

CT3

The Vending Tester PRO

Instruction Manual



Version 1.6
For use in North America



SMART MONEY SYSTEM I

Last revision: April 2012

CT3

COIN CHANGER AND BILL VALIDATOR TESTER *plus* VENDING SIMULATION

Tools for the PRO



EBVM



**Serial
printer**



**SD-1
Stand**

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Introduction

Thank you for purchasing The Vending Tester Pro CT3. This tester will enable you to test and repair many types of coin changers and bill acceptors, and even some cashless devices. It can test the following:

- 120-volt single price coin mechanism
- Logic 24 & 117 VDC coin mechanism (*a.k.a. Micromech or Dumb Mech*)
- MDB coin mechanism having up to 7 tubes of change
- MDB bill acceptors
- MDB Cashless devices (may not be able to test all makes)

With the addition of the optional External Bill Validator Module (EBVM), you can test:

- 24-volt pulse type bill validator
- 120-volt pulse type bill validator

The 2-line, 20-character LCD display will give you in depth information on the status of the tested device plus a step-by-step procedure.

Even though The Vending Tester is protected against some short circuits, it is strongly recommended to check all devices to be tested with an ohmmeter before plugging it to the tester so that no damages occur to the CT3.

The Vending Tester will allow you to save a lot of money in repairs and will pay for itself within weeks from purchasing. We are confident that The Vending Tester CT3 will soon be one of those tools that you just cannot live without it.

The “Cannot Test” list

The CT3 Vending Tester PRO cannot test devices using the following protocols:

- BDV
- Executive
- Four-price
- Multi-price
- Single-price 24 volts
- Ten-price

What the CT3 does

Although there is a simulator function, The Vending Tester CT3 will not simply act like a vending machine in normal operation; it goes much deeper. It enables you to check all the functions of your devices. To do so, it will not perform a simple sale. It will take all the messages coming from the changer, bill acceptor, and cashless system and display them on the screen. It is a fantastic tool that you will enjoy for many years to come.

On power up...

When you apply power to The Vending Tester CT3, it automatically starts a self-test to see if all the internal functions are in good order. As it performs this self-test, you can see the software version on the display of your tester, followed by the current line voltage and the mention PASSED if successful. This manual was written using firmware version 1.5.

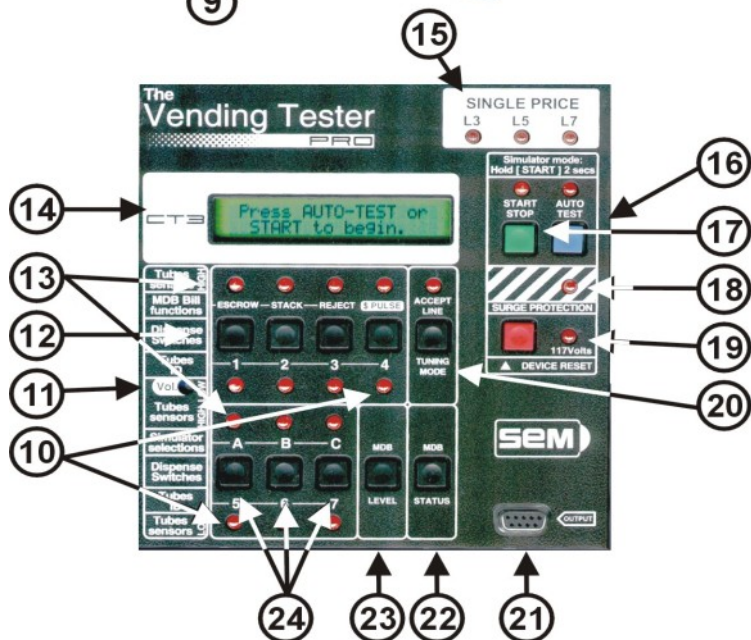
Then, the display will invite you to connect a device and press START to begin. It is now safe to plug any coin mechanism or any bill validator as no power is currently applied to any of the sockets until you press start.

Refer to the proper section of this manual for full details on how to test equipments. As there are still older equipments on the market requiring a 117-volt source, be careful to apply the proper voltage to your equipment. Failure to do so can result in serious damages to the equipment under test.

-- IMPORTANT SAFETY INSTRUCTION --

The CT3 Vending Tester PRO was designed and built for a 120-volt 60 Hz power source (Canada, USA & México). If you live in a 220-volt 50 Hz zone, you will absolutely need a voltage converter to make the CT3 work. DO NOT MODIFY THE POWER CORD TO FIT IT IN A 220-VOLT OUTLET. Applying 220 volts to the CT3 tester will instantly result in serious damages to the tester as well as being a high safety hazard to the operator. In addition, the Surge Protection function will not work adequately as it was designed for a 60 Hz frequency.

Identification of the control panel on the CT3



Identification of the control panel on the CT3

1. Logic (MicroMech) 24 –117 volts, 12-15 pins
2. Single Price 120 volts
3. Socket 1\$ pulse for single price
4. External Bill Validator Module connector
5. MDB port for coin changer, bill acceptor, and cashless
6. Power cord entrance
7. Main fuse MDL ½ amp. slow-blow
8. Main switch
9. Control panel
10. Tube low level LED
11. Volume adjustment for beeper
12. Change payout and bill validator function buttons
13. Tube high level LED
14. 2-line, 20-character LCD display
15. Single Price LEDs
16. Auto-Test button
17. Start button
18. Surge protection activated LED
19. 117 volts button & device reset
20. Accept Line and tuning mode button
21. Printer serial port (9600, N, 8, 1)
22. MDB Status button
23. MDB level button
24. Vend simulator price adjustment for each selection

Before you start testing your equipment...

The CT3 Vending Tester PRO is a highly sophisticated piece of equipment. Before applying power to a unit for testing, check the following point: **Test with an ohmmeter for potential short circuit.** Even though the CT3 has a built-in protection, repeated hook-up of short changers may result in damages to the CT3. Also, make sure you do not press on the 117-volt button when you are in fact testing a 24-volt coin changer. Pressing the 117-volt button sends that voltage to all sockets. ***Firmware version 1.5 now has a protection against accidental handling on the 117-volt button. You now have to press and hold the 117-volt button for at least two seconds before the CT3 actually sends that voltage to the sockets.***

Look for the identification label on the side of the coin changer and bill validator for the proper voltage to apply. Some MDB coin changers will mention 34 volts as their operating voltage. Using the 24-volt supply on the CT3 will be sufficient to power up any MDB devices adequately.

You are now ready to test your equipment. In the following pages, you will find different sections adapted for each type of equipment the CT3 can test. **Read them very carefully.**

Remember that the CT3 will display all messages any given unit is normally sending to the Vending Machine Controller (a.k.a. VMC). Those messages will be numerous in an MDB device while being inexistent in a Single Price coin changer and pulse type bill validator.

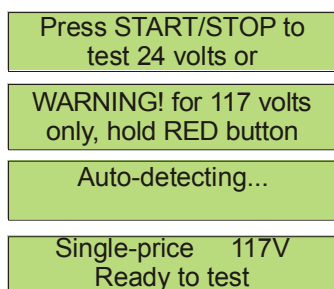


Testing a Single Price 117-volt coin changer



Testing a 117-volt Single Price coin changer is quite simple. Connect the changer in the proper socket, press on START followed by the 117-Volt red button for at least 2 seconds. Many years ago, there used to be some Single Price 24-volt changers. The CT3 cannot test those nor can it test Four-Price changers even though the connector is identical in shape.

The display will prompt you the following messages:



Two LEDs will light on the Single Price section of the CT3. Those two LEDs are: L5 and L7. LED L5, meaning Line 5, is the Exact Change indicator. If your changer is in a low tube level situation, this indicator **must** go ON. Once about 10 coins are present in each tube, the LED should go OFF. LED L7 is Line 7. Line 7 means the changer is giving power to the machine to make a selection.

Set a vend price in your changer. Insert coins. Once the vend price reached, the L7 LED will go OFF while the L3 LED will go ON briefly. This means the coin changer has sent the credit signal. In a vending machine, the credit relay would have been energized. A holding circuit would keep that credit relay energized until a selection is made by the customer. Check if the proper change was given.

Press on **Accept line** button to turn the acceptance **OFF**. Insert coins. All coins must be rejected without exception. Change the vend price and repeat the process. Check if the change given reflects the new vend price. Repeat with different vend prices.

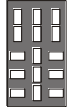
Once thoroughly tested, press on STOP before unplugging the coin changer. If you are to put this changer on a shelf for future use, place it in a plastic bag with a note that it has passed the testing adequately. You will remember it tomorrow, but certainly not in three months from now.

Special note for Canadian changers.

A Canadian coin changer will accept the one and two-dollar coins if the tube's low sensors are all covered. Otherwise, it will reject it and L5 will flash.



Testing Logic / MicroMech / Dumb Mech
coin changers
12 or 15 pins; 24 or 117 VDC



There are two ways to go through the testing of a Logic / MicroMech / Dumb Mech coin changer. If you are a vending operator without deep technical background, you may choose the AUTO-TEST function as it will take you into a step-by-step testing procedure. For the AUTO-TEST function proceed directly to page 17. If you are a qualified vending machine technician, you may prefer to use the conventional method described below.

No matter which method you choose, at the end, you will know if your changer is working fine, needs a minor repair or must be sent to a certified service centre for a more serious problem. No matter what type of device you are testing, you can only test ONE device at a time. Multiple-device testing works only in simulation mode. (See page 22)

Testing this type of coin changer requires you to be very careful, as there are two types of coin changers on the market. Look at the identification label on the side of the changer to know about the proper voltage to apply. Some changers may have lost their ID label. If it is a 15-pin plug, it means it is a 24-volt changer. If the plug is a 12-pin, it may be either a 24 or 117-volt. Press once on START. DO NOT PRESS on the 117 volts button yet. After a few seconds waiting, the CT3 will conclude the changer is a 24-volt, and will then send that voltage to the changer. If the changer really is a 24-volt, the CT3 will detect it and enter in communication with it. If the changer is indeed a 117-volt, it will not respond to the CT3 and thus will prompt *Cannot detect – Unit not responding* on the display. Repeat the process, by applying 117 volts after pressing on START. Unit should respond to the CT3. As a protection, we have added a safety feature that requires you to press the 117-volt button for at least 2 seconds before the CT3 actually sends that voltage.

Press START/STOP to
test 24 volts or

WARNING! for 117 volts
only, hold RED button

Auto-detecting...

Logic Changer 24V
Ready to test

A 24-volt changer is now
ready for test

Logic Changer 117V
Ready to test

A 117-volt changer is now
ready for test

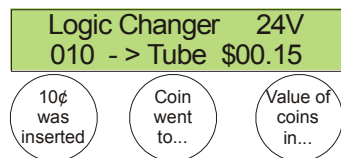
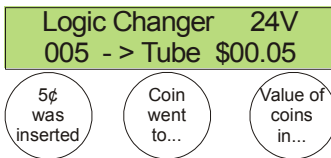
No matter the voltage of the coin changer, the messages sent to the CT3 will be the same.

Messages

Meaning...

Coin jam	The coin path is jammed in the acceptor.
Cannot detect	The vending tester cannot detect the presence of the coin changer. Check for harness damages. Check for unplugged harness inside coin changer. Maybe the changer is a 117-volts and you applied only 24.
Defective changer	The tester judges that the unit can't be tested because of a general failure inside the coin changer. Send this unit to a service center.
Device is short	The coin changer has a short circuit in it or, you sent 117 volts into a 24-volt changer. Most likely, the surge protector went on.
Double arrival	A second coin was inserted while the first was still in the analysing process.
Escrow return	The coin return lever was activated.
No strobe	Coin was accepted, but it was not detected when it went to the tubes or the cashbox.
Not accepted	The coin is valid, but was rejected usually because of the tubes status. Canadian changers will reject 1\$ and 2\$ coins if tubes are empty. It may also be a memory problem. If the coin is genuine, and if the tubes do have enough coins to enable the acceptance of all coins, it may mean the coin acceptor has totally lost its recognition capability (memory erased) and must be sent to a service center for re-programming. Canadian \$1 and \$2 coins have a different metal content since March 2012. Is your coin acceptor capable of accepting this new coin set?

Test your coin changer with many different coins, at least to cover the low sensors. Ideally, you should insert enough coins into the changer to fill the tubes to the top and then see if the extra coins go to the cashbox. (Special note for Canada: When you insert a two-dollar coin, the display will prompt that a 1\$ coin was inserted. However, note that the amount was increased by two. This is because the 2\$ signal does not exist in a Logic changer. The 1\$ signal is simply sent twice.)



One test you **MUST** also perform is to disable the ACCEPT LINE on the CT3 and insert big and small coins. All coins **MUST** be rejected when the Accept line is OFF. If it does not come out of the changer, it means the return path of the changer is jammed. Test the coin return lever as well.

Once the test is complete, it is now time to empty the tubes you just filled. Press on the corresponding button (5¢, 10¢, 25¢) to dispense from each tube. You can press more than one button at a time. The changer will dispense from all tubes. When the tubes are empty, pressing on any buttons will stop the payout.

Press STOP before unplugging the coin changer.

Once everything tested and cleaned, you can slip your coin changer in a bag, write a short memo and put that changer on a shelf.

If some components of the coin changer are defective, such as the coin acceptor or the tube sensors, you can swap some of the parts with another defective coin changer having a different problem. This way, instead of sending out two or three coin changers, you may send out only one for repair.

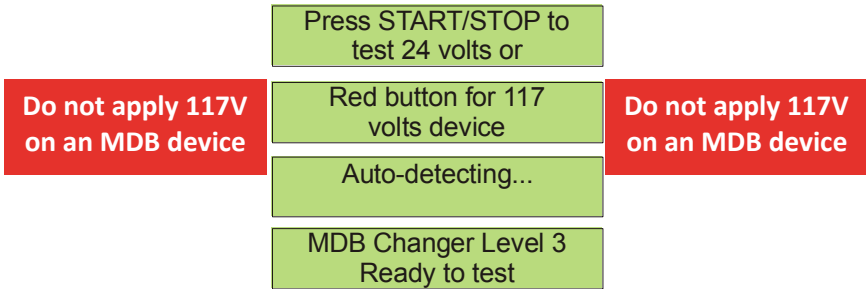


Testing an MDB coin changer, up to seven tubes of change.



Testing an MDB coin changer is basically the same as testing a Logic/ MicroMech coin changer, with the exception that the unit under test can send much more information to the CT3. The MDB port is located on the right side of the tester. It is the same port for the changer, the bill acceptor, and even the cashless device.

Press once on START. DO NOT PRESS on the 117 volts button. Press again on the same button to skip the delay. Communication will be established with the device. If the unit does not answer back within 2 minutes, the display will prompt *Cannot detect – Unit not responding*. This unit is dead, or not properly connected to the CT3.



As mentioned above, an MDB device sends more messages to the CT3. They are:

Messages

Meaning...

Acceptor unplugged	The MDB changer cannot detect its coin acceptor. Check if correctly plugged. Coin acceptor may be defective.
Cannot detect	The vending tester cannot detect the coin changer. Check for harness damages. Check for unplugged harness inside coin changer.
Changer was reset	This message is seen on power-up and when the device is being re-initialize. Pressing the red button during the test will prompt this message as well.

Defective changer	The tester judges that the unit can't be tested because of a general failure inside the coin changer. Send the unit to a service center.
Defective sensors	A high level sensor is activated while the low is not. Either a defective top sensor or a foreign object stuck at the top of the tube. A top sensor LED will go on indicating which sensor.
Device short	There is a short circuit in the unit you're testing.
Escrow return	The coin return lever was activated.
No credit	Coin accepted and directed to the tube or the cashbox. However, that coin was not detected in either place. Check for jammed path. Also check for coin sensors in acceptor.
No tube pay-out	No coin value linked to this push button. Even if the tube is present, it may have an identical value as another. In MDB mode, two 25¢ tubes will be seen as one tube. As an example, a coin changer having 1 x 5¢, 2 x 25¢, and 2 x 1\$ tubes will be seen as a three-tube changer (5¢, 25¢, & 1\$).
Pay out busy	Changer is telling the VMC it is currently dispensing.
Please wait	The tester is getting ready to do something.
ROM Checksum	The checksum of the changer does not match with its internal memory because of corrupted data. Unit must be sent to a service centre.
Routing error	A validated coin did not follow the intended route. It went to the cashbox but was meant to go the tubes or vice-versa. Check the gate in the acceptor.
Tube jam	The coin changer has detected a coin jam into the payout mechanism of one of its tubes.
Slug	Unknown coin inserted. If the coin is genuine, it means the coin acceptor has totally lost its recognition capability (memory erased) and must be sent to a service center for re-programming. Canadian \$1 and \$2 coins have a different metal content since March 2012. Is your coin acceptor capable of accepting this new coin set?

Test your changer with many different coins at least to cover the low sensors. Ideally, you should insert enough coins into the changer to fill the tubes to the top and then see if extra coins go to the cashbox.

One test you **MUST** also perform is to disable the ACCEPT LINE on the CT3 and insert big and small coins. All coins **MUST** be rejected when the accept line is OFF. If it does not come out of the changer, it means the return path of the changer is jammed. Test the coin return lever as well.

Once the test is complete, it is now time to empty the tubes you just filled. Press on the corresponding button (5¢, 10¢, 25¢, 100¢, 200¢) to dispense from each tube. You can press more than one button at a time. The changer will dispense from all tubes. Press on any of the buttons to stop the process when the tubes are empty.

Press STOP before unplugging the coin changer.

Once everything is tested and cleaned, you can slip your coin changer into a bag, write a short memo and put that changer on a shelf.

If some components of the coin changer are defective, such as the coin acceptor or the tube sensors, you can swap some of the parts with another defective coin changer with a different problem. This way, instead of sending out two or three coin changers, you may send out only one for repair.

Device Reset Button

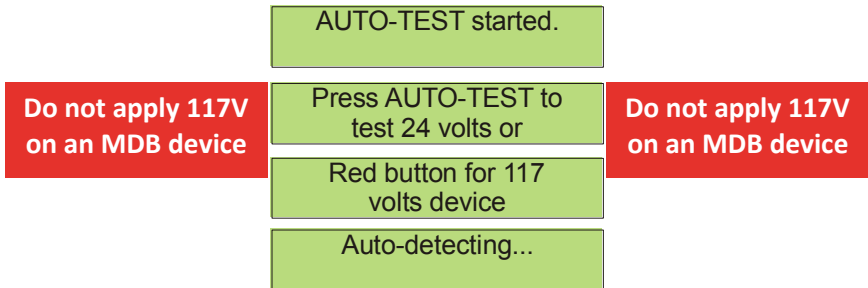
The device reset button **only** works when testing (not Auto-testing) an MDB coin changer or a Logic / MicroMech / Dumb coin changer. The Device Reset button is the red 117-volt button. When testing one of the above mentioned coin changers, the red button will send a reset signal to the coin changer. Needless to mention that you do not press on that button before the display tells you the type of changer you are currently testing. Otherwise, you will send 117 volts to the changer.

Auto-Test Function

The CT3 Vending Tester PRO is equipped with the Auto-Test function. Small vending operators who do not have a strong technical background usually use this function. This function will take you into a step-by-step sequence enabling you to test all the basic features of the coin changer.

The auto-test function will work only with Logic/MicroMech and MDB coin changer only. It will not work with bill acceptors, Single Price coin changers, or cashless devices.

Once the coin changer plugged into the proper socket (Logic or MDB), press the blue AUTO-TEST button and follow the instructions.



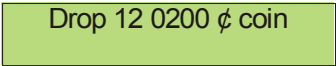
First, the CT3 will prompt you to apply the proper voltage. ONLY apply 117-volt if your coin changer is a logic/MicroMech 117-volt changer. As a protection, we have added a safety feature that requires you to press the 117-volt button for at least 2 seconds before the CT3 actually sends that voltage.

The first test the CT3 will ask you to do is pressing on the coin return lever. The coin return lever is an important part of your coin changer. It must work properly.

Then, the CT3 will prompt you to insert 12 nickels. Twelve nickels is sufficient to cover the low sensor. After that, insert 12 dimes. Repeat with 12 quarters.

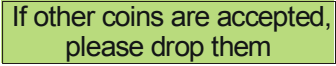
Drop 12 0005 ¢ coin

If your coin changer is an MDB, it tells the CT3, upon power-up, the coins it can accept. Therefore, the CT3 knows about it and can then prompt you to insert twelve of those coins. (in USA 1\$; in Canada 1\$ and 2\$; in México 10N\$ and 20N\$).



Drop 12 0200 ¢ coin

If your changer is Logic or MicroMech, it will not prompt you to insert those coins. The message will be:



If other coins are accepted,
please drop them

Upon insertion of the first of this type of coins, the CT3 will prompt you to insert the remaining coins of the same type. Once those coins dropped, again the CT3 will ask you the same question. If there are no other coins in your country's coin set, skip this message by pressing on the blue AUTO-TEST button.

(Special note for Canada. When you insert a two-dollar coin into a Logic changer, the display will prompt that a 1\$ coin was inserted. However, note that the amount was increased by two. This is due to the fact that the 2\$ signal does not exist in Logic changer. The 1\$ signal is simply sent twice.)

Press on AUTO-TEST again to tell the coin changer to pay out all the coins that went to the tubes. Once the payout is complete, the CT3 will inform you of the acceptance rate over the rejection rate in percentage. When you connect a serial printer to the output port of the CT3, a printed report will come out. Take this report, attach it to the changer and put it in a plastic bag.

Printed report in AUTO-TEST

If you have connected a small serial printer (9600, N, 8, 1) to the output port, a report will come out automatically. Below is an example of report coming from a Coinco Quantum 700 Series* .

CT3 Tester PRO v1,5 Test report

Device tested: MDB Changer Level 3

Information sent by the changer:

Country currency code: 0001

Coin scaling factor: 005

Decimal place: 2

Coin type credit and routing:

Coin type 00 value 0005¢ to cash box

Coin type 01 value 0005¢ to tube

Coin type 02 value 0005¢ to cash box

Coin type 03 value 0010¢ to cash box

Coin type 04 value 0010¢ to tube

Coin type 05 value 0025¢ to cash box

Coin type 06 value 0025¢ to tube

Coin type 07 value 0025¢ to cash box

Coin type 08 value 0100¢ to cash box

Coin type 09 value 0100¢ to tube

Coin type 10 value 0200¢ to cash box

Manufacturer code - CAI

Serial number: 00 36001206

Model #/tuning revision: CAQ701R01AE1

Software version: 0,08

Optional features supported:

- Alternative payout method
- Extended diagnostic command

Optional features not supported:

- Controlled manual fill/payout commands
- File transport layer (FTL)

Coins accepted: 100% Coins rejected 000%

- Escrow lever was activated
- No error message reported by the device

End of test report

** Redactor's note: SEM does not endorse, nor support any specific brand of coin changer, bill acceptor, or card reader. We took this coin changer as an example simply because it was the closest available the day we wrote this manual.*

Tuning mode and program download function.

Tuning mode

Some older changers offer you the possibility to tune them in order to improve their acceptance rate. The CT3 Vending Tester PRO offers you the possibility to do that. To activate the tuning mode, press on TUNING MODE black button BEFORE pressing on start. The display will prompt you: Tuning mode, press START/STOP to begin. Press on START. Apply 117 volts if the changer is a 117-volt.

Tuning mode, press
START/STOP to begin

Press START/STOP to
test 24 volts or

Red button for 117
volts device

Tuning mode active
Press STOP to finish

Tune your coin changer using manufacturer's instructions. Please note that not all makes of coin changers allow you to make the tuning. To exit, press STOP.

Program download function

In tuning mode, there is no communication between the CT3 and the unit. The CT3 only applies the proper power to the unit. This is necessary when you wish to download some data to the coin changer/bill acceptor through the MDB port.

Some devices are capable of receiving a new program through the MDB port. Connect the download module into the MDB port of the CT3, connect your device in the download port, press on TUNING MODE button and then on START/STOP. Wait two seconds and press again on START/STOP. **Do not apply 117 volts to an MDB device.** Follow the instructions on the download module to transfer the new firmware into the MDB device. Other modules may connect to a port on the device rather than the MDB port. Process is still the same. Once completed, press on STOP to get out of this mode.

MDB Status

The MDB status button is an interesting feature that will enable you to find the exact configuration of your coin changer * and its current level of coins in the tubes. Depending on the country configuration of the coin changer, the brand and model, the description will vary. That status report is printed when a serial printer (9600, N, 8, 1) is connected to the port. Press and hold the MDB Status button for 3 seconds.

Status report:

Changer level 3

Coin type credit and routing:

Coin type 00 value 0005¢ to tube

Coin type 01 value 0010¢ to tube

Coin type 02 value 0010¢ to cashbox

Coin type 02 value 0010¢ to cashbox

Coin type 03 value 0025¢ to tube

Coin type 04 value 0025¢ to cashbox

Coin type 05 value 0100¢ to tube

Coin type 06 value 0100¢ to cashbox

Coin type 07 value 0200¢ to tube

Coin inventory in tubes:

000 coin(s) in tube 0005¢

000 coin(s) in tube 0010¢

000 coin(s) in tube 0025¢

000 coin(s) in tube 0100¢

000 coin(s) in tube 0200¢

Optional features supported:

Alternative payout method

Extended diagnostic command

Controlled manual fill/payout command

Optional features not supported:

File transport layer (FTL)

End of status report

** Note as well that other MDB devices such as a cashless system and a bill validator will also give you information about their status. Some of those features may for example be multi-tending within a single session in the case of a cashless device or the security level of each bill type in the case of a bill acceptor.*

** Redactor's note: SEM does not endorse, nor support any specific brand of coin changer, bill acceptor, or card reader. We took this coin changer as an example simply because it was the closest available the day we wrote this manual.*

Simulator mode, MDB level, Scaling Factor & Decimal point

Simulator mode

The CT3 comes with a vend simulator. This is useful if you want to test more than one device at a time such as a coin changer and a bill acceptor and even a cashless system. The simulator mode only works with MDB devices. You cannot connect more than one identical device at a time such as two coin changers for example. The maximum set-up you can have is one coin changer, one bill acceptor, and one cashless device.

Before entering the simulator mode, you may need to program the price of your selections. The CT3 offers you three selections identified by the buttons A, B, and C.

Simulator mode
Vend price A: \$xx.xx

Simulator mode
Vend price C: \$xx.xx

Simulator mode
Vend price B: \$xx.xx

They are programmable. To view the price of each selection, simply press on the corresponding button. The display will prompt you Simulator Mode Vend Price A: \$xx.xx. Do the same for selection B and C. If you want to change the price, press and hold that selection for few seconds. The display will then prompt you **Programming: Vend Price A:** and the price will drop to \$00.00 and flash. Each time you press on the button, the price will go up by increments of 5¢. If you go over your price, press on the red button to decrease. If you want to set a very high price, press on the red button to go backward. It will be faster. Maximum is 12.75\$. Once the your price reached, press on the green or blue button. Programmed will appear on the display.

To enter the simulation mode, press and hold the START button until the display prompts you to release the button. Note that some MDB peripherals do have a long response time, longer than the timeout of the CT3. Keeping the START button depressed will disable the timeout.

** Simulator mode **
Release button

You can perform sales. Insert any money. Press on a selection button. See if the proper change is returned. With cashless systems, you can add value to the card using the simulator mode. To exit, press STOP.

MDB level

The simulator mode offers you two possibilities to operate a level 3 coin changer. You can test either in level 2 or level 3. The difference between level 2 and level 3 is the way the coin changer will manage the change remittance. In level 2, the machine will manage the change remittance. If there is 2\$ worth of change to dispense, the machine will tell the coin changer from which tube to dispense. In level 3, the machine will tell the coin changer to dispense 2\$. The changer will decide from which tube.

Now testing level 2	
Credit:	\$000.00

Now testing level 3	
Credit:	\$000.00

A level 2 coin changer (first MDB generation) cannot operate in level 3. Some level 3 coin changers can operate in both levels. Therefore, we strongly suggest you make tests in both levels when you have a level 3 coin changer. Once in simulation mode, press on the MDB level button to change level.

Scaling factor

In Canada and in the USA, the scaling factor is 005. You can make sure your CT3 is properly set at 005 by pressing once on the MDB Level button when no device is attached. If it is not, change it using the same method as the price changing method seen on the previous page. Other scaling factor may apply if you are located outside North America. Check with your coin changer supplier for the exact factor before changing the current setting.

Decimal place

In North America, the decimal place is 2. You can make sure your CT3 is properly set at 2 by pressing once on the MDB Status button when no device is attached. If it is not, change it using the same method as the price changing method seen on the previous page. Wrong setting may cause inaccurate display of money inserted. (i.e. 1.25\$ will be seen as 1.3\$)

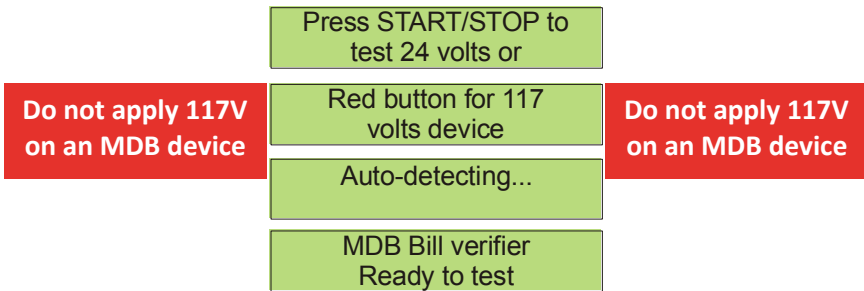


Testing an MDB bill acceptor



Testing an MDB bill acceptor is pretty much the same as testing a coin changer. The MDB port is located on the right side of the tester. It is the same port for the changer, a bill acceptor and even a cashless device.

Press once on START. DO NOT PRESS on the 117 volts button. Press again on START to skip the wait. Communication will be established with the device. If the unit does not answer back within at least 2 minutes, the display will prompt *Cannot detect – Unit not responding*. This unit is dead or it is not properly connected to the CT3.



On power up, the escrow function is OFF. The accept line is ON. It means the bill acceptor will immediately stack the bill. Test you bill acceptor for proper acceptance. Press on the ESCROW button to keep the bill in stand-by position. Press on STACK button to send the bill to the stacker. Press on REJECT to return the bill. Check that proper credit is issued. Note that certain types of bill validator starts to count a zero (0) while others start at one (1). Therefore, the bill count may look wrong, but it is not. This is the way some bill acceptors do work.

Note than some bill acceptors, especially those equipped with a bill recycler, take much time to initialize.

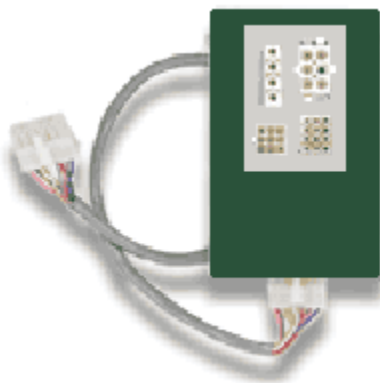
On the next page is a list of messages you will see on the display.

Note: MEI Bill recycler not functional in Level 3. OK, in Level 2.

Bill rejected	Bill validator rejected that bill.
Bill removed	Bill was removed manually while being accepted by the bill validator.
Bill returned	The bill has been returned because you pressed on the reject button.
Cash box removed	Bill box is not in place.
Defective motor	The motor pulling the bill is defective.
Invalid escrow request	Stack or reject command cannot be performed as the bill is already in bill box.
Not available	This option is not available with this type of bill validator.
ROM checksum error	The checksum of the bill validator does not match with its internal memory because of corrupted data.
Stacker count	Amount of bill into the bill box
Stacker is full	Stacker full, cannot accept further bills.
Unit disabled	Bill validator does not have the permission to accept bills or is performing a task.
Unit must be enabled	Escrow button activated while accept line is OFF.
Validator busy	Bill validator is performing a task.
Validator jammed	Bill stuck in the bill path.
Validator was reset	Bill validator has been reset.
xxx Disabled/rejected	The bill validator does not have the permission to accept this type of bill.
xxx Escrow position	The displayed bill is currently in escrow position waiting to be stacked or rejected.
xxx Stacked - >	Value of the bill being stacked plus total amount inserted so far.

Testing a pulse-type bill validator

To test a pulse-type bill validator, you absolutely need the External Bill Validator Module (EBVM). The EBVM is an option. You cannot test any pulse-type acceptor without it. The EBVM is good in either 24 volts or 120 volts. Take note that if you own the previous model of Vending Tester, the CT2, the EBVM you have will fit on the CT3.

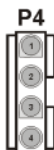


The connector for the EBVM is located on the right side of the CT3 behind the MDB connector. Connect the EBVM to the CT3.

The CT3/EBVM is capable of testing the following brands and models of pulse type bill validator:

Type & Model	Plug into socket...
Ardac USA	P3
Ardac ABA	P2
Coinco BA30SA *	P2
Coinco BA32SA	P2
Conlux / Maka NB / NB2 / NBE (120-volt only)	P4 & P5
Maka MKA / NBV	P2
Mars VFM series	P2
Mars VN2500	P2
Mars GL4 / GL5	P2
MEI AE Series gaming interface (24 volts)	P2

EBVM Pin-out specifications



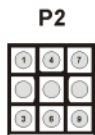
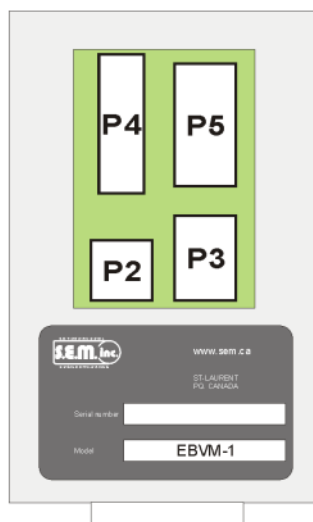
Molex
Power
connector
3191
19-09-1049

- 1- 24/115 vac Hot
- 2- 24/115 vac Neutral
- 3- Hot enable
- 4- Not used



AMP
Mate n' lock
1-480705-0

- 1-Credit relay
- 2-Credit relay
- 3-Not used
- 4-Not used
- 5-Not used
- 6-Not used



AMP
Mate n' lock
172332-1

- 1- Not used
- 2- Neutral enable
- 3- Hot enable
- 4- 115 vac Hot *
- 5- 24 vac Hot *
- 6- 24/115 vac Neutral
- 7- Credit relay
- 8- Credit relay
- 9- Not used

* Pins 4 and 5 are linked together



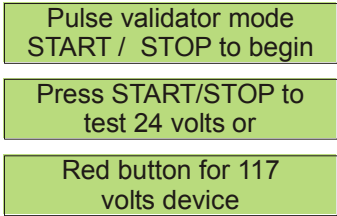
AMP
Mate n' lock
172341-1

- 1- 115 vac Hot *
- 2- 115 vac Neutral *
- 3- Not used
- 4- Credit relay
- 5- Credit relay
- 6- Not used
- 7- Neutral enable
- 8- Hot enable
- 9- Not used
- 10- 24 vac Hot *
- 11- NC
- 12- 24 vac Neutral *

* Pins 1 & 10 are linked; Pins 2 & 12 are linked

Once everything plugged in, press on **button #1** on the CT3. This button activates the external module. This button has no effect without the EBVM.

Once button #1 is pushed, the display will prompt you to press START to begin the sequence. After that, the CT3 will ask you what is the voltage required to power-up your bill validator. If it is a 24-volt, press the START button again. If it is a 120-volt acceptor, press on the red button. As a protection, we have added a safety feature that requires you to press the 117-volt button for at least 2 seconds before the CT3 actually sends that voltage. If you are not sure of the voltage of your bill acceptor, please refer to identification label of the bill validator BEFORE applying power. Applying the wrong voltage may result in damages to the bill acceptor, the EBVM or the CT3 itself.



When ready to test, the display will prompt:

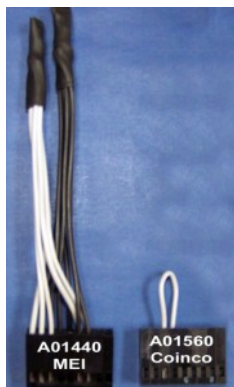


If you insert a bill and if this bill is accepted, the pulse count will increase by the value of the bill. Along with the pulse count, a beep will sound so that you do not have to look at the display to know if the bill validator gives the pulses.

After the CT3 has received the last pulse of the bill, the total of pulses will stay on the display for about 2 seconds before switching back to zero. Because of the nature of a pulse-type bill validator, the only message you will see on the display is the pulse count.

Do not forget to disable the ACCEPT LINE to make sure the bill acceptor does not accept bills. Note that some bill acceptors may not take into account the accept line and accept bills all the time.

Some bill acceptors may need a special jumper to work in test mode. This jumper is not supplied with the CT3. Please, refer to the bill acceptor user's manual as where to put this jumper or setting switches.



MEI jumper (Pn A01440) and
Coinco jumper (Pn A01560)
both available at SEM.

This concludes the instruction manual. If you have any comments you wish to add to make this manual better, please feel free to drop us a line at info@sem.ca. All comments are welcome.

Notes:

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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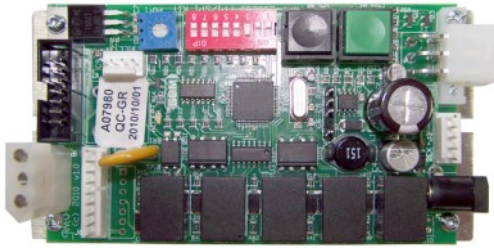
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