

AS ADVERTISED IN RAINBOW AND HOT CoCo

**NEW** **Full Character Set** **NEW**  
**FOR**  
**CoCo or CoCo2**

Easy to install board adds:

- All 96 Standard ASCII Characters
- Upper & Lower Case Displayed Simultaneously with **NO** Inverse Video
- True Lower Case Descenders
- Braces & Vertical Bar Characters
- Slashed Zero
- Other Features

Board is hardware driven and requires **NO** software drivers. **NO** effect on **any** memory.


Enhances CoCo screen for:

- OS-9 Operating System Programming
- "C" Language Programming
- Word Processing
- Communications Terminal Modes

PRICE.....\$38.00  
(+\$2.00 shipping/handling if charge)

**CoCo Devices**  
**Box 677, Seabrook, TX 77586**  
**713-474-3232**

Visa (Specify CoCo or CoCo2) Mastercard



Other CoCo DEVICES Products soon to be released;

- \* Multi Communication Board with OS-9 (or Basic) software drivers
- \* Video monitor interface adapter

## FULL CHARACTER SET BOARD

(For TRS-80\* Color Computer)

The FULL CHARACTER SET (FCS) allows the Color Computer to display the full 96 character ASCII set on the video screen. The board replaces the character set contained within the 6847 VDG chip in the computer. This board adds features such as:

- 1) All 96 standard ASCII characters (\$20 to \$7F)
- 2) Upper and lower case displayed simultaneously
- 3) True descenders on lower case characters
- 4) Braces and vertical bar characters
- 5) Slashed zero (to distinguish from letter "O")

The FCS Board comes completely assembled and easily installs into the MC6847 socket in the Color Computer.

Connection points are available on the board to allow the installation of a switch to revert from the full character set to the original Color Computer character set. The FCS Board requires no software drivers, and switching from one character set to the other will not affect the processor, programs, or any other graphics modes in any way. A jumper on the board allows selection of normal or inverse video even if the board is in use. The board also allows software selection of a reverse video set of upper case letters.

The board has no effect on any memory in the computer. The FCS Board will have no effect upon popular software which generates either its own character set or high resolution graphics.

Some potential uses of the Board:

- \* OS-9 Operating System Programming
- \* C Language Programming
- \* Word Processor Screen Improvement
- \* Communication Compatibility with other computers

The CoCo Devices FCS Board has two jumpers that may be installed to alter operation of the Board:

Two pads on the board are labeled "DISABLE." When these two terminals are connected together, the lower case board is disabled and the original Color Computer character set is restored. If a switch is wired to the disable pads, the user can switch from one character set to the other without having to turn off power to the computer.

\* TRS-80 is a registered trademark of the Tandy Company, Inc.

Three pads on the FCS Board are labeled "INV" and "NORM." The FCS Board comes from the factory with the "NORM" connection made using a soldered jumper. The center pad must be connected to either the "INV" or the "NORM" pad for proper operation. When the center terminal is connected to NORM, the computer will display dark characters on a light background. When the center pad is connected to INV, the computer will display light characters on a dark background. This jumper does not select foreground and background colors; it only gives the option of having the colors seen normally or inverted without using software to perform the change. A SPDT switch can be wired to the contacts to allow these functions to be utilized without having to make physical internal connections. To add this switch, it will be necessary to remove the "NORM" jumper mentioned above.

The following character set is a printed representation of the characters that will be seen on the screen with the FCS Board in place:

```

x p h ' X P H @ 8 0 ( V N E █
y q i a Y Q I A 9 1 ) ! W O H |
z r j b Z R J B : 2 * " X P I A
( s k c [ S K C ; 3 + # Y Q J B
| t l d \ T L D < 4 , $ Z R K C
} u m e ] U M E = 5 - % C S ~ D
~ v n f ^ V N F > 6 . & N T L E
% w o g _ W O G ? 7 / ' D U M F

```

Note that the characters in inverse video are only accessible by utilizing the "Poke" commands into screen memory. The normal video characters are directly accessible through keystroke operation (the lower case characters are accessed by "Shift" "0" in the same manner that the original "CoCo" character set is enabled).

### INSTALLATION INSTRUCTIONS

- 1) Remove FCS Board from shipping envelope and examine. If any pins are bent, carefully straighten with needle-nose pliers.
- 2) Remove Color Computer cover (see owner's manual).
- 3) Remove R. F. shield (if MC6847 chip is under shield)
- 4) If enable/disable switch and/or inverse/normal switch is/are to be installed, then remove "NORM" jumper wire and solder wires to appropriate connections on board; else ignore this step.
- 5) Remove MC6847 from its socket (note location of pin 1). Use caution to prevent bending of pins.
- 6) Install MC6847 just removed into the 40 pin socket on the lower case board (note location of pin 1). Use caution to prevent bending of pins.
- 7) Make sure all pins on bottom of FCS board are in line and not bent. If any are bent, gently and carefully align using needle-nose pliers. Align FCS board over original MC6847 socket and gently press into socket. Do not use excessive force or pin damage can result.
- 8) If external enable/disable and/or inverse/normal switch is/are to be installed, then run wires to desired location on case exterior, else ignore this step.
- 9) Replace the R. F. shield. (Note: On "E" CoCo boards, the R. F. shield will not snap back into place with FCS Board in place. The R. F. shield will fit on 3 sides and will need to be taped to the CoCo Board with non-conductive tape to keep shield from being dislodged if computer is moved. The slight "gap" in the shield integrity will have no detrimental effects upon either computer performance or upon RF emissions.)
- 10) Replace the Color Computer case.

The following BASIC program can be used to display the entire character set:

```
10 CLS: X=1024
20 FOR Y=0 TO 127
30 POKE X,Y: X=X+1
40 NEXT
50 GOTO 50
```

The lower case character set is enabled by "Shift" "0" and disabled by the same key strokes ("Shift" "0").

Please provide your comments for improvement of this product to CoCo Devices, P. O. Box 677, Seabrook, Texas 77586. We would also welcome your suggestions for other Color Computer add-on products.

CoCo Devices  
Box 677, Seabrook, TX 77586  
713-474-3232

CoCo DEVICES  
LIMITED WARRANTY

This warranty applies to the sale of a consumer product. Purchases for resale or commercial or industrial use are not covered by this warranty.

For a period of 90 days from the date of purchase, CoCo Devices warrants to the ultimate consumer, whether original purchaser or not, that the unit sold hereunder will be free from defects in material and workmanship. This warranty applies only to this unit. CoCo Devices cannot be responsible for other losses or damages of any kind resulting from or in equipment failure. This warranty is rendered void if the unit has been tampered with or misused.

In the event of defect, malfunction or failure of the unit to conform with this warranty, CoCo Devices will repair or furnish a replacement for those units or components thereof which, upon test and examination by CoCo Devices, prove defective.

This warranty is limited solely to the above and this warranty and any warranties implied by state law will apply only for the period set forth (some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you. THE WARRANTOR WILL NOT BE LIABLE FOR ANY LOSS, DAMAGE, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, WHETHER BASED UPON WARRANTY, CONTRACT, OR NEGLIGENCE, AND ARISING IN CONNECTION WITH THE SALE, USE OR REPAIR OF THE PRODUCT. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.) UNLESS OTHERWISE CONTRARY TO STATE LAW GOVERNING THE PURCHASE, THE WARRANTOR'S LIABILITY SHALL NOT IN ANY CASE EXCEED THE CONTRACT PRICE FOR THE PRODUCT CLAIMED TO BE DEFECTIVE OR UNSUITABLE. CoCo DEVICES ASSUMES NO LIABILITY FOR DAMAGE TO OTHER ELECTRONIC DEVICES CAUSED BY IMPROPER INSTALLATION OF CoCo PRODUCTS.

Warranty Repair. The purchase or end user must notify CoCo Devices within 30 days after a defect is discovered. The product claimed to be defective must be packed so as to avoid damage in transit and must be sent, prepaid, to CoCo Devices. The user must enclose a return address with the unit. Products returned for warranty repair or any questions should be sent to:

CoCo Devices  
P. O. Box 677  
Seabrook, Texas 77586

Units received damaged as the result of shipping will require a claim filed by sender with the carrier.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.