

# **OWNER'S MANUAL**

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## **A SERIES, AC11 SERIES, ES SERIES, F SERIES, AND G SERIES MULTIPOINT CONTROLLERS**

524A  
524AP  
528A  
528AP  
5218AP  
524AC11  
524AC11P  
528 AC11  
528 AC11P  
5218AC11P  
524ES  
524ESP  
528ES  
528ESP  
5218ESP  
524F  
524FP  
525FP  
528FP  
5218FP  
524G  
525GP  
528G  
529GP  
5218GP  
524NB  
524NBP  
528NB  
528NBP

BayTech publication #U140E085-01

Thank you for selecting a BayTech multiport controller.

The data provided in this Owner's Manual explains the various ways you can operate your unit and configure it to your own computer system. We suggest that you read this manual carefully before attempting to install your multiport controller and that you place special emphasis on correct cabling and configuration. If you have any problems with your installation, please contact a BayTech applications engineer for assistance toll-free at 1-800-523-2702.

BayTech also manufactures other data communications devices that provide port sharing and expansion, networking, port contention, buffered and non-buffered printer sharing, and multiplexing. If you would like information on any of these models, please contact BayTech Customer Service.

We welcome any comments you may have about our multiports. And we hope that you will continue to look to BayTech for your data communications needs.

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# 1 GENERAL INFORMATION

**IMPORTANT:** Please verify which specific model multiport controller you have purchased (i.e., Type A, Type AC11, Type ES, etc.). Please see the packing list that came with your unit for the specific model type. There is a label on the rear panel indicating the series type. Also verify what hardware type you have purchased (i.e., 524, 525, 528, etc.). The hardware type is indicated on the front panel. Determine if you have purchased any options with your unit.

**NOTE:** If your multiport controller has a "P" suffix at the end of the model type, this indicates the unit is equipped with non-volatile memory and will be referred as a *programmable* unit. If you change any factory default settings via the menu-driven configuration mode, the changes will be retained if power is lost. When a specific item in this manual applies to both programmable and non-programmable units, we will denote the model type with "(P)" (e.g., 524A(P), 528ES(P)).

**NOTE:** If your multiport controller does not have a label on the back panel indicating the series type, you may assume you have purchased a 524NB(P) or 528NB(P). Please see the packing list to confirm.

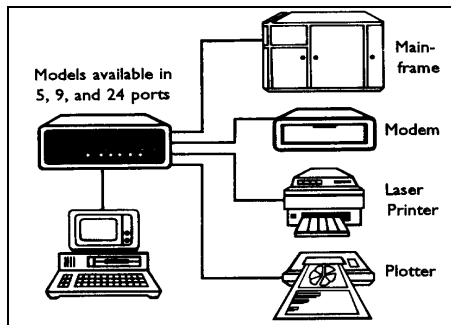
The following sections apply to all models: *Section 2* (Specifications), *Section 3* (Installation), *Section 4* (Cabling), *Section 7* (Maintenance), *Section 8* (Technical Support/Ordering), and *Section 9* (FCC Statement). You may skip subsections that do not pertain to the multiport you have purchased. Most subsections are titled with the specific model and/or hardware type. Please see *TABLE A* on the following page for a guide to which subsections apply to specific models.

TABLE A - MODEL/SUBSECTION GUIDE	
Model	Applicable Subsections
524A(P)	1.1, 5.1.1, 5.2.1, 5.3.1, 6.1, 6.6
528A	1.1, 5.1.1, 5.1.1.1, 5.2.1, 5.3.1, 6.2
528AP	1.1, 5.1.1, 5.2.2, 5.3.1, 6.3, 6.6
5218AP	1.1, 5.1.1, 5.2.2, 5.3.1, 6.3, 6.6
524AC11(P)	1.2, 5.1.2, 5.2.1, 5.3.1, 6.1, 6.6
528AC11	1.2, 5.1.2, 5.2.1, 5.3.1, 6.2
528AC11P	1.2, 5.1.2, 5.2.2, 5.3.1, 6.3, 6.6
5218AC11P	1.2, 5.1.2, 5.2.2, 5.3.1, 6.3, 6.6
5218C	1.1, 5.1.1.3, 5.2.2, 5.3.1, 6.3, 6.6
524ES(P)	1.3, 5.1.3, 5.2.1, 5.3.1, 6.1, 6.6
528ES	1.3, 5.1.3, 5.2.1, 5.3.1, 6.2
528ESP	1.3, 5.1.3, 5.2.2, 5.3.1, 6.3, 6.6
5218ESP	1.3, 5.1.3, 5.2.2, 5.3.1, 6.3, 6.6
524F(P)	1.4, 5.1.4, 5.2.1, 5.3.1, 6.1.1, 6.1.3, 6.6
525FP	1.4, 5.1.4, 5.2.3, 5.3.3, 6.4
528FP	1.4, 5.1.4, 5.2.3, 5.3.1, 6.4
5218FP	1.4, 5.1.4, 5.2.2, 5.3.1, 6.5, 6.6
524G	1.5, 5.1.5, 5.2.1, 5.3.1, 6.1, 6.6
525GP	1.5, 5.1.5, 5.2.2, 5.3.3, 6.3
528G	1.5, 5.1.5, 5.2.1, 5.3.1, 6.2
529GP	1.5, 5.1.5, 5.2.2, 5.3.3, 6.3
5218GP	1.5, 5.1.5, 5.2.2, 5.3.1, 6.3
524NB(P)	1.1, 5.1.1, 5.2.1, 5.3.2, 6.1, 6.6
528NB	1.1, 5.1.1, 5.2.1, 5.3.2, 6.2
528NBP	1.1, 5.1.1, 5.2.2, 5.3.2, 6.3, 6.6

## 1.1 A SERIES

The A Series multiport controllers are microprocessor-controlled units that allow one EIA-232C serial port on a computer to access up to 17 devices on a single unit and up to 96 devices by cascading units. Separate input/output buffers and UARTS enable the user to receive and transmit data simultaneously on all ports, and mix and match devices of different configurations. Port selection is accomplished through software control.

The 524A(P) models have one host port and four peripheral ports. The 528A(P) models have one host port and eight peripheral ports. The Model 5218AP has one host port and seventeen peripheral ports. *Figure 1* below shows a typical application using an A Series multiport controller.



**Figure 1: A Series Application**

The serial port configuration (baud rates, word size, stop bits and parity) is user-selectable for each individual port on all A Series models. In addition, the control character and XON/XOFF handshaking are programmable on the 528AP and 5218AP models. These features are easily programmed via the menu-driven configuration mode or by DIP switch settings (see *Section 6*).

**NOTE:** The 524NB(P) and 528NB(P) models are virtually identical to the 524A(P) and 528A(P) models except they have no buffer and pass handshake lines through the unit (see *Section 5.3.2*).

**NOTE:** The control character and XON/XOFF handshaking are options to order (Option 2 and Option 6 respectively) on the 524A(P), 524NB(P), and 528A models if the factory default values are not acceptable. **The factory default control character is ASCII *Control-T* (14 hex) and XON/XOFF handshaking is disabled from the factory.** Please contact BayTech for ordering information (See *Section 8*).

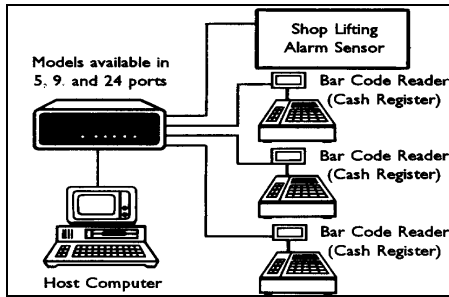
## 1.2 AC11 SERIES

BayTech's AC11 Series multiport controllers connect directly to a host computer and provide multiplexing of messages from peripheral devices. Data is buffered until a terminating character is received indicating the end of a message or until the buffer is full. The messages are then sent to the host device preceded by a port identification number.

The host device can select individual peripheral ports to transmit data to while simultaneously receiving messages from all peripheral ports.

The 524AC11(P) models have one host port and four peripheral ports.

The 528AC11(P) models have one host port and eight peripheral ports. The Model 5218AC11P has one host port and seventeen peripheral ports. *Figure 2* on the following page shows a typical application using an AC11 Series multiport controller.



**Figure 2: AC11 Series Application**

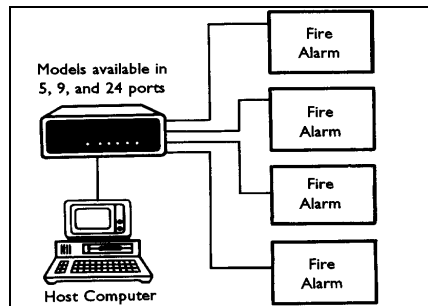
The serial port configuration (baud rates, word size, stop bits and parity) is user-selectable for each individual port on all AC11 Series models. In addition, the message terminating character, the control character, and XON/XOFF handshaking are programmable on the 528AC11P and 5218AC11P models. These features are easily programmed via the menu-driven configuration mode or by DIP switch settings (see *Section 6*).

**NOTE:** The control character and XON/XOFF handshaking are options to order (Option 2, and Option 6 respectively) on the 524AC11(P) and 528AC11 models if the factory default values are not acceptable. **The factory default control character is ASCII Control T (14 hex) and XON/XOFF handshaking is disabled from the factory.** Please contact BayTech for ordering information (see *Section 8*).

## 1.3 ES SERIES

BayTech's ES Series multiplexers are designed to interface directly with a host computer and provide automatic time-division multiplexing of data from multiple peripheral devices thereby reducing the software overhead of the host system.

The 524ES(P) models have one host port and four peripheral ports. The 528ES(P) models have one host port and eight peripheral ports. The Model 5218ESP has one host port and seventeen peripheral ports. *Figure 3* below shows a typical application using an ES Series multiport controller.



**Figure 3: ES Series Application**

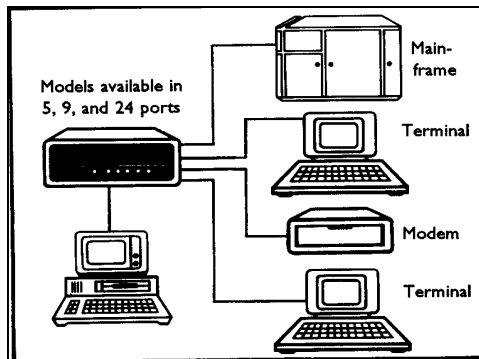
The serial port configuration (baud rate, word size, stop bits, and parity) is user-selectable for each individual port on all ES Series models. In addition, the data block length, the control character, and XON/XOFF handshaking are programmable on the 528ESP and 5218ESP models. These features are easily programmed via the menu-driven configuration mode or by DIP switch settings (see *Section 6*).

**NOTE:** The control character, and XON/XOFF handshaking are options to order (Option 2 and Option 6 respectively) on the 524ES(P) and 528ES models if the factory default values are not acceptable. **The factory default control character is ASCII *Control-T* and XON/XOFF handshaking is disabled from the factory.** Please call BayTech for ordering information (see *Section 8*).

## 1.4 F SERIES

The F Series multiports allow you to create a local "star" network capable of any-port-to-any-port communication. A *full duplex* communication link is established between any two connected EIA-232 ports. The 525FP and 528FP also feature a host port control feature that will allow the host device to make or break any connection between two devices.

The 524F(P) and 525FP models have one host port and four peripheral ports. The Model 528FP has one host port and eight peripheral ports. The Model 5218FP has one host port and seventeen peripheral ports. *Figure 4* shows a typical application using an F Series multiport controller.



**Figure 4: F Series Application**

The serial port configuration (baud rate, word size, stop bits, and parity) is user-selectable for each individual port on all F Series models. In addition, XON/XOFF handshaking, the output message strings, and the sign-on/sign-off character are programmable on the 525FP and 528FP models. These features are easily programmed via the menu-driven configuration mode or by DIP switch settings (see *Section 6*).

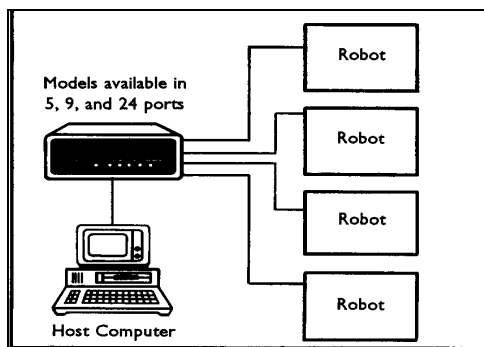
**NOTE:** The control character and XON/XOFF handshaking are options to order (Option 2 and Option 6 respectively) for the 524F(P) and 5218FP models if the factory default values are not acceptable. **The factory default control character is ASCII *Control-T* and XON/XOFF handshaking is disabled from the factory.** Please see *Section 8* for ordering information.

**NOTE:** For all models, there is a *disconnect time guard* option to order (Option 7). This option will prevent an erroneous disconnect in the case that the sign-off character followed by a *carriage return* is sent as data. The *disconnect time guard option* requires a two (2) second delay between the last transmitted character and the sign-off character. Please see *Section 8* for ordering information.

## 1.5 G SERIES

The G Series multiports allow a host computer device to simultaneously broadcast the same message out to multiple peripheral ports while receiving data from an individual selected peripheral port. The G Series multiports can also operate in a mode identical to the A Series (i.e., a port expansion mode where the host device can individually select a single peripheral at time to communicate with in full duplex).

The 524G and 525GP models have one host port and four peripheral ports. The 528G and 529GP models have one host port and eight peripheral ports. The Model 5218GP has one host port and seventeen peripheral ports. *Figure 5* below shows a typical application using a G Series multiport controller.



**Figure 5: G Series Application**

The serial port configuration (baud rate, word size, stop bits, and parity) are user-selectable for each individual port on all G Series models. In addition, XON/XOFF handshaking and the control character are programmable for the 525GP and 529GP models. These features are easily programmed via the menu-driven configuration mode or by DIP switch setting (see *Section 6*).

**NOTE:** The control character and XON/XOFF handshaking are options to order (Options 2 and 6 respectively) on the 524G and 5218GP models if the factory default values are not acceptable. **The factory default control character is ASCII *Control-T* (14 hex) and XON/XOFF handshaking is disabled from the factory.** Please see *Section 8* for ordering information.

## 2 SPECIFICATIONS

**INTERFACE:** EIA-232C (CCITT V.24), -12v mark, +12v space. Optional EIA-422A (Option 17) and Current Loop (Option 12).

**TRANSMISSION:** Asynchronous.

### **FACTORY-SET POWER-UP DEFAULT CONFIGURATION - ALL MODELS EXCEPT AS NOTED:**

**Baud rate:** 9600.

**Word size:** 8 bits.

**Parity:** None.

**Stop bits:** 1.

**XON/XOFF:** Disabled.

**Control character:** Control-T (14 Hex).

**Data block length (ES only):** 32 characters.

**Terminating character (AC11 Series only):** Carriage Return (0D Hex) .

**Sign-On/Sign-off character (F Series only):** Control-T (14 Hex).

#### **Output Messages (F Series only):**

On Line Message: *^M^JOn line^G^M^J;*

Off Line Message: *^M^JOff line^M^J;*

Busy Message: *^M^JBusy^M^J.*

**NOTE:** The ^ symbol represents a control character.

## **USER-PROGRAMMABLE CONFIGURATION - ALL MODELS EXCEPT AS NOTED:**

Reconfigurable in menu-driven mode through the host port: Port 5 of the 524 and 525 units, Port 9 of the 528 and 529 units, and Port 18 of the 5218 units. Saved in non-volatile memory to become the new power-up default configuration for all programmable units.

**NOTE:** Baud rate, word size, parity, and stop bits for the host port of 524 and non-programmable 528 units are programmed via DIP-switch settings.

**Baud rate:** 110, 135, 300, 600, 1200, 2400, 4800, 9600. 19,200 is available on 524 and 525 units only. Other rates optional.

**Word size:** 5, 6, 7 or 8 bits (7 or 8 bits for 524 models).

**Parity:** Even, odd or none.

**Stop bits:** 1, 1 1/2 or 2 (1 or 2 for 524 models).

**XON/XOFF:** Enabled or disabled (Option to order on 524 models).

**Control character:** Any code from 00 Hex to 7F Hex (option to order on 524 units).

**Terminate character (528AC11P and 5218AC11P models only):** Any code from 00 Hex to 7F Hex.

**Data block length (528ESP and 5218ESP models only):** 1 to 250 characters.

## AVAILABLE OPTIONS:

- Option 2:** Custom Control Character - Control character required to select between ports. Available on all 524 models, all non-programmable 528 models, 5218FP, and 5218GP. Programmable feature on all other models.
- Option 2H:** Request for Message Command: *Control-T* followed by capital *S* releases a message from any one of the peripheral ports. Available on 524AC11P only.
- Option 2I:** Same Control and Configuration Character - Single control character to switch between ports and to configure peripheral ports. Available on all 524 models except 524F(P). Standard feature on all other models.
- Option 3C:** Custom Connectors - DTE, DB-25 male connectors available per port. Available on all models.
- Option 4:** 230 VAC power - Power supply to use 230 VAC power. Available on all models.
- Option 6:** XON/XOFF Flow Control - Enables XON/XOFF handshaking on all ports. Available on 524AP, 524AC11P, 524ESP, 524FP, 5218FP, and 5218GP.

**Option 7:** Disconnect Time Guard - With this option, a 2-second delay is required before the disconnect sequence. Available on 524FP, 525FP, and 528FP.

**Option 12:** Current Loop - EIA-232 Current Loop interface available per port. Please specify active or passive transmit and active or passive receive. Available on all models.

**Option 17:** EIA-422 interface available per port. Available on all models.

**Option 20:** 525 Buffer Expansion - Receive buffer expansion to 7.7K per port. Available on 525FP and 525GP only.

**BUFFER SIZE:**

**525/529** - 3.7K Rx/256 byte Tx per port standard; 525 units optionally available with 7.7K Rx/256 byte Tx per port (Option 20).

**524/528/5218** - 256-byte Rx/256-byte Tx per port.

**POWER:**

**524/525** - 115 VAC, 50/60 Hz, maximum .2A.; optional 230 VAC, 50/60 Hz, maximum .1A;

**528/529/5218** - 115 VAC, 50/60 Hz., maximum .3A.; optional 230 VAC, 50/60 Hz., maximum .2A.

**ENVIRONMENT:** 0 degrees to 50 degrees C temperature; 5% to 95% humidity.

**DIMENSIONS:** 524 and 525 - 8 x 7 1/2 x 2 1/4 inches;

**528/529** - 10 1/8 x 8 x 3 inches;

**5218** - 16 3/4 x 10 1/8 x 3 1/2 10 inches.

**WEIGHT:** 524/525 - 3 lbs.; 528/529 - 5 lbs.,  
5218 - 9 1/2 lbs.

**INDICATORS:** 1 green power LED; red port-activity LEDs.

**CONNECTORS:** DB-25s with DCE (female) ports.

**HANDSHAKING:** CTS/DTR; selectable XON/XOFF on some models (XON/XOFF optional on 524 units and certain 5218 units).

**MOUNTING:** Desk-top standard; rack-mount accessories optional.

**WARRANTY:** One full year.

## 3 INSTALLATION

### 3.1 UNPACKING

After opening the box, check the packing list that comes with your multiport to ensure that you have received all components and to determine the specific multiport model number you have purchased. At a minimum, you should have received the unit, this manual, and any applicable addendums. Also check the unit to make certain that it did not receive damage during shipping. If items are missing or damage did occur, please contact BayTech technical support at 1-800-523-2702.

### 3.2 POWER

All models come with standard 115VAC, 50/60 Hz. power and a three-prong power cord. Do not attempt to operate the unit with a two-prong socket or adapter. 230 VAC, 50/60 Hz. is optional.

All models power-up when you depress the power switch on the back of the unit to "1". Power-on is indicated on the front panel by the illuminating of a green LED.

**CAUTION:** Power should be turned off anytime cables are to be installed or removed. Make sure the power is turned off and the unit is unplugged before removing the cover and attempting to make any internal changes.

### 3.3 FACTORY DEFAULT CONFIGURATION

**NOTE:** Before you proceed with installation, make certain that the device connected to the host port is setup to have the same configuration as the multiport's host port. The host port and all other ports on all series of multiports are factory configured as follows except as noted:

**Serial ports power up from the factory at:**

9600 baud rate

8 word size

1 stop bit

No parity

XON/XOFF disabled (optional for 524 units and some 5218 units)

**Control character:** Control-T (14 Hex).

**Sign-On/Sign-off character (F Series only):** Control-T (14 Hex).

**Output Messages (F Series only):**

On Line Message: `^M^JOn line^G^M^J;`

Off Line Message: `^M^JOff line^M^J;`

Busy Message: `^M^JBusy, no port available^M^J.`

**Data block length (ES Series units only):** 32 characters.

If the factory default configuration for all ports is not satisfactory for your application, you may then reconfigure the multiport by entering the configuration mode (see *Section 6*).

The controlling or host device is connected via cable to the host port on all models. This is Port 5 of the 524 and 525 units, Port 9 of the 528 and 529 units, and Port 18 of the 5218 units.

Peripheral devices are connected via cable to any of the remaining ports. They need not be installed in any specific order. Peripheral ports not used may be left empty.

## 4 CABLING

**IMPORTANT:** Before you proceed with cabling, you must know whether the devices you are connecting to your multiport are DTE (Data Terminal Equipment) or DCE (Data Communication Equipment). The following devices are generally DTE: terminals, printers, and computers like the IBM PC. The following devices are DCE: modems and some computers.

If your device transmits data on Pin 2 and receives data on Pin 3, it is DTE. If your device receives data on Pin 2 and transmits data on Pin 3, it is DCE. However, to verify the interface requirements for your device, please refer to the Owner's Manual for that device.

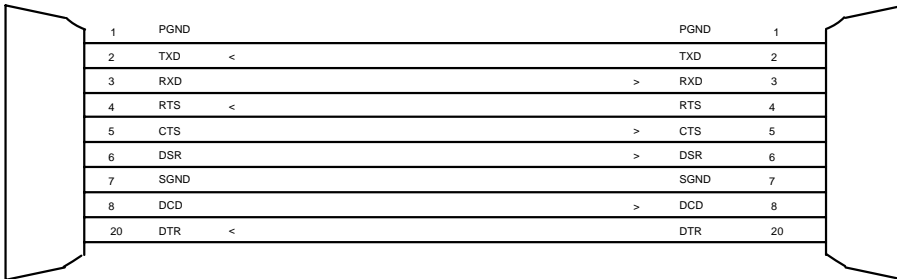
BayTech's standard configuration of its multiports is all ports DCE with DB-25 female connectors. DCE ports use the following signals for communication:

DCE PORT SIGNALS			
Pin	EIA-232 Signal	Direction	Description
1	PGND	----	Protective ground
2	TX	Input	Data in
3	RX	Output	Data out
4	RTS	Input	Internally enabled if no wire connected (normally not used).
5	CTS	Output	-12V when DCE device's buffer is full.
6	DSR	Output	+12V when DCE device powers-up.
7	SGND	----	Signal ground
20	DTR	Input	Transmit enabled when +12 V.

If you are interfacing a DCE device to a DTE device, you must use a one-to-one straight cable as in *Figure 6*. If you are interfacing a DCE device to a DCE device, or a DTE device to a DTE device, you must use a crossed cable as in *Figure 7*. Input handshaking lines are enabled if nothing is connected, allowing the system to operate with only Tx, Rx and GND connected.

500 MODEL - DCE  
MALE DB-25

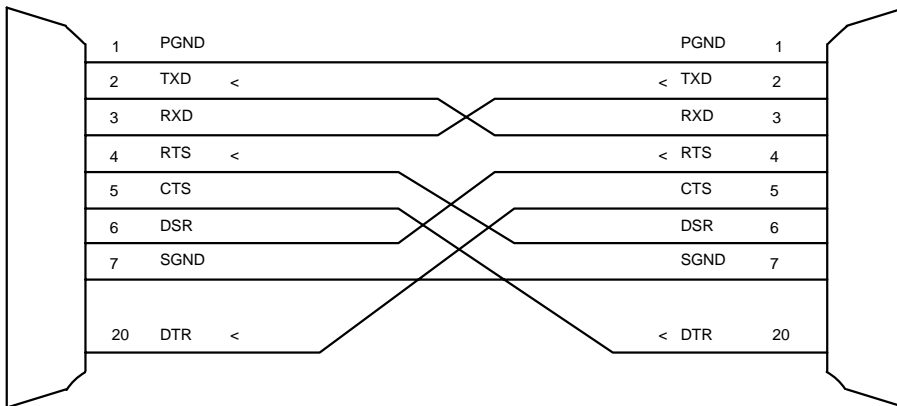
DTE DEVICE  
FEMALE DB-25



**Figure 6 - 500 Series (DCE) to DTE Device**

500 MODEL - DCE  
MALE DB-25

DCE DEVICE  
FEMALE DB-25



**Figure 7 - 500 Series (DCE) to DCE Device**

## **5 OPERATION**

BayTech's A, AC11, ES, F, and G Series are user-programmable, multi-function devices that allow serial port expansion/software activated switching (A Series), message multiplexing (AC11 Series), time division multiplexing (ES Series), star networking (F Series), and message broadcasting (G Series).

The A, AC11, ES, F, and G Series are ideal for adapting small computers like the IBM PC to industrial process control and data gathering applications.

### **5.1 OPERATING PROCEDURE**

#### **5.1.1 A SERIES**

BayTech's A-series multiport controllers are designed for those computer system applications requiring serial port expansion. These are code-activated, switching devices that increase input/output capabilities by interfacing EIA-232C peripheral devices to a single port on a computer device.

An A-model has one host or common controlling port and either 4, 8 or 17 peripheral ports. The host port is usually connected to a computer, and the peripheral ports are usually connected to devices such as printers, modems, terminals, cash registers, digital instruments, bar code readers, digital scales, numerical machines, etc.

### 5.1.1.1 PERIPHERAL PORT SELECTION

To connect to a particular peripheral device, the host device sends to the multiport the current control character (factory default is *Control-T*) followed by the peripheral port number to which the desired peripheral device is connected. This is a one-digit number for the 524A(P) and 528A(P) and a two-digit number for the 5218AP. After receiving the control character and the port number, the multiport will provide full duplex communication between the host device and the selected peripheral device.

**NOTE:** The control character and the port number are trapped and not transmitted to the peripheral device. If you wish to send the control character to the peripheral device, it must be sent twice. The first control character is trapped and the second is passed through the multiport.

Another method of passing the control character to the selected peripheral device is to enter the binary mode of operation (see *Section 5.1.1.2*).

The host device and the selected peripheral device will remain connected until another port is selected. This is accomplished by sending from the PC the control character followed by the new port number.

When switching ports, there may be some question as to which is the last character received from the current port and which is the first character received from the new port.

A way to avoid this confusion when selecting a new port is to wait two character times between the control character and the port number. When the multiport receives control character, it stops the transmitting of data to the host UART from the current peripheral port. However, since the UART has some buffer, up to two characters may still be sent to the host device. The multiport does not start loading data from the new peripheral port into the host UART until the new port number is received.

A method of accomplishing this delay is to send a string of ASCII zeros (30 Hex) between the control character and the new peripheral port number.

For example, suppose you are transmitting and receiving data from Port 1 of a 524A-P, and you wish to switch to Port 2.

1. Send from the host device the control character.
2. Wait two character times.
3. Read host device input buffer.
4. If there are no characters in the host device's input buffer, send ASCII "2". This will switch the host device to Port 2. If there are characters in the host device's input buffer (which come from Port 1), you may send ASCII "1" to continue communicating with Port 1 or "2" to switch to Port 2. Any characters received after sending the new port number will be from the new port.

**NOTE:** When looking for a control character, the multiport masks the 8th or parity bit. Therefore, either *Control-T* with parity bit off (14 Hex) or *Control-T* with parity bit on (94 Hex) will appear the same (assuming the factory default control character is used).

### 5.1.1.2 BINARY MODE

**NOTE:** Only the 528AP and 528NBP models support binary mode.

The binary mode allows all data entered through the host port, including the control character, to be transparent to the multiport and passed through to the peripheral device. Note that in both the normal and binary modes, data is transparent in the opposite direction - from a peripheral device to the host device.

To access the binary mode, send through the host port *Control-T* (or the current control character) followed by ASCII capital *B*.

Note that while in the binary mode, the configuration mode cannot be accessed nor can the user select a new port. The host device will remain connected to the last peripheral port selected while in the binary mode of operation.

To get back to the normal mode of operation, a *Break* condition must be detected by the host port of the multiport.

### 5.1.1.3 CASCADING - THE MODEL 5218C

The Model 5218C is a cascading unit allowing a single user to access up to 96 peripheral ports.

Ports 1 through 16 operate the same as a basic Model 5218AP. Port 17 is the cascading port and is hooked to Port 18 of the next cascaded unit. Port 18, the host port, of the first unit is connected to the host device.

To select any port up to 96, the user sends the control character (*Control-T*) followed by the desired port number (01 to 96). The host port will examine the port number. If is 16 or less, that port will be selected. If it is greater than 16, the cascaded multiport will subtract 16 and transmit *Control-T* and the remainder of the port number onto the next cascaded unit.

For example, if the host port receives a *Control-T* followed by a "34", the first multiport subtracts 16 and transmits *Control-T* followed by an "18" to the second multiport. The second multiport subtracts 16 and transmits *Control-T* followed by "2" to the third multiport. The third multiport connects to Port 2.

After a port has been selected and the user wishes to be connected to another port, he sends *Control-T* to the host port of the first cascaded unit. If that unit is connected to Port 17, it will pass the *Control-T* through with no further action until it reaches a unit that is not connected to Port 17. That unit will disconnect its host UART from the input port. The user must now wait until all data has been transmitted to the host device prior to sending the new port number. This allows the cascading multiports to clear all data from their buffers and UARTs. Once all buffers are clear, the user may send the new port number.

**NOTE:** If any characters are in the transmit buffers when the *Control-T* is sent, the *Control-T* is stacked behind these characters and will not disconnect until all data has been transmitted through.

## 5.1.2 AC11 SERIES

The AC11 models allow communication by interfacing a single port on a computer to 4, 8 or 17 EIA-232C serial peripheral devices. They provide multiplexing to the host port of messages from all peripheral ports. These units also allow the host port to select and send data to individual peripheral ports

The host or common port is usually connected to a computer, and the peripheral ports are usually connected to devices such as cash registers, digital instruments, bar code readers, digital scales, numerical machines, printers, modems, terminals, etc.

To transmit data from the host device to a peripheral device, send the control character followed by the desired port number (single-digit number for the 524AC11(P) and 528AC11(P); two-digit number for the 5218AC11). The host device remains connected to that peripheral device for communication until another device is selected.

The control character and the port number are trapped and, therefore, not transmitted to the peripheral device. If you wish to send the control character to the peripheral device, you must send it twice. The first control character is trapped; the second is passed through the multiport.

The 8th or parity bit is masked from the control character before it is examined, allowing you to send the control character with odd or even parity. Therefore, in a binary mode, when 8 data bits are being sent, a 94 Hex will appear as a control character and must be sent twice to pass through the multiport (assuming the factory default value is used).

Data received from the peripheral devices is treated as a message. A message begins when a peripheral port receives a character and is completed when a terminating character (factory set to *Carriage Return*) is received or when the buffer is full. Either condition will cause data to be transferred to the host device a message at a time, with the multiport inserting the port number as the first character of the message for port identification.

Messages will be sent to the host device in a round-robin fashion (i.e., if the multiport is sending a message from Port 1, Port 2 will be examined next for a complete message, then Port 3, etc.).

### 5.1.3 ES SERIES

The ES Series provides time-division multiplexing.

The internal processor continuously scans all peripheral ports checking for characters in the receive buffers. If a receive buffer contains characters, the data is transmitted through the host port preceded by a port identification code (the current control character followed by the port number).

Transmission continues until the buffer is empty or until a user-defined maximum data block length has been transmitted. After transmission is completed, the multiport will continue its scanning sequence.

If the current control character is received by the multiport from a peripheral device, a second control character is added automatically. This technique allows you to detect the control character as a data character when it is sent through the multiport.

**NOTE:** Transmitting and receiving of data is totally independent. Therefore, the multiport may be receiving data on any port regardless of which port is transmitting.

To transmit data from the host device to a peripheral device, send the control character followed by the desired port number (single-digit number for the 524ESP and 528ES; two-digit number for the 5218ES). The host device remains connected to that peripheral device with communication until another device is selected.

**NOTE:** The control character and the port number are trapped and not transmitted to the selected peripheral device. If you wish to send the control character to the peripheral device, you must send it twice. The first control character is trapped; the second is passed through the multiport.

When looking for a control character, the multiport masks the 8th or parity bit. Therefore, either *Control-T* with parity bit off (14 Hex) or *Control-T* with parity bit on (94 Hex) will appear the same (assuming the factory default control character is used). The 94 Hex must still be sent twice by the host device to enable one 94 Hex to be sent out to the connected peripheral port.

## 5.1.4 F SERIES

Any of the ports on the F-Series multiport may have full duplex communication with any one of the other ports. With the 524F(P) and the 525FP, as many as two pairs of ports may be communicating simultaneously. With the 528FP, as many as four pairs of ports may be communicating simultaneously. The 5218FP will allow up to nine pairs of ports to communicate simultaneously.

A connection between two ports may be initiated by either device that wishes to communicate. Either device must send the sign-on character (factory default is *Control-T*) followed by the desired port number. An *On Line* message is sent back to the device requesting connection. The connection will remain until a sign-off request is received by the multiport by either device.

If a device requests a connection and the desired port is busy, a *Busy* message is sent back to the requesting device.

Disconnection may be accomplished by either of the two connected devices. The device requesting disconnection sends to the multiport the sign-off character (factory default is *Control-T*) followed by *Carriage Return*. An *Off line* message is sent back to the device requesting disconnection.

A Disconnect Time Guard option (Option 7) is available to prevent erroneous disconnections in case the sign-off character is transmitted as data. The disconnect time guard requires a delay of two seconds before the sign-off character and *Carriage Return* are sent.

In addition, the 525FP and the 528FP feature host port control in which the host device (the device connected to the host port - Port 5 on the 525FP, Port 9 on the 528FP) may also connect or disconnect between other ports at any time.

To make a connection between two ports, the host device sends to the multiport through the host port the current sign-on character followed by ASCII capital *T* and the two port numbers. For example, if the host device wishes to connect Ports 2 and 5, it would send the current sign-on character followed by *T25*.

To force two ports to disconnect, the host device sends to the multiport through the host port the current sign-off character followed by ASCII capital *D* and the two port numbers.

**NOTE:** When the host device has initiated a connection, the connected devices make also break the connection themselves by following the standard disconnect procedure.

If any non-connected device wishes to review the connection status of all ports, it may send the current sign-on character followed by ASCII capital S. The multiport will respond with a graphic similar to the following depicting port connection. Note that "N" equals no connection.

```
+-----+-----+-----+-----+
! Port   ! 1 ! 2 ! 3 ! 4 ! 5 !
+-----+-----+-----+-----+
!Connect ! 2 ! 1 ! N ! 5 ! 4 !
+-----+-----+-----+-----+
```

## 5.1.5 G SERIES

The G Series units power-up in the broadcast mode. Any data received by the host port is transmitted to all of the peripheral port buffers simultaneously. In the other direction, only one peripheral port can send data to the host port.

To operate properly in the broadcast mode, it is recommended that all ports have the same baud rate, word size, stop bits and parity. If the baud rates on the peripheral ports need to be different, have the host device select the peripheral port with the slowest baud rate so no transmitted characters will be lost. Or, limit the number of characters you transmit at one time to 240, then delay before sending more characters.

The host device may select which port it will receive data from (power-up default is Port 1). The selected port is indicated by the red LED that is lit under the corresponding port number.

For the host device to select a peripheral port, it must send *Control-T* (or current control character) followed by the desired port number (single digit for the 524G, 525GP, 528G, and 529GP, and a double digit number for the 5218GP). Any data received by this port will be transmitted to the host device.

The host device may instruct the G Series multiport to enter into a non-broadcast mode. In this mode, the unit operates identically to an A Series unit (see *Section 5.1.1*).

To enter the non-broadcast mode, send a *Control-T* (or current control character) followed by the capital letter *M*.

To exit the non-broadcast mode and return to the broadcast mode, send a *Control-T* (or current control character) followed by the capital letter *O*.

## 5.2 USER-PROGRAMMABLE OPERATIONS

### 5.2.1 ALL 524 AND NON-PROGRAMMABLE 528 MODELS

The multiport will translate for devices using different configurations, allowing you to mix-and-match devices of different configurations. You may set the baud rate, word size, stop bits, and parity for each individual port.

**Factory default configuration on all ports is 9600 baud rate, 8 bit word size, 1 stop bit and no parity.**

**NOTE:** The serial port parameters for the host port is configured via DIP-switches (baud rate, word size, stop bits, and parity; please see *Section 6.1.1*). The peripheral ports are software programmable from the host port (see *Sections 6.1.2 and 6.2.2*). The baud rate for the peripheral ports of non-programmable 528 models may be set via DIP switch.

### 5.2.2 ALL 525, 528, 529, AND 5218 MODELS (EXCEPT 525FP AND 528FP)

#### 5.2.2.1 THE SERIAL PORT CONFIGURATION

The multiport will translate for devices using different configurations, allowing you to mix-and-match devices of different configurations. You may set the baud rate, word size, stop bits, parity, and XON/XOFF handshaking for each individual port.

**NOTE:** The 5218FP and 5218GP do not support XON/XOFF handshaking as a standard feature. You may purchase Option 6 for the 5218FP or 5218GP to enable XON/XOFF handshaking.

**Factory default configuration on all ports is 9600 baud rate, 8 bit word size, 1 stop bit, parity, and XON/XOFF handshaking disabled.**

## 5.2.2.2 THE CONTROL CHARACTER

To select a peripheral port, the host device sends the control character to the multiport followed by the peripheral port number. The control character is also used to access the configuration mode. The control character may consist of any single character from 00 Hex to 7F Hex.

**NOTE:** The control character is not a programmable feature for the 5218FP.

**The Factory default is *Control-T* (14 Hex).**

## 5.2.2.3 528AC11P AND 5218AC11P - THE MESSAGE TERMINATING CHARACTER

This is a single character that indicates a completed message to the multiport for the AC11 Series. Data is held in the buffer of the multiport until either this message terminating character is received from the peripheral device or the buffer fills, causing the data to be transmitted out of the host port of the multiport preceded by a port identification number. The single message terminating character is in the form of any two-digit hexadecimal character from 00 Hex to 7F Hex.

**Factory default is Carriage Return (0D Hex).**

## 5.2.2.4 528ESP AND 5218ESP - SET DATA BLOCK LENGTH

The data block length is the maximum number of characters per message transmitted out of the host port of the ES Series. You may select a data block length of 1 to 250 characters.

**The factory default data block length is 32 characters.**

## 5.2.3 525FP AND 528FP

### 5.2.3.1 THE SERIAL PORT CONFIGURATION

The multiport will translate for devices using different configurations, allowing you to mix-and-match devices of different configurations. You may set the baud rate, word size, stop bits, parity, and XON/XOFF handshaking for each individual port.

**Factory default configuration on all ports is 9600 baud rate, 8 bit word size, 1 stop bit, parity, and XON/XOFF handshaking disabled.**

### 5.2.3.2 THE SIGN ON/SIGN OFF CHARACTER

To select a peripheral port, the host device sends the sign-on/sign-off character to the multiport followed by the peripheral port number. The sign-on/sign-off character is also used to access the configuration mode. The sign-on/sign-off character may consist of any single character from 00 Hex to 7F Hex.

**The Factory default is *Control-T* (14 Hex).**

### 5.2.3.3 OUTPUT MESSAGE STRINGS

The output message strings are messages sent from the multiport to a device requesting connection or disconnection. They include the On line message, which is sent when a connection takes place; the Off line message, which is sent when a disconnection takes place; and the Busy message, which is sent when the requested port is busy. The multiport may also be programmed to send no message.

These message strings may consist of up to 32 characters maximum, entered in hex notation or ASCII string.

**Factory default on the output message strings are:**

**sign-on message - ^M^JOn line^G^M^J;**

**sign-off message - ^M^JOff line^M^J;**

**busy message - ^M^JBusy^M^J.**

**NOTE:** The ^ symbol represents a control character. ^M gives a carriage return, ^J gives a line feed, and ^G gives a warning bell.

## **5.3 DATA FLOW CONTROL**

**NOTE:** When XON/XOFF is enabled, the multiport will continue to support hardware handshaking lines. If this is not desired, you may disconnect the handshaking lines entirely.

### **5.3.1 All 524, 528, 5218 MODELS**

#### **Host-to-multiport-to-peripheral communication**

When the host device transmits data to a peripheral device through the multiport's host port, the data is received and stored in a 256-character transmit buffer which in turn retransmits it to a peripheral device through a peripheral port. During transmission, after the buffer receives 236 characters, the multiport will make the host port's CTS (Clear-To-Send) line low (negative voltage), signaling the host device that it cannot accept more data (however, in reality it can accept another 20 characters before overflowing the buffer).

If XON/XOFF handshaking is enabled and the host device does not respond, 8 characters later the multiport will send an XOFF character, signaling the computer that it cannot accept more data (however, in reality it can accept another 12 characters before overflowing the buffer).

When the multiport's buffer empties, the multiport will make the CTS line high (positive voltage) and send an XON character (if XON/XOFF is enabled), signaling the host device that it can accept more data.

When the multiport retransmits the data to the peripheral device through a peripheral port, and the peripheral device cannot receive any more data, the multiport will expect to see a low on the DTR (Data Terminal Ready) line or receive an XOFF character (if XON/XOFF is enabled). When the peripheral device can receive more data, the multiport will expect to see a high on the DTR line or receive an XOFF character (if XON/XOFF is enabled).

### **Peripheral-to-multiport-to-host communication**

When a peripheral device transmits data to host device through the multiport's peripheral port, the data is received and stored in a 256-character receive buffer which in turn retransmits it to the computer through the host port. After the buffer receives 236-characters, the multiport will make the peripheral port CTS (Clear-To-Send) line low (negative voltage), signaling the peripheral device that it cannot accept more data (however, in reality it can accept another 20 characters before overflowing the buffer).

If XON/XOFF is enabled and the peripheral device does not respond, 8 characters later the multiport will send an XOFF character, signaling the peripheral device that it cannot accept more data. (However, in reality it can accept another 12 characters before overflowing the buffer.)

When the buffer empties, the multiport will make the CTS line high (positive voltage) and send an XON character, signaling the peripheral device that it can accept more data.

When the multiport is sending data to the host device through the host port and the host device cannot receive any more data, the multiport will expect to see a low on the DTR line or receive an XOFF character (if XON/XOFF is enabled).

**NOTE:** The Model 525FP and 528FP pass certain handshake lines through the unit. In particular, the RTS line of a connected port is passed through to the DSR line of the other connected port and vice-versa.

### **5.3.2 524NB(P) AND 528NB(P) NON-BUFFERED UNITS**

The 524NB(P) and 528NB(P) units do not have any buffer and pass data flow control lines through the unit.

#### **Host-to-multiport-to-peripheral communication:**

When the multiport is transmitting data from the host device to a peripheral device and the peripheral port detects a low (negative voltage) on the DTR line, the multiport will stop transmitting data to the peripheral device. In addition, the multiport will make the host port's CTS line low and send an XOFF character (if XON/XOFF is enabled).

When the peripheral port detects a high (positive voltage) on the DTR line, the multiport will resume transmitting data to the peripheral device. In addition, the multiport will make the host port's CTS line high and send an XON character (if XON/XOFF is enabled).

#### **Peripheral-to-multiport-to-host communication:**

When a peripheral device is transmitting data to the host device and the host port detects a low (negative voltage) on the DTR line, the multiport will stop transmitting data to the host device. In addition, the multiport will make the peripheral port's CTS line low and send an XOFF character (if XON/XOFF is enabled).

When the host port detects a high (positive voltage) on the DTR line, the multiport will resume transmitting data to the host device. In addition, the multiport will make the peripheral port's CTS line high and send an XON character (if XON/XOFF is enabled).

### 5.3.3 STANDARD 525/529 MODELS

#### **Host-to-multiport-to-peripheral communication:**

When the host device transmits data to a peripheral device through the multiport's host port, the data is received and stored in a 256-character transmit buffer which in turn retransmits it to a peripheral device through a peripheral port. During transmission, after the buffer receives 236 characters, the multiport will make the host port CTS (Clear-To-Send) line low (negative voltage), signaling the host device that it cannot accept more data (however, in reality it can accept another 20 characters before overflowing the buffer).

If XON/XOFF handshaking is enabled and the host device does not respond, 8 characters later the multiport will send an XOFF character, signaling the computer that it cannot accept more data (however, in reality it can accept another 12 characters before overflowing the buffer).

When the multiport's buffer empties, the multiport will make the CTS line high (positive voltage) and send an XOFF character (if XON/XOFF is enabled), signaling the host device that it can accept more data.

When the multiport retransmits the data to the peripheral device through a peripheral port, and the peripheral device cannot receive any more data, the multiport will expect to see a low on the DTR (Data Terminal Ready) line or receive an XOFF character (if XON/XOFF is enabled). When the peripheral device can receive more data, the multiport will expect to see a high on the DTR line or receive an XOFF character (if XON/XOFF is enabled).

## **Peripheral-to-multiport-to-host communication:**

When a peripheral device transmits data to the host device through a peripheral port, the data is received and stored in a 3740-character receive buffer (or 7740 receive buffer for 525 units with Option 20) which in turn retransmits it to the host device through the host port. After the buffer receives 3720 characters (or 7720 characters for 525 units with Option 20), the multiport will make the peripheral port CTS (Clear-To-Send) line low (negative voltage), signaling the peripheral device that it cannot accept more data (however, in reality it can accept another 20 characters before overflowing the buffer).

If XON/XOFF is enabled and the peripheral device does not respond, 8 characters later the multiport will send an XOFF character, signaling the peripheral device that it cannot accept more data. (However, in reality it can accept another 12 characters before overflowing the buffer.)

When the buffer empties, the multiport will make the CTS line high (positive voltage) and send an XOFF character (if XON/XOFF is enabled), signaling the peripheral device that it can accept more data.

When the multiport is sending data to the host device through the host port and the host device cannot receive any more data, the multiport will expect to see a low on the DTR line or receive an XOFF character.

## 6 CONFIGURATION

**NOTE:** Most ports on all models may be configured via software commands by following a menu-driven configuration procedure (verbose mode). Some models also allow you to download a character string to configure the multiport without having to follow configuration menus (non-verbose mode). Please see *Section 6.6* for a list of models that support non-verbose mode and instructions.

### 6.1 ALL 524 MODELS - CONFIGURATION PROCEDURE

**IMPORTANT:** Before you proceed, you must know the configuration of the devices that you are going to connect to your 524 unit (i.e., baud rate, word size, stop bits and parity). For your devices to communicate properly, the configuration of each port must match exactly the configuration of the device connected to that port.

#### 6.1.1 HOST PORT CONFIGURATION

The host port of the 524 units are factory-configured at 9600 baud, 8 bit word size, 1 stop bit and no parity. If the device you connect to the host port does not match this configuration, then you may reconfigure the host port via a set of internal DIP-switches.

Use the following procedure to program the host port on 524 units:

- 1) Turn off the power switch and disconnect the AC power cord;
- 2) Lift the cover of your 524 unit by removing the screw in each corner;
- 3) Locate the internal DIP-switches (see *Appendix A.1*).
- 4) Consult Table B on the following page to determine the correct setting of the DIP-switches.

**NOTE:** If Switch 6 is "on" (parity disabled), the setting of Switch 5 (parity even or odd) will have no effect on the operation of the 524.

- 5) Replace Cover;

- 6) Host port configuration is now complete. The 524 will read the positions of the DIP-switches upon power-up. You may now reconfigure your peripheral ports if necessary.

TABLE B - 524 HOST PORT DIP-SWITCH SETTINGS			
Baud Rate	Switch 1	Switch 2	Switch 3
150	Off	Off	Off
300	On	Off	Off
600	On	Off	On
1200	Off	Off	On
2400	On	On	Off
4800	Off	On	Off
9600	Off	On	On
19200	On	On	On
Stop Bits	Switch 4		
2	Off		
1	On		
Parity	Switch 5		
Even	Off		
Odd	On		
Parity	Switch 6		
Enable	Off		
Disable	On		
Word Size	Switch 7		
8 Bits	Off		
7 Bits	On		

**NOTE:** Switch #8 has no effect on the host port's configuration.

## 6.1.2 ALL 524 MODELS EXCEPT 524F(P) - PERIPHERAL PORT CONFIGURATION

To access the configuration mode of the multiport, connect a dumb terminal (or a PC running a terminal emulation program) to the host port, Port 5 of the 524.

You may review the 524's current status by sending an ASCII *Control-R* followed by 0. You may also reconfigure an individual peripheral port's serial port parameters by sending ASCII *Control-R* followed by the desired peripheral port number, i.e., 1 through 4, depending on which peripheral port you want to reconfigure.

### 6.1.2.1 STATUS

The 524 unit will respond to the receiving of Control-R followed by 0 with a table similar to the following which shows the current serial port configuration for the peripheral ports:

Bay Technical Associates  
Model 524 Port Expander, Rev. x.xx  
Copyright 198x

CURRENT PORT CONFIGURATION

PORT	BAUD RATE	WORD SIZE	STOP BITS	PARITY
1	9600	8	1	NONE
2	9600	8	1	NONE
3	9600	8	1	NONE
4	9600	8	1	NONE

If the current port configuration does not match your application, then you must reconfigure the appropriate peripheral port as described in *Section 6.1.2.2*.

## 6.1.2.2 SET SERIAL PORT CONFIGURATION

You may reconfigure individual peripheral ports by sending ASCII *Control-R* followed by the desired peripheral port number (1 through 4).

The 524 will respond to the receiving of *Control-R* and the desired peripheral port number with a current status of that peripheral port and a list of options.

For example, if you wish to reconfigure peripheral Port 3, send *Control-R* followed by "3". The 524 will respond back with the following menu:

### CURRENT PORT CONFIGURATION

PORT	BAUD RATE	WORD SIZE	STOP BITS	PARITY
3	9600	8	1	NONE

QUIT.....1                    SET STOP BITS.....4  
SET BAUD RATE.....2           SET PARITY.....5  
SET WORD SIZE.....3

ENTER REQUEST:

You may now reconfigure Port 3 by selecting the appropriate option (1-5) from the menu. For example, to change the baud rate to 300 baud, send character 2 (set baud rate). The 524 will respond with the following menu:

1        FOR        300  
2        FOR        600  
3        FOR        1200  
4        FOR        2400  
5        FOR        4800  
6        FOR        9600  
7        FOR        19200

ENTER REQUEST:

**NOTE:** A colon (:) always precedes a request for data from the 524 unit.

Send a "1" for 300 baud rate and the 524 will respond with the following menu:

CURRENT PORT CONFIGURATION

PORT	BAUD RATE	WORD SIZE	STOP BITS	PARITY
3	300	8	1	NONE
QUIT.....1		SET STOP BITS....4		
SET BAUD RATE.....2		SET PARITY.....5		
SET WORD SIZE.....3				

ENTER REQUEST:

If there are no other changes for this port, send a "1" to exit the serial port configuration mode for Port 3. The programmable 524s (i.e., 524s with a "P" suffix) will respond with the following message:

Save Changes Permanently? (Y/N):

If you answer "Y" (yes), the new configuration for that port will be stored permanently in non-volatile memory, and the multiport will subsequently power-up at the new configuration.

If you answer "N" (no), the new configuration will be stored in RAM, and on the next power-up, the multiport will revert to the previous configuration.

**NOTE:** Menu selection is case sensitive. Be sure to enter *Capital Y* or *Capital N* in response to the prompt.

The programmable 524 will now return to the operations mode.

**NOTE:** Non-programmable 524s (i.e., 524s without a "P" suffix) will return to operations mode immediately after you respond with "1" (Quit) from the Current Port Configuration menu above.

**NOTE:** Please see *Section 2* for a list of available options on the 524AP, 524AC11P, and 524ESP.

### 6.1.3 524F(P) PERIPHERAL PORT CONFIGURATION

To access the configuration mode of the multiport, connect a dumb terminal (or a PC running a terminal emulation program) to the host port, Port 5 of the 524F(P).

To review the configuration of all peripheral ports on the Model 524(F), send from the Host Port an ASCII *Control-T* followed by a capital "K".

To reconfigure peripheral Port 1, send a *Control-T* followed by an "A".

To reconfigure peripheral Port 2, send a *Control-T* followed by a "B".

To reconfigure peripheral Port 3, send a *Control-T* followed by a "C".

To reconfigure peripheral Port 4, send a *Control-T* followed by a "D".

#### 6.1.3.1 STATUS

The 524F(P) will respond to the receiving of *Control-T* followed by capital *K* with a table similar to the following which shows the current serial port configuration for the peripheral ports:

Bay Technical Associates  
Model 524 Port Expander, Rev. x.xx  
Copyright 198x

CURRENT PORT CONFIGURATION

PORT	BAUD RATE	WORD SIZE	STOP BITS	PARITY
1	9600	8	1	NONE
2	9600	8	1	NONE
3	9600	8	1	NONE
4	9600	8	1	NONE

If the current port configuration does not match your application, then you must reconfigure the appropriate peripheral port as described in *Section 6.1.3.2*.

### 6.1.3.2 SET SERIAL PORT CONFIGURATION

You may reconfigure individual peripheral ports by sending ASCII *Control-T* followed by ASCII Capital *A, B, C, or D* for peripheral ports 1 through 4 respectively.

The 524F(P) will respond to the receiving of *Control-T* and the appropriate peripheral port letter with a current status of that peripheral port and a list of options.

For example, if you wish to reconfigure peripheral Port 3, send *Control-T* followed by "C". The 524F(P) will respond back with the following menu:

#### CURRENT PORT CONFIGURATION

PORT	BAUD RATE	WORD SIZE	STOP BITS	PARITY
3	9600	8	1	NONE
QUIT.....1		SET STOP BITS.....4		
SET BAUD RATE.....2		SET PARITY.....5		
SET WORD SIZE.....3				

ENTER REQUEST:

You may now reconfigure Port 3 by selecting the appropriate option (1-5) from the menu. For example, to change the baud rate to 300 baud, send character 2 (set baud rate). The 524F(P) will respond with the following menu:

1	FOR	300
2	FOR	600
3	FOR	1200
4	FOR	2400
5	FOR	4800
6	FOR	9600
7	FOR	19200

ENTER REQUEST:

**NOTE:** A colon (:) always precedes a request for data from the 524F(P) unit.

Send a "1" for 300 baud rate and the 524F(P) will respond with the following menu:

CURRENT PORT CONFIGURATION

PORT	BAUD RATE	WORD SIZE	STOP BITS	PARITY
3	300	8	1	NONE
QUIT.....1		SET STOP BITS.....4		
SET BAUD RATE.....2		SET PARITY.....5		
SET WORD SIZE.....3				

ENTER REQUEST:

If there are no other changes for this port, send a "1" to exit the serial port configuration mode for Port 3. The 524FP will respond with the following message:

Save Changes Permanently? (Y/N):

If you answer "Y" (yes), the new configuration for that port will be stored permanently in non-volatile memory, and the multiport will subsequently power-up at the new configuration.

If you answer "N" (no), the new configuration will be stored in RAM, and on the next power-up, the multiport will revert to the previous configuration.

**NOTE:** Menu selection is case sensitive. Be sure to enter *Capital Y* or *Capital N* in response to the prompt.

The 524FP will now return to the operations mode.

**NOTE:** The 524F (non-programmable) will return to operations mode immediately after entering "1" (Quit) from the Current Port Configuration menu.

**NOTE:** Please see *Section 2* for available options on the 524F(P).

## 6.2 ALL 528 NON-PROGRAMMABLE MODELS - CONFIGURATION PROCEDURE

**IMPORTANT:** Before you proceed, you must know the configuration of the devices that you are going to connect to your 528 unit, i.e., baud rate, word size, stop bits and parity. For your devices to communicate properly, the configuration of each port must match exactly the configuration of the device connected to that port.

### 6.2.1 HOST PORT CONFIGURATION

The host port of the 528 units are factory-configured at 9600 baud, 8 bit word size, 1 stop bit and no parity. If the device you connect to the host port does not match this configuration, then you may reconfigure the host port via a set of internal DIP-switches.

Use the following procedure to program the host port on 528 units:

- 1) Turn off the power switch and disconnect the AC power cord;
- 2) Lift the cover of your 528 unit by removing the screw in each corner;
- 3) Locate the DIP-switches on the back panel (see *Appendix A.2*).  
DIP switch bank A is used to configure the host port.
- 4) Consult Table C on the following page to determine the correct settings of the DIP-switch bank A.  
**NOTE:** If Switch A7 is "on" (parity disabled), the setting of Switch 5 (parity even or odd) will have no effect on the operation of the 528.
- 5) Replace Cover;
- 6) Host port configuration is now complete. The 528 will read the positions of the DIP-switches upon power-up. You may now reconfigure your peripheral ports if necessary.

**TABLE C - 528 HOST PORT DIP-SWITCH SETTINGS**

Baud Rate	Switch A1	Switch A2	Switch A3
110	Off	Off	Off
135	Off	Off	On
300	Off	On	Off
600	Off	On	On
1200	On	Off	Off
2400	On	Off	On
4800	On	On	Off
9600	On	On	On
Word Size	Switch A5		
8 Bits	On		
7 Bits	Off		
Stop bits	Switch A6		
2	On		
1	Off		
Parity	Switch A7		
Enable	On		
Disable	Off		
Parity	Switch A8		
Odd	Off		
Even	On		

## 6.2.2 PERIPHERAL PORT CONFIGURATION

The peripheral ports of the non-programmable 528 units may be configured via DIP switch settings or by software configuration.

**NOTE:** Only the baud rate for the peripheral ports may be configured by DIP switch settings. You are given four possible baud rate selections using this method: 300, 1200, 4800, and 9600. If you wish to reconfigure the baud rate to a value other than the four specified or if you wish to change the word size, stop bits, or parity, you must use the software method.

**NOTE:** If you change the baud rate for any of the peripheral port by using DIP switch settings, the multiport will power up with those baud rates in effect. If you change any serial port settings using the software method, the changes will be lost when the multiport is powered off.

### Peripheral Port Configuration Using DIP Switches

If you wish to reconfigure the peripheral ports using DIP switch settings, use the following procedure:

- 1) Turn off the power switch and disconnect the AC power cord;
- 2) Lift the cover of your 528 unit by removing the screw in each corner;
- 3) Locate the DIP-switches on the back panel (see *Appendix A.2*). DIP switch banks B and C are used to configure the peripheral ports.
- 4) Consult Table D to determine the correct settings of the DIP-switch banks B and C.
- 5) Replace Cover;
- 6) Peripheral port configuration is now complete. The 528 will read the positions of the DIP-switches upon power-up.

TABLE D 528 PERIPHERAL PORT BAUD RATE DIP-SWITCH SETTINGS								
Baud Rate	Port 1		Port 2		Port 3		Port 4	
	Switch		Switch		Switch		Switch	
	B1	B2	B3	B4	B5	B6	B7	B8
300	Off	Off	Off	Off	Off	Off	Off	Off
1200	Off	On	Off	On	Off	On	Off	On
4800	On	Off	On	Off	On	Off	On	Off
9600	On	On	On	On	On	On	On	On
Baud Rate	Port 5		Port 6		Port 7		Port 8	
	Switch		Switch		Switch		Switch	
	C1	C2	C3	C4	C5	C6	C7	C8
300	Off	Off	Off	Off	Off	Off	Off	Off
1200	Off	On	Off	On	Off	On	Off	On
4800	On	Off	On	Off	On	Off	On	Off
9600	On	On	On	On	On	On	On	On

## 528 Peripheral Port Software Configuration

To access the software configuration mode of the 528 multiport, connect a dumb terminal (or a PC running a terminal emulation program) to the host port, Port 9.

To review the configuration of all peripheral ports on the Model 528, send from the Host Port an ASCII *Control-T* followed by a capital "K".

To reconfigure peripheral Port 1, send a *Control-T* followed by an "A"; to reconfigure peripheral Port 2, send a *Control-T* followed by a "B"; ...; to reconfigure peripheral Port 8, send a *Control-T* followed by a "H".

## 6.2.2.1 528 PERIPHERAL PORT - STATUS

The 528 will respond to the receiving of *Control-T* followed by capital *K* with a table similar to the following which shows the current serial port configuration for the peripheral ports:

Bay Technical Associates  
Model 528 Port Expander, Rev. x.xx  
Copyright 198x

### CURRENT PORT CONFIGURATION

PORT	BAUD RATE	WORD SIZE	STOP BITS	PARITY
1	9600	8	1	NONE
2	9600	8	1	NONE
3	9600	8	1	NONE
4	9600	8	1	NONE
5	9600	8	1	NONE
6	9600	8	1	NONE
7	9600	8	1	NONE
8	9600	8	1	NONE

If the current port configuration does not match your application, then you must reconfigure the appropriate peripheral port as described in *Section 6.2.2.2*.

## 6.2.2.2 528 PERIPHERAL PORT - SET SERIAL PORT CONFIGURATION

You may reconfigure individual peripheral ports by sending ASCII *Control-T* followed by ASCII Capital A, B, C, D, E, F, G, or H for peripheral ports 1 through 8 respectively.

The 528 will respond to the receiving of *Control-T* and the appropriate peripheral port letter with a current status of that peripheral port and a list of options.

For example, if you wish to reconfigure peripheral Port 3, send *Control-T* followed by "C". The 528 will respond back with the following menu:

### CURRENT PORT CONFIGURATION

PORT	BAUD RATE	WORD SIZE	STOP BITS	PARITY
3	9600	8	1	NONE

QUIT.....1                      SET STOP BITS.....4  
SET BAUD RATE.....2                      SET PARITY.....5  
SET WORD SIZE.....3

ENTER REQUEST:

You may now reconfigure Port 3 by selecting the appropriate option (1-5) from the menu. For example, to change the baud rate to 300 baud, send character 2 (set baud rate). The 528 will respond with the following menu:

1	FOR	110
2	FOR	135
3	FOR	300
4	FOR	600
5	FOR	1200
6	FOR	2400
7	FOR	4800
8	FOR	9600

ENTER REQUEST:

**NOTE:** A colon (:) always precedes a request for data from the 528 unit.

Send a "1" for 300 baud rate and the 528 will respond with the following menu:

CURRENT PORT CONFIGURATION

PORT	BAUD RATE	WORD SIZE	STOP BITS	PARITY
3	300	8	1	NONE

QUIT.....1                      SET STOP BITS.....4  
SET BAUD RATE.....2              SET PARITY.....5  
SET WORD SIZE.....3

ENTER REQUEST:

If there are no other changes for this port, send a "1" to exit the serial port configuration mode for Port 3 and the 528 will now return to the operations mode.

## 6.3 ALL 525, 528(x)P, 529, AND 5218 MODELS (EXCEPT 525FP, 528FP, AND 5218FP) - CONFIGURATION PROCEDURE

All configuration changes must be made through the host port. This is Port 9 on the 528 models and Port 18 on the 5218 models.

To access the configuration mode of the multiport, connect a terminal (or a PC running a terminal emulation program) to the host port. Send from this device the current control character (factory default is *Control-T*) followed by ASCII capital *C* (43 Hex).

**NOTE:** For illustration purposes, we will use the configuration menus of the 528AP, 528AC11P, 528ESP, and 529GP.

### 6.3.1 528AP, 5218AP - MAIN CONFIGURATION MENU

The multiport will respond to the receiving of the control character and capital *C* with an identification block and a configuration menu of the options available, similar to the following:

```
Bay Technical Associates
Model 528A Multiport Controller
Copyright 1984
Revision 2.05

Status.....1
Set Serial Port Configuration.....2
Set Control Character.....3
Set XON/XOFF Handshaking.....4
Exit.....X
```

Enter Request:

**NOTE:** Menu selection is case sensitive. It is recommended that your keyboard be in the CAPS LOCK position.

### 6.3.2 528AC11P, 5218AC11P - MAIN CONFIGURATION MENU

The multiport will respond to the receiving of the control character and capital *C* with an identification block and a configuration menu of the options available, similar to the following:

Bay Technical Associates  
Model 528AC11 Multiport Controller  
Copyright 1984  
Revision 2.05

Status.....1  
Set Serial Port Configuration.....2  
Set Control Character.....3  
Set Message Terminate Character.....4  
Set XON/XOFF Handshaking.....5  
Exit.....X

Enter Request:

**NOTE 1:** Menu selection is case sensitive. It is recommended that your keyboard be in the CAPS LOCK position.

**NOTE 2:** In the configuration mode, some characters are displayed with a Hex notation since all combinations from 00 Hex to 7F Hex may be selected, some of which are not printable characters.

### 6.3.3 528ESP, 5218ESP - MAIN CONFIGURATION MENU

The multiport will respond to the receiving of the control character and capital *C* with an identification block and a configuration menu of the options available, similar to the following:

Bay Technical Associates  
Model 528ES Multiport Controller  
Copyright 1984  
Revision 2.05

Status.....1  
Set Serial Port Configuration.....2  
Set Data Block Length.....3  
Set Control Character.....4  
Set XON/XOFF Handshaking.....5  
Exit.....X

Enter Request:

**NOTE 1:** Menu selection is case sensitive. It is recommended that your keyboard be in the CAPS LOCK position.

**NOTE 2:** In the configuration mode, some characters are displayed with a HEX notation since all combinations from 00 Hex to 7F Hex may be selected, some of which are not printable characters.

### 6.3.4 525GP/529GP/5218GP - MAIN CONFIGURATION MENU

The multiport will respond to the receiving of the control character and capital *C* with an identification block similar to the following and a menu of the configuration options available:

Bay Technical Associates  
Model 525G Broadcast Controller  
Copyright 1986  
Revision 2.01

Status.....1  
Set Port Configuration.....2  
Set Control Character.....3  
Exit.....X

Enter Request(1-3,X):

### 6.3.5 STATUS

By responding to the *Enter Request:* message at the end of the main configuration menu with "1" (Status), you may see the status of all ports and the current operation protocol.

The multiport will respond with:

Port	Baud Rate	Word Size	Stop Bits	Parity	Xon/Xoff
1	9600	8	1	None	Off
2	9600	8	1	None	Off
3	9600	8	1	None	Off
4	9600	8	1	None	Off
5	9600	8	1	None	Off
6	9600	8	1	None	Off
7	9600	8	1	None	Off
8	9600	8	1	None	Off
9	9600	8	1	None	Off

Press Any Key to Continue

The 528AP and 5218AP will also show the following information:

```
Control Character is .....14H
XON/XOFF Handshaking is.....(Off)
```

```
Status.....1
Set Serial Port Configuration.....2
Set Control Character.....3
Set XON/XOFF Handshaking.....4
Exit.....X
```

Enter Request:

The 528AC11P and 5218AC11P will also show the following information:

```
Current Control Character is .....14H
Current Terminate Character is .....0DH
XON/XOFF Handshaking is.....(Off)

Status.....1
Set Serial Port Configuration.....2
Set Control Character.....3
Set Message Terminate Character.....4
Set XON/XOFF Handshaking.....5
Exit.....X

Enter Request:
```

The 528ESP and 5218ESP will also show the following information:

```
Current Block Length is.....32
Current Control Character is .....14H
XON/XOFF Handshaking is.....(Off)

Status.....1
Set Serial Port Configuration.....2
Set Data Block Length.....3
Set Control Character.....4
Set XON/XOFF Handshaking.....5
Exit.....X

Enter Request:
```

The 525G and 529G will also show the following information:

```
Control Character is .....14H

Bay Technical Associates
Model 525G Broadcast Controller
Copyright 1986
Revision 2.01

Status.....1
Set Port Configuration.....2
Set Control Character.....3
Exit.....X

Enter Request(1-3,X):
```

### 6.3.6 SET SERIAL PORT CONFIGURATION

By responding to the *Enter Request:* message at the end of the main configuration menu of any unit with "2" (Set Serial Port Configuration), you may change the configuration of each port (i.e. baud rate, word size, stop bits, and parity). Each port is configured individually.

The multiport will respond with:

Enter Port Number (0=Exit),Return:

You should then enter the number of the port that you wish to reconfigure, followed by *Carriage Return*. On the 528 models, this will be a single-digit number. On the 5218 models, this will be a two-digit number.

For example, if you enter "3" (or "03" on a 5218 model), the multiport will respond with the current status of Port 3 and a menu of the available options:

Port	Baud Rate	Word Size	Stop Bits	Parity	Xon/Xoff
3	9600	8	1	None	Off

```
Exit/Save.....1  Set stop bits....4
Set baud rate.....2  Set parity.....5
Set word size.....3
```

Enter request:

You may now reconfigure Port 3 by selecting the appropriate option (1-6) from the menu. For example, to change the baud rate to 2400 baud, send character "2" (Set baud rate).

**NOTE:** The 525GP or 529GP will show *Set XON/XOFF* as an additional item (6) in the submenu above which allows XON/XOFF handshaking to be enabled or disabled for individual ports.

The multiport will respond with:

```
1 For 110
2 For 135
3 For 300
4 For 600
5 For 1200
6 For 2400
7 For 4800
8 For 9600
```

Enter request:

**NOTE:** The 525GP will a different set of baud rate options with the maximum being 19200.

Enter "6" for 2400 baud rate, and the multiport will respond with the reconfigured status of the port and the menu of options:

Port	Baud Rate	Word Size	Stop Bits	Pariity	Xon/Xoff
3	9600	8	1	None	Off

```
Exit/Save.....1 Set stop bits.....4
Set baud rate.....2 Set parity.....5
Set word size.....3
```

Enter request:

If there are no other changes for this port, enter "1" (Exit/Save), and the multiport will respond with:

Save Changes Permanently? (Y/N):

**NOTE:** When changing the configuration of the host port, the multiport will also respond with:

Change Device to NEW Configuration  
Before Answering This Request.

This reminds you to make sure that the new configuration of the host port matches the configuration of the host device. If they do not match, the multiport will be unable to interpret the command, and, therefore, the user will be unable to access any multiport function.

Change the host device's serial parameters to match the new configuration of the host port before answering "Y" (yes) or "N" (no).

If you answer "Y" (yes), the new configuration for that port will be stored permanently in non-volatile memory, and the multiport will subsequently power-up at the new configuration.

If you answer "N" (no), the new configuration will be stored in RAM, and on the next power-up, the multiport will revert to the previous configuration.

The multiport will now return to the main configuration menu.

## 6.3.7 SET CONTROL CHARACTER

**NOTE:** This section does not pertain to the 5218GP.

By responding to the *Enter Request:* message at the end of the main configuration menu with "3" for the 528/5218AP or 528/5218AC11P or with "4" for the 528/5218ESP (Set Control Character), you may user-define the control character.

**CAUTION:** BayTech advises you to log your new control character. If it is forgotten, you will not be able to control the unit or access the configuration mode.

The multiport will respond with:

```
Current Control Character is.....14H
Enter Control Character in Hex.....:
```

You may now enter the new control character that you want in Hex (00-7F Hex). For example, if you enter "15" (*Control-U*), the multiport will respond with:

```
Current Control Character is.....15H
Save Changes Permanently? (Y/N):
```

If you answer "Y" (yes), the new control character will be saved in non-volatile memory, and the multiport will respond only to that character.

The multiport will respond with:

```
Are You Sure? (Y/N):
```

This message gives you a second chance to consider this change and reminds you to log your new control character.

If you answer either question with "N" (no), the new control character will be stored in RAM and lost upon next power-up. The multiport will return to the main configuration menu.

### 6.3.8 528AC11P, 5218AC11P MODELS - SET MESSAGE TERMINATING CHARACTER

By responding to the *Enter Request:* message at the end of the configuration menu for the 528AC11P or 5218AC11P with a "4" (Set Terminate Character), you may custom set the terminating character.

The multiport will respond with:

```
Current Terminate Character is.....0DH
Enter Terminate Character in Hex.....:
```

Enter the terminating character that you wish in the form of a two-digit hexadecimal number. The multiport will then respond with:

```
Save Changes Permanently? (Y/N):
```

If you enter a "Y", the change will be saved in non-volatile memory, and the multiport will subsequently power-up with that terminating character in effect.

If you enter a "N" (no), the terminating character will be stored in RAM only, and on the next power-up, the multiport will revert to the previous terminating character.

The multiport will now return to the main configuration menu (see *Section 6.3.2*).

### 6.3.9 528ESP, 5218ESP MODELS - SET DATA BLOCK LENGTH

By responding to the *Enter Request:* message at the end of the main configuration menu for the 528ESP or 5218ESP with a "3" (Set Data Block Length), you may change the maximum length of the data block transmitted to the host device.

The multiport will respond with:

```
Current Block Length is.....32
Enter Block Length (1 to 250):
```

Enter the number of characters that you wish as a maximum length for the data block.

The multiport will respond with:

```
Save Changes Permanently? (Y/N):
```

If you enter "Y" (yes), the change will be saved in non-volatile memory and the multiport will subsequently power-up with the change(s) in effect.

If you enter "N" (no), the change will be stored in RAM, and on the next power-up, the multiport will revert to the previous configuration.

The multiport will now return to the main configuration menu (see *Section 6.3.3*).

### 6.3.10 ALL 528/5218 AP, AC11P, ESP MODELS - SET XON/XOFF HANDSHAKING

By responding to the *Enter Request:* message at the end of the main configuration menu with "4" for the 528/5218AP or with "5" for the 528/5218AC11P or 528/5218ESP (Set Xon/Xoff Handshaking), you may enable or disable XON/XOFF.

**NOTE:** CTS/DTR handshaking will be in effect regardless of whether XON/XOFF is enabled or disabled.

The multiport will respond with:

```
Xon/Xoff handshaking is.....(OFF)
Xon/Xoff handshaking? (Y/N):
```

You should enter "Y" (yes) if you want XON/XOFF handshaking enabled on all ports. You should enter "N" (no) if you want XON/XOFF disabled on all ports.

The multiport will respond with:

```
Save Changes Permanently? (Y/N):
```

If you enter "Y" (yes), the change will be saved in non-volatile memory, and the multiport will subsequently power-up with the change in effect.

If you enter "N" (no), the change will be stored in RAM only and will be lost upon power-down.

The multiport will now return to the main configuration menu.

### 6.3.11 EXIT

By responding to the *Enter Request:* message at the end of the main configuration menu with "X" (exit), you may exit the configuration mode and return to the operation mode.

## 6.4 525FP AND 528FP - CONFIGURATION PROCEDURE

All configuration changes must be made through the host port. This is Port 5 on the 525FP and Port 9 on the 528FP.

To access the configuration mode of the multiport, connect a terminal (or a PC running a terminal emulation program) to the host port. Send from this device the current sign-on/sign-off character (factory default is *Control-T*) followed by ASCII capital *C* (43 Hex).

**NOTE:** For illustration purposes, we will use the 528FP's configuration menus. The only differences between models is the actual number of ports shown, the title block preceding the configuration options, and noted differences.

### 6.4.1 MAIN CONFIGURATION MENU

The multiport will respond to the receiving of the sign-on/sign-off character and Capital *C* with an identification block and a menu of the configuration options available, similar to the following which applies to the 528FP:

```
Bay Technical Associates
Model 528F Multiport Controller
Copyright 1983, 1986, 1987
Revision 2.08

Configuration status.....1
Port configuration.....2
Output message strings.....3
Sign-on/sign-off character.....4
Exit.....X

Enter request(1-4,X):
```

## 6.4.2 STATUS

By responding to the *Enter Request(1-4,X)*: message at the end of the configuration menu with "1" (Configuration status), you may review the current configuration of the multiport.

**Note:** This status is not to be confused with the port connection status (see *Section 5.1.4*).

The multiport will respond with:

Port	Baud Rate	Word Size	Stop Bits	Parity	Xon/Xoff
1	9600	8	1	None	Off
2	9600	8	1	None	Off
3	9600	8	1	None	Off
4	9600	8	1	None	Off
5	9600	8	1	None	Off
6	9600	8	1	None	Off
7	9600	8	1	None	Off
8	9600	8	1	None	Off
9	9600	8	1	None	Off

```
Hit any key to continue
```

```
Current Sign-on/sign-off character is: 14H
```

```
Output messages
```

```
On-line message : ^M^JOn line^G^M^J
```

```
Off-line message: ^M^JOff line^M^J
```

```
Busy message    : ^M^JBusy^M^J
```

```
Hit any key to continue
```

```
Configuration status.....1
```

```
Port configuration.....2
```

```
Output message strings.....3
```

```
Sign-on/sign-off character..4
```

```
Exit.....X
```

```
Enter request(1-4,X):
```

You may now make whatever changes are necessary by responding to the above menu. The Exit function will return you to the Operations mode.

### 6.4.3 PORT CONFIGURATION

By responding to the *Enter Request(1-4,X)*: message at the end of the configuration menu with "2" (Port configuration), you may change the baud rate, word size, stop bits and parity and also enable or disable XON/XOFF for each port. Each port is configured individually, allowing the user to mix devices of different configurations.

The multiport will respond with:

```
Enter the port number(0-9,X):
```

Enter the number of the port that you wish to reconfigure, followed by *Carriage Return*. If you enter "0" (zero), you may review the configuration status of all ports.

If, for example, you entered "3" and *Carriage Return*, the multiport will respond with the current configuration status of Port 3 and a menu of the available options:

Baud	Word	Port	Stop	Pariity	Xon/
Rate	Size		Bits		Xoff
9600	8	1	1	None	Off

```
Exit/Save.....1  Set Stop Bits....4
Set Baud rate..2  Set Parity.....5
Set Word Size..3  Set XON/XOFF.....6
```

```
Enter request:
```

You may now reconfigure Port 3 by selecting the appropriate option (1-6) from the menu. For example, to change the baud rate to 2400 baud, send character "2" (Set baud rate). The multiport will respond with this menu:

```

1   For   110
2   For   135
3   For   300
4   For   600
5   For  1200
6   For  2400
7   For  4800
8   For  9600

```

Enter:

**NOTE:** If you are configuring a 525FP, this configuration menu will show different choices for baud rates with 19,200 being the maximum. Please see *Section 2* for a list of supported baud rates for the 525FP.

Send "6" for 2400 baud rate, and the multiport will respond with the reconfigured status of the port:

Port	Baud Rate	Word Size	Stop Bits	Parity	Xon/Xoff
1	9600	8	1	None	Off

```

Exit/Save.....1  Set Stop Bits....4
Set Baud rate..2  Set Parity.....5
Set Word size..3  Set XON/XOFF.....6

```

Enter request:

You may now proceed to make whatever other changes are necessary for Port 3.

If there are no other changes for this port, send "1" (Exit/Save), and the multiport will respond with:

```
Save permanently? (Y/N):
```

**NOTE:** When changing the configuration of the host port, the multiport will also respond with:

```
Change Host Device to NEW Configuration
Before Answering This Request.
```

Change the host device's serial parameters to match the new configuration of the host port before answering "Y" (yes) or "N" (no).

If you answer the *Save permanently? (Y/N)*: prompt with "Y" (yes), the new configuration for that port will be stored permanently in non-volatile memory, and the multiport will subsequently power-up at that configuration.

If you answer "N" (no), the new configuration will be stored in RAM, and on the next power-up, the multiport will revert to the previous configuration.

The multiport will now return to the main configuration menu (see *Section 6.4.1*).

## 6.4.4 OUTPUT MESSAGE STRINGS

By responding to the *Enter request(1-4,X)*: message at the end of the configuration menu with "3" (Output message strings), you may change the on-line, off-line and busy messages that the multiport sends to a device.

The multiport will respond with:

```
On line message.....1
Off line message.....2
Busy message.....3
Return to main menu.....X
```

```
Enter request(1-3,X):
```

**NOTE:** The "On line" message indicates the message sent from the multiport to a device requesting connection. The "Off line" message indicates the message sent from the multiport to a device requesting disconnection. The "Busy" message indicates the message sent from the multiport to a device requesting connection when the requested port is busy.

Enter the number (1-3) of the message that you wish to change.

For example, if you enter "1" (On line message), the multiport will respond with:

```
Current message: ^M^JOn line^G^M^J
```

```
Modify (Y/N)?:
```

**NOTE:** The ^ symbol represents a control character. ^M or OD Hex indicates line feed. ^J or 0A Hex indicates carriage return. ^G or 07 Hex indicates a warning bell.

If you enter a "N" (no), the current message will be retained, and the multiport will return you to the Output Message Strings menu.

If you enter a "Y" (yes), the multiport will respond with:

```
Enter characters in hex notation or by an ASCII string  
(32 characters maximum, 00H-FEH, FFH-End or 'string'):
```

```
Current character: ODH
```

```
Enter character or string:
```

The multiport will prompt you character by character until the message is completed. Enter the character or string that you wish. Characters may be entered by sending two ASCII Hex characters (00-FF Hex), followed by a *Carriage Return*. A string may also be entered, but it must be delimited by apostrophes at the beginning and at the end of the string, followed by a *Carriage Return*.

**NOTE:** If you wish to have no message sent, enter an *FF Hex* only, which programs no characters into that message.

When you are finished, you must enter *FF Hex* to terminate the configuration of the on-line message. The multiport will respond with:

Save permanently? (Y/N):

If you enter "Y" (yes), the new message will be saved in non-volatile memory, and the multiport will subsequently power-up with the new message in effect.

If you enter "N" (no), the new message will be stored in RAM, and on the next power-up, the multiport will revert to the previous message.

The multiport will then return you to the Output Message Strings menu. If you wish to change another message, answer the *Enter request (1-3,X)*: prompt with the appropriate number. If you do not wish to make additional changes, enter an "X" (Return to main menu), and the multiport will return you to the main configuration menu (see *Section 6.4.1*).

## 6.4.5 SIGN ON/SIGN OFF CHARACTER

By responding to the *Enter request(1-4, X)*: message at the end of the configuration menu with a "4" (Sign-on/sign-off character), you may change the sign-on/sign-off character to a user-defined character.

The multiport will respond with:

```
Current Sign-on/Sign-off character is: 14H
Modify (Y/N)?:
```

If you enter a "N" (no), the current sign-on/sign-off character will be retained, and the multiport will return to the main configuration menu (see *Section 6.4.1*).

If you enter a "Y" (yes), the multiport will respond with:

```
Remember, sign-off also requires a carriage return
to complete the disconnect sequence.
```

```
Enter the new character in hex format(00H-7FH):
```

Enter the new sign-on/sign-off character that you want in hex. Any single-digit character from 01 Hex to 7F Hex may be selected. The multiport will respond with:

```
Save permanently? (Y/N):
```

**CAUTION:** BayTech advises you to log your new sign-on/sign-off character. If it is forgotten, you will be unable to control the unit or access the configuration mode.

```
SIGN-ON/SIGN-OFF
CHARACTER_____DATE_____BY_____
```

```
SIGN-ON/SIGN-OFF
CHARACTER_____DATE_____BY_____
```

```
SIGN-ON/SIGN-OFF
CHARACTER_____DATE_____BY_____
```

If you enter "Y" (yes), the new sign-on/sign-off character will be saved in non-volatile memory, and the multiport will subsequently respond to that character only.

If you enter "N" (no), the new sign-on/sign-off character will be stored in RAM, and on the next power-up, the multiport will revert to the previous sign-on/sign-off character.

The multiport will now return to the main configuration menu (see *Section 6.4.1*).

### **6.4.6 EXIT**

To exit the configuration mode, send an "X", and the multiport will return to the operating mode.

## **6.5 5218FP CONFIGURATION PROCEDURE**

All configuration changes must be made through the host port. This is Port 18.

To access the configuration mode of the multiport, connect a terminal (or a PC running a terminal emulation program) to the host port. To review the configuration status of all ports, send from this device ASCII *Control-T* (14 Hex), capital C, followed by 00. To reconfigure a particular port, send ASCII *Control-T*, capital C, followed by the desired peripheral port number (01 to 18).

## 6.5.1 5218FP - STATUS

The 5218FP will respond to the receiving of *Control-T*, capital *C*, and *00* from the host device with the following menu:

Bay Technical Associates  
Model 5128F Network Controller  
Copyright 1983  
Revision 2.03

PORT	BAUD RATE	WORD SIZE	STOP BITS	PARITY
1	9600	8	1	NONE
2	9600	8	1	NONE
3	9600	8	1	NONE
4	9600	8	1	NONE
5	9600	8	1	NONE
6	9600	8	1	NONE
7	9600	8	1	NONE
8	9600	8	1	NONE
9	9600	8	1	NONE
10	9600	8	1	NONE
11	9600	8	1	NONE
12	9600	8	1	NONE
13	9600	8	1	NONE
14	9600	8	1	NONE
15	9600	8	1	NONE
16	9600	8	1	NONE
17	9600	8	1	NONE
18	9600	8	1	NONE

## 6.5.2 5218FP - SERIAL PORT CONFIGURATION

You may reconfigure individual peripheral ports by sending ASCII *Control-T* (14 Hex), capital *C*, followed by a two-digit port number (01 to 18).

The 5218FP will respond to the receiving of *Control-T*, capital *C*, and the appropriate port number with a current status of that peripheral port and a list of options.

For example, if you wish to reconfigure peripheral Port 3, send ***Control-T, C***, followed by **03**. The 5218FP will respond back with the following menu:

### CURRENT PORT CONFIGURATION

PORT	BAUD RATE	WORD SIZE	STOP BITS	PARITY
3	9600	8	1	NONE
QUIT.....	1		SET STOP BITS.....	4
SET BAUD RATE.....	2		SET PARITY.....	5
SET WORD SIZE.....	3			

ENTER REQUEST:

You may now reconfigure Port 3 by selecting the appropriate option (1-5) from the menu. For example, to change the baud rate to 300 baud, send character 2 (set baud rate). The 5218FP will respond with the following menu:

1	FOR	110
2	FOR	135
3	FOR	300
4	FOR	600
5	FOR	1200
6	FOR	2400
7	FOR	4800
8	FOR	9600

ENTER REQUEST:

**NOTE:** A colon (:) always precedes a request for data from the 5218FP unit.

Send a "3" for 300 baud rate and the 5218FP will respond with the following menu:

CURRENT PORT CONFIGURATION

PORT	BAUD RATE	WORD SIZE	STOP BITS	PARITY
3	300	8	1	NONE
QUIT.....1			SET STOP BITS.....4	
SET BAUD RATE.....2			SET PARITY.....5	
SET WORD SIZE.....3				

ENTER REQUEST:

If there are no other changes for this port, send a "1" to exit the serial port configuration mode for Port 3. The 5218FP will respond with the following message:

Save Changes Permanently? (Y/N):

**NOTE:** When changing the configuration of the host port, the multiport will also respond with:

Change Host Device to NEW Configuration  
Before Answering This Request.

Change the host device's serial parameters to match the new configuration of the host port before answering "Y" (yes) or "N" (no).

If you answer "Y" (yes), the new configuration for that port will be stored permanently in non-volatile memory, and the multiport will subsequently power-up at the new configuration.

If you answer "N" (no), the new configuration will be stored in RAM, and on the next power-up, the multiport will revert to the previous configuration.

**NOTE:** Menu selection is case sensitive. Be sure to enter *Capital Y* or *Capital N* in response to the prompt.

The 5218FP will now return to the operations mode.

## 6.6 NON-VERBOSE MODE

Multiports power-up in the verbose or menu-driven mode. Only in the menu-driven mode can changes be saved permanently in non-volatile memory.

The non-verbose mode, however, may be preferable in some instances. When configuring a multiport using non-verbose mode, no menus are sent from the multiport which allows you to program the unit by downloading an ASCII character string. This mode applies only to configuration and does not affect operations.

**NOTE:** Changes made using non-verbose mode are not saved in non-volatile memory and will be lost upon power-down, whereupon the power-up default configuration will again be in effect.

The following models support non-verbose mode: 524x(P), 524F(P), 524G, 528G, all 528x(P) units (x = A, AC11, ES, or NB), 5218AP, 5218AC11P, 5218ESP, and the 5218FP.

## 6.6.1 ALL 524 MODELS EXCEPT 524F(P) - NON-VERBOSE MODE CONFIGURATION PROCEDURE

For these models, non-verbose mode is selected by sending ASCII *Control-R* followed by "5" to the host port. Your ASCII character string would start off with: **^R5^RX<...>**, where ^R represents *Control-R*, X is the number of the port (1 to 4) you wish to configure, and ... indicates the remainder of your character string which would consist of choices selected from the following menus:

- A. MAIN MENU
  - Quit.....1
  - Set Baud Rate.....2
  - Set Word Size.....3
  - Set Stop Bits.....4
  - Set Parity.....5
  - Exit.....X
  
- B. SET BAUD RATE MENU
  - 300.....1
  - 600.....2
  - 1200.....3
  - 2400.....4
  - 4800.....5
  - 9600.....6
  - 19200.....7
  
- C) SET WORD SIZE MENU
  - 5.....1
  - 6.....2
  - 7.....3
  - 8.....4
  
- D) SET STOP BITS MENU
  - 1.....1
  - 1 1/2.....2
  - 2.....3
  
- E) SET PARITY MENU
  - None.....1
  - Even.....2
  - Odd.....3

To return to the verbose mode, send the multiport *Control-R* followed by ASCII "6". If no other changes are needed, you may begin operations with your multiport controller.

Please see *Section 6.6.6* for an example using non-verbose mode.

## 6.6.2 524F(P) - NON-VERBOSE MODE CONFIGURATION PROCEDURE

Non-verbose mode for the 524F(P) is selected by sending ASCII *Control-T* followed by capital I. Your ASCII character string would start off with: **^TI^TX<...>**, where ^T represents *Control-T*, X is the letter corresponding to the desired peripheral port (A to D for Port 1 to Port 4) and ... indicates the remainder of your character string which would consist of choices selected from the menus shown on the previous page.

To return to the verbose mode, send the multiport ASCII *Control-T* followed by capital J. If no other changes are needed, you may begin operations with your multiport controller.

Please see *Section 6.6.6* for an example using non-verbose mode.

## 6.6.3 ALL NON-PROGRAMMABLE 528 MODELS

Non-verbose mode for all non-programmable 528 models is selected by sending ASCII *Control-T* followed by capital I. Your ASCII character string would start off with: **^TI^TX<...>**, where ^T represents *Control-T*, X is the letter corresponding to the desired peripheral port (A to H for Port 1 to Port 8) and ... indicates the remainder of your character string which would consist of choices selected from the following menus:

```
A. MAIN MENU
  Quit.....1
  Set Baud Rate.....2
  Set Word Size.....3
  Set Stop Bits.....4
  Set Parity.....5
  Exit.....X
```

- B. SET BAUD RATE MENU
  - 135.....1
  - 150.....2
  - 300.....3
  - 600.....4
  - 1200.....5
  - 2400.....6
  - 4800.....7
  - 9600.....8
  
- C) SET WORD SIZE MENU
  - 5.....1
  - 6.....2
  - 7.....3
  - 8.....4
  
- D) SET STOP BITS MENU
  - 1.....1
  - 1 1/2.....2
  - 2.....3
  
- E) SET PARITY MENU
  - None.....1
  - Even.....2
  - Odd.....3

To return to the verbose mode, send the multiport ASCII *Control-T* followed by capital *J*. If no other changes are needed, you may begin operations with your multiport controller.

Please see *Section 6.6.6* for an example using non-verbose mode.

## 6.6.4 ALL 528 AP, AC11P, ESP, AND NBP MODELS - NON-VERBOSE MODE CONFIGURATION PROCEDURE

Non-verbose mode for these models is selected by sending ASCII *Control-T* followed by capital I. Your ASCII character string would start off with: **^TI^TC<...>**, where **^T** represents *Control-T* and **...** indicates the remainder of your character string which would consist of choices selected from the menus shown in the following subsections:

### 6.6.4.1 528AP, 528NBP, 5218AP - NON-VERBOSE MODE CONFIGURATION MENUS

Refer to the following menus to configure the 528AP, 528NBP, or 5218AP when using non-verbose mode.

```
A. MAIN MENU
  Status.....1
  Set Serial Port Configuration....2
  Set Control Character.....3
  Set Xon/Xoff Handshaking.....4
  Exit.....X

B. SET SERIAL PORT CONFIGURATION MENU
  Enter port number.

  Exit/Save.....1
  Set baud rate.....2
  Set word size.....3
  Set stop bits.....4
  Set parity.....5

  a) SET BAUD RATE MENU
     110.....1
     135.....2
     300.....3
     600.....4
     1200.....5
     2400.....6
     4800.....7
     9600.....8

  b) SET WORD SIZE MENU
     5.....1
     6.....2
     7.....3
     8.....4
```

```
c) SET STOP BITS MENU
  1.....1
  1 1/2.....2
  2.....3
```

```
d) SET PARITY MENU
  None.....1
  Even.....2
  Odd.....3
```

```
C. SET CONTROL CHARACTER
  Enter control character in HEX.
```

```
D. SET XON/XOFF HANDSHAKING
  Xon/Xoff Handshaking? (Y/N)
```

To return to the verbose mode, send the multiport ASCII *Control-T* (or current control character) followed by capital "J". If no other changes are needed, you may begin operations with your multiport controller.

Please see *Section 6.6.6* for an example using non-verbose mode.

## 6.6.4.2 528AC11P, 5218AC11P - NON-VERBOSE MODE CONFIGURATION MENUS

Refer to the following menus to configure the 528AC11P or 5218AC11P when using non-verbose mode.

- A. MAIN MENU
  - Status.....1
  - Set Serial Port Configuration....2
  - Set Control Character.....3
  - Set Message Terminate Character..4
  - Set Xon/Xoff Handshaking.....5
  - Exit.....X
  
- B. SET SERIAL PORT CONFIGURATION MENU
  - Enter port number.
  
  - Exit/Save.....1
  - Set baud rate.....2
  - Set word size.....3
  - Set stop bits.....4
  - Set parity.....5
  - a) SET BAUD RATE MENU
    - 110.....1
    - 135.....2
    - 300.....3
    - 600.....4
    - 1200.....5
    - 2400.....6
    - 4800.....7
    - 9600.....8
  
  - b) SET WORD SIZE MENU
    - 5.....1
    - 6.....2
    - 7.....3
    - 8.....4
  
  - c) SET STOP BITS MENU
    - 1.....1
    - 1 1/2.....2
    - 2.....3
  
  - d) SET PARITY MENU
    - None.....1
    - Even.....2
    - Odd.....3
  
- C. SET CONTROL CHARACTER
  - Enter control character in HEX (2-digit).
  
- D. SET MESSAGE TERMINATE CHARACTER
  - Enter message terminate character in HEX (2-digit).

```
E. SET XON/XOFF HANDSHAKING
  Xon/Xoff Handshaking? (Y/N)
```

To return to the verbose mode, send the multiport ASCII *Control-T* (or current control character) followed by capital "J". If no other changes are needed, you may begin operations with your multiport controller.

Please see *Section 6.6.6* for an example using non-verbose mode.

### 6.6.4.3 528ESP, 5218ESP - NON-VERBOSE MODE CONFIGURATION MENUS

Refer to the following menus to configure the 528ESP or 5218ESP when using non-verbose mode.

```
A. MAIN MENU
  Status.....1
  Set Serial Port Configuration....2
  Set Data Block Length.....3
  Set Control Character.....4
  Set Xon/Xoff Handshaking.....5
  Exit.....X

B. SET SERIAL PORT CONFIGURATION MENU
  Enter port number.

  Exit/Save.....1
  Set baud rate.....2
  Set word size.....3
  Set stop bits.....4
  Set parity.....5

  a) SET BAUD RATE MENU
     110.....1
     135.....2
     300.....3
     600.....4
     1200.....5
     2400.....6
     4800.....7
     9600.....8

  b) SET WORD SIZE MENU
     5.....1
     6.....2
     7.....3
     8.....4
```

- c) SET STOP BITS MENU
  - 1.....1
  - 1 1/2.....2
  - 2.....3
  
- d) SET PARITY MENU
  - None.....1
  - Even.....2
  - Odd.....3

- C. SET DATA BLOCK LENGTH
  - Enter desired data block length (1 to 250 characters).
  - Insert *Carriage Return* if less than three digits are entered.
  
- D. SET CONTROL CHARACTER
  - Enter control character in HEX (2-digit).
  
- E. SET XON/XOFF HANDSHAKING
  - Xon/Xoff Handshaking? (Y/N)

To return to the verbose mode, send the multiport ASCII *Control-T* (or current control character) followed by capital "J". If no other changes are needed, you may begin operations with your multiport controller.

Please see *Section 6.6.6* for an example using non-verbose mode.

## 6.6.5 5218FP - NON-VERBOSE CONFIGURATION PROCEDURE

Non-verbose mode for the 5218FP is selected by sending ASCII *Control-T* followed by capital I. Your ASCII character string would start off with: **^TI^TCXX<...>**, where ^T represents *Control-T*, XX represents the desired port number (01 to 18), and ... indicates the remainder of your character string which would consist of choices selected from the following menus:

- A. MAIN MENU
  - Quit.....1
  - Set Baud Rate.....2
  - Set Word Size.....3
  - Set Stop Bits.....4
  - Set Parity.....5

B. SET BAUD RATE	
110.....	1
135.....	2
300.....	3
600.....	4
1200.....	5
2400.....	6
4800.....	7
9600.....	8
C. SET WORD SIZE	
5.....	1
6.....	2
7.....	3
8.....	4
D. SET STOP BITS	
1.....	1
1 1/2.....	2
2.....	3
E. PARITY	
None.....	1
Even.....	2
Odd.....	3

To return to the verbose mode, send the multiport ASCII *Control-T* followed by capital "J". If no other changes are needed, you may begin operations with your multiport controller.

Please see *Section 6.6.6* for an example using non-verbose mode.

## 6.6.6 NON-VERBOSE MODE EXAMPLE

As an example, we will show how to configure a 528AP multiport controller using non-verbose mode. Please refer to *Section 6.6.3.1* for a listing of configuration menus for this example. Please refer to the appropriate subsection for the non-verbose mode configuration menus and the control character sequence to program your multiport in non-verbose mode (i.e., *Control-R* followed by "5" or *Control-T* followed by "I").

Suppose you wish to reconfigure the 528AP multiport controller to have Port 2's serial parameters to 300 baud, 7 word size, 2 stop bits, even parity, reconfigure the control character to *Control-T*, and enable XON/XOFF handshaking, you would send the following ASCII character string: ^TI^TC222333435213144YX.

This breaks down as follows:

- ^T indicates *Control-T*
- I indicates non-verbose mode
- ^T indicates *Control-T*
- C indicates Configuration Mode.
- 2 indicates Set Serial Port Configuration.
- 2 indicates Port 2.
- 2 indicates Set baud rate.
- 3 indicates 300 baud.
- 3 indicates Set word size.
- 3 indicates 7 word size.
- 4 indicates Set stop bits.
- 3 indicates 2 stop bits.
- 5 indicates Set parity.
- 2 indicates Even parity.
- 1 indicates Exit to Main Menu.
- 3 indicates Set Control Character.
- 14 indicates 14HEX - Control-T.
- 4 indicates Set Xon/Xoff Handshaking.
- Y indicates Xon/Xoff enabled.
- X indicates Exit to Operation Mode.

## **7 MAINTENANCE**

Since there are no adjustments and no moving parts in the 500 Series, preventive maintenance is unnecessary.

### **7.1 RETURNS TO THE FACTORY**

If you find it necessary to return your multiport to the factory for warranty work or factory-set changes.

Before you ship your unit, please call BayTech to get a Return Authorization Number. BayTech cannot accept warranty or no-charge returns without this number.

### **7.2 REPACKING FOR SHIPPING**

If you need to repack your unit for shipping, please choose a heavy cardboard box for packing. Surround your unit with sufficient insulation (a minimum of 2-inches) to withstand the rigors of transport. Be sure to seal the box securely with strapping or packing tape. Masking tape or cellophane tape is not recommended.

## **8 TECHNICAL SUPPORT/ORDERING**

In the event that you have problems with the multiport controller, BayTech has a staff of applications engineers on duty to assist you from 7 am to 6 pm (CST or CDT), Monday through Friday.

When you call BayTech Technical Support, please have the following information available to help the applications engineers answer your questions more accurately and more quickly:

1. Identify which modules you are using and have the serial number (located on the back of the unit) handy.
2. Identify what computers, peripherals or other peripherals you have connected to multiport controller.
3. Identify any special equipment you are using (for example, in-line spoolers, networks, software drivers, etc.).
4. Identify what cables you are using, what the lengths of the cables are, and who sold you the cables.
5. Identify any special options you may have ordered with your multiport controller.
6. Identify the software packages you are using.
7. If possible, have a print-out of the multiport controller's configuration status ready when you call.

**Always call BayTech before dismantling your equipment. Always call BayTech before returning the multiport controller to BayTech for repair.**

**Bay Technical Associates, Inc.  
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Bay Saint Louis, Mississippi 39520 U.S.A.  
Phone: 228/467-8231 or  
800/523-2702  
Fax: 228-467-4551  
Web Site: [www.baytechdcd.com](http://www.baytechdcd.com)**

## 9 FEDERAL COMMUNICATIONS COMMISSION RADIO FREQUENCY INTERFACE STATEMENT\*

This equipment generates and uses radio frequency energy and, if not installed and used properly (that is, in strict accordance with the manufacturer's instructions) may cause interference to radio and television reception. The equipment has been type tested and found to comply within the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference to radio or television reception will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

1. Reorient the receiving antenna.
2. Relocate the computer equipment with respect to the receiver.
3. Move the computer away from the receiver.
4. Plug the computer into a different outlet so that computer and receiver are on different branch circuits.

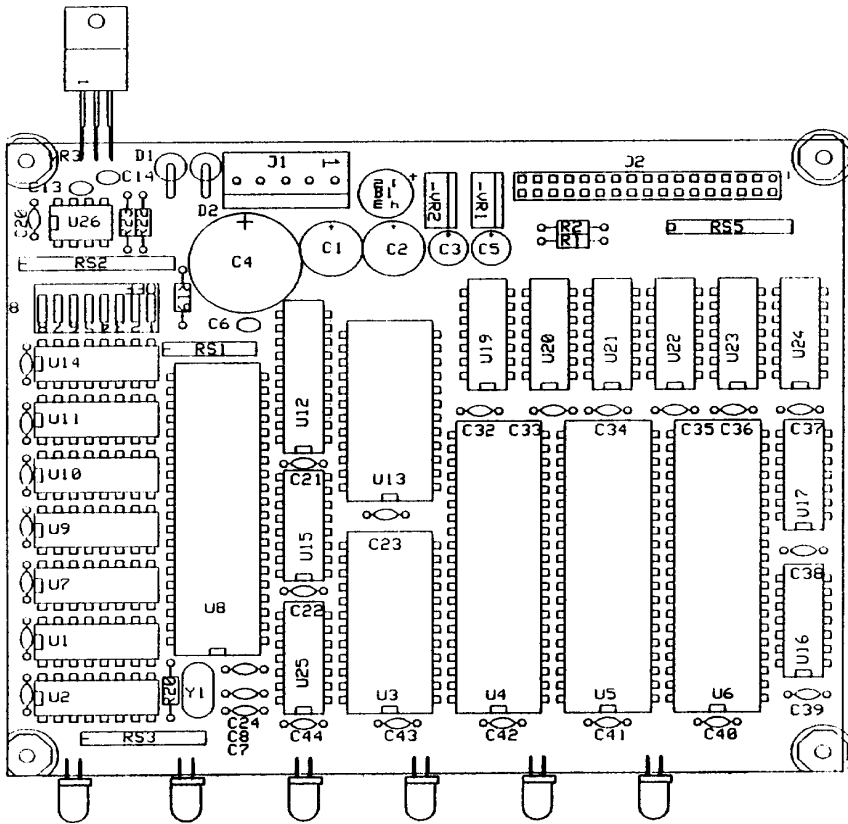
If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions.

The Federal Communications Commission has prepared a booklet entitled "How to Identify and Resolve Radio - TV Interference Problems" which may be helpful to you. This booklet (stock #004-000-00345-4) may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

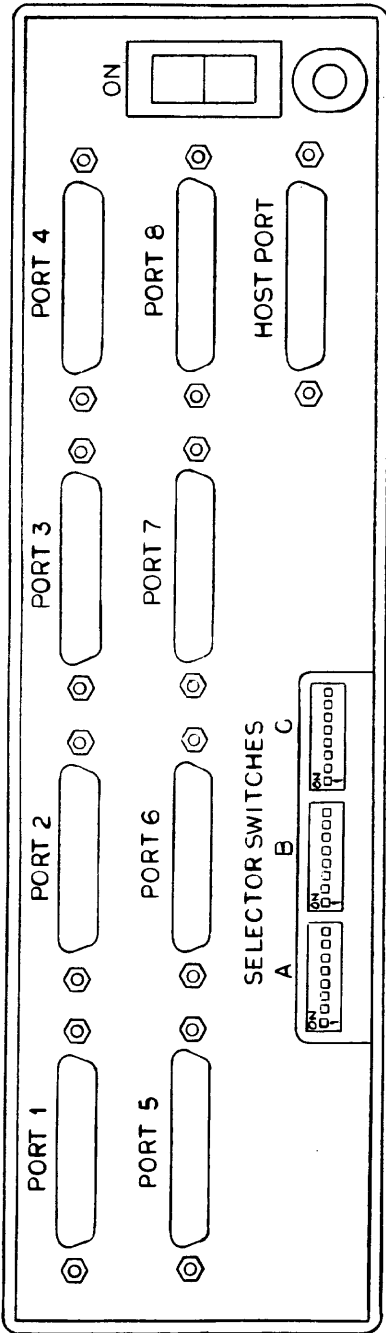
\*Use of a shielded interface cable is required to comply within the Class A limits in Subpart J of Part 15 of FCC rules.

# APPENDIX A MECHANICAL LAYOUTS

## A.1 524 MODELS - MAIN BOARD



## A.2 NON-PROGRAMMABLE 528 MODELS - BACK BOARD



## **APPENDIX B**

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## OTHER BAYTECH PRODUCTS

**Print Master 700 Series** printer controllers are made in several different configurations satisfying various interface requirements. Each unit allows computers to share, select and/or contend for printers easily and economically, without switching cables. The internal buffering system allows simultaneous, high-speed input from all connected computers and output to all printers. Models come in six, eight, and ten port sizes. All have a 1 MB, dynamically allocated buffer that may be expanded to 2 MB. The **706A** and **708A** all parallel port models feature super fast throughput (up to 60,000 characters per second) and an expandable buffer size up to 4 MB.

**Print Master II 800 Series** peripheral sharing devices connect between your computers, printers, plotters, modems and other peripherals. These models allow any of your computers to access any of your peripherals -- and talk to other computers so files can be transferred and data shared. Plus, a built-in buffer spools output data until your peripherals can receive it, freeing your computers to go on to other tasks. Models come in four, eight, and ten ports. Four port models have a 1 MB standard buffer which is expandable to 2 MB. Eight and ten port models have a 256 KB buffer which may be increased to 1.2 MB.

**Model 24SII DES Data Exchange System** is the fastest peripheral sharing solution available with throughput speeds up to 60,000 characters per second. The total number of ports may be expanded from 4 to 24 ports using 4-port I/O modules. Any port can be configured as an input or output port. The standard 1.0 MB buffer can be increased to 16 MB by user installed memory packages. Plus, using popular communications software, this unit allows for computer to computer high speed data transfer as well as modem sharing.

**LaserShare** is an intelligent printer controller that allows up to four or eight computers to send data to a single HP LaserJet laser printer.

**LaserShare MIO** installs into the HP LaserJet Series IIISi, Series 4, and Series 4Si and will support serial speeds up to 460K bps.

LaserShare connects directly into the optional I/O or MIO slot of the laser printer. Power is taken directly from the laser printer so there is no need for a power cord. LaserShare and LaserShare MIO can accept data from all ports simultaneously. Print jobs are printed on a first-in first-out basis. All LaserShare models come standard with a buffer that can range from 256K to 4MB. The buffer on LaserShare MIO models may range from 1MB to 4MB. **LaserShare 4C** and **LaserShare 4C MIO** come with four EIA-232C serial ports.

**LaserShare 8C** and **LaserShare 8C MIO** come with eight serial ports, **LaserShare 4E** comes with two parallel and two serial ports, and **LaserShare 4A** and **LaserShare 4A MIO** come with four parallel ports.

\* The LaserShare device for the Brother HL8e and HL8v is referred to as **LaserShare 4CB**. This device is available with four (4) serial computer ports and a fixed buffer size of 256KB.

The BayTech **PS-4A**, **PS-4C**, and **PS-4A** models are user configurable, high speed, network print servers that support up to four printers. The **PS-4A** has four parallel ports, the **PS-4C** will have four high speed serial ports, and the **PS-4E** has two parallel and two high speed serial ports. The BayTech **LaserShare Network PS-MIO** is a network print server card which installs into the MIO slot of the HP LaserJet Series IIISi, Series 4, and Series 4Si laser printers. Each BayTech print server is compatible with Novell NetWare using normal NetWare commands and utilities (i.e., PCONSOLE, CAPTURE, and NPRINT). You may use an Ethernet 10BASE2 (thin coax) or 10BASE-T (twisted pair) network interface. The BayTech print server services up to 32 print queues distributed on as many as 32 file servers.

**TRAN-X** high speed parallel/serial converter products allow you to extend parallel cables to 1000+ feet and allow your network server, graphics workstation, or PC to send/receive data at speeds up to 46,000 characters per second. You can use the Tran-x Series with BayTech Model 24SII, LaserShare, or network print servers for the fastest long distance peripheral sharing solution available anywhere. Modular cabling provides simplicity in connections between remote devices. **Tran-x LPT-460** card plugs directly into your PC expansion slot. **Tran-x PS-02** connects to your PC's parallel port. **Tran-x SP-01** connects to the Centronics connector of a parallel printer. **Tran-x SP-02** connects to the DB-25 parallel port of the BayTech 700 Series Print Master, 800 Series Print Master II, or Model 24/24SII DES peripheral sharing units.

**"500H" Series, Model 24SII DAC, and Model 16M DAC Data Acquisition and Control** units connect between one host computer and multiple peripheral devices. These models are often used in industrial process-control environments (e.g., for allowing control of multiple numerical or assembly-line machines), in exchanging data between point-of-sale devices, or for operating a number of laboratory instruments or business machines from a central computer. They are especially effective in adapting small low-cost personal computers to these applications. Each unit features six modes of operation which may be easily configured to your application. The **500H** series models are available with either 5 or 9 ports. The **Model 24SII DAC** unit is expandable from 4 to 24 ports and the **Model 16M DAC** unit is expandable from 4 to 60 ports in 4-port modular increments.

**Telplex Models TX102, TX104 and TX108** are asynchronous statistical multiplexers which multiplex and demultiplex two, four, or eight communications channels over a single channel. This single channel is typically a telephone line or cable. The **TX24** and **TX16M** are expandable by four port slide-in modules. Programmable features include serial port parameters (baud rate, word size, etc.), data flow control, user-programmable strings to be sent to an external modem, and remote diagnostics and configuration capability. These units must be purchased in pairs.

**Telplex Model TX104M** is an asynchronous statistical multiplexer with built-in modem. Four individual communications channels are multiplexed into a single dial-up or leased telephone line, cutting phone line costs to a minimum. The TX104M features a V.22 bis internal modem which provides reliable communication at speeds up to 4800 bps. With V.42 bis protocol, the TX104M provides error correction and Classes 2-4 data compression. Compatible with most computers, printers, or peripherals, the TX104M ensures rapid throughput, and offers a variety of user-programmable features in order to meet your specific application requirements.

The **BX2448** is a V.22 bis external modem which uses dial-up or leased telephone lines and comes equipped with many advantageous features, such as MNP Class 5 data compression, which enables data transmission at speeds to 4800 bps and, MNP Classes 2 - 4 error correction. A wide selection of user-programmable features allows you to customize the modem to your own individual application situation.

## **500 SERIES MULTIPOINT CONTROLLERS**

Included in the **500 Series** line of multipoint controllers are units intended for the following applications:

**Port Expansion (A-Series):** Allows a single serial port on a computer to individually access up to 17 peripheral devices with full duplex communication.

**Single Port Contention (DQ-Series):** Allows up to 17 terminals to contend for a single port on a computer system.

**Multiple Port Contention (B-Series):** Allows either 6, 8 or 12 terminals to contend for either 3, 4 or 6 computer ports respectively.

**Networking (F-Series):** Networks either 5 or 9 ports together, i.e., allows any port to connect to any other port on the multipoint controller. These also have host port control which allows a host computer system to make and/or break any connection between two ports on the multipoint controller.

**Broadcasting (G-Series):** Will simultaneously broadcast whatever data is received on the host port out to either 4 or 8 peripheral devices while sending data from a single selected peripheral device back to the host device. This unit is also capable of operating in a port expansion mode such as the **A-Series**.

**Auto T-Switch (T-Series):** Allows a group of up to 6 terminals to switch between two computer systems.

**NOTE:** All ports on the **500 Series** are standard with EIA-232 ports. EIA-422 and Current Loop ports are optionally available.

If you have questions concerning any of BayTech's products, please feel free to call a BayTech Applications Engineer at either (800)523-2702 or (601)467-8231.

**NOTES:**

**NOTES:**