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EF MODULE

Instruction Manual

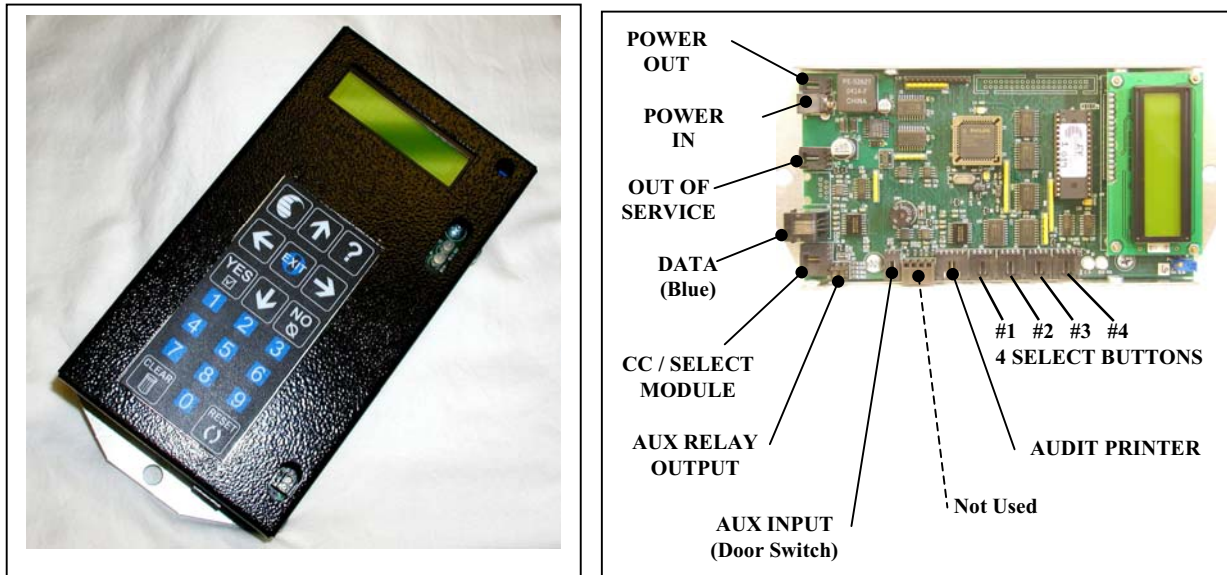
**Expanded Function Module
for MC, BX & BCX Machines**

Part #8M00467 Rev. 14

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1.0 EF MODULE BASIC INSTRUCTIONS



!!!! CAUTION !!!!

Always disconnect the 24V power supply(s) before adding or removing a module. Failure to do so can result in corrupt data and premature component failure.

NAVIGATING THE AVAILABLE MENUS

1. *MAIN MENU ITEMS* – Each main menu item relates to either a *Setting* or a *Report* feature.
 - a. *Settings* are nothing more than system parameters that can be used to establish the machine behavior. Settings will typically relate to the hardware modules that you have purchased. For example, the “Bills Accepted Settings” menu relates to the bill acceptor and can be used to set the bill denominations to be accepted. As a result you can change the acceptance and security behaviors of the machine.
 - b. Reports allow you to view records that are stored in the machine. These records are useful for accounting and troubleshooting. See the section titles “Reporting And Printing Features” for an explanation of the benefits of each report.
2. *GETTING STARTED* - Always start at the “MAIN MENU” screen. Note – you can return to the Main Menu screen at any time by pressing the EXIT button one or more times. Find the desired Setting or Report by pressing the RIGHT (forward) arrow button. To view the previous main menu, item simply press the LEFT (back) arrow. Once you have found the desired setting or report, you can then go *down* into the *Details List* for this item to view additional details related to it. Note – the main menu headings are in CAPS (all capitalized letters).

3. *DETAIL LISTS* – The UP and DOWN arrow buttons are used to navigate up and down through the list of details for a given *feature group*. You can move down in the list by pressing the DOWN arrow button. You can move up in the list by pressing the UP arrow button. When the end of the list is reached, the following message is displayed: “end of list”. At this point you can press either the EXIT or DOWN arrow button to get back to the top of the list.

4. *BUILT IN HELP* – Help screens have been included in the EF module so you no longer need a manual to figure out how to navigate through the available Feature Screens. The help screen for each feature can be viewed at any time by pressing the “?” button. Some help screens will not fit on a single display screen so it may be necessary to press the question-mark button (?) a second or third time in order to view the next help screen. The help screens include detailed information that pertains to the feature you are viewing or setting.

5. *ENTERING TEXT* – some *settings*, for example setting the header information for a transaction receipt, require that you enter text. The text entry process was modeled after the process used in cell phones, whereby the numeric keypad also doubles as a text keypad. For example: the #2 button is also used to enter the A-B-C text characters, the #3 button is for the D-E-F characters and so on. Use the picture shown here to determine which text characters are associated with the EF Module numeric keys entries cell phone text entries. The lower case text characters are also available. To view these you will need to press the associated numeric key multiple times.



MAIN MENU DESCRIPTIONS & MENU NAVIGATION

Following is a list of the Main Menu’s along with a brief description of how each one is used to enhance the operation of machine. A detailed explanation for each feature along with an explanation for each setting available is also available with the *built in help* feature in the EF Module.

Also included in this document is a diagram (flowchart) showing how to step through the detail list for each Menu. Things to remember when using the EF Module:

- Pressing the Help button at any time will show display help text explaining more about the Menu item you are looking at.
- If the “Clear” button is pressed at the beginning (top) of a Main Menu, the details for that list will be set to the factory defaults if it is a *Setting*, or cleared if it is a *Report*. Example: pressing the Clear button at the beginning of the *Audit Report menu* will clear (set to zero) all audit totals.
- If you lose track of where you are at in the menu, you can return to the Main Menu screen at any time by pressing the EXIT button one or more times.
- Pressing the “right arrow” button will step you through the feature groups as illustrated below.
- The machine is disabled anytime the menu is at a report or setting menu item. If the machine has been left in a report menu, the menu will be returned to the Main Menu 15 minutes after the last key was pressed. This is to prevent the machine from inadvertently being left out of service. If the machine is left at a setting menu item, it will remain out of service until manually returned to the Main Menu.

REPORTING AND PRINTING FEATURES

REPORTS - The Reporting features available with the EF Module are designed to assist with the accounting (tracking money in and out of the machine) and diagnostics (preventative maintenance and troubleshooting) of the machine. These features are particularly useful in route operations or operations where the machine owner does not collect the revenue or service the machine. A list of the reports available and a brief description of the benefits for each are shown below.

- Perpetual Audit- can be viewed in detail format or printed in detail or summary format. This audit cannot be cleared therefore is useful in identifying discrepancies in the Resettable Audit.
- Resettable Audit- can be viewed in detail format or printed in detail or summary format. This audit can be cleared therefore it is useful in identifying the amount of revenue that was present since the last time the machine revenue was removed. Ideal for daily or weekly route services.
- Bills Accepted List- can be viewed or printed. This report will show the last 20 (or more) bills accepted and exactly when they were accepted. This is useful in settling disputes with users who think they deposited a larger bill denomination than they actually did. This occurrence has become more common with the introduction of new bill designs that look similar at first glance.
- Event List – can be viewed or printed. This report includes a time stamp for any significant events (errors, transfers...) that have occurred. It is useful in diagnosing the source of defective modules or for identifying modules that need preventative maintenance.
- Door Opened History – can only be printed, this cannot be viewed so a printer is required to utilize this feature. This report will include the last seven *Quick Print* reports that occurred each time the door was opened. This is useful if a Quick Print Door Opened report is lost and a replacement copy is needed, or if the printer was not successful in printing the report when the door was opened.

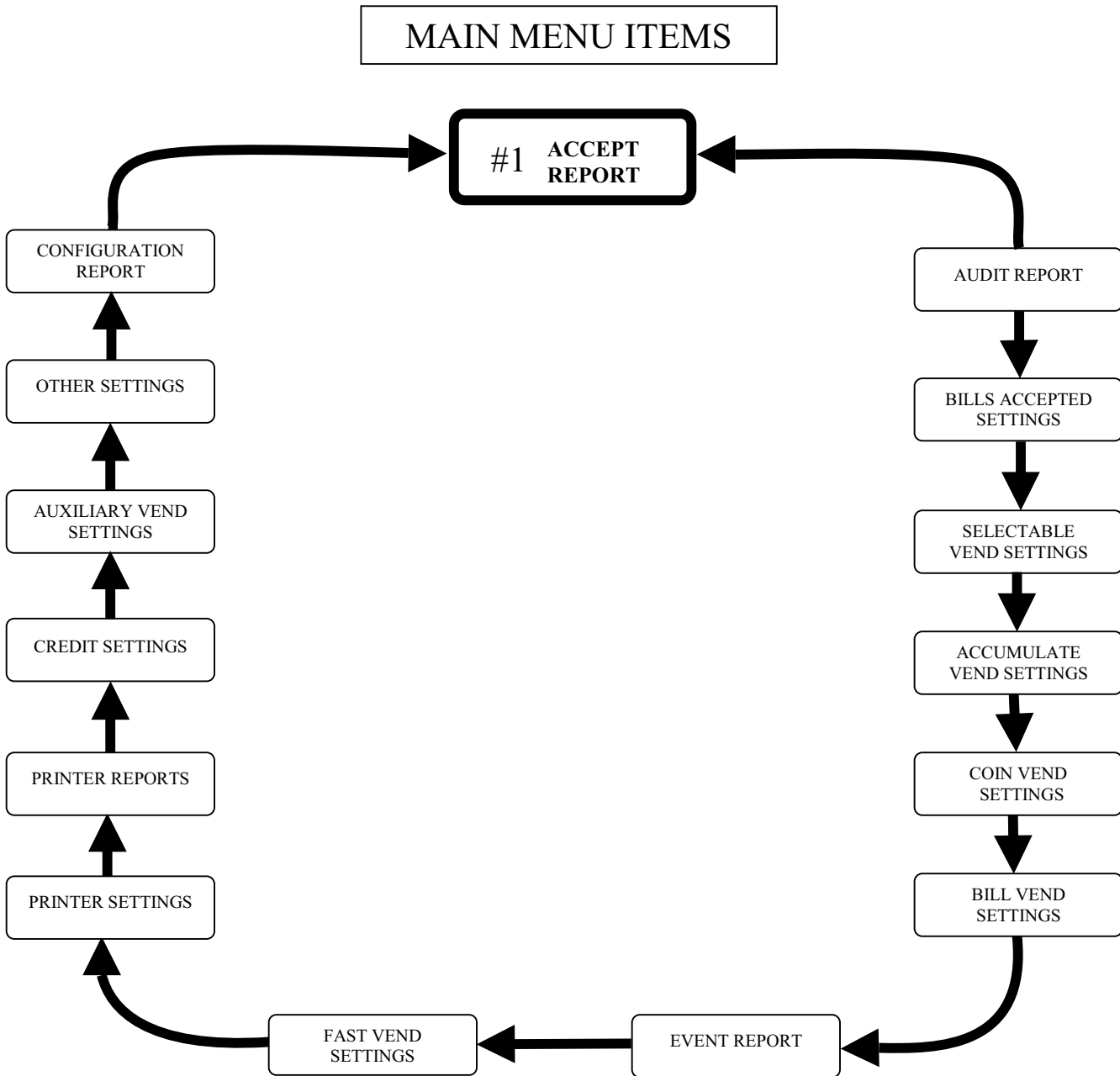
PRINTED REPORTS - Printed copies of the audit and diagnostic reports can be used to track the flow of money through the machine. For example, a printed copy of the audit can be returned with the collected revenue each time the machine is serviced. The printed report will include an itemized total of all money deposited / dispensed, as well as a time/date stamp showing when the report was printed and a *sequence number* for the report itself. This feature is useful in determining if all printed reports are present. Printed reports are also useful in determining when preventative maintenance is needed. For example, a printed copy of the Event Report (error report) can be obtained by the person collecting the revenue and then submitted to a technical person for early failure analysis. This report identifies any significant machine events that can contribute to an error and each *event* is time / date stamped.

PRINTING FEATURES – The printing of reports is made simple and *quick* using the printing features of the EF Module. For a complete list of the printing features available, step through the “Printer Settings” menu of the EF Module. One example of a handy feature is the *Quick Print* feature. This feature allows you to group a set of reports that can be printed all at once each time a single button on the keypad is pressed; the Zero (0) button. In addition, when the printer is used in conjunction with the optional Door Opened Switch Kit, the reports included in the Quick Print Group can be printed automatically and cleared automatically each time the door of the machine is opened.

PRINTER OPTIONS – The *Audit Printer* option kit can be purchased and used with any MC machine model. Some machine models, primarily those with Credit Card acceptance capability, will include a *Receipt Printer*. This printer is also capable of printing reports in addition to printing a customer transaction receipt. For more information regarding the receipt printer, see the manual for the credit card machine series.

NAVIGATING THE MAIN MENU LIST

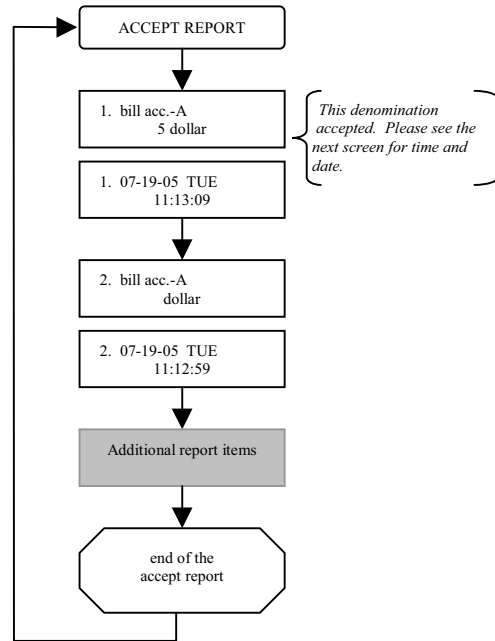
Important Note – some Main Menu items may not be available based on the configuration of your machine. For example, if you do not have a coin acceptor, Coin Vend Settings will not be present. These menu items apply to a basic changer configuration.



ACCEPT REPORT

Use this menu to view or print a list of most recent bills accepted, in the order they were accepted in and with time and date they were accepted. This list will store up to 50 bill deposits. The most recent deposit will be first in list.

This information can also be printed if an audit or receipt printer was purchased with the machine. See the section on Audit Printer Instructions for more information.

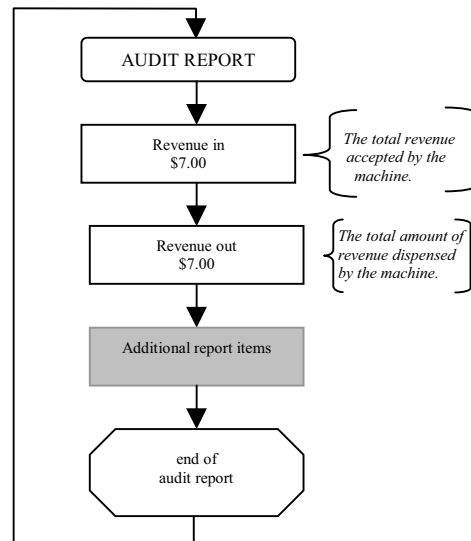


AUDIT REPORT

Use this menu to view or print a list of all revenues accepted and dispensed. A resettable and non-resettable audit is available.

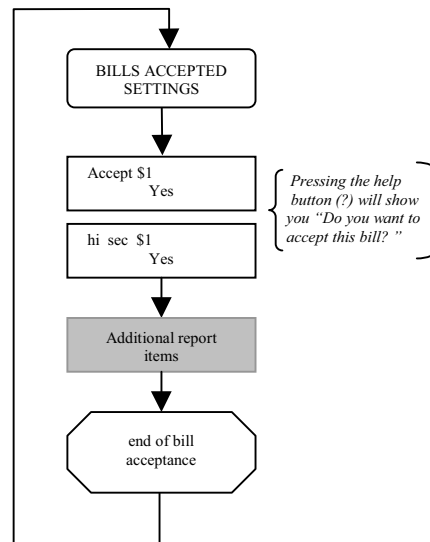
Some machines are equipped with option accessories that have an associated audit record. For example: if your machine is equipped with a Select Module, an additional audit record showing the number of times each selection was used, will be included.

This information can also be printed if an audit or receipt printer was purchased with the machine. See the section on Audit Printer Instructions for more information.



BILLS ACCEPTED SETTINGS

Use this menu to set the bill denominations that are to be accepted as well as the validation security (high or low) level applied to each during validation.



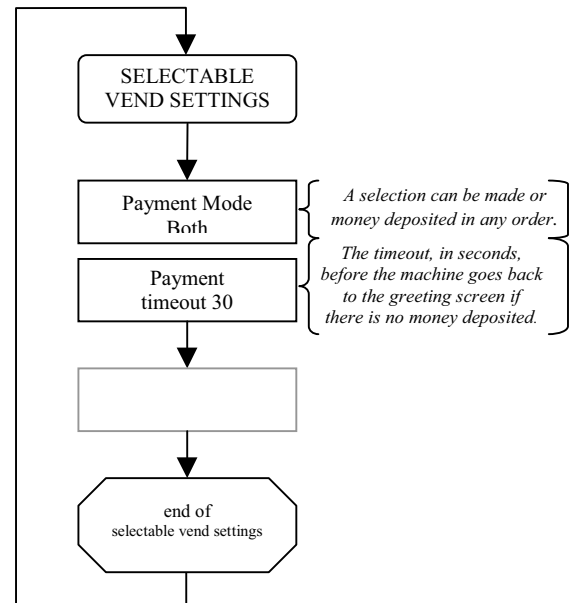
SELECTABLE VEND SETTINGS

This section applies only to a machine equipped with the Select Module.

Use this menu to set the *Value* (price) for each selection, the corresponding *Dispense* amount, and the *timeout* behaviors of the selection feature.

Timeout refers to the amount of time the machine will remain idle before automatically finishing the transaction in progress.

For more information on this subject, refer to the “*Select, Credit Card & Receipt Printer*” instruction manual.

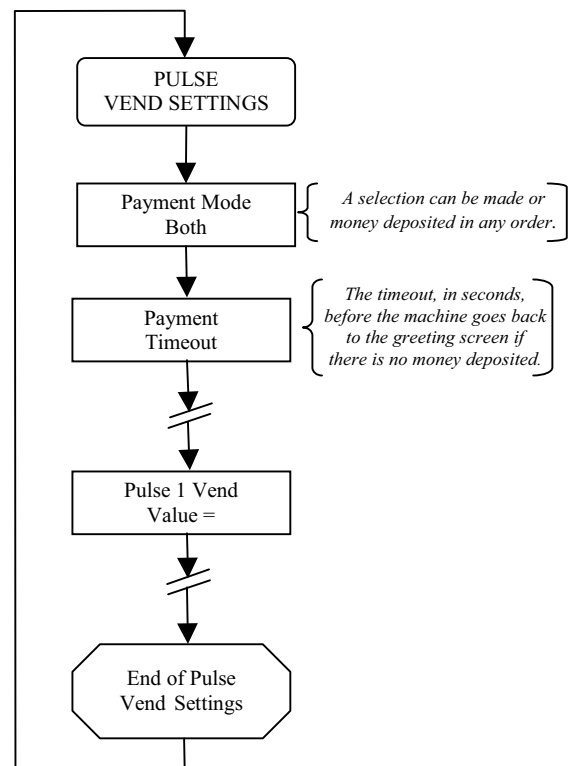


PULSE VEND SETTINGS

This section applies to a machine equipped with the Select Module and when the machine type is set to “PULSE”.

Use this menu to set the *Value* (price) for each incremental vend level up to 20 selections. The payout will be automatically determined by the value of the product being dispensed. The make best change feature will allow the customer to choose from the product device or from any available coin hopper for all refunds for overpayments.

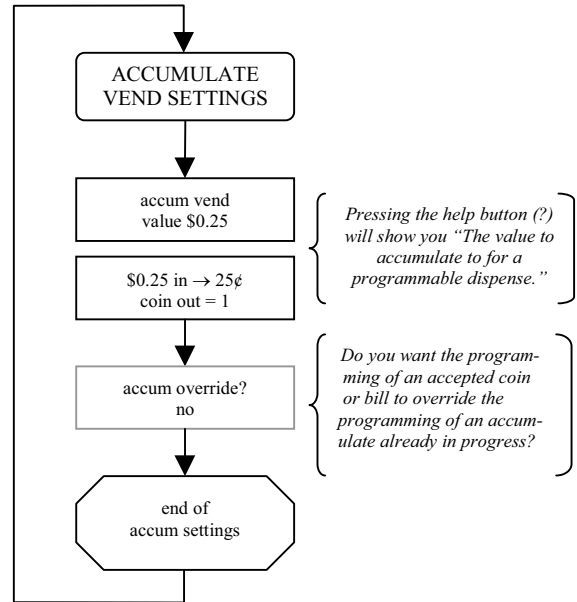
Additional settings for payment type and timeout selections for this feature are also available in this menu. Timeout refers to the amount of time the machine will remain idle before automatically finishing the transaction in progress. For more information on this subject, please refer to the “*Select, Credit Card & Receipt Printer*” instruction manual.



ACCUMULATE VEND SETTINGS

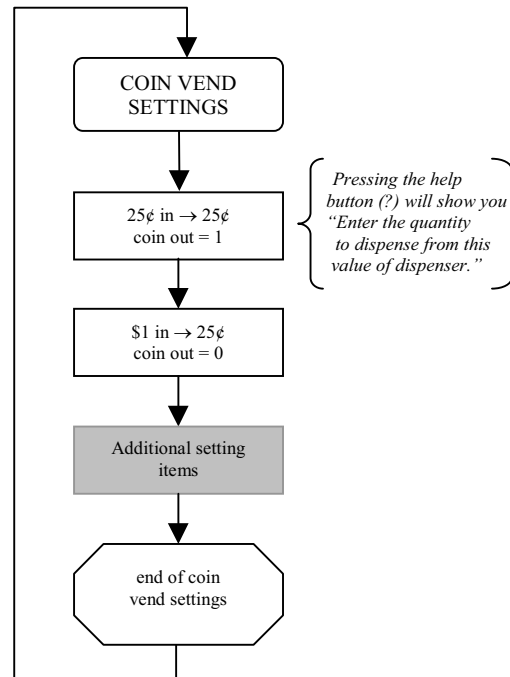
This feature allows one *optional* dispense setting in addition to the dispense settings associated to each bill denomination. This feature relates only to cash payments and therefore is not typically used in a machine equipped with a Credit Card Module.

Use this menu to set an amount (any amount) the machine should accumulate to, before it will vend. The amount to be vended when this level is reached is also set here. Note – this setting is optional. A typical use for this setting is for “accumulating” to 25 cents (2 dimes and a nickel) before vending a quarter or token valued at a quarter.



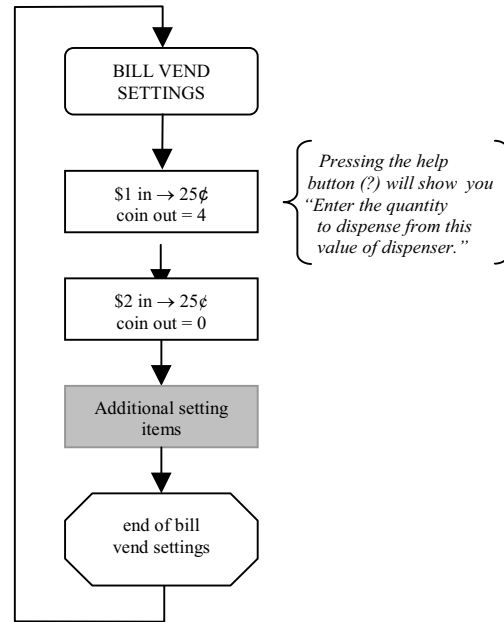
COIN VEND SETTINGS

Use this menu to set the amount to be vended for each coin accepted through the Coin Acceptor.



BILL VEND SETTINGS

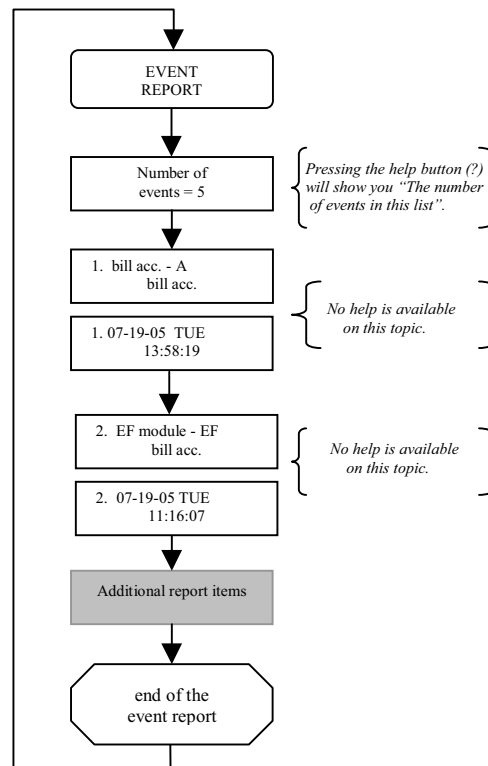
Use this menu to set the amount to be vended for each bill accepted by the Bill Acceptor (s).



EVENT (ERROR) REPORT

Use this menu to view or print a historical list of events (errors, resets, clears) that have occurred in the machine. Events are listed in the order they occurred with most recent listed first. Up to 50 events can be stored in memory along with the time and date stamp for each.

This information can also be printed if an audit or receipt printer was purchased with the machine. See the section on Audit Printer Instructions for more information.



CARD AND BILL FAST VEND SETTINGS

The machine is equipped with a feature that can detect unusual and excessive machine activity, usually indicative of fraudulent activity. This feature is called Fast Vend Shut Off. The machine will detect that the frequency of use is unusually high for a pre-determined period of time, and shut itself down for enough time to deter the thief. See the following paragraphs to learn how to set the number of deposits allowed, the time period they are allowed in, and the time the machine will be shut off if this feature is activated.

There are separate settings for bills and cards. To see the Bill Fast Vend Settings you must have a bill acceptor connected. To see the Card Fast Vend Settings you must have a card system selected in Credit Settings.

Bill Fast Vend Settings

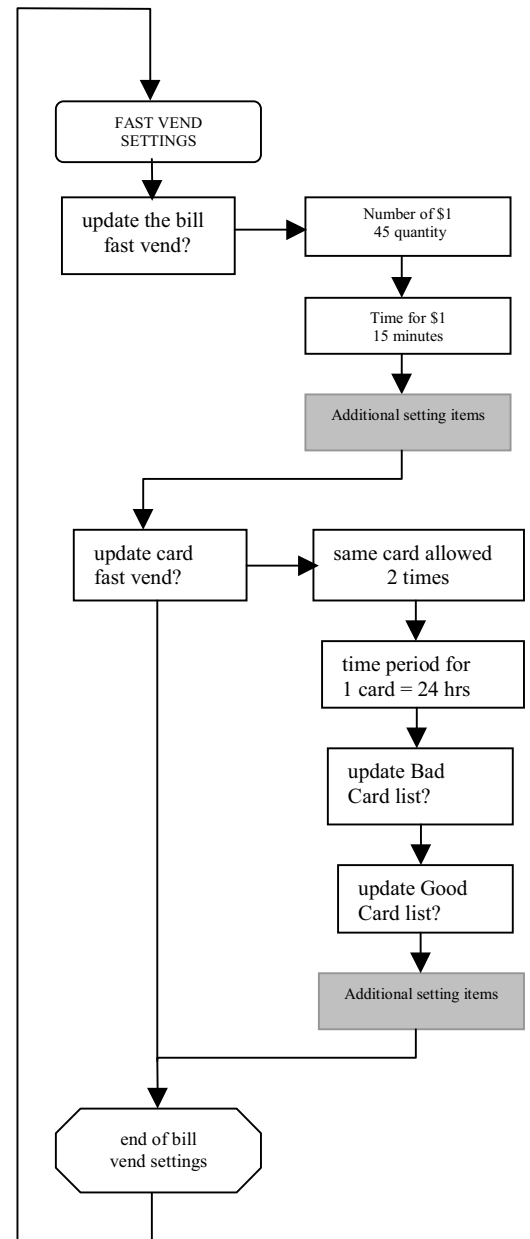
This is used to restrict machine usage to normal bill transaction amounts in a given time period. The primary benefit of this feature is in the added protection against stringing should the bill acceptor stringing detection devices become defeated. This feature allows you to set the “normal” amount of bills of each type that are accepted in a given time period. If this usage pattern is exceeded the machine will shut down and stay off-line until the reset button is pressed or until the Error Time Out lapses. See “Other Settings” for a description of this feature and how to set it.

Card Fast Vend Settings

(Applies to version 1.060 or newer)

To effectively manage fraud attempts common to credit card theft, you are provided with four lists. The first list is the Rejected Card List. You will enter the frequency of use and time period parameters necessary for the machine to determine when a card has been used an unusual number of times in a given time period. Once a card is used more times than allowed, it will automatically be added to the Rejected Card List along with a time/date stamp of when the card use was attempted. This list can store up to 100 card numbers on a *temporary* basis. Card numbers present in this list will not be approved until they are removed from the list or the card number is added to the Good Card List.

The Good Card List is a list of cards that you want to accept regardless of the number of times they are swiped. To add a card to the Good Card List you will manually enter the last four digits of the card number along with the card type.



You can also add known fraudulent card numbers to the *Bad Card List*. This list contains the last four digits of card numbers along with the card type that you want to decline no matter how infrequent they may be used. It is important to note that you should manually transfer card numbers from the *Rejected Card List* to the *Bad Card List* as soon as you have confirmed them to be fraudulent cards. Again, the *Rejected Card List* is temporary. You should manually transfer these card numbers into the *Bad Card List* if you believe them to be fraudulent. If the *Rejected Card List* becomes full (first 100 bad cards) the new card numbers will begin to overwrite the older card numbers.

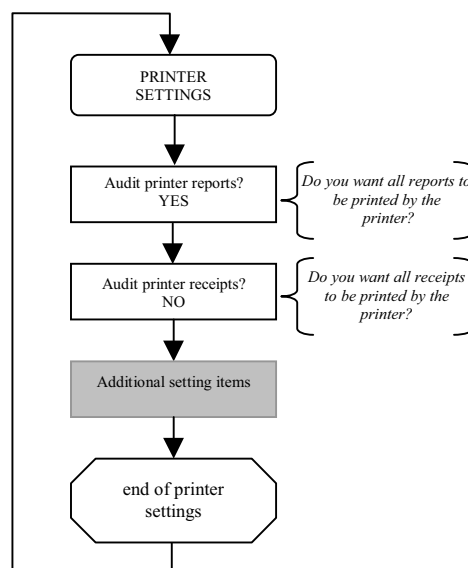
The final list is the *Accepted Card List*. This is a simple list of the cards accepted. You will see the last four digits of the card number along with the card type and a time/date stamp of when the card was used.

You can clear or print any of these card lists. We recommend that you print the list before clearing it so you have a paper record of cards that were once determine to be Good, Bad, Rejected or Accepted.

PRINTER SETTINGS

Use this menu to configure any printers connected to the machine, format the receipt header and footer text.

Configure Printers - Up to two printers can be connected; the *Receipt Printer* which is typically used to issue transaction receipts to the user, and the *Audit Printer* which is typically used to print audit reports for the machine owner. For maximum flexibility, the information issued to the printers can be set to print on either or both printers. This also allows the creation of a duplicate transaction receipt for the owner.



Formatting Transaction Receipts – You can customize the header and footer on your receipt. The header area is typically used to identify your business location. The footer is typically used for printing a “Thank You” to the patron. See the directions at the beginning of this document for a reminder regarding the process for “Entering Text”.

Quick Print Settings – This feature allows you to group multiple reports so they can be printed all at the same time whenever certain events such as the zero (0) button on the keypad is pressed or when the door of the machine being opened (optional Door Opened switch kit required). This saves time as each report does not have to be printed separately and only one event triggers the printing process.

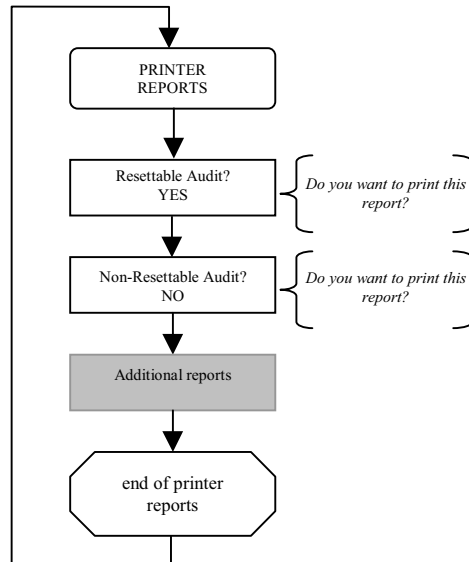
This feature will also allow you to automatically clear the information stored for each report upon successful printing of the report. This is also where the parameters for the optional Door Opened Switch kit are set.

PRINTER REPORTS

Use this menu to print individual reports. To print a report simply answer yes when prompted. After each report has successfully printed you will be asked if you would like to clear the corresponding report.

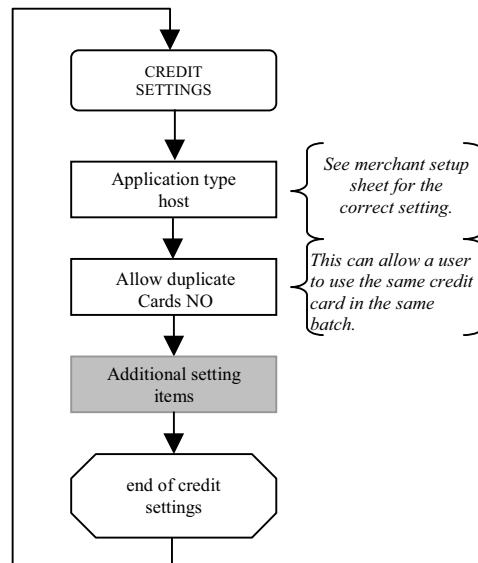
Report examples: View the list of available reports by stepping through this menu.

Door Opened History – This report is only available if the optional door switch is present in the machine. The associated report will show the Quick Print reports and door opened time/date for the last 7 times the door was opened.



CREDIT SETTINGS

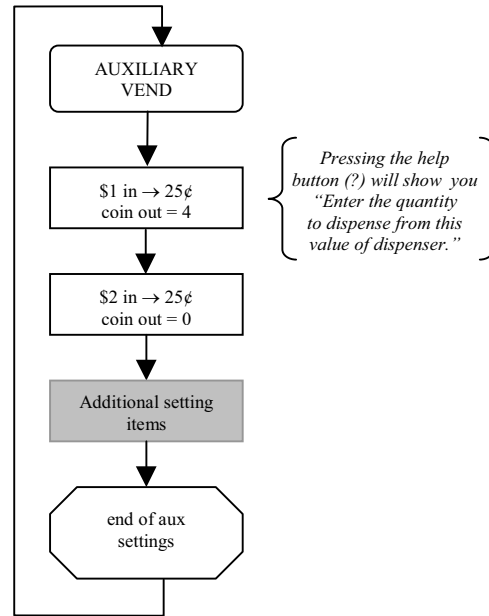
Use this menu to configure the Credit Card reader and modem (black box). It is important to be familiar with your "Merchant Setup" prior to altering any of these settings. The Merchant Setup information can be found on the forms that were filled out at the time of the machine purchase.



AUXILIARY VEND SETTINGS

Available for special order only.

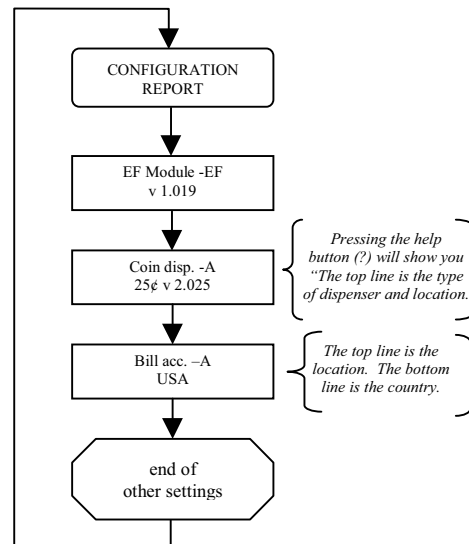
Use this menu to set the amount to be vended for the Auxiliary input. This is typically a single pulse input. Each time the input is sensed, a vend will occur. The number of items (coins, tokens, tickets...) dispensed for this input is also set here.



CONFIGURATION REPORT

This feature is used for troubleshooting only. It allows you to view the software version for the program in each of the machine modules: dispensers, EF Module, etc. The type and value of each dispenser can also be found here.

A software version will be listed for each module detected. This feature is useful for troubleshooting.



Card and Bill Fast Vend Settings

The machine is equipped with a feature that can detect unusual and excessive machine activity, usually indicative of fraudulent activity. This feature is called Fast Vend Shut Off. The machine will detect that the frequency of use is unusually high for a pre-determined period of time, and shut itself down for enough time to deter the thief. See the following paragraphs to learn how to set the number of deposits allowed, the time period they are allowed in, and the time the machine will be shut off if this feature is activated.

There are separate settings for bills and cards. To see the Bill Fast Vend Settings you must have a bill acceptor connected. To see the Card Fast Vend Settings you must have a card system selected in Credit Settings.

Bill Fast Vend Settings

This is used to restrict machine usage to normal bill transaction amounts in a given time period. The primary benefit of this feature is in the added protection against stringing should the bill acceptor stringing detection devices become defeated. This feature allows you to set the “normal” amount of bills of each type that are accepted in a given time period. If this usage pattern is exceeded the machine will shut down and stay off-line until the reset button is pressed or until the Error Time Out lapses. See “Other Settings” for a description of this feature and how to set it.

Card Fast Vend Settings

(Applies to version 1.060 or newer)

To effectively manage fraud attempts common to credit card theft, you are provided with four lists. The first list is the Rejected Card List. You will enter the frequency of use and time period parameters necessary for the machine to determine when a card has been used an unusual number of times in a given time period. Once a card is used more times than allowed, it will automatically be added to the Rejected Card List along with a time/date stamp of when the card use was attempted. This list can store up to 100 card numbers on a *temporary* basis. Card numbers present in this list will not be approved until they are removed from the list or the card number is added to the Good Card List.

The Good Card List is a list of cards that you want to accept regardless of the number of times they are swiped. To add a card to the Good Card List you will manually enter the last four digits of the card number along with the card type.

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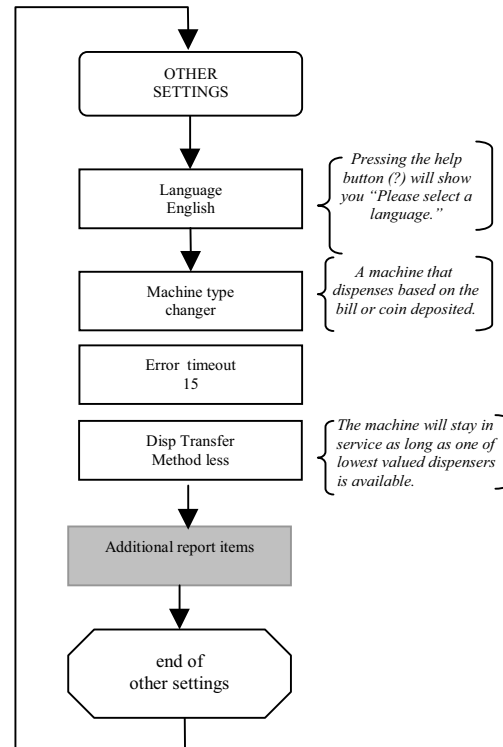
The final list is the Accepted Card List. This is a simple list of the cards accepted. You will see the last four digits of the card number along with the card type and a time/date stamp of when the card was used.

You can clear or print any of these card lists. We recommend that you print the list before clearing it so you have a paper record of cards that were once determine to be Good, Bad, Rejected or Accepted.

OTHER SETTINGS

This feature group is where all miscellaneous settings are located. Below is a list of each one.

- Language – used to set the language displayed on the EF Module display.
- Machine Type – This is used to identify if this machine includes any Expanded Function hardware modules. The default setting used in most machines is the basic *Change Machine* type. If your machine includes a *Pulse Select* or *Multi-Select* module, this setting allows the machine to know it has one of these expanded function modules connected.
- Error Time Out – This feature allows the machine to automatically reset from certain error types; at this time the Error Time Out only applies to Fast Vend Shutoff and a Stringing Detected Error, error conditions. For these errors the machine will be automatically reset following the time period in minutes you entered.
- Hold Escrow – During a coin accumulation through the coin acceptor (example: 2 dimes + 1 nickel = quarter payout) a customer may deposit three dimes and receive one quarter. If a five-cent hopper is not available in the machine, an escrow (unpaid balance) of 5 cents is present. This feature allows you to clear this escrow amount or simply “Hold” it and add the amount to the next deposit.
- Dispenser Transfer – The term “transfer” refers to the machines ability to “transfer” an owed amount from a dispenser that is in error or is empty, to another dispenser in the machine. The primary purpose of the dispenser transfer feature is to keep the machine on-line even if it has to adjust the payouts. There are up to four (depending on software revision level) different transfer modes available with your machine: *Transfer Always* – transfer to a any dispenser available, *Transfer None* – do not transfer, *Transfer Equal* – only transfer between dispensers of the same type and value, and *Transfer Less* – transfer to any dispenser of the same or lesser value. It is important to note that these transfer features will only transfer dispense amounts between “like type” dispensers. The dispenser types are: *Change* (coin or bill), *Token*, *Ticket* and *Card*. Example: An amount owed from a *Change* (type) dispenser cannot be transferred to a *Token* dispenser. It can only be transferred to another *Change* hopper. The *Transfer Always* mode is only available as a special order feature. The machine must be equipped with EF Module software version 1.47 or higher. This mode differs from the others in that it has the ability to disable bill acceptance. It will transfer unpaid balances to higher valued dispensers if necessary and will disable acceptance of bills that it can no longer make change for. All other transfer modes will shut the entire machine down if it cannot make change for all bills it is capable of accepting.
- Maximum Dispense Rule – this rule is used in conjunction with the *transfer always* feature to disable accepting certain bill denominations in order to avoid giving out large quantities of small denomination coins or bills. In other words, even if a lower valued dispenser exists, the owner does not wish to accept the bill and end up giving the user to many coins or bills. An example of this would be if the owner does not want to give a user \$20 worth of dimes in the event that the dime dispenser is the only one still in service. In this case the max dispense rule for the dime dispenser would be set to a small number. Additional machine signage or the optional “dispenser not available when lit” kit is recommended in order to let the user know why their bill deposit is being rejected.
- Expanded Programming – this feature is intended for advance users only and for very unique machine operating requirements. We strongly recommend that this feature is not activated.
- Make Best Change – used to reduce amount of programming. This feature will allow the machine to figure out how to make the best change for each deposit. For example: if you are issuing quarters then the machine can easily figure out how many to give out for each bill; no need to program the dispense for every bill. We strongly recommend this setting remain “Yes” to avoid programming errors that could result in mis-pays.
- Date – set the current date. Time – set the current time.



- Sleep Settings – This setting allows you to automatically place the machine in a sleep mode (inhibit) during periods of the day when you do not want it to be used or when it is not supposed to be used. One start time and sleep duration time setting is available for each day of the week.
- PIN Numbers – used to control access to certain feature groups based on a PIN identification number. This feature is used primarily when non-machine owners will have access to the machine.

2.0 ERROR CONDITIONS

ERROR CONDITION OVERVIEW - Error conditions that occur in the machine will be shown on the EF Module display. Error conditions can either be “Soft Errors” which are errors that DO NOT result in the machine going out of service, or “Hard Errors” which are errors that DO cause the machine to be placed out of service. All displayed errors (except *Sold Out, Hardware Added, and Hardware Removed*) will be stored in the Error Report for viewing. The hardware added and hardware removed errors mean that a dispenser has been added or removed. Anytime either of these errors occur, be sure to check ALL vend settings for the correct desired payouts.

BUILT IN HELP – Help information has been included in the EF Module to reduce the need to have a paper copy of the owner’s manual readily available. This information can be viewed by pressing the Help (?) button while viewing an error message. If this additional information is not available in the version of software currently installed in your EF Module, see the printed version of “**Error Help Text**” shown below in this document.

RESETTING ERROR CONDITIONS - Error conditions can be cleared by first resolving the *error cause*, and then pressing the button labeled “RESET” to erase the error message from the display. To determine the *error cause* you must first identify the device that is in error. The device in error is shown on the top line of display. If there are multiple devices of the same type, it may be necessary to view the flash code LED on each of the devices to determine which one caused the error. Once you have identified the device in error, view the error condition (shown on second line of the display) and read any *Error Help Text* available for that error. Review the section above regarding “Built In Help” at this time if you have not already done so.

ERROR HELP TEXT - Shown below is a list of the *Error Conditions*, probable causes, and corrective actions. Note that some of the error conditions indicate that you should contact the nearest factory authorized service center.

"SOLDOUT"	Indicates a dispenser does not have enough product to complete a vend. Check device.
"EMPTY"	A dispenser did not dispense in the allowed time and was not detected as sold out. Check device.
"JAMMED"	A dispenser is jammed and unable to dispense. Check device.
"PROGRAM"	Note the device in error and contact the nearest factory service center.
"EEPROM"	EEPROM failing. Note the device in error and contact the nearest factory service center.
"MOTOR"	Device has reported a motor error. Note the device in error and contact the nearest factory service center.
"SENSOR"	If device in error message is a bill acceptor, clear the bill path and clean sensors. If device in error message is a coin dispenser, contact the nearest factory service center.

"ROM"	Note the device in error and contact the nearest factory service center.
"OUTPUT BLOCKED"	If device in error message is a bill dispenser, clear bill dispense path (jammed bill). If device was a coin dispenser, clear the coin dispenser path.
"BILLBOX"	The bill acceptors billbox has been removed. Replace billbox then press reset button on EF module to clear error message.
"BILLBOX FULL"	The bill acceptor billbox is full.
"OVERPAY"	A dispenser has detected an overpay. Check device for debris at the output sensor.
"FAST VEND"	The total number of bills accepted has exceeded preprogrammed limit in the preprogrammed allowable time period. Adjust the Fast Vend Settings if necessary.
"TAMPER"	The bill acceptor has detected a stringing attempt. Clear the bill path and clean sensors.
"COMM"	The bill dispenser logic module (module that bill dispenser is plugged into) cannot communicate with the Uninote Bill Dispenser. Check the cables connecting these two devices.
"POWER LOST"	Power was lost during a dispense. This is a "soft error" and the machine will stay online. Check all power connections in the machine. If this error condition occurs frequently, have the power source to the machine checked for faulty wiring, poor grounding, etc and add a power surge filter (same as used for computers) to the machine.
"ILLOGICAL"	Bills accepted and/or vend settings conflict with standard operating patterns. Common examples: No bills programmed to be accepted or revenue to be dispensed exceeds the value of the revenue to be deposited. Check ALL Vend settings.
"BILL ACC. - EF"	This message is displayed if the EF module doesn't see any acceptor (Bill or Coin) in the system. Check acceptor cables and connections.
"DISPLAY COMM"	This message is displayed if the EF module loses communication to the CC/Select module (LCD display module used in most Credit Card / Select Machines.

Note – For additional troubleshooting information for each device type, see the MC owner's manual section regarding detail troubleshooting and commonly asked questions.

3.0 RELAY MODULE BASIC INSTRUCTIONS

The Relay Module when connected to a standard EF Module with software version 1.10 or higher, is used to indicate to an external device that the change machine is in the Out Of Service condition. The Relay Module consists of a 24volt relay and a cable. The relay will energize anytime the machine is in the Out Of Service or Sold Out Condition and will remain energized until the error condition has been resolved and the machine has been reset.

It is strongly recommended that the optional relay module supplied by Standard Change-Makers be used when interfacing to external devices and that those devices be connected by a qualified electrician that is up to date regarding all safety regulations and requirements.

CONNECTING AN "AUXILIARY" RELAY: (SCM P/N: 4K00561-FI or 4K00561-PI)

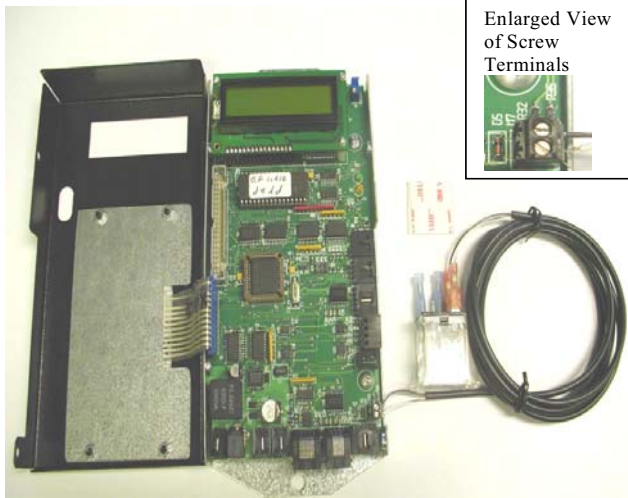
- **ROUTING THE CABLE:** The relay cable will connect the relay to the EF Module. Route the relay cable (4C00320) using the existing cable clamps in the machine. Avoid routing cables where they can be pinched by the door or other movable parts.
- **MOUNTING THE RELAY:** The relay can be mounted intern or external to the machine. Peel the protective tape layer from both sides of the double-sided tape provided in the kit. Attach the tape to the side or bottom of the relay. Next, attach the relay (with adhesive tape attached) in the preferred location.
- **CONNECTING THE RELAY TO THE EF MODULE:** See the picture below for the EF Module connection location. The cable is connected to the EF Module using the screw terminal block already present on the EF Module circuit board. The relay is not polarized, it does not matter which wire is connected to each terminal. Be sure to test (pull) both wires to ensure they are screwed down properly.
- **CONNECTING AN AUXILIARY DEVICE TO THE RELAY CONTACTS:**

!!! IMPORTANT !!!

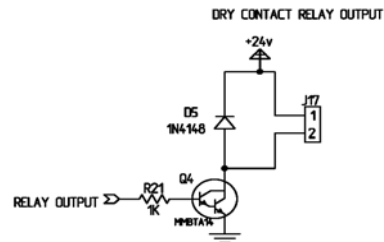
Proper safety and fire precautions should always be taken when using the relay to activate high voltage (120vac) devices. A qualified electrician should make these connections.

The relay contacts should be adequately protected against excessive arcing and burning. Use of secondary components designed to prevent arcing may be required. Excessive arcing can cause erratic machine operation and result in component damage.

P/N – 4K00561
(EF Module Not Included)



Schematic Diagram of Relay Driver Circuit in the EF Module



The relay coil driver circuit is designed to deliver a maximum of 500 ma at 24vdc. Care should be taken to not exceed this rating.

4.0 USER DISPLAY MODULE BASIC INSTRUCTIONS

USER DISPLAY OPTION - This option is only available on a select number of machine models. A machine equipped with this option module and an EF Module with software version 01.042 or higher, will display the value of the money (bill or coin) deposited and the amount that was successfully dispensed. This information will remain on the display for a brief period of time following completion of the vend Cycle. The User Display Module is particularly useful in locations where the users make multiple deposits (accumulated amount) in order to purchase a token, card or ticket. It is also useful in letting the user know which coin or bill they deposited should they become confused. Newer bill designs have similar features and at a quick glance can be mis-identified by the user as the wrong denomination. The same is true for coins of the same basic size and color, particularly if the user has difficulty identifying the coin or if they are in a hurry and do not pay close attention to what they are depositing.

KEY SWITCH OPTION - An optional Key Switch can be used in conjunction with the User Display Module to allow an attendant to perform some basic functions that would otherwise require full access to the inside of the machine. The key switch will allow an attendant (or anyone with the key-switch key) to view the last 4 transactions. This is useful in reconciling discrepancies that a user may have regarding the amount of change they received. The attendant can also clear any error that could normally be cleared by pressing the Reset button located inside the machine. Note – EF Module software version 01.047 is required for the key switch reset feature.

Upon turning the key the attendant will be prompted to release the switch if they want to reset the error. If the key is not released, the last 4 transactions beginning with the most recent one, will be displayed for a brief period of time in the order they occurred.

**Standard Change-Makers
SERVICE CENTERS**

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Factory and Home Office**

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800-968-6955
FAX (317) 899-6977
WEB: www.standardchange.com

Record these numbers here for use when ordering parts.

Serial # _____

Model # _____