 seconds after issuing this command. You need to reactivate your payment systems if required. |
| Possible answers                         |   |
| - COUNTERSRESETOK<br>- COUNTERSRESETFAIL | - The interface correctly received and executed the command.<br>- The interface failed executing this command.  |

## 9. Interface reboot

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

## 10. 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.  |

## 11. 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,M) | - A is the total number of received bills.<br>- B is the total value of received bills.<br>- C is not used in this version.<br>- 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).<br>- E is the total number of received coins.<br>- F is the total value of received coins.<br>- G is the total number of cashless transactions.<br>- H is the total value of the cashless transactions.<br>- I is not used in this version.<br>- J is the total number of received tokens.<br>- K is the total number of rejected coins.<br>- L is the total value of received tokens.<br>- M is the total number of dispensed tokens (if used with ccTalk hoppers) |

## 12. Save settings

| Command            |   |
|--------------------|---|
| - SAVESETTINGS     | This command will save modified settings to the non-volatile memory. You must use this command after you modify at least one of the interface settings. |
| Possible answers   |   |
| - SAVESETTINGSOK   | - If the interface successfully saved the settings to the non-volatile memory.  |
| - SAVESETTINGSFAIL | - If the interface failed to save settings to non-volatile memory.  |

## 13. Load settings

| Command            |  |
|--------------------|--|
| - LOADSETTINGS     | This command will force loading settings. It is also automatically executed on power-up.   |
| Possible answers   |  |
| - LOADSETTINGSOK   | - If the interface failed to save settings to non-volatile memory. This command will return the results of the following commands, together:<br>- VMCSETTINGS?<br>- VMCINFOREQ?<br>- RECYCLERSETBILLS?<br>- TOKENVALUES?<br>Also, it will return VMCSWVER(A,B) – the internal software version, major an minor release |
| - DEFAULTSETTINGS  | - If the settings file is not available.   |
| - LOADSETTINGSFAIL | - If the settings file could not be read.  |

## 14. Factory reset

| Command            |  |
|--------------------|--|
| - FACTORYRESET     | This command will force a complete erasure of all settings and parameters. The interface will reboot after 3 seconds and will load the default (factory) settings. |
| Possible answers   |  |
| - FACTORYRESETOK   | - If the command was successfully received and executed.   |
| - FACTORYRESETFAIL | - If the command was not successfully received and executed.   |

## F. Relay related commands

This set of commands is working only when an optional PICOVEND EZ ESP 8X slave relay board is connected on the MDB interface of PICOVEND EZ MASTER interface. Please check the optional PICOVEND EZ ESP 8X board manual for its usage/specifications. Mainly, this board is used to control up to 8 external circuits, being equipped with 8 relays. It can receive relay control commands over USB or over MDB (being an MDB slave device). Each relay can be addressed individually, or you can address all relays at one time, and each relay can be energized for a desired amount of time, between 1 and 65535 seconds. Up to 8 relay boards can be controlled by this interface (a total of 64 relays).

### 1. Individual relay control

| Command                  |  |
|--------------------------|--|
| - RELAY(A,B,C)           | <p>This command will energize one relay for a specified amount of time.</p> <ul style="list-style-type: none"> <li>- A – is the relay board module address, set by MYADDRESS command over USB and saved with SAVESETTINGS command after.</li> <li>- B – is the relay number (1-8)</li> <li>- C – is the time for the relay to be energized, in seconds (1-65535). The board will automatically de-energize the relay after the specified time passed. To force the relay de-energize at any moment, you need to specify 0 for this parameter</li> </ul> <p>Example: <b>RELAY(1,3,45)</b> – will energize the relay number 3 (OUT3 on the board) for a specified time of 45 seconds</p> |
| Possible answers         |  |
| - RELAYOK<br>- RELAYFAIL | <ul style="list-style-type: none"> <li>- If the command was successfully received and executed.</li> <li>- If the command was not successfully received and executed.</li> </ul>   |

### 2. Batch relay control

| Command                        |   |
|--------------------------------|---|
| - RELAYALL(A,B,C,D,E,F,G,H,I)  | <p>This command will energize/de-energize all slave board relays with a single command</p> <ul style="list-style-type: none"> <li>- A – is the relay board module address, set by MYADDRESS command over USB and saved with SAVESETTINGS command after.</li> <li>- B-I – is the time for relay 1-8 (OUT1-OUT8). The board will automatically de-energize the relays after the specified time passed. To force the relay de-energize at any moment, you need to specify 0 for the parameter on the desired relays.</li> </ul> <p>Example: <b>RELAYALL(1,10,60,0,0,0,0,0,0)</b> – will energize OUT1 relay for 10 seconds and OUT2 relay for 60 seconds, all the other relays will be de-energized.</p> |
| Possible answers               |   |
| - RELAYALLOK<br>- RELAYALLFAIL | <ul style="list-style-type: none"> <li>- If the command was successfully received and executed.</li> <li>- If the command was not successfully received and executed.</li> </ul>  |



### 3. Check relay status

| Command   |   |
|---|---|
| - RELAYSTATUS(A)  | This command will check the relays status and will return the time that each relay will be still energized. You can use this command to check if some of the relays are energized and for how long.<br>- A is the relay board module address, set by MYADDRESS command over USB and saved with SAVESETTINGS command after.  |
| Possible answers  |   |
| - RELAYSTATUS(A,B,C,D,E,F,G,H,I)<br><br>- RELAYSTATUSFAIL | - If the command was successfully received and executed.<br>- A is the relay board module address, set by MYADDRESS command over USB and saved with SAVESETTINGS command after.<br>- B-I – is the time in seconds that relays (OUT1-OUT8) will be still energized. If the returned value is 0, the corresponding relay is de-energized.<br>- If the command was not successfully received and executed. |

### 4. Relay reset

| Command                            |  |
|------------------------------------|--|
| - RELAYRESET(A)                    | This command will reset all relays time to 0 and de-energize them<br>- A - is the relay board module address, set by MYADDRESS command over USB and saved with SAVESETTINGS command after. |
| Possible answers                   |  |
| - RELAYRESETOK<br>- RELAYRESETFAIL | - If the command was successfully received and executed.<br>- If the command was not successfully received and executed.   |

## 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<br>- B is the file system used bytes<br>- 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 values 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   |

## 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 recycler 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 | <ul style="list-style-type: none"><li>- 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.</li></ul> |

## 28. Bill validator – one bill stacked

| Message            | Description  |
|--------------------|--|
| BILLSTACKED(A,B,C) | <ul style="list-style-type: none"><li>- One bill was successfully stacked</li><li>- A is the scaled value of the last stacked bill</li><li>- B is the number of total stacked bill (internal non-volatile counter)</li><li>- C is the total value of the stacked bills (internal non-volatile counter)</li></ul> |

## 29. Bill in escrow position

| Message       | Description   |
|---------------|---|
| BILLESCROW(X) | <ul style="list-style-type: none"><li>- One bill is in the escrow position</li><li>- 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</li></ul> |

## 30. Bill returned to customer

| Message         | Description  |
|-----------------|--|
| BILLRETURNED(X) | <ul style="list-style-type: none"><li>- The bill in escrow position returned to customer</li><li>- X is the scaled value of the returned bill.</li></ul> |

## 31. Bill received in recycler

| Message           | Description   |
|-------------------|---|
| BILLTORECYCLER(X) | <ul style="list-style-type: none"><li>- A bill was received and stored in the recycling box</li><li>- X is the scaled value of the stored bill.</li></ul> |

## 32. A disabled bill was rejected

| Message       | Description   |
|---------------|---|
| BILLDISREJ(X) | <ul style="list-style-type: none"><li>- A bill was rejected because it was previously disabled by the user application.</li><li>- X is the scaled value of the rejected bill.</li></ul> |

### 33. A bill was manually loaded to recycler

| Message           | Description   |
|-------------------|---|
| BILLRECMANFILL(X) | - A bill manually loaded to recycler stock<br>- 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<br>- 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<br>- 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<br>- 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   |
|----------------------|---|
| CSLS<X>CASHSALE(A,B) | <ul style="list-style-type: none"><li>- Cash sale was reported to the cashless device</li><li>- A is the item price</li><li>- B is the item ID/selection number</li></ul> |

## 50. Cash sale successfully reported to the cashless device

| Message           | Description   |
|-------------------|---|
| CSLS<X>CASHSALEOK | <ul style="list-style-type: none"><li>- A cash sale was successfully reported to the cashless device.</li></ul> |

## 51. Cash sale reporting to the cashless device failed

| Message             | Description  |
|---------------------|--|
| CSHS<X>CASHSALEFAIL | <ul style="list-style-type: none"><li>- A cash sale reporting to the cashless device failed.</li></ul> |

## 52. Cashless device setup time exceeded

| Message            | Description  |
|--------------------|--|
| CSLS<X>SETUPEXCEED | <ul style="list-style-type: none"><li>- 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.</li></ul> |

## 53. Cashless device max/min prices reporting time exceed

| Message             | Description  |
|---------------------|--|
| CSLS<X>MAXMINEXCEED | <ul style="list-style-type: none"><li>- 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.</li></ul> |

## 54. Cashless device poll time exceed

| Message           | Description   |
|-------------------|---|
| CSLS<X>POLLEXCEED | <ul style="list-style-type: none"><li>- 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.</li></ul> |

## 55. Cashless device expansion request ID time exceed

| Message               | Description   |
|-----------------------|---|
| CSLS<X>EXPREQIDEXCEED | - The interface repeatedly failed to receive a valid answer on the MDB CASHLESS REQUEST 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   |
|-----------------------|---|
| CSLS<X>EXPENOPTEXCEED | - 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  |
|-------------------|--|
| CSLS<X>ALWAYSIDLE | - The cashless device have Always Idle support and the interface will try to enable it |

## 58. Cashless device writing date/time exceed

| Message           | Description   |
|-------------------|---|
| CSLS<X>WRDTEXCEED | - 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   |
|---------------------|---|
| CSLS<X>DISPMSG(A,B) | - The cashless device sent a display message to the interface<br>- A is the time to keep message on display (A x 0.1sec)<br>- B is the message to display |

## 60. Cashless device sent a BEGIN SESSION message

| Message             | Description  |
|---------------------|--|
| CSLS<X>BEGIN(A,B,C) | <ul style="list-style-type: none"><li>- The cashless device sent a BEGIN SESSION message to the interface</li><li>- A is the scaled available credit value</li><li>- B is the media ID (for example, the card serial number)</li><li>- C is the media type</li></ul> |

## 61. Cashless device sent a VEND APPROVED message

| Message              | Description   |
|----------------------|---|
| CSLS<X>VNDAPP(A,B,C) | <ul style="list-style-type: none"><li>- The cashless device sent a VEND APPROVED message to the interface</li><li>- A is the scaled approved value</li><li>- B is the total number of cashless transactions (internal counter)</li><li>- C the total scaled value of cashless transactions (internal counter)</li></ul> |

## 62. Cashless device sent a VEND DENIED message

| Message       | Description   |
|---------------|---|
| CSLS<X>VNDDEN | <ul style="list-style-type: none"><li>- The cashless device sent a VEND DENIED message to the interface</li></ul> |

## 63. Cashless device sent an END SESSION message

| Message           | Description  |
|-------------------|--|
| CSLS<X>ENDSESSION | <ul style="list-style-type: none"><li>- The cashless device sent an END SESSION message to the interface</li></ul> |

## 64. Cashless device sent a CANCELED message

| Message         | Description  |
|-----------------|--|
| CSLS<X>CANCELED | <ul style="list-style-type: none"><li>- The cashless device sent a CANCELED message to the interface</li></ul> |

## 65. Cashless device is ready

| Message      | Description   |
|--------------|---|
| CSLS<X>READY | <ul style="list-style-type: none"><li>- The cashless device was correctly initialized and is ready to be enabled.</li></ul> |

## 66. Cashless device returned a malfunction error

| Message               | Description   |
|-----------------------|---|
| CSLS<X>MALFUNCTION(X) | <ul style="list-style-type: none"><li>- The cashless device returned a malfunction message</li><li>- X is the internal malfunction code, its value depends on the cashless device and you can find more information in its manual</li></ul> |

## 67. Cashless device returned COMMAND OUT OF SEQUENCE message

| Message            | Description  |
|--------------------|--|
| CSLS<X>CMDOUTOFSEQ | - The cashless device returned a COMMAND OUT OF SEQUENCE message |

## 68. Cashless device sent a REVALUE APPROVED message

| Message         | Description   |
|-----------------|---|
| CSLS<X>REVALAPP | - The cashless device returned a REVALUE APPROVED message |

## 69. Cashless device sent a REVALUE DENIED message

| Message         | Description   |
|-----------------|---|
| CSLS<X>REVALDEN | - The cashless device returned a REVALUE DENIED message |

## 70. Cashless device sent a REVALUE LIMIT message

| Message              | Description   |
|----------------------|---|
| CSLS<X>REVALLIMIT(X) | - The cashless device returned a REVALUE LIMIT message<br>- 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   |
|--------------|---|
| CSLS<X>DTREQ | - The cashless device is requesting a date/time command to synchronize its internal RTC |

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

| Message         | Description   |
|-----------------|---|
| CSLS<X>DTSENDOK | - The interface successfully sent date/time command to the cashless device. |

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

| Message           | Description  |
|-------------------|--|
| CSLS<X>DTSENDFAIL | - The interface failed sending date/time command to the cashless device. |

## 74. Interface successfully enabled the cashless device

| Message        | Description   |
|----------------|---|
| CSLS<X>ENABLED | - The interface successfully enabled the cashless device. |

## 75. Interface successfully enabled the cashless device

| Message        | Description   |
|----------------|---|
| CSLS<X>ENABLED | - 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.<br>- 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 | <ul style="list-style-type: none"><li>- The coin acceptor/changer is temporarily unable to dispense coins due to it's working stage. Your application should retry later.</li></ul> |

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

| Message            | Description  |
|--------------------|--|
| CHANGEREMAINING(X) | <ul style="list-style-type: none"><li>- The coin acceptor/changer has failed to dispense all or some of the required coins.</li><li>- 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.</li></ul> |

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

| Message            | Description   |
|--------------------|---|
| COINMANDISP(A,B,C) | <ul style="list-style-type: none"><li>- The coin changer has manually dispensed one or more coins (usually by pressing one or more buttons on it's front panel).</li><li>- A is the scaled coin type value</li><li>- B is the total number of manually dispensed coins</li><li>- C is the total number of coins remaining in tubes for the A type value</li></ul> |

## 88. Coin acceptor/changer received a token

| Message          | Description   |
|------------------|---|
| TOKENIN(A,B,C,D) | <ul style="list-style-type: none"><li>- One token has been received by the coin acceptor/changer</li><li>- A is the token value (you need to set the token values correctly on the interface settings section)</li><li>- B is the token routing (0 – to cashbox, 1 – to tubes, 3 - rejected)</li><li>- C is the total number of received tokens (lifetime internal counter)</li><li>- D is the total value of received tokens (lifetime internal counter)</li></ul> |



## 89. Coin acceptor/changer received a coin

| Message           | Description   |
|-------------------|---|
| COININ(A,B,C,D,E) | <ul style="list-style-type: none"><li>- One coin has been received by the coin acceptor/changer</li><li>- A is the scaled coin value</li><li>- B is the token routing (0 – to cashbox, 1 – to tubes, 3 – rejected)</li><li>- C is the total number of coins with the same value available in tubes</li><li>- D is the total number of received coins (lifetime internal counter)</li><li>- E is the total value of received coins (lifetime internal counter)</li></ul> |

## 90. Coin acceptor/changer detected a slug

| Message       | Description   |
|---------------|---|
| COINSLUG(A,B) | <ul style="list-style-type: none"><li>- One slug detected by the coin acceptor/changer</li><li>- A is the slug counter, reported by the coin acceptor/changer</li><li>- B is the total number of coins/tokens rejected by the coin acceptor/changer (lifetime internal counter)</li></ul> |

## 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 removal of a credited coin. |

### 103. Hopper reset result

| Message      | Description                                       |
|--------------|---|
| CCTHRESET(X) | - Hopper with address X answered to reset command |

### 104. Hopper reset result

| Message          | Description   |
|------------------|---|
| CCTHRESETFAIL(X) | - Hopper with address X failed to answer on reset command |

### 105. Hopper disabled

| Message         | Description  |
|-----------------|--|
| CCTHDISABLED(X) | - Hopper with address X failed to initialize and will not be available for coin dispensing |

### 106. Hopper enabled

| Message        | Description  |
|----------------|--|
| CCTHENABLED(X) | - Hopper with address X successfully initialized and enabled |

## Appendix I – Bill related LAST ERROR messages

Those are the codes you can read using LASTERROR? command after the interface has been returned a bill validator/recycler related error or fail message

| CODE    | DESCRIPTION  |
|---------|--|
| ERRB001 | No answer on bill reset  |
| ERRB002 | NAK on bill reset  |
| ERRB003 | Unknown answer on bill reset   |
| ERRB004 | CRC error on bill reset  |
| ERRB005 | Unknown error on bill reset  |
| ERRB006 | No answer while polling bill for JUST RESET                            |
| ERRB007 | NAK while polling bill for JUST RESET                                  |
| ERRB008 | Unknown answer on polling bill for JUST RESET                          |
| ERRB009 | CRC error on polling bill for JUST RESET                               |
| ERRB010 | No answer on bill SETUP  |
| ERRB011 | Bill answer length error on bill SETUP                                 |
| ERRB012 | CRC error on bill SETUP  |
| ERRB013 | No answer on bill EXPANSION IDENTIFICATION                             |
| ERRB014 | Bill answer length error on bill EXPANSION IDENTIFICATOIN              |
| ERRB015 | CRC error on bill EXPANSION IDENTIFICATION                             |
| ERRB016 | No answer on bill EXPANSION IDENTIFICATION with options                |
| ERRB017 | Bill answer length error on bill EXPANSION IDENTIFICATOIN with options |
| ERRB018 | CRC error on bill EXPANSION IDENTIFICATION with options                |
| ERRB019 | No answer on bill FEATURE ENABLE                                       |
| ERRB020 | NAK on bill FEATURE ENABLE   |
| ERRB021 | CRC error on bill FEATURE ENABLE                                       |
| ERRB022 | No answer on bill RECYCLER SETUP                                       |
| ERRB023 | NAK on bill RECYCLER SETUP   |
| ERRB024 | CRC error on bill RECYCLER SETUP                                       |
| ERRB025 | No answer on bill RECYCLER ENABLE                                      |
| ERRB026 | CRC error on bill RECYCLER ENABLE                                      |
| ERRB027 | No answer on bill RECYCLER DISPENSE STATUS                             |
| ERRB028 | CRC error on bill RECYCLER DISPENSE STATUS                             |
| ERRB029 | No answer on bill RECYCLER DISPENSE STATUS                             |
| ERRB030 | CRC error on bill RECYCLER DISPENSE STATUS                             |
| ERRB031 | No answer on bill DISPENSE VALUE                                       |
| ERRB032 | CRC error on bill RECYCLER ENABLE                                      |
| ERRB033 | No answer on bill PAYOUT VALUE POLL                                    |
| ERRB034 | CRC error on bill PAYOUT VALUE   |
| ERRB035 | No answer on bill STACKER  |

| <b>CODE</b> | <b>DESCRIPTION</b>                         |
|-------------|--|
| ERRB036     | NAK on bill STACKER                        |
| ERRB037     | CRC error on bill STAKER                   |
| ERRB038     | No answer on manual bill STACKER           |
| ERRB039     | Incorrect answer length on bill STACKER    |
| ERRB040     | CRC error on bill STACKER                  |
| ERRB041     | No answer on bill POLL                     |
| ERRB042     | CRC error on bill POLL                     |
| ERRB043     | No answer on bill ENABLE                   |
| ERRB044     | NAK on bill ENABLE                         |
| ERRB045     | Unknown answer on bill ENABLE              |
| ERRB046     | CRC error on bill ENABLE                   |
| EERB047     | Bill not in correct stage for this command |
| ERRB048     | No answer on bill SELECTIVE ENABLE         |
| ERRB049     | NAK on bill SELECTIVE ENABLE               |
| ERRB050     | Unknown answer on bill SELECTIVE ENABLE    |
| ERRB051     | CRC error on bill SELECTIVE ENABLE         |
| ERRB052     | No answer on bill DISABLE                  |
| ERRB053     | NAK on bill DISABLE                        |
| ERRB054     | Unknown answer on bill DISABLE             |
| ERRB055     | CRC error on bill DISABLE                  |
| ERRB056     | No answer on bill ACCEPT                   |
| ERRB057     | NAK on bill ACCEPT                         |
| ERRB058     | Unknown answer on bill ACCEPT              |
| ERRB059     | CRC error on bill ACCEPT                   |
| ERRB060     | No answer on bill REJECT                   |
| ERRB061     | NAK on bill REJECT                         |
| ERRB062     | Unknown answer on bill REJECT              |
| ERRB063     | CRC error on bill RESET                    |
| ERRB064     | Bill already enabled                       |
| ERRB065     | Bill already disabled                      |

## Appendix II – Coin related LAST ERROR messages

Those are the codes you can read using LASTERROR? command after the interface has been returned a coin acceptor/changer related or fail message

| CODE    | DESCRIPTION                                     |
|---------|---|
| ERRC001 | No answer on coin RESET                         |
| ERRC002 | NAK on coin RESET                               |
| ERRC003 | Unknown answer on coin RESET                    |
| ERRC004 | CRC error on coin RESET                         |
| ERRC005 | No answer polling coin for JUST RESET           |
| ERRC006 | NAK on coin polling for JUST RESET              |
| ERRC007 | Unknown answer on coin poll for JUST RESET      |
| ERRC008 | CRC error on coin poll for JUST RESET           |
| ERRC009 | No answer on coin SETU                          |
| ERRC010 | NAK on coin SETUP                               |
| ERRC011 | Unknown answer on coin SETUP                    |
| ERRC012 | CRC error on coin SETU                          |
| ERRC013 | No answer on coin EXPANSION IDENTIFICATION      |
| ERRC014 | NAK on coin EXPANSION IDENTIFICATION            |
| ERRC015 | Unknown answer on coin EXPANSION IDENTIFICATION |
| ERRC016 | CRC error on coin EXPANSION IDENTIFICATION      |
| ERRC017 | No answer on coin FEATURE ENABLE                |
| ERRC018 | NAK on coin FEATURE ENABLE                      |
| ERRC019 | CRC error on coin FEATURE ENABLE                |
| ERRC020 | No answer on coin TUBE STATUS                   |
| ERRC021 | ACK/NAK only on coin TUBE STATUS                |
| ERRC022 | Incorrect answer length on coin TUBE STATUS     |
| ERRC023 | CRC error on coin TUBE STATUS                   |
| ERRC024 | Unknown error on coin TUBE STATUS               |
| ERRC025 | No answer on coin TUBE STATUS                   |
| ERRC026 | ACK/NAK only on coin TUBE STATUS                |
| ERRC027 | Incorrect answer length on coin TUBE STATUS     |
| ERRC028 | CRC error on coin TUBE STATUS                   |
| ERRC029 | Unknown error on coin TUBE STATUS               |
| ERRC030 | No answer on coin ENABL                         |
| ERRC031 | NAK on coin ENABLE                              |
| ERRC032 | Unknown answer on coin ENABLE                   |
| ERRC033 | CRC error on coin ENABLE                        |
| ERRC034 | Coin not in correct stage for this command      |
| ERRC035 | No answer on coin SELECTIVE ENABLE              |

| <b>CODE</b> | <b>DESCRIPTION</b>                      |
|-------------|---|
| ERRC036     | NAK on coin SELECTIVE ENABLE            |
| ERRC037     | Unknown answer on coin SELECTIVE ANSWER |
| ERRC038     | CRC error on coin SELECTIVE ANSWER      |
| ERRC039     | No answer on COIN DISABLE               |
| ERRC040     | NAK on coin DISABLE                     |
| ERRC041     | Unknown answer on coin DISABLE          |
| ERRC042     | CRC error on coin DISABLE               |
| ERRC043     | No answer on coin EJECT                 |
| ERRC044     | NAK on coin EJECT                       |
| ERRC045     | Unknown answer on coin EJECT            |
| ERRC046     | CRC error on coin EJECT                 |
| EERB047     | No answer on coin AP STATUS             |
| ERRC048     | ACK only answer on coin AP STATUS       |
| ERRC049     | NAK only answer on coin AP STATUS       |
| ERRC050     | Unknown answer on coin AP STATUS        |
| ERRC051     | CRC error on coin AP STATUS             |
| ERRC052     | No answer on coin AP EJECT              |
| ERRC053     | Unknown answer on coin AP EJECT         |
| ERRC054     | CRC error on coin AP EJECT              |
| ERRC055     | Failed to get tube status on coin AP    |
| ERRC056     | Coin already enabled                    |
| ERRC057     | Coin already disabled                   |

## Appendix III – Cashless related LAST ERROR messages

Those are the codes you can read using LASTERROR? command after the interface has been returned a cashless device related or fail message

| CODE    | DESCRIPTION                            |
|---------|--|
| ERRS001 | NAK on CASHLESS RESET                  |
| ERRS002 | CRC ERROR on CASHLESS RESET answer     |
| ERRS003 | Unknown error on CASHLESS RESET        |
| ERRS004 | No answer on CASHLESS SETUP            |
| ERRS005 | Cashless SETUP NAK                     |
| ERRS006 | CRC error on CASHLESS SETUP            |
| ERRS007 | No answer on MAX/MIN prices            |
| ERRS008 | NAK on MAX/MIN prices                  |
| ERRS009 | CRC error on MAX/MIN prices            |
| ERRS010 | Cashless not initied or not enabled    |
| ERRS011 | No answer on cashless vend request     |
| ERRS012 | NAK on vend request                    |
| ERRS013 | CRC error on answer to vend request    |
| ERRS014 | Cashless not initied or not enabled    |
| ERRS015 | No answer on vend cancel               |
| ERRS016 | NAK on vend cancel                     |
| ERRS017 | CRC error on response to vend cancel   |
| ERRS018 | Cashless not initied or not enabled    |
| ERRS019 | No answer on vend success              |
| ERRS020 | NAK on vend success                    |
| ERRS021 | CRC error on vand success              |
| ERRS022 | Cashless not initied or not enabled    |
| ERRS023 | No answer on cashless vend failure     |
| ERRS024 | NAK on vend failure                    |
| ERRS025 | CRC error on vend failure              |
| ERRS026 | Cashless not initer or not enabled     |
| ERRS027 | No answer on cashless session complet  |
| ERRS028 | NAK on cashless session complete       |
| ERRS029 | CRC error on cashless session complete |
| ERRS030 | Cashless not initied or not enabled    |
| ERRS031 | No answer on cashless cash sale        |
| ERRS032 | NAK on cashless cash sale              |
| ERRS033 | CRC error on cashless cash sale        |
| ERRS034 | Cannot disable cashless during session |
| ERRS035 | No answer on cashless disable          |



| <b>CODE</b> | <b>DESCRIPTION</b>                          |
|-------------|---|
| ERRS036     | Unknown answer on cashless disable          |
| ERRS037     | CRC error on cashless disable               |
| ERRS038     | No answer on cashless enable                |
| ERRS039     | Unknown answer on cashless enable           |
| ERRS040     | RC error on cashless enable                 |
| ERRS041     | Cashless not initied or not enabled         |
| ERRS042     | No answer on cashless cancel                |
| ERRS043     | NAK error on cashless cance                 |
| ERRS044     | CRC error on cashless cance                 |
| ERRS045     | Cashless not initied or not enabled         |
| ERRS046     | No answer on cashless revalue request       |
| EERB047     | NAK on cashless revalue request             |
| ERRS048     | CRC error on cashless revalue request       |
| ERRS049     | Cashless not initied or not enabled         |
| ERRS050     | No answer on cashless revalue limit request |
| ERRS051     | NAK on cashless revalue limit request       |
| ERRS052     | CRC error on cashless revalue limit request |
| ERRS053     | No answer on cashless expansion ID reques   |
| ERRS054     | NAK on cashless expansion ID request        |
| ERRS055     | CRC error on cashless expansino ID request  |
| ERRS056     | No answer on cashless enable options        |
| ERRS057     | NAK on cashless enable options              |
| ERRS058     | CRC error on cashless enable options        |
| ERRS059     | No answer on cashless write time/date       |
| ERRS060     | NAK on cashless write time/date             |
| ERRS061     | CRC error on cashless write time/date       |
| ERRS062     | Cashless already enabled                    |
| ERRS063     | Cshless already disabled                    |

# NOTES: