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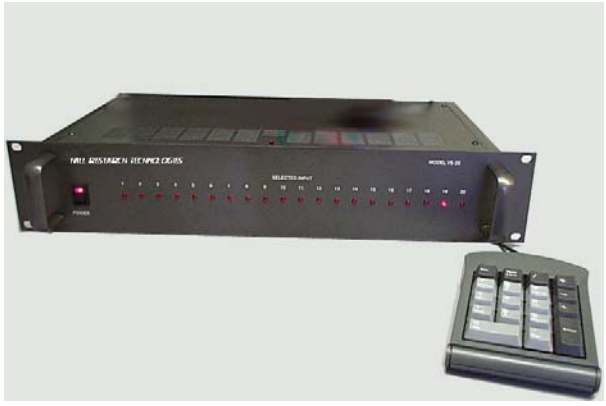
User's Manual — Model VS-20

20 in x 1 out PC (VGA) Video Switch

Front View with Serial Keypad



The Model VS-20 is a 20 in x 1 out VGA video switch that allows a monitor to display any one of 20 inputs. The output may also be blanked out.

The inputs can be RGBHV (e.g. VGA from a PC), RGBS, or RGsB with resolutions to 1600x1200 pixels, all inputs are terminated and buffered using wide bandwidth DC-coupled video amplifiers for a sharp and perfect reproduction at the output.

The VS-20's output can drive cables in excess of 300 feet by means of a proprietary compensation network. Each channel features a user selectable compensation for long cable runs. The compensation should be applied to those inputs where the total length of the cable from that particular input to the monitor exceeds 150 feet.

NOTE: The brightness of the Channel LED's on the front panel is an indication of the "compensation" setting for that channel.

Rear View

An RS232 "Serial Port" is provided on the unit to control the selection for the output. A Serial Keypad is supplied with each unit. The VS-20 has a built-in power supply and requires standard 110 VAC for operation. A power cord is furnished with the unit.

The VS-20 employs HDD15 female connectors for all video inputs and outputs (with standard VGA pin-out). All cable connections are located on the rear of the unit. The front panel provides the on/off power switch and individual indication of the channel selected for the output.

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Setting up the VS-20

- Make sure the unit is powered off.
- Connect your video sources to the input connectors (labeled IN 1 through 20)
- Connect the Monitor or projector to the connector (labeled OUTPUT).
- Connect the keypad to the RS232 port on the device (labeled KEYPAD).
- Connect the **optional** large external numeric display to connector labeled DISPLAY.
- Plug the power cord to the unit and turn the unit on using the front panel switch.

VS-20 Shown with Optional Large Remote Display

Operation of the VS-20

Upon power-up, the device performs a self-test and selects the last displayed channel (also recalls the compensation level that was used for that channel.

Select input channels simply by pressing the following key sequence on the keypad:
Single or Double digit input channel number, followed by ENTER

For example, to select input #12 punch: [1][2][Enter]

When selecting a channel the keys, you have 5 seconds to hit enter or the operation is automatically cancelled. So if you stop for more than 5 seconds, the keypad automatically resets itself. Also, if you press a key that is unexpected (such as Esc or *) or if the channel is out of range, it will be ignored and the keypad resets once again.

Special Characters:

- To blank the output signal altogether, enter zero for input.
  i.e.: [0][Enter]
- To apply compensation to any input press: **+**
  This clears up the display when long cables are used. The LED on the front panel will be brightened.
- To turn compensation off for a particular input press: **-**
  This causes the signal gain to go down, and the LED on the front panel will be dimmed.

**** The compensation setting for each channel is stored in non-volatile memory ****

Specifications for the Model VS-20

Equipment included:

- The VS-20 chassis
- UL approved 110 Vac power cord
- Control Keypad
- User's Manual

Dimensions:

L x W x H: 16.7" L x 9.58" W x 3.2" H (with 19" x 3.44" front panel)

Weight:

Base unit: 5 lbs, Keypad: 1 lbs

Video Specs:

Connector	HDD15 female
Coupling	DC
Bandwidth	Over 250 MHz
Video Level	0.7 v p-p
Video Gain	1

Optional Equipment:

LED Display — Model HRED-202 Large LED Display Device

DIMENSIONS: Display: 2.25" D x 12" W x 4" H

WEIGHT: 4.5 Lbs

Keypad Codes and RS-232 Protocol (Control from a PC Serial Port)

The Keypad that is shipped with the unit operates at 1200 Baud rate with one start bit (0) and one or more stop bits (1), no parity. To tie the unit to a PC, use a DB9 F/F cross-over cable (Null Modem: 2<>3, 4<>6, 7<>8, 5=5).

Each key when pressed transmits a unique one byte "make code", and when released a unique one byte "break code". Therefore, to simulate a keypad keystroke from a PC you must transmit a make code followed by a break code.

Below are the keys that are decoded by the VS-20:

Keypad Button	Make Code, ASCII (HEX)		Break Code, ASCII (HEX)	
1	`	(60)	@	(40)
2	a	(61)	A	(41)
3	b	(62)	B	(42)
4	c	(63)	C	(43)
0	o	(6F)	O	(4F)
+	m	(6D)	M	(4D)
-	l	(6C)	L	(4C)
Enter	t	(74)	T	(54)

Federal Communications Commission Statement

This equipment generates, uses and radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. This equipment has been tested and found to comply with the limits for a Class A computing device, pursuant to Part 15 of the FCC rules. Harmful 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 are necessary to correct the interference.
If necessary, you should consult the place of purchase or and experienced radio/television technician for additional suggestions.

Warranty

HRT warrants that the supplied equipment is free from defective workmanship and material. Subject to the agreements set forth, will repair or replace, at its option, the defective components for a period of 2 years after purchase. The following conditions apply to the Warranty:

- Warranty void if item subject to improper use, negligence, or unauthorized modification
- Instructions must be followed in obtaining RMA number as explained below
- Any defective part should be returned, insured and freight prepaid, to Hall Research, with the following:

Return Material Authorization Number (RMA#)
Description of failure, as detailed as possible
Shipping address and contact name and phone number

Limited Liability

IN NO EVENT SHALL THE DIRECT VENDOR'S LIABILITY EXCEED THE PRICE PAID FOR THE PRODUCT FROM DIRECT, INDIRECT, SPECIAL INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE PRODUCT OR ITS DOCUMENTATION

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