



VS Series 2

User Manual

This manual covers the following products:

VS - 12	2-Camera, 1 Monitor Switcher
VS - 14	4-Camera, 1 Monitor Switcher
VS - 16	6-Camera, 1 Monitor Switcher
VS - 28	8-Camera, 2 Monitor Switcher
VS - 12A	2-Camera, 1 Monitor Switcher, 2 Alarm Inputs
VS - 14A	4-Camera, 1 Monitor Switcher, 4 Alarm Inputs
VS - 16A	6-Camera, 1 Monitor Switcher, 6 Alarm Inputs
VS - 28A	8-Camera, 2 Monitor Switcher, 8 Alarm Inputs

This manual relates to switchers fitted with software revision R1.0.

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1. Overview

The VS Series 2 compact desktop switchers are suitable for colour and monochrome CCTV installations, and cater for two to eight cameras and one or two monitors. Individual camera select keys are provided for the second monitor rather than just a spot key, providing increased speed and convenience of camera selection.

Independent automatic sequencing on each monitor is possible and the cameras that are to be included in each sequence may be specified. Random sequencing may be specified if required. Independent dwell times are programmed via the front panel keys and are stored digitally in non-volatile memory.

Advanced latched and unlatched alarm facilities are provided in all alarm models. Alarm inputs are provided for connection to PIR or other detectors associated with each camera. Alarm output relay contacts in the switcher permit control of an external warning device or a VCR. The alarm hold time, cycle time and the relay hold time are all independently programmable via the front panel keys and are stored digitally in non-volatile memory.

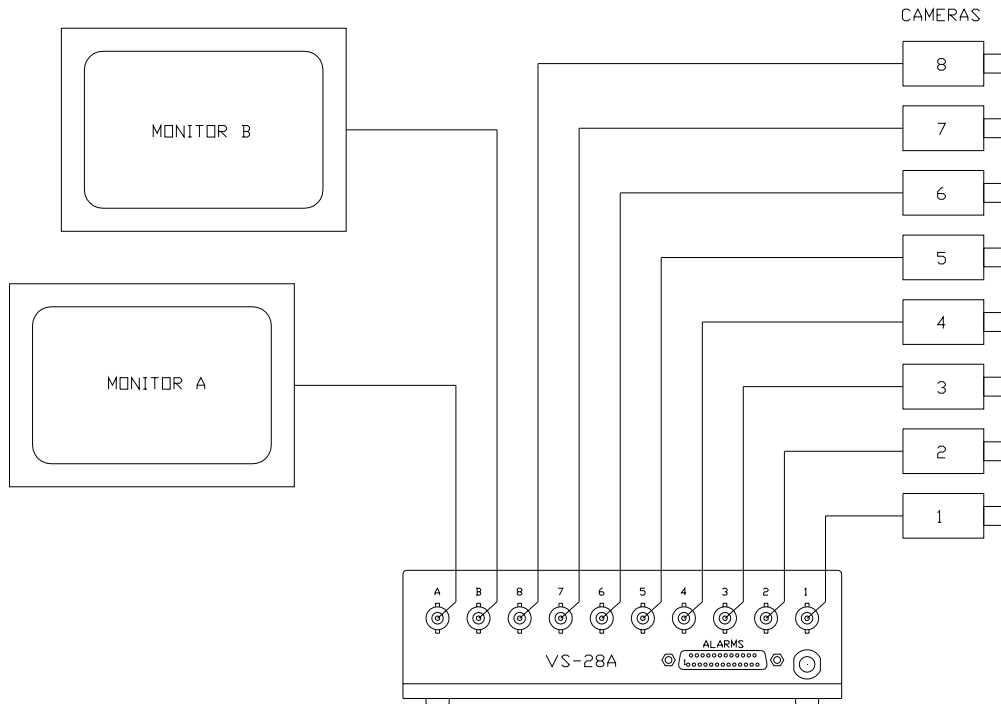
The unlatched alarm mode is suitable for unattended operation as, in this mode, the switcher reverts to normal operation when the alarms end. It may be used with both manual and auto operation. In auto, all alarmed cameras will be sequenced. In manual, the last alarmed camera will be selected. A flashing indicator provides a visual indication of whether the selected camera currently has an alarm.

The latched alarm mode provides similar facilities but provides an audible and visual warning which the operator must manually cancel.

These switchers are robustly constructed and have BNC connectors for cameras and monitors, microprocessor control and bounce free interval switching in all models. Most user options may be simply selected by means of switch settings.

2. Getting Started

- 1/ Connect the switcher up as shown:



This diagram show the VS-28A. For other switchers, fewer camera inputs and monitor outputs are available.

- 2/ Identify the 8 switches on the switcher which are visible through the cut-out in the base of the unit near the front edge. Set all switches OFF except for sections 1,2 and 3 which should ON (assuming 8 cameras).
- 3/ Switch ON the mains power. The switcher powers up in AUTO mode. Press a camera select key to cancel the auto mode and view a particular camera.

3. Manual Switching

3.1 Selecting Manual Mode

Select manual mode for Monitor A by pressing the “AUTO A” switch to turn off its LED, or any one of the Monitor A camera select keys (lower row).

The VS-28 and VS-28A switchers cater for a second monitor. Manual mode for the Monitor B output may similarly be selected by pressing the “AUTO B” switch to turn off its LED, or any one of the any one of the Monitor B camera select keys (middle row).

3.2 Selecting Camera

Press one of the Monitor A camera select keys, identified 1,2,3,4,5,6,7 & 8 (lower row) to display the required camera on Monitor A.

The VS-28 and VS-28A switchers cater for a second monitor. Press one of the Monitor B camera select keys, identified 1,2,3,4,5,6,7 & 8 (upper row) to display the required camera on Monitor B.

4. Auto Switching

4.1 Auto Sequencing (Monitor A)

To auto sequence press the “AUTO A” key. The unit will step from one camera to the next with the previously programmed dwell time.

Only the number of cameras that have been enabled (see section 7.1) will be selected in the sequence.

4.2 Set Dwell Time (Monitor A)

To set the auto sequence dwell time for monitor A, press and hold the “SET” key on, then press and hold the “AUTO A” key on for the required dwell duration. The unit will beep every second. When the required number of seconds has elapsed, release both keys. When the keys are released, a double beep confirms that the time period has been permanently stored.

Note that the Auto Dwell time can not be set if the SET key is locked out (see section 7.3). The dwell time is remembered when the unit is turned off.

4.3 Auto Sequencing (Monitor B)

To auto sequence press the “AUTO B” key. The unit will step from one camera to the next with the previously programmed dwell time.

Only the number of cameras that have been enabled (see section 7.1) will be selected in the sequence.

4.4 Set Dwell Time (Monitor B)

To set the auto sequence dwell time for monitor A, press and hold the “SET” key on, then press and hold the “AUTO B” key on for the required dwell duration. The unit will beep every second. When the required number of seconds has elapsed, release both keys. When the keys are released, a double beep confirms that the time period has been permanently stored.

Note that the Auto Dwell time cannot be set if the SET key is locked out (see section 7.3). The dwell time is remembered when the unit is turned off.

5. Alarm Handling

On the VS-12A, VS-14A, VS-16A and VS-28A, an alarm input is provided for each camera. These are for connection to normally open contacts, typically provided by PIR or other types of detector. When a contact closes, an alarm condition is triggered on that channel.

5.1 Alarm Hold Time

When an alarm condition selects a full screen display of a camera, this display is held for the duration of the Alarm Hold Time. If multiple alarms occur, each is sequentially displayed and held for this time period. The purpose of the Alarm Hold Time is to ensure that each camera is displayed for a minimum amount of time even if other alarms occur within a short period of time.

To set the Alarm Hold Time, press and hold the SET key and then also press and hold the Camera 1 key. Keep both keys held for the required duration. Every second the switcher will beep. When the keys are released, a double beep confirms that the time period has been permanently stored.

Note that the Alarm Hold Time can not be set if the SET key is locked out (see section 7.3). The Alarm Hold time is remembered when the unit is turned off.

5.2 Multiple Alarm Dwell Time

When there is more than one alarm, and each alarmed camera has been displayed in full screen mode for the Alarm Hold Time, the switcher will then sequence between the alarmed cameras, holding on each for the Multiple Alarm Dwell Time.

This will continue for as long as alarm conditions persist or in latched mode, until someone presses a key to manually cancel the alarms. When all alarms have cleared, the switcher will revert to its prior operating condition.

To set the Multiple Alarm Dwell Time, press and hold the SET key and then also press and hold the Camera 2 key (in the case of the VS-12A, press both the Camera 1 and 2 keys). Keep the keys held for the required duration. Every second the switcher will beep. When the keys are released, a double beep confirms that the time period has been permanently stored.

Note that the Multiple Alarm Dwell time can not be set if the SET key is locked out (see section 7.3). The Alarm Dwell time is remembered when the unit is turned off.

5.3 Alarm Relay Hold Time

When an alarm first occurs, the alarm relay in the switcher will activate. When all alarms have cleared, the relay will stay energised for the further duration of the Alarm Relay Hold Time.

To set the Alarm Relay Hold Time, press and hold the SET key and then also press and hold the Camera 3 key (in the case of the VS-12A, use the camera 2 key). Every second the switcher will beep. If the keys are released after just one beep, a relay

hold time of zero will be stored. Further beeps each represent 10 seconds of relay hold time. For example, if the keys are held for a total of seven beeps, this will result in a hold time of sixty seconds (1 minute). If they are held for a total of thirteen beeps, this will result in a hold time of 2 minutes.

When the keys are released, a double bleep confirms that the specified time period has been permanently stored.

Note that the Alarm Relay Hold time can not be set if the SET key is locked out (see section 7.3). The Alarm Relay Hold time is remembered when the unit is turned off

5.4 Unlatched Alarm Mode

The unlatched alarm mode is suitable for unattended operation as in this mode, the switcher automatically reverts to normal operation when the alarms end. The audible bleeper is *not* sounded in unlatched mode.

5.5 Latched Alarm Mode

The latched alarm mode provides the same facilities as the unlatched mode but requires that an operator manually cancels the alarm conditions. All alarms will be remembered by the unit until the SET key is pressed. Only alarms that are still present will then be acted upon.

If any latched or current alarms exist, an internal bleeper beeps once per second.

6. Alarm Connector Pin-out

The VS-12A, VS-14A and VS-28A have alarm inputs and outputs to which connection is made via the 25-way D-type connector on the rear of the unit. The pin numbers are detailed below (note that the VS-12, VS-16 and VS-28 are fitted with only a dummy connector).

View of Female 25-way D-type Connector on rear of switcher:



Signal	Pin
Alarm Input 1	8
Alarm Input 2	21
Alarm Input 3	9
Alarm Input 4	22
Alarm Input 5	10
Alarm Input 6	23
Alarm Input 7	11
Alarm Input 8	24
Alarm Common (Ground)	20
Relay N/O Contact	12
Relay N/C Contact	13
Relay Common	25

7. Setup Options

The switcher is provided with an 8-way DIL switch (referenced as S21) for setting various user options. It is accessible via a cut-out in the base of the unit near the front.

7.1 Number of Cameras

Use these three switches to specify the number of cameras in the system. If there are less than eight cameras, connect them to consecutive camera inputs, starting with input 1.

Number of Cameras	S21-1	S21-2	S21-3
*Programmable	OFF	OFF	OFF
2	ON	OFF	OFF
3	OFF	ON	OFF
4	ON	ON	OFF
5	OFF	OFF	ON
6	ON	OFF	ON
7	OFF	ON	ON
8	ON	ON	ON

*The Programmable option allow the operator to individually specify which cameras are to be sequenced on the Monitor A output and which cameras are to be sequenced on the Monitor B output:

Specify Monitor A cameras to be sequenced:

- (a) Press and hold the AUTO A key.
- (b) Press and hold the SET key
- (c) Press the Monitor A cameras keys (1-8) as required to turn on and off the cameras LEDS. Turn on all the LEDs corresponding to cameras that you wish to be sequenced.
- (d) Release all keys. Two audible beeps indicate that the setting has been stored (4 beeps indicate an error. If this happens, perform all settings again).
- (e) Set the dwell time to the required period using the SET and AUTO A keys only.

Specify Monitor B cameras to be sequenced (VS-28 and VS-28A only):

- (a) Press and hold the AUTO B key.
- (b) Press and hold the SET key

- (c) Press the Monitor B cameras keys (1-8) as required to turn on and off the cameras LEDs. Turn on all the LEDs corresponding to cameras that you wish to be sequenced.
- (d) Release all keys. Two audible beeps indicate that the setting has been stored (4 beeps indicate an error. If this happens, perform all settings again).

7.2 Random Sequencing

The switchers are provided with a random sequence mode which can be used on both Monitor A and Monitor B. This mode is useful when a monitor is on public display for deterrence purposes. The pseudo random sequence is designed to ensure that all cameras will be selected with equal frequency by in a unpredictable order.

Set this switch ON if you want cameras sequence randomly, and set it OFF if you want camera to sequence in normal order (1,2,3 etc):

S21-5	Sequence Mode
OFF	Normal
ON	Random

7.3 Alarm Modes

Set this switch OFF if you do not want alarms latched and if you do not require audible indication of the alarms. Set this switch ON if you require alarms to be remembered until manually acknowledged by an operator, and if you want an audible warning of alarms.

S21-6	Alarm Mode
OFF	Unlatched
ON	Latched

7.4 Interval Switching Mode

This switch should be set OFF if the cameras are synchronised (gen-locked). It should be set ON if the cameras are not synchronised to avoid picture bounce during switching of live full screen images.

S21-7	Interval Switching Mode
OFF	Immediate switch-over at vertical sync
ON	Blank fields inserted between vertical sync pulses during switch-over

7.5 SET Key Lockout

In order to set the cameras selections and the dwell times for normal sequencing and alarm handling, switch S21-7 should be turned OFF. Once the required settings

have been made, it is advisable to set the lockout switch to ON to avoid accidental alteration of any of the settings.

S21-8	SET Key Lockout
OFF	SET key not locked out
ON	SET key can only be used to clear alarms

7.6 Camera Termination

An 8-way DIL switch (referenced as S1) is provided within the switcher (near the rear) to allow camera inputs to be individually terminated or unterminated.

Switch	Camera Input	OFF	ON
S1-1	1	Not Terminated	75 Ohm Termination
S1-2	2	Not Terminated	75 Ohm Termination
S1-3	3	Not Terminated	75 Ohm Termination
S1-4	4	Not Terminated	75 Ohm Termination
S1-5	5	Not Terminated	75 Ohm Termination
S1-6	6	Not Terminated	75 Ohm Termination
S1-7	7	Not Terminated	75 Ohm Termination
S1-8	8	Not Terminated	75 Ohm Termination

8. Specifications

8.1 Auto Dwell Times

1 second to 255 seconds (4 minutes approx)

8.2 Alarm Hold Time

1 second to 255 seconds (4 minutes approx)

8.3 Alarm Cycle Time

1 second to 255 seconds (4 minutes approx)

8.4 Alarm Relay Hold Time

0 seconds to 2550 seconds (40 minutes approx)

8.5 DC Restoration

Outputs are DC restored to <100mV.

8.6 Camera Inputs

1V pk-pk, +3V maximum DC offset, terminated by 75 Ohms (terminations may be removed on a per camera basis). The switchers expects standard PAL colour or monochrome video signals.

8.7 Monitor A Output(s)

1V pk-pk Composite Video when terminated by 75 Ohms

8.8 Alarm Inputs

Normally open contacts required to activate alarm inputs (internally pulled up to 5V via 10K Ohms resistors)

8.9 Alarm Outputs

Change-over relay contacts, rated at 500mA, 24 Volts ac/dc

8.10 Power Requirements

220/240Vac 50/60Hz 10W (110Vac available as an option)

8.11 Dimensions

190 mm (wide) x 145 mm (deep) x 60 mm (high)

8.12 Environmental

Operating Temperature 0 to +40°C

Storage Temperature -20 to +70°C

Humidity 5% to 95% non-condensing

9. Safety Warning

- ❑ Before connecting the mains supply to the unit, check that the supply voltage corresponds with the voltage indicated on the power rating label on the unit.
- ❑ To avoid the risk of electric shock, the mains supply *must* be disconnected from the unit before the cover is removed.
- ❑ This equipment *must* be earthed.
- ❑ The unit is protected with an internally mounted mains fuse. For continued protection against the risk of fire, replace only with the same *type* and *rating* of fuse.
- ❑ This product is supplied with a moulded 13 Amp plug (fitted with a 5A mains fuse) for connection to a standard mains socket outlet. Should the plug not be of the correct type, the plug may be removed and the cable re-wired to a suitable plug. The wires in the power cable are coloured in accordance with the following code:

Green and Yellow	Earth (E)
Blue	Neutral (N)
Brown	Live (L)

