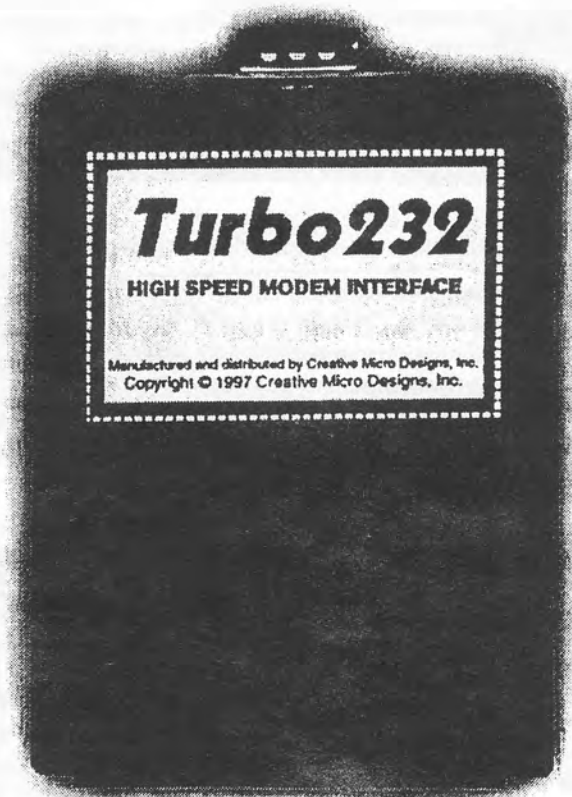




# ***Turbo232***

**HIGH SPEED MODEM INTERFACE**

## **User's Guide**



## ***Introduction***

The Turbo232 cartridge is a high-speed RS-232c modem interface which allows you to connect standard external modems to your Commodore 64 or 128 computer. When used with appropriate terminal software, this cartridge allows you to connect to communications networks at speeds up to 230,400 bps (230Kbps). The interface plugs easily into the cartridge port of any Commodore 64 or 128 computer, and provides an industry standard DB-9 port for attaching external modems.

## ***Handling Precautions***\_\_\_\_\_

Your Turbo232 contains circuitry that can make it susceptible to damage caused by static electricity. 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.
- Never touch the gold contacts on the cartridge board—doing so increases the chances of damaging the circuitry with static discharge.

## ***Installation***

Your Turbo232 cartridge comes fully assembled and ready for connection to your computer. As is true with any cartridge, certain precautions should be taken so that you do not damage your computer during installation.

- 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) Connect your modem, using a DB-9 to DB-25 modem cable. If you do not have a modem cable, CMD Sales (1-800-638-3263) has these available. Optionally, you may use a null-modem cable to attach your Turbo232 directly to another computer type to perform direct transfers.

The cartridge is now ready to provide high-speed RS-232c serial communication.

*Note: If you have been using a traditional user port RS-232c interface, you can unplug it, or possibly use it as a printer interface.*

## ***Using Turbo232 with Other Cartridges***

Your Turbo232 cartridge is compatible with RAMLink, Commodore 17xx REU's, and GEORAM. You may use it directly in the Pass-Thru port on RAMLink, or in combination with the other RAM devices mentioned above by plugging both devices into a Cartridge Port Expander. CMD offers two Cartridge Port Expanders that can be used for this purpose, the EX2+1 and EX3. Please note that the address jumper of your Turbo232 must be changed to \$DFOO to use it with a GEORAM. In addition, you must also configure your software to use Turbo232 at \$DFOO.

## *Software Compatibility*

Turbo232 is compatible with programs written to use SwiftLink. If the software you are using does not have a setting for Turbo232, try setting the software for SwiftLink. If the software does not have a SwiftLink setting, or the SwiftLink setting does not work correctly, please contact the author of the software to determine whether it is fully compatible with Turbo232. The following programs are known to be compatible with Turbo232:

- Novaterm (v9.5, v9.6 & v9.6 Lite)
- Desterm (v2)
- Dialogue 128

GeoFAX v1 is not compatible with Turbo232, due to the way it searches for a SwiftLink; however, the author will resolve this in geoFAX v2 which is expected to begin shipping concurrently with Turbo232.

## *Speed Considerations*

While Turbo232 is fully capable of communications speeds up to 230Kbps, stock Commodore computers generally are not. Typically, a stock Commodore 64 using the Turbo232 will communicate at up to 57.6Kbps reliably, while a stock Commodore 128 can manage 115.2Kbps. Efficiency at these speeds will vary, depending on the software (terminal program), function being performed, and speed of peripheral devices (disk drives, RAM devices, modems) being used for the function. Commodore 64 and 128 computers equipped with CMD's SuperCPU are capable of achieving the highest speed setting of 230.4Kbps with efficient software.

## *Novaterm 9.6 Lite*

Novaterm 9.6 Lite has been supplied on the disk included with your Turbo232 cartridge. This is a scaled down trial version of the popular Novaterm 9.6 terminal program which runs on the Commodore 64. The program can also run in 64 mode on a Commodore 128 using the 128's 80-column screen. Many of the features that appear on the menus in this Lite release are disabled. These functions come enabled in the full version, which you can order directly from CMD. To load the supplied software, insert the disk (label side up) into your disk drive (device 8), and enter:

LOAD "\*" ,8

When the READY prompt appears, enter: RUM

In the Initial Configuration program, select *Hayes Compatible*, your modem speed (use 28.8 for 33.6 or 56K modems), *Turbo232 cartridge* (use *Turbo232 \$DFxx* if you have changed the address jumper to \$DFxx), *tone* or *pulse* dialing, and 80 column *font/color* selections. If you need to make any further changes, select the Configuration option from the main menu. For additional terminal settings not found in the Configuration menu, press <Commodore><M> while in terminal mode. This will provide you with a list of other key functions available in (hat mode.

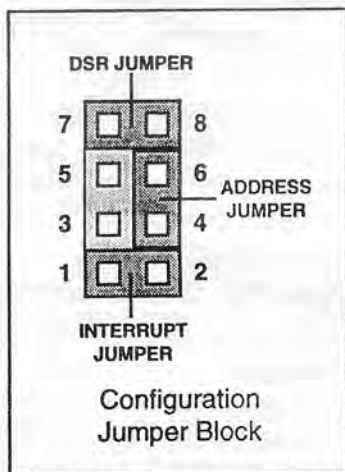
## Changing the Hardware Configuration

Turbo232 comes set for the defaults necessary for most users. However, some users may need to change some of the hardware settings to use the cartridge with other hardware or specific software items. To make these changes, open the cartridge and locate the Configuration Jumper Block near the left center of circuit board. The information below describes the possible changes.

**DSR:** The default setting for this option is to jumper pins 7 and 8. Some modems may have DSR internally tied to DCD, which can block modem response codes unless carrier is present. If you have this problem, try removing the DSR jumper.

**ADDRESS:** This jumper controls which I/O page the Turbo232 occupies. The default is \$DExx, selected by shorting pins 4 and 6. If you have a GEORAM, you should move this jumper to pins 5 and 6 to select \$DFxx.

**INTERRUPT:** Most programs use the default of NMI (pins 1 and 2 shorted). QTERM (a CP/M terminal program) requires IRQ (move the jumper to short pins 1 and 3).



*Note: To obtain Turbo232 programming information, contact CMD.*

## Technical Support

Technical support for your Turbo232 cartridge may be obtained by contacting CMD in one of the following ways:

Phone: (413) 525-0023 (1 PM to 5:30 PM EST)

Fax: (413) 525-0147 (24 hrs)

Write: Creative Micro Designs, Inc.  
P.O. Box 646  
East Longmeadow, MA 01028

## Warranty

CMD warrants this product against manufacturing defects for a period of 90 days from date of shipment. During this period CMD will replace or repair any defective unit. All returns must be accompanied by a Return Material Authorization (RMA) number. An RMA may be obtained by contacting CMD during normal business hours. CMD is not responsible for any damage caused by the use of this product. Contact CMD for full details on warranty coverage.

# ***Turbo232***

## **Novaterm 9.6 Lite**

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See Turbo232 Manual For Instructions