

*High performance telecommunication  
cartridge for the Atari 8-bit computer*

**EXPRESS!**

Requires 48K and a  
Hayes-compatible modem



**Orion Micro Systems**

# **Express! User Manual**

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## Welcome To Express!

*Express!* is the first *full featured* telecommunications program for the Atari 8-bit computer available in cartridge form. The advantage of using a cartridge-based terminal program versus a disk-based program are:

1) The cartridge version is available immediately without having to wait for a program to load from disk. This allows a very fast transition from DOS to the terminal program and back again, even while online.

2) The Express! cartridge will run without a disk drive or without DOS being loaded in the computer. It is possible to run Express! on an XE game machine without disk drives, making it a very inexpensive communications setup.

Express! is an intuitive, easy to operate program. Its drop-down menu system will have a novice telecommunicating in a matter of minutes. The advanced features which have been incorporated into the cartridge will delight even the most demanding user. Express! also incorporates the ability to run external command modules from disk, ensuring that as your telecommunication needs expand in the future, Express! will expand to meet them.

Throughout this manual, we will refer to a multiple keypress operation with the following notation:

[SHIFT][CONTROL] A

This means to hold down the **SHIFT** and the **CONTROL** keys simultaneously and then press the **A** key.

We will also talk about 'selecting' an item. What we mean by this is that as you move around the menus in Express!, the options will become 'highlighted' in inverse characters. When this highlighting occurs, an item is considered selected.

## System Requirements

You'll need the following equipment in order to use the Express! terminal cartridge:

- o Atari 800, 800XL, 130XE or XE game system with keyboard
- o Monitor or television (color or black and white)
- o Disk Drive (optional) (required for uploading/downloading functions)
- o RS232 interface (MIO, PRC or 850) (optional with Atari SX212 modem)
- o Hayes compatible modem (RS232 compatible) or Atari SX212 modem

## Loading The RS232 Handler

In order for Express! to communicate with the modem, the RS232 device handler must be loaded into memory. If your modem is connected to the RS232 port of the MIO, loading the RS232 handler is not necessary, as the handler is already present in the MIO. If you are using the Atari 850 interface or the PR: Connection, Express! will load the handler automatically for you. If you are attempting to use Express! with some other configuration (i.e. SX212 through the SIO port or the RS232 port on the ATR8000), you must load the appropriate RS232 handler prior to running the Express! cartridge. Refer to your DOS manual for the proper procedure for loading the device handler.

Express! will work with the Atari 1030 and XM301 modems provided you load an RS232 handler (commonly referred to as an 'R: handler') prior to running the cartridge. There are a few good public domain handlers available on bulletin boards, as well as GENie, that can be used for this purpose. Orion Micro Systems does not recommend using the Express! cartridge with these modems, as the results may be unpredictable and usability of the cartridge may be severely limited.

## Modem Settings

In order to use the Express! cartridge successfully with your particular modem, the following settings will need to be made to your modem either through the dip switches or the 'soft set' switches on 2400 baud and higher modems:

- o The modem hangs up and returns to command mode when the DTR line is dropped.
- o The modem should **not** force the carrier line ON.
- o The modem should return 'result codes' in verbose or word form.
- o The modem should recognize its own commands

In general, the current settings on your modem should work 'as is'. If your particular modem cannot perform a DTR hangup, you will be unable to use the '*Hang Up the Phone*' option from the parm menu. Instead, you should manually perform a hangup by typing '+++  
' from terminal mode. When your modem responds with OK, type 'ATH'[RETURN]. Or you can simply turn the modem off and back on to terminate the connection.

If you currently have your modem set up to run BBS Express! Professional, no modem setting changes are required.

## Using Expanded Memory

The Express! terminal cartridge can use up to 512K of expanded memory as a capture buffer if you are using an expanded 800XL or 130XE. The only requirement to use this extra memory as a buffer is that it follows the bank select method utilized by the '*Peterson 130XE memory upgrade*' or ICD's '*Rambo*' memory upgrade for the 800XL's.

As an example, let's suppose you have a 130XE with the 576K memory upgrade. You can set the memory size in the configuration

menu to 576K, which will yield a 512K capture buffer. In this configuration, you would not be able to use any of this memory as an internal ramdisk, as it has all been reserved for Express's use.

Now let's say you want to use the extra memory for both a ramdisk and extra buffer space. Assuming your ramdisk configuration program allows you to do this (i.e. the RD.COM program from SpartaDOS), you can run your ramdisk program specifying the parameter to not use the upper 64K of the normal 128K of memory (i.e. RD D8: /E). This would create a 448K ramdisk and leave the upper 64K free, which can then be used by Express! as extra buffer space by setting the memory size to 128K in the configuration menu. This will give you an 80K capture buffer (the normal 16K buffer space plus the extra 64K).

The key to remember when setting memory size in the configuration menu is that you are telling Express! 'This is how much free memory I have in my computer **NOT** allocated for ramdisk use.

The chart below lists the buffer sizes available relative to the memory size setting.

Memory		Capture Buffer Size		Computer Type
64K	-	16K	- 16,384 bytes	Stock 800 / 800XL
128K	-	80K	- 81,920 bytes	Stock 130XE
256K	-	208K	- 212,992 bytes	'Rambo'ed 800XL
320K	-	272K	- 278,528 bytes	130XE w/ 320K
576K	-	528K	- 540,672 bytes	130XE w/ 576K

**SpartaDOS X Users:** In order to use this increased buffer size feature with Express!, you will need to specify 'USE BANKED' in your CONFIG.SYS file. Keep in mind when setting up this parameter that you will need 4 free banks in order to set the memory setting to 128K (each bank representing 16K). You would need 12 banks free in order to specify 256K and so on...

## Starting Express!

Running Express! is as simple as plugging the cartridge in the cartridge slot and turning the computer on as you normally would. If you are using an Atari 800, plug Express! in the left cartridge slot. Once your computer has booted, you may start the Express! cartridge by typing **CAR [RETURN]** if running SpartaDOS or select the '**Run Cartridge**' option on your DOS menu to start Express! If you are running Atari 2.0 DOS, the cartridge will automatically gain control once DOS has loaded. This is also true with SpartaDOS 3.x (if you do not have a STARTUP.BAT file set up).

Express! is a stackable cartridge and may be placed virtually anywhere in the stack. If you are using the ICD R-Time8 cartridge, we recommend that you plug in the Express! terminal cartridge above this cartridge. If you are using the ICD SpartaDOS X cartridge, Express! should always be plugged in on top.

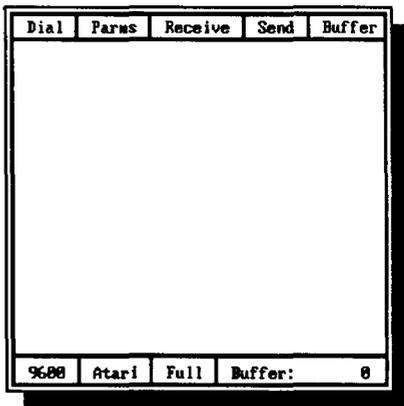
Each time Express! runs, it will look for the CONFIG.EXP file (stores the user settable parameters) and the PHONE.LST file (stores the dialing phone list entries) on drive 1 in the root directory and load them into memory if they exist. We will discuss how Express! creates these files later in this manual.

Holding down the [OPTION] key while booting your computer (with the Express! cartridge installed) will cause the '**Express! Cartridge Control Menu**' to appear on your screen. This allows you to select which cartridge you want enabled when the computer boots. This feature eliminates the need to plug cartridges out the computer. Simply select how you want to boot your computer and the boot process will continue, enabling or disabling cartridges based on your selection.

## Terminal Mode

Once the cartridge has finished loading the configuration file and the phone list, you will be placed on the terminal mode screen. From there, you can communicate with your modem to change modem settings, access the drop down menu system and communicate with a BBS or another computer.

From the terminal mode screen, you may manually dial a BBS number by typing ATDT or ATDP followed by the telephone number. Set your translation to ASCII translation mode when dialing numbers this way. (Note: it is possible to set your translation mode to ATASCII mode and type modem commands or dial phone numbers. If you prefer setting the translation to ATASCII, instead of pressing the [RETURN] key to terminate a command, press [CONTROL] M.)



*Terminal Mode Screen*

ATDT123-4567 [RETURN] - will tone dial the number 123-4567  
ATDP123-4567 [RETURN] - will pulse dial the number 123-4567

From time to time, you may want to connect with a friend from a voice call. To perform this with Express!, set the duplex to HALF and the baud rate and translation to match your friend's settings. To initiate a connection, one of you must 'Originate' and the other must 'Answer'. Agree on who will originate and who will answer. To originate, from the terminal window type the command ATO [RETURN]. To answer, from the terminal window type the command ATA [RETURN]. Both modems will go 'offhook' and match their carriers. Once this occurs, you can chat back and forth through terminal mode and initiate file transfers.

Terminal mode can also be used to compose a message off-line to later send to a BBS. To compose a message, set your duplex mode to HALF and make sure your capture buffer is empty. Press the [SHIFT]

**CLEAR** keys to clear the terminal mode screen. Now using the blank terminal screen, compose the message. Keep in mind that you are limited to the size of the terminal screen (approx. 22 lines), although you can save multiple screens to compose longer messages if needed. Press the **[SHIFT] [CONTROL] Y** keys to buffer the terminal screen to the capture buffer. If you want to continue with the message, clear your screen and continue typing your message until you are either finished or the screen is again full. Keep in mind that BBS's usually limit the size of a message, so it's best to keep the message short. Now press the **[SHIFT] [CONTROL] Y** keys again to buffer the screen again. Once your message is complete, you can use the **SAVE** function under the **BUFFER** option on the menu bar to save your message to a disk file. Later, when you are online, use the send ASCII transfer mode to upload your message to the BBS's message base editor. Just remember to start a message on the BBS as you normally would, but instead of keying the message by hand, use the ASCII send function.

While online with a BBS, you may occasionally need to pause the text to give you time to read it before continuing. Should that need arise, the general rule of thumb is to press the **[CONTROL] S** key to pause the BBS from sending data. To resume the data flow, press **[CONTROL] Q**. Think of **[CONTROL] S** and **[CONTROL] Q** as a data off/on switch while in terminal mode. Many BBS's recognize **[CONTROL] S** to both start and stop the data flow. Experiment with the BBS's you call to see which method works best for you.

**Type Ahead Buffer** - while in terminal mode, Express! offers you the ability to utilize a type-ahead buffer. Pressing **[SHIFT][CONTROL] T** once turns the type-ahead buffer ON. A **TA>** prompt will replace the top menu bar. In this mode anything you type on the keyboard will not be sent out over the modem until you press the **[RETURN]** key. Pressing **[SHIFT][CONTROL] T** again will toggle to a **D1:** prompt. In this mode, you can enter DOS commands as if you were in the OS Shell. While in the DOS prompt mode, the last 10 commands are saved in a '*command line recall*' buffer. To recall a command, use the up/down arrow keys and the command will appear in the command line. Once the command you are looking for appears, press the **[RETURN]** key to perform the command.

**Note:** Commands may be up to 80 characters long. The com-

mand line will scroll to the right if a typed command exceeds the right screen boundary.

While in either the type-ahead mode or the DOS prompt mode, you may press [ESC]ape to turn the menu bar back on while keeping the mode you were in still turned on. Pressing [ESC]ape again will return you to the same mode you were in before. Pressing [SHIFT][CONTROL] T again turns the menu bar back on and disables the type-ahead buffer.

**Turning The Screen OFF** - from time to time, you may want to turn the screen off. To accomplish this, press the [SHIFT] [CONTROL] ATARIKEY. When the screen is turned off, processing speed increases by approximately 30%. This can save quite a bit of time in file transfers at higher baud rates either through the modem or when null modeming to another computer. Pressing [SHIFT] [CONTROL] ATARIKEY again will turn the display back on.

**Note:** Turning off the screen will only speed up Express! if you are communicating at 19200 baud. Express! will keep up with baud rates through 9600 baud with the screen turned on.

## The Menu Bar

The Menu bar at the top of the screen contains the major functions of the cartridge. Pressing the [ESC]ape key activates the menu system. Pressing [ESC]ape again deactivates the menus, placing you back in terminal mode.

Upon activating the menu system, a drop down menu will appear under the major function that you are currently using and will display all the sub-functions available within the major function. To move from one major function to another, use the left and right arrow keys located beside the [CAPS] key. Once in a major function, use the up and down arrow keys located beside the [RETURN] key. While using the arrow keys to move around the menus, it is NOT necessary to hold down the [CONTROL] key.

When you have selected the function that you wish to execute, press the [RETURN] key.

When you are moving from side to side through the menu selections and you reach the menu selection closest to either side of the screen, pressing the arrow key again in the same direction you were moving will cause the next page of the menu bar to appear. To illustrate this, press the [ESC]ape key to activate the menu system. Now repeatedly press the right arrow key to move to the right through the menus. When you reach the buffer menu and press the right arrow again, the second page of the menu bar will appear and the config menu selection on the left side of the screen will be active. Continuing to press the right arrow key will move the menu selection indicator to the right until it reaches the right side of the screen. Pressing the right arrow key again will flip back to the first menu bar page positioning you back to the left side of the screen with the dial menu active.

Dial	Parms	Receive	Send	Buffer
------	-------	---------	------	--------

*1st Menu Bar*

Config	Misc	OS Shell	Info	Quit
--------	------	----------	------	------

*2nd Menu Bar*

Express! always remembers the last menu bar option that was active. Therefore, when a function is executed and you re-activate the menu bar, Express! will position you to the last active menu bar option and the last active function within that option as a starting point. You may then select a new menu option to perform.

Regardless of how many levels deep you are in menus, the [ESC]ape key will always return you to the previous menu you were on. So, if you are in terminal mode and you activate a menu function and wind up 3 levels deep in menus, pressing the [ESC]ape will back up a level each time until you are finally back in terminal mode again.

## The Menu Functions

There are 10 major functions in the menu bar. They are:

- Dial** - accesses the dialing and phone list functions.
- Parms** - accesses the parms functions to allow the setting of default values such as baud rate, translation, duplex, parity, comm port, modem parameters, download pathname and hang up the phone.
- Receive** - accesses the file transfer receive functions.
- Send** - accesses the file transfer send functions.
- Buffer** - accesses the capture buffer functions such as loading, saving and viewing the capture buffer.
- Config** - accesses the configuration functions such as margin setting, word wrap mode, edit generic macros and load/save config file.
- Misc** - accesses the misc functions for setting the background and foreground color settings.
- OS Shell** - access the OS Shell to allow DOS commands to be entered without having to drop back to DOS to perform these functions.
- Info** - displays information about the Express! cartridge.
- Quit** - allows you to exit out of the cartridge back to DOS, even while online. This option also allows you to control which cartridges will be active when you exit.

Each of these 10 major functions are divided into sub-functions. We will now discuss these sub-functions in detail.

## Dial Menu Function

To use the dial function, select it on the menu bar. The dial menu will drop down allowing access to the sub-functions.

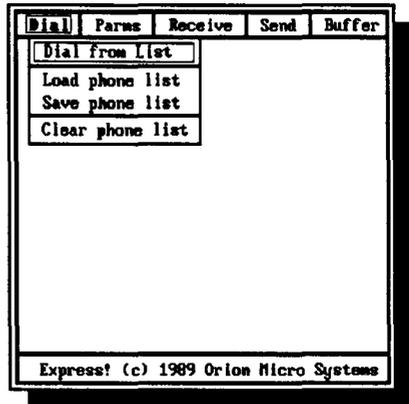
**Load phone list** - this option allows you to load a phone list from disk. You will be prompted for a filename to load.

**Save phone list** - this option allows you to save a phone list to disk. The default phone list that Express! uses when first loaded is a file named PHONE.LST on drive 1. You may create additional phone lists and save them on other drives and give them any name you want, but these phone lists would later have to be manually loaded using the load phone list option.

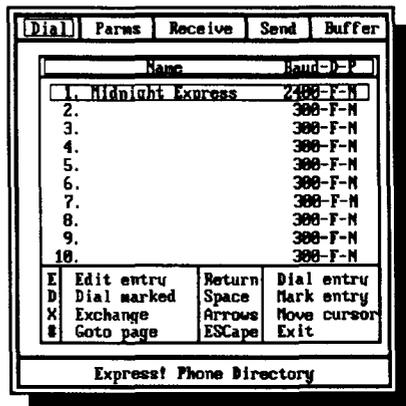
**Clear phone list** - this option allows you to clear a phone list that is currently in memory. Use this option when you want to start a new phone list from scratch.

**Dial from list** - To dial from the phone list, position to 'Dial from List' with the up/down arrow keys and press [RETURN]. The following menu will appear:

Using the up/down arrow keys, position to the entry that you wish to use. Once positioned, the functions listed in the lower portion of the screen act on the selected entry.



*Drop Down Dialing Menu*



*Phone List Dialing Menu*

**Return** - dials the entry you currently have selected. The screen will clear and the 'Waiting For Connect Window' will appear. To abort the dialing function, press [ESC]ape. Dialing will be terminated and the dialing menu will reappear.

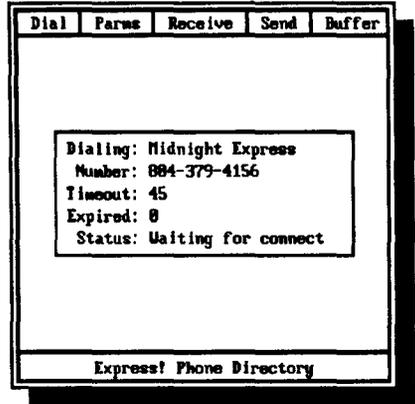
**Space** - marks the entry to be dialed when using the Dial marked function.

**Arrows** - pressing the up/down arrow keys moves the selection bar up and down the current page you are on. Pressing the left/right arrow keys jumps to the next page (10 entries per page). There is a maximum of 50 entries per phone list.

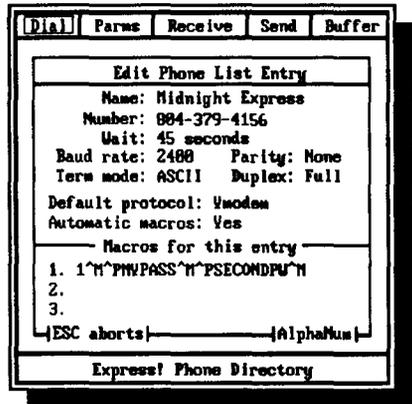
**#** - pressing the keys [1] through [5] will jump directly to that page in the phone list. For example, pressing [4] will jump to page 4 of the phone list, which contains entries 31 through 40.

**Edit entry** - allows you to add, change or delete the selected entry. When this option is selected the following menu appears:

Once this menu appears on the screen, pressing the [TAB] key will move you from field to field. Once the cursor is positioned on the field you wish to edit, the field contents may be changed. As you tab to each field, notice the box in the bottom right hand corner of the menu. This box indicates the acceptable keypresses for the particular field being edited. For example, when



*Waiting To Connect Window*



*Phone Entry Edit Menu*

this menu first appears, the cursor is positioned in the first position of the 'NAME' field and the bottom right hand box indicates 'AlphaNum'. This means this field will accept alphanumeric input (A-Z, a-z, 0-9, space and any special characters). Enter the desired text in the field.

Next, using the [TAB] key, position the cursor down to the 'WAIT' field. Notice the box now indicates this field will accept only numeric input. If you try to key in letters, they are ignored.

Now [TAB] down to the 'BAUD RATE' field. The box now indicates SPACEBAR. This means the field is a toggle field. Press the SPACEBAR until the desired setting appears on the screen. Once you see the desired setting, you can [TAB] to set the next field.

Once you are satisfied with the entry, press [RETURN] to accept the changes and return to the dialing menu.

All of the input menus used by Express! follow this input convention. Listed below are the '*special function*' keypresses available to you in addition to the normal entry of data.

### **Input Menu 'Special' Keypresses and their purpose**

[TAB]	Position to next entry field.
[BACKSPACE]	Move one character to left in current field
[SHIFT] [CLEAR]	Clear the current field
[SHIFT] [TAB]	Position to previous entry field
[SHIFT] [DELETE]	Erase characters from cursor to EOF
[CONTROL] [CLEAR]	Clear the current field
[CONTROL] [INSERT]	Insert character at current cursor position
[CONTROL] [DELETE]	Erase character under the cursor
[CONTROL] [LEFT ARROW]	Move one character to left in current field
[CONTROL] [RIGHT ARROW]	Move one character to right in current field
[CONTROL] [UP ARROW]	Position to previous entry field (same as SHIFT TAB)
[CONTROL] [DOWN ARROW]	Position to next entry field (same as TAB)

**Macro keys** - numbers 1 through 3 are the 'macro' keys associated with this phone list entry. You may enter any text (up to 29 characters) in these fields that you wish. Position to the macro you want to edit using the [TAB] key, enter the macro text you want associated with the macro and press [TAB] to continue to the next macro. When finished, press [RETURN] to accept all the changes you've made.

What is a 'Macro' anyway? A macro is nothing more than a group of characters that perform a repetitive function. For example, everytime you logon to a BBS, you usually have to enter an ID and password to access the system. Instead of writing down on a piece of paper your logon ID and password, enter them into the phone entry as 'macros'. Now they won't get thrown away the next time you clean up the computer area and they can also be sent over the modem using the macro keys.

Once connected to a BBS, a macro can be sent out over the modem by holding down the [SHIFT][CONTROL] keys and then pressing 1,2 or 3 depending on the macro you want to send. Once you set up your macros, going through the logon sequence for a BBS is as simple as one keystroke.

In addition to the normal text which can be entered into a macro, Express! recognizes 'control' sequences to perform special functions. These special functions are:

- ^M** - send a return
- ^P** - pause 1 second before continuing
- ^Px** - pause x seconds where x is a value 1 to 9
- ^J** - chain to the next macro
- ^x** - send any control character  
(i.e. ^Z would send a CONTROL Z)

The example macro in entry #1 would perform the following function when the [SHIFT][CONTROL] 1 keys are pressed:

Macro 1 - 1^M^PMYPASS^M^PSECONDPW^M

o Send out over the modem the character '1' followed by a

carriage return (^M).

- o Wait for 1 second (^P) and send out the string 'MYPASS' followed by a carriage return.

- o Wait another 1 second (^P) and send out the string 'SECONDPW' followed by a carriage return (^M).

As you can see, this can automate an entire logon sequence to a BBS with one keypress. To illustrate the use of the 'join macro' command, let's consider the following three macros:

Macro 1 - 1^M^P^J

Macro 2 - MYPASS^M^P^J

Macro 3 - SECONDPW^M

In this instance, the same function would occur as in the first example. The difference is that it is defined in 3 macros instead of one.

Pressing [SHIFT][CONTROL] 1 would:

- o Send out over the modem the character '1' followed by a carriage return (^M), wait for 1 second, then 'join' to the second macro.

- o The second macro would then send out the string 'MYPASS' followed by a carriage return, wait 1 second (^P) and 'join' to the third macro.

- o The third macro would send out the string 'SECONDPW' followed by a carriage return (^M).

**Automatic Macros** - the automatic macros setting allows you to specify whether or not you want the first macro for the phone entry to be automatically sent when you connect to the BBS. Setting this option to 'Yes' and setting your macros for proper response to the BBS's data request prompts will execute an automatic logon without any keypresses on your part.

**Dial marked** - will start dialing the entries which have been marked with the 'Mark entry' function. Express! will dial the entry and wait for a modem connection or the 'Busy' message from the modem. If busy, Express! will move to the next marked entry and dial it. Once all the

interface does not support the DTR line on comm port 4 ( it always stays on). If you use comm port 4 with Express!, you must hang up using the '+++' followed by the **ATH[RETURN]** command. Refer to your modem manual for additional information on this command and its usage.

**ModemParameters** - is activated by selecting this function and pressing the [RETURN] key. Modem parameters allow you to set the dialing prefix and suffix for your particular modem. Most 'Hayes compatible' modems use ATDT (tone dialing) or ATDP (pulse dialing) as the dialing prefix and ^M (carriage return) to terminate commands to the modem.

Assuming you have a 'Hayes compatible' modem, set these parameters as follows:

Dialing Prefix  
Dialing Suffix

ATDT or ATDP  
^M

Consult your modem user manual for the correct settings for your particular modem.

**Modem Initialization** - this setting allows you to specify a modem command that you want to send to the modem when the Express! cartridge is started. This usually consists of a reset command for the modem, but can include setting the modems registers for turning on/off the modem speaker or setting the register for speed dialing. Any command that you can send to the modem in terminal mode can be placed in the initialization string, limited only by the field size of 30 characters.

**Note:** If Express! starts and detects the presence of a carrier signal, this initialization string is not sent to the modem. Express! would assume you left the cartridge while online and are now returning to

Dial	<b>Params</b>	Receive	Send	Buffer
Baud rate : 9600				
Specify Modem Parameters				
Enter the specific strings used by your modem for the following purposes:				
Dialing prefix: ATDT				
Dialing suffix: ^M				
Initialization string at bootup -> ATZ^M				
^M: Return key		^Px: Pause x [AlphaNum]		
Express! (c) 1989 Orion Micro Systems				

### *Modem Parameters Menu*

resume communications.

**Download Pathname** - is activated by selecting this function and pressing the [RETURN] key. Download pathname allows you to specify a 'default' drive and, optionally, a subdirectory which will be used to store downloaded files. Anytime you select the receive function to download a file, this is the pathname that will appear on the command line by default.

Simply key in the pathname you wish to use and press [RETURN] to terminate. If the pathname is changed and you want to make it permanent, remember to save the configuration file, or once you exit the cartridge this new setting will be lost.

Dial Params Receive Send Buffer  
Baud rate : 9600  
Specify Default Download Path  
Enter the drive/pathname that you would like to use as your default when downloading files.  
-> D8:>  
For DOS 2.x, your download path should simply be the drive spec. (ie: 'D8:')  
For SpartaDOS users, you may use a full drive spec and pathname. (ie: 'D2:>EXPRESS>DOWNLOAD')  
[AlphaNum]  
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### Default Download Path Menu

If using subdirectories, refer to your DOS manual for the correct subdirectory delimiter to use. If your DOS does not support subdirectories, set the download path to only the drive number (i.e. D8:).

**Note:** While Express! will allow the setting of the drive specifier to D9:, this drive number should only be used if you are using the SpartaDOS X cartridge from I.C.D.

**Edit Long Distance Code** - if you use a long distance service that requires the entering of a personal identification number or long distance code and you want Express! to automatically enter the number for you, enter your number on this

Dial Params Receive Send Buffer  
Baud rate : 9600  
Edit Long Distance Code  
Enter the long distance code to dial when a '?' is found in a phone number:  
-----  
[AlphaNum]  
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### Edit Long Distance Code Menu

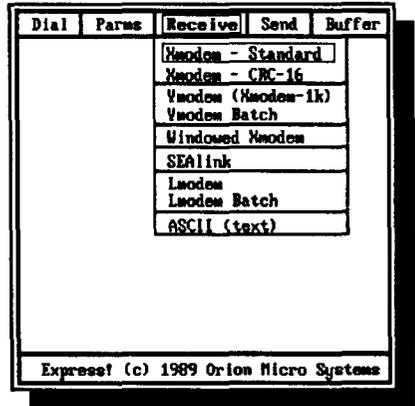
menu. To make Express! send this number over the modem before dialing the phone number, precede the phone number in the dialing entry with an exclamation point. This feature is designed for use when using other than a 'dial 1' long distance carrier.

**Hang Up The Phone** - selecting this option and pressing [RETURN] will hang up the modem by dropping the DTR line. If you are using the Atari SX212 modem connected through the SIO port, we recommend that you not use this option to terminate a phone call. Instead, use the +++ATH [RETURN] command from terminal mode. We make this recommendation because the SX212 does not hang up consistently when the DTR line is dropped, but will hang up reliably when using +++ATH [RETURN].

## Receive Menu Function

To use the receive function, select it on the menu bar. The receive menu will drop down allowing access to the sub-functions.

Once a transfer protocol has been selected, a menu will drop down allowing you to specify the filename(s) and path into which the received files will be placed. If you selected a single file transfer protocol like Xmodem or Ymodem-1k, the single file transfer menu will drop down. If you selected a multiple file transfer protocol like Ymodem Batch or SEALink, the Multiple file transfer menu will drop down. Enter the appropriate data in the input fields and press [RETURN] to start the file transfer.



*Receive Menu*

**Xmodem Standard** - This Xmodem protocol transfers data in 128 byte packets and uses a one digit checksum method for checking the accuracy of the packet transfer.

**Xmodem CRC-16** - This Xmodem protocol transfers data in 128 byte packets and uses a two digit 'cyclic redundancy check' method for checking the accuracy of the packet transfer.

**Ymodem** - This protocol is actually 'Xmodem 1K', but over the years has generally become known as Ymodem, meaning 'transfer one file using Xmodem 1K packets'. This protocol transfers data in 1024 byte packets and uses a two digit 'cyclic redundancy check' method for checking the accuracy of the packet transfer.

**Ymodem Batch** - This protocol is similar to Ymodem except it supports the transfer of multiple files within one execution. This protocol transfers data in 1024 byte packets and uses a two digit 'cyclic redundancy check' method for checking the accuracy of the packet transfer.

Once Ymodem batch is selected, the multiple file transfer menu appears. You will be prompted for a filename, but all that needs to be entered is the drive number and, optionally, a subdirectory name to receive the transferred files. The filename is contained within the file transfer packet, so the file you are receiving is saved on your system with the same name as the file on the system that you are receiving the file.

**Windowed Xmodem** - This protocol is a 'sliding' window transfer protocol commonly supported by MS-DOS bulletin boards. Windowed Xmodem transfers data in 128 byte packets and uses a two digit 'cyclic redundancy check' method for checking the accuracy of the packet transfer.

**Sealink** - This protocol is a 'sliding' window transfer protocol commonly supported by MS-DOS bulletin boards. SEALink transfers data in 128 byte packets and uses a two digit 'cyclic redundancy check' method for checking the accuracy of the packet transfer

**Lmodem/Lmodem Batch** - select Lmodem or Lmodem Batch only when connected to a BBS Express! Professional bulletin board or another Express! cartridge. Currently, these are the only two that support these transfer protocols. These protocols transfer data in 256 byte packets and use a two digit 'cyclic redundancy check' method for checking the accuracy of the packet transfer. Lmodem/Lmodem Batch are sliding window protocols similar to SEALink with a significant added feature. If you are connected to another Express! cartridge, it will not be necessary for the receiver to do anything to receive files. Once the sender starts the transfer, the protocol handshakes with the receiver and **automatically** starts the receive function on your side (the receiver must be in terminal mode with the menu bar de-activated). The download pathname in the PARMS menu must be set for this function to work correctly. Additionally, both the sender and receiver must be in ATASCII translation mode to perform this transfer protocol. The reason is simple. This is an ATARI specific protocol, hence ATASCII translation.

Lmodem Batch will receive one or more files, depending on the sender. In general, when using Lmodem, it is desirable to use the batch version of Lmodem. The shining feature of Lmodem is that it completely removes the need for the receiver to do anything to successfully down-

load files. When connected to a BBS Express! Professional board, simply 'MARK' the files you want to receive and select the 'SEND MARKED FILES' function on the BBS. Then sit back and let the protocol take care of the rest! The transfer will start automatically without the need for you to start the transfer on the terminal side. We think once you use this 'new' protocol a few times, you'll wonder why it wasn't ALWAYS done like this in the first place.

**ASCII** - select ASCII when the BBS you are connected to supports ASCII file transfers or you want to receive incoming text into a file on your system. This function will save the file when the copy buffer fills up.

**A few words about protocols** - Express! is the first terminal program to bring 'windowed' protocols to the Atari 8-bit computer. As a general rule, you should always use a windowed protocol if the host system you are connected to supports them. Windowed protocols will have the same throughput as Ymodem without the overhead of re-sending a 1K packet if an error occurs. If you are connected to an IBM PC board, SEALink would be the recommended protocol to use. If you are connected to a BBS Express! Professional board, Lmodem is the protocol you should use.

**Special Filename Search Function** - Express! will search the terminal screen for a filename whenever you perform a receive single file transfer. If one is found, it will be placed in the filename input field for you as a default filename. If this is not the name you want to save the file as, simply backspace over the name and type in the name you want.

**Automatic Renaming Of Existing Files** - When you are performing 'Batch' receiving of files, if Express! detects an existing filename in your download path that is the same name as the file that you are receiving, your existing file will NOT be overwritten. Instead, Express! will change the last character in the filename it is receiving to a 1. As an example, let's say you are downloading a file called 'SPELL.COM', and that file already exists in your download path. Express! will rename the incoming file to 'SPELL.CO1' and check to see if that name exists. If it does, Express! will rename it to 'SPELL.CO2' and so on until it has tried to rename the file up to 'SPELL.CO9'. By Express! doing this for you, you

are pretty safe in not downloading a file that will wipe out that all important file that you forgot was in the download path. After the transfer finishes, you can pop into the OS Shell and rename the files accordingly to something more meaningful to you. This renaming is performed because in batch file transfers, multiple files are received one right after the other and there isn't time to ask you if you want to overwrite an existing file. Express! just renames it and lets you deal with the name conflicts after the transfer.

When performing single file receiving, Express! will ask you if you want to 'overwrite the file'.

**Aborting file transfers** - once a file transfer has started, you may abort the transfer by holding down the [OPTION] key. The transfer will abort and a 'User aborted the transfer' message will appear. Press any key to clear the message and resume terminal mode.

**Transfer Status Window** - When the file transfer starts, a status window will pop up displaying the current status of the transfer. During a file transfer, pressing the SPACEBAR will allow you to see the terminal screen without affecting the transfer in progress. This is useful if you'd like to look at the terminal screen to see how large the file is. Pressing SPACEBAR again will return you back to the file transfer status window.

The large blank area in the transfer window is where Express! places status messages pertaining to the progress of the transfer taking place.

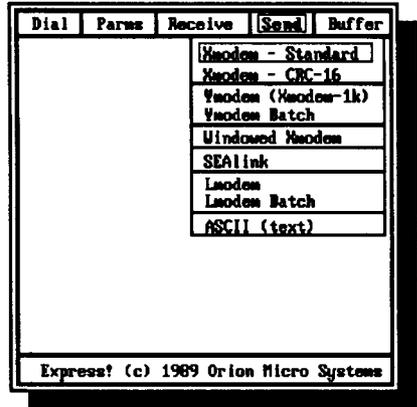
Dial	Params	Receive	Send	Buffer
File: Filename.Ext				
Path: D8:>				
Sender: Express! Cart				
Current block: 8		Attempts: 1		
Checksum type in use: CRC-16				
Total bytes processed:				
Total bytes expected : 16000				
				<input type="checkbox"/> SOH
				<input type="checkbox"/> Bk #
				<input type="checkbox"/> CMA
				<input type="checkbox"/> Data
				<input type="checkbox"/> CRC
Press OPTION to abort transfer				
Press SPACE to see Term screen				
Vmodem Batch Receive				

*Transfer Status Window*

## Send Menu Function

To use the send function, select it on the menu bar. The send menu will drop down allowing access to the sub-functions.

Once a transfer protocol has been selected, a menu will drop down allowing you to specify the filename(s) and path from which to send files. If you selected a single file transfer protocol like Xmodem or Ymodem-1k, the single file transfer menu will drop down. If you selected a multiple file transfer protocol like Ymodem Batch or SEALink, the Multiple file transfer menu will drop down. Enter the appropriate data in the input fields and press [RETURN] to start the file transfer.

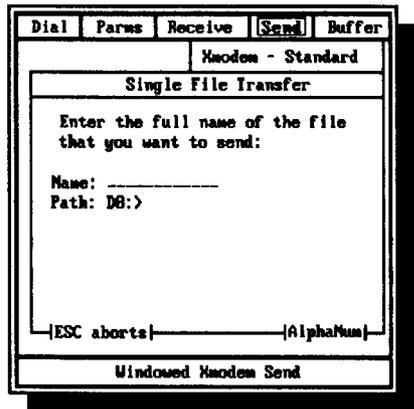


*Send Menu*

**Xmodem Standard** - This Xmodem protocol transfers data in 128 byte packets and uses a one digit checksum method for checking the accuracy of the packet transfer.

Entering a wildcard file spec is permissible in single file send protocols. Express! will search the specified pathname for the first directory entry it finds and will send that file. This may or may not be the file you wanted to send, so take care when using wildcarding with single file transfer protocols.

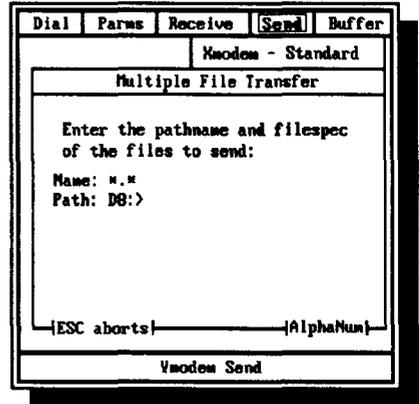
**Xmodem CRC-16** - This Xmodem protocol transfers data in 128 byte packets and uses a two digit 'cyclic redundancy check' method for checking the accuracy



*Single File Transfer Menu*

of the packet transfer.

**Ymodem** - This protocol is actually 'Xmodem 1K', but over the years has generally become known as Ymodem, meaning 'transfer one file using Xmodem 1K packets'. This protocol transfers data in 1024 byte packets and uses a two digit 'cyclic redundancy check' method for checking the accuracy of the packet transfer.



**Ymodem Batch** - This protocol is similar to Ymodem, except it supports the transfer of multiple files within one execution. This protocol transfers data in 1024 byte packets and uses a two digit 'cyclic redundancy check' method for checking the accuracy of the packet transfer. You may enter an actual filename, in which case only one file will transfer or you can enter a file mask (i.e. D1:\* .COM or D1:Express>\* .Com). All files matching the file mask will be transferred.

*Multiple File Transfer Menu*

**Windowed Xmodem** - This protocol is a 'sliding' window transfer protocol commonly supported by MS-DOS bulletin boards. Windowed Xmodem transfers data in 128 byte packets and uses a two digit 'cyclic redundancy check' method for checking the accuracy of the packet transfer.

**Sealink** - This protocol is a 'sliding' window transfer protocol commonly supported by MS-DOS bulletin boards. SEALink transfers data in 128 byte packets and uses a two digit 'cyclic redundancy check' method for checking the accuracy of the packet transfer.

**Lmodem/Lmodem Batch** - select Lmodem or Lmodem Batch only when connected to a BBS Express! Professional bulletin board or another Express! cartridge. Currently, these are the only two programs that support these transfer protocols. These protocols transfer data in

256 byte packets and use a two digit 'cyclic redundancy check' method for checking the accuracy of the packet transfer. Once Lmodem is selected, you will be prompted for a filename to send (wildcarding is permissible). After entering the appropriate input fields, press [RETURN] to start the file transfer. Lmodem/Lmodem Batch are sliding window protocols similar to SEALink with a significant added feature. If you are connected to another Express! cartridge, it will not be necessary for the receiver to do anything to receive files. Once the sender starts the transfer, the protocol handshakes with the receiver and **automatically** starts the receive function on their side (the receiver must be in terminal mode with the menu bar de-activated). The download pathname in the PARMS menu must be set for this function to work correctly. Additionally, both the sender and receiver must be in ATASCII translation mode to perform this transfer protocol. The reason is simple. This is an ATARI specific protocol, hence ATASCII translation.

**ASCII** - use this option when you want to send a file to the BBS (such as a precomposed message ).

**Aborting file transfers** - once a file transfer has started, you may abort the transfer by pressing the [OPTION] key. The transfer will abort and a '*Sender aborted the transfer*' message will appear. Press any key to clear the message and resume terminal mode.

### Transfer Status Window -

When the file transfer starts, a status window will pop up displaying the current status of the transfer. During a file transfer, pressing the **SPACEBAR** will allow you to see the terminal screen without affecting the transfer in progress. Pressing **SPACEBAR** again will return you back to the file transfer status window. The large blank area is reserved for Express! to place transfer status messages.

Dial	Parms	Receive	Send	Buffer
File: Filename.Ext				
Path: B8:>				
Sender: Express! Cart				
Current block: 8		Attempts: 1		
Checksum type in use: CRC-16				
Total bytes processed:				
Total bytes expected : 16800				
				<input type="checkbox"/> SOH
				<input type="checkbox"/> Blk #
				<input type="checkbox"/> CMA
				<input type="checkbox"/> Data
				<input type="checkbox"/> CRC
Press OPTION to abort transfer				
Press SPACE to see term screen				
Ymodem Batch Send				

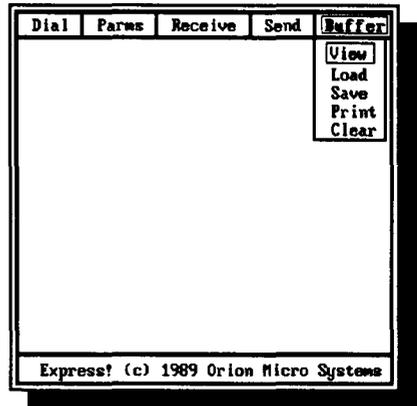
*Transfer Status Window*

## Buffer Menu Function

To use the buffer function, select it on the menu bar. The buffer menu will drop down allowing access to the sub-functions.

Select the sub-function you wish to perform by using the up/down arrow keys and then press [RETURN].

**View** - select this option and press [RETURN] to view the capture buffer.



While in the buffer viewer, the following keys are active for moving around the buffer:

### *Buffer Menu*

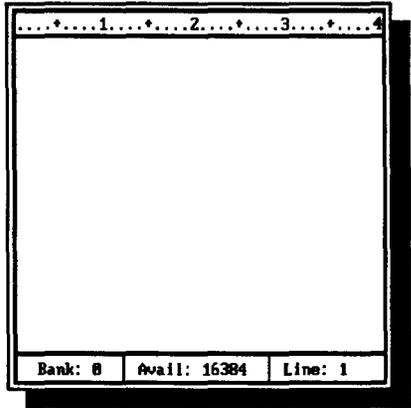
- |                                |   |
|--------------------------------|---|
| [CONTROL] up arrow             | - moves the cursor UP one line.               |
| [CONTROL] down arrow           | - moves the cursor DOWN one line.             |
| [CONTROL] left arrow           | - moves the cursor LEFT one character.        |
| [CONTROL] right arrow          | - moves the cursor RIGHT one character.       |
| [SHIFT][CONTROL] up arrow      | - moves UP 23 lines ( 1 page).                |
| [SHIFT][CONTROL] down arrow    | - moves DOWN 23 lines ( 1 page).              |
| [SHIFT][CONTROL] left bracket  | - moves LEFT 10 characters.                   |
| [SHIFT][CONTROL] right bracket | - moves RIGHT 10 characters.                  |
| [SHIFT][CONTROL] M             | - toggles to next capture buffer memory bank. |

**Load** - select this option and press [RETURN] to load the capture buffer from disk with a text file. You will be prompted for a filename.

**Save** - select this option and press [RETURN] to save the capture buffer to disk. You will be prompted for a filename. Once the buffer has been saved to disk, the buffer is cleared.

**Print** - select this option to print the contents of the capture buffer.

**Clear** - select this option to clear the capture buffer. You will be prompted with 'Is it OK to clear the buffer?' Respond with 'Y'es or 'N'o.

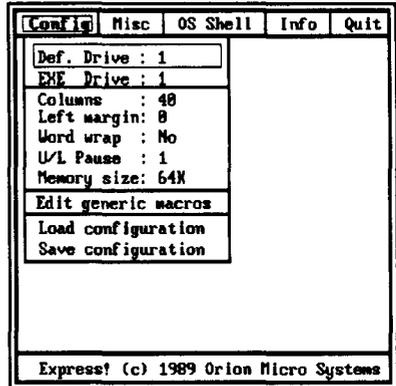


*Capture Buffer Viewer*

## Config Menu Function

To use the config function, select it on the menu bar. The config menu will drop down allowing access to the sub-functions. Select a sub-function by using the up/down arrow keys.

**Setting The Def Drive** - default drive is set by selecting this option and pressing the [RETURN] key until the desired DEF drive appears. The DEF drive is the drive number that will appear 'by default' any time a function is performed that requires a drive number.



*Config Menu*

In our example config menu, the default drive is set to '1'. Any action requiring a filename would display the prompt 'D1:'. Keep in mind that even though D1: appears as the default on the prompt line, you may backspace over the drive designator and change it to a different drive number. This would not change the default drive, only the drive number for this one particular action.

**EXE Drive** - EXE drive is set by selecting this option and pressing the [RETURN] key until the desired EXE drive appears. The EXE drive is the drive where Express! will look for a subdirectory called **EXPRESS** which would contain external executable modules to run under the cartridge environment. With DOS's that do not support subdirectories, Express! would look in the root directory.

**Columns** - columns is set by selecting this option and pressing the [RETURN] key until the desired columns appears. Columns determines whether Express! will write to the 40 column screen or to the 80 column screen when in 'terminal mode' only. Columns is changed by pressing [RETURN] until the correct column width appears. Possible values are 40 or 80.

All menuing is always written to the 40 column screen regardless of the columns setting. This is due to the fact that the XEP80 is not capable of displaying 'custom display lists' which are used by Express!. In order to use 80 column in terminal mode, you must be running the XEP80 under SpartaDOS X. No other 80 column configuration will work properly due to display speed limitations using the XEP80 with other screen handlers.

**SpartaDOS X Users:** The DEVICE XEP80 statement would need to be included in your config.sys to utilize the 80 column terminal mode in Express!.

**Left Margin** - left margin is set by selecting this option and pressing the [RETURN] key until the desired left margin appears. Left margin sets the text left margin when displaying text to the screen. Possible values are 0, 1 or 2.

**Word Wrap** - word wrap is set by selecting this option and pressing the [RETURN] key until the desired word wrap setting appears. Word wrap toggles between ON/OFF. Setting word wrap ON will automatically wrap an entire word to the next line if it can't fit on the current display line.

**U/L Pause** - U/L pause is used in ASCII file transfers and specifies the number of seconds to delay before sending the next line of the text file. U/L pause may be set to any value between 0 and 9 by pressing the [RETURN] key until the value you want appears in this field. Some BBS's can accept ASCII transfers without any delay, while others require time to process the received line before they can accept the next line. If you're not sure what to set the pause to, start out with a value of 0. If the BBS seems to be dropping some of the characters, increase the value and try again until the BBS is not dropping characters anymore.

**Memory Size** - memory size is set by selecting this option and pressing the [RETURN] key until the desired memory size appears.

As discussed in the 'Expanded Memory Section' of this manual, this setting controls the amount of memory set aside for use as a capture buffer. In a stock 64K Atari computer, Express! sets aside 16K as a

capture buffer. Any additional memory that your computer has may be used to increase the buffer size all the way up to a 528K capture buffer when using an Atari 130XE with 576K of memory.

The chart below shows you the buffer size available relative to the memory size setting you select:

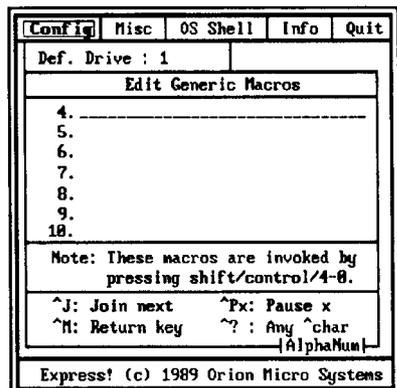
Memory	Capture Buffer Size	Computer Type
64K -	16K - 16,384 bytes	Stock 800 / 800XL
128K -	80K - 81,920 bytes	Stock 130XE
256K -	208K - 212,992 bytes	'Rambo'ed 800XL
320K -	272K - 278,528 bytes	130XE w/ 320K
576K -	528K - 540,672 bytes	130XE w/ 576K

Keep in mind when setting the memory size for use as a capture buffer that you can't use the memory as a buffer and a ramdisk at the same time.

**SpartaDOS X Users:** In order to use this increased buffer size feature with Express!, you will need to specify 'USE BANKED' in your config.sys file. Keep in mind when setting up this parameter that you will need 4 free banks in order to set the memory setting to 128K (each bank representing 16K). You would need 12 banks free in order to specify 256K and so on...

**Edit Generic Macros** - this option allows you to define up to 7 'generic' macros. Macros are edited by pressing [TAB] until you are positioned to the macro that you wish to edit. Once positioned, you may change the macro.

These macros are defined the same way you defined the 3 macros under each of the phone list entries. Unlike the phone list macros, which are only active when you dialed a phone entry, these 'generic'



*Edit Generic Macros Menu*

macros are active at all times without regard to which phone entry is currently active. The generic macros are activated by holding down the [SHIFT][CONTROL] keys and pressing 4 through 0, corresponding to the macro you wish to execute. In addition to the normal text which can be entered, Express! recognizes 'control' sequences to perform special functions. These special functions are:

- ^M** - send a return
- ^P** - pause for 1 second before continuing
- ^Px** - pause for x seconds where x is a value 1 to 9
- ^J** - chain to the next macro
- ^x** - send any control character  
(i.e. ^Z would send CONTROL Z)

**Load Configuration** - when this option is selected, Express! will load the last saved configuration file.

**Save Configuration** - when this option is selected, Express! will save the current parameters to the configuration file. This file is called CONFIG.EXP and is stored on drive 1 in the root directory. It is not necessary to specify the drive and filename for the configuration file. Express! will save it automatically when this option is selected. Any time a change is made to any of your settings and you want to make those changes permanent, you should use this option to save your settings.

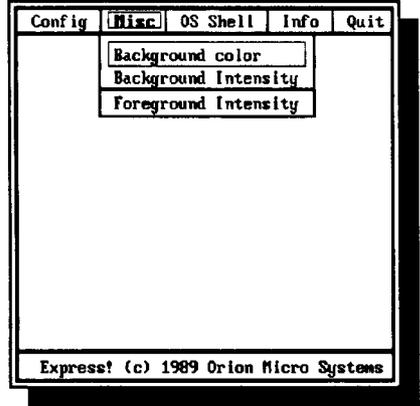
## Misc Menu Function

To use the misc function, select it on the menu bar. The misc menu will drop down allowing access to the sub-functions.

**Background color** - pressing [RETURN] while this option is active will change the background color.

**Background intensity** - pressing [RETURN] while this option is active will change the background intensity.

**Foreground intensity** - pressing [RETURN] while this option is active will change the foreground intensity.



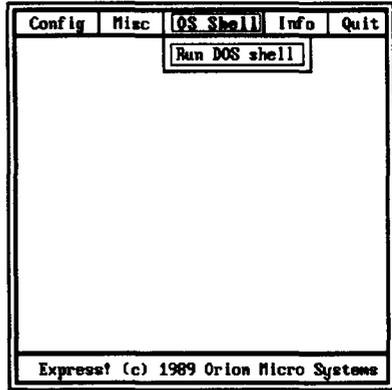
*Misc Menu*

Remember to 'save the configuration' file if you want the color changes to be made permanent.

## OS Shell Menu Function

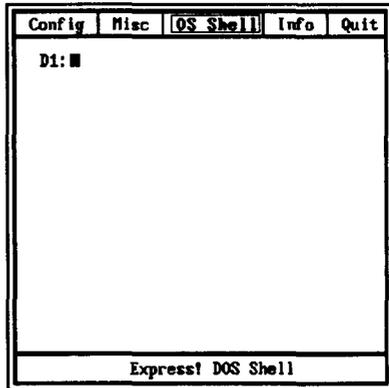
To use the OS Shell function, select it on the menu bar and press [RETURN].

The OS Shell will become active with the D1: prompt appearing at the top of the terminal mode window.



*OS Shell Menu*

From the OS Shell you can type commands as if you were at the command line in SpartaDOS. This eliminates the need to exit the Express! cartridge to perform routine DOS commands. If using Atari 2.0 DOS, this can save time by not having to reload the DUP.SYS just to look at a drive directory.



*OS Shell Activated*

The following commands are supported:

<u>Command</u>	<u>Alias</u>	<u>Function</u>
DIR		Disk directory
DIRS		Short directory
Dx:		Change drive
EXIT	X	Exit OSshell
CWD	CD	Change directory
CREDIR	MD	Create directory
DELDIR	RD	Delete directory
ERASE	DEL(ETE)	Delete file
PROTECT		Lock a file
UNPROTECT		Unlock a file
TYPE	VIEW	View text file
CLS		Clear the screen
RENAME	REN	Rename a file
COPY		Copy file(s) - wildcards allowed
CHKDSK		Show disk info
FORMAT		Format a disk - if using SpartaDos X cartridge, will use SpartaDos X formatter, otherwise will format disk in Atari 2.0 format.
?		Display command menu

Unless you are running SpartaDOS, several commands (i.e. CHKDSK,CREDIR,DELDIR, etc.) will be unavailable for execution.

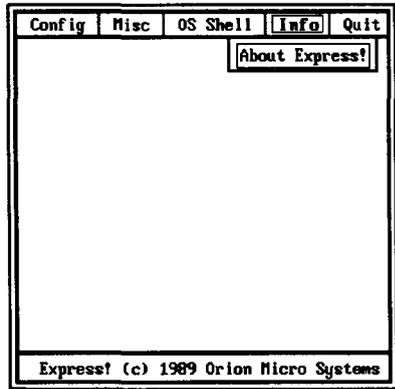
**Special Note:** While TYPE and VIEW may be used interchangeably, there is a subtle difference in their usage. VIEW will correctly translate ASCII carriage return/linefeeds to the ATASCII carriage return before displaying to the screen. TYPE will not perform any translation on the file being displayed. You can tell if a file has ASCII CR/LF's (the file was created on an MS-DOS machine) by TYPE'ing it and the sentences seem to run on without carriage returns. If this is the case, VIEW'ing it will correctly display the file on your screen. Files created on the Atari computer will correctly display with either command.

To print a file to the printer while in the OS Shell, use the copy command and specify a destination of 'P':

i.e. Copy D1:Text.Txt P:

## Info Menu Function

The info menu provides information about Express! (such as the cartridge version number) and the address and telephone number for Orion Micro Systems. To access the info panel, select info on the menu bar and press [RETURN].



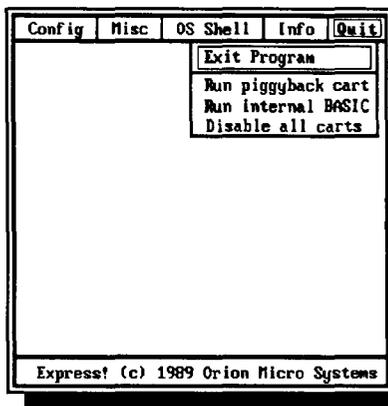
*Info Menu*

## Quit Menu Function

The quit menu allows you to exit the Express! cartridge back to DOS, even while online with a BBS and to control which cartridges will be active. To use the quit function, select it on the menu bar. The quit menu will drop down allowing access to the sub-functions.

**Exit program** - this option allows you to exit the Express! cartridge and return to DOS. If you are not using SpartaDOS, you will be prompted with 'Quit... are you sure?', when exiting the Express! cartridge.

You can execute any command or program you wish and then return to the Express! terminal cartridge by typing **CAR [RETURN]** if running SpartaDos or by selecting the 'Run Cartridge' option from your DOS menu.



*Quit Menu*

**Run piggyback cart** - this option allows you to run the cartridge that is plugged into the top of the Express! If this option is selected and a cartridge is not plugged into Express!, Express! will re-run itself.

**Run internal BASIC** - this option allows you to run internal basic.

**Disable all carts** - this option allows you to disable all the cartridges physically plugged into the computer.

## Console Key Usage

**Start Key** - pressing the [START] console key while in terminal mode will pop up a keypress help menu. This function is not active while the menu bar is activated.

**A** - turns the capture buffer ON/OFF.

**D** - jumps directly to the dialing menu.

**R** - jumps directly to the receive menu.

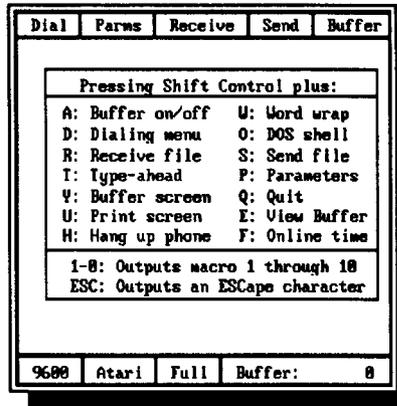
**T** - toggles between type-ahead buffer ON, a DOS command prompt and type-ahead buffer OFF. Pressing [SHIFT][CONTROL] T once turns the type-ahead buffer ON. A TA> prompt will replace the top menu bar. In this mode anything you type on the keyboard will not be sent out over the modem until you press the [RETURN] key. Pressing [SHIFT][CONTROL] T again will toggle to a D1: prompt. In this mode, you can enter DOS commands as if you were in the OS Shell. While in either the type-ahead mode or the Dos prompt mode, you may press [ESC]ape to turn the menu bar back on while keeping the mode you were in still turned on. Now pressing [ESC]ape will return you to the same mode you were in before. Pressing [SHIFT][CONTROL] T again turns the menu bar back on and disables the type-ahead buffer.

**Y** - captures the displayed text in the terminal window to the capture buffer.

**U** - prints the displayed text in the terminal window to the printer.

**W** - toggles word wrap ON/OFF.

**O** - jumps directly to the OS Shell.



*Press START for help menu*

**S** - jumps directly to the send file menu.

**P** - jumps directly to the parms menu.

**Q** - jumps directly to the quit menu.

**E** - jumps to the text buffer viewer.

**H** - jumps directly to the 'hang up phone' option.

**F** - displays current connect time in minutes. NOTE: time is only correct if the entry was dialed from the dialing menu.

## Upgrade Policy

From time to time, there may be upgrades available to the Express! cartridge to add additional features. While we wish we could give these upgrades away, economics prevents us from doing so. Should upgrades become available in the future, we will send you a new EPROM to replace the current one in your cartridge at a reasonable cost. There is no need to send us back the cartridge to take advantage of any upgrade. Simply replace the existing EPROM with the new one. Send any request for upgrades to:

**Orion Micro Systems  
ATTN: Express! Cart Upgrade  
2211 Planters Row Drive  
Midlothian, Virginia 23113**

## In Conclusion

We hope you find the Express! terminal cartridge to be the most powerful terminal program you have ever used on the Atari computer, but we're not stopping here. Express! has built into it a feature by which if it can't find what it's looking for in the cartridge, it will look for it on disk (remember the EXE drive specifier in the CONFIG menu?). So what, you say? Well... this means two things.

First, as we find more features to put in Express!, we'll be writing programs to fill those needs. In order to use these new features, all you have to do is place the programs in the EXPRESS subdirectory (root directory for non-SpartaDOS users) of the EXE drive. Then by popping into the OS Shell and typing the program name, Express! will run the program. So as new file transfer protocols develop, Express! will meet the challenge by expanding with new 'External' programs to be run under the cartridge environment. These programs, as they are developed, will be placed on our Midnight Express! technical support board in the Express! cart file sig and in our ORION MICRO SYSTEMS file sig on GENie.

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Secondly, this means you will be able to write 'External' programs to run under the Express! cartridge environment to fill a special communications need you may have. We will be placing technical documentation on Midnight Express! and GENie on how to write programs to run under the Express! cartridge environment.

Happy modeming.... Orion Micro Systems

**Notes:**

