Pi2MDB Converter

Manual

Version: 1.1

Date: 09.11.2018 v2

State: Published

Updates will not be communicated actively.

Company: Shanghai Wafer Microelectronics Co.,Ltd.

http://www.waferstar.com
Service skype: wafer-service

Introduction:

Pi2MDB both are used to connect the Raspberry pi board to an MDB interface vending machine. And makes it easy to integrate with MDB interface vending machines by the Raspberry pi device.These adapters will reply the VMC Poll command automatically,so for user don't need to consider the Poll command. Any data from VMC except the poll command will be redirected to RS232 port.

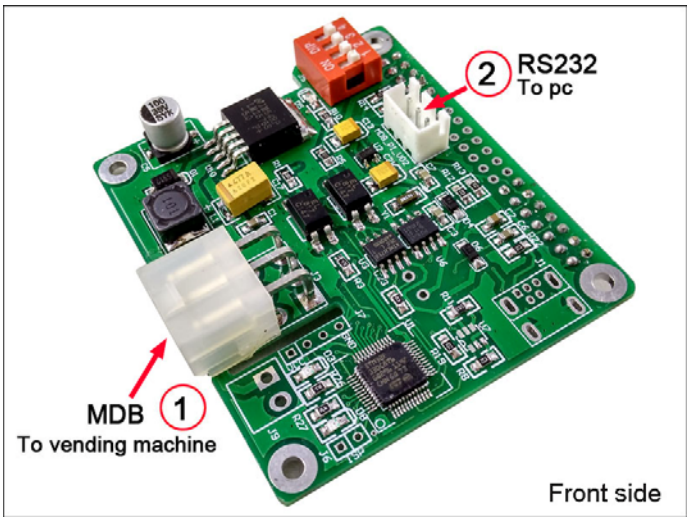
Any data if you want to send the HEX data from the Raspberry pi to VMC,just send to adapter board together with checksum ,then the adapter board will send to VMC during the VMC poll request.

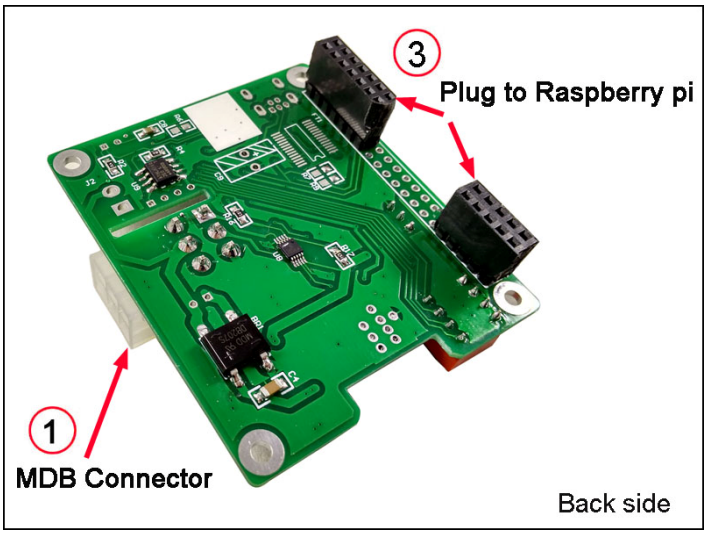
So for user only need to be familar with the Vending session with VMC during PC software development. And user should read the MDB protocol carefully to finish the test and development.

For technical details and the protocol specification, please refer to http://www.waferlife.com

Any other questions,you can add wafer online service skype: wafer-service

MDB Adatpers and interfaces description:





What is the MDB board for Raspberry pi ?

Wafer provide the housing for this board and can mount the Rasberry pi and MDB board together.

User can communicate with the vending machine cashless interface through the Raspberry pi Com port.

Wafer also provide a three pin connector on board for firmware update and also for PC com port test. So that means when user get the board,can firstly test it with the PC.

How to test it with the PC ?

Just directly plug the three pins connector to PC and plug the MDB connector to VMC.

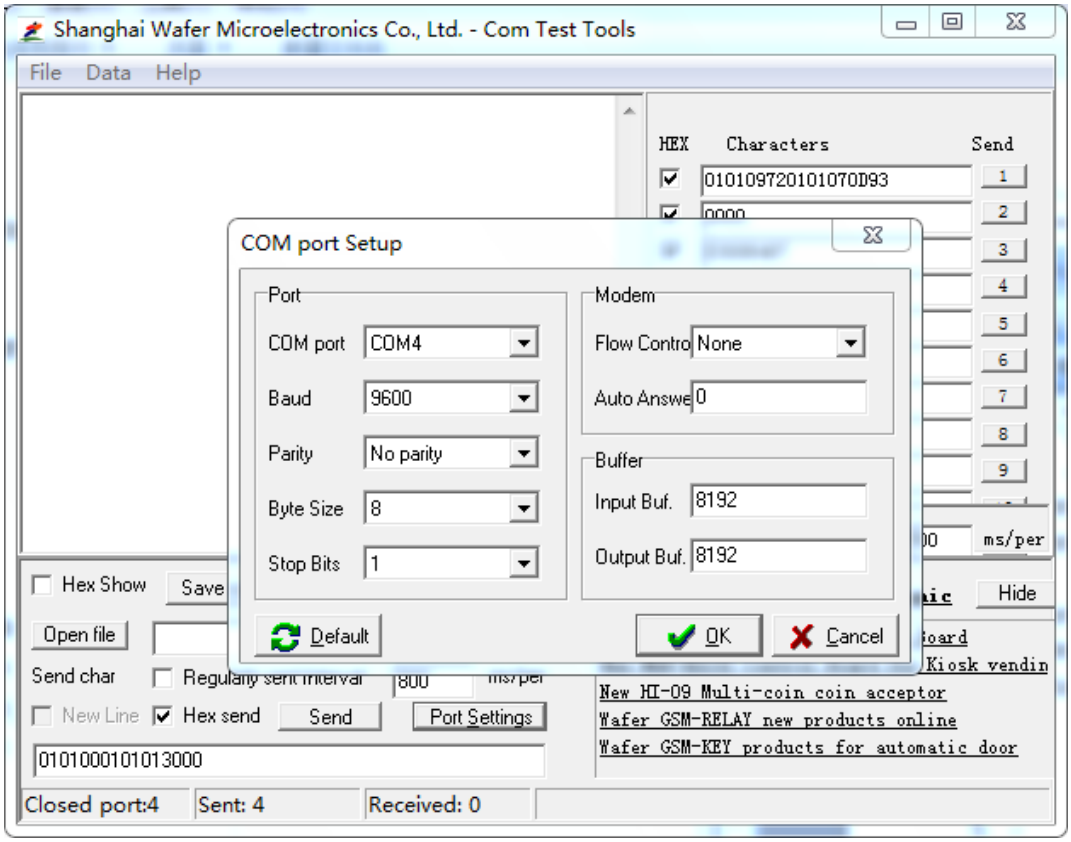
Now we start the MDB adapter Test with vending machine and PC:

1. Know your Vending machine
   a) Vending machine must support the cashless payment device
   b) Vending machine has the MDB connector for MDB cashless devices
   c) Disconnect other MDB payment devices before test the MDB adapter board

2. Connect the Adapter board to VMC and PC
   Simply plug the Pi2MDB to VMC (Vending machine controller) and the PC RS232 port.
   Check the suitable USB driver from the following web link:
   http://www.ftdichip.com/Drivers/VCP.htm

3. Open the PC-MDB Test tool (SerialTool.exe)

   Firstly check in the PC device manager or make clear which is the right com port that can be used. And then Select the right Com port in the SerialTool and select the “Hex Send” as the following picture



4. Power on the VMC (Pi2MDB adapter box will be powered on at the same time through the MDB bus)
   After powered on,keep to look at the Pi2MDB adapter board status LEDs, when the adapter board can be connected to the VMC,the MDB Master LED will flash some times during Power on data exchange.
   If No “ MDB Master LED” flashing happen,then Please check:
   (1) Confirmed again,that vending machine support the cashless device interface

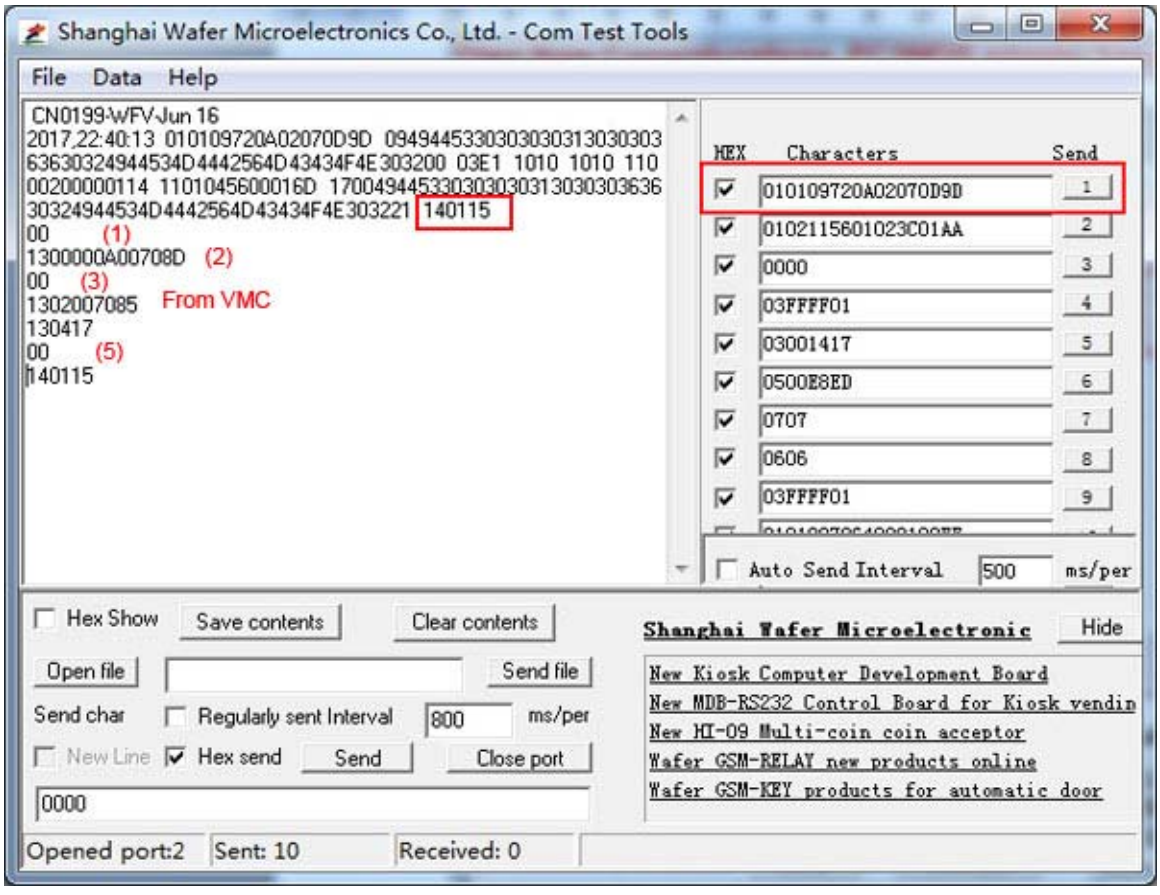
(2) If the MDB address is switched at the 10H (Normally VMC will Priority support 10H)
(3) Power off and Power on the VMC again to try
(4) Switch the MDB address to 60H to Power off and power on the VMC again to try
(5) Contact your VMC manufacture,if that VMC can support the MDB cashless device

5. If MDB Master LED flash some times and that means VMC has found this PC2MDB cashless devices

After power on the PC2MDB, Serial tool will get a self ID data:" Firmware version and the config data Report"

If serial tool cann't get this data, you need to check the serial port is properly selected
If adapter box is connected successfully to the VMC ,then you can get other more data from VMC,for example 11…… or 14….. (Start with 11, 12 , 14 or other)
You don't need to do anythings, our adapter box is already do the communication with the VMC with the config data.

If you can get the data 140115,Then Now Congraturations, PC2MDB adapter has successfully connected to VMC



Following is the Prototype VMC test data brief explanation:

(1) 11000200010114	VMC Setup – Config data	(Page. 126/313)
(2) 1101045600016D	VMC Setup – Max /Min Price	(Page. 128/313)
(3) 1700……..	VMC Setup	(Page. 159/313)
(4) 140115	VMC Reader enable	(Page. 154/313)

---------- After powered on,if you want to change the config data ------

(5) 010109720A02070D9D

This is the config data for VMC, if you change it with your data according to MDB protocal, then press the Line 1 to send to PC2MDB Adapter box and press the Line 2 to ask the VMC to read the data again

Note: The first 8 bytes is the config data and the last data 9D is Checksum

When you compile your data during test and not sure the Checksum,then just send the first 8 bytes,the adapter box will reply you the checksum data,the you put the Checksum data at the end of the data group,then the adapter will reply you " 00 "

6. Now you need to read the " Mdb_version_4-2.pdf " file carefully, especially about the MDB cashless device (From 7.1 ,page 117/313)

7. What adapter box has done by itself ?
   (1) Adapter box will reply the poll command from VMC automatically.
   (2) When power on, Adapter box will reply the Config data that is saved in the memory to VMC
   (3) You can change the config data by yourself,and next time VMC power on again will read the new config data

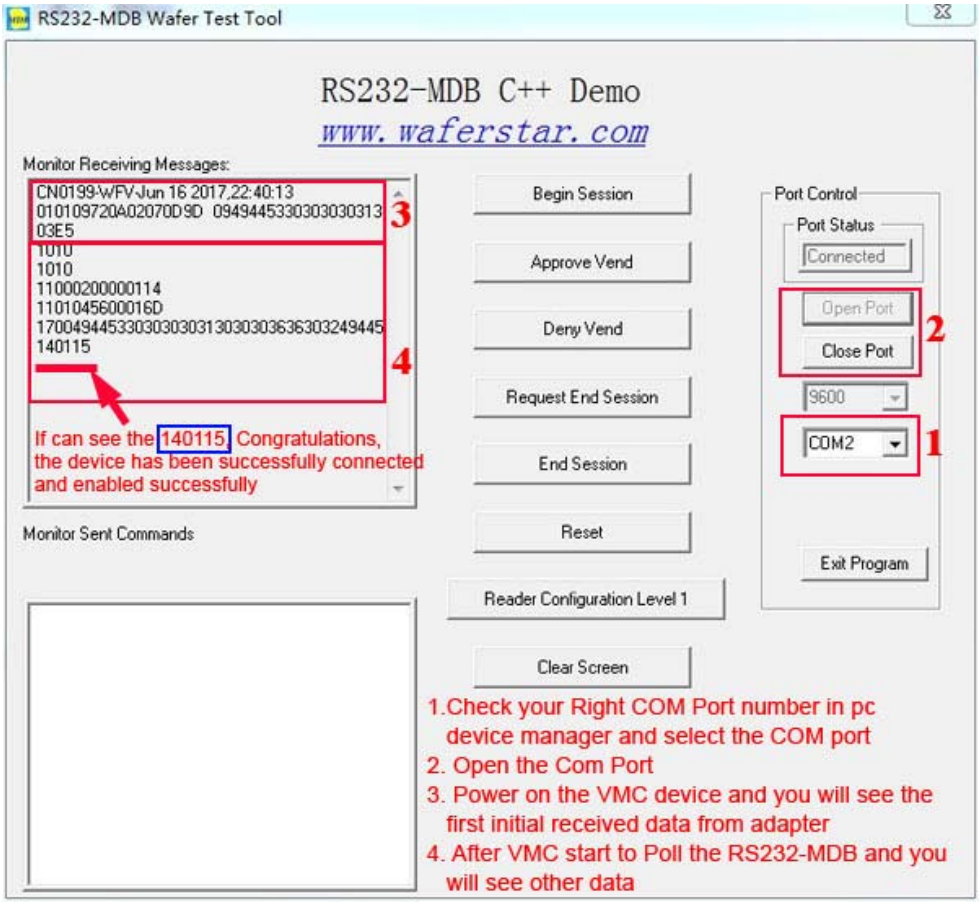
8. Now we test to add the credit value to VMC
   Press the test Line 3 button to send the data : 03FFFF01 (Page: 131/313)
   This command is to start the Begin Session to tell the VMC,that card funds available for vending
   After user select the goods,then:
   VMC VEND send the Vend Request data: 1300000A00708D (Page: 144/313)
   (VMC send the information of the item price and number to card reader to confirm the credit)
   Then Card reader should reply with Vend approved or Vend denied
   For example : 05000A0F to Aprove the vend or 0606 to Deny the vend
   VMC Reply after vending success: 1302007085 and 130417
   Then card reader need to send the command 0707 to end the session

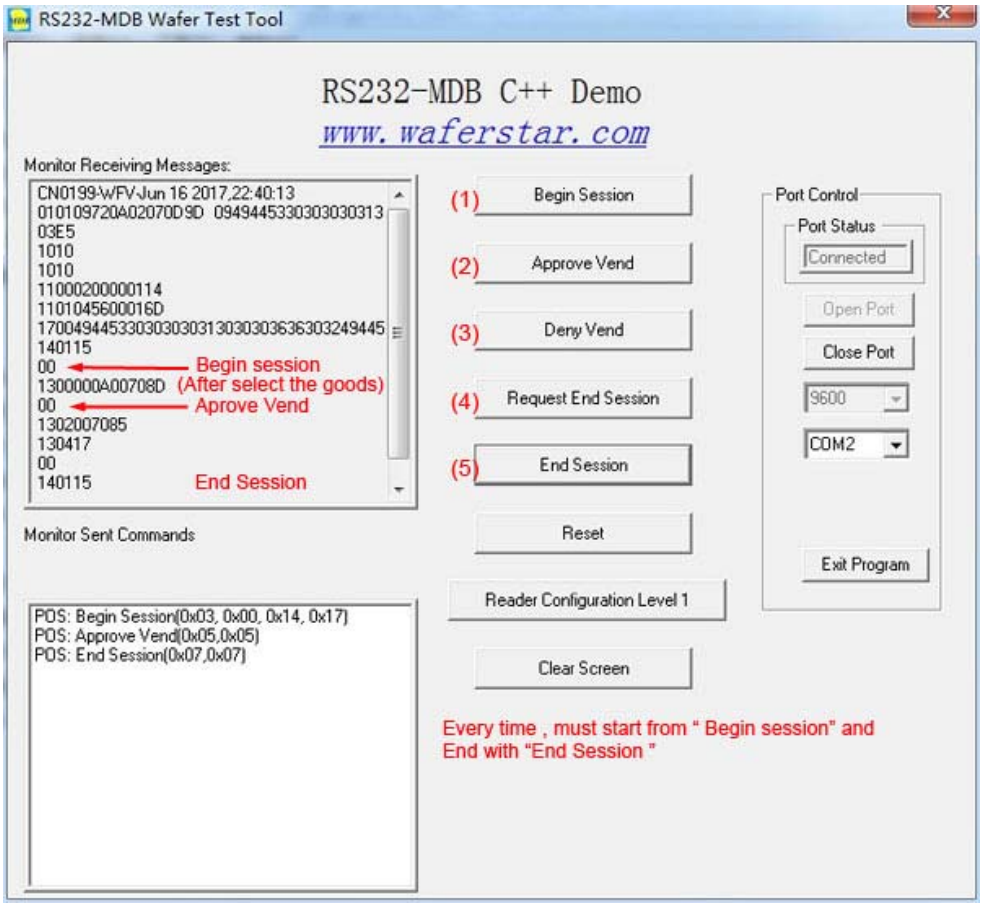
   When user develop his own project code. Must be noted: Start every session with 03FFFF01 and End with 0707

9. Test with Wafer MDB Test tools:

   If you have order the SDK sets, then please contact waferstar to get the source code for This MDB test tools


RS232-MDB Wafer Test Tool
RS232-MDB C++ Demo
www.waferstar.com
Monitor Receiving Messages:
CN0199-WFV-Jun 16 2017,22:40:13
01010972OA02070D9D 0949445330303030313
03E5
1010
1010
11000200000114
1101045600016D
17004944533030303031303030363030249445
140115
3
4
If can see the 140115, Congratulations, the device has been successfully connected and enabled successfully
Monitor Sent Commands
Begin Session
Approve Vend
Deny Vend
Request End Session
End Session
Reset
Reader Configuration Level 1
Clear Screen
Port Control
Port Status
Connected
Open Port
Close Port
2
9600
COM2
1
Exit Program
1.Check your Right COM Port number in pc device manager and select the COM port
2. Open the Com Port
3. Power on the VMC device and you will see the first initial received data from adapter
4. After VMC start to Poll the RS232-MDB and you will see other data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Monitor Receiving Messages:
CN0199-WFV-Jun 16 2017,22:40:13
01010972OA02070D9D 0949445330303030313
03E5
1010
1010
11000200000114
1101045600016D
17004944533030303031303030363030249445
140115
00
Begin session
1300000A00708D (After select the goods)
00
Aprove Vend
1302007085
130417
00
140115
End Session
Monitor Sent Commands
POS: Begin Session(0x03, 0x00, 0x14, 0x17)
POS: Approve Vend(0x05,0x05)
POS: End Session(0x07,0x07)
(1) Begin Session
(2) Approve Vend
(3) Deny Vend
(4) Request End Session
(5) End Session
Reset
Reader Configuration Level 1
Clear Screen
Port Control
Port Status
Connected
Open Port
Close Port
9600
COM2
Exit Program
Every time , must start from " Begin session" and End with "End Session "

10. What is waferstar SDK included:
    (1) Two sets Pi2MDB adapter box
    (2) MDB Test Tools
    ------- Following service don't included in the normal order
    (3) Two sets Good quality USB to RS232 adapter cable (For MDB-USB box sets don't include this. Because MDB-USB is already USB interface)
    (4) Source code of WAFER MDB Test Tools
    (5) Wafer MDB protocol technical support and Easy understanding help
    (6) Ultimately technical supported until the project succeeds
    (7) MDB adapter simulate MDB coin acceptor or MDB bill acceptor supported
    (This is very important when some vending machine don't support MDB cashless device interface)

11. Check how to use at youtube:
https://www.youtube.com/watch?v=afq4uCf59Ac

12. Where can download the USB driver ?
http://www.ftdichip.com/Drivers/VCP.htm

13. How can I get the fast technical service ?
Online service skype: wafer-service

For example,Customer select and buy a product from the vending machine and Vending machine dispense the product

1. PC Send the Credit Funds Available (Scaled) to VMC (For example 03FFFF01)
   Just use the maximum credit value would be okay
2. User Select the product (For example NO.11 product was selected)
   (No data send to PC)
3. VMC then send the Vend Request to PC
   13000064000B82
   Note the PC,NO.11 product was selected and also the price is 1.00 (64H Scaled to 1.00)
4. If PC reply with 05006469
   Just tell the VMC,that Vend Approved and Confirmed the last credit would be deducted from the buyer's account.
   This may not match the amount specified in the VEND REQUEST command; it may be surcharged or discounted.
5. VMC will dispense the product and send the VEND SUCCESS to reader
   1302000B20
6. VMC will also send the command 130417 to inform the Session Complete
7. PC must reply with 0707 to end the Session

For example,Customer select and buy a product from the vending machine,but The PC denied the select vend

1. PC Send the Credit Funds Available (Scaled) to VMC (For example 03FFFF01)
2. User Select the product (For example NO.11 product was selected)
   (No data send to PC)
   Just use the maximum credit value would be okay
3. VMC then send the Vend Request to PC
   13000064000B82
   Note the PC,NO.11 product was selected and also the price is 1.00 (64H Scaled to 1.00)
4. At this step,PC can deny the Vend and Reply with 0606
   Just tell the VMC,that Vend was denied
5. VMC will not dispense the product and send the command 130417 to inform the Session Complete
6. PC must reply with 0707 to end the Session