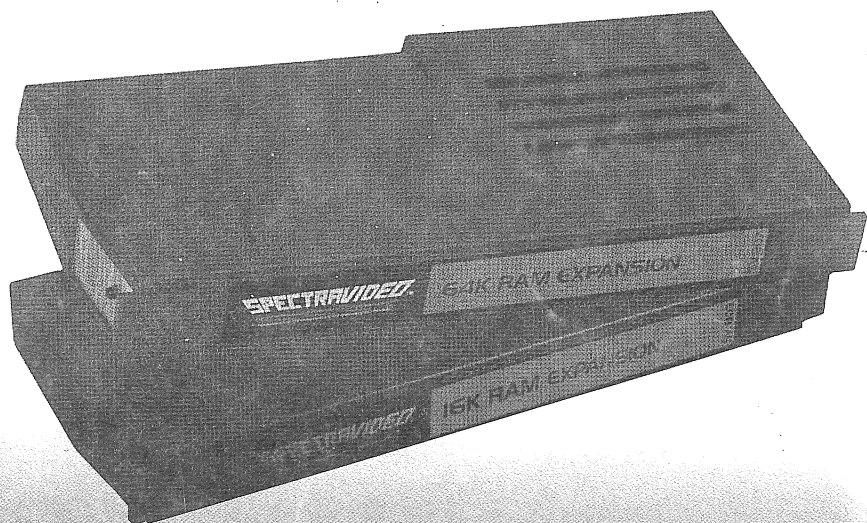


SV-803 807

16K RAM &
64K RAM CARTRIDGE
USER'S MANUAL




SPECTRAVIDEOTM



SPECTRAVIDEO'S USER'S MANUAL STATEMENT

WARNING:

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.



INTRODUCTION

Spectravideo's 16K and 64K RAM Expansion Cartridges are specially designed for use with the SV-601/SV-605 Super Expander which is connected to the SV-318 or SV-328 basic unit. These expansion cartridges add additional user addressable memory to the RAM already built into your computer. Moreover, with the DIP switches designed for SV-807, the user is free to assign memory to the address desired.

With the use of these expansion cartridges, the user may run any of the sophisticated CP/M programs already available on the market. These expansion cartridges can also be used in the compilation and assembly of programs when larger memory size is required.

Read this instruction manual thoroughly to become familiar with the RAM expansion cartridges. It is your guide to proper installation and operation.

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SV-803/807-UM-02

SPECTRAVIDEO SV-803 AND SV-807 16K AND 64K RAM EXPANSION CARTRIDGES INSTRUCTION MANUAL

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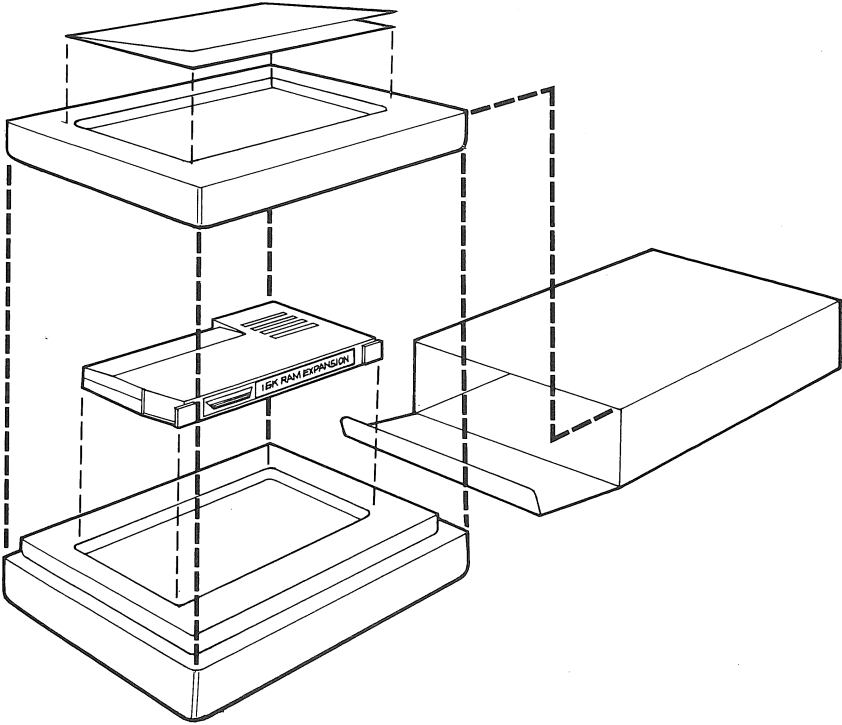
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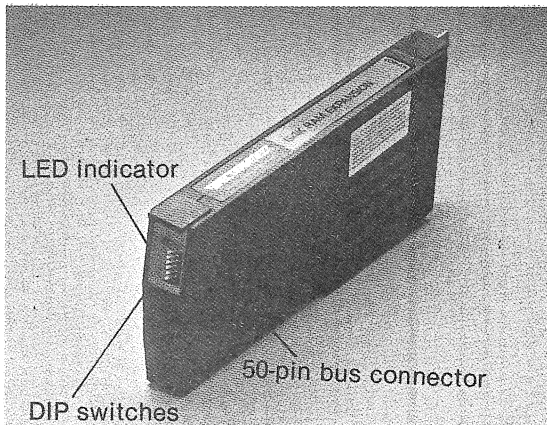
1. ACCESSORIES

The package of either the SV-803 or SV-807 should contain the following items:

- (A) The RAM Expansion Cartridge you have purchased, either 16K or 64K.
- (B) Instruction Manual (this pamphlet)
Note: No cables are required for installation.



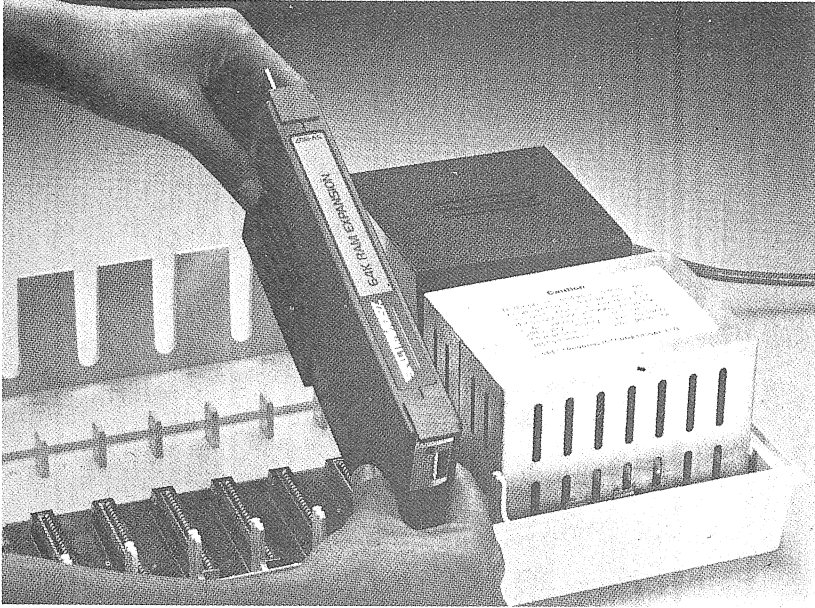
2. LAYOUT OF SV807



- 3. MAIN FEATURES**
- (A) The main feature of either the SV-803 or SV-807 is the additional RAM memory it adds to your SV-318 or SV-328 computer system. This additional RAM will allow you to compile many more programs, and run some of the more sophisticated CP/M programs.
 - (B) With the purchase of the SV-803 and/or the SV-807 RAM cartridges, your SV-318 or SV-328 computer system may be expanded up to a full 160K bytes of user addressable memory.
 - (C) An LED indicator on the front of the cartridge shows you that it is in operation.
 - (D) The cartridge is designed for ease of insertion and for durability.
 - (E) DIP switches are used exclusively for SV-807 memory bank selection. All Bank 0, Bank 2 and Bank 3 are addressable.
 - (F) Durable casing is designed for protection of the circuit board.

4. CONNECTIONS The following is a guide to the proper hook-up procedures for the SV-803 and SV-807 RAM expansion cartridges:

- (A) Be sure all power is "OFF" on both the SV-601 Super Expander and the SV-318 or SV-328 basic unit.
- (B) Remove the top cover of the SV-601 Super Expander to reveal its seven peripheral slots.
- (C) These slots are numbered 0 through 6 from left to right. Plug the cartridge into any slot except #6 (this slot is for the floppy disk controller only). Insert cartridge into slot gently. Do not force.
- (D) Be certain the 50-pins bus connector located at the bottom of the cartridge is fully seated in the slot, such that the LED indicator can be observed through the window of the SV-601 Super Expander.
- (E) Double check all connections and replace the top cover of the SV-601 Super Expander.

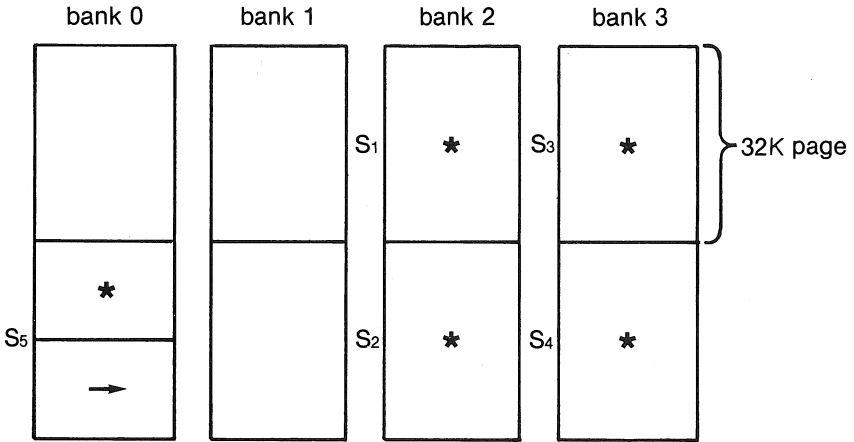


Power Supply

- (F) All the peripheral interfaces that attach to the SV-601 Super Expander, including the RAM expansion cartridges described in this manual, receive their power directly from the expander.

5. MEMORY ASSIGNMENT DESCRIPTION FOR SV318/SV328

Bank Memory for SV-318

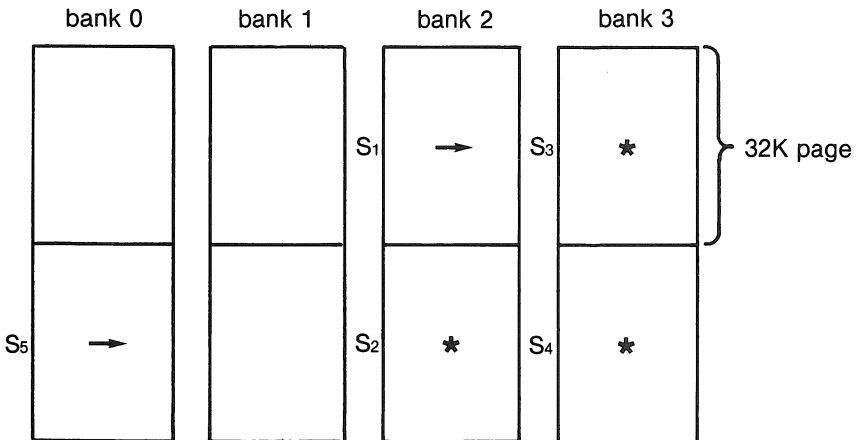


*RAM: the user expandable RAM area

→ RAM: the built-in RAM area

Total, there are 144K user expandable RAM and 16K built-in RAM.

Bank Memory for SV-328

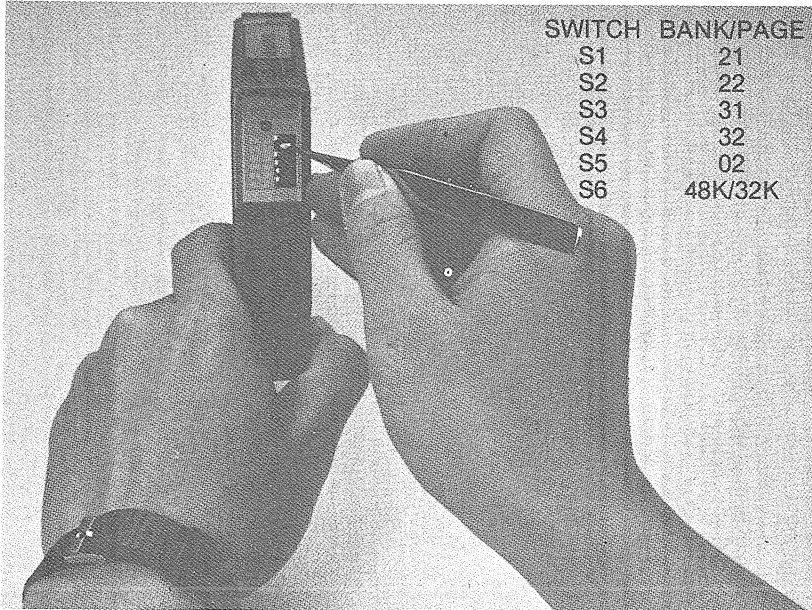


*RAM: the user expandable RAM area

→ RAM: the built-in RAM area

Total, there are 96K user expandable RAM and 64K built-in RAM.

6. OPERATIONS



Each Bank/page contains 32K bytes of memory.

The SV-803 and SV-807 RAM Expansion Cartridges are both used to expand the computer's memory up to a full 160K bytes of user addressable RAM.

The SV-803 16K RAM Expansion Cartridge

It is specially designed to fill the first half of page 02 in the SV-318 computer unit.

The SV-807 64K RAM Expansion Cartridge

- A. It is designed to fill in the memory banks of the SV-318 and the SV-328 computer units with the use of DIP switches.
- B. Since each page contains 32K bytes of user expandable memory, and the SV-807 consists of 64K bytes of memory, two pages can be selected ranging from the switches S1 to S5. Choose two switches and set them to the ON position as desired.

- C. For the SV-318 computer unit, you may select any two pages from Bank 0, Bank 2 and Bank 3. Then set the switches of the selected pages to the ON position. One point to note is that if you assign the selection to page 02, set the switch S5 to the ON position. 16K bytes in the cartridge will become disabled because of the already built-in of 16K bytes memory in the lower half of page 02.
- D. For the SV-328 computer unit, you may choose any two pages from Bank 2 and Bank 3 by setting the two corresponding switches to the ON position.
- E. Both the SV-318 and SV-328 computer units are designed in such a way that each page of the memory bank is assigned to 32K bytes of memory. Thus the switch S6 is always set to 32K side (or OFF position).

For optimum assignment of cartridges to the memory bank of the SV-318, two cartridges of the SV-807 and one cartridge of SV-803 should be inserted. Set only two switches in each cartridge to the ON position, with any combination of S1 to S4. Another SV-803 cartridge will automatically fill in the page 02. Thus set S5 and S6 to the OFF position.

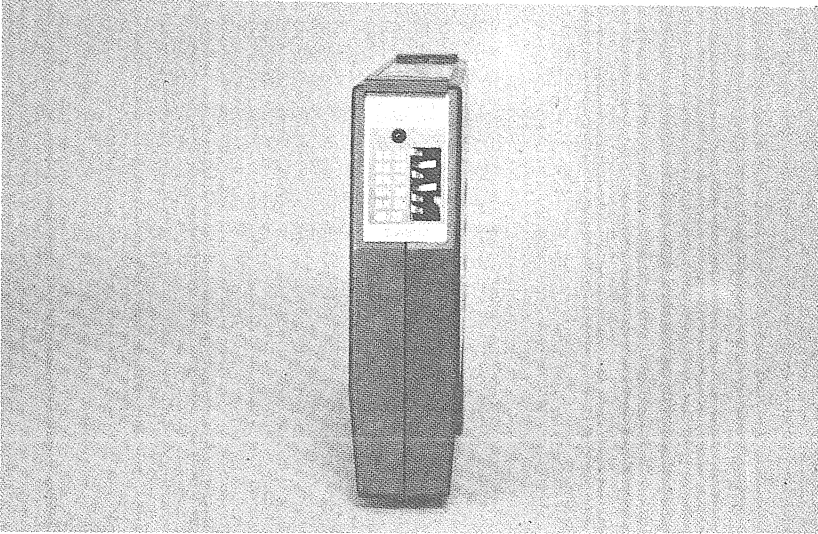
For the SV-328 computer unit, two cartridges of SV-807 should be inserted, though 32K bytes of one cartridge in page 21 become disabled. Hence set the switches S3 and S4 in one cartridge ON and the switch S2 ON but S1 OFF in another cartridge. The switches S5 and S6 are set to the OFF position.

7. SV807 SWITCH SELECTION SUMMARY

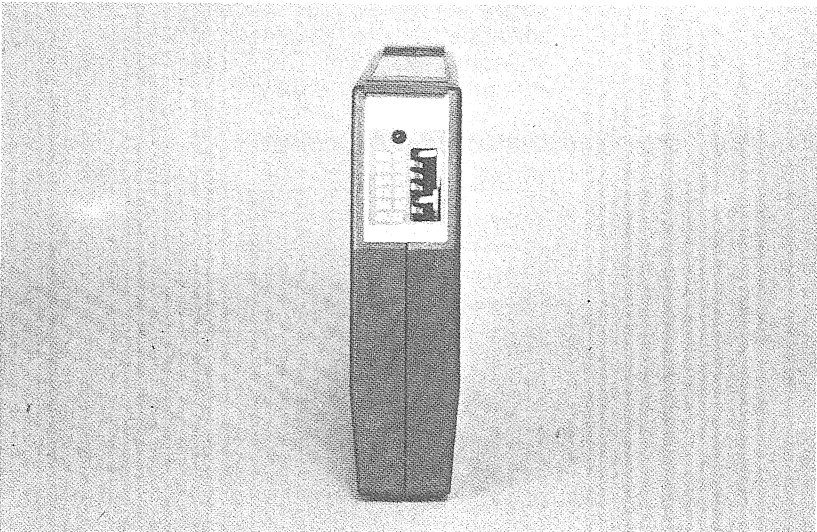
| SV-807 Selection | SV-318 | SV-328 |
|------------------|---|----------------------------|
| S1 | ON/OFF | OFF |
| S2 | ON/OFF | ON/OFF |
| S3 | ON/OFF | ON/OFF |
| S4 | ON/OFF | ON/OFF |
| S5 | On*/OFF | OFF |
| S6 | OFF | OFF |
| NOTE | 1 Only two "ON" is allowed 2 *Can be selected only if SV-803 16K RAM Card is not used. | 1 Only two "ON" is allowed |

8. TYPICAL EXAMPLES

- (A) To run disk BASIC with SV-318
A single SV-807 64K RAM is required for running of disk BASIC which requires RAM pages 22 and 32 to be populated. Set the switches S2 and S4 to the ON position.



- (B) To run CP/M with SV-318
A single SV-807 64K RAM is required for running of CP/M which requires RAM pages 02 and 21 to be populated. Set the switches S1 and S5 to the ON position.



9. CAUTIONS

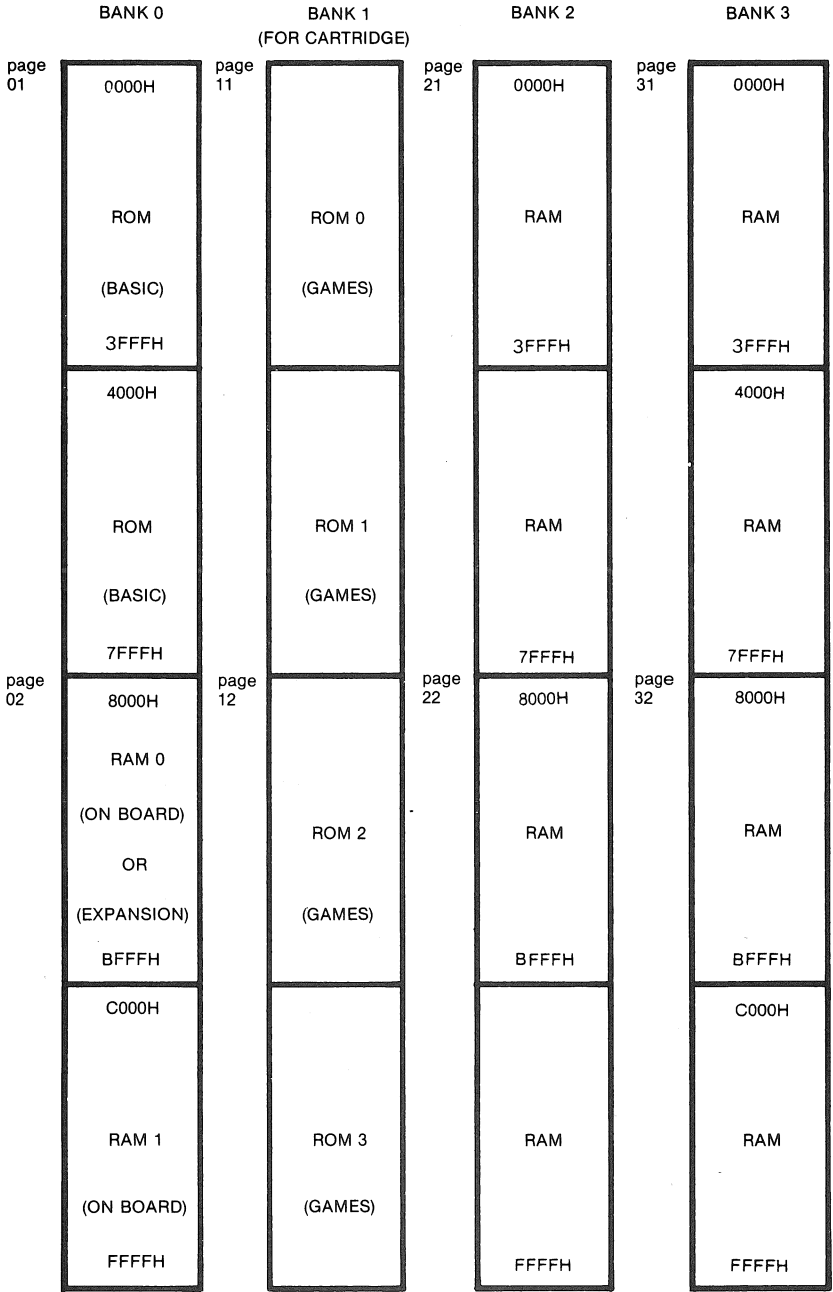
Proper caution should be observed when handling the SV-803 and SV-807 RAM expansion cartridges and all interface publications.

- (A) Never remove or insert a RAM expansion cartridge or any other peripheral cartridge with the power "ON". This could cause serious damage to your system.
- (B) Never remove the protective casing surrounding the printed circuit board.
- (C) Never bang or drop the cartridge. This can cause irreparable damage to its circuit board.

10. MAINTENANCE The performance of preventive maintenance on any Spectravideo cartridge is essential to the life of the cartridge. The following is a description of preventive maintenance you may perform on your RAM expansion cartridges:

- (A) Use a cleaning solvent, preferably freon based, to clean the bus fingers located at the bottom of the cartridge.
- (B) The use of a wire brush is also recommended when cleaning bus fingers.
- (C) Never smoke, eat or drink anything near the cartridge. Particles of food and dust may get lodged in the printed circuit board, affecting performance and perhaps causing damage.
- (D) When not in use, store cartridges in a dark place well away from sunlight. Sunlight can cause the protective casing to deteriorate.

11. MEMORY MAP & VECTOR LOCATIONS



12. I/O ASSIGNMENT

| PIN | NAME | PIN | NAME |
|-----|--------|-----|---------|
| 1 | +5V | 2 | CNTRL2 |
| 3 | +12V | 4 | -12V |
| 5 | CNTRL1 | 6 | WAIT |
| 7 | RST | 8 | CPU CLK |
| 9 | A15 | 10 | A14 |
| 11 | A13 | 12 | A12 |
| 13 | A11 | 14 | A10 |
| 15 | A9 | 16 | A8 |
| 17 | A7 | 18 | A6 |
| 19 | A5 | 20 | A4 |
| 21 | A3 | 22 | A2 |
| 23 | A1 | 24 | A0 |
| 25 | RFSH | 26 | EXCSR |
| 27 | M1 | 28 | EXCSW |
| 29 | WR | 30 | MREQ |
| 31 | IORQ | 32 | RD |
| 33 | D0 | 34 | D1 |
| 35 | D2 | 36 | D3 |
| 37 | D4 | 38 | D5 |
| 39 | D6 | 40 | D7 |
| 41 | CSOUND | 42 | INT |
| 43 | RAMDIS | 44 | ROMDIS |
| 45 | BK32 | 46 | BK31 |
| 47 | BK22 | 48 | BK21 |
| 49 | GND | 50 | GND |

*** SV-318/328 EXPANDER BUS SIGNAL DESCRIPTION ***

PIN: NAME: I/O: DESCRIPTION:

| | | | |
|------|----------------------------|---|--|
| 1 | +5V | O | +5V power supply, 300mA current is available for all peripheral cards. |
| 2 | $\overline{\text{CNTRL2}}$ | I | Spectravideo game adapter for Coleco™ games. CONTROL signal (normally held HIGH by a 3.3K ohm resistor). This signal, when the game adapter is in use, controls the data transfer between the CPU and the adapter during the external I/O addressing. |
| 3 | +12V | O | +12V power supply. Maximum current is 100mA for all peripheral cards. |
| 4 | -12V | O | -12V power supply. Maximum current is 50mA for all peripheral cards. |
| 5 | $\overline{\text{CNTRL1}}$ | I | Spectravideo game adaptor for Coleco™ games CONTROL signal (normally held HIGH by 1K ohm resistor). This signal, when pulled LOW (i.e. when the adaptor is in use), disables all internal (i.e. SV-318/328) I/O address decoding, and inverses A15. |
| 6 | $\overline{\text{WAIT}}$ | I | Indicates to Z80A CPU that the addressed memory or I/O devices are not ready for data transfer. |
| 7 | $\overline{\text{RST}}$ | I | When this signal is pulled LOW the CPU begins a RESET cycle. During this RESET cycle, the address and data bus enter a high impedance state and the control signals enter the inactive state. |
| 8 | CPUCLK | O | Buffered system clock of frequency 3.58 MHz. |
| 9-24 | A15-A0 | | Buffered ADDRESS BUS. This is a 16-bit address bus providing addresses for memory data exchange and I/O device data exchange. |
| 25 | $\overline{\text{RFSH}}$ | O | Buffered REFRESH signal for the dynamic RAM expanders only. This signal indicates that the lower 7 bits of the address bus contain a refresh address for the dynamic RAM. |
| 26 | $\overline{\text{EXCSR}}$ | I | This is the external CPU-from-VDP READ select signal, and is used by Spectravideo game adaptor for Coleco™ games only. |
| 27 | $\overline{\text{M1}}$ | O | Buffered MACHNINE ONE CYCLE signal. This signal indicates that OP code fetch cycle is the current machine cycle. |
| 28 | $\overline{\text{EXCSW}}$ | I | This is the external CPU-to-VDP WRITE select signal, and is used by Spectravideo game adaptor for Coleco™ games only. |
| 29 | $\overline{\text{WR}}$ | O | Buffered WRITE signal. This signal indicates |

that the CPU data bus holds valid data for storage in the addressed memory or I/O device.

| | | | |
|-------|----------------------------|---|---|
| 30 | $\overline{\text{MREQ}}$ | O | Buffered MEMORY REQUEST signal. This signal indicates when the address bus is holding a valid memory address. |
| 31 | $\overline{\text{IORQ}}$ | O | Buffered INPUT/OUTPUT REQUEST signal. This signal indicates the lower 8 bits of the address bus are holding a valid I/O device address, and is at HIGH state (i.e. inactive) during the INTERRUPT cycle. |
| 32 | $\overline{\text{RD}}$ | O | Buffered READ signal. This signal indicates that the Z80A CPU is wanting to read data from memory or an I/O device. |
| 33-40 | D0-D7 | | Buffered bidirectional DATA bus. This is an 8-bit bidirectional data bus for data exchange between memory and I/O devices. |
| 41 | C SOUND I | | AUDIO input signal from the Spectravideo game adaptor for Coleco™ games. |
| 42 | $\overline{\text{INT}}$ | I | Generated by I/O devices to request interrupt to Z80A CPU. |
| 43 | $\overline{\text{RAMDIS}}$ | I | Pulling this signal LOW disables the SV-318/328 user RAM. This line is held high by a 1K ohm resistor to +5V. |
| 44 | $\overline{\text{ROMDIS}}$ | I | Pulling this signal LOW disables the SV-318/328 BASIC ROM on board. |
| 45 | $\overline{\text{BK32}}$ | O | Buffered MEMORY BANK CONTROL signal. Pulling this signal LOW enables the bank 32 portion of the memory (32K, Addr. — 8000H-FFFFH), and disables the user RAM on board through the RAMDIS signal. |
| 46 | $\overline{\text{BK31}}$ | O | Buffered MEMORY BANK CONTROL signal. Pulling this signal LOW enables the bank 31 portion of the memory (32K, Addr. — 0000H-7FFFH), and disables the BASIC ROM on board through the ROMDIS signal. |
| 47 | $\overline{\text{BK22}}$ | O | Buffered MEMORY BANK CONTROL signal. Pulling this signal LOW enables the bank 22 portion of the memory (32K, Addr.— 8000H-FFFFH), and disables the user RAM on board through the RAMDIS signal. |
| 48 | $\overline{\text{BK21}}$ | O | Buffered MEMORY BANK CONTROL signal. Pulling this signal LOW enables the bank 21 portion of the memory (32K, Addr.— 0000H-7FFFH) which is the lower portion of SV-328 user addressable memory, and disables the BASIC ROM on board. |
| 49-50 | GND | | System electrical ground. |

13. SPECIFICATIONS

| | SV-803 | SV-807 |
|--------------------------|--------------------------------|---------|
| MEMORY | 16K RAM | 64K RAM |
| POWER REQUIREMENTS | Supplied by the Super Expander | |
| DIMENSIONS (mm) LxWxD | 200 × 95 × 25 | |

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