

Technical Documentation

Coin changer currenza C²



Owner's Manual



CRANE

®

PAYMENT SOLUTIONS

SAFETY INSTRUCTIONS

Please, read these safety instructions before operating the unit.

Proper use:

- The C² Currenza coin changer was designed to operate in vending machines with MDB interface. There are C² models available which operate with other interfaces.
- This coin changer has been manufactured with state of the art technology and observing all safety regulations, however, this unit could be a source of hazard.

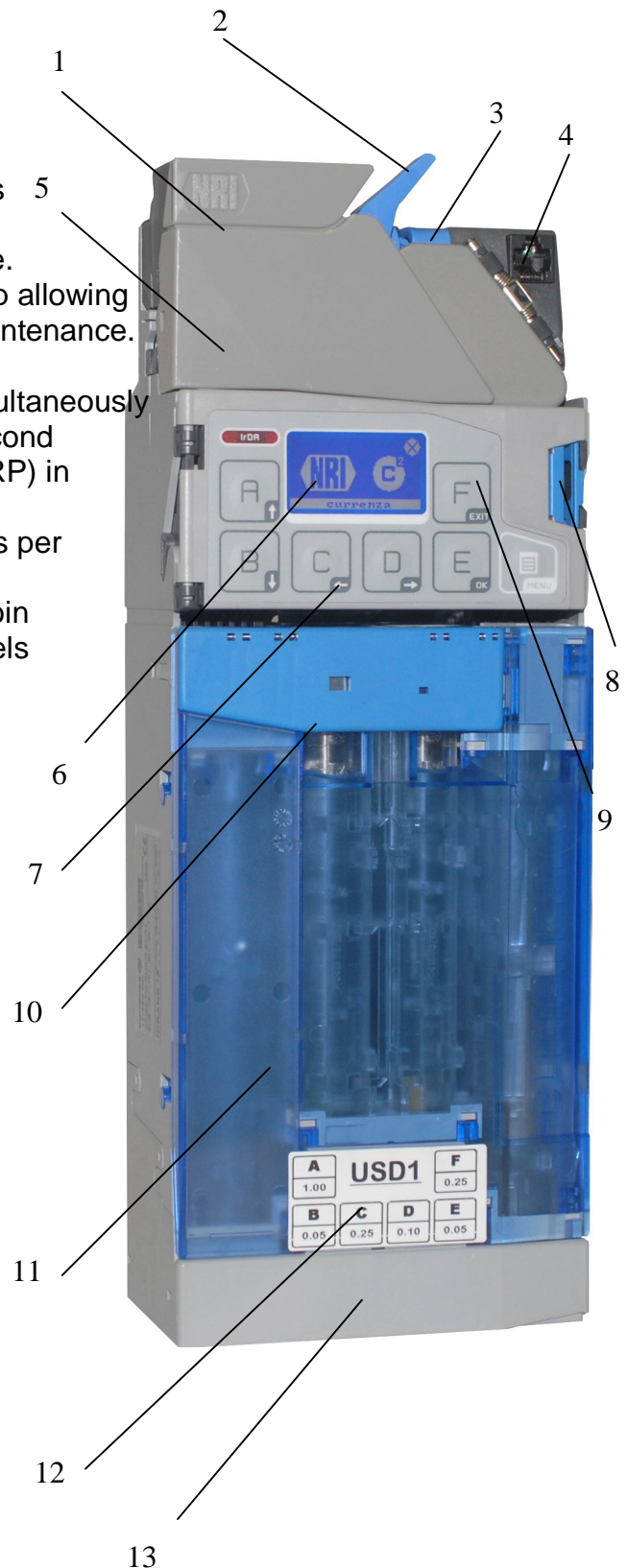
Protecting yourself and the equipment:

- Only use this product with the intended purpose.
The manufacturer is not liable for any damage or loss resulting from improper use.
- Remove coins before transporting the unit, use original package, if possible.
- Don't hold/carry the unit from its harnesses.
- The unit must be installed by qualified personnel.
- Turn power off before installation and routine maintenance.
- Make sure the coin changer bracket is properly grounded.
- Don't disconnect the harness with the power on.
- Avoid spilling water or other liquids on the unit.
- Dispose of properly.

Overview

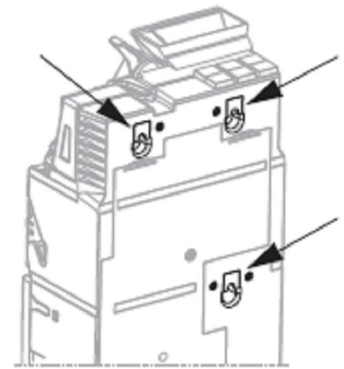
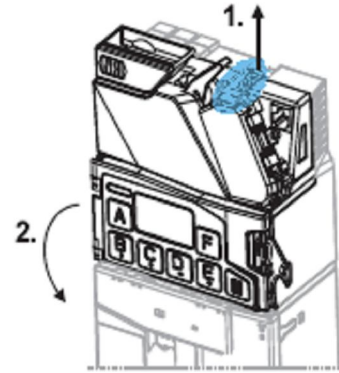
The Currenza C² is a six tube, flexible cassette coin changer, equipped with four optical sensors per tube for coin level detection and an easy to navigate, intuitive, 2"x 1" display human interface. The acceptor lid and sorter section door open up allowing complete access to the coin path for routine maintenance. The coin dispenser module is made up of three independent motors which can be operated simultaneously producing a dispense speed of six coins per second and providing payout redundancy protection (PRP) in the event of a coin jam. The C2 acceptance speed is rated at three coins per second and all six tubes are self replenishing. It has three dedicated token channels and its Coin Management function provides optimal float levels based on statistical data.

1. Coin entrance
2. Coin return lever
3. Coin changer head release latch
4. Connector for HENRI hand held
5. Acceptor Lid/Coin Acceptor section
6. Display
7. Keypad
8. Sorter door latch
9. Sorter door
10. Coin cassette release latch
11. Coin Cassette
12. Payout configuration label
13. Coin dispenser module

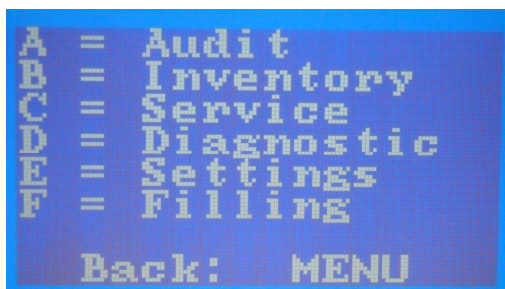


Installation

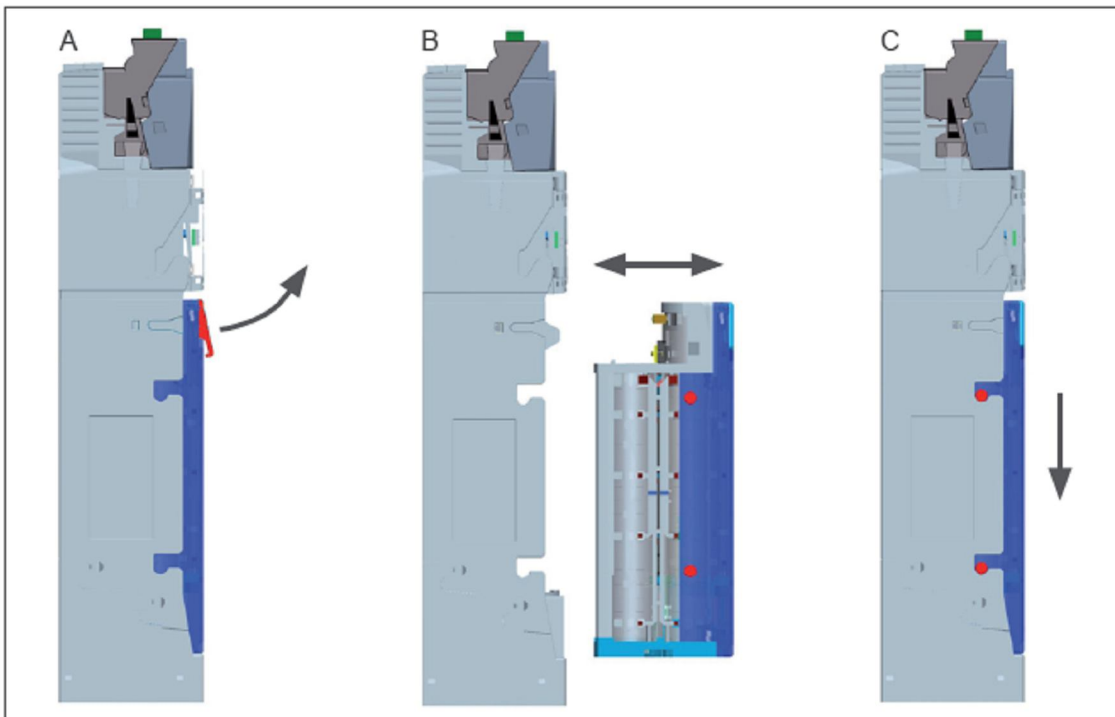
1. Turn vending machine power off.
2. Unlatch coin changer head (blue latch next to coin return lever). Remove head from main chassis.
3. Hang coin changer on the machine by the three mounting points, fasten mounting screws.
4. Replace coin changer head.
5. Make sure there is a 1/8 inch minimum gap between the coin return lever and its actuator.
6. Connect the coin changer harness to the machine or bill validator "Y" harness. When using a Currenza Recycler, also connect the harness with the 4 pin Molex connector to the Recycler "Y" harness.
7. Turn power On.
8. The filling of the coin cassette can be done in two ways:



- a. **By placing the unit in Fill Mode:** This mode provides an immediate accurate coin count of the tube contents. Press the "Menu" key → press "F" for "Filling" → start inserting coins through the coin entrance. Coins will be sorted properly and counted accurately. An animation is shown on the display indicating the denomination of the coin inserted and the tube it was sorted to. When you are finished dropping coins press the "Menu" key twice to exit to the main screen.



- b. **By removing the coin cassette:** This is the fastest way to fill the coin cassette. Remove cassette by pulling the blue cassette latch, followed by an up and out motion. The cassette comes straight out. Fill manually with the necessary coins (as indicated on the cassette label). Install cassette back on the main chassis. Insert straight in and down, until it clicks in position.



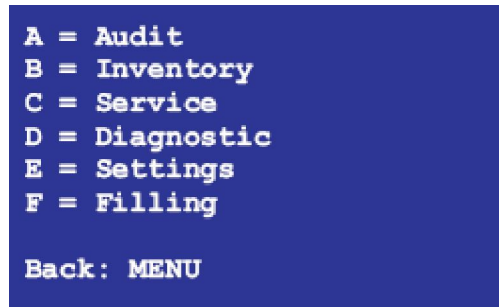
Configuration – Human Interface

The configuration of the C² coin changer is done through its built-in human interface.

The HI is made up of a keypad (seven keys A thru F plus the Menu key) and 2"x1" display.



Pressing the Menu key takes you to the Main Menu screen.



Pressing A through F takes you to the associated submenu. When navigating in the submenus, pressing “F” takes you one level Up and “E” acts as the Enter key. In addition, where applicable, “A” and “B” are used to scroll up and down. In some screens “C” and “D” are the left and right arrows, respectively.

The submenu **Audit** is not active for MDB coin changers.

Inventory:

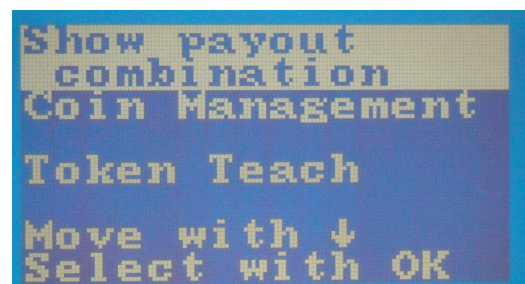
Pressing “B” gives you access to the Inventory submenu. This submenu indicates the payout configuration for three seconds and then shows the break down of how many coins there are in each tube. In the center of the screen the total dollar amount in each tube is shown.

- While in Inventory, it is possible to manually pay out coins from each tube by pressing keys A through F.
- Press the Menu key to return to the Main Menu screen. Press Menu key again to exit to main screen.
- The Inventory screen times out after 25 seconds of no activity and exits to the Main Menu screen. The Main Menu screen times out after 25 seconds of no activity and exits to the main screen.



Service:

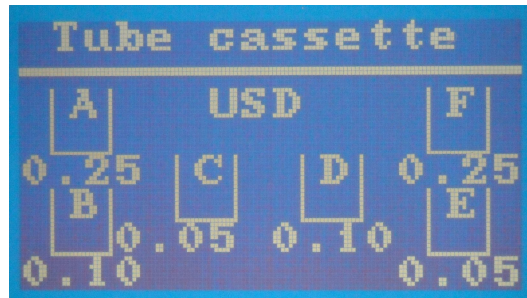
From the Main Menu, press “C” to access the Service submenu. In this submenu there are the functions: “Show payout combination”, “Coin Management” and “Token Teach”.



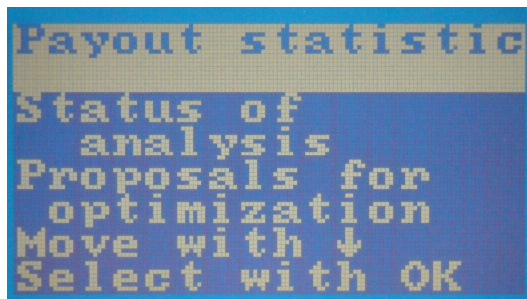
Keys “A” and “B” allow you to scroll up and down to highlight the desired function.

Once the desired function is selected, pressing “E” allows you to enter that function.

- **Show payout combination;** Displays the current payout combination programmed in the coin changer. It should match the cassette label.



- **Coin Management:** Based on statistical data, this function provides optimal float levels for each tube. Once you enter this function there are three possible selections



- Payout statistic: Shows statistical data for each tube.
 - Status of analysis: Shows progress of analysis in percentage.
 - Proposals for optimization: Shows recommended float levels for each tube.
- **Token Teach:** The Currenza C² allows you to teach a token on-site by means of the human interface and a sample of the tokens in question.

Procedure: Press Menu → Press “C” for Service → Scroll down to highlight Token Teach → Press “E” to enter this selection → Highlight Token teach then press “E” → Scroll down to select the channel where you want to program the new token (the C² has three dedicated token channels) → Insert at least 10 tokens (they will be counted and rejected) → press “E” to continue → select Acceptance band, A for Normal, B for Wide (normally if you have good quality tokens Normal band works fine, Otherwise select Wide) → Display shows “Token just programmed” → Press Menu to exit to Main screen.



Diagnostics:

The C² coin changer provides you with detailed information for diagnostics and troubleshooting. If a section of the unit is malfunctioning, the built-in display gives you a warning message pointing to the problem.

In addition, the Diagnostics submenu provides specific detail.

To access Diagnostics:

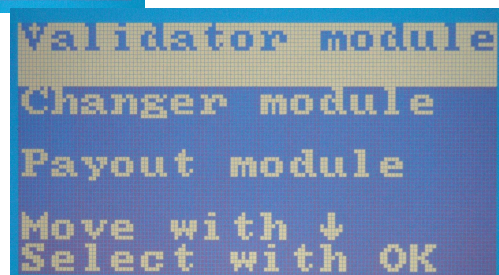


Press Menu



Press “D” for Diagnostics

Scroll Up/Down with “A” & “B” to check status for all modules comprising the unit.



If the module selected is OK the C² shows “Status: OK”

```
Software:
9200391-00.00
Serial Number:
01158407/04/2506
Datablock-No.:
USD 0 000 00
Status: OK
Back: EXIT
```

When there is a problem with that module the C² will show “Status: Error”, pressing the “D” key provides access to the details.

```
Software:
9200391-00.00
Serial Number:
01158407/04/2506
Datablock-No.:
USD 0 000 00
Status: Error
Details →
```

```
CP3 Sensors OK
CP4 Sensors OK
LS Sensors
LS3 LS2 LS1
Back: EXIT
```

Settings:

All the C² settings are done via the built-in human interface. To access:

Press Menu

→

Press “E” for Settings

```
✓ OK
Change
43.80
```

```
A = Audit
B = Inventory
C = Service
D = Diagnostic
E = Settings
F = Filling
Back: MENU
```

The Settings allows you to scroll among the following options:

1. Operating modes
2. Inhibit mask
3. Peripheral
4. Coin settings
5. Other settings
6. Audit module

```
Operating modes
Inhibit mask
Peripheral
Move with ↓
Select with OK
```

1. Operating modes:

- Configure inventory keys: This setting pertains to the keypad which could be “keys enabled”, “keys blocked” and “controlled by VMC”.
Default setting is “keys enabled”.
- Security stock in the tubes: This determines if the coin changer pays out the safety coins (last three coins). Options are “payable” or “not payable”.
Default setting is “not payable”.
- Inhibit bill acceptance: This setting, when active, disables the higher denomination bill acceptance based on the inventory of coins in the cassette and bills in the recycler cartridge.
Options are “active” or “not active”.
Default setting is “not active”.
- Security stock to VMC: This determines if the safety coins will be included in the tube contents reported to the VMC.
Options are “send to VMC” or “don’t send to VMC”.
Default setting is “send to VMC”.
- Only tube coins in filling mode: When active, denominations that have no tube assignment are rejected. When not active, they are sent to the coin box.
Options are “active” or “not active”.
Default setting is “active”.
- Tube counter correction: If active, the coin changer automatically adjusts the tube counters to a preset value when the tube level sensors are either covered or uncovered. This is how the coin changer knows exactly how many coins there are in the cassette when it is refilled manually, by removing the cassette.
Options are “active” or “not active”.
Default setting is “active”.
- Program tube counters automatically: When active, the coin changer adjusts the tube counters to a preprogrammed value of float levels, when the tube is refilled manually to those levels, by removing the cassette.
Options are “active” or “not active”.
Default setting is “not active”.
- Float-Up: Needs to be set “active” in order to work with float levels.
Options are “active” or “not active”.
Default setting is “not active”.
- Tube counters correction to zero: If active, tube counters are set to “0” if the cassette is removed when there are not enough coins to cover the lower sensor. If not active, the counters remain the same, provided the tube sensors don’t see any changes.
Options are “active” or “not active”.
Default setting is “not active”.
- Manual fill report: If active, the coin changer reports to the VMC the coins inserted in fill mode as they are inserted.
Options are “active” or “not active”.

Default setting is “not active”.

- Simple pay out: If active, the coin changer dispenses one coin at a time, used with battery operated machines.

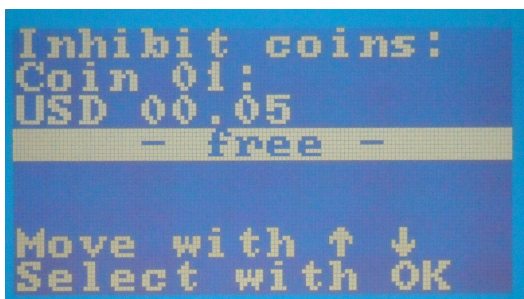
Options are “active” or “not active”

Default setting is “not active”.

2. Inhibit mask:

It is used to enable and disable acceptance for the different coin denominations.

Highlight “Inhibit mask” and press the “E” key → with “A” and “B” scroll up/down to select the coin denomination to be set → Press the “E” key to activate the setting → “A” and “B” allow you to change between “free” (enabled) and “inhibit”. Press “E” to lock the setting in memory → Press “F” to select another denomination → Press “F” to go up one level.

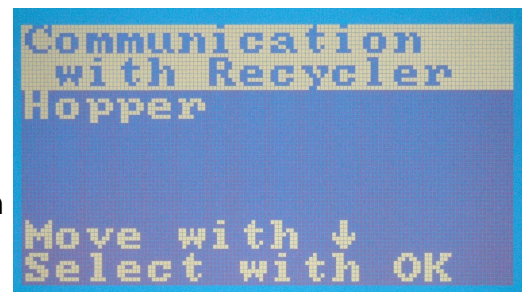


3. Peripheral:

This setting is used to activate communications between the coin changer and the Bill Recycler and Hooper.

Options for both are “active” or “not active”
Default setting is “not active”.

The coin changer detects when a Recycler is connected and activates the communication automatically. When the Recycler is not connected anymore, the setting goes back to “not active”.



4. Coin settings:

- Filling level limitation:

It is used to program the maximum capacity for each individual tube. By default, this capacity is coincident with the top level sensor but it can be set to a lower number.

Highlight "Filling level limitation" and press the "E" key → with "A" and "B" scroll up/down to select the coin tube to be set → Press the "E" key to activate the setting → with "C" and "D" select the digit to be adjusted → with "A" and "B" adjust the selected digit. Press "E" to lock the setting in memory → Press "F" to select another coin tube → Press "F" to go up one level.

- Security stock:

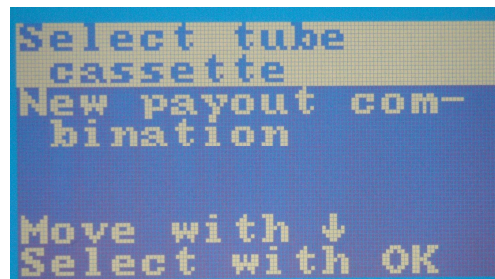
Used to program the safety coins for each individual tube. These coins provide weight on top of the last one so it can be dispensed safely. By default, this capacity is set to three but it can be set to a lower or higher number.

For adjustment follow the same procedure as with the Filling level limitation.

- Coin sorting:

Used to set the payout configuration. The C² has several preprogrammed cassette payout combinations. It is possible to select one of these combinations or create your own.

Highlight "Coin sorting" → press the "E" key, "Select tube cassette" is highlighted → press the "E" key → with "A" and "B" scroll through the preset cassettes → press "E" to lock your selection in memory.



Below is the table of preset payout combinations including the CMS part #'s, cassette code (USD1, etc.) and coin denominations involved.

CMS Part #	Description	
5900545	C2 CASSETTE-USD1-NNDQQ\$	
5900546	C2 CASSETTE-USD2-NNDQQQ	
5900547	C2 CASSETTE-USD3-NDQQ\$\$	
5900548	C2 CASSETTE-USD4-NQ\$\$\$\$	
5900549	C2 CASSETTE-USD5-NQQQQQ	
5900550	C2 CASSETTE-USD6-NNDDQQ	
5900551	C2 CASSETTE-USD7-NNDQ\$\$	
5900552	C2 CASSETTE-USD8-NDQ\$\$\$	
5900553	C2 CASSETTE-USD9-NQQ\$\$\$	
5900554	C2 CASSETTE-USD11-NDQQQ\$	
5900559	C2 CASSETTE-USD12-NDDQQ\$	
5900560	C2 CASSETTE-USD13-NNDDQ\$	

If the required selection is not listed among the preset, it is possible to customize and create your own.

Press “B” to highlight “New payout combination” → press the “E” key → with “A” and “B” scroll through the tubes to select the one that needs to be modified → press the “E” key to activate editing → with “A” and “B” select the denomination for that tube → press “E” to lock your selection in memory → continue modifying sorting for other tubes or press Menu twice to exit to Main screen.

The table below describes the allowed positions for each denomination along with the tube size, thickness limiter and adapter ring **specific** for each position (color coded and indicated by the cells’ color for A thru F).

Value	Tube	Thickness limiter	A	B	C	D	E	F
\$ 1.00	27.5	Blue	Yellow	Invalid	Blue	Invalid	Direct	Blue
\$ 0.25	25.5	Green	Green	Direct	Black	Direct	White	Black
\$ 0.10	19.5	Yellow	Green	Direct	Black	Direct	Invalid	Invalid
\$ 0.05	22.5	Green	Green	Direct	Black	Direct	White	Black

- Security level:

If needed, it is possible to have different acceptance windows to be able to reject eventual fraud coins. This is similar to the “High Security/High Acceptance” setting for bill validators. The Currenza C² is capable of having three different acceptance settings per coin denomination. At this time there is only “normal” acceptance available since there are no fraud problems with the C² coin changer. If and when this setting is needed, here is the way to do it:

Press Menu → Press “E” for Settings → scroll down with “B” to highlight “Coin settings” → press the “E” key → scroll with “B” to highlight “Security level” → press the “E” key → with “A” and “B” scroll through the different coin channels → press the “E” key to activate editing → with “A” and “B” select the desired security level → press “E” to lock your selection in memory → press the “F” key to continue modifying security levels for other coin channels or press Menu twice to exit to Main screen.

- Float level:

If the coin changer is set to work with float levels, here is where you program the par level for each tube.

Press Menu → Press “E” for Settings → scroll down with “B” to highlight “Coin settings” → press the “E” key → scroll with “B” to highlight “Float level” → press the “E” key → with “A” and “B” scroll through the different coin tubes → press the “E” key to activate editing → with “C” and “D” select the digit to be adjusted → with “A” and “B” adjust the selected digit. Press “E” to lock the setting in memory → Press “F” to select another coin tube → press Menu twice to exit to Main screen.

5. Other settings:

- Basic coin value:

This is the value of the smallest coin denomination the coin changer works with. All other coins are multiple of this coin.

Default setting is “00.05” the Nickel.

- Language:

The C² display can be set for different languages.

Options for the US C2 unit are: English, Deutsch and Español

Default setting is “English”.

- Currency code:

The currency code is the international code for currency.
It is passed to the VMC.
Default setting is “1840” US code.

- MDB-Level:

This level sets the MDB communications between the VMC and the coin changer.
Options are: level 2, level 3.
Default setting is “level 3”.

- Display contrast:

The contrast for the C² display can be adjusted. The range is 0 (lower) to 100 (higher).
Default setting is “46”.

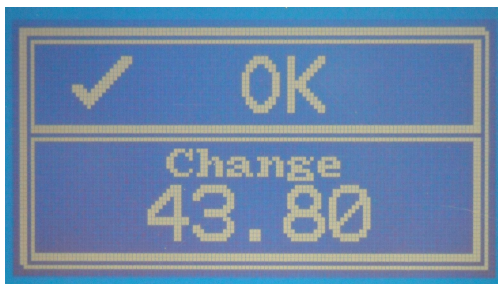
- Wake-up time:

Some battery power applications require the coin changer to go into sleep mode. This setting pertains to those applications. Not used in US Vending.
Default setting is “00”.

- Display:

The Main screen of the C² display can be set to show:

Change



Inventory



Default setting is “Change”.

7. Audit module:

The Audit module setting is not applicable with the MDB interface used in the US Vending industry.

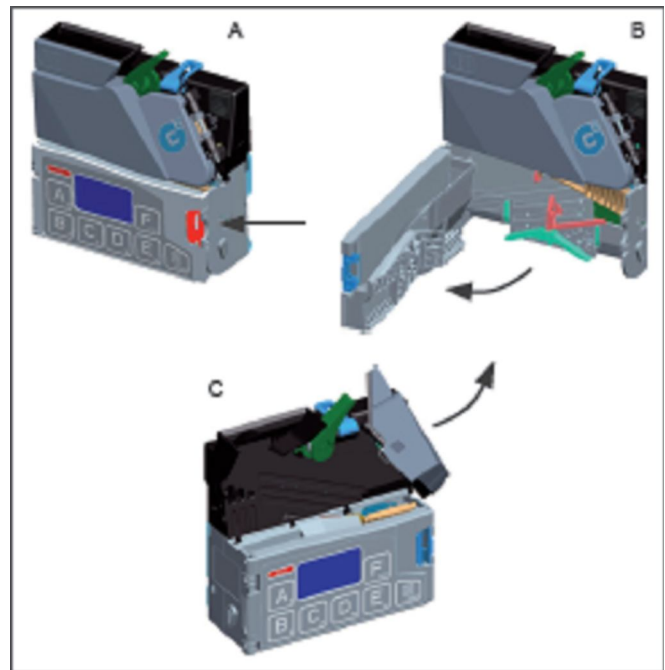
Maintenance

Normally, only the acceptor module needs routine maintenance.

Don't spray cleaning solutions. Use a slightly wet cloth.

Cleaning the Acceptor, Lid and coin path:

1. Turn power Off.
2. Unlatch sorter cover (blue latch on the right of the display). Swing it open.
3. Open Acceptor Lid, hold it open.
4. Remove any debris. Dust off any accumulation with a small brush or compressed air.
5. Clean the complete coin path, front and back, with a slightly wet cloth.
6. Allow to dry, latch sorter cover, close Acceptor Lid.
7. Turn power On.



Software up-dates

Software up-dates are necessary to correct eventual compatibility issues, new coin introductions and enhanced functionality.

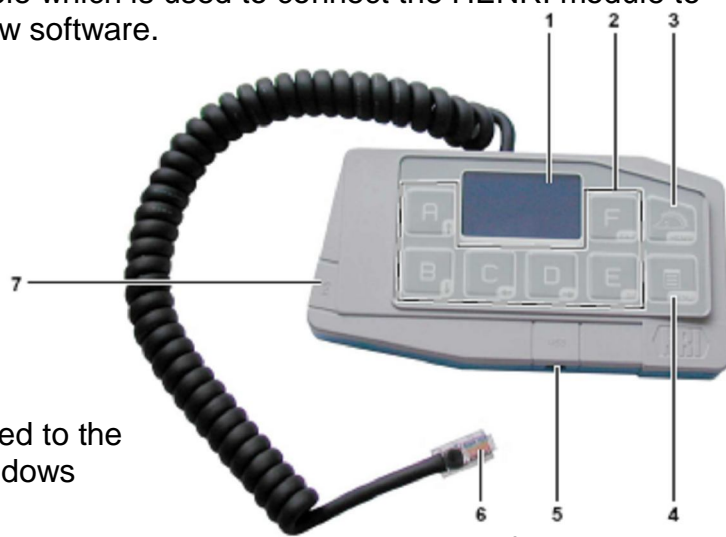
The Currenza C² software up-dates are done in the field, without the need to bring the unit back to the shop or send it to a service center.

The up-date is downloaded into the unit by means of the NRI proprietary **HENRI** module. This module is distributed by CMS under the following part #:

5900528	CURRENZA C2 HENRI HH PROGRAMMER
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The unit comes with a USB cable which is used to connect the HENRI module to a PC in order to up-load the new software.

1. Display
2. Keypad
3. Henri button
4. Menu button
5. USB connector
6. RJ-45 connector
7. SIM card slot



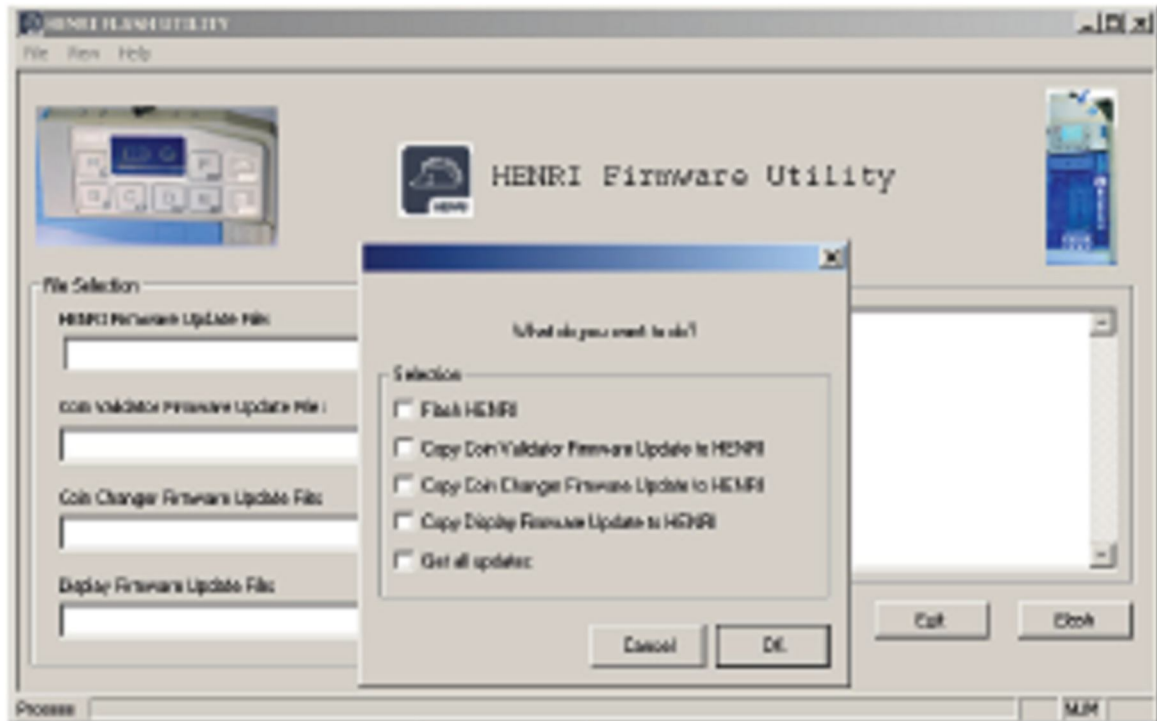
The new software is uploaded to the Henri module using the Windows application “HenriFlash”.

The C² unit has three sections that can be updated with new software, Validator module, Changer module and Display. The new software as well as the HenriFlash application are available for download from the NRI website www.nri24.com.

It can also be requested from Crane Merchandising Systems.

Procedure:

1. The Henri module has to be connected to the PC with the USB cable (included).
2. Open the HenriFlash application. The initial window ask you to select the module to be updated. Coin Validator, Changer and Display.
3. After selecting the module and OK the first screen, the second screen allows you to select the firmware file to be uploaded to Henri.



4. When the file selection is complete click on Update. The selected file will be sent to the Henri module. This process only takes a few seconds. Disconnect the USB cable from the PC.
5. Now the Henri is ready to update the C² unit on-site.

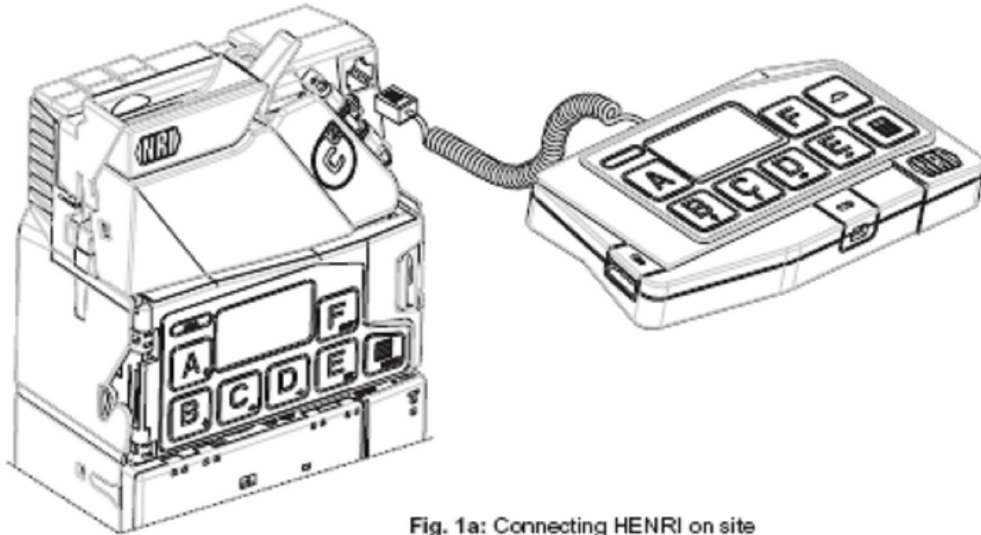


Fig. 1a: Connecting HENRI on site

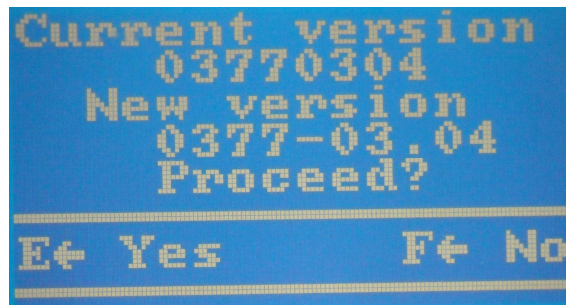
6. Connect the Henri module to the C² unit using the RJ-45 port on the upper right corner. The C² should be with the power on. After the Henri power up routine its display looks the same as the C² unit.
7. Press the Henri key on the upper right to enter the Henri menu.



8. Press "A" for software update



9. Press the key corresponding to the module to be updated, i.e.: “B” for coin changer, which is the microprocessor on the C² interface PCB.



10. Henri will display the current software for that module as well as the version ready to be downloaded. Pressing “E” starts the download. The display shows how the download is progressing.



11. The display indicates when the download is complete.



During the time the Henri module is connected to the C² unit, the keypad on the coin changer is not operational.

Complete description on Henri module functionality is explained on separate document KA_HENRI_EN.pdf. Please, contact CPS Technical Support for a copy, (314) 614-6370.

Appendix “A”

C² CMS part #'s

Currenza Changer's Cassette	Number of Tubes by coin denomination – USA					DEX ready	CMS Changer Part #	NRI Model
	.01	.05	.10	.25	1.00			
USD1		2	1	2	1		5900512	C2-B6M-R-USD-USD1
USD2		2	1	3			5900513	C2-B6M-R-USD-USD2
USD3		1	1	2	2		5900514	C2-B6M-R-USD-USD3
USD4		1		1	4		5900515	C2-B6M-R-USD-USD4
USD5		1		5			5900516	C2-B6M-R-USD-USD5
USD6		2	2	2			5900517	C2-B6M-R-USD-USD6
USD7		2	1	1	2		5900518	C2-B6M-R-USD-USD7
USD8		1	1	1	3		5900519	C2-B6M-R-USD-USD8
USD9		1		2	3		5900532	C2-B6M-R-USD-USD9
USD11		1	1	3	1		5900534	C2-B6M-R-USD-USD11
USD12		1	2	2	1		5900555	C2-B6M-R-USD-USD12
USD13		2	2	1	1		5900556	C2-B6M-R-USD-USD13
USD1		2	1	2	1	Y	5900520	C2-B6M-RX-USD-USD1
USD2		2	1	3		Y	5900521	C2-B6M-RX-USD-USD2
USD3		1	1	2	2	Y	5900522	C2-B6M-RXUSD-USD3
USD4		1		1	4	Y	5900523	C2-B6M-RX-USD-USD4
USD5		1		5		Y	5900524	C2-B6M-RX-USD-USD5
USD6		2	2	2		Y	5900525	C2-B6M-RX-USD-USD6
USD7		2	1	1	2	Y	5900526	C2-B6M-RX-USD-USD7
USD8		1	1	1	3	Y	5900527	C2-B6M-RX-USD-USD8
USD9		1		2	3	Y	5900535	C2-B6M-RX-USD-USD9
USD11		1	1	3	1	Y	5900537	C2-B6M-RX-USD-USD11
USD12		1	2	2	1	Y	5900557	C2-B6M-RX-USD-USD12
USD13		2	2	1	1	Y	5900558	C2-B6M-RX-USD-USD13

Currenza Changer's Cassette	Number of Tubes by coin denomination - Canada					DEX ready	CMS Changer Part #	NRI Model
	.05	.10	.25	1.00	2.00			
CAD1	1	1	1	1	2		5900538	C2-B6M--CAD/USD-CAD1
CAD2	1	1	2	1	1		5900539	C2-B6M--CAD/USD-CAD2
CAD3	1	1	3	1			5900540	C2-B6M--CAD/USD-CAD3

:CMS HELP DESK 1-800-628-8363