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SwiftLink-232 Serial Cartridge Instructions

Thank you for purchasing a *SwiftLink-232* serial cartridge! This cartridge contains a 6551 ACIA (Asyn-chronous Communication Interface Adapter) chip, which allows your computer to communicate with RS-232 serial devices (like modems and printers) at speeds far greater than before. The 6551 is part of the same family of chips (65XX/85XX) found in the Commodore 64 and 128. In fact, the C-64/128's operating system emulates the 6551. When used with appropriate terminal software, this cartridge allows you to communicate at speeds from 300 bps to 38,400 bps.

These instructions:

- give you operating guidelines,
- tell you how to install the cartridge,
- provide troubleshooting tips, and
- state warranty information.

We strongly suggest that you read all of these instructions before using your *SwiftLink-232*, and **especially the section, *Operating Precautions***.

IMPORTANT

- 1) Please read the text file "SOFTWARE NOTES" for the latest information on how to use your *SwiftLink-232* with the accompanying terminal software. This file can be found on the back side of the *NovaTerm* disk. All SEQ files such as this one may be read with most any Commodore word processing program or SEQ file reader.
- 2) If you are using your *SwiftLink-232* with a Practical Peripherals PM2400SA MNP Level 5 modem, you may experience some difficulties. Specifically, this modem appears to have the DCD and DSR lines tied together internally, which may prevent you from seeing the modem's response codes ("OK", "CONNECT 2400", etc.) unless a carrier signal (i.e. DCD) is present. If this situation occurs, you may need to modify the DSR connection inside your *SwiftLink*. Information on how to do this is located on the last page of this documentation.

Operating Precautions

Your *SwiftLink-232* contains an ACIA chip, an integrated circuit which is much more sensitive to handling than some other cartridges which you may own or use. The cartridge is **especially** susceptible to damage caused by static electricity on your person. For this reason, please observe the following:

- **NEVER** insert or remove the cartridge when your computer is on, **even if you have a cartridge expander device**. This kind of treatment will certainly damage your cartridge.
- **NEVER** touch the gold contacts on the cartridge board. This is sure to discharge any static electricity onto the cartridge—which can destroy the ACIA chip inside.
- **ALWAYS** use an anti-static bag or other container which does not generate static when transporting the cartridge. This will help avoid static damage. Just the friction caused by putting the cartridge in your pocket can build up static and damage the sensitive ACIA chip.

Using the Cartridge

SwiftLink-232 is easy to use. Just follow these instructions:

- 1) **Turn off** the power to your Commodore 64, 64c, 128, 128D, or SX-64 computer.
- 2) Plug the cartridge into the computer's cartridge port, label side up.
- 3) Move the interrupt switch on the top of the cartridge to the desired position. For most C-64/128-mode terminal programs, move the switch to the "NMI" position. For all CP/M-mode terminal programs, move the switch to the "IRQ" position. See *Software Notes* for further information on the correct position for each terminal program.
- 4) Turn your computer back on.

The cartridge is now ready to provide high-speed RS-232 serial communication. **Note:** If you have been using a traditional user port RS-232 interface, you can unplug it, or possibly use it as a printer interface.

SwiftLink-232 features a male DB-9 serial connector which is compatible with industry-standard IBM PC/AT serial cables for interfacing to RS-232 devices. The exact cable you need depends on the device you wish to use. For a Hayes-compatible modem, you need a DB-9 female to DB-25 male modem cable. CMD sells a cable of this type to purchasers of SwiftLink-232 for \$9.95.

For a "null-modem" connection (your C-64/128 directly connected to another computer), there are many possible kinds of cables, depending on the type of serial port connector on the other computer (its size, gender, and configuration). In most cases, you need only the most basic null-modem cable (three wires): Ground (GND), Transmit Data (TxD), and Receive Data (RxD). The GND wire runs straight through, while the TxD and RxD wires change positions on one end of the cable. Use the chart below to help determine the correct null-modem cable:

SwiftLink-232		Other Computer		
DB-9 Connector Pin Number	Pin Name	Pin Name	DB-9 Connector Pin Number	DB-25 Connector Pin Number
2	RxD	TxD	3	2
3	TxD	RxD	2	3
5	GND	GND	5	7

Some computers may require additional wires, such as Data Set Ready/Data Terminal Ready (DSR/DTR) and Clear To Send/Request To Send (CTS/RTS). Here are the connections for these other wires:

DB-9 Connector Pin Number	Pin Name	Pin Name	DB-9 Connector Pin Number	DB-25 Connector Pin Number
4	DTR	DSR	6	6
6	DSR	DTR	4	20
7	RTS	CTS	8	5
8	CTS	RTS	7	4

For more information on null-modem connections, contact CMD or consult a book on RS-232 communications.

SwiftLink-232 comes with a variety of communication software for C-64, C-128, and CP/M modes. Each terminal program has its own special features. Consult *Software Notes* and each program's documentation for more information.

Troubleshooting Tips

If you are experiencing trouble with your cartridge, here are some possible problems and their solutions:

- **Cartridge locks up the computer or does not respond:** First, make sure the interrupt switch on the cartridge is in the correct position (refer to *Software Notes* to see which position each terminal program uses). Next, make sure the program you are using is set to use *SwiftLink-232* (some programs also support the traditional user port interface). Then, check the communication parameters (baud rate, parity, etc.) for the program you are using to make sure they agree with the device you are connected to via *SwiftLink-232*.
- **Cartridge can send data but not receive:** Make sure the interrupt switch on the cartridge is in the correct position (refer to *Software Notes* to see which position each terminal program uses). If you are using a null-modem cable, make sure the pin assignments match those given above.
- **Cartridge responds, but produces garbage:** Carefully check the communication parameters for the software you are using. Be sure the baud rate, parity, and stop bits settings match those of the device you are connected to via *SwiftLink-232*. If you are using a null-modem cable, make sure the pin assignments match those in the chart above.
- **Cartridge works fine at low speeds but fails at high speeds:** First, check *Software Notes* and the documentation for the terminal program you are using to make sure the program fully supports the communication speed you wish to use. If you are using a null-modem connection, also make sure the other computer can fully support the speed you wish to use. Next, make sure the cable you are using is in good shape—worn or improperly-shielded cables can cause problems at high speeds.
- **Computer locks up in CP/M mode when the modem is turned on or off:** Be sure to run the program INITACIA.COM (see *Software Notes*) to properly initialize *SwiftLink-232* for CP/M.

In general, if a problem persists, first try a different terminal program. Then, try replacing the cable. If nothing corrects the problem, the circuitry inside your *SwiftLink-232* may be damaged, especially if the cartridge becomes overly warm.

If you have questions or comments regarding *SwiftLink-232* feel free to contact us on Quantum Link in our area located in the CIN Hardware Support Group or leave Electronic Mail to screen name: "CMD". On GENIE you may locate us in the Commodore Flagship, or leave Electronic Mail to "C.Micro". We always attempt to have the latest versions of support software available for downloading on all three information services.

If your cartridge is in need of repair, return it to CMD postage paid. See the *Limited 90-day Warranty* section for the terms of a warranty repair.

Limited 90-day Warranty

CMD warrants that each *SwiftLink-232* cartridge will be free from defects in material or workmanship for a 90-day period beginning when the cartridge is shipped. This warranty covers parts and labor for repairing defects in the cartridge as it was manufactured. The warranty does not cover unreasonable wear and tear or abuse on the cartridge, nor breakage through negligence.

The manufacturer does not warrant that this unit is fit for any particular purpose. In no event shall damages for loss of use of this cartridge extend beyond the purchase price of this item. Any attempt to alter or repair the cartridge by persons not associated with CMD voids any remaining warranty on the

cartridge.

If your cartridge needs warranty service, return it to CMD postage paid or the dealer it was purchased. Make sure you package it very securely to prevent any damage during shipping. You may also want to send the cartridge insured. Enclose a letter stating the nature of the problem and describing your computer system. Your cartridge will be repaired free of charge and returned postage paid, unless it is determined that the problem is not defect-related. CMD reserves the right to determine what is and what is not a defect. This cartridge, as well as many other peripheral devices of this nature, is extremely sensitive to static electricity. Therefore, damage due to static electricity discharge once the cartridge is in your possession is not considered a defect and is not treated as a warranty repair.

This limited warranty gives you specific legal rights. You may have others which vary from state to state.

Hardware Modifications

Two hardware modifications are possible with the SwiftLink cartridge, one to change the way that the DSR signal is handled internally, and another to change the base address which SwiftLink is accessed at.

The DSR modification is performed by cutting a trace located between two pads on the back side of the SwiftLink circuit board, near the connector at the top. See figure 1 below.

The base address of SwiftLink is normally \$DE00. This may be changed by cutting the connection between the (center) address selection pad and the (left) \$DE address pad, then soldering a new connection between the address selection pad and the (right) \$DF address pad. These are all located on the front of the SwiftLink circuit board, near the edge connector at the bottom.

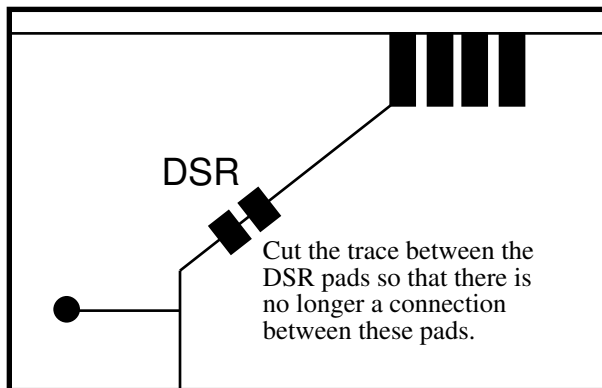


Figure 1

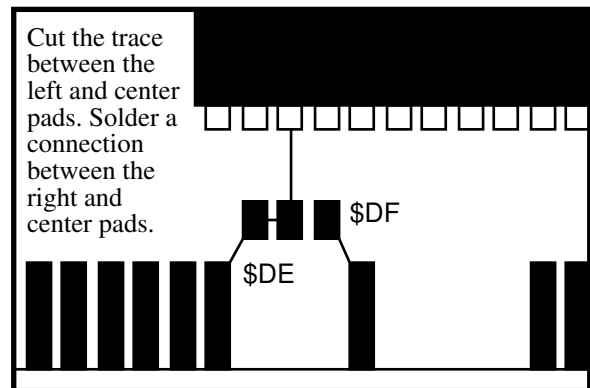


Figure 2