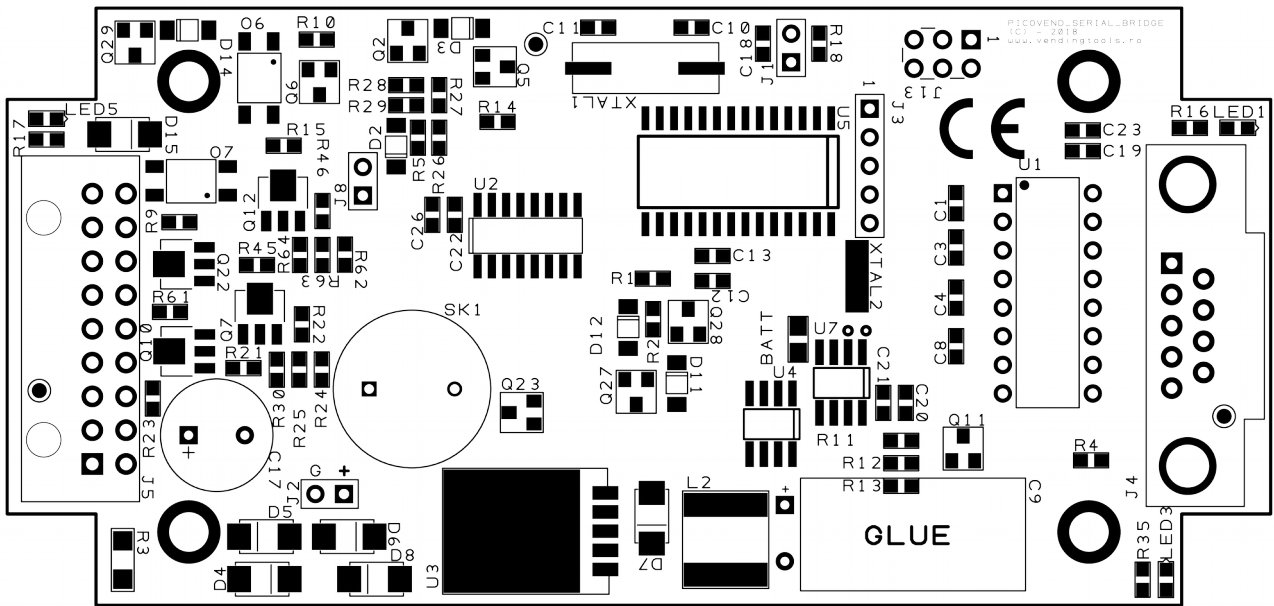


**PICOBIDGE RS232
(MDB slave mode)
v06.05.2018**

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I. Hardware overview



2. Connectors description

- J5 – see table below

Pin no.	Pin description	Function details
1	AC power IN	AC power IN – only for Executive bridge and MDB master mode
2	AC power IN	AC power IN – only for Executive bridge and MDB master mode
3	24VDC power IN/OUT	MDB slave power input
4	GND	GND
5	GND	Signal GND for MDB master mode
6	Master RX	MDB master mode RX
7	GND	GND
8	Master TX	MDB master mode TX
9	GND	GND
10	Executive RX	Executive to MDB bridge mode – Executive RX
11	GND	GND
12	Executive TX	Executive to MDB bridge mode – Executive TX
13	GND	GND
14	MDB slave TX	MDB slave mode TX
15	GND	GND
16	MDB slave RX	MDB slave mode RX
17	Signal GND	MDB slave mode signal GND
18	Master wake	Not implemented in this firmware version (battery mode MDB payment systems wake signal)

- J1 – working mode change jumper
- J8 – when installed, enables MDB sniffer
- J4 – RS232 DB9 female connector. You need a straight cable or you can connect

an USB to RS232 cable. Please make sure your USB to RS232 cable/converter can correctly handle hardware flow (RTS/CTS). Best results were obtained using FTDI based cables/converters and PL2303 based cables/converters. Please check our demo application to see the correct RTS/CTS handling.

3. General description

You do not need to perform any settings on the INTERFACE, neither hardware or software.

This interface can be only used to act as a cashless device (card payments, SMS payments, etc.).

Also, the interface is actively sniffing the MDB bus to catch the entire communication between VMC and the cash payment systems (bills and coins). There are some internal counters that are accumulating the cash inserted (coins and bills) and the change returned (coins). Those counters are accessible for read by the MDBCashlessGetStat command (see reference below) and can be used for some sort of telemetry systems (there is also a reporting system that sends out on the serial port every selection on cash transactions – if the machine has the software implementation for MDB cashless cash vend messages). For security reasons, cash counter and change counter are not writable so, nobody can modify those counters. Their width is 32bit and they are automatically rollover on 0xFFFFFFFF.

The interface is managing the 9th bit and the time critical response messages for the VMC and you only need to send some simple command.

The interface is emulating a Level 2 cashless device.

For compatibility reasons, we kept the protocol compatibility with PICOVEND GIGA (Raspberry Pi based device). Due to some missing electronic circuits on PICOBRIDGE, some of the variables in various messages will have fixed values (usually 0). Of course, porting an application from PICOBRIDGE to PICOVEND GIGA also needs to modify RTS/CTS manipulation procedures, since PICOVEND GIGA is using 2 x GPIO pins to emulate hardware flow control.

II. Serial communication configuration

The interface has a low level protocol and we are also offering a small daemon application (written with Python 3 and tested with PySerial versions 3.0.1, 3.2.4 and 3.3). You can use this daemon to connect your application simply by using a socket or as an example for your low level development, if you need to directly send commands to the serial port.

You must set the serial interface with the following parameters:

- baudrate – 115200bps;
- data bits – 8;
- stop bits – 1;
- parity – NONE;
- hardware flow control (RTS/CTS)

ATTENTION!!! - MDB CRC calculation

MDB CRC is the CRC calculated according to MDB specifications, by cumulating the value of messages bytes from the first one to the last one and taking the low byte of the sum. For example, if you send and MDBCashlessBeginSession to the interface, with a value of EUR1.50 (decimal 150) with media ID 0xF0F0F0F0:

- 0x03 0x00 0x96 0xF0 0xF0 0xF0 0xF0 0x00 – the CRC is calculated by the following formula:
- $SUM = 0x03 + 0x00 + 0x96 + 0xF0 + 0xF0 + 0xF0 + 0xF0 + 0x00 = 0x0459$
- $CRC = LO(SUM) = 0x59$

III. Low level communication protocol using direct serial connection

1. Cashless begin session

<COMMAND>	<PARAMETERS>
0x03	<ul style="list-style-type: none">- Byte 1 – scaled value of available funds (hi)- Byte 2 – scaled value of available funds (lo)- Byte 3 → Byte 6 – media ID (according to MDB specifications)- Byte 7 – Payment type (according to MDB specifications)- Byte 8 → Byte 9 - Payment data (according to MDB specifications)- Byte 10 – MDB CRC
INTERFACE answer	
<ul style="list-style-type: none">- 0xFC 0xFC 0xFC 0xFC 0xFC 0xFC - ACK – command success- 0xFD 0xFD 0xFD 0xFD 0xFD 0xFD – NACK – command failed	

2. Cashless cancel session

<COMMAND>	<PARAMETERS>
0x04	<ul style="list-style-type: none">- Byte 1 – MDB CRC – always 0x04 for this command
INTERFACE answer	
<ul style="list-style-type: none">- 0xFC 0xFC 0xFC 0xFC 0xFC 0xFC - ACK – command success- 0xFD 0xFD 0xFD 0xFD 0xFD 0xFD – NACK – command failed	

3. Vend denied

<COMMAND>	<PARAMETERS>
0x06	<ul style="list-style-type: none">- Byte 1 – MDB CRC – always 0x06 for this command
INTERFACE answer	
<ul style="list-style-type: none">- 0xFC 0xFC 0xFC 0xFC 0xFC 0xFC - ACK – command success- 0xFD 0xFD 0xFD 0xFD 0xFD 0xFD – NACK – command failed	

4. Vend approved

<COMMAND>	<PARAMETERS>
0x05	<ul style="list-style-type: none">- Byte 1 – scaled value of the product price (hi)- Byte 2 – scaled value of the product price (lo)- Byte 3 – MDB CRC
INTERFACE answer	
<ul style="list-style-type: none">- 0xFC 0xFC 0xFC 0xFC 0xFC 0xFC - ACK – command success- 0xFD 0xFD 0xFD 0xFD 0xFD 0xFD – NACK – command failed	

5. Revalue approved

<COMMAND>	<PARAMETERS>
0x0D	- Byte 1 – MDB CRC (0x0D)
INTERFACE answer	
- 0xFC 0xFC 0xFC 0xFC 0xFC 0xFC - ACK – command success	
- 0xFD 0xFD 0xFD 0xFD 0xFD 0xFD – NACK – command failed	

6. Revalue denied

<COMMAND>	<PARAMETERS>
0x0E	- Byte 1 – MDB CRC (0x0E)
INTERFACE answer	
- 0xFC 0xFC 0xFC 0xFC 0xFC 0xFC - ACK – command success	
- 0xFD 0xFD 0xFD 0xFD 0xFD 0xFD – NACK – command failed	

7. Get status

<COMMAND>	<PARAMETERS>
0xFB	Byte 1 – MDB CRC – always 0xFB for this command
INTERFACE answer	
<ul style="list-style-type: none">- Byte 1 → Byte 4 – cash counter (non-volatile lifetime accumulated sniffed cash, bill and coins)- Byte 5 → Byte 8 – change counter (non-volatile lifetime accumulated change, coins)- Byte 9 – cashless stage with one of the following values:<ul style="list-style-type: none">- 0x00 – beginning- 0x01 – setup config data- 0x02 – max/min prices- 0x03 – just reset- 0x04 – vend request- 0x05 – vend cancel- 0x06 – vend success- 0x07 – vend failure- 0x08 – session complete- 0x09 – disabled- 0x0A – enabled- 0x0B – cancel from VMC- 0x0C – entry request- 0x0D – expansion request ID- 0x0E – revalue request- 0x0F – revalue limit request- Byte 10 – cashless current settings - scaling factor- Byte 11 – cashless current settings – decimal places- Byte 12 → Byte 13 – cashless current settings – country code- Byte 14 – cashless current settings – options byte<ul style="list-style-type: none">- b0 – if set – the interface is reporting to the vending machine that it supports revalue options (recharge customer's account if a session is open and some cash is inserted by the customer)- b1 – if set – the interface is capable to support multivend transactions, if cleared, the interface will not support multivend transactions- b2 – not used – always 0- b3 – if set – the interface accepts cash vending reporting from the vending machine (each coin/bill cashed from the customers is reported to the interface)- b4-b7 – not used – always 0- Byte 15 – always 0, kept for PICOVEND GIGA compatibility- Byte 16 – always 0, kept for PICOVEND GIGA compatibility- Byte 17 → Byte 20 – available change in the coin changer (value). The interface captures the tube status messages from VMC to the coin changer and extracts the total value of the coins in the coin changer.- Byte 21 – Feature level – always 2 for this version- Byte 22 – Optional feature bits – reserved for future development – always 0 for this version- Byte 23 – VMC feature level- Byte 24 – Number of columns on the machine's display- Byte 25 – Number of row on the machine's display- Byte 26 – VMC display info<ul style="list-style-type: none">- 0b00000000 = Numbers, upper case letters, blank and decimal point- 0b00000001 = Full ASCII- other value = unknown- Byte 27 → Byte 28 – always read 0 (kept for PICOVEND GIGA compatibility – temperature register)- Byte 29 → Byte 40 – device serial number (ASCII of serial number hex bytes)- Byte 41 – MDB CRC	

8. Interface reset

<COMMAND>	<PARAMETERS>
0xFE	- Byte 1 – 0x01 - byte 2 – MDB CRC – always 0xFF for this command – will put the interface in 0 stage mode and force the VMC to initialize it again.
INTERFACE answer	
- 0xFC 0xFC 0xFC 0xFC 0xFC 0xFC - ACK – command success - 0xFD 0xFD 0xFD 0xFD 0xFD 0xFD – NACK – command failed	

9. Set country code

<COMMAND>	<PARAMETERS>
0xFE	- Byte 1 – 0x02 - Byte 2 – country code hi byte - Byte 3 – country code lo byte - Byte 4 – MDB CRC Requires Interface reset command after modifying country code
INTERFACE answer	
- 0xFC 0xFC 0xFC 0xFC 0xFC 0xFC - ACK – command success - 0xFD 0xFD 0xFD 0xFD 0xFD 0xFD – NACK – command failed	

10. Set scaling factor

<COMMAND>	<PARAMETERS>
0xFE	- Byte 1 – 0x03 - Byte 2 – scaling factor (usually 10, but if your application requires 0.01 resolution, then you can set this parameter to 1) - Byte 3 – MDB CRC Requires Interface reset command after modifying scaling factor
INTERFACE answer	
- 0xFC 0xFC 0xFC 0xFC 0xFC 0xFC - ACK – command success - 0xFD 0xFD 0xFD 0xFD 0xFD 0xFD – NACK – command failed	

11. Set options byte

<COMMAND>	<PARAMETERS>
0xFE	<ul style="list-style-type: none"> - Byte 1 – 0x04 - Byte 2 – options byte with the following bit values <ul style="list-style-type: none"> • bit 0 – if set (1) then the interface will accept revalue instructions from the vending machine and send an unsolicited message with the revalue amount, for every coin or bill inserted by the customer while a session is opened. This depends, also, by the VMC settings and features. • bit 1 – if set (1) then the interface will accept multivend transactions • bit 2 – reserved, must be 0 • bit 3 – if set (1) then the interface will report any cash sale (price and product number, by an unsolicited message). This depends, also, by the VMC settings and features. • Bit 4-7 – reserved, must be 0. - Byte 3 – MDB CRC <p style="color: red; margin-top: 5px;">Requires Interface reset command after modifying options byte</p>
INTERFACE answer	
<ul style="list-style-type: none"> - 0xFC 0xFC 0xFC 0xFC 0xFC 0xFC - ACK – command success - 0xFD 0xFD 0xFD 0xFD 0xFD 0xFD – NACK – command failed 	

12. Set decimal places

<COMMAND>	<PARAMETERS>
0xFE	<ul style="list-style-type: none"> - Byte 1 – 0x05 - Byte 2 – decimal places – it must match the settings on the vending machines - Byte 3 – MDB CRC <p style="color: red; margin-top: 5px;">Requires Interface reset command after modifying decimal places</p>
INTERFACE answer	
<ul style="list-style-type: none"> - 0xFC 0xFC 0xFC 0xFC 0xFC 0xFC - ACK – command success - 0xFD 0xFD 0xFD 0xFD 0xFD 0xFD – NACK – command failed 	

13. Set RTC (date and time on the board)

<COMMAND>	<PARAMETERS>
0xFE	<ul style="list-style-type: none"> - Byte 1 – 0xFE - Byte 2 - 0x06 - Byte 3 – hour (number – 0 to 23) - Byte 4 – minute (number – 0 to 59) - Byte 5 – second (number – 0 to 59) - Byte 6 – day (number – 1 to 31) - Byte 7 – month (number – 1 to 10) - Byte 8 – year (number – 0 to 99) - Byte 9 – day of the week (number 1 to 7) - Byte 10 – MDB CRC
INTERFACE answer	
<ul style="list-style-type: none"> - 0xFC 0xFC 0xFC 0xFC 0xFC 0xFC - ACK – command success - 0xFD 0xFD 0xFD 0xFD 0xFD 0xFD – NACK – command failed 	

14. Get RTC (date and time from the board)

<COMMAND>	<PARAMETERS>
0xFE	<ul style="list-style-type: none"> - Byte 1 – 0xFE - Byte 2 - 0x0A - Byte 3 – MDB CRC
INTERFACE answer	
<ul style="list-style-type: none"> - Byte 1 – 0xFE - Byte 2 – 0x0A - Byte 3 – hour (number – 0 to 23) - Byte 4 – minute (number – 0 to 59) - Byte 5 – second (number – 0 to 59) - Byte 6 – day (number – 1 to 31) - Byte 7 – month (number – 1 to 10) - Byte 8 – year (number – 0 to 99) - Byte 9 – day of the week (number 1 to 7) - Byte 3 – MDB CRC 	

15. Enable/Disable extended reporting

<COMMAND>	<PARAMETERS>
0xFE	<ul style="list-style-type: none"> - Byte 1 – 0xFE - Byte 2 - 0x0D - Byte 3 – if 0x01, then the device will collect and instantly report any bill or coin status change, like busy, coin jam, bill jam, etc. Please check MDB documentation for possible values of bill and coin status reporting byte on poll. - Byte 4 – MDB CRC <p>After enabling this function, the device will sniff and transmit all coin or bill poll answers that includes change (for example, a bill or coin jam, a bill or coin return/reject, etc.)</p> <p>Messages are sent in the following format: <poll message from VMC> + <poll answer from peripheral></p> <p>For example: 0x33 0x33 0x01 0x0b 0x0b 0x7d means, as follows:</p> <ul style="list-style-type: none"> - 0x33 0x33 – VMC bill validator poll - 0x01 – the length of the MDB poll answer received from peripheral - 0x0b – the bill status received from peripheral (in this case 0b00001011 means bill rejected) - 0x0b – CRC of the original peripheral answer - 0x7d – CRC of the device message (calculated using same procedure used for MDB, in this case: 0x33 + 0x33 + 0x01 + 0x0b + 0x0b = 0x007d, where lower byte is 7d) <p>Please check official MDB manual to parse this message.</p> <p>Note – because messages from peripherals can come very fast, following device status changes, this unsolicited message may contain concatenated informations. For example, you may receive a message like this: 0x33 0x33 0x01 0x0b 0x0b 0x7d 0x33 0x33 0x01 0x00 0x67, where the red part means “bill rejected” and the green part means “bill validator OK”.</p>
INTERFACE answer	
<ul style="list-style-type: none"> - 0xFC 0xFC 0xFC 0xFC 0xFC 0xFC - ACK – command success - 0xFD 0xFD 0xFD 0xFD 0xFD 0xFD – NACK – command failed 	

16. Unsolicited message – cash received

<COMMAND>	<PARAMETERS>
None	None – this message comes anytime the VMC is receiving some cash
INTERFACE answer	
- Byte 0 – 0xFA - Byte 1 → Byte 4 – scaled value of received cash - Byte 5 – MDB CRC (bytes XOR from B0 to B4)	

17. Unsolicited message – cashless status

<COMMAND>	<PARAMETERS>
None	None – this message comes anytime the VMC is receiving some cash
INTERFACE answer	
- Byte 0 – 0x14 - Byte 1 – cashless status, with the following values: <ul style="list-style-type: none">- 0x00 – cashless disabled- 0x01 – cashless enabled- 0x02 – cashless cancel - Byte 2 – MDB CRC	

18. Unsolicited message – vend

<COMMAND>	<PARAMETERS>
None	None – this message comes anytime the VMC is receiving some cash
INTERFACE answer	
- Byte 0 – 0x13 - always <ul style="list-style-type: none">- if Byte 1 == 0x00 – vend request<ul style="list-style-type: none">- Byte 2 → Byte 3 – selected product scaled value- Byte 4 → Byte 5 – item number (selection/line number)- Byte 6 – MDB CRC- if Byte 1 == 0x01 – vend cancel<ul style="list-style-type: none">- Byte 2 – MDB CRC- if Byte 1 == 0x02 – vend success<ul style="list-style-type: none">- Byte 2 – Byte 3 – Item ID- Byte 3 – MDB CRC- if Byte 1 == 0x03 – vend failure (the VMC could not deliver the product)<ul style="list-style-type: none">- Byte 2 – MDB CRC- if Byte 1 == 0x04 – session complete<ul style="list-style-type: none">- Byte 2 – MDB CRC- if Byte 1 == 0x05 – cash sale reported to cashless device<ul style="list-style-type: none">- Byte 2 → Byte 3 – scaled value of received cashless- Byte 4 → Byte 5 – item number (selection/line number)- Byte 6 – MDB CRC	

19. Unsolicited message – revalue

<COMMAND>	<PARAMETERS>
None	None – this message comes anytime the VMC is receiving some cash and a session is opened. The cash amount will be reported and added to the total amount available on cashless support.
INTERFACE answer	
<ul style="list-style-type: none">- Byte 0 – 0x15- Byte 1 – 0x00- Byte 2 – Scaled revalue amount (HI)- Byte 3 – Scaled revalue amount (LO)- Byte 4 – MDB CRC	

20. Unsolicited message – cash sale

<COMMAND>	<PARAMETERS>
None	None – this message comes anytime the VMC successfully dispensed a product using cash only.
INTERFACE answer	
<ul style="list-style-type: none">- Byte 0 – 0x13- Byte 1 – 0x05- Byte 2 – Scaled product's price (HI)- Byte 3 – Scaled product's price (LO)- Byte 4 – Product number (HI)- Byte 5 – Product number (LO)- Byte 4 – MDB CRC	

IV. High level protocol, using Python 3 daemon

To use this mode, you need the following:

- install Python 3 on your computer;
- install pip3;
- tested with PySerial 3.0.1 and PySerial 3.4 so, install one of those 2 versions;
- download and run the Python script from our website.
- open a new console and run telnet on localhost, port 5126
- in the telnet window start sending commands to the device.

1. MDBCashlessBeginSession(AAA,BBB,CCC,DDD)

<COMMAND>	<PARAMETERS>
MDBCashlessBeginSession(AAA,BBB,CCC,DDD)	<ul style="list-style-type: none">- AAA is the value of the credit you need to send to MDB machine, scaled by scaling factor- BBB is the media ID (card ID an integer positive value)- CCC is type ID (according to MDB specifications, usually 0)- DDD is payment data (according to MDB specifications, usually 0). For example, if you need to send 1EUR, the AAA should be 100 and if you want to send 3.20EUR, you must set AAA to 320. This command is corresponding to the MDB low level message "Begin session".
INTERFACE answer	
{"MDBCashlessBeginSession": "320"} – on success {"MDBCashlessBeginSession": "-1"} – on failure	

2. MDBCashlessVendDenied

<COMMAND>	<PARAMETERS>
MDBCashlessVendDenied	No parameters
INTERFACE answer	
{"MDBCashlessVendDenied": "0"} – on success {"MDBCashlessVendDenied": "-1"} – on failure	

3. MDBCashlessCancelSession

<COMMAND>	<PARAMETERS>
MDBCashlessCancelSession	No parameters
INTERFACE answer	
{"MDBCashlessCancelSession": "0"} – on success {"MDBCashlessCancelSession": "-1"} – on failure	

4. MDBCashlessVendApproved

<COMMAND>	<PARAMETERS>
MDBCashlessVendApproved(AAA)	- AAA is the sale value approved for selected item. It can be higher or lower than item's price received in the vend request from the machine.
INTERFACE answer	
<p>{ "MDBCashlessVendApproved": "100" } – on a successfully received command, acknowledged by the vending machine, where the value should match the parameter AAA in the command</p> <p>{ "VMCResponse" : "VendSuccess", "ProductID" : "1" } - this is an answer that machines are sending and this depends on the VMC settings. Some machines are sending this immediately while other machines are sending it after they have confirmation from their sensors.</p> <p>{ "VMCResponse" : "VendFailed" } – this is an answer that VMC is sending when the transaction fails. Your application should consider to refund the product price to the user's account.</p> <p>{ "VMCResponse" : "SessionComplete" } – this is an answer from VMC ending the transaction.</p>	

5. MDBCashlessRevalueApproved

<COMMAND>	<PARAMETERS>
MDBCashlessRevalueApproved	No parameter
INTERFACE answer	
<p>{ "MDBCashlessRevalueApproved": "0" } – on success</p> <p>{ "MDBCashlessRevalueApproved": "-1" } – on failure</p>	

6. MDBCashlessRevalueDenied

<COMMAND>	<PARAMETERS>
MDBCashlessRevalueDenied	No parameter
INTERFACE answer	
<p>{ "MDBCashlessRevalueDenied": "0" } – on success</p> <p>{ "MDBCashlessRevalueDenied": "-1" } – on failure</p>	

7. MDBCashlessGetStat

<COMMAND>	<PARAMETERS>
MDBCashlessGetStat	No parameter
INTERFACE answer	
<p>The answer contains the following variables:</p> <ul style="list-style-type: none">- "MDBCashlessStatus": "8" - numerical cashless status- "MDBCashlessHuman": "Session complete" – human readable cashless status- "MDBCashSniff": "700" – total value of cash inserted into the vending machine (coins and bills). This is a lifetime counter, and is not accessible for writing.- "MDBChangeSniff": "0" – total value of coins returned by the vending machine at the transaction end. This is a lifetime counter and is not accessible for writing.- "MDBCashlessScalingFactor": "1" – cashless device scaling factor.- "MDBCashlessDecimalPlaces": "2" – cashless device decimal places.- "MDBCashlessCountryCode": "040" – cashless device country code.- "MDBCashlessCashSaleSubcmd": "True" – cashless device is configured to support Cash Sale subcommand- "MDBCashlessAcceptRevalue": "True" – cashless device is configured to support revalue.- "MDBCashlessButton1Counter": "0" – always 0, kept for compatibility with PICOVEND GIGA device- "MDBCashlessButton2Counter": "0" - always 0, kept for compatibility with PICOVEND GIGA device- "MDBAvailableChange": "0" – available change value in the coin changer.- "MDBCashlessFeatureLevel": "2" – cashless feature level. Always 2 for this version.- "MDBCashlessOptionalFeatureBits": "0" – Cashless optional features bits. Always 0 for this version.- "MDBVMCFeatureLevel": "2" – Vending machine feature level (reported by the VMC)- "MDBVMCLCDColumns": "0" – Vending machine LCD columns number- "MDBVMCLCDRows": "0" – Vending machine LCD rows number- "MDBVMCLCDType": "Limited" – Vending machine LCD type- "MDBCurrentTemperature": 0.0 – always 0.0 – kept for compatibility with PICOVEND GIGA- "MDBCashlessSerialNumber": "5410eca24045"} – device serial number. This is a hex number (for this example, 0x54 0x10 0xec 0xa2 0x40 x045). You need to supply this serial number for each device in case you need a firmware update. Each firmware must be loaded in its matching device. Loading firmware in a wrong device will make it stop working.	

8. MDBCashlessReset

<COMMAND>	<PARAMETERS>
MDBCashlessCashlessReset	No parameter
INTERFACE answer	
{ "MDBCashlessCashlessReset": "0" } – on success { "MDBCashlessCashlessReset": "-1" } – on failure	

9. MDBCashlessSetCountryCode(NNNN)

<COMMAND>	<PARAMETERS>
MDBCashlessSetCountryCode(NNNN)	- "NNNN: decimal translation of the ISO country code.
INTERFACE answer	
{ "MDBCashlessSetCountryCode": "NNNN" } – on success { "MDBCashlessCancelSession": "-1" } – on failure	

10. MDBCashlessSetScalingFactor(N)

<COMMAND>	<PARAMETERS>
MDBCashlessSetScalingFactor(N)	- "N" is the desired scaling factor. You need to issue a reset command after changing this parameter, to allow VMC to reconfigure, too. Default value is 1 and it should be fine for EURO zone.
INTERFACE answer	
{ "MDBCashlessSetScalingFactor": "N" } – on success { "MDBCashlessSetScalingFactor": "-1" } – on failure	

11. MDBCashlessSetOptions(N)

<COMMAND>	<PARAMETERS>
MDBCashlessSetOptions(N)	<p>- "N" is the desired options byte You need to issue a reset command after changing this parameter, to allow VMC to reconfigure, too. Depending on the value of the bits in option byte, you can enable/disable some functions as follows:</p> <ul style="list-style-type: none"> - bit 0 – if set (1) then the interface will accept revalue instructions from the vending machine and send an unsolicited message with the revalue amount, for every coin or bill inserted by the customer while a session is opened. This depends, also, by the VMC settings and features. - bit 1 – if set (1) then the interface will accept multivend transactions - bit 2 – reserved, must be 0 - bit 3 – if set (1) then the interface will report any cash sale (price and product number, by an unsolicited message). This depends, also, by the VMC settings and features. - bit 4-7 – reserved, must be 0. <p>ATTENTION! Setting this byte with incorrect values may put the device or the vending machine in "Out of order" state.</p>
INTERFACE answer	
<pre>{ "MDBCashlessSetOptions": "N" } – on success { "MDBCashlessSetOptions": "-1" } – on failure</pre>	

12. MDBCashlessSetDecimalPlaces(N)

<COMMAND>	<PARAMETERS>
MDBCashlessSetScalingFactor(N)	<p>- "N" is the desired decimal places (digits after decimal point). You need to issue a reset command after changing this parameter, to allow VMC to reconfigure, too. Default value is 1 and it should be fine for EURO zone.</p>
INTERFACE answer	
<pre>{ "MDBCashlessSetDecimalPlaces": "N" } – on success { "MDBCashlessSetDecimaPlaces": "-1" } – on failure</pre>	

13. MDBSetRTC(h,m,s,d,M,y,wd)

<COMMAND>	<PARAMETERS>
MDBSetRTC(h,m,s,d,M,y,wd)	Set device internal RTC date/time - h = hour (must be in 24h format only) – 0-23 - m = minute – 0-59 - s = second – 0-59 - M = month – 1-12 - y = year - 00-99 - wd = week day – 1-7 (1 for Sunday, 2 for Monday, etc.)
INTERFACE answer	
{"MDBSetRTC": "N"} – on success {"MDBSetRTC": "-1"} – on failure	

14. MDBGetRTC

<COMMAND>	<PARAMETERS>
MDBGetRTC	No parameters
INTERFACE answer	
{"DeviceMessage": "RTCGet", "TimeStamp": [12,21,42,31,7,99,7]}	

15. Bye

<COMMAND>	<PARAMETERS>
Bye	No parameters
INTERFACE answer	
No answer - this command will stop the daemon, and this will terminate with exitcode 0. The socket will be closed and the daemon will end it's execution.	

16. Unsolicited messages

The daemon can send one or more of these messages, depending on machine's configuration and/or software implementation:

{"CashInput" : "900"} – the value of the general cash counter. It is incremented and it will be sent on each cash input (coin and bill)

{"CashSale" : "Success", "ProductID" : "10", "ProductPrice" : "100"} – this message will be received if the machine can report cash sales to a cashless device. This message will be sent on each cash sale, with the ID and the value of the selected product. The value is also scaled by scaling factor.

{"CashlessStatus" : "Enabled"} – this message will be received if the machine is sending "enable" command to the interface. Any command related to a session will be accepted by the VMC only when the interface was enabled.

{"CashlessStatus" : "Disabled"} – this message will be received if the machine is sending "disable" command to the interface. Any command related to a session will be ignored by the VMC after disabling the interface.

{"CashlessStatus" : "Cancel"} – this message will be received if the machine is sending "cancel" command to the interface. This means that the machine ends the transaction and therefore, the interface has closed the current cashless session. Another session is required to raise a credit to the machine.

{"CashlessOperation" : "CashlessRevalue", "Value" : "500"} – this message is sent by the interface every time a coin or a bill is accepted by the vending machine and a cashless session is opened. This can be used to recharge the cashless account. "Value" is the value of the last coin or bill inserted by the customer. When you want to stop recharging, simply close the session. The user's application is responsible to accumulate and calculate the total credit as a result of a revalue transaction.

{"IOEvent": "Button", "ButtonNumber": "1", "ButtonCounter": "18"} – this message is sent by the interface every time a button is pressed. <ButtonNumber> can have values of 1 or 2 and <ButtonCounter> from 1 to 255, indicating how many times the button was pressed. The counter will be reset on every reboot.

When extended reporting is enabled, you can receive messages like **{"BillStatus" : "BillRejected"}**. Status can have various values ("ValidatorOK", "DefectiveMotor", "SensorProblem", "ValidatorBusy", "ROMChkError", "ValidatorJam", "ValidatorReset", "BillRemoved", "CashboxRemoved", "ValidatorDisabled", "InvalidEscrowRequest", "BillRejected", "PossibleBillRemoval")

For coins, those values could be: "CoinAcceptorOK", "ChangeRequest", "ChangerPayoutBusy", "NoCredit", "DefectiveTubeSensor", "DoubleArrival", "AcceptorUnplugged", "TubeJam", "ROMChecksumError", "CoinRoutingError", "ChangeBusy", "ChangeWasReset", "CoinJam", "PossibleCoinRemoval"

NOTES: