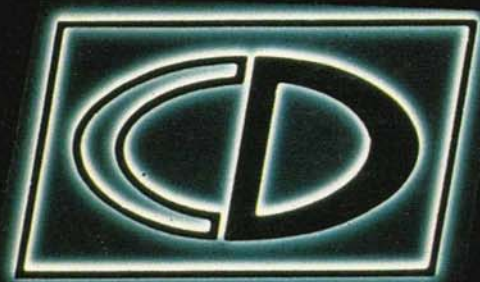


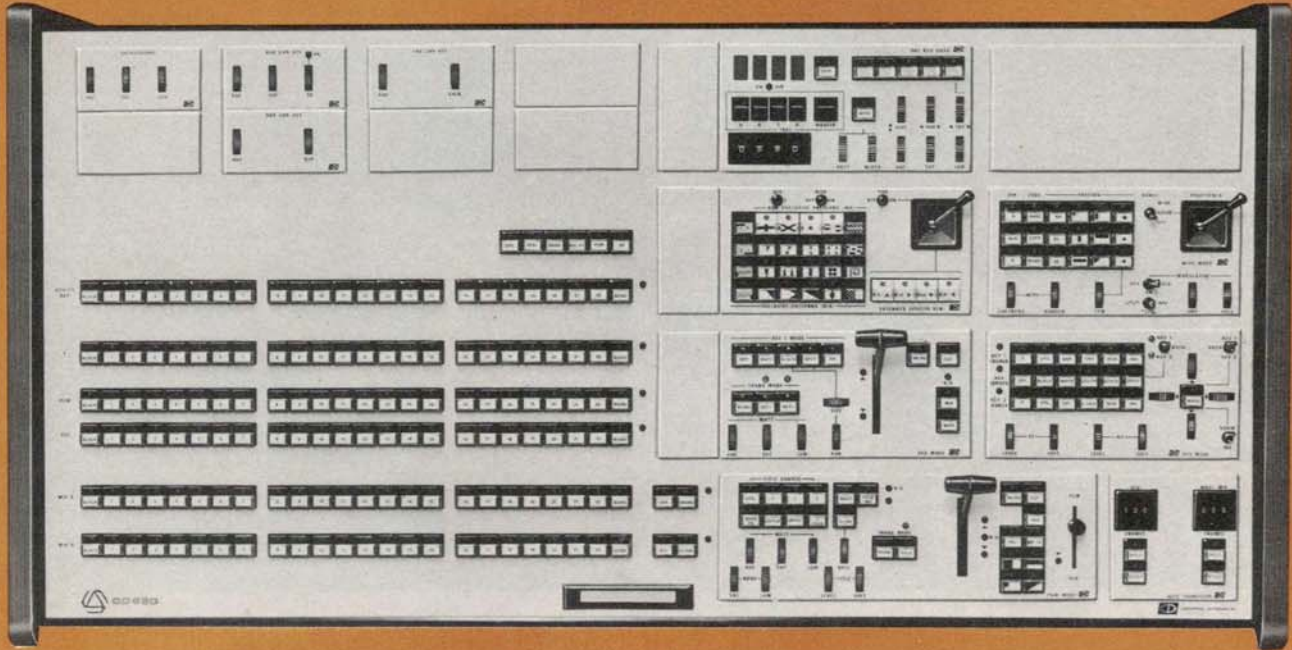
Series

800



just imagine . . .

Series 80 Video Production Switchers



Features

- Unique sequential effects (SFX) processing
- Greater flexibility plus simpler operation
- Modular construction
- Full range of options
- High performance, high stability
- Available for PAL, PAL-M, NTSC.

The Central Dynamics Series 80 range represents a great advance in the field of video production switchers. Based on the new SFX (Sequential Effects) group, the range offers unprecedented flexibility and ease of operation.

The Series 80 and its SFX group were made possible by the development of radically new systems of processing and control, resulting from a complete reappraisal of the uses of video switchers

and the needs of operators in the light of present day production techniques.

Conventional video switchers suffer from severe limitations when used in complex production sequences, and frequently the whole sequence must be planned in advance to ascertain the correct point of entry into the sequence. Even with the pre-planning, some simple sequences are impossible on conventional switchers, because a 'lock-out' situation is reached. **A single SFX group can perform sequences impossible on even a triple Mix/Effects conventional switcher. Pre-planning is generally unnecessary, and 'lock-outs' are impossible.**

Three models of the Series 80 are offered, but modular construction of both electronics and control panels permits a high degree of flexibility in the choice of each system. This arrangement also enables plug-in installation by customers of additional facilities as required.

The Series 80 employs the latest techniques of circuitry and construction to ensure the highest standards of performance, stability and reliability. Each unit of the electronics is internally timed, so there are no heavy and bulky delay cables — a particular asset for mobile van installations.

Series 80

Principles of SFX



Figure 2

Conventional switchers use cascading Mix/Effects groups to achieve complex effects. For example, if it is required to chroma key over a background and to title over this composite, two Mix/Effects groups are needed. If it is then required to dissolve or wipe between the backgrounds behind the keys, a third group is needed. This represents a typical usage of a conventional triple Mix/Effects switcher. To achieve this effect, the background transition must be performed on M/E1, the chroma key on M/E2, and the title on M/E3. M/E1 is re-entered into M/E2, and M/E2 re-entered into M/E3. Hence, on a six-bus switcher, only four of the primary buses, are in use, and there is considerable hardware redundancy.

Let us assume that the above effect has been set up, and the background transition performed, it is now required to wipe or dissolve the whole composite to another source. **This sequence cannot be performed on a triple Mix/Effects switcher as the second transition would have to be performed on M/E3, which is already in use for the title.** It can be seen that the problem is not lack of hardware — as soon as the background transition has been effected, M/E1 is no longer in use. The 'lock-out' is caused by the lack of flexibility inherent in a cascading system.

The four primary signals used in the above example are adequate for most effects situations. **A single SFX group is capable of controlling four signals and three transition levels, with access at any time to any level or combination of levels.** Figure 1 shows the basic arrangement of the input buses used with one SFX Mode module. The inputs are:

- 1 Utility bus, normally providing a key signal, or a second foreground video signal.
- 1 Foreground bus, normally providing a foreground video signal, or a key signal.
- 2 Background buses, PGM and PST.

Figure 2 illustrates the results of combining the four video signals into one composite picture.

Background Transition

Any source may be selected on the program and preset background buses. The PGM BKGND bus is always on air, and



Figure 1

direct cuts may be made on air. A different source may be selected on the PST BKGND bus, and if Background Transition is selected on the SFX Mode module, a cut, wipe or dissolve may be performed between the two sources. At the end of the transition, the PST selection is automatically transferred to the PGM bus, and the old PGM selection transferred to the PST bus. This enables the reverse transition to be made without further selection, or a new selection to be made on the PST bus.

These transitions may be performed whenever Background Transition is selected. If a key or keys are on-air, the background transition takes place behind the keys.

Key 1 Transition

The key 1 level is capable of the full range of effects found on a modern Mix/Effects group:

These are:

- Luminance Key, with variable Key Level and Softness.
- Matt Key, with variable Key Level and Softness, and variable Hue, Saturation and Luminance for the matt signal.
- Non-Additive Insert
- Spotlight, with variable Size, Level and Softness.
- Split Screen, with variable Size, Border and Softness.
- Encoded Chroma Key, with variable Hue, Separation, Key Level, and Softness
- RGB Chroma Key, with variable Hue, Separation, Shadow, Key Level, and Softness. In this mode the key is filled with the video selected on the Foreground Bus.

If Key 1 Transition is selected on the SFX module, any of these effects will automatically be shown on preview and may be set up. The effect may then be cut, wiped or dissolved into the output signal. The reverse effect is then possible without further selection. Alternatively, transitions at other levels may be selected and performed. At any time, however, selection of Key 1 Transition will permit the effect to be removed from the output signal, again by a cut, wipe or dissolve.

Key 2 Transition

The Key 2 level is capable of a more restricted range of effects, and is mainly used for titling. However, and RGB chroma key may also be performed at this level (if the optional RGB keyers are fitted).

The effects available are:

- Luminance key, with variable Key Level and Softness (In this mode, the key is filled by the matt signal with variable Hue, Saturation and Luminance).
(An optional dual matte generator (Page 8) allows the luminance key to be filled by the matt signal or with (Utility bus video).
- Character Generator Key, with variable Key Level and Softness. In this mode the key is filled with video from an external character generator, which may provide line-by-line or word-by-word coloring.)
- RGB Chroma Key, with variable Hue, Separation, Key Level and Softness. In this mode the key is filled with the video selected on the Utility bus.

If Key 2 Transition is selected, the chosen effect will automatically be shown on preview, and may be cut, wiped or dissolved into or out of the output signal, in the same manner as Key 1.

For example, if no other transition mode is selected, a title or video signal may be wiped on or off over a Background/Key 1 composite.

Multiple Transitions and Auto-Preview

The previous paragraphs describe the different single transitions available on the SFX group. However, the versatility of SFX derives from the ability to select any two, or all three, of the above transitions simultaneously. For example, it is possible to change backgrounds, add a Key 1 and remove a Key 2, all with one movement of the fader handle. Operation is simple, because the Auto-Preview incorporated in the SFX group automatically displays

the final result of any transition before it is effected. If one background signal is on-air and Background Transition is selected, the preview monitor will show the new background. If a chroma key is selected on Key 1, and Key 1 Transition selected, the preview monitor will show an unchanged background, but with the chroma key added. Movement of the fader handle puts this composite on-air.

If, however, Key 1 Transition and Background Transition are selected, the preview monitor will show the chroma key over the new background. Movement of the fader handle will dissolve or wipe this composite on-air.

Some examples of the operation of Auto-Preview are shown on pages 4 and 5. Below are some examples of the transitions which can be achieved with a single SFX group.

- Cut, dissolve or wipe between,
- Chroma key over one background to title over a different background.
- Title over chroma key over background to a different background, without keys.
- Chroma key over background, to a different chroma key over a different background.

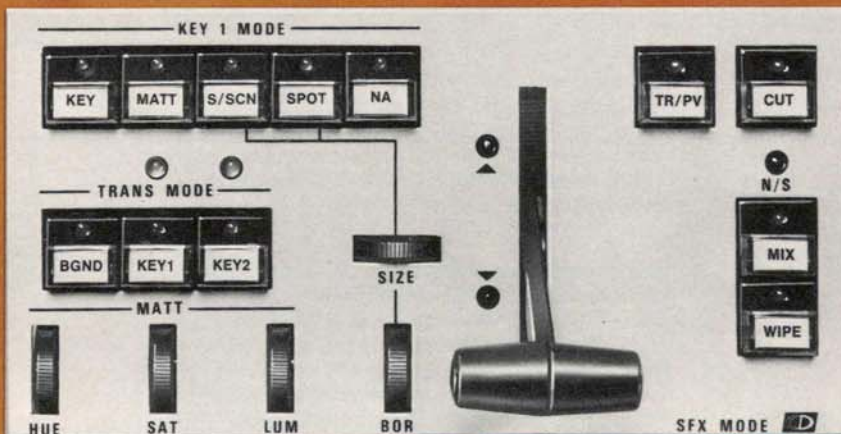
All the above effects are produced by a single SFX group, and the transitions are performed by a single movement of the fader handle. The operator always sees the final result automatically. Transitions may be previewed by selecting Transition Preview (TR-PV) on the SFX mode module. See page 4.

SFX Controls

Three control modules are provided for the standard SFX group. These are:
SFX MODE module KEY MODE module WIPE MODE module
The KEY MODE and WIPE MODE modules are described on pages 6 and 7.

SFX Mode Module

(Part of each SFX group)



This module, shown above, provides selection of the operating mode of the SFX group.

The following controls are provided:

Key 1 Mode controls: a set of five momentary action pushbuttons to select the mode of operation on Key 1. Key, Matt Key, Non-Additive Insert, Spotlight, Split Screen.

Transition Mode controls: three pushbuttons to select Background, Key 1 and Key 2 Transitions. These controls may either be momentary or alternative action. (Selection is made in the electronics unit). Above the Key 1 and Key 2 buttons are LED indicators to show when these key levels are on air.

Matt controls: three potentiometers to provide control of Hue, Saturation and Luminance of the internally generated matt signal. (An optional dual matte generator (Page 8) allows two

separate matte signals, matte 1, matte 2, to be used simultaneously in key 1 and key 2. When this option is fitted, the matte controls on the SFX module are not installed).

Split Screen controls: these controls adjust the size of the split screen and the width of a border around the split screen. The Size control also adjust the size of the pattern when spot is selected.

Fader handle: used to effect dissolve or wipe transitions. Indicators are provided to show the current direction of travel.

Mix/Wipe controls: two momentary controls to select the type of transition controlled by the fader.

Cut: provides an immediate cut to the effect(s) selected on preview.

TR/PV: operation of the TR/PV button allows previewing of a transition without affecting on air signal.

Series 80

Examples of SFX, Auto Preview and Transition Preview Operations

The following diagrams are intended to illustrate some of the effect sequences possible with a single SFX group.

The first column details the source and transition mode selections required for each step.

Explanatory text appears in the second column.

The diagram in the third column represents the preview monitor and that in the fourth column the on-air signal.

Auto-Preview always allows the operator to see the final result of the next transition before it is made. The transition mode buttons have no effect on the on-air picture, but appropriate operation of these controls enables the next on-air composite to be built up layer by layer on the preview monitor. Where necessary, controls such as Key Level are adjusted at this stage. Any selection errors are corrected merely by reselecting the correct combination. The picture so composed is put on-air by one movement of the single fader handle (for a wipe or dissolve) or by depressing the 'Cut' button.

Transition Preview is a feature that adds another dimension to SFX flexibility and is standard on all Series 80.






Complex sequences can be executed with confidence because Transition Preview (TR/PV) permits the operator to preview and

adjust a transition effect (i.e., border color, edge softness, wipe pattern, positioner, pattern modulation, etc.) while the SFX amplifier is On-Air, and then subsequently take to "air" the transition which has been previewed using the same SFX fader.

Transition Preview is an integral part of the SFX amplifier. The TR/V selector is located on the SFX Mode Module and will, at the option of the operator, engage or disengage this function while the SFX fader is at either limit of its travel. Once engaged, Transition Preview will show the transition while the Program content remains unchanged.

CDL's Transition Preview can also be used to perform a cut to a preset wipe or mix. The wipe or mix may then be completed, or returned to its original limit, or the operator may cut back to the original program.

For ease of graphical representation, Key 1 is assumed to be an encoded chroma key and Key 2 is assumed to be a matt keyed caption. In the two examples where 'mid transition' diagrams are shown, the transition is shown as a border wipe. In practice, Key 1 and Key 2 can be any of the effects detailed on pages 2 and 3 and the transition could be a dissolve, cut, or any other form of wipe.

SELECT SOURCE	SELECT TRANSITION MODE ON SFX MODE MODULE	AUTO PREVIEW	ON AIR
<p>Step 1 Changing Backgrounds</p> <p>CAM 1 on PGM BKGND CAM 2 on PST BKGND</p>	BKGND	<p>CAM 1 (PGM BKGND) is on-air; Auto Preview shows CAM 2 preselected background. Select 'Wipe, (SFX Mode Module), and wipe pattern, border, etc., (Wipe Mode Module).</p>	
		<p>Move Fader handle: Mid transition. Auto Preview shows the same as On-Air during transition. Transition Preview (TR/PV on SFX Mode Module) may be selected to permit adjustment of border width, color, softness, etc., before executing the transition on-air.</p>	
		<p>End of transition: Selections on PST and PGM backgrounds are automatically reversed, so new selections are CAM 1 on PST, and CAM 2 on PGM. Background transition is still selected, so Auto Preview shows output of PST bus (CAM 1); i.e., the result which would be obtained on Program by moving the fader handle again.</p>	
<p>Step 2 Chroma Keying over On-Air Background</p> <p>CAM 3 on FGND</p>	<p>KEY 1 (cancels BKGND transition; therefore, BKGND will not change).</p>	<p>Select 'Key' for Key 1 Mode (SFX Mode Module). Select Encoded Chroma Key and 'F' (Foreground) for Key 1 source (Key Mode Module). No background transition selected, so Auto Preview shows on-air CAM 2 plus the key (CAM 3).</p>	
		<p>Move the fader to wipe the key on-air: End of transition. Key 1 transition is still selected and Key 1 is on-air, so Auto Preview shows the effect of removing Key 1 from the on-air picture.</p>	

SELECT SOURCE

SELECT
TRANSITION MODE
ON SFX MODE
MODDLE

AUTO PREVIEW

ON AIR

Step 3 Title Keying over On-Air Chroma Key

TITLE on UTIL

KEY 2
(cancels KEY 1
transition;
therefore, KEY 1
Chroma Key will
not change).

Select UTIL (Key Mode Module) as source for Key 2. Key 2 transition only is selected, so Auto Preview shows the on-air composite plus Key 2...in this case a matte keyed title.

Move the fader to wipe the title on-air.
End of transition.



Step 4 Changing backgrounds behind a double key.

CAM 1 on
PST BKGND
(already selected)

BKGND
(cancels KEY 2
transition;
therefore, KEY 1
and KEY 2 will
not change).

Auto Preview shows composite of new background with on-air chroma key and title. Move the fader to wipe backgrounds behind the chroma key and title.

Mid transition.

End of transition: PGM and PST selections are automatically interchanged so CAM 2 is now on PST bus. Auto Preview shows composite with CAM 2 background.



Step 5 Changing the 3 source composite picture to a 4th source.

CAM 4 on
PST BKGND

BKGND
KEY 1
KEY 2
(Press 3 buttons
Simultaneously).

All three transition modes are selected. Key 1 and Key 2 will be removed, and the background will be changed, so Auto Preview shows the new background (CAM 4) only.

Note: If Black is selected as the 4th source, a wipe or mix (fade) to Black of the three level composite will occur.

Move the fader handle to wipe the three level composite to the 4th source.

End of transition: Only the new background is on-air.



Single SFX vs. triple mix/effects switchers

It should be noted that the last two steps above (wiping backgrounds behind a double key, then wiping the composite to a fourth source), form one of the sequences impossible on a triple mix effects switcher. These steps illustrate how this and other complex sequences can be performed on a single SFX group, without preplanning and with full preview at all times.

Clearly, the above examples represent only a few of the effects and sequences possible on a single SFX group. Other examples include a cut, wipe or dissolve from one chroma key over a background to a different chroma key over a different background;

or from one title to a different title, with or without a change of background. The possibilities are virtually unlimited, but in every case the operator can choose the next picture, see it on Auto Preview, and put it on-air with complete confidence.

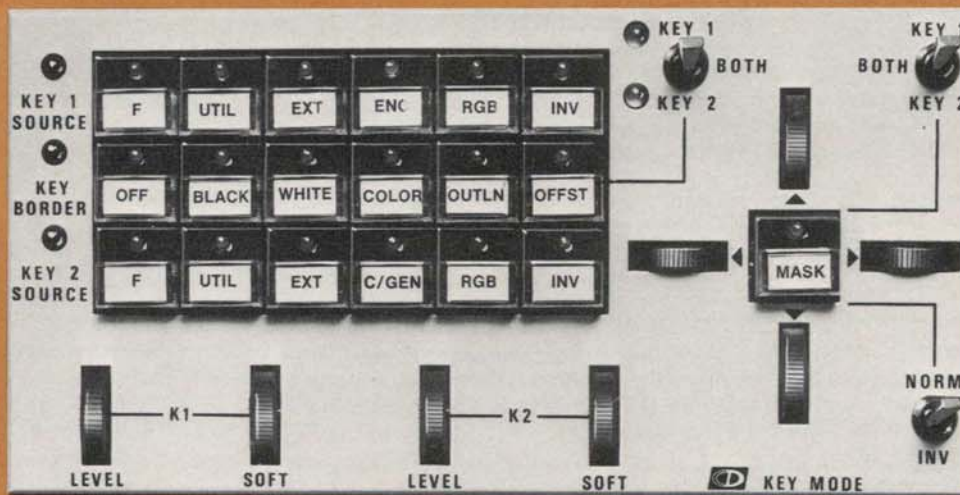
If the SFX group is not on-air, Auto Preview retains its next event logic by automatically showing the output of the SFX group, instead of the preview output. This allows effects to be set up on an off-air group with the same ease. As soon as the group is selected on-air Auto Preview reverts to its normal mode again enabling the next event to be composed.

Series 80

Standard Modules

Key Mode Module

(Part of each SFX group)



This module provides selection of key sources, masking, level and softness controls for the two key processors of the SFX group. Controls are also provided for the Dual Key Border Generator, which is a plug-in option to the SFX group.

The following control groups are provided:

Key 1 Source Controls

Note: In all of the modes of Key 1, except Matt Key and Spotlight, the key is filled with the video from the Foreground bus.

- F Momentary action switches select the signal to be used for keying from either the Foreground or Utility buses, or from the external input.
- UTIL
- EXT
- RGB Momentary action switch select the key signal from the optional RGB chroma keyer.
- ENC An alternate action switch. When enabled, the keying signal is derived from the encoded chroma keyer incorporated in the SFX group. The signal video input to the keyer is selected by the F, UTIL, EXT buttons. ENC is cancelled by depressing the button a second time, or by selection of RGB.
- INV An alternate action switch which causes the selected key signal to be inverted.

Key 2 Source Controls

- F Momentary action switches select the signal to be used for keying from the Foreground or Utility buses, or from the external input. In all of these modes, the key is filled with the output of the color matte generator. With the optional Dual Matte Generator (page 8) Key 2 may be filled with video from the Utility bus.
- UTIL
- EXT
- RGB Momentary action switch select the key signal from the optional RGB chroma keyer. In this mode the key is filled with the video from the Utility bus.
- C/GEN Momentary action switch. Separate key and video fill signals are accepted from an external character generator.
- INV An alternate action switch which causes the selected key signal to be inverted.

Level and Softness Controls

Two pairs of potentiometers provide control of the key Level (clipping level) and Softness for Key 1 and Key 2.

Key 1 / Key 2 Mask

An alternate action pushbutton enables a rectangular mask for Key 1 and Key 2 processing. A toggle switch assigns the rectangular mask to Key 1, Both, or Key 2. Four potentiometers provide full independent control of position for the four sides of the rectangle. When the mask is enabled, a brightness change on the preview output displays the masking area to permit accurate adjustment. Keying is inhibited outside the preset rectangle. A toggle switch inverts the mask i.e. — keying is inhibited outside the rectangle.

Masking of Key 1 may also be independently performed by patterns derived from the Wipe Mode module. This function is enabled by the simultaneous operation of the KEY and S/SCN switches or MATT and S/SCN switches on the SFX Mode module (page 3). When this function is enabled, a brightness change also displays the masking area in the preview output. Key 1 may be simultaneously masked by the S/SCN-KEY or S/SCN-MATT selection and by the Key Mode module rectangular MASK selection.

Key Border Controls (Optional)

Note: These controls are operational only when the Optional Dual Key Border Generator is fitted to the SFX group. This option also includes 1 or 2 line key borders.

A toggle switch assigns border selection to Key 1, or 2, or both, and all borders may be single or double width.

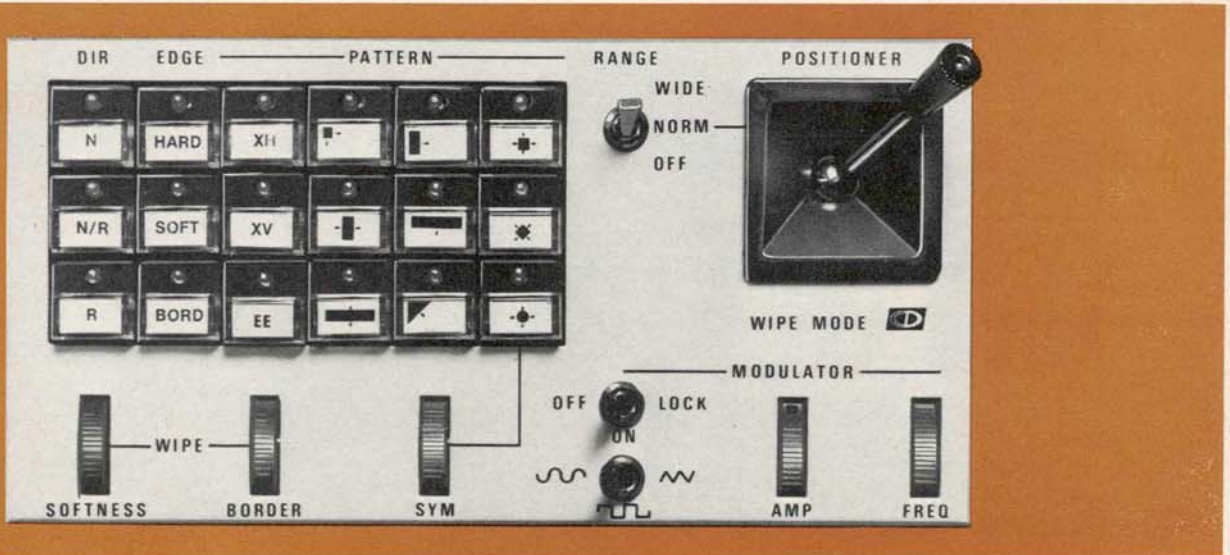
Note 1: Different color and key border modes can be assigned to Key 1 and Key 2.

Note 2: 1 or 2 line borders are selected by successive depressing of the BLACK, WHITE or COLOR pushbuttons.

- BLACK Black all around borders.
- WHITE White all around borders.
- COLOUR All around borders, filled with the output of the matt generator, phase shifted by 180 degrees. This facility permits colored borders around a color matt title with minimum chroma crawl effect.
- OFFSET An alternate action switch which displaces the border to the right and down, giving a 'drop shadow' effect.
- OUTLINE The border only is displayed (black, white or colored, as selected).
- OFF No border.

Wipe Mode Module

(Part of each SFX group)



This module provides basic pattern selection and multiplication, wipe direction and edge controls, pattern modulation and positioning. The controls are also used for the SPLIT SCREEN mode of Key 1.

Wipe Direction

Three pushbuttons provide selection of N (normal) N/R (normal/reverse and R (reverse) direction.

Wipe Edge Controls

Two pushbuttons provide selection of hard or soft edge wipe. A potentiometer controls the degree of softness. This button also enables the border for the SPLIT SCREEN mode of Key 1

An alternate action pushbutton selects a wipe border, which may be used in conjunction with hard or soft wipes. The border is filled by the matte generator and a potentiometer controls the width of the border.

Pattern Selection

A group of nine pushbuttons select the basic patterns. A symmetry control is provided for the box, diamond and circle patterns.

Pattern Multipliers

Two pushbuttons 'X H' and 'X V' allow multiplication of the selected pattern by four horizontally, or vertically, or both. When the positioner is turned On (NORM), the multiplication ratios (horizontal and vertical) may be varied by moving the positioner.

EE

This pushbutton selects the output of the optional Extended Effects Generator in place of the standard patterns.

Pattern Modulator

Amplitude and frequency controls operate in the conventional manner, except that modulation is normally of both horizontal and vertical edges. (Vertical or horizontal modulation may be inhibited in the rack electronics if required.) A three-position toggle switch selects sine wave, square wave or triangular modulating waveforms and another three-position switch selects OFF (no modulation), ON (modulation pattern "runs through" according to the setting of the frequency control) and LOCK (modulating frequency is locked to the vertical and horizontal picture frequencies. Various multiples can be obtained by appropriate setting of the frequency control). External modulation signals can also be accepted.

Pattern Positioner

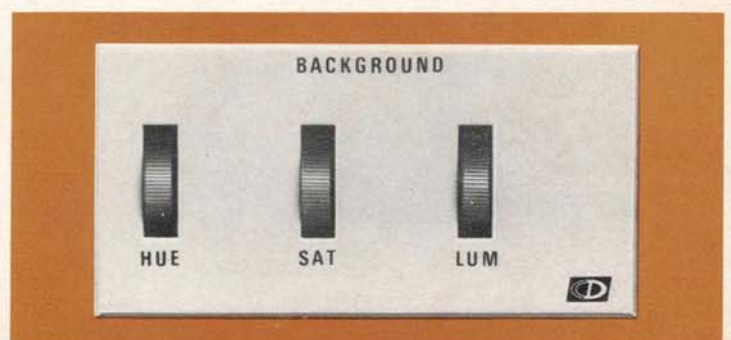
A three-position toggle switch selects OFF (positioner not operating), NORM (normal "On" positioner operation with non-repeating patterns), and WIDE (the available wipe range is doubled permitting a full wipe across the picture from or to any pattern in any position).

Black and Background Generator

(Standard on every Series 80 switcher)

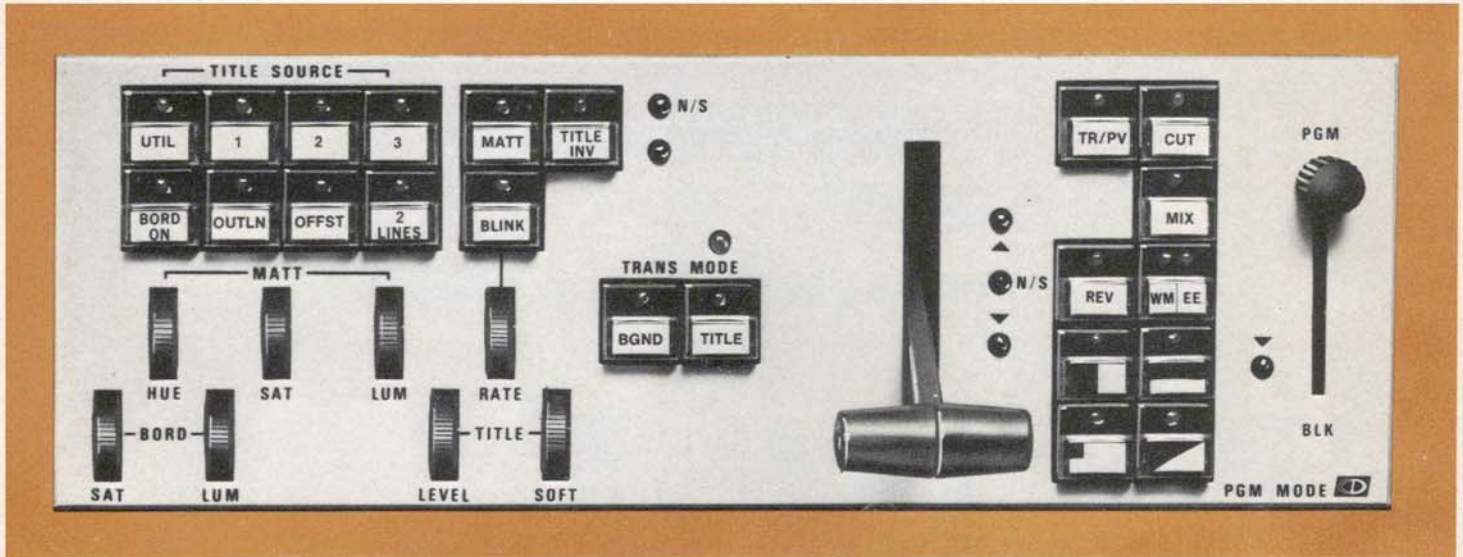
This unit provides black and color background signals for the primary inputs to the switcher, and separate black signals for use in the secondary stages of the switcher. Hue, Saturation and Luminance controls are provided for the color background. An additional output of color black is provided at the same timing as the switcher inputs for feeding to cameras, pulse assignment systems, etc.

A 2nd Background Generator can optionally be fitted to the switcher.



Series 80

Program Processor Module



The Program Processor Module used in Models 680 and 1080 permits a wide range of Mix, Wipe, Title and Fade effects to be performed.

The module is fed by the Mix A and Mix B buses, each with re-entry facilities of the SFX Amplifier, and these two buses may be used as either an A/B Mix, or a Preset to Program Take.

The Module operates similarly to the SFX Module; i.e., a transition may be performed by changing only the background or title or changing both the background and title simultaneously. A separate control permits fading a synchronous or non-synchronous source, or composite source to black.

The following control groups are provided:

Transition Mode controls: Two pushbuttons to select Background transition and/or Title Transition. A LED indicator, above the Title button, indicates when the Title is on-air.

Mix/Wipe Mode controls: Select Mix, or one of the 4 Wipe patterns, or external pattern inputs that are normally derived from the SFX Wipe Mode module. A Reverse button permits selecting the wipe direction.

Title Mode controls: Four buttons to select individual title sources. Any of these may be strapped for self keying or for accepting separate video and key (gate) signals as from a character generator. With pushbuttons, the key may be normal or Inverted. Matte filled or video filled, and may be Blanked at a variable rate. Key Level and Softness controls are provided.

Key Border controls: Border On/Off, Outline (only the border is displayed) and Offset. The border width may be 1 or 2 Lines.

Matte controls: Hue, Saturation and Luminance. Border matte is always the complimentary hue of the Matte filled key. Independent border Saturation and Luminance controls are provided.

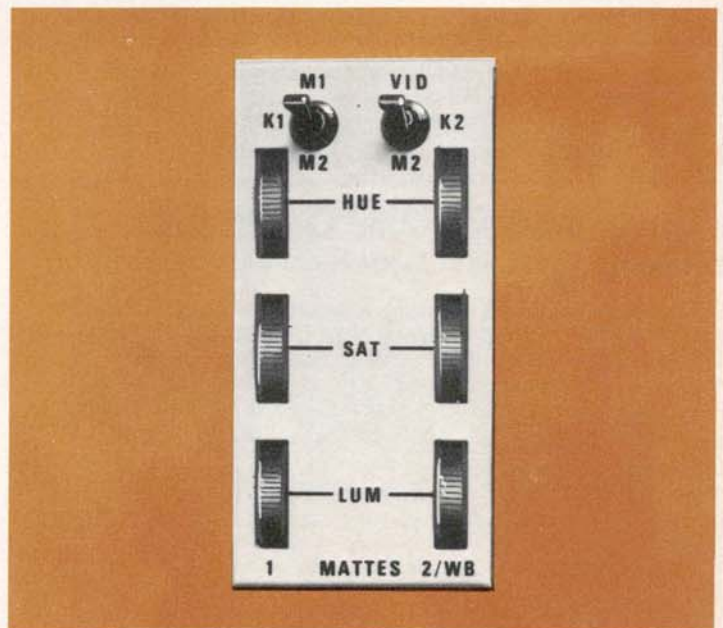
Dual Matte Generator

The dual matte generator option allows different matte signals (Matte 1, Matte 2) to be used in the Key 1 and Key 2 levels of each SFX group.

Two switches, Key 1 M1/M2, Key 2 VID/M2, allows Key 1 matte to match Key 2 matte, and Key 2 to be filled with Video from the Utility bus or Matte 2.

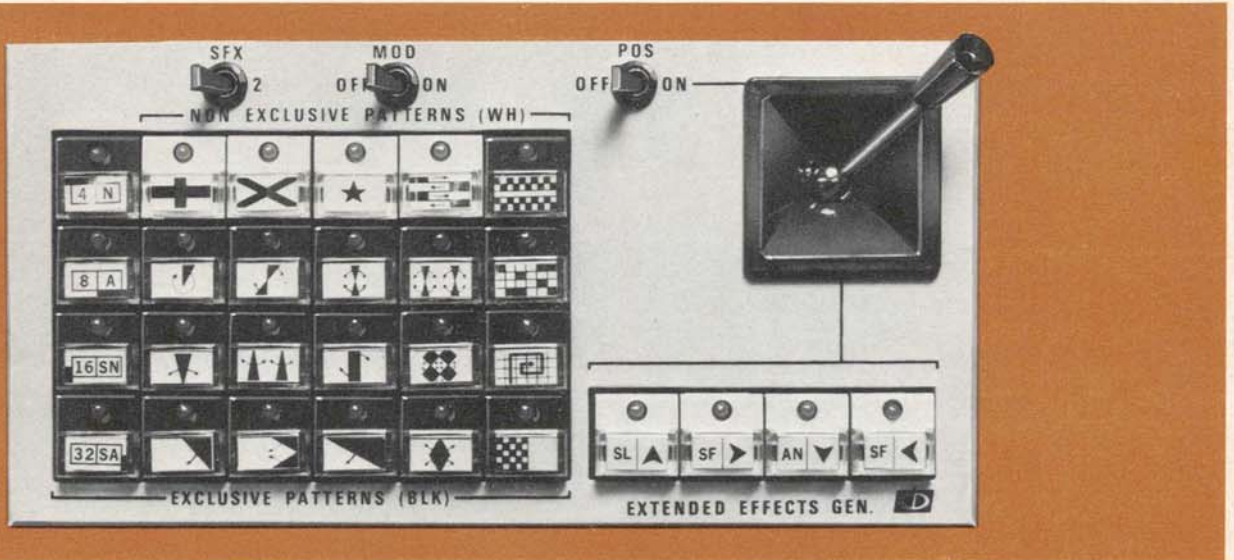
Wipe border matte is derived from Matte 2.

NOTE: When this option is fitted to an SFX group, the matte controls on the SFX module are not installed.



Optional Modules

Extended Effects Generator



This module provides a wide range of rotary, matrix, spin and other wipes, and a pointer. There are five control groups.

Exclusive patterns (Black buttons)

Rotary wipes and matrix wipes can only be controlled by one fader handle and must always wipe over the full picture field. If an exclusive pattern is selected, a switch assigns control to SFX1 or SFX2. In this mode, the basic SFX pattern generator is still available for split screen, so it is possible for example, to perform a rotary wipe to a corner insert split screen. (By appropriate selection of SFX transitions, the foreground or background or both may be wiped.)

Orientation controls:

Four pushbuttons select the orientation of start point of the selected rotary wipe. The same controls may be used to determine the resolution of the matrix wipe patterns (4x3, 8x6, 16x12, or 32x24), and to select Normal or Alternate pattern, and Spin facilities on the non-exclusive patterns.

Non-Exclusive (White buttons)

These patterns are used in exactly the same way as those of the SFX pattern generator. They can be controlled independently by both SFX faders and can be used as split screen patterns.

Normal and Alternate pattern selections are available from each button, and these patterns may be used as Spin wipes.

Pointer:

Four pushbuttons control the direction of the pointer. This effect is available as a key input to each SFX group and is totally independent of all wipe functions.

These same controls are also employed to select the operational mode of spin wipes. Wipes may spin at a constant rate (free), or may rotate according to the fader arm motion (lock), or may not spin, but have their orientation changed (angle).

(A similar generator is available as a free standing model for use with any production switcher)

Positioner:

The positioner always controls the position of the pointer. The positioner on/off switch enables positioner control of the star and rotary patterns.

Modulation:

Modulation from the selected SFX group is available for all wipes (except matrix) and is controlled by the modulation on/off switch. When using an exclusive pattern it is possible to perform an unmodulated wipe to a modulated split screen.

Note : A second Extended Effects Module may be installed on Model 1080, so that each SFX has exclusive use of Extended Effects.

Digital Video Effects Interface

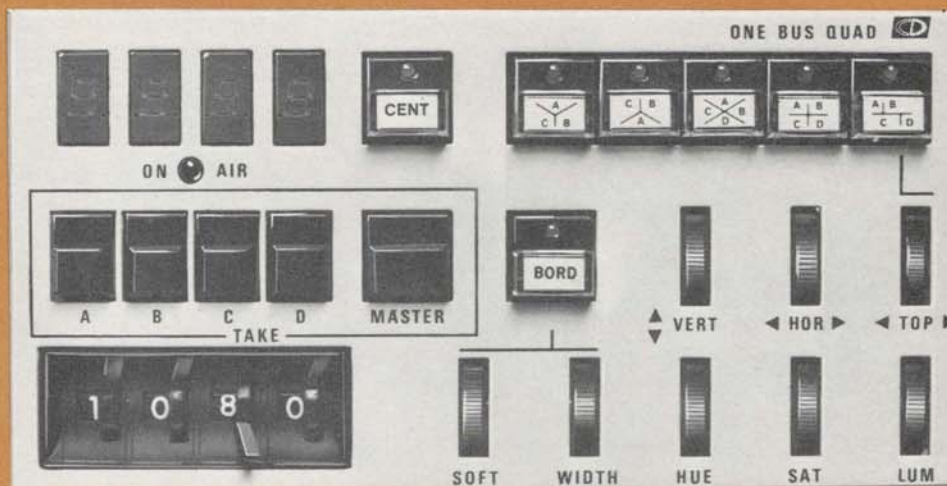
Each SFX provides, as a standard feature, outputs for key and wipe signals used by digital effects units. A video input for the Digital Effects unit may be provided by either the Utility bus, an Auxiliary bus of the Series 80 Model 1080, or by an optional auxiliary bus.

The DVE Key output is usually made available to the switcher as one of the inputs of an RGB output switching system (in place of one of the chroma keys).

Consult CDL's Marketing Services office for application information and details for interfacing to particular Digital Effects units.

Series 80

One Bus Quad



This module provides quadplexer effects for all Series 80 switchers

There are 5 selectable patterns which produce a composite picture derived from either 3 or 4 sources selected from 10 available video input signals.

The 5 patterns include 2 rectangular quad splits, 1 diagonal quad split, and 2 "Y" splits.

Patterns can be positioned horizontally and vertically, and edges may be soft bordered and colorized.

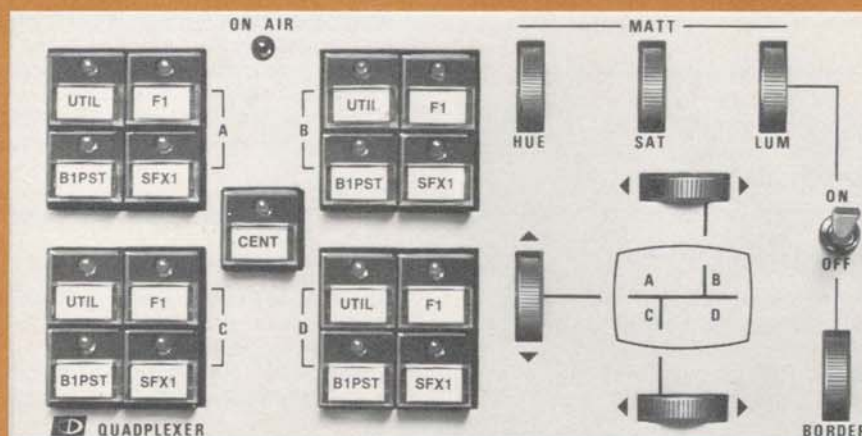
Other Features

Quadrant preselections can be aired simultaneously or in any sequence.

Quad output can be fed to another switcher input not used for Quad inputs.

Quad color border matt can be fed directly to the 10th input and used as a quadrant fill. It is 180° out of phase with the border matt and can therefore be used when colorizing pattern borders. (Also available as a free standing VQ 2170 model for use with any production switcher.)

Quadplexer



This module provides 'Quad Split' facilities, with SFX re-entry, and can be fitted to Models 680 and 1080.

A 4 x 4 input switcher allows selection of sources to the four corners of the split. The four sources provided are normally the Utility bus, the SFX1 Foreground and Preset Background Buses and the Output of SFX 1 (Utility 2 replaces Preset Background on Model 1080).

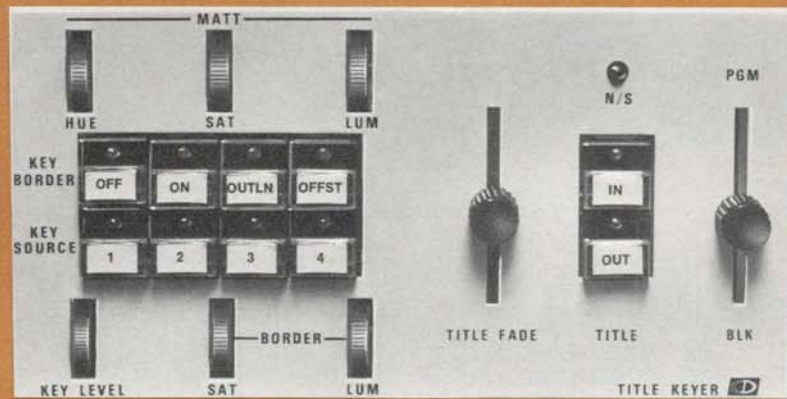
Three potentiometers provide control of the horizontal split position, and independent control for the two vertical splits. These

controls are disabled if the alternate action 'CENTer' control is operated. In this mode, the Quadplexer provides a conventional quartering of the picture area.

A border of variable width is enabled by a toggle switch, and the integral Border Colorizer provides a color matte output to fill the border.

Special configurations using auxiliary buses allow a greater range of effects to be entered into the QUAD. Contact CDL Marketing Services for details and recommendations.

Title Keyer



This unit is designed to key color matte titles in program video. A Key Border module is fitted to provide a variety of edging effects. One or 2 line key borders are standard.

The unit accepts the following inputs:

- Input video
- Color black

Four Key signal inputs. (One input may be strapped to accept separate feeds of key and video from a character generator.)

The internal color matte generator is locked to the incoming video, and no pulse feeds are required. An output of separated syncs is provided, and if this feed is used to drive a caption camera or character generator, this unit may be used to title over non-synchronous sources. Keying is inhibited if the selected key signal is not synchronous with the video.

Controls:

Matte controls: Hue, Saturation, Luminance.

Key Border controls:

- Border On/Off.

- Outline (the border only is displayed).

- Offset (the border is displaced to the right and down to give a drop shadow effect).

1 or 2 line borders are selected by successive depressing of the ON, OUTLN or OFFST pushbuttons.

Key source controls: 1, 2, 3, 4. Key input 1 is normally fed from the Utility bus of the switcher for maximum flexibility. Input 4 may be strapped to accept separate key and video from a character generator.

Title fader: allows the title to be faded into or out of the program video.

Title In/Out: allows the title to be cut into or out of the program video.

Master fader: fades the output of the keyer to black, and can be used with synchronous or non-synchronous video. A cut to local color black will occur at the end of the fader travel.

Key level: adjusts the "clipping level" of the keying circuits. Softness is preset to minimize edge crawl effects.

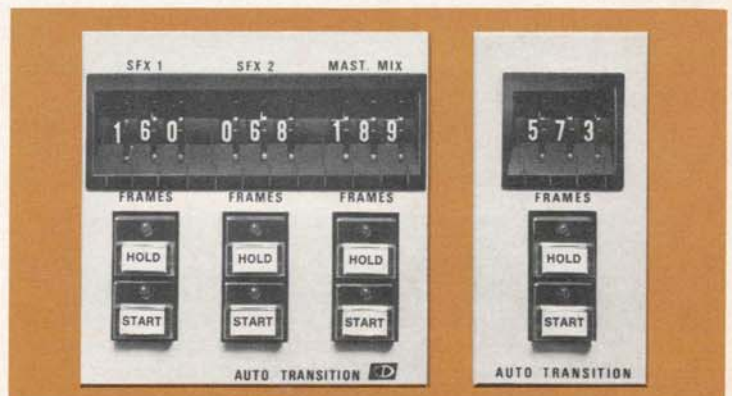
Border fill controls: The border is filled with the output of the matte generator, phase shifted by 180°. This permits color edges to colored titles with minimum crawl and differential saturation effects. Separate Saturation and Luminance controls are provided for the border signal, and permit black, white, grey or colored edges to be selected.

Preview: Three outputs of the preview signal are provided. This always displays the title keyed into the video, irrespective of the settings of the faders and In/Out controls.

(Also available as a free standing DK 2160 model for use with any production switcher)

Auto Transitions

Smooth, accurate transitions can be made for each SFX and the Program Processor Amplifier. Rates from one frame up to 999 frames can be selected. A transition can be stopped and restarted at any time.



Series 80

Specifications

TYPICAL SPECIFICATIONS

Video Inputs:

16, 24 or 32 inputs, 1 V p-p synchronous or non-synchronous.

75 ohm loop thru: return loss better than 40 dB to 5 MHz

Video Outputs:

2 Program outputs.

2 Preview outputs (Utility/Preview)

1 Auto preview output for each SFX group.

All outputs are 1 V p-p composite; return loss better than 34 dB to 5MHz

Pulse Inputs:

All are 75 ohm loop thru, 2V or 4V p-p

Sync

Blanking

Burst Gate (PAL only)

Subcarrier Input:

75 ohm loop thru: 1 V or 2 V p-p

Frequency Response:

1-5 MHz \pm 0.1 dB

5-7 MHz \pm 0.2 dB -0.5 dB

Steady roll off above 7 MHz.

K Rating:

Kp 1/4% K

Kp-b 1/4% K

Kb 1/2% K

Linearity:

Better than 1% 10-90% APL.

Tilt:

Line and field (standard window)

Less than 1%.

Chrominance/Luminance Inequalities:

Gain: Less than 1%.

Delay: Less than 10 nS.

Non-Linear Distortion:

(10-90% APL)

Dynamic Gain: Less than 1%.

Diff. Gain: Less than 1%.

Diff. Phase: Less than 1°

Crosstalk:

One adjacent input hostile.

All paths energized except path under test

better than -56 dB.

Path Delay, typical:

CD480: 200nS

CD680: 350nS

CD1080: 600nS

Path Length Inequality:

Less than 1° at subcarrier frequency.

Signal to Noise Ratio:

Better than 60 dB unweighted relative to 0.7 V.

Power Input:

(50-60Hz)

117V \pm 10%

234V \pm 10%

Power Requirements; typical:

CD480: 400VA

CD680: 550VA

CD1080: 900VA

Tally Outputs:

Two independent tally outputs are provided, each providing one 'make' contact to a common for each input. Contact rating 2 A, 40 VA resistive.

Permissible ambient temperature range:

0-50°C.

Within this range the performance specification will be maintained for changes of \pm 10°C, about the ambient temperature at which the equipment was set up.

Standards:

Switchers can be supplied for NTSC, PAL, PAL-M operation. Please specify at time of order.

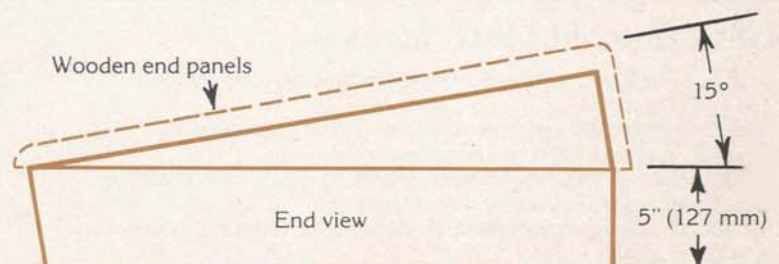
These typical specification details are subject to change without notice.

Series 80 Rack space and Mechanical dimensions

Series 80	Rack Electronics (Note 1)	Control Panel			Extension tub	Cut Out 15° Mounting with wooded end	Cut Out Flush Mount
		16 inputs W H	24 inputs W H	32 inputs W H			
CD480	15	25" x 16" (634 x 406 mm)	30" x 16" (762 x 406 mm)	N/A	11 5/8" x 16" (295 x 406 mm)	Add 1/8" (3 mm) to panel width and 7/8" (22 mm) to panel height	Add 1/8" (3 mm) to panel width and 1/8" (3 mm) to panel height
CD680	18	34 5/8" x 19 1/4" (879 x 489 mm)	39 1/8" x 19 1/4" (994 x 489 mm)	N/A	11 5/8" x 19 1/4" (295 x 489 mm)		
CD1080	36	47 5/8" x 22 3/4" (1209 x 578 mm)	53 1/8" x 22 3/4" (1349 x 578 mm)	59 1/8" x 22 3/4" (1501 x 578 mm)	11 5/8" x 22 3/4" (295 x 578 mm)		

Note 1) The rack space shown includes a 2 RU Power Distribution Frame with an integral forced air convection fan, and a 1 RU Air Filter Frame. The Filter should be located on bottom of the switcher electronics, and the Power Distribution Frame mounted on the top.

Note 2) When an Extension Tub is supplied with a switcher it is normally mounted to one side; therefore, the console cutout width = control panel width + Ext. tub width of 11 5/8" + 1/4".



information for optional modules and systems

Series 80 Optional Modules and Systems	Model 480	Model 680	Model 1080	Add'l Rack Space	Page #
16 Input Switcher	480-16	680-16	1080-16	STD.	
24 Input Switcher	480-24	680-24	1080-24	0	
32 Input Switcher	N/A	N/A	1080-32	0	
Single Key Border (SFX)	SKB	SKB	SKB	0	
Dual Key Border (SFX)	DKB	DKB	DKB	0	
Fade to Black	FB	N/A Note 1	N/A Note 1	1	
Title Key Border (Program Processor)	N/A	TKB	TKB	0	6
2nd Background Generator	N/A	BG-2	BG-2	0	7
Dual Matte Generator (SFX)	DMG	DMG	DMG	0	8
Digital Video Effects Interface	DI	DI	DI	0	9
Extended Effects (Spin, Matrix, Rotary, Star)	EE	EE	N/A	0	9
Extended Effects (Spin, Matrix, Rotary, Star)	N/A	N/A	EE Note 2	3	9
ONE Bus Quad	OBQ	OBQ	OBQ	2	
Quadplexer	N/A	N/A	Q	0	10
Title Keyer	DK2160	N/A Note 1	N/A Note 1	3	11
Auto Transition (SFX1)	AT-1	N/A	N/A	0	11
Auto Transition (SFX1, Mix)	N/A	AT-2	N/A	0	11
Auto Transitions (SFX1, SFX2, Mix)	N/A	N/A	AT-3	0	11
Auto Transition (PGM Fade to Black)	N/A	N/A	AT-4	0	11
Audio Follow Switcher (8 x 2 Mono)	AFM	AFM	AFM	6	12
Audio Follow Switcher (8 x 2 Stereo)	AFS	AFS	AFS	6	12
1 RGB with 4 x RGB Input Switcher	SRK	SRK	N/A	0	13
2 RGB with Dual 4 x RGB Input Switcher	DRK	DRK	N/A	0	13
1 RGB with 6 x RGB Follow/Manual Input Switcher	N/A	RKS-1	N/A	3	13
2 RGB with Dual 6 x RGB Follow/Manual Input Switcher	N/A	RKS-2	N/A	3	13
6 x RGB with 6 x 3 Follow/Manual Output Selector	N/A	RKS-3	N/A	3	13
6 x RGB with 6 x 6 Follow/Manual Output Selector	N/A	RKS-6	RKS-6	3	13
4 RGB with Quad 6 x RGB Follow/Manual Input Switcher	N/A	N/A	RKS-4	3	13
Encoded Chroma Keyer	EK-0	EK-0	N/A	2	13
Encoded Chroma Keyer	N/A	N/A	EK-0	4	13
Encoded Chroma Keyer	EK-1	EK-1	EK-1	0	13
Cap Basic	CAP1	CAP1	N/A	13	14
Cap Master + Fader Learn	CAP1XL	CAP1XL	CAP1XL	13	14
Cap Master/Slave + Fader Learn	N/A	N/A	CAP2XL	13	14-15
Edit Controller Interface	EIF	EIF	EIF	3	15

Note 1) Title Keyer and Fade-to-Black facilities are standard on models 680 and 1080 and are integral to the Program Processor Module.

2) Two Extended Effects Generators may be installed on model CD1080. (One assigned to each SFX).



The Series 80 Möbius Loop logo
symbolizes the recirculating effects
capability of the Series 80 SFX Amplifier