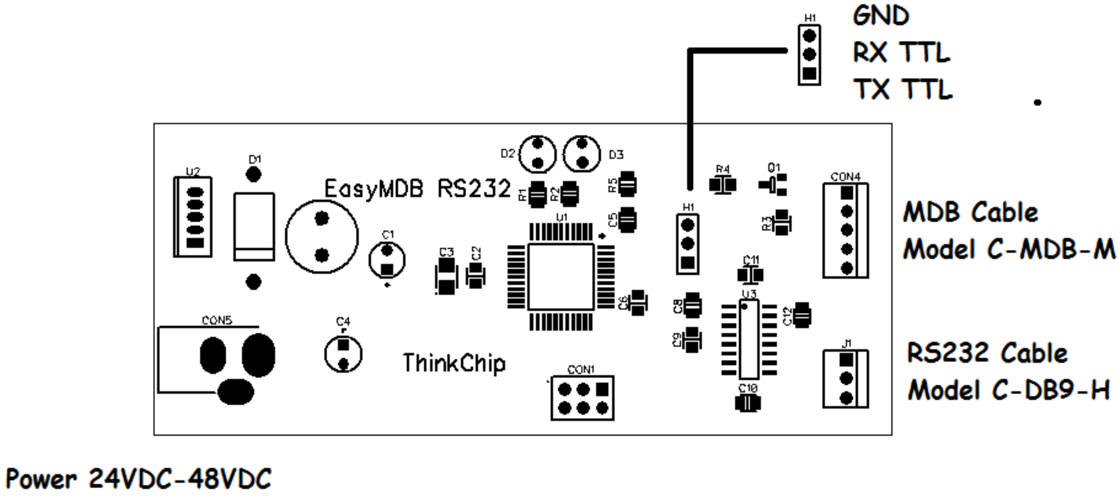
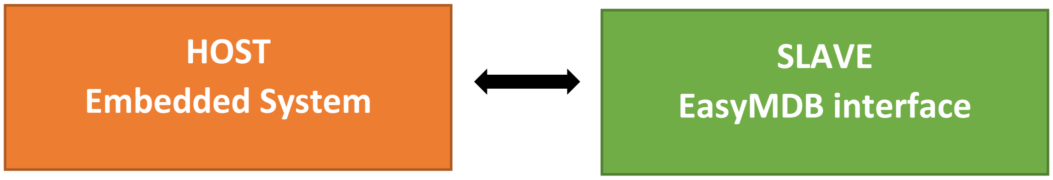
Reference Manual EasyMDB RS232-TTL

1 Introduction

This document explains how to use the interface EasyMDB RS232-TTL and describe the connections and the necessary commands for communicating with Cash System MDB (Coin Changer and Bill Validator).



The EasyMDB interface for RS232 or TTL permits to connect a device which operates according to the MDB protocol to the serial port of embedded system.



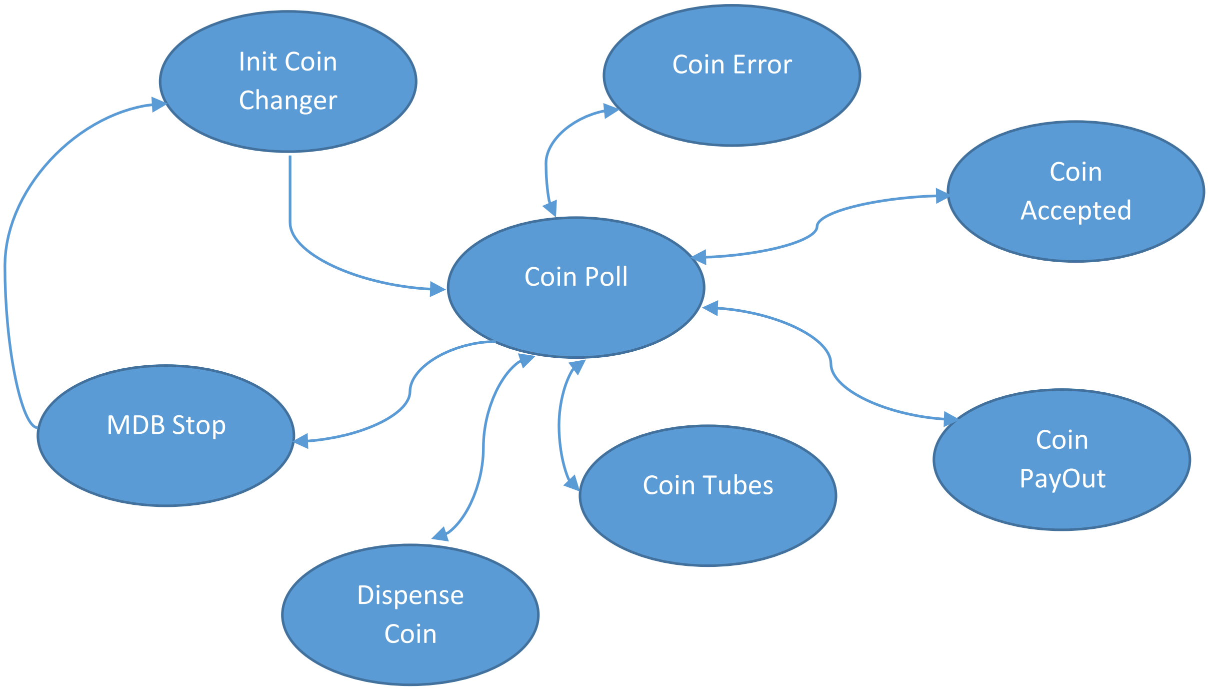
2 Interfacing with EasyMDB

The host has a number of functions to communicate with Vending Cash Devices:

2.1 Coin Changer

- Init Coin Changer
- Coin Poll
- Coin Error
- Coin Tubes
- Coin PayOut
- Coin Accepted
- Dispense Coin

First, we need call Function "Init Coin Changer", this function established if connected, yes it is, then give us all the information about Coin Changer, as Model, Serial Number, Country, etc. Then we need Poll Coin Changer, this function determines if there any change, like coin inserted and error in mechanisms. With function Coin Tubes, tell us how much money is in it, the function Coin Accepted we can enable and disable particular currency. Coin Payout is for give change to the user and MDB Stop, is for stop all the MDB communication.

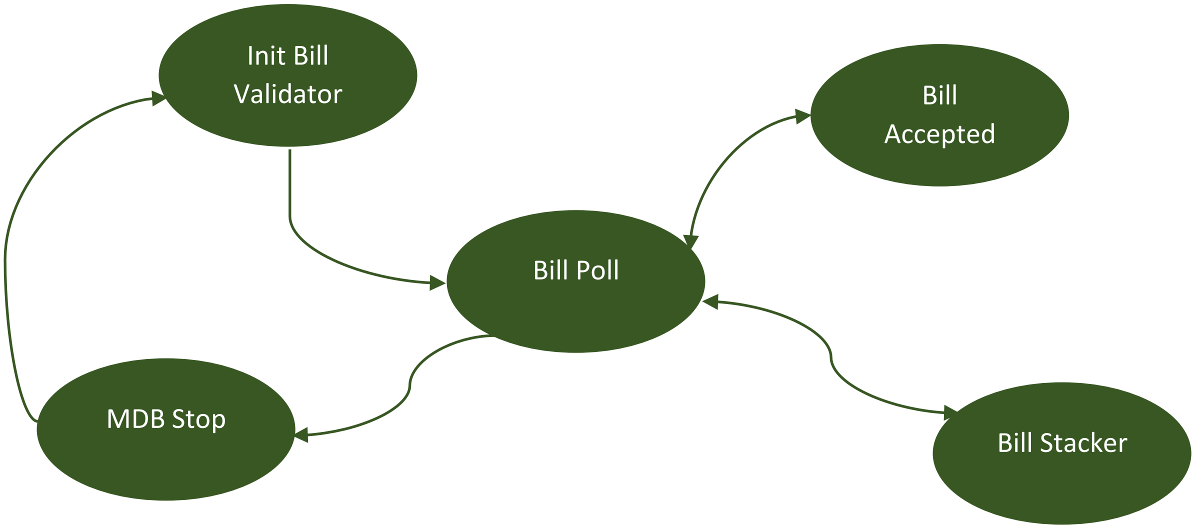


2.2 Bill Validator

The function to establish communication with Bill Validator is:

- Init Bill Validator
- Bill Poll
- Bill Accepted
- Bill Stacker
- MDB Stop

To star the communication we need call function Init Bill Validator, this function established if connected, yes it is, then give us all the information about Bill Validator has Model, Serial Number, Scaling, Country, etc. Once call Init Bill Validator, we need poll the device, with the function Bill Poll.



2.3 Data Format

The data format (Start Bit, Data Bits, parity, Stop Bit) is software configurable BaudRate. The general data format is defined as:

Parameter	Description
Baud Rate	9600 bauds (By default) 19200 bauds 34800 bauds 57600 bauds 115200 bauds
Data bits	8 bits
Start Bits	1 bit
Stop Bits	1 bit
Parity	None

2.4 Link Layer

The communication protocol is a packet-oriented protocol - all the data exchanged between two communication devices will be based on packet format.

The data packet starts with the control character, there are two types of control character, 'COIN' and 'BILL' (0x02 and 0x03 hexadecimal value respectively) and ends with 'FC' (0xff hexadecimal value), which follows the 8-bit BCC checksum. Besides the checksum is used for error checking, character (byte).

2.5 Packet format

There are two types of data packets. Command Message is the packet Send from the Host to the SLAVE device. The Reply Message is the packet Send from the reader to the Host.

Packet format for Command Message (HOST to SLAVE)

Device	Command	Data	FC (Final character)	Checksum BCC 8 bits

SYSTEM=0x01
COIN=0x02
BILL=0x03
	These describe the action that will be realized. For example COIN_INIT=0x01	The Data Field is a stream of data with variable length, which depends on the Command word. There are also some COMMANDs have zero length of data field.	FC=0xff	Checksum is the last character to be sent, is calculated by adding all character, the checksum is not included in the summation.

Packet format for Reply Message (SLAVE to HOST)

Device	Command	Data	FC (Final character)	Checksum BCC 8 bits

SYSTEM=0x01
COIN=0x02
BILL=0x03
	These describe the action order	The Data Field is a stream of data with variable length, which depends on the Command word. There are also some COMMANDs have zero length of data field.	FC= 0xff	Checksum is the last character to be sent, is calculated by adding all character, the checksum is not included in the summation.

2.6 Command Set

The commands are grouped to different categories. Divided for the Devices, the command represent an action to be realized.

Interface Settings (0x01)		
0x02	**MDB Stop**	Stop all communication with MDB devices

Coin Changer (0x02)		
0x01	**Init Coin Changer**	To obtain changer level and configuration information.
0x03	**Coin Poll**	Indicates the changer activity.
0x05	**Coin Tubes**	Indicates status of coin tube for coin
0x07	**Coin PayOut**	PayOut Coin Changer
0x08	**Coin Accepted**	Setting enable and disable coin type accepted
0x0a	**Coin Error**	This command requests the changer to report its current state of operation.
0x0b	**Coin Dispense**	Dispense coin, this action is for coin changer level 1 for pay out.

Bill Validator (0x03)		
0x01	**Init Bill Validator**	To obtain bill configuration.
0x02	**Bill Poll**	Indicate the bill activity
0x03	**Bill Stacker**	Indicate the number of bills in the stacker.
0x04	**Bill Accepted**	Setting enable and disable the bills type accepted.

Display MDB (0x04)		
0x04	**Display Value**	Display value cash inserted

2.7 System commands

2.7.1 MDB Stop

HOST to SLAVE

Buffer Output	Packet Format	Description
Buffer Output[0]=0x01	**Device**	**System**
Buffer Output[1]=0x02	**Command**	**MDB Stop**
Buffer Output[2]=FC	**FC**	**FC=0xff**
Buffer Output[3]=CHK	**CHECKSUM**	

SLAVE to HOST

Buffer Input	Packet Format	Description
Buffer Input[0]=0x01	**Device**	**System**
Buffer Input[1]=0x02	**Command**	**MDB Stop**
Buffer Input[2]	**Data**	**Response** 0x01 OK 0x00 FAIL
Buffer Input[3]=FC	**FC**	**FC=0xff**
Buffer Input[4]=CHK	**CHECKSUM**	

2.8 Coin Changer commands

2.8.1 Init Coin Changer

HOST to SLAVE

Buffer Output	Packet Format	Description
Buffer Output[0]=0x02	**Device**	**Coin Changer**
Buffer Output[1]=0x01	**Command**	**Init Coin Changer**
Buffer Output[2]=FC	**FC**	**FC=0xff**
Buffer Output[3]=CHK	**CHECKSUM**	

SLAVE to HOST

Buffer Input	Packet Format	Description
Buffer Input[0]=0x02	**Device**	**Coin Changer**
Buffer Input[1]=0x01	**Command**	**Init Coin Changer**
Buffer Input[2]	**Data**	**Level** Changer Feature Level - 1 byte Indicates the feature level of the changer. This will distinguish the changers feature level to the VMC. Current defined levels: Level 2: Supports “core” command set. These are: RESET, STATUS, TUBE STATUS, POLL, COIN TYPE, and DISPENSE. Level 3: Supports level two and the EXPANSION command addition changer model number, manufacturer code, turning revision, etc.
Buffer Input[3] to Buffer Input[5]	**Data**	**Manufacturer Code (3 bytes)** Identification code for the equipment supplier. Sent as ASCII characters.
Buffer Input[6] to Buffer Input[17]	**Data**	**Model Coin Changer (12 bytes)** Manufacturer assigned model number and tuning number. All bytes must be sent as ASCII characters, zeros (30H) and blanks (20H) are acceptable. Each manufacturer should include information concerning the changer tuning revision.
Buffer Input[18] to Buffer Input[29]	**Data**	**Serial Number Coin Changer (12 bytes)** Factory assigned serial number. All bytes must be sent as ASCII characters, zeros (30H) and blanks (20H) are acceptable.
Buffer Input[30]	**Data**	**Scaling Factor (1 byte)** All accepted coin values must be evenly divisible by this number. For example, this could be set to 05H for the USA nickel.
Buffer Input[31]	**Data**	**Decimal Places (1 byte)**

		Indicates the number of decimal places on a credit display. For example, this could be set to 02H in the USA.
Buffer Input[32]= msb **Buffer Input[33]= lsb**	**Data**	**Country (2 bytes)** The packed BCD country / currency code of the changer can be sent in two different forms depending on the value of the left most BCD digit. If the left most digit is a 0, the international Telephone Code is used to indicate the country that the changer is set-up for. For example, the USA code is 00 01H (Buffer Input[31] = 00 and Buffer Input[32] = 01).
Buffer Input[34] to Buffer Input[49]	**Data**	**Coin Value Accepted (16 bytes)** Indicates the value of coin types 0 to 15. Values must be sent in ascending order. This number is the coin's monetary value divided by the coin scaling factor. Unused coin types are sent as 00H. Unsent coin types are assumed to be zero. It is not necessary to send all coin types. Coin type credits sent as FFH are assumed to be vend tokens. That is, their value is assumed to worth one vend. The bytes position in the 16 byte string indicates the coin type(s). For example, the first byte sent would indicate the value of coin type 0, the second byte sent would indicate the value of coin type 1, and so on. For example, the USA coin types may be; Coin type 0 = nickel, Coin type 1 = dime, Coin type 2 = quarter, Coin type 3 = dollar.
Buffer Input[50]=FC	**FC**	**FC=0xff**
Buffer Input[51]=CHK	**CHECKSUM**	

2.8.2 Coin Poll

HOST to SLAVE

Buffer Output	Packet Format	Description
Buffer Output[0]=0x02	**Device**	**Coin Changer**
Buffer Output[1]=0x03	**Command**	**Poll Coin Changer**
Buffer Output[2]=FC	**FC**	**FC=0xff**
Buffer Output[3]=CHK	**CHECKSUM**	

SLAVE to HOST

Buffer Input	Packet Format	Description
Buffer Input[0]=0x02	**Device**	**Coin Changer**
Buffer Input[1]=0x03	**Command**	**Poll Coin Changer**
Buffer Input[2]=msb **Buffer Input[3]=lsb**	**Data**	**Value Coin Inserted (2 bytes)** Amount of coins inserted, should be divided between Scaling Factor Value.
Buffer Input[4]	**Data**	**Coin Routing (1 byte)** Coin routing. 00b or 0x00: CASH BOX 01b or 0x01: TUBES 10b or 0x02: NOT USED 11b or 0x03: REJECT
Buffer Input[5]=msb **Buffer Input[6]=lsb**	**Data**	**Coin Value Dispensed Manually (2 bytes)** Amount of cash dispensed manually by Operator of Coin Changer
Buffer Input[7]	**Data**	**Status Coin Changer** (00000001b or 0x01) = Escrow request - An escrow lever activation has been detected. (00000010b or 0x02) = Changer Payout Busy - The changer is busy activating payout devices. (00000011b or 0x03) = No Credit - A coin was validated but did not get to the place in the system when credit is given. (00000100b or 0x04) = Defective Tube Sensor - The changer has detected one of the tube sensors behaving abnormally. (00000101b or 0x05) = Double Arrival - Two coins were detected too close together to validate either one. (00000110b or 0x06) = Acceptor Unplugged - The changer has detected that the acceptor has been removed. (00000111b or 0x07) = Tube Jam - A tube payout attempt has resulted in jammed condition. (00001000b or 0x08) = ROM checksum error - The changers internal checksum does not match the calculated checksum. (00001001b or 0x09) = Coin Routing Error - A coin has been validated, but did not follow the intended routing. (00001010b or 0x0a) = Changer Busy - The changer is busy and can’t answer a detailed command right now. (00001011b or 0x0b) = Changer was Reset - The changer has detected a Reset condition and has returned to its power-on idle condition.

		(00001100b or 0x0c) = Coin Jam - A coin(s) has jammed in the acceptance path. (00001101b or 0x0d) = Possible Credited Coin Removal – There has been an attempt to remove a credited coin.
Buffer Input[8]=FC	**FC**	**FC=0xff**
Buffer Input[9]=CHK	**CHECKSUM**	

2.8.3 Coin Tubes

HOST to SLAVE

Buffer Output	Packet Format	Description
Buffer Output[0]=0x02	**Device**	**Coin Changer**
Buffer Output[1]=0x05	**Command**	**Tube Status Coin Changer**
Buffer Output[2]=FC	**FC**	**FC=0xff**
Buffer Output[3]=CHK	**CHECKSUM**	

SLAVE to HOST

Buffer Input	Packet Format	Description
Buffer Input[0]=0x02	**Device**	**Coin Changer**
Buffer Input[1]=0x01	**Command**	**Tube Status Coin Changer**
Buffer Input[2]=msb **Buffer Input[3]=lsb**	**Data**	**Value Cash in Tubes of Coin Changer (2 bytes)** Total Amount Cash in Tubes of Coin Changer
Buffer Input[4]=FC	**FC**	**FC=0xff**
Buffer Input[5]=CHK	**CHECKSUM**	

2.8.4 Coin PayOut

HOST to SLAVE

Buffer Output	Packet Format	Description
Buffer Output[0]=0x02	**Device**	**Coin Changer**
Buffer Output[1]=0x07	**Command**	**PayOut Coin Changer**
Buffer Output[2]=msb **Buffer Output[3]=lsb**	**Data**	**Amount PayOut Coin Changer (2 bytes)** This value is expressed as the number of coin scaling factors that would sum to the value. For example, in a USA system using a scaling factor of 05, if the change to be paid out is 75 cents, then Y1 will equal fifteen. That is, the sum of fifteen nickels equal 75 cents. The coin changer will determine which actual denominations of coins will be paid out. In the 75 cent example, the coins

		may be 3 quarters; or, 7 dimes & 1 nickel; or, 2 quarters & 2 dimes & 1 nickel, etc.
Buffer Output[4]=FC	**FC**	**FC=0xff**
Buffer Output[5]=CHK	**CHECKSUM**	

SLAVE to HOST

Buffer Input	Packet Format	Description
Buffer Input[0]=0x02	**Device**	**Coin Changer**
Buffer Input[1]=0x07	**Command**	**PayOut Coin Changer**
Buffer Input[2]	**Data**	**Confirmation PayOut Coin Changer (1 byte)** OK 0x01 FAIL 0x00
Buffer Input[3]=FC	**FC**	**FC=0xff**
Buffer Input[4]=CHK	**CHECKSUM**	

2.8.5 Coin Accepted

HOST to SLAVE

Buffer Output	Packet Format	Description
Buffer Output[0]=0x02	**Device**	**Coin Changer**
Buffer Output[1]=0x08	**Command**	**Coin Accepted Coin Changer**
Buffer Output[2]=msb **Buffer OutPut[3]=lsb**	**Data**	**Coin Enable(2 bytes)** b15 b14 b13 b12 b11 b10 b9 b8 | b7 b6 b5 b4 b3 b2 b1 b0 Y1 Y2 A bit is set to indicate a coin type is accepted. For example, bit 6 is set to indicate coin type 6, bit 15 is set to indicate coin type 15, and so on. To disable the changer, disable all coin types by sending a data block containing 0000H. All coins are automatically disabled upon reset.
Buffer Output[4]=msb **Buffer Output[5]=lsb**	**Data**	**Manually Coin Enable (2 bytes)** b15 b14 b13 b12 b11 b10 b9 b8 | b7 b6 b5 b4 b3 b2 b1 b0 Y1 Y2 A bit is set to indicate dispense enable. For example, bit 2 is set to enable dispensing of coin type 2. This command enables/disables manual dispensing using optional inventory switches. All manual dispensing switches are automatically enabled upon reset
Buffer Output[6]=FC	**FC**	**FC=0xff**
Buffer Output[7]=CHK	**CHECKSUM**	

SLAVE to HOST

Buffer Input	Packet Format	Description
Buffer Input[0]=0x02	**Device**	**Coin Changer**
Buffer Input[1]=0x08	**Command**	**Coin Accepted Coin Changer**
Buffer Input[2]	**Data**	**Confirmation PayOut Coin Changer (1 byte)** OK 0x01 FAIL 0x00
Buffer Input[3]=FC	**FC**	**FC=0xff**
Buffer Input[4]=CHK	**CHECKSUM**	

2.8.6 Coin Error

HOST to SLAVE

Buffer Output	Packet Format	Description
Buffer Output[0]=0x02	**Device**	**Coin Changer**
Buffer Output[1]=0x0a	**Command**	**Error Coin Changer**
Buffer Output[2]=FC	**FC**	**FC=0xff**
Buffer Output[3]=CHK	**CHECKSUM**	

SLAVE to HOST

Buffer Input	Packet Format	Description
Buffer Input[0]=0x02	**Device**	**Coin Changer**
Buffer Input[1]=0x0a	**Command**	**Error Coin Changer**
Buffer Input[2]=msb **Buffer Input[3]=lsb** **If exist more than one error in Coin Changer, could be sent until Buffer Input[16]**	**Data**	**Error Status Coin Changer (2 bytes)** This command requests the changer to report its current state of operation. The VMC should periodically transmit the command approximately every 1 to 10 seconds. The changer reports its current state of operation in a 2 byte code, msb is the main code and lsb is the sub-code. The code is reported as long as the condition exists and stops being reported as soon as the condition does not exist. Multiple 2 byte codes may be sent in response to a single command which could result in a maximum of eight 2 byte codes (16 bytes total).
Buffer Input[X]=FC	**FC**	**FC=0xff**
Buffer Input[X]=CHK	**CHECKSUM**	

2.8.7 Dispense Coin

HOST TO SLAVE

Buffer Output	Packet Format	Description
Buffer Output[0]=0x02	**Device**	**Coin Changer**
Buffer Output[1]=0x0b	**Command**	**Dispense Coin**
Buffer Output[2]	**Data**	**Coin Type** Indicate coin type to be dispensed. Valid codes are 0H to FH to indicate coin types 0 to 15.
Buffer Output[3]	**Data**	**Numbers of coins** Indicate the number of coins to be dispensed. Range of 0 to 15
Buffer Output[4]=FC	**FC**	**FC=0xff**
Buffer Output[5]=CHK	**CHECKSUM**	

SLAVE TO HOST

Buffer Input	Packet Format	Description
Buffer Input[0]=0x02	**Device**	**Coin Changer**
Buffer Input[1]=0x0b	**Command**	**Dispense Coin**

Buffer Input[2]	**Data**	**Response**
		Data = 1 OK
		Data = 0 Fail

Buffer Input[3]=FC	**FC**	**FC=0xff**
Buffer Input[4]=CHK	**CHECKSUM**	

2.9 Bill Validator commands

2.9.1 Init Bill Validator

HOST to SLAVE

Buffer Output	Packet Format	Description
Buffer Output[0]=0x03	**Device**	**Bill Validator**
Buffer Output[1]=0x01	**Command**	**Init Bill Validator**
Buffer Output[2]=FC	**FC**	**FC=0xff**
Buffer Output[3]=CHK	**CHECKSUM**	

SLAVE to HOST

Buffer Input	Packet Format	Description
Buffer Input[0]=0x03	**Device**	**Bill Validator**
Buffer Input[1]=0x01	**Command**	**Init Bill Validator**
Buffer Input[2] to Buffer Input[4]	**Data**	**Manufacturer Code Bill Validator (3 bytes)** Identification code for the equipment supplier. Sent as ASCII characters.
Buffer Input[5] to Buffer Input[16]	**Data**	**Model Bill Validator (12 bytes)** Manufacturer assigned model number and tuning number. All bytes must be sent as ASCII characters, zeros (30H) and blanks (20H) are acceptable. Each manufacturer should include information concerning the changer tuning revision.
Buffer Input[17] to Buffer Input[28]	**Data**	**Serial Number Bill Validator (12 bytes)** Factory assigned serial number. All bytes must be sent as ASCII characters, zeros (30H) and blanks (20H) are acceptable.
Buffer Input[29]	**Data**	**Escrow Bill Validator (1 byte)** Indicates the escrow capability of the bill validator. If Input = 0x00, the bill validator does not have escrow capability. If Input = 0xFF, the bill validator has escrow capability.
Buffer Input[30]	**Data**	**Decimal Places Bill Validator (1 byte)** Indicates the number of decimal places on a credit display. For example, this could be set to 02H in the USA.
Buffer Input[31]=msb **Buffer Input[32]=lsb**	**Data**	**Scaling Factor Bill Validator (2 bytes)** All accepted bill values must be evenly divisible by this number. For example, this could be set to 0064H for the USA.
Buffer Input[33]= msb **Buffer Input[34]= lsb**	**Data**	**Stacker Capacity Bill Validator (2 bytes)** Indicates the number of bills that the stacker will hold. For example, 400 bill capacity = 0190H.

Buffer Input[35] to Buffer Input[50]	**Data**	**Bills Type Accepted (16 bytes)** Indicates the value of the bill types 0 to 15. Values must be sent in ascending order. This number is the bill's monetary value divided by the bill scaling factor. Unused bill types are sent as 00H. Unsent bill types are assumed to be zero. FFH bills are assumed to be vend tokens.
Buffer Input[51]=FC	**FC**	**FC=0xff**
Buffer Input[52]=CHK	**CHECKSUM**	

2.9.2 Bill Poll

HOST to SLAVE

Buffer Output	Packet Format	Description
Buffer Output[0]=0x03	**Device**	**Bill Validator**
Buffer Output[1]=0x02	**Command**	**Poll Bill Validator**
Buffer Output[2]=FC	**FC**	**FC=0xff**
Buffer Output[3]=CHK	**CHECKSUM**	

SLAVE to HOST

Buffer Input	Packet Format	Description
Buffer Input[0]=0x03	**Device**	**Bill Validator**
Buffer Input[1]=0x02	**Command**	**Poll Bill Validator**
Buffer Input[2]= msb Buffer Input[3]=lsb	**Data**	**Value Bills Inserted (2 bytes)** Indicate the value total of bills inserted, the value should be divided between Scaling Factor Bill Validator for obtain the real value.
Buffer Input[4]	**Data**	**Status Bill Validator (1 byte)** (00000000b) = OK (00000001b) = Defective Motor - One of the motors has failed to perform its expected assignment. (00000010b) = Sensor Problem - One of the sensors has failed to provide its response. (00000011b) = Validator Busy - The validator is busy and can’t answer a detailed command right now. (00000100b) = ROM Checksum Error - The validator internal checksum does not match the calculated checksum. (00000101b) = Validator Jammed - A bill(s) has jammed in the acceptance path.

		(00000110b) = Validator was reset - The validator has been reset since the last POLL. (00000111b) = Bill Removed - A bill in the escrow position has been removed by an unknown means. A BILL RETURNED message should also be sent. (00001000b) = Cash Box out of position - The validator has detected the cash box to be open or removed. (00001001b) = Validator Disabled - The validator has been disabled, by the VMC or because of internal conditions. (00001010b) = Invalid Escrow request - An ESCROW command was requested for a bill not in the escrow position. (00001011b) = Bill Rejected - A bill was detected, but rejected because it could not be identified. (00001100b) = Possible Credited Bill Removal – There has been an attempt to remove a credited (stacked) bill.
Buffer Input[5]=FC	**FC**	**FC=0xff**
Buffer Input[6]=CHK	**CHECKSUM**	

2.9.3 Bill Stacker

HOST to SLAVE

Buffer Output	Packet Format	Description
Buffer Output[0]=0x03	**Device**	**Bill Validator**
Buffer Output[1]=0x03	**Command**	**Stacker Bill Validator**
Buffer Output[2]=FC	**FC**	**FC=0xff**
Buffer Output[3]=CHK	**CHECKSUM**	

SLAVE to HOST

Buffer Input	Packet Format	Description
Buffer Input[0]=0x03	**Device**	**Bill Validator**
Buffer Input[1]=0x03	**Command**	**Stacker Bill Validator**
Buffer Input[2]= msb **Buffer Input[3]=lsb**	**Data**	**Stacker Capacity (2 bytes)** Indicates stacker full condition and the number of bills in the stacker. msb lsb (Fxxxxxxx) (xxxxxxxx) F = 1 if stacker is full, 0 if not.

		xxxxxxxxxxxxxxx = The number of bills in the stacker.
Buffer Input[4]=FC	**FC**	**FC=0xff**
Buffer Input[5]=CHK	**CHECKSUM**	

2.9.4 Bill Accepted

HOST to SLAVE

Buffer Output	Packet Format	Description
Buffer Output[0]=0x03	**Device**	**Bill Validator**
Buffer Output[1]=0x04	**Command**	**Bills Accepted**
Buffer Output[2]= msb **Buffer Output[3]= lsb**	**Data**	**Bill Enable (2 bytes)** Indicates what type of bills are accepted. b15 b14 b13 b12 b11 b10 b9 b8 | b7 b6 b5 b4 b3 b2 b1 b0 Y1 Y2 Bill types are 0 to 15. A bit is set to indicate acceptance of bill type. Sending 0x00 disables the bill validator
Buffer Output[4]=FC	**FC**	**FC=0xff**
Buffer Output[5]=CHK	**CHECKSUM**	

SLAVE to HOST

Buffer Input	Packet Format	Description
Buffer Input[0]=0x03	**Device**	**Bill Validator**
Buffer Input[1]=0x03	**Command**	**Stacker Bill Validator**
Buffer Input[2]	**Data**	**Bill Enable Confirmation** 0x00 FAIL 0x01 OK
Buffer Input[3]=FC	**FC**	**FC=0xff**
Buffer Input[4]=CHK	**CHECKSUM**	

2.10 Display MDB

HOST to SLAVE

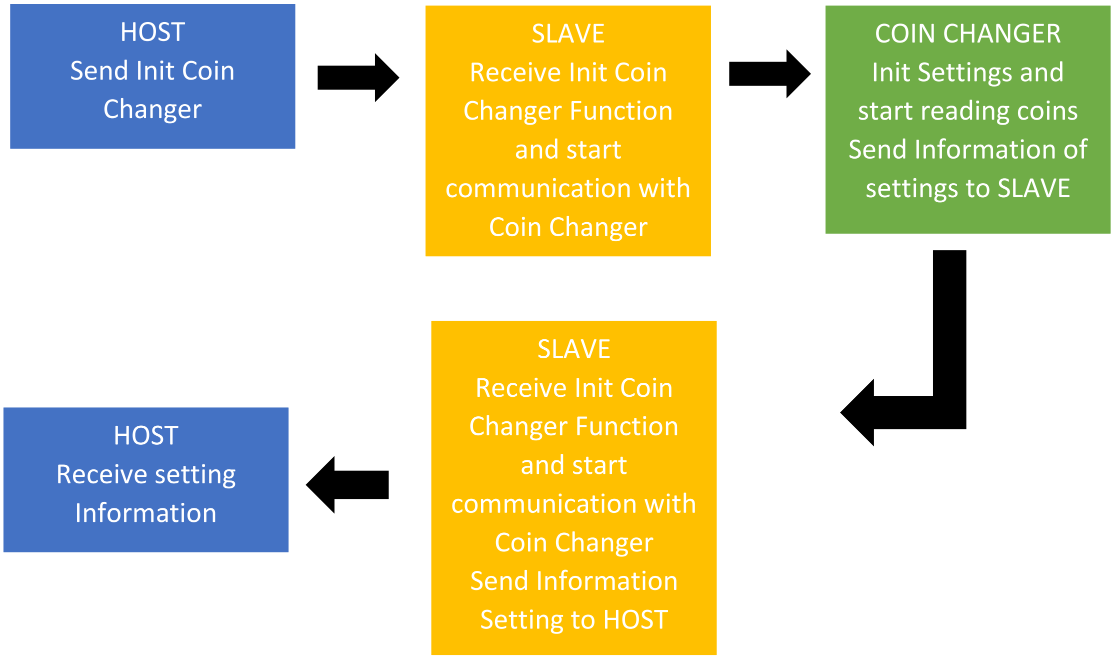
Buffer Output	Packet Format	Description
Buffer Output[0]=0x04	**Device**	**Display MDB**
Buffer Output[1]=0x01	**Command**	**Display Value**
Buffer Output[2]= msb **Buffer Output[3]= lsb**	**Data**	**Value (2 bytes)** **The display has 4 digits, the max value is 9999 that is 99.99**
Buffer Output[4]=FC	**FC**	**FC=0xff**
Buffer Output[5]=CHK	**CHECKSUM**	

SLAVE to HOST

Buffer Input	Packet Format	Description
Buffer Input[0]=0x04	**Device**	**Display MDB**
Buffer Input[1]=0x01	**Command**	**Display Value**
Buffer Input[2]	**Data**	**Display Value Confirmation** 0x00 FAIL 0x01 OK
Buffer Input[3]=FC	**FC**	**FC=0xff**
Buffer Input[4]=CHK	**CHECKSUM**	

2.11 Example communication

This chapter explains the way of communicating with MDB Devices. The HOST send a function to the SLAVE, the SLAVE try to communicate with Cash Device, then wait for response, send to HOST the response. Now let’s see an example with Init Coin Changer Function.


HOST Send Init Coin Changer
SLAVE Receive Init Coin Changer Function and start communication with Coin Changer
COIN CHANGER Init Settings and start reading coins Send Information of settings to SLAVE
SLAVE Receive Init Coin Changer Function and start communication with Coin Changer Send Information Setting to HOST
HOST Receive setting Information

History version manual

V1.0 Date 05/2014

- First revision manual

V1.0.1 Date 06/2014

- Added Dispense Coin command
- Add parameter Level in Init Coin command
- Eliminate the Baudrate command

V2.0 Date 08/2014

- Added Display command value
- Rev 2 of PCB updated