Production Switcher

DD10

Operating Instructions

THOMSON MULTI MEDIA
BROADCAST SOLUTIONS

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3	2	06.95	from 220	Section 2.7	Keyers panel	3rd Edition
4	3	11.97		all	Software “L” Key Processor II General corrections	4th Edition

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1. GENERAL

The control panel for the *Diamond digital DD10* is designed in a conventional mixing-level-oriented arrangement. The classical arrangement with the crossbar control to the left, succeeding fader control according to the next transition principle and key adjustment is familiar to many users and facilitates working in.

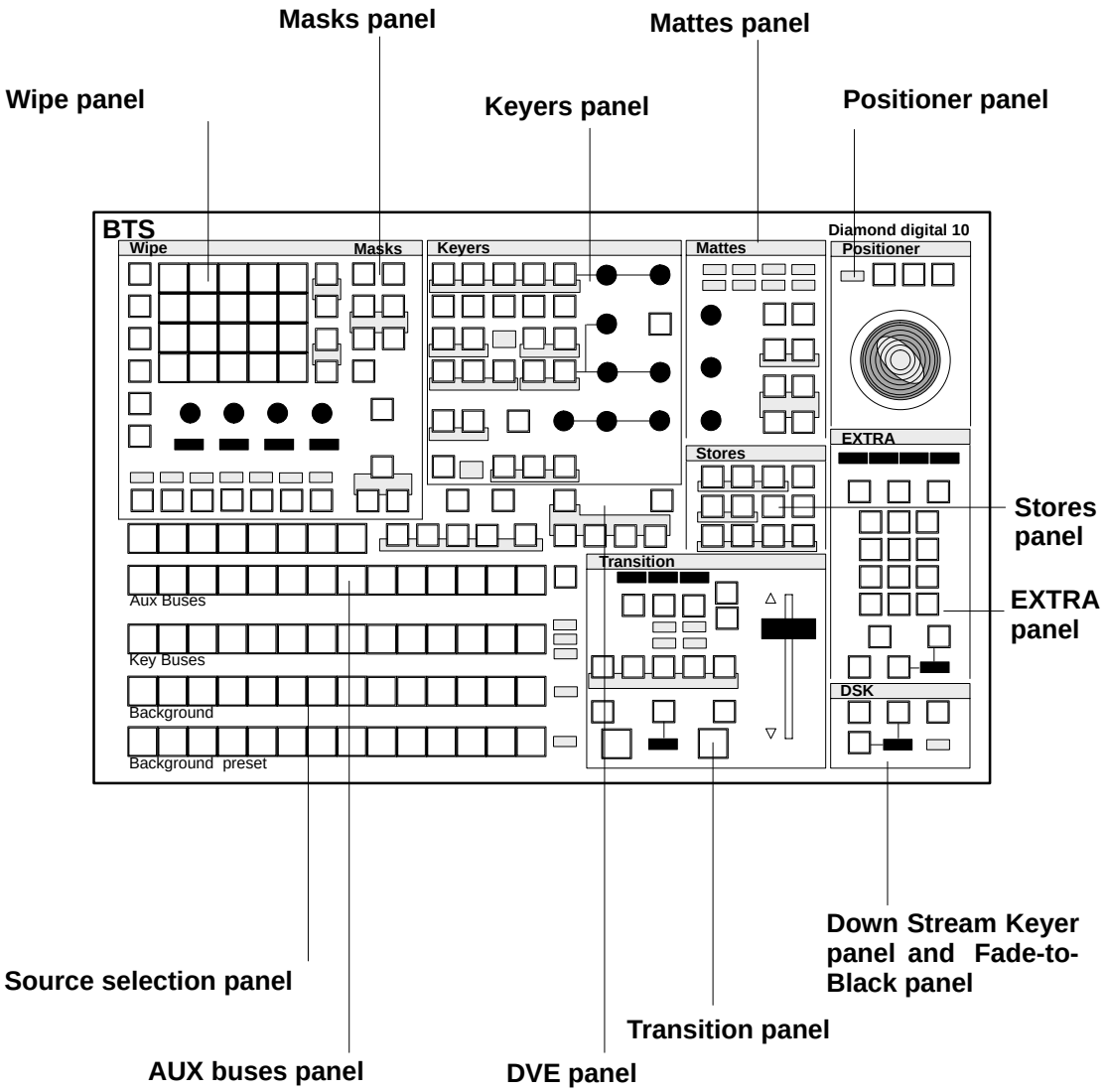
For better orientation and distinction of the functional groups, the individual control groups are divided into panels which are optically and structurally separated from each other. The individual functional groups are provided with titles and frames. Keys, related with regard to their functions, are grouped within a gray field. Controls are connected by lines indicating the associated functions.

Due to the variety of equal functions in the switcher, is was necessary to provide the panels with a multiple assignment. The controls have only double functions when they are related analogously.

The panels are provided with delegation keys which enable assignment of the corresponding control elements to a circuit section.
During operation, delegation of the panels is made by an auto delegation system which also automatically switches several panels. Auto delegation is enabled by selecting or preselecting a function. Actuating an already activated key enables repetition of auto delegation.

An adjustable background illumination of the colors enables matching the readability of the keys to the respective lighting conditions.

General view of the control panel



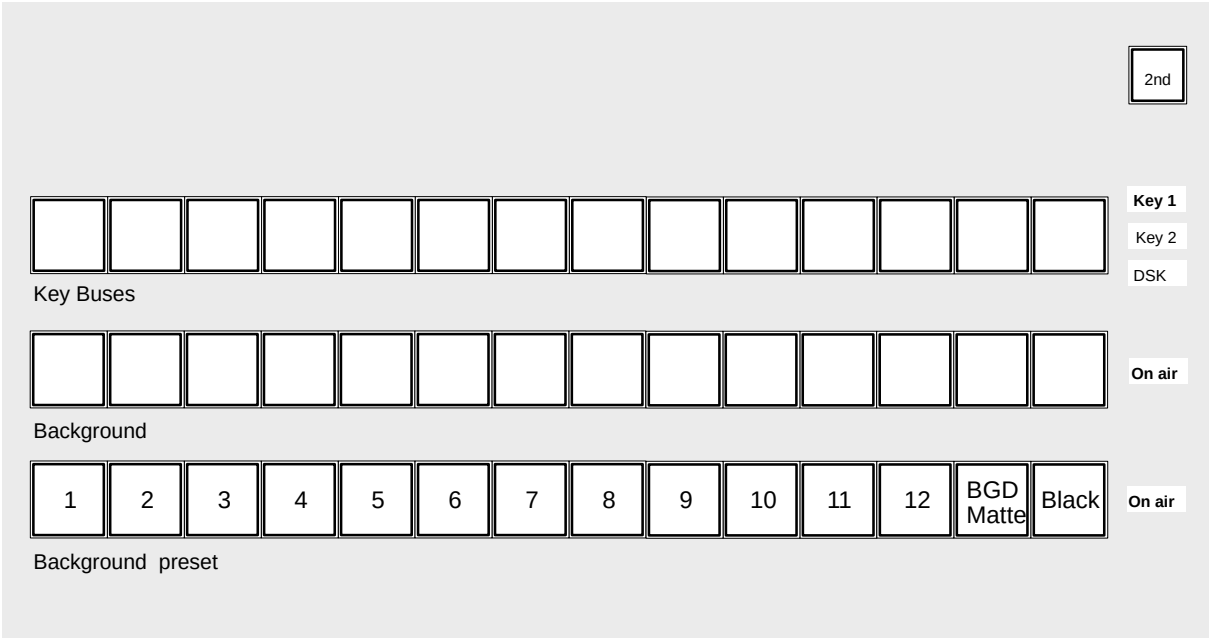
A detailed illustration of the control panel is shown on a fold-out page at the end of the manual.

RPD 10 Control panel

2. FUNCTIONAL DESCRIPTION OF THE PANELS

2.1 SOURCE SELECTION PANEL

The compact switcher *Diamond digital DD10* includes 16 serial digital inputs which can be universally used for video or key signals**.** The signal of the internal video store, a background matte and black as a signal are additionally available.
The sequence of the 16 inputs is fixed-assigned to the primary keys. Black can be optionally arranged to the right or left of the key row.
The key and fill signals can be optionally coupled (see the sections ***Setup*** and ***Keyers Panel***).

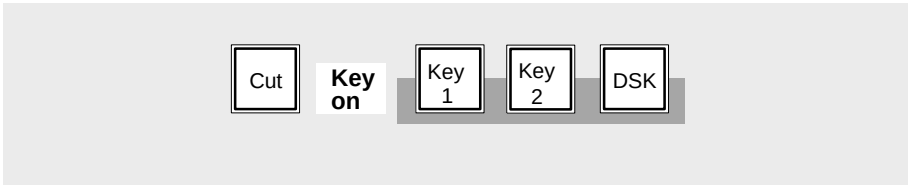


Background The **Background** bus indicates which current background picture is selected. Pressing another key in this row performs a hard cut to another background picture. The selected background picture can be checked on the program monitor.

Background Preset The **Preset** bus serves the preselection and indication of the background picture involved in the next transition. The background picture and the selected modifications (e.g. key) can be previewed on the preset monitor.
Background and preset bus operate in the flipflop mode, i.e. after completion of the running transition, the preset and background sources will change automatically. Thus, it is clearly shown which signal contributes to the output picture.
The arrangement of background and preset bus can be changed from the international mode (preset bus below) to the German mode (background bus below). See the section ***Setup***.

Key Bus

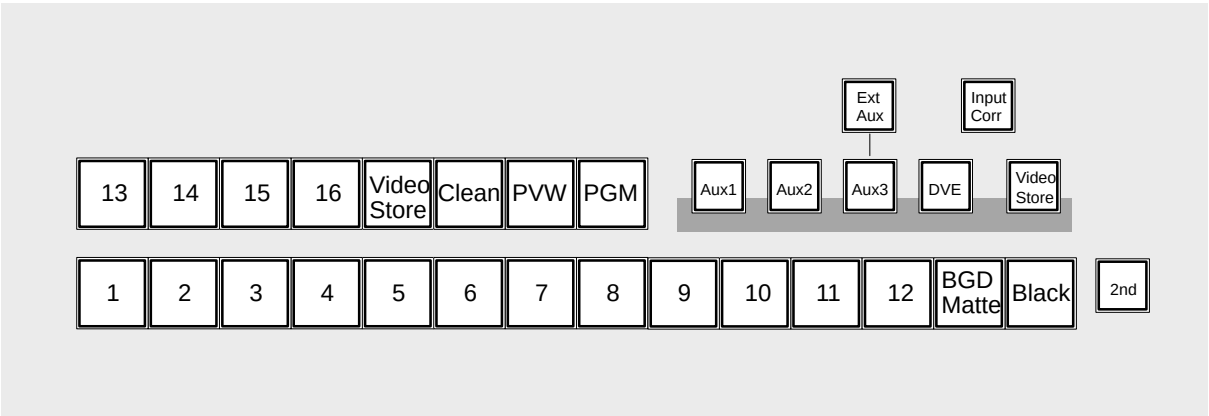
The **Key Bus** serves the selection and indication of key and fill signals. The key row is available to all 3 keyers of the switcher. The green displays **Key 1**, **Key 2** (red for ON AIR) and **DSK** show the keyer that the key bus is currently assigned to. Assignment of the key bus is made with **Key 1, Key 2** or **DSK** on the Keyers panel or by selecting the keyers with the next transition keys **Key 1** or **Key 2** on the Transition panel.



Details about key control are contained in the sections ***Keyers Panel*** *and* ***Transition Panel****.*

2nd Delegation

The **2nd** key enables selection of further signals (e.g. video store) in addition to the 12 directly selectable sources (e.g. frame store). The **2nd** key will light when pressed. The currently applicable key assignment is shown by the key caps of the upper AUX bus.



On Air

The buses involved in the output picture are indicated by the red displays **On air** to the right of the program and preset bus and by the red displays **Key 1, Key 2** and **DSK** next to the key bus.

Asynchronous sources

Asynchronous picture signals are marked by blinking of the **On air** display.

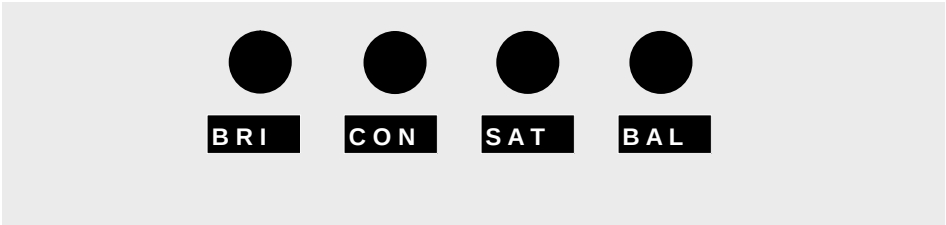
Note: Asynchronous picture signals are instantaneously switched through by the switcher. An interference-free operation of the succeeding units is not always ensured.
See also ***REPL ASYNC*** *in the* ***CONFIG E BOX*** *menu.*

Input Corr

The switcher is provided with an input correction function which enables individual adjustments to color and brightness for each input. Thus, for instance, different scenes with different light types can be matched to each other.

Adjustment:

- **Input Corr** activates the function.
- Select on the preset bus the desired input and hold the key down.



- The marked controls enable changing the following parameters:

BRI	Brightness	= setup
CON	Contrast	= gain
SAT	Saturation	= color saturation
BAL	Balance	= Pr-to-Pb relation

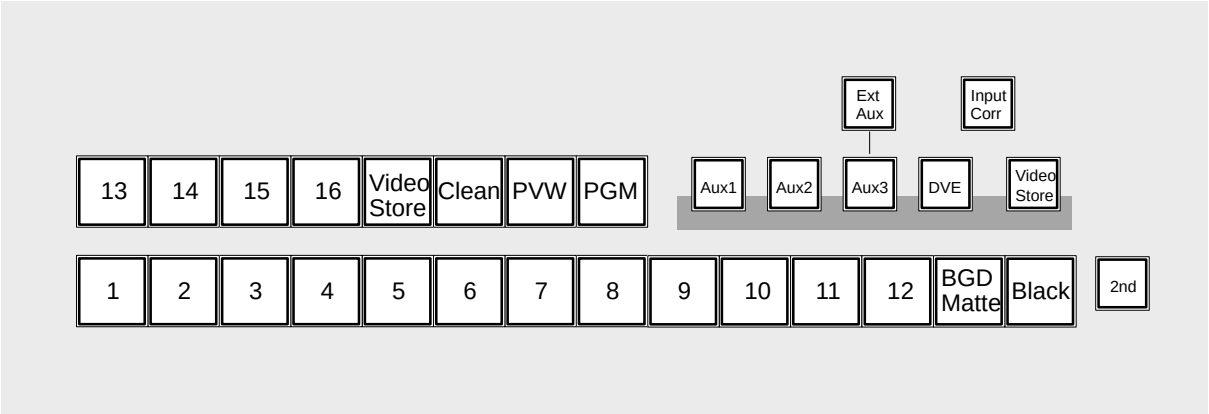
The adjustment can be checked on the preview monitor.

- Fast rotation of the control for color saturation beyond minimum saturation, switches over to monochrome reproduction (color is switched on by fast rotation in opposite direction).
- Releasing the source key automatically stores the values.
- The default settings can be recalled at any time by simultaneously pressing the **Modif Reset** and **Preset Bus** keys.

The Input Corr key is also used in copying settings and enabling menus. See the corresponding sections in this operation manual.

2.2 AUX BUSES PANEL

The compact switcher *Diamond digital DD10* includes 5 serial digital auxiliary outputs; 3 of them are designed for video or key signals and 2 for integration of a DVE unit with video and key signals.



The **Aux Bus** enables selection of the following signals:

- all 16 serial picture signals, **1..16**
- background matte, **BGD Matte**
- picture signal black, **Black**
- picture signal from the internal video store, **Video Store**
- the internal signals, **PVW**, **Clean Feed** and **PGM**

The keys **Aux 1, Aux 2, Aux 3** and **DVE** on the right side assign the current operating state of the aux bus to the respective aux output.
The other states are internally stored and automatically restored when selecting another aux bus.

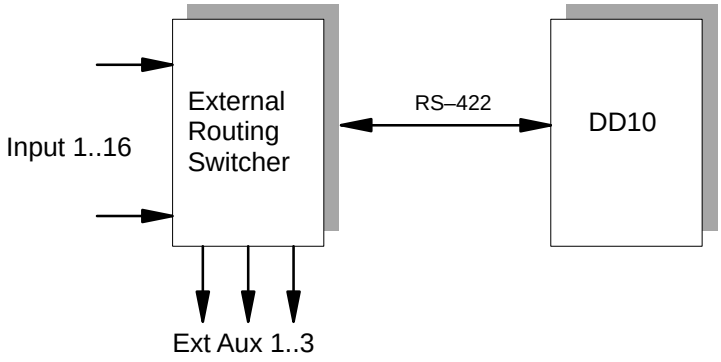
DVE

Selecting the DVE bus automatically switches through the associated key signal via the DVE key output when the picture signal has been coupled with a key signal (e.g. caption generator). If no key signal is available, 100% white signal is supplied at the DVE key output (see the section ***DVE Control***).
If video and key are not coupled, or a signal has to be selected other than the coupled key signal, proceed as follows:

- Using the DVE key delegate to the DVE bus.
- Using a bus key select the video signal.
- Hold the DVE key down and select the key signal.

Ext Aux

Ext Aux enables optional control of 3 buses of an external routing switcher. Depending on the number of keys on the control panel, up to 16 inputs can be selected. Selection of the routing switcher output rows is made with **Aux 1..3**.
(For installation see the section ***Setup***)



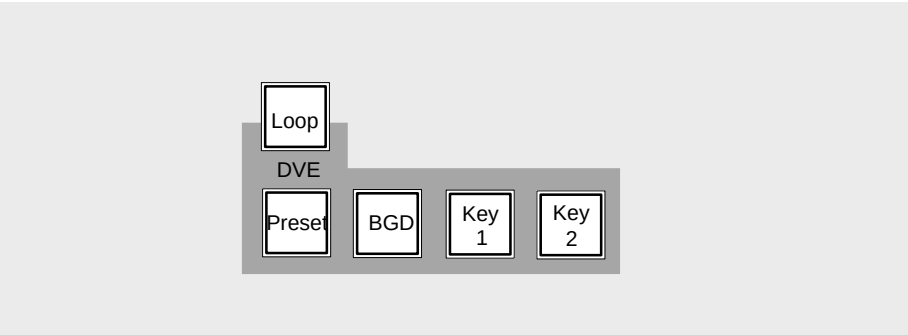
Video store

Video store assigns the control function of the aux bus to the internal video store. Except for the stored picture itself, all signals can be selected.
See the section ***Stores Panel***.

2.3 DVE PANEL

The DVE mode enables switching the following signals to an external DVE:

- all signals of the AUX bus
- video signals and – if available – the associated key signal from the respective mixing stage.



If **Loop** is not actuated, the respectively selected video signal is switched through to the DVE. The manipulated signal of the DVE is available on the input routing switcher and can be processed in the same way as a normal video signal.

If **Loop** is actuated, the respective video and key signal is switched to the DVE. The manipulated signals of the DVE are fed back to the ME at that place where also the non-manipulated signals are switched to. The DVE is looped into the signal or key path.

PGM and **Preset** determine in case of a background DVE transition on the Transition panel whether the new picture appears with the DVE (preset) or the former picture disappears with the DVE (PGM).
When switching the DVE transition on the Transition panel, the functions on the DVE panel are automatically switched without delegation.

Note: For DVE integration, the following facts have to be determined in the Setup menu:

- *Inputs for video and key signals (activates the function of the **Loop** key)*
- *Port assignment for DVE control (activates the function of the Transition Type key)*

2.3.1 NOTES TO DVE CONTROL

Connection Pleas refer to installation manual.

Operating modes DVE devices that are linked to the Diamond digital switchers in terms of signals and control can be used in various modes.

1. FX Loop

   In this mode, the video and key signals to the DVE device are switched automatically and the sequences of the DVE device are controlled with the fader in the Transition panel. The DVE device permits transitions of the background and of keyers that are controlled in the same way as wipe transitions.
   In this mode, Loop and DVE transition are enabled.

2. FX Loop without fader

   In this mode, the video and key signals to the DVE device are switched manually. The control of the sequences is made with the DVE digipot in the Wipe panel, which in this mode is switched over to DVE operation.
   This mode permits integrating particularly static DVE effects into a picture, e.g. smaller pictures at a fixed position.
   In this mode, Loop is enabled and DVE transition is disabled.

3. DVE effects without FX Loop

   In this mode, all signals applied to the switcher as well as the internal signals from the key levels may be selected as DVE input signals. The DVE sequence control is made with the DVE digipot in the Wipe panel, which in this mode is switched over to DVE operation. The DVE effect is faded-in at any key level of the switcher.
   In this mode, Loop and DVE transition are disabled.

4. In modes 2 and 3, the DVE device may also be directly controlled by an external editor instead of the digipot. For this no control link exists between switcher and DVE.

Effect selection After Remote has been enabled in the DVE, the desired DVE sequence is selected with the wipe effect keys in the Wipe panel of the switcher. DD5 and DD10 are switched over to DVE operation by disabling the functions (keys) **Wipe1**, **Wipe2** or **Mask**. Below one of the digipots **DVE** is displayed.
The wipe keys of a *DD20* switcher correspond to the DVE snapshot numbers 1-15 or, when the **2nd** key is actuated, to the snapshots 16 - 30.
The *DD5* switcher features less keys for the wipe or sequence selection.
The selectable sequence numbers are as follows:

1. bank 1 - 4	2. bank 6- 9	3. bank 11 - 14

with the **2nd** key

1. bank 16 - 19	2. bank 21 - 24	3. bank 26 - 29

Mode 1
FX Loop

If the **DVE** transition type key is actuated, DVE is selected as transition for a picture component. In this case the assigned DVE device is controlled automatically and the video and key signal is switched to the DVE device for the respective picture component. The Loop mode is enabled automatically.

Note: *In order to assign the DVE transition mode to a different picture component, a different transition type, e.g. Mix or Wipe must be selected for the original picture component. If DVE transition is selected, it is not possible to change the transition component as is usual e.g. with the Mix or Wipe transition.*
It is particularly important to monitor this particularity when working with a DD5 switcher as there are no displays above the keys for picture component.

If DVE is used as background transition, it is possible to select whether the signal is to be switched to the DVE from the Background or the Preset bus. This selection permits a determination of the type of transition.

*Key **Preset** ON:* *new picture comes in*
*Key **BGD*** ON:* *old picture goes out*

* With some devices this key is designated **PGM**.

If the function (key) **Loop** is disabled, only the DVE key signal is switched to the DVE, not the video signal. This way, a DVE effect may also be used as wipe effect without manipulating the video signal.

In this mode 1 (FX Loop), the DVE is only switched into the signal path during the transition.

Note: *It is possible to deviate from the automatically switched video and key signals and to switch other signals. However, this may result in partly peculiar pictures.*

Mode 2
FX Loop without fader

Select the **DVE** key on the Aux bus delegation bank.
Disable **DVE** transition in the Transition panel (if enabled).
Select the picture component to be switched to the DVE (**Key 1**, **Key 2**).
Enable **Loop**, i.e. switch DVE into the video path.

The **DVE** digipot in the Wipe panel permits running the DVE effect. As it is difficult to achieve a continuous sequence with the digipot, this operation can only be recommended for a static DVE positioning. A uniform movement can, however, be realized with an EXTRA timeline. The picture component manipulated with the DVE can be faded with **Wipe** or **Mix** in the Transition panel.

Note: *Function Loop ON* *DVE in video path for the picture component*
Function Loop OFF *DVE not in video path for the picture component*

Mode 3
DVE effects without FX Loop

Select the **DVE** key on the Aux bus delegation bank.

Disable **Loop**.

Disable **DVE** transition in the Transition panel (if enabled).

In this mode, the following signals can be switched to the DVE:

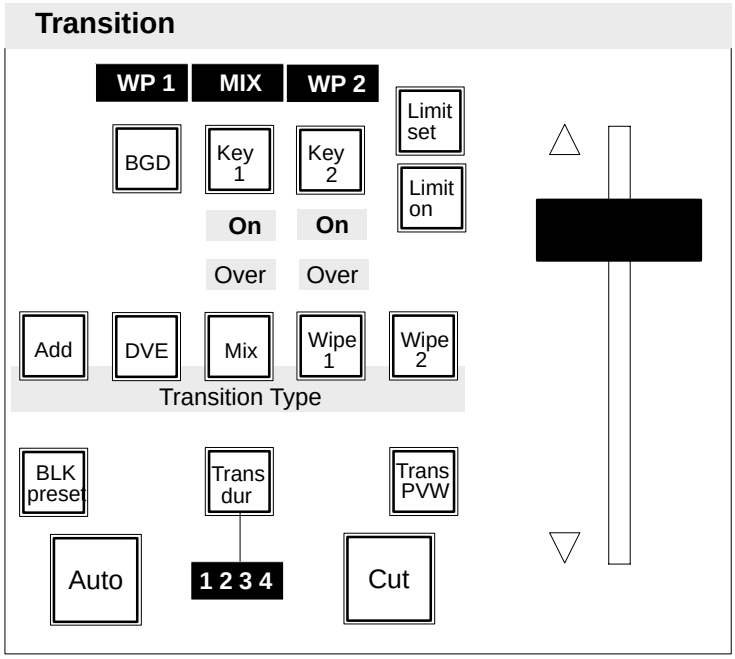
- all signals of the Aux bus; if a coupled key signal exists, this is sent to the DVE as key signal.
- video signals and – if existing – the pertaining key signal from the respective switching level.

If only a video signal and no key signal exists, 100 % white is sent to the DVE as key signal.

If the DVE delegation key is held down, any signal may be selected as key signal.

2.4 TRANSITION PANEL

The compact switcher *Diamond digital DD10* includes a universal mixing stage with **background transition** stage and two **upstream-keyers** being independent of each other.
The two keyers enable the operational modes ***luminance*** and ***linear key.*** Optionally, the new ***DynaChrome*** function provides a brilliant chroma key for both keyers.



For picture design, selection can be made between the transition modes ***Add***, ***Mix***, ***DVE***, and ***Wipe***, providing up to two wipe generators. The individual picture components can be simultaneously faded with different transition types.
Control of the mixing stage is facilitated by the consequently realized next transition principle.

In order to permit an optimum preview of the picture design, the switcher includes an independent preview mixing stage (option).

Next Transition

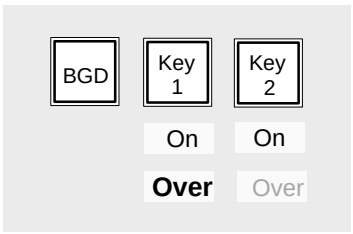
The next transition keys **BGD**, **Key 1**, **Key 2** enable the user to preselect the picture components which will participate in the next transition. When pressed separately, the keys are mutually exclusive. If several picture components have to be faded simultaneously, press the respective keys at the same time.

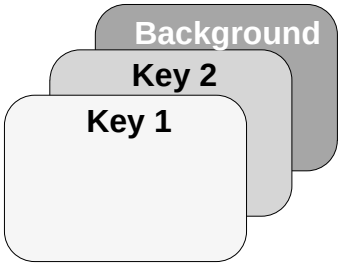
The selected keys light and indicate which picture components are affected during the next transition. The result can be looked at the preview monitor.
The displays over the keys indicate which transition type (**WP1** for Wipe1, **WP2** for Wipe2, **MIX**, **DVE**, **ADD**) has been selected for the respective picture component.

The current state of a keyer is indicated by the **On** display below the next transition keys.

Key Priority

The priority among the keyers is indicated by the **Over** display.
If, for instance, the **Over** display below **Key 1** is lit, keyer 1 is placed over keyer 2. **Key Over** on the **Keyers** panel enables the user to change the priority of the key levels.

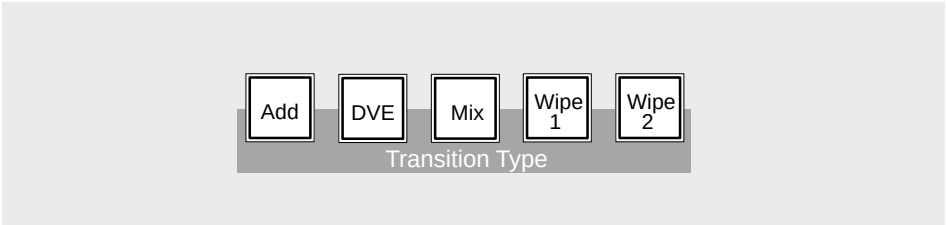




Transition Type

The **Transition Type** panel permits selection of different transition types:

In order to select a transition type, activate the next transition key for the picture component, then select a transition type using the transition type keys **Add**, **DVE**, **Mix**, **Wipe 1**, and **Wipe 2**.



The selected transition type is indicated in the display above the respective next transition key.

Note: Please note that you can change the transition type only when the transition procedure is terminated, i.e. an automatic transition is completed or the fader is moved to a limit.

Add

Add provides a transition type which enables addition of the two background signals. In midposition of the fader, both signals are faded in at 100%. The output level is internally limited to aprox. 108%.

Note: Please note that this transition type can be only used for background transitions.

DVE

DVE enables the user to recall DVE effects from the switcher and run them in the same way as wipe effects.
The different effects have to be previously programmed on the respective DVE and can then be recalled with the wipe selection keys on the Wipe panel when the associated display shows **DVE**.
Further information and important notes about DVE control are contained in the section ***DVE Panel***.

Note: Please note that transition type DVE can be only effective for one picture component.

Mix

Mix selects a transition type which performs cross-fading between the picture signals selected with the next transition keys.

Wipe 1, Wipe 2

Wipe 1 and **Wipe 2** enable a wipe transition with the signal of the respective wipe generator (1 or 2).
Further information on the control of the the wipe generator is contained in the section ***Wipe Panel***.

Note: Please note that the wipe generators can be used at the same time for different applications which may interact with one another.

MultiMix

The **MultiMix** feature provides the switcher with the possibility of selecting different transition types for individual picture components and fading them together.
Thus, for instance, **Mix** can be selected for the background transition, **Wipe 2** for the first keyer, **Wipe 1** for the second keyer, and all transition types can be simultaneously performed in one transition.

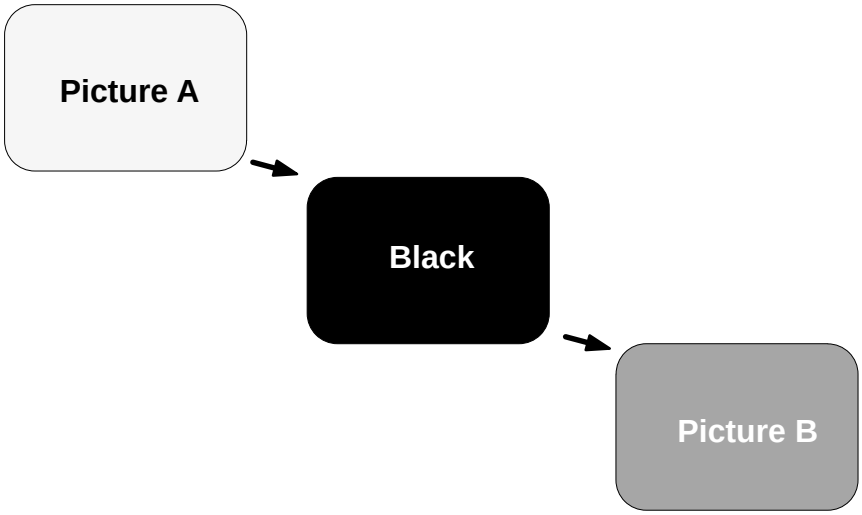
Adjusting different transition types:

- Select with the next transition keys **BGD**, **Key 1** or **Key 2** the picture component and hold the key down.
- Using the keys **Add**, **DVE**, **Mix**, **Wipe 1** and **Wipe 2**, select the desired transition type. The selected transition type is shown on the display over the next transition keys.
- Now select in the same way the associated transition type for the other picture components.
- Pressing the keys **BGD**, **Key 1** or **Key 2** (or any combination) simultaneously, activates the corresponding picture components for the next transition.

*Note: Please note that transition type **Add** effects for **Key 1** and **Key 2** the transition type **Mix**. Multimix is possible when no Transition Type key is activated.*

Black preset

BLK preset enables transitions in two steps. During the first transition, the current program event is faded to black. During the second transition, fade is made from black to the next program event.

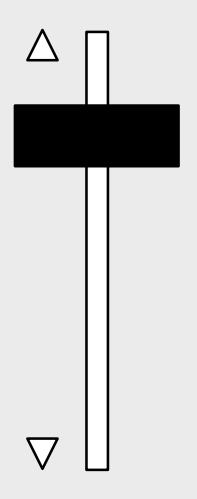


Transition can be made with **Cut**, **Auto** or manually with the fader.

For accentuating this special transition type, **BLK preset** is lit during the transition procedures. The function is automatically deselected after having finished the second transition.

If **BLK preset** has been pressed erroneously, actuate it again to deselect the function. If the function is deselected during fade-to-black, the second transition is performed immediately thereafter.

Fader



The fader enables sensitive manual transitions. The yellow arrows to the left of the fader show the moving direction to the next contribution which is shown on the preview monitor.

Cut

Cut causes an instantaneous transition (hard cut).

Auto

Auto performs the transition as a fade with the preset transition rate. The key will light for the duration of the transition and the selected transition rate is shown in the associated display.
The transition can be immediately completed by pressing **Cut** or be manually finished with the fader.
In the same way, it is possible to halt the automatic transition by pressing **Auto** again and to continue by pressing it once more.

Trans dur

The function **Trans dur**ation enables selection of a transition duration within 1 and 9999 frames.

Adjustment:

- Press **Trans dur**. After actuation, **Trans dur** and and the keys of the numeric keypad on the EXTRA panel will light and request entry of the rate.
- Enter the desired transition rate with the numeric keypad.
  For checking, the entry is shown in the display.
  Faulty entries can be deleted by pressing **Clr**.
- After entry, press **Enter**.
- If **Trans dur** has been erroneously pressed, press it again to deselect the function.

Key 1, Key 2

If the keyers have to be switched on or off without using the next transition function, select the corresponding key stages with **Key 1** or **Key 2** on the **Keyers** panel and perform a hard cut with **Cut** on the **Keyers** panel.

Trans PVW

Trans PVW enables the user to optionally perform the transition on the preview monitor without affecting the output picture.
Trans PVW will light when actuated. All current adjustments are stored and automatically restored when leaving the Transition PVW mode.
Now it is possible to select other transition modes, deselect picture components and perform the transitions with **Cut**, **Auto** or manually with the fader.

Note: Please note that the Trans PVW mode can be activated and deactivated only when the transition is finished, i.e. an automatic transition is completed or the fader is moved to a limit.

If is required to transmit another background picture to the output while **Trans PVW** is activated, this can be made by direct selection on that bus which is indicated by the **On air** display. Then a hard cut is made to the other background picture.

At end of transitionwith TRANS PREVIEW on, the PGM and PST Bus do not longer switch.

Operation of TRANS PVW can be modified in menu CONFIG. PANEL.
New setting **TRW-PVW**

"Mode 1" = compatible operation.
TRANS PVW stays on and shows in endposition the final image on the PVW output.

"Mode 2" = TRANS PVW goes automatically to the begin of the transition whenreaching the endposition.
Does not apply with LIMIT ON.

"Mode 3" = "One shot mode".
TRANS PVW switches automatically off, when T-Bar goes to either endposition.
Note: Also when returning to the begin TRANS PVW is switched off.
Does not apply with LIMIT ON.

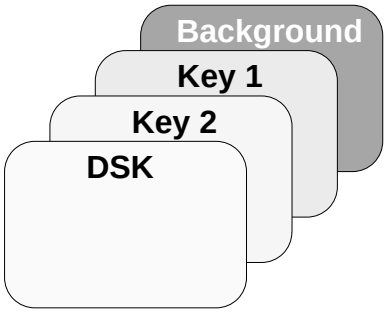
Note: Mode 2 and 3 behave as described when using the T-Bar for controlling the transition. AUTO transition behaves as before equivalent to Mode 1.

Lim set, Lim on

Limit set and **Limit on** serve the reproducible generation of partial transitions. The mode is possible for all transition types.
Limit set stores the desired value which has been adjusted with the fader.
Limit on switches the mode on. A transition with **Cut**, **Auto** or a manual transition with the fader is only made up to the value previously defined with **Limit set**.
If the transition is performed with the fader, the yellow arrow to the left of the fader does *not* change the direction when the fader is moved to a limit, thus indicating that the transition is not completed.
If the **Limit on** mode is then switched off at the point defined by **Limit set**, a jerk-free transition can be made with the fader to the next contribution. The remaining fader path is then transferred to the full fader path.

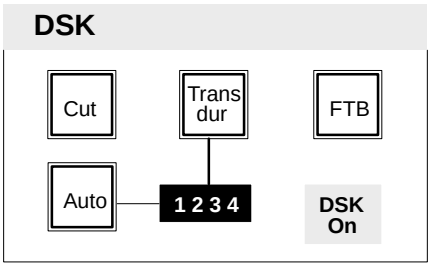
2.5 DOWNSTREAM KEYER PANEL

The compact switcher *Diamond digital DD10* includes a **downstream keyer** which enables the user to insert captions, numbers or characters by ***luminance*** or ***linear key*** into the program picture. This keying has priority so that it appears in front of the background and all other keyers.



Beside the main outputs, the switcher additionally includes a clean-feed output which provides the picture in front of the downstream keyer.

All input sources as well as the signal of the internal video store can be used as a key source. For filling, also all input sources or an internal matte are available.
For control, see the sections ***Source Selection, Keyers Panel*** and ***Mattes Panel***.



Cut **Cut** performs the transition as a hard cut.

Auto **Auto** performs a transition with the preset transition rate.
The key will light for the duration of the transition and the selected transition rate is shown in the display. Pressing the **Cut** key completes the transition instantaneously.
If the automatic transition has been started erroneously, it can be stopped and cancelled by pressing the Auto key again.

Keying-in with DSK is indicated by the **DSK On** display.

Trans dur

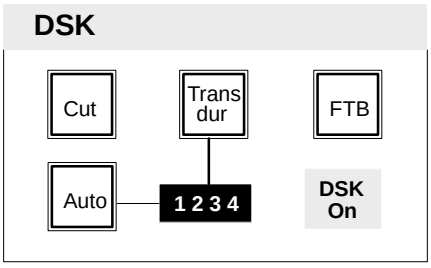
The function **Trans dur**ation enables selection of a transition duration between 1 and 9999 frames.

Adjustment:

- Press **Trans dur**. After actuation, **Trans dur** and the keys of the numeric keypad on the EXTRA panel will light and request entry of the rate.
- Enter the desired transition rate with the numeric keypad.
  For checking, the entry is shown in the display. Faulty entries can be deleted by pressing **Clr**.
- After entry, press **Enter**.
- If **Trans dur** has been pressed erroneously, press it again to deselect the function.

2.6 FADE-TO-BLACK PANEL

The compact switcher *Diamond digital DD10* includes a **fade-to-black** stage which allows fading the program picture to or from black.



FTB **FTB** switches the panel from downstream keyer control to fade-to-black control. The operational mode is indicated by lighting-up of **FTB**. When switching over, all settings of the Downstream Keyer panel are stored and automatically restored when returning to the DSK mode. If **FTB** has been pressed erroneously, press it again to deselect the function.

Cut Pressing **Cut** performs the transition as a hard cut. For accentuating this special operational state, **FTB** will blink during the fade-out state. Pressing the blinking **FTB** key fades the program event in again and subsequently disables the fade-to-black function.

Auto Pressing **Auto** performs the transition with the preset transition rate. The key will light during the duration of the transition and the transition rate is indicated in the display. If an automatic transition has been started erroneously, the procedure can be stopped and cancelled by pressing **Auto** or **FTB** again.
For accentuating this special operational state, **FTB** will light during the fade-out state. Pressing the blinking **FTB** key again fades in the program event with the same transition rate and subsequently disables the fade-to-black function.

*Note: Should it be required to switch the downstream keyer on or off during fade-to-black, select the downstream keyer with the **DSK** key on the Keyers panel and perform a hard cut with the **Cut** key.*

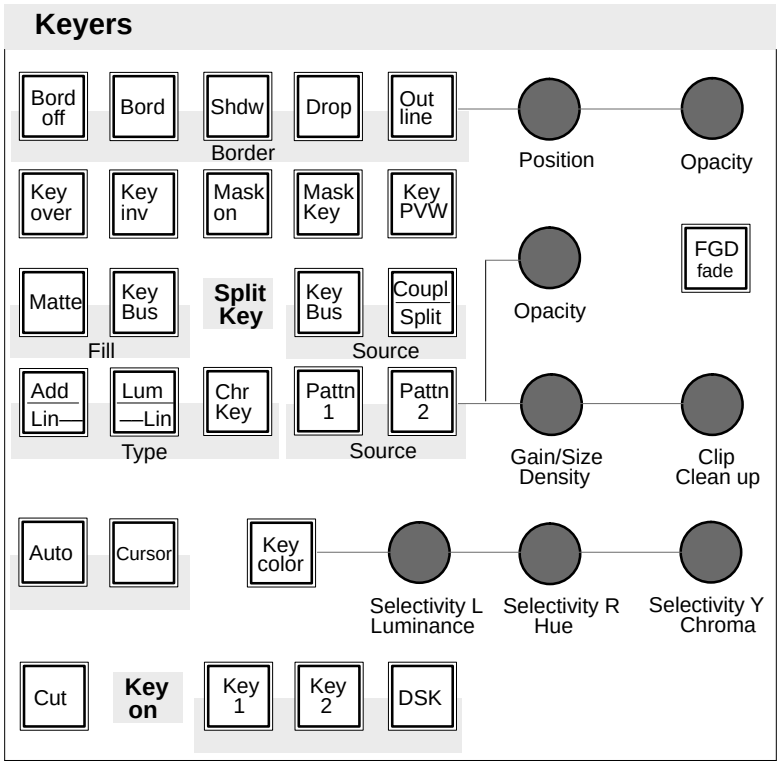
Trans dur

The **Trans dur**ation function enables selection of a transition duration for fade-to-black between 1 and 9999 frames.

Adjustment:

- Press **Trans dur**. After actuation, **Trans dur** and the keys of the numeric keypad on the EXTRA panel will light and request entry of the rate.
- Enter the desired transition duration with the numeric keypad.
  For checking, the entry is shown in the display. Faulty entries can be deleted by pressing **Clr**.
- After entry, press **Enter**.
- If **Trans dur** has been pressed erroneously, press it again to deselect the function.

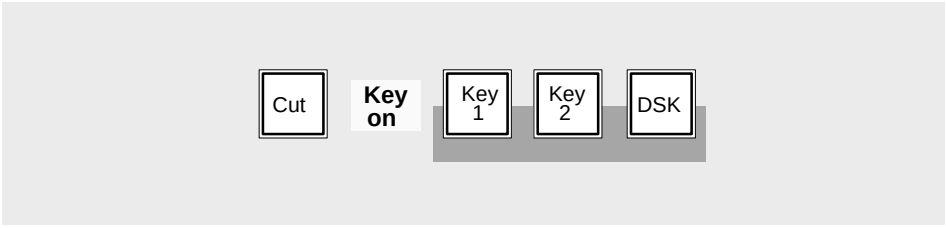
2.7 KEYERS


Keyers
Bord off
Bord
Shdw
Drop
Out line
Border
Position
Opacity
Key over
Key inv
Mask on
Mask Key
Key PVW
Matte
Key Bus
Split Key
Key Bus
Coupl Split
Fill
Source
Opacity
FGD fade
Add Lin—
Lum —Lin
Chr Key
Pattn 1
Pattn 2
Type
Source
Gain/Size Density
Clip Clean up
Auto
Cursor
Key color
Selectivity L Luminance
Selectivity R Hue
Selectivity Y Chroma
Cut
Key on
Key 1
Key 2
DSK

2.7.1 KEYER DELEGATION

The delegation keys **Key 1**, **Key 2** and **DSK** enable delegation of the Keyers panel to one of the three keyers when the keyer proposed by the auto delegation system has to be changed.

I fthe function **Auto Menu** is activated, the delegation keys switched on the keyers menu when the key types **Add, Lum, ChrKey** are slected.

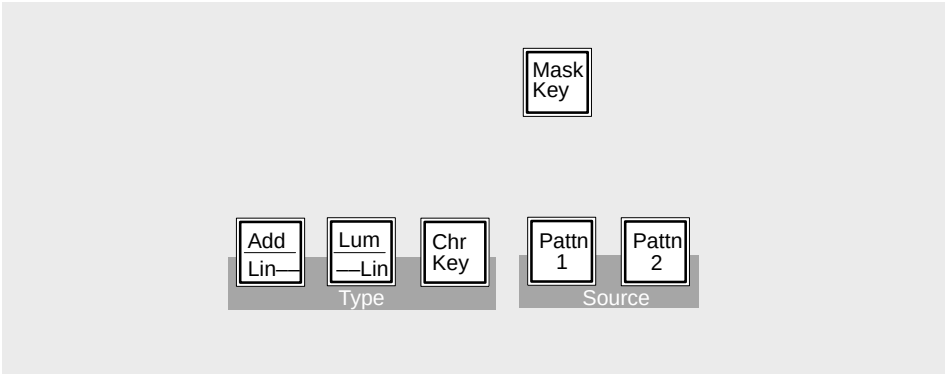


This delegation also delegates the key bus.

2.7.2 HARD KEY TRANSITION

Cut causes an instantaneous transition (hard cut). When a keyer is faded in, this will be indicated by the **Key on** display.

2.7.3 KEY MODES



Note *The **Add Lin** and **Lum Lin** keys enable selecting three operational modes (see below).*

The keys are lit as follows:

Key function	**Add/Lin (Lin Key)**	**Lum/Lin (Lum Key)**
additive key	YES	NO
multiplicative key gain = unity	YES	YES
multiplicative key gain <> unity	NO	YES

Add Key **Add Key** selects the Additive key mode. In this mode, an external unit (e.g. DVE, modern caption generators, paint systems) generates and supplies the key signal and the associated fill signal.
The background signal is multiplied with the key control signal and added to the supplied fill signal. This mode ensures that the supplied fill signal is not influenced and all data contained therein will be played back in accordance with the original.

Note: *Please note that the supplied fill signal must be based on a black background. Otherwise the addition of the signals will yield a discolored background signal.*

Lum Key

Lum Key selects the luminance key mode. The key control signal is derived from the luminance component of the key source signal. The key control signal controls the transition between background signal and fill signal.

Luminance Key is available in the modes equalized (eq) and non-equalized.

Lum Key eq	Is automatically switched on in the Self Key mode (key fill signal corresponds to the key source signal). Thus, dark halo effects at edges and soft transitions are avoided.
Lum Key	Is automatically switched on when Fill and Source do not have the same source (Non Self Key).

Note: On American linear key.

Lin Key

Pressing the two keys (Add) Lin and (Lum) Lin sets the luminance key into a linear mode. The key control signal corresponds to the non- amplified and unlimited luminance signal.

Chr Key

Chr Key selects the chroma key mode. The key control signal is derived from the chrominance component of the key source signal. Keying is possible on each color.

The **DynaChrome Key** mode ensures that all details in the fill signal will be preserved in accordance with the original.

Note: Please note that P/S/S = ON forcibly switches over to FGD–Fade.

FGD Fade

When the Foreground Fade function is enabled, the key in control signal serves to fade between the background signal and the cleaned key fill signal.

Note: Please note that DynaChrome can only be used without Foreground Fade for Self Key (identical fill and source signal). If you are not working with Self Key or in case of a border, Foreground Fade will automatically be switched on without special indication.

Pattn 1, Pattn 2

Pattn 1 or **Pattn 2** selects the wipe generator as a key source (pattern key). The pattern can be selected with the pattern selection keys on the Wipe panel. The size of the pattern can be adjusted with the **Size** control.
Positioning of the pattern is possible with the trackball on the Positioner panel. For this purpose, previously press **Pos** on the Wipe panel.

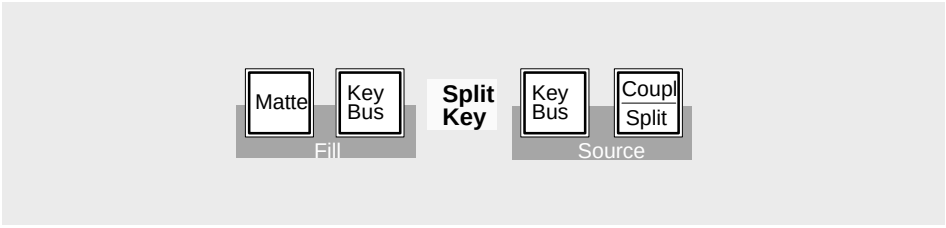
Note: Please note that the wipe generators can be used at the same time for different applications which may interact with one another.

Mask Key

Mask Key selects the mask chosen on the Masks panel, as a key signal.
See the sections ***Mask Panel, Wipe Panel*** *and* ***Stores Panel***.

Note: *If the function **KEY MEMORY** is activated (menu CONFIG EBOX) the operation modes **Mask key** and **Pattern key** can be switched off by a renewed pressing of the corresponding key.*
*Then the mixer take up the status (see Key Memory) of the last stored "natural" key (**Add**, **Lin**, **Lum** or **Chroma key**) with all settings.*
*If the operation modes **Mask key** and **Pattern key** are switched off by a direct selection of the key modes **Add**, **Lin**, **Lum** or **Chroma key**, the former settings are only available partly.*

2.7.4 KEY SOURCES



Key Fill

The mutually exclusive keys **Key Bus** (on the left) and **Matte** enable selection of a signal from the key bus or a matte as a fill signal for the respective key. The matte can be adjusted on the Mattes panel.

Matte

Matte on the Fill panel enables selection of a matte as a fill signal. The matte can be adjusted on the Mattes panel.

Key Bus

Key Bus (on the right) directly selects the key and fill sources on the key bus. When the key is lit, the key bus indicates the source which can be used for keying and filling.

Couple/Split

Couple/Split derives the key source from a different signal than that of the key bus. When the key is lit, the coupled key source signal is selected in addition to the selected key fill signal. Without coupling, the key fill signal corresponds to the key source signal (self key).

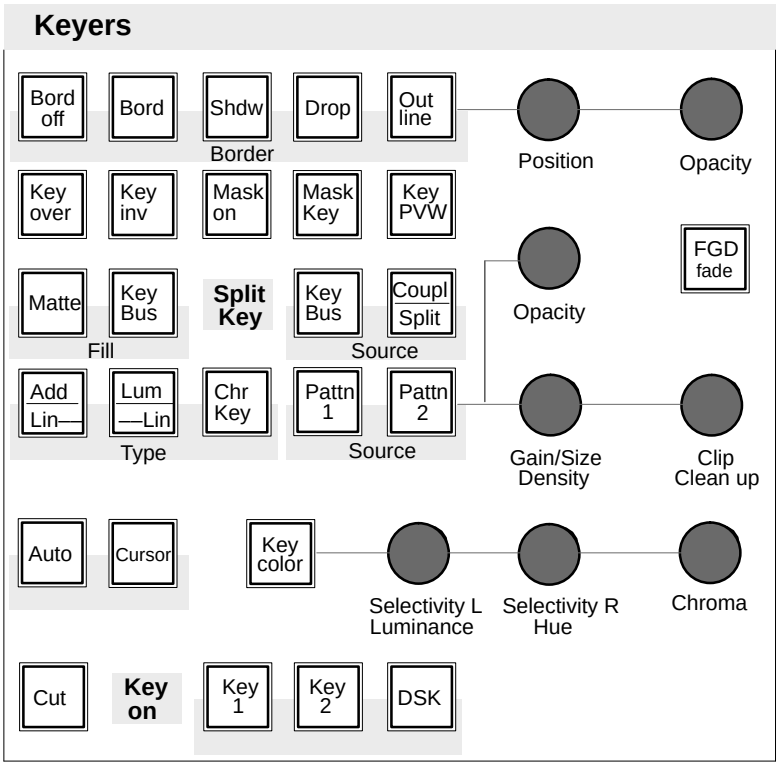
For selecting any key source, proceed as follows:

- Press **Couple/Split** and hold it down.
- Now select on the key bus the new key source.
- After releasing the keys, the state is shown by the **Split Key** display. The key bus indicates again the fill source.

The key source signal is now determined. The key fill signal can be switched with the key bus.
If separation of key source and fill signal has to be cancelled, just press **Key Bus**.

Note: If you want to see in the split key mode which source you have selected as a key source, press the Couple/Split key. The key bus indicates the source as long as the key is pressed.

2.7.5 KEY ADJUSTMENTS



Border
Position, Opacity

See the section ***Key Borderliner***.

Opacity

The **Opacity** control adjusts the transparency of the key.

Gain/Size
Density

The Add, Luminance or Chroma Key modes enable to optionally adjust the steepness (gain) of the key control signal or the density of the foreground signal. Selection is made in the Key menu.

Clip
Clean up

The Add, Luminance or Chroma Key modes enable to optionally adjust the clipping point of the key control signal or the cleanness of the background (noise, undesired shadows, uncleanness).

2.7.6 AUTO KEY ADJUSTMENT

Auto key effects different automatic functions in the different key modes.

Add Key switches the key control to 1:1 transmission in order that key signals. e.g. from the caption generator have an unchanged effect.

Luminance Key adjusts Clip and Gain in such a way that the key signal is just switched through.

For **Chroma Key** see the section ***Automatic Chroma Key Adjustment.***

Note: After termination of all automatic key adjustments, the corresponding parameters can still be changes manually.

2.7.7 CHROMA KEY

Chr Key

Press **Chr Key** in the Keyers panel to select Chroma Key mode. In DynaChrome Key mode, the foreground signal is proportionally and subtractively deprived by the key color in the key color area and colored neighbouring areas. The result is a cleaned key fill signal which now contains in key color areas shadow-free black and in neigh-bouring areas the de-mixed foreground colors.
The key control signal is also derived from the foreground signal. The key control signal is multiplied with the background signal. The cleaned key fill signal and the multiplied background signal are added. This method ensures that all details are reproduced true to the original in the area of the key color.

FGD Fade

The **FGD Fade** (foreground fade) key switches over the chroma key procedure. Now, the cleaned key fill signal and the background signal are faded in one fading operation by the key control signal. In the area of the key color, only chrominance is subtractively removed, luminance is retained. However, this will impair some advantages of the DynaChrom procedure (good reproduction of details and transparency).

For optimal adaptation of cross fadings on edges or for optimization in case of transparencies between foreground and background, the luminance value can be adjusted in the area of the key color.
Adjustment is made with the **Luminance** control. During adjustment, **Key color** has to be held down.

This mode is recommendable when object edges will show unnatural, extreme brightenings in details and transparency areas in case of too intense CLEAN–UP adjustment, or extreme darkenings in case of too intense DENSITY adjustment.

For optimal adaptation of fade transitions at edges or for optimization in case of transparencies between foreground and background, the luminance value can be adjusted in the area of the key color transitions. Adjustment is made with the function **LUMOFS** (Luminance Offset). During adjustment, the **Key Color** key has to be held down and the **Luminance** control be operated.

Note: Please note that Foreground Fade is enabled automatically – without special indication – in the following modes:

- *Chroma Key Invert*
- *Chroma Key with Border*
- *not Self Key.*

Before adjusting Chroma Key, you should try to create optimum conditions on the picture source side to ensure low interference, for example by an evenly lit blue wall of maximum size and little camera post-amplification.

2.7.7.1 Automatic Chroma Key Adjustment

This mode serves to adjust the following parameters:

- key color for LUMINANCE, HUE and CHROMA
- selectivity for SELECTIVITY LEFT and SELECTIVITY RIGHT

The parameters DENSITY, CLEAN UP and SELECTIVITY-CENT are set by default by the adjustment to max. ccw position (ineffective).
SELECTIVITY is set to center position (i.e. ineffective).
COLOR CAN and NOISE REDuction to ON, P/S/S and SEL MASK to OFF.

Auto

Pressing the **Auto** key starts an automatic key adjustment to **Blue**.
The picture evaluation includes all those colors which are within an angle range of +/–30^{o} around the primary color Blue. Within this range, blue with the highest intensity is detected as key color. Key color and selectivity are thus adjusted.

Cursor

Pressing the **Cursor** key starts an automatic, cursor–assisted key adjustment.
When you press the key, the key fill signal with key color and a cursor appears on the preview monitor. Move the cursor to a spot of the key color using the trackball in the Positioner panel.
Then press the **Auto** key to start the adjustment. Only those colors will be evaluated the color angle of which resembles to that which was found within the cursor. With the condition of this color angle the complete picture is evaluated and the color with the highest intensity is detected as a key color.

*Note: The **Auto** keys in the Chroma Keyer and the Keyers panels operate in parallel.*
When the Keyer is on, the output signal will be affected during the automatic adjustment.

2.7.7.2 Manual Optimization in case of critical patterns

Selectivity

Selectivity L (left), **Selectivity R** (right) and **Selectivity Y** enables the user to change the selectivity manually.

This may be required for the following reasons:

- The user wants another compromise between color fringe and density of the foreground object.
- Size and sharpness of the foreground object were not sufficient.
- Blue spill has to be removed from the foreground object.
- The picture only contained the key color and no foreground object.

The selectivity separates the unchanged colors from those without key color component. The attributes **L**eft and **R**ight refer to the neighborhood to the key color in the chromatic circle. **Y** refers to the luminance dependence of the gray mixed color.

Thus, the key color Blue influences the following colors:

- by **Selectivity L,** the reddish neighboring colors
- by **Selectivity R,** the greenish neighboring colors
- by **Selectivity Y,** the gray/yellow colors.

Direction of rotation of the controls:

The influence of the foreground is increased when **Selectivity L** is turned left and **Selectivity R** is turned right.
When **Selectivity L** is at the right stop and **Selectivity R** is at the left stop, a very high selectivity (i. e. narrow band color selection) is set.

With **Selectivity Y** = 50% (center position after automatic run), this parameter is without influence on the picture. Higher values (cw rotating) deprive gray edges increasingly by the key color, thus coloring them complementarily. A gray halo in yellow (blond) hair becomes yellow (blond) again when its gray was effected by mixing yellow and blue key colors.
Adjustment of the selectivity should be just so much that the key color portion on the foreground object has disappeared. Doing so, a slight ”keying” of the foreground object may be first put up with.

Selectivity C

(**Key Color** key + **Density** knob)
Selectivity center refers to the achromatic center of the color circle and acts on the slightly saturated key colors which cannot be influenced with SEL_R.

Problem: *The light blue shirt of a newscaster is slightly transparent after adjustment. It could be made dense with DENSITY; however it would lose its blue color.*

Solution: *Rotate* **Selectivity C** *in cw direction until the shirt is dense. Then correct possibly obtained blue fringes with SEL–L and SEL–R.*

Alternative: *For reducing newly occurring blue fringes, first use DENSITY and then SELECTIVITY C as described above.*

Density

The **Density** control can be used to restore the density of the foreground object. This may become necessary if the foreground object is slightly ”keyed” (transparent) as a result of blue spill and/or the required selectivity setting.

Clean up

The **Clean up** control can be used to ”clean up” the background.
This may become necessary if the background contains noise or undesired shadows etc.
The setting first acts on the brightest key color areas. The interference will deteriorate for darker colors that remain uncleaned.

2.7.7.3 Manual Adjustment of the Key Color

Key Color

Press and hold **Key Color** to permit a manual adjustment of the key color, i.e. access to the parameters of **luminance**, **hue** and **chroma**.

The following conditions must be given:

- **FGD Fade** ”OFF”
- Key ”ON” on background Black
- **Density, Clean up** and **Selectivity C** at left stop
- **Selectivity L** at right stop
- **Selectivity R** at left stop
- **Luminance** at left stop
- **Chrominance** at left right stop

The adjustment is made in the following order:

Hue

Turn the **Hue** control until the key color is extensively achromatic. Then turn back **Selectivity** roughly until approximately all key colors are covered.

Chroma

Turn the **Chroma** control until also the brightest color is remains only just achromatic.

Luminance

Turn the **Lumincance** control until the key color is only just black.

This setting can subsequently be optimized with the **Selectivity**, **Density** and **Clean up** controls.

2.7.8 KEY PRIORITY

Key Over interchanges the priority of the keyers. The priority among the keyers is indicated on the Transition panel by the **Over** display beneath the next transition keys **Key 1** and **Key 2**.
If, for instance, the **Over** display lights below **Key 1**, keyer 1 is placed over keyer 2.

2.7.9 KEY MASKING

The mask selected on the Masks panel is switched on with the **Mask on** key.
See the sections ***Masks Panel*** and ***Stores Panel***.

2.7.10 KEY PREVIEW

Key PVW displays the keyer result or the key signal on the preview monitor for being optimized.
The function enables the user to adjust a keyer which is not selected on the Transition panel.
Pressing **Key PVW** repeatedly, successively switches the following signals to the preview monitor:

- Original key fill signal on current background picture.
- Key control signal as black/white signal.

2.7.11 KEY INVERTING

Key inv inverts the key signal, i.e. the contents of the foreground and the background are exchanged on the screen.

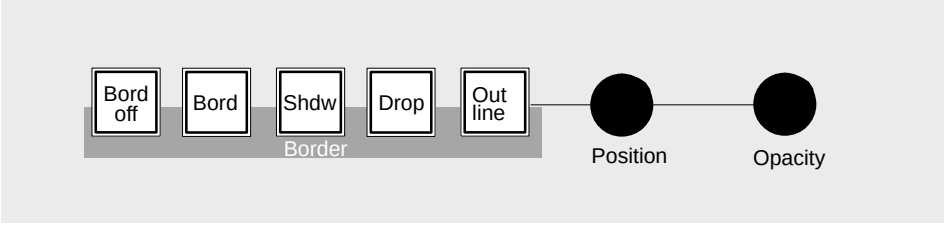
2.7.12 COPYING KEY SETTINGS

The adjustments of a keyer can be easily copied and assigned to the other keyers.

This requires the following steps:

- Press **Input Corr** (on the Aux Bus panel); the key lamp lights.
- Select with the delegation keys **Key 1**, **Key 2** or **DSK** the keyer you want to copy.
- Using another delegation key, select the destination you want to copy the adjustments to.

2.7.13 KEY BORDERLINER



The Border key group enables the user to provide the key signals with a border effect which can be adjusted individually.

Note: Please note that two borderliners are provided for the three keyers.

Border off **Border off** switches the border functions off.

Border **Border** generates a simple borderline. Pressing the key several times changes the width of the borderline (number of picture lines: H and 2H). After having pressed the key for the third time, the function is disabled again.

Shadow **Shadow** produces a shadow at the right side and bottom of the key area. Pressing the key several times changes the width of the shadow (number of picture lines: H, 2H, 3H and 4H). After having pressed the key for the fifth time, the function is disabled again.

Drop **Drop** adds a drop shadow to the right side and bottom of the key area. Pressing the key several times changes the width of the drop shadow (number of picture lines: H, 2H, 3H and 4H). After having pressed the key for the fifth time, the function is disabled again.

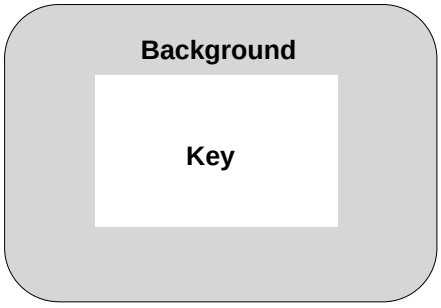
Outline **Outline** produces a simple outline shape of the key source. The outline signal is filled with the background signal. Pressing the key several times changes the width of the outline (number of picture lines: H and 2H). After having pressed the key for the third time, the function is disabled again.

Position The **Position** control changes the position of the border in steps.

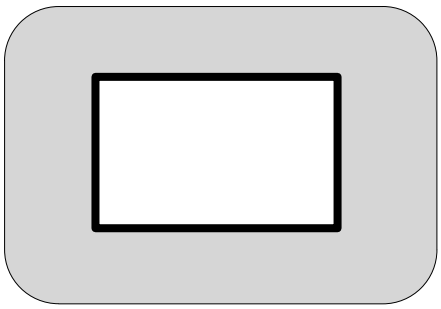
Note: Please note that the position of the original signal changes when you want to position a shadow above or before the border signal.

Opacity The **Opacity** control changes the transparency of the border.

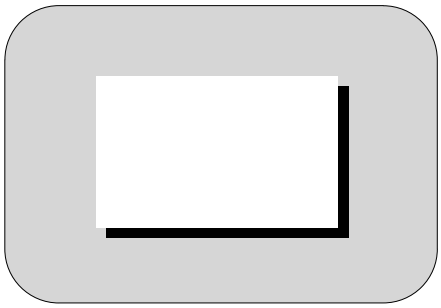
Border off



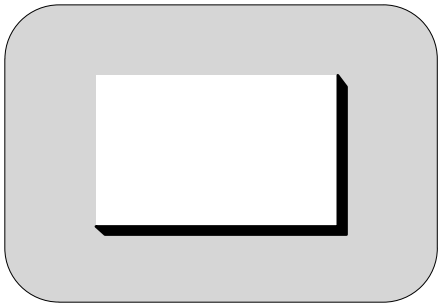
Border



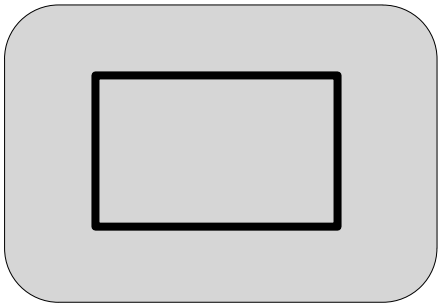
Drop



Shadow

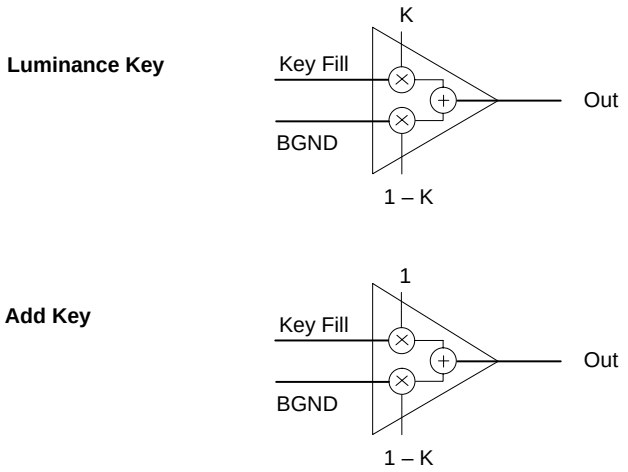


Outline



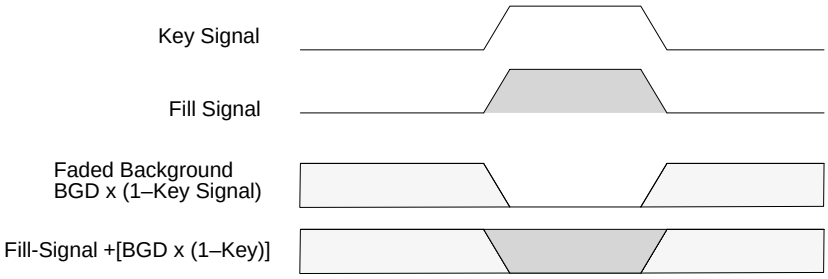
2.7.14 NOTES TO THE USE OF ADD AND LUMINANCE KEY

The operational modes **Add** and **Luminance Key** differ in the fading procedure. In the Luminance key mode, foreground and background are faded. In the add key mode, the background is faded and the foreground is added to the background.



When should Add Key be used?

Add key can always be used when the pattern (caption etc.) is available on a black background or in the Split/Coupled Key mode, a separate key signal is available which matches to the pattern (caption generator etc.) with regard to contour.
Since only the background is faded out at the place of the key signal with the exact edge shape and the foreground signal is added to the faded background, both signals fit without error into each other in the transition area. Precondition is that the key signal is processed with gain factor 1 which is achieved by actuating the **Auto** key with Add Key or max. ccw position of the **Gain** control. Under the above-mentioned conditions, this key type leads to the best results and it should be aspired to adequately prepare the key sources (e.g. captions on black background etc.).



When should Luminance Key be used?

Luminance Key has always to be used when the key fill signal is not available on a black background. A further application for Luminance Key is in the Coupled/Split Key mode when the key signal does not match with the fill signal with regard to contour (e.g. DVE key signals with soft border).
A so-called ”linear luminance key” (Lin Key) can be selected by simultaneously actuating the keys **Add/Lin** and **Lum/Lin**, thus achieving that the maximally possible luminance value range is completely and ”linearly” reproduced on key signal value range, regardless whether these extreme values also occur in the picture.
Actuating the **Auto** key achieves that the momentarily darkest luminance value is reproduced on KEY=0 and the momentarily brightest value on KEY=1. Deviating from that, the found adjustment can at any time be manually optimized by **Clip/ Gain** or **Clean up/Density**.

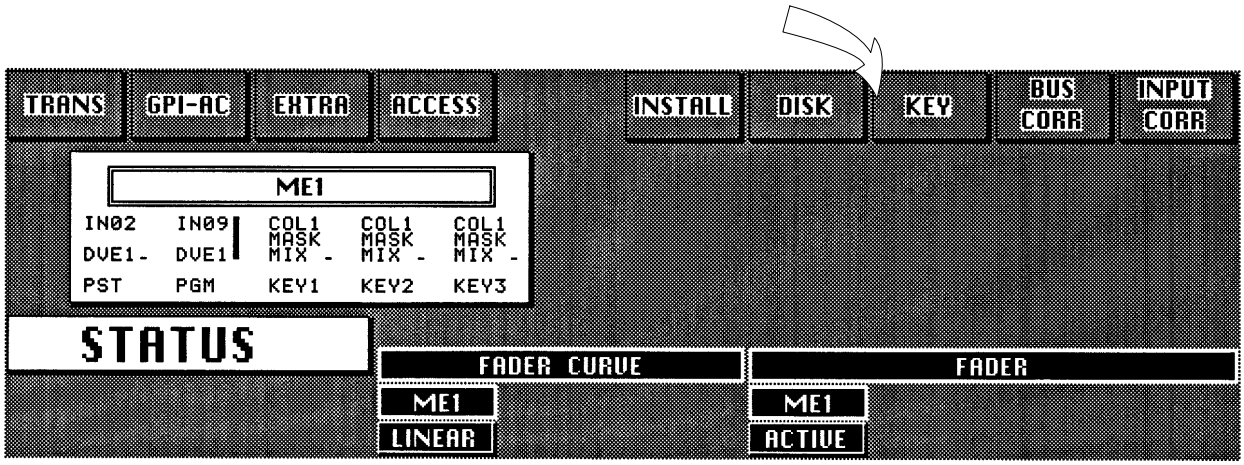
The new *key processor II* overcomes the traditional disadvantage of the Luminance Key that in the Self Key mode, square-distorted edge shapes or erroneously evaluated levels are obtained. Now, a fill signal is generated which has been completely equalized. Thus is ensured that no dark edges are obtained at bright objects. Unproportional darkenings with plane luminance intermediates are not obtained neither.

When, however, by adjustment of **Clip** and **Density**, deviating from adjustment of **Lin** and **Auto**, a relatively dark luminance level is declared to be the foreground level, this will of course also be reproduced, with the effect of fresh dark edges.

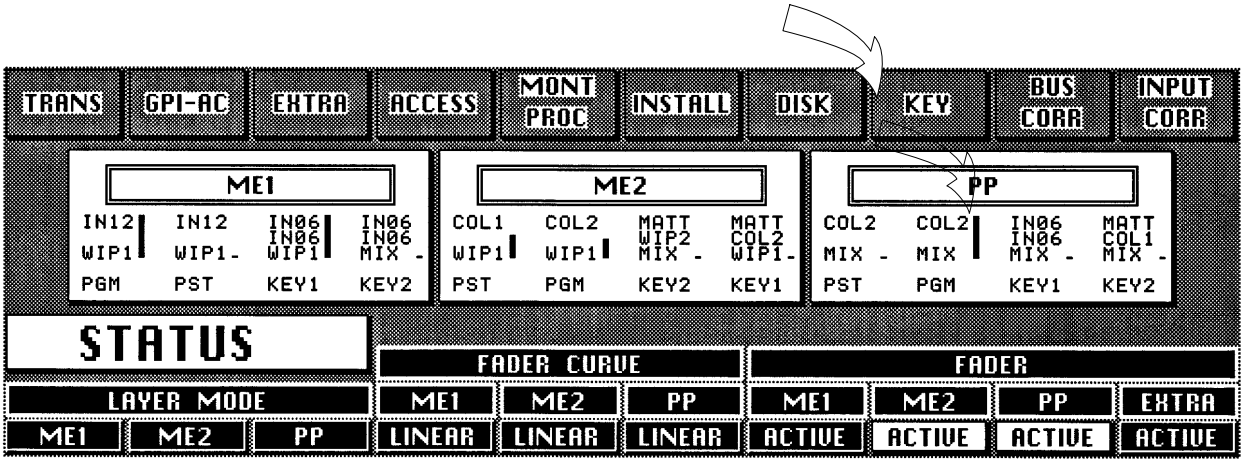
2.8 OPERATION OF THE KEYER MENUS

2.8.1 SELECTION OF THE KEYER MENUS

The menus of the keyer are selected from the Status menu of the respective mixer. If the **Auto Menu** function is activated in the Installation menu of the control panel, pressing a key in the Keyers panel also switches to the associated keyer menu.



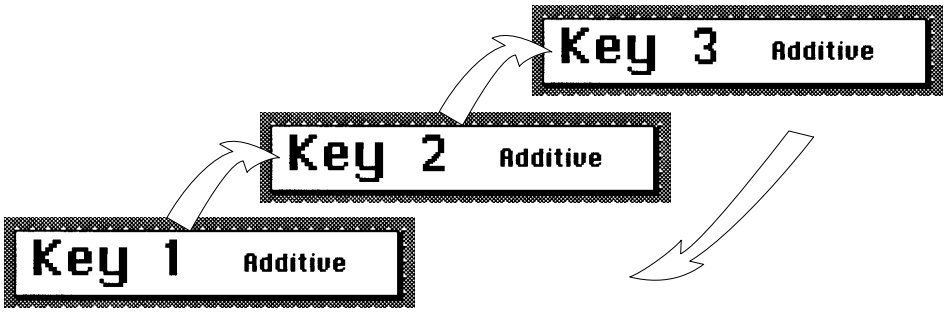
Status menu Diamond digital DD10



Status menu Diamond digital DD20 / DD30

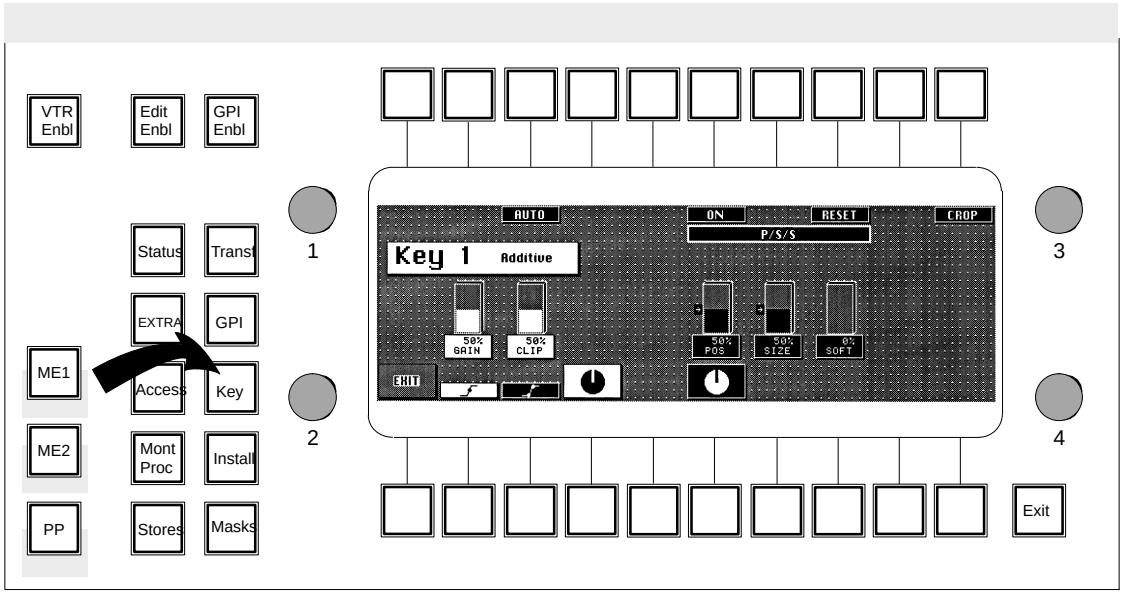
2.8.2 SELECTION OF THE KEYER ON DD10

For selecting the different keyers, the menu provides a cursor–sensitive switch area. Touching this switch area cyclically calls the next keyer in the menu. If the **Auto Menu** function is activated, pressing a key in the Keyers panels also switches to the associated menu when one of the key types **Add**, **Lum**, **Lin**, **Lum** or **ChrKey** is selected.

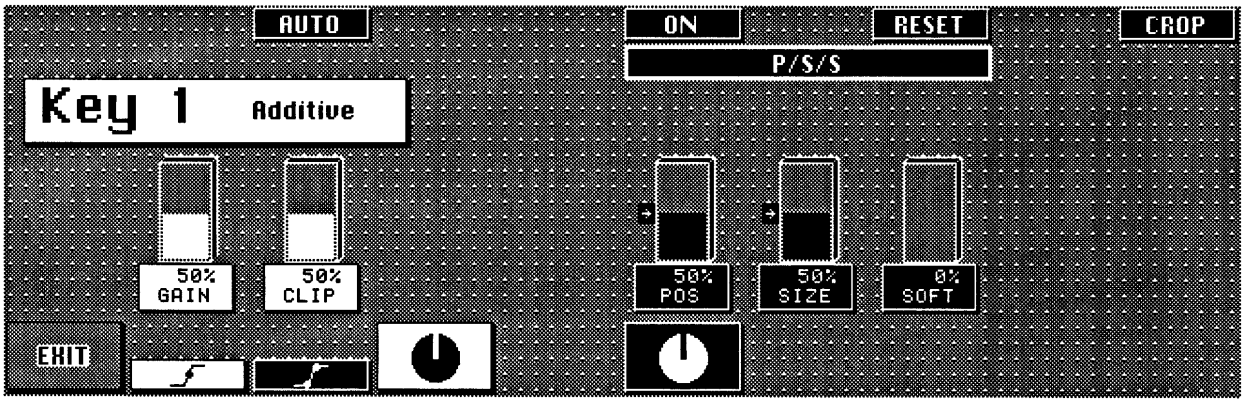


2.8.3 SELECTION OF THE KEYER ON DD20 / DD30

The Keyer key of the menu selection key block serves to select the different keyers in the menu. Repeated pressing cyclically calles the menus.



2.8.4 POSITIONING SIZING SOFTENING P/S/S



These three functions are available in the **Lum/Add key** and **FG Fade** modes, not in the DynaChrome.

Attention: *When selecting P/S/S in the **DynaChrome** mode, the chromakey procedure automatically switches to **FG Fade** (quality loss)! When selecting P/S/S in the **Lum Self Key** mode, the fill linearization is automatically ommitted for the luminance key procedure (quality loss)!*

All P/S/S parameters are stored in the KEY MEMORY, independent of the key type. With **RESET**, all P/S/S parameters are reset. When starting an automatic key adjustment (AKA), all P/S/S parameters are switched to **OFF**, but will be preserved.

Positioning

The setting range amounts to +/ – 8 pixels with a smallest increment of 1/8 subpixel. A positive Positioning shifts the key signal with regard to the fill signal to the right.

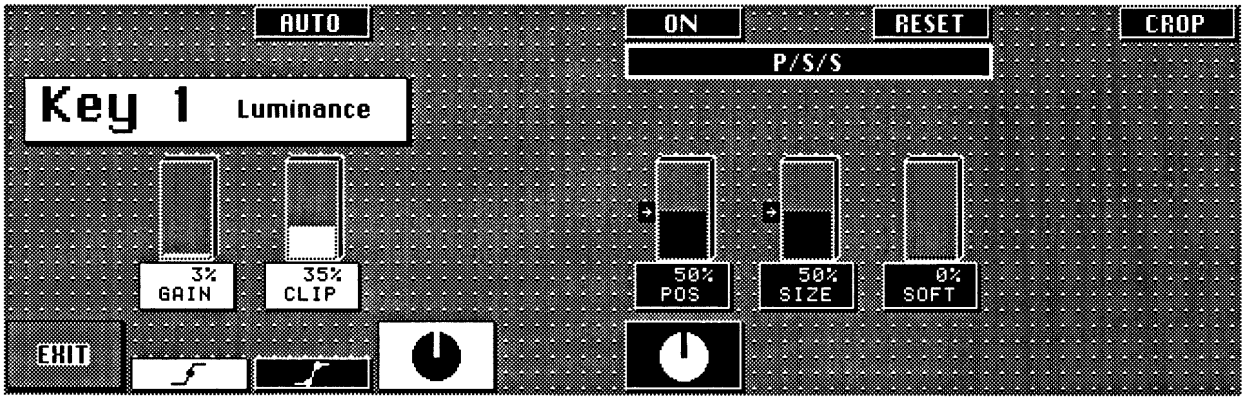
Sizing

The setting range amounts to +/ – 8 pixels with a smallest increment of 1/4 subpixel with all permitted key types. A positive sizing extends the key signal, thus reducing the foreground objects. By this way, incorrect object edges can be removed. However, foreground details will also disappear more and more.
A negative sizing increases the foreground object around the object edges. Dark or key-colored object edges are added.

Softening

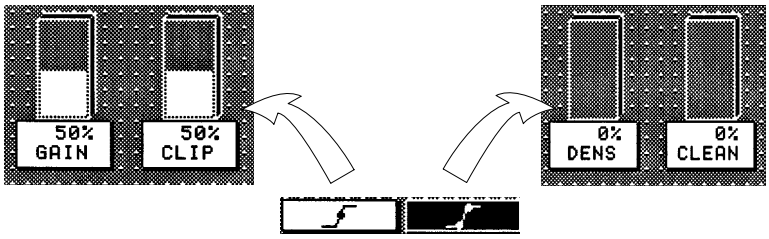
The key signal is filtered with an adjustability of 10 steps. Object edges and details are softened.

2.8.5 CLEANUP / DENSITY UND CLIP / GAIN



Each key type provides the possibility of processing the key signal according to this method or that one. Each imaginable result can be obtained by both methods, but depending on the purpose, this method or that one succeeds faster. The selection, however, should be made prior to the adjustment procedure – subsequent switching will affect the result.

Both methods enhance the characteristic curve of the key signal. The only difference is the invariant center of rotation of the characteristic curve.



Each automatic run resets all four parameters.

Cleanup / Density

This method influences only one end of the key area and keeps the other one invariant.

CLEANUP influences only the area of the background. Key levels are increasingly limited to black, i.e. ”cleaned”. Noise and slight shadows in this area will disappear.

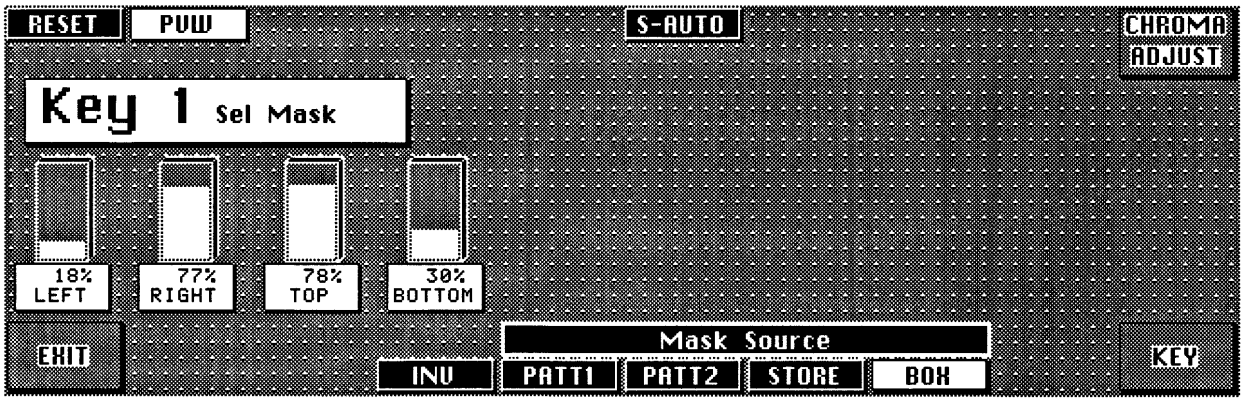
DENSITY influences only the area of the foreground. Key levels are increasingly limited to white to the unity value ”1”, which corresponds to the ”dense” foreground.

Clip / Gain This method influences both ends of the key area and leaves only one selectable, average clip value invariant.

CLIP determines that key signal level in the proximity of which linear, unlimited keying has to be performed (effective only at GAIN > 1).

GAIN determines by gain change the width of the area around CLIP within which linear, unlimited keying has to be performed.

2.8.6 SELECTIVITY MASKING



The menu is available with the two chromaKey modes DynaChrome and FG Fade. Thus, it is possible to select inside a mask area another selectivity than outside the mask. This means, when – due to color conflicts within the picture – no compromise can be found between the density of foreground objects of a certain color and the freedom from fringes of other objects with the same color, the relevant objects can be separated by the mask.

The separation lines remain invisible in the areas of the background. With correct adjustment, they also remain invisible in the areas of the foreground. Only mixed colors at the object edges are then affected.

Method of procedure (only with critical patterns):

- AKA run **AUTO** or **CURS/AUTO**
- First manual optimization of **SEL L** or **SEL R**. Purpose is the object density.
- Adjustment of **SEL C**, **DENSITY** and **CLEAN UP**

If no satisfactory result:

- Call from the Key menu of the **SEL MSK** (mask menu) and selection of the Mask Source
- Check in the PVW position of the mask
- Call the automatic selectivity adjustment **S–AUTO** or call the menu **Chroma Adjust** and manually adjust **Selectivities–I** (inside the mask) and **Selectivities–O** (outside the mask).

SEL MASK Menu

1. Call from the Key menu with **SEL MSK**.
   Simultaneously, SelMasking and SelMasking Preview PRV is switched on.
2. or from the **Chroma Adjust** menu with **SEL MASK**

RESET resets the box mask to a visible, medium size and position.

PVW switches the selectivity mask to the preview output.

S-AUTO starts an automatic selectivity procedure inside and outside the mask. Depending on the quality of the pattern and on the size of the mask, a subsequent manual optimization may be required (menu Chroma Adjust).

Mask Source Generally, the same mask sources are available as for the KeyMasking mode:

PATT1 PATT2 STORE BOX

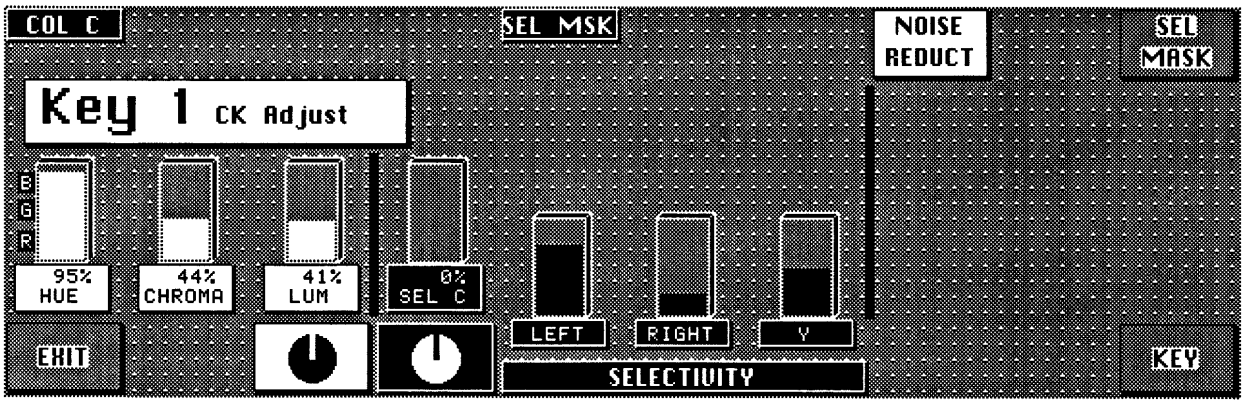
The selection as SelectivityMasking or KeyMasking is alternatively, i.e. the selection of **PATT1** as **SEL MASK** might influence an earlier selection of **PATT1** as **KEY MASK**.

INV inverts the selected mask.

BOX activates the adjustment possibility for the edges of the mask:

LEFT RIGHT TOP BOTTOM

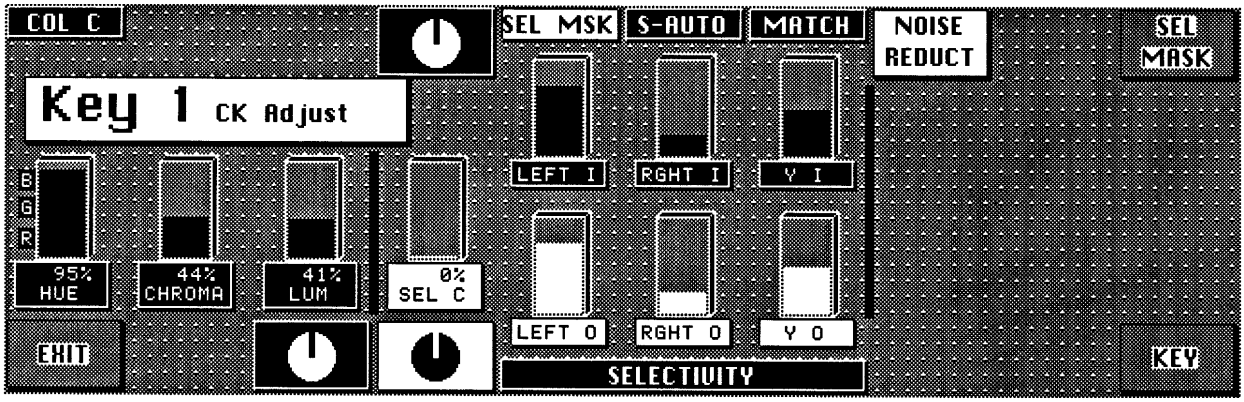
2.8.7 CHROMA KEY ADJUST MENU



HUE,
CHROMA and ***LUM*** Display and adjustment of the key color parameters.

SEL-C,
LEFT, ***RGHT*** and ***Y*** Display and adjustment of the selectivity parameters.

After selecting **SEL MSK**, **LEFT**, **RIGHT** and **Y** are divided into two parameter sets which now can be separately adjusted:



LEFT-O,
RGHT-O and ***Y-O*** corresponds to the outer mask area and remains controllable also in the Chroma Keyers panel.

LEFT-I,
RGHT-I and ***Y-I*** corresponds to the inner mask area.

After an chroma key automatic run, first both sets are identical with the unmasked set **LEFT**, **RGHT** and **Y**. Later deviations can be undone with **MATCH**.

Note: *Masks from the mask store will be lost when switching off the mixer!*

SEL MSK switches the maskability of the selectivity **ON** or **OFF**

MATCH draws the two selectivity sets xxx O and xxx I on the unmasked set **LEFT**, **RIGHT** and **Y**.

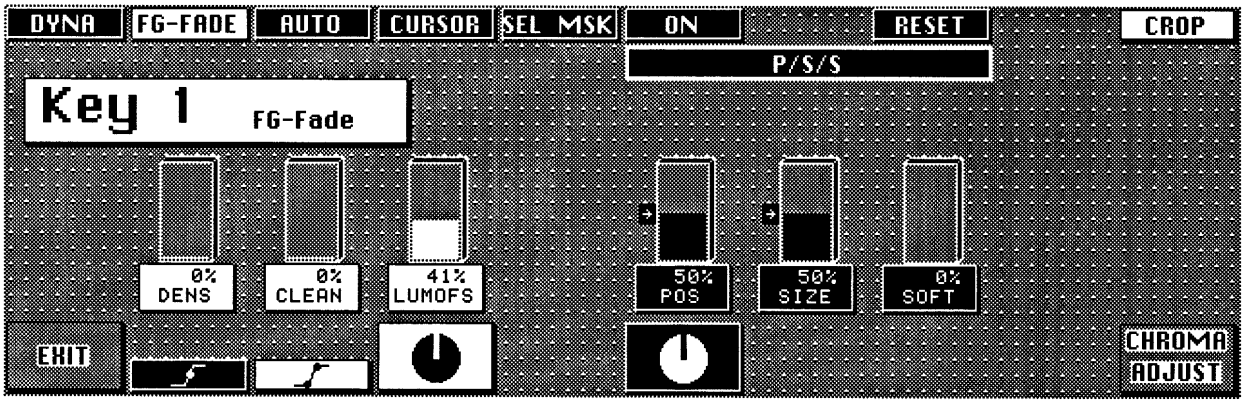
Y Selectivity Y
separates in similar way colors which should not be changed from those which have to be deprived by their key color. Influencing parameter in this case is however the luminance.

Purpose: *To deprive also the achromatic (light saturated) colors by their key color portion.*
Example: *Yellow hair in front of a blue wall effects gray helos. With Selectivity Y > 50%, the gray helos are increasingly deprived by blue with increasing luminance: they become yellow.*
After every AKA, selectivityY is set by default to 50% (ineffective).

COL C COLOR CANCEL desaturates all colors of the fill signal which lie within a narrow angle range around the key color in the color circle. **COL C** is switched on by default after each automatic run (not **S–Auto**).
While pressing the KeyColor key, the ColorCancel effect is temporarily cancelled so that the adjustability of HUE and CHROMA is improved.

You will find further information in the corresponding sections of the Keyers panels.

2.8.8 FORGROUND FADE-MENU

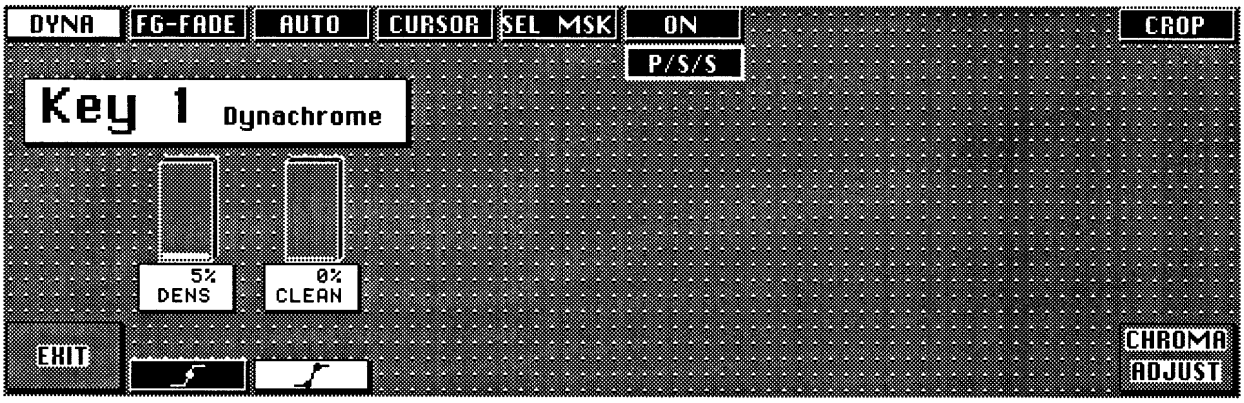


LUMOFS positive luminance offset to the subtractive key color luminance (only in the FG Fade mode).
Raises or lowers the luminance level in the transition areas.
Can be used in order to brighten too dark object edges
or to darken too bright edges, for better matching them to the background scene.

Also see FG Fade in the Keyers panel.

You will find further information in the corresponding sections of the Keyers panels or in the descriptions of the other Keyer menus.

2.8.9 DYNACHROME-MENU



Crop In the activated status, the blanking width of the mixer is changed over to blanking for analog signals. This is necessary if the signals of analogous Sources are derived. The different blanking width result in black bars on the right and left picture edge, i.e. disturbances particularly in the case of key invert.

*Note: Function **Crop** can also be called from other keyer menus.*

You will find further information in the corresponding sections of the Keyers panels or in the descriptions of the other Keyer menus.

2.9 MATTES PANEL

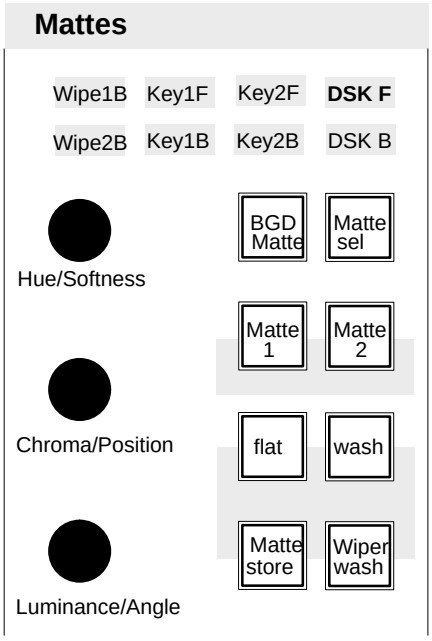
The compact switcher *Diamond digital DD10* includes 7 independent matte generators for designing matte backgrounds, wipe borders, key borders and captions.

MatteWash The **MatteWash** function permits for each matte generator besides flat field colors, extremely soft color wash effects between two optional colors in horizontal, vertical or diagonal direction for picture design.

FractalTextures The new **FractalTexture** function offers new possibilities for effective background designing. The wipe signal of the wipe generator controls color washing between two optional colors of a matte generator.

MatteStore The new **MatteStore**, a volatile store for wipe or key signals, permits creative designing of complex brightness and color wash effects as well as of monochromatic pictures.

WiperWash The **WiperWash** function offers a new possibility for wipe border designing. It is possible to perform color wash effects within the border.



BGD Matte **BGD Matte** enables direct selection of the background matte. The auto delegation system automatically selects the background matte when actuating **BGD Matte** on the background or preset bus.

Matte sel **Matte sel** enables scrolling through the different mattes when the matte suggested by the auto delegation system has to be changed.

When scrolling, the order of the mattes is changed cyclically:

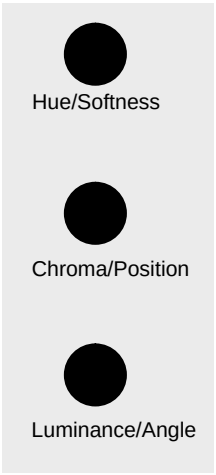
- Wipe1Border,
- Wipe2Border,
- Key1Fill,
- Key1Border,
- Key2Fill,
- Key2Border,
- DSK Fill and
- DSK Border.

Matte 1, Matte 2 **Matte 1** or **Matte 2** key switches on the mattes to adjust the desired colors.

*Note: Please note that in case of unfavorable parameter settings, only one matte will be visible in the **wash** or **Matte store** mode. In this case, we recommend to switch over to the **flat** mode when adjusting the color.*

Adjusting the color:

Hue
Chrominance
Luminance



The **Hue** control adjusts the color. The **Chroma** control adjusts the intensity of the color. The **Luminance** control adjusts the brightness of the color.

Note: Please note that certain combinations of chrominance and luminance values will cause overlevels and illegal colors. For this reason, an automatic control limits for instance the chrominance for defined luminance values.
You can easily check this by setting the chroma control to maximum position and then turning the luminance control slowly to maximum position; the chrominance will be reduced with increasing luminance values.

flat With **flat**, a flat field color can be selected.

wash With **wash**, a color area can be selected, being composed of a color wash between Matte 1 and Matte 2.
If only **wash** lights, it is possible to individually vary color wash with the adequately labeled rotary controls **Softness**, **Position** and **Angle**.
Pressing **Matte 1** or **Matte 2** enables adjustment of the matte using the **Hue**, **Chroma** and **Luminance** controls.

Softness The **Softness** control adjusts the steepness, i.e. the width of the transition range between the two colors.

Position The **Position** control shifts the position of the transition range.

Angle The **Angle** control rotates the angle of the transition range.

Matte store **Matte store** being only effective for the background matte, modulates the color wash effect between Matte 1 and Matte 2 by the wipe signal or key signal selected for the matte store.
For store control see the section ***Stores Panel***.

Wiper wash **Wiper wash** being only active for the wipe border mattes, controls the color wash effect in the wipe border in such a way that a complete washing between the two colors is made in the border. The softness of the transition can be adjusted with the **Softness** control.
The border width can be adjusted with the **Bord** key and the associated rotary control on the **Wipe** panel.
For wipe control see the section ***Wipe Panel***.

Copying mattes

The adjustments of a matte can be easily copied into another matte:

- Press **Input Corr**; the key lamp lights.
- Select with **Matte sel** or **BGD matte** the matte you want to copy.
- Press **Matte 1** or **Matte 2** and hold the key down.
- Select with **Matte sel** or **BGD matte** where you want to copy the adjustments to.
- Release **Matte 1** or **Matte 2**.

2.9.1 LIMITATION OF THE COLOR TRIANGLE

The new color triangle limitation (as from software version ”F”) controls the effects of MATTE settings on

- RGB color triangle
- PAL/NTSC level

It ensures that these limitation regulations are observed but also that the scope is fully exploited. Both regulations are applicable at all times with the stricter regulation prevailing on a case by case basis.
These signals are derived from ME1.

RGB limitation All colors are permitted that do not produce an R, G or B level of > 100% or <0% (this means that about 75% of all conceivable Cb/Cr/Y combinations are not permitted).

PAL/NTSC limitation All colors are permitted as long as the total of luminance and chrominance does not exceed the (adjustable) COL LIMITER level.
If COL LIMITER is set to 133, a PAL/NTSC overlevel of 33 % will admissible but the representation of all RGB values (including a saturated yellow) will be possible. If COL LIMITER is set to 100, a 100 % level will be ensured but certain (yellow) colors will be inadmissible.

Function If in a modification of hue, chroma, or luminance one of the limits is reached, the switcher sends a BEEP signal (can be disabled) and attempts to realise the demanded value at the expense of a different parameter.

- A change in HUE may result in a chrominance correction.
- A change in CHR may result in a luminance correction.
- A change in LUM may result in a chrominance correction.

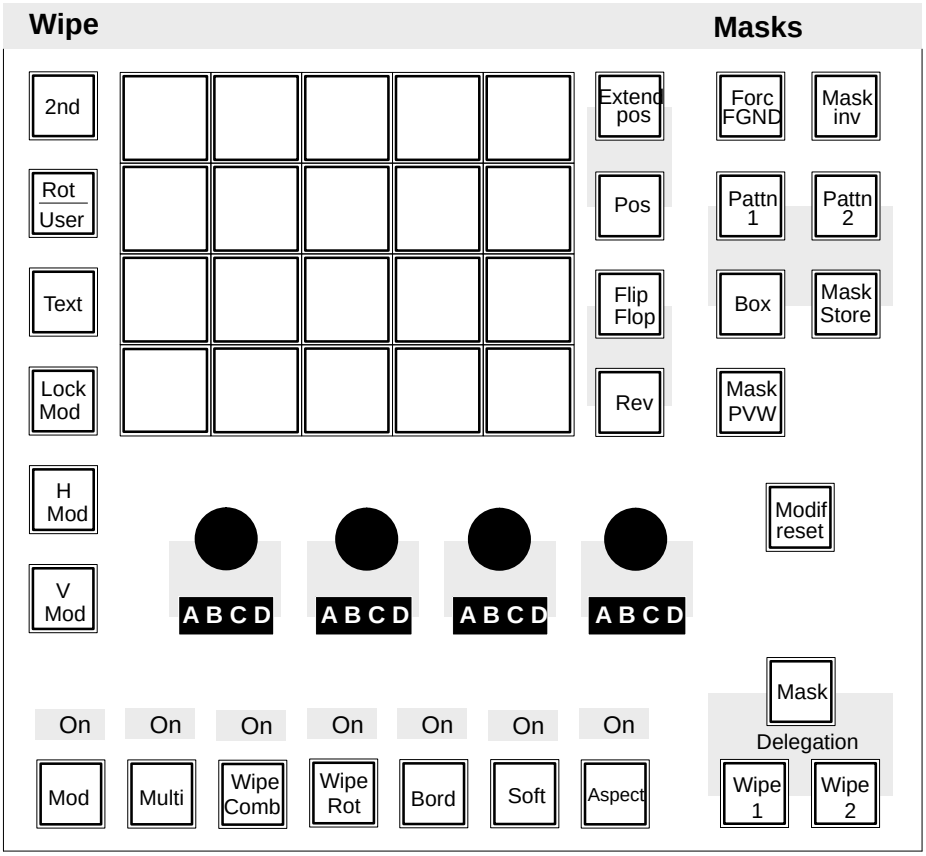
If an absolute limit is reached, no value will change any longer. A maximum chroma may generally be achieved at a medium luminance, i.e. subsequent decreases or increases in LUM will result in a reduction in chrominance.

Limit mode ON/OFF The limit mode simplifies the search for colors with maximum saturation. This mode is enabled, when chrominance is set to maximum.
In subsequent HUE changes, the color follows lines of maximum saturation. For this purpose, both chrominance and luminance are continuously updated automatically. If the chrominance or luminance setting is changed, this mode is disabled again.

Note: *There may be problems if mattes stored in EXTRA under older software versions are recalled and are now confronted with stricter limits (e.g. changed COL LIMITER). To achieve a clear, stable status, we recommend storing the recalled and corrected (if applicable) mattes a second time.*

2.10 WIPE PANEL

The compact switcher *Diamond digital DD10* includes up to two wipe generators which can be optionally used for background or key transitions as well as for designing masks or modulating the background matte.

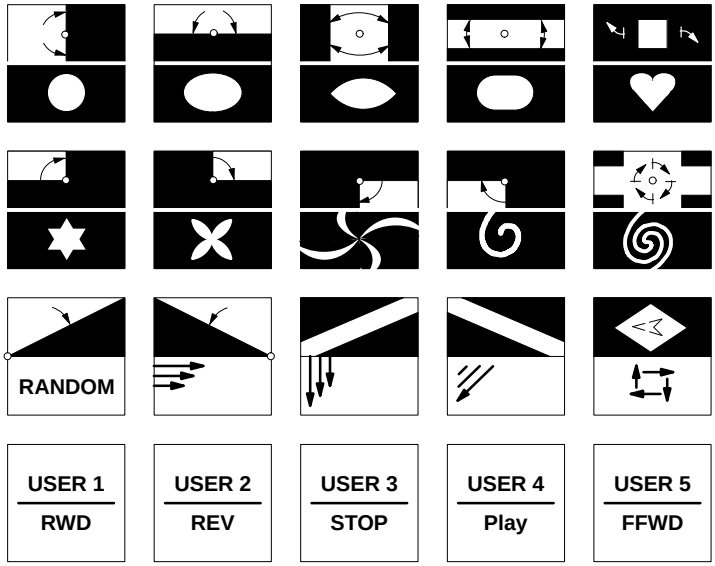


Delegation wipe generator

The delegation keys **Wipe 1**, **Wipe 2** and **Mask** enable switching over the Wipe panel for the different applications. Wipe generator 2 is available as an option only.

Pattern selection

The pattern selection panel enables direct selection of 15 wipe patterns. These patterns are shown in the upper part of the selection key.
15 more patterns can be selected with the **2nd** key. These patterns are shown in the lower part of the selection key.
Further patterns can be selected by actuating the **Rot**ation/**User** key. In this mode, rotation wipes are available in addition to the standard wipe patterns.
The insertable legend plates of the keys show the possible rotation wipes by indicating the center of rotation and the wipe direction.



User-defined wipe patterns (User 1...5)

Beside the standard patterns, the *Diamond digital DD10* offers the possibility of preparing and storing user-defined patterns. A simple stroke of **User 1...5** also selects these patterns directly.

Preadjustment:

- Adjustment of the desired pattern with all its modifications.
- Hold down **Rot/User**.
- Select the desired storage location by pressing one of the **User 1...5** keys.
- Storage is indicated by a short lighting-up of the corresponding User key.

DVE effects

Via an RS 422 remote interface, the mixer can control some functions of defined DVE devices.

These functions are:

- Effect selection
- Positioning within the effect
- Tape motion commands “TMC” (PLAY, STOP, REVERSE, REWIND, FFWD)

DVE	Effect selection	Effect position	TMC	Protocol name	Note
ABEKAS A53D	yes	yes	yes	DVE A53D	Only Port1 connector RS-232
ABEKAS A57	yes	yes	yes	DVE A53D	Only Port1 connector RS-232
AMPEX ADO	yes	yes	–	DVE ADO	
GVG DPM-700	yes	yes	yes	DVE DPM	
QUESTECH CHARISMA	yes	yes	–	DVE CHARIS	Special cable required
PINNACLE PRIZM	yes	yes	–	DVE PRIZM	

Wipe direction

Flip Flop determines the wipe direction. In the activated state, the wipe direction is changed every time the lever is moved to a limit or the transition is completed. **Rev** changes the preset wipe direction.

Pattern positioning

Pos activates the trackball on the Positioner panel. The trackball enables the user to position the center of the selected pattern within the visible picture section.

Note: Please note that some wipe patterns (e.g. matrix wipe patterns) cannot be positioned.

Extend Pos activates the trackball on the Positioner panel. The trackball enables the user to position the center of the selected pattern at any place, even outside the the visible picture section.

Note: Please note that in this mode, the wipe transition may reach its limit before the wipe pattern fully crosses the screen.

Textures

Text enables the user, in connection with the pattern selection keys, to recall internally stored textures and store them in the matte store.
Activating the **Text** key leads the signal of the wipe generator into the matte store which switches off **Freeze.**
As long as **Text** is switched on, the available wipe patterns can be recalled with the pattern selection keys, which can be individually changed with the modifiers **Mod**, **Multi**, **Wipe Comb**, **Wipe Rot**, **Bord**, **Soft** and **Aspect**.
If these changed patterns have to be constantly used in future, they can be stored as follows:

- Press the **Rot/User** key and hold it down,
- press the desired key on the pattern selection keyboard.

When switching off **Tex**t, the matte store is frozen and the pattern adjusted before switching on Text, is restored.

Note: Please note that the textures are only possible with the wipe generator of mixing level ME1.

Tips: Fading is possible with almost all textures.

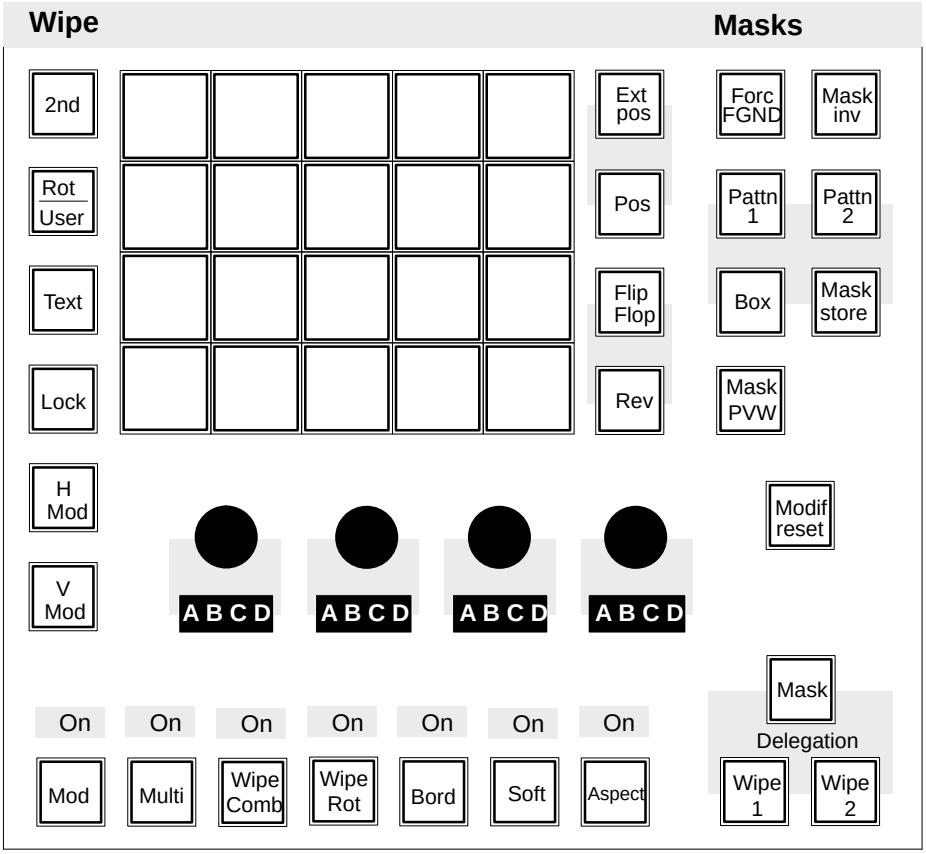
The currently adjusted pattern can be stored as user pattern and is then also available outside the texture mode. In the opposite way, the user patterns can also be recalled in the texture mode.

Especially beautiful patterns obtained when playing with the wipe generator can be stored as a texture as follows:

- *Store the pattern as a user pattern*
- *Activate the Text key*
- *Recall the user pattern*
- *Store the pattern as a texture*

The texture patterns are contents of the RAM-Files TEXTURES. This file can be stored individually or as a part of ”User-Data” or ”All setups” on a disk, or be read off the disk. See the section ***Disk and File Menu****.*

Wipe modifier



By means of the modifier keys **Mod**, **Multi**, **Wipe Comb**, **Wipe Rot**, **Bord**, **Soft** and **Aspect**, the standard wipe patterns can be changed and even new patterns can be created by combinations of patterns.

Modif reset switches off the enabled modifiers all at once and resets them to normal position.

The modifiers are switched on and off by pressing the key, the respective function being controlled by the controls located above. Function and number of the controls vary in dependence on the selected modifier.
The adjustments of the modifiers are mutually exclusive. The state is indicated by the **On** display above the key. The key lamps show the modifier that the controls are assigned to.
When switching among the individual modifiers, the adjusted values are automatically stored and again available when recalling.

Mod

Mod activates wipe edge modulation.
The following adjustments are possible:

AMPL	Modulation amplitude
SPD	Modulation speed
MULT	Modulation frequency
SHAP	Modulation shape (square, triangle, sinewave)

Beside these adjustment possibilities, the wipe edge modulation can be also influenced with the following keys:

H Mod	Horizontal wipe edge modulation only
V Mod	Vertical wipe edge modulation only
Lock Mod	Modulation is locked, i.e. the modulation is not free-running, but the modulation edge will appear to be stationary on the screen

Multi

Multi activates wipe pattern multiplication.
The following adjustments are possible:

H	Horizontal multiplication
V	Vertical multiplication
O	Multiplication in radial direction, for closed wipe patterns only (e.g. circle)
X	Number of star points for star wipe and flower

Wipe Comb

Wipe Comb combines two different wipe patterns (main pattern and combined pattern).

Pressing the **Wipe Comb** key repeatedly enables selection of the following combinations:

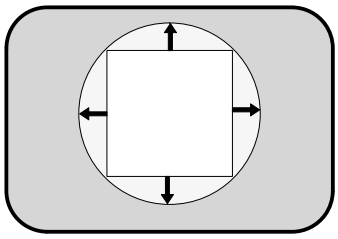
MIX	Multiplicative mixing of two patterns
NAM	Non-additive mixing of two patterns

The controls enable the user to adjust the variety of combinations. In the NAM mode, another combination can be achieved by a different sense of rotation.
Selection of the main pattern is made on the pattern selection panel with the **Wipe Comb** function *switched off*. Selection of the combined pattern is made on the pattern selection panel with the **Wipe Comb** function *switched on*. In the wipe comb mode, the keys of both involved patterns are lit on the pattern selection panel.

Example for application:

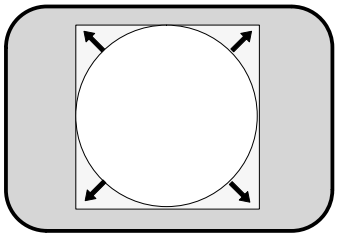
MIX

Circle + square



NAM

Circle + square



Note: Please note that not all combinations are possible.
Locked are
- *wipe patterns with the same basic patterns,*
- *wipe patterns already being combined patterns,*
- *wipe patterns having their origin or center of rotation in a picture corner or at the picture edge.*

Wipe Rot **Wipe Rot** activates wipe pattern rotation.
Pressing the key repeatedly, cyclically provides the following adjustment possibilities:

ANGL	Adjustment of a fixed rotation angle
SPD	Adjustment of the rotation speed
COUP	Rotation angle depends on the fader position. The number of rotations can be selected with the control.

Bord **Bord** activates wipe pattern bordering.
The following adjustments are possible:

WIDT	Adjustment of the border width. The border width can be adjusted by cw or ccw rotation. When the border is adjusted with Opac transparent, the sense of rotation of the border width adjustment can determine the picture component to be seen in the border.
OPAC	Adjustment of the border transparency

If the **Soft** modifier has been also selected, the following adjustment possibilities are additionally available:

SOFT	Adjustment of the border softness
SYM	Adjustment of the softness symmetry

Soft **Soft** adjusts the softness of the wipe edge.
The following adjustments are possible:

SOFT Adjustment of the softness width

If the **Bord** modifier has been also selected, the following adjustment possibilities are additionally available:

WIDT Adjustment of the border width. The border width can be adjusted by cw or ccw rotation.
When the border is adjusted with Opac transparent, the sense of rotation of the border width adjustment can determine the picture component to be seen in the border. Clockwise rotation.
OPAC Adjustment of the border transparency
SYM Adjustment of the softness symmetry

Aspect **Aspect** adjusts the aspect ratio of the wipe pattern.
The following adjustments are possible:

H-ST Stretch in horizontal direction
V-ST Stretch in vertical direction
RATio By cw or ccw rotation, stretching can be made in horizontal or vertical direction

Note: Please note that in the stretch mode, a linear piece is inserted into the wipe pattern. In the ratio mode, the H:V aspect ratio is changed. Also note the border widths in the stretch and ratio modes.

Copying wipe settings

The settings of one wipe generator can be easily copied to the other one.

- Press **Input Corr**; the key lamp lights.
- Select with the delegation keys **Wipe 1** or **Wipe 2** the wipe generator you want to copy.
- Select with the other delegation key the wipe generator you want to copy the-setting to. All settings will be transferred to the selected wipe generator.

SIZE

When using the wipe generator for another function than for background transition, the size of the pattern can be adjusted with the **SIZE** control.
When enabling control of a modifier, the **SIZE** function is disabled.

The **SIZE** function can be re-activated by

– disabling the respective modifier selection and
– pressing the delegation key for the respective wipe.

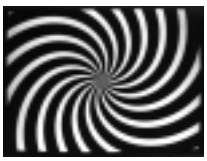
2.10.1 WIPE SELECTION CODE FOR CONTROL PANEL AND EDITOR OPERATION

The enclosed list contains all wipe patterns available in the switcher together with their specific wipe number (in line with SMPTE). The table also indicates which modifiers are possible with the individual wipe patterns.

All wipe patterns that cannot be directly selected with the wipe selection keypad may be recalled with a register selection in the EXTRA panel.

The register number to be selected is the listed SMPTE wipe number plus **200**.

Example: Selection of wipe no **138** (= register **338**)



No EXTRA function selected.
Enter register no. **338**.
Press **Enter**.
Wipe pattern is recalled.
The wipe pattern may subsequently be stored as a user wipe and is thus directly available by simple key actuation.

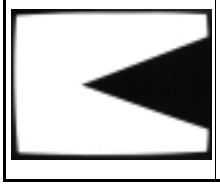
Note: For DD5 switchers only the basic pattern can be used!

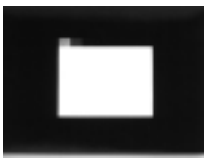
Note: SOFTNESS and BORDER is possible with all patterns.

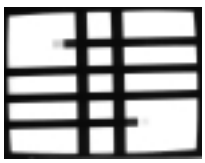
Wipe	SMPTE Wipe No. (Wipe No for SONY Editors)	Fraktal or not comb	Matxix wipe	Sensetive for 16/9	–	X-Multi	Ratio	Position	H-Modulation	V-Modulation	H-Multi	V-Multi	Rotation	H-Stretch	V-Stretch	O-Multi
	**01**								●		●					
	**02**									●		●				
	**03**	●					●		●	●	●	●		●	●	●
	**04**	●					●		●	●	●	●		●	●	●
	**05**	●					●		●	●	●	●		●	●	●
	**06**	●					●		●	●	●	●		●	●	●
	**07**	●		●			●	●	●	●	●	●	●			

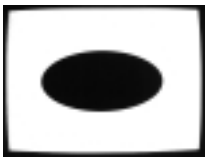
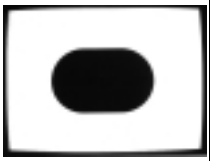
Wipe	SMPTE Wipe No. (Wipe No for SONY Editors)	Fraktal or not comb	Matxix wipe	Sensetive for 16/9	–	X-Multi	Ratio	Position	H-Modulation	V-Modulation	H-Multi	V-Multi	Rotation	H-Stretch	V-Stretch	O-Multi
	**09**			●			●	●	●	●	●	●	●	●	●	●
RECALL OFF USER WIPE 1 FROM EDIT SYSTEM	**10**															
RECALL OFF USER WIPE 2 FROM EDIT SYSTEM	**11**															
RECALL OFF USER WIPE 3 FROM EDIT SYSTEM	**12**															
RECALL OFF USER WIPE 4 FROM EDIT SYSTEM	**13**															
RECALL OFF USER WIPE 5 FROM EDIT SYSTEM	**14**															
	**20**			●			●	●	●	●	●	●	●	●	●	●
	**21**							●	●		●					

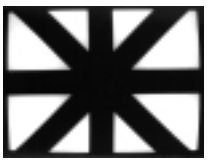
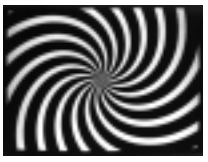
Wipe	SMPTE Wipe No. (Wipe No for SONY Editors)	Fraktal or not comb	Matxix wipe	Sensetive for 16/9	–	X-Multi	Ratio	Position	H-Modulation	V-Modulation	H-Multi	V-Multi	Rotation	H-Stretch	V-Stretch	O-Multi
	**22**							●		●		●				
	**23**	●					●		●	●	●	●		●	●	●
	**24**	●					●		●	●	●	●		●	●	●
	**25**	●					●		●	●	●	●		●	●	●
	**26**	●					●		●	●	●	●		●	●	●
	**27**						●	●	●	●	●	●	●			
	**28**						●	●	●	●	●	●	●			
	**29**						●	●	●	●	●	●	●			

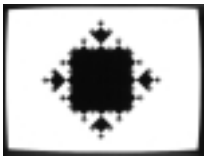
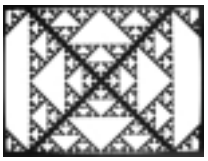
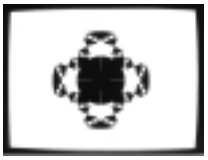
Wipe	SMPTE Wipe No. (Wipe No for SONY Editors)	Fraktal or not comb	Matxix wipe	Sensetive for 16/9	–	X-Multi	Ratio	Position	H-Modulation	V-Modulation	H-Multi	V-Multi	Rotation	H-Stretch	V-Stretch	O-Multi
	**30**						●	●	●	●	●	●	●			
	**41**								●	●	●	●	●			
	**42**								●	●	●	●	●			
	**45**							●	●	●	●		●			
	**46**							●	●	●	●		●			
	**47**	●		●			●	●	●	●	●	●	●			
	**61**	●					●		●	●	●	●		●	●	●
	**62**	●					●		●	●	●	●		●	●	●

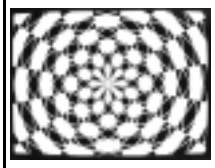
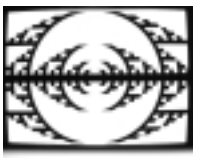
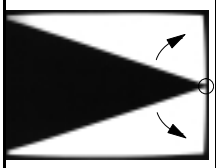
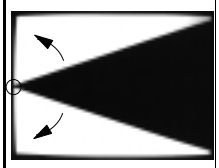
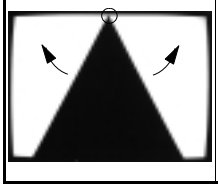
Wipe	SMPTE Wipe No. (Wipe No for SONY Editors)	Fraktal or not comb	Matxix wipe	Sensetive for 16/9	–	X-Multi	Ratio	Position	H-Modulation	V-Modulation	H-Multi	V-Multi	Rotation	H-Stretch	V-Stretch	O-Multi
	**63**	●					●		●	●	●	●		●	●	●
	**64**	●					●		●	●	●	●		●	●	●
	**80**		●								●	●				
	**81**		●								●	●				
	**82**		●								●	●				
	**83**		●								●	●				
	**85**		●								●	●				
	**86**		●								●	●				

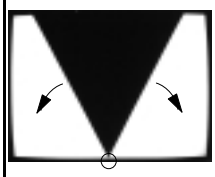
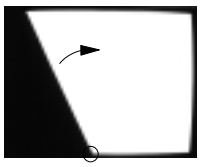
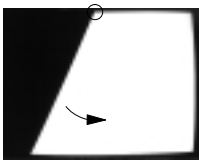
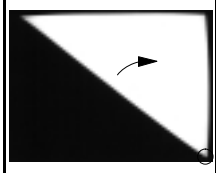
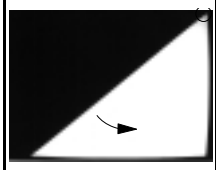
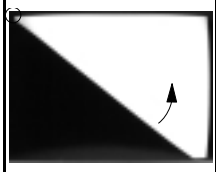
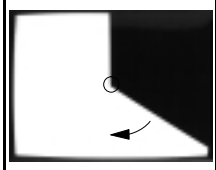
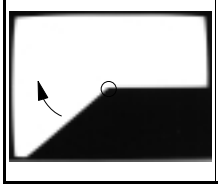
Wipe	SMPTE Wipe No. (Wipe No for SONY Editors)	Fraktal or not comb	Matxix wipe	Sensetive for 16/9	–	X-Multi	Ratio	Position	H-Modulation	V-Modulation	H-Multi	V-Multi	Rotation	H-Stretch	V-Stretch	O-Multi
	**87**		●								●	●				
	**88**		●								●	●				
	**89**		●								●	●				
	**92**		●								●	●				
	**93**		●								●	●				
	**94**		●								●	●				
	**95**		●								●	●				
	**100** **(99)**	●					●	●	●	●	●	●	●			

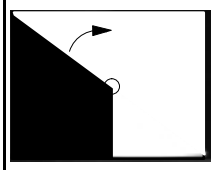
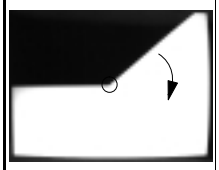
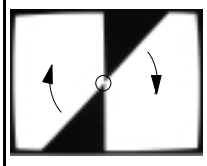
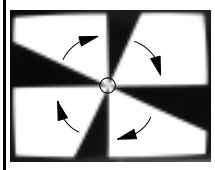
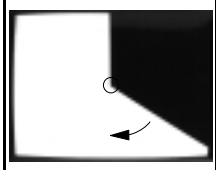
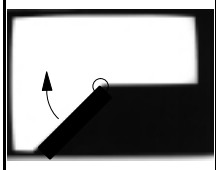
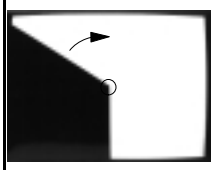
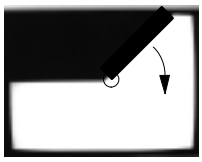
Wipe	SMPTE Wipe No. (Wipe No for SONY Editors)	Fraktal or not comb	Matxix wipe	Sensetive for 16/9	–	X-Multi	Ratio	Position	H-Modulation	V-Modulation	H-Multi	V-Multi	Rotation	H-Stretch	V-Stretch	O-Multi
	**101 (69)**						●	●	●	●	●	●	●	●	●	●
	**102 (96)**						●	●	●	●	●	●	●	●	●	●
	**103 (97)**	●		●			●	●	●	●	●	●	●	●	●	●
	**110 (98)**	●					●	●	●	●	●	●	●	●	●	●
	**119 (49)**			●			●	●	●	●	●	●	●	●	●	●
	**120 (50)**			●			●	●	●	●	●	●	●	●	●	●
	**122**	●					●	●	●	●	●	●	●	●	●	●
	**124 (70)**			●			●	●	●	●	●	●	●	●	●	●

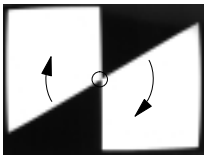
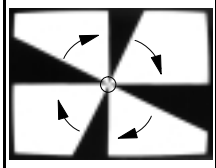
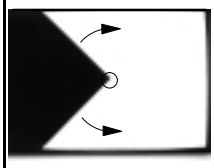
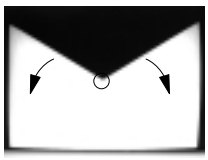
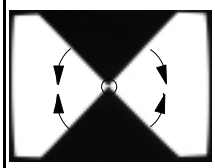
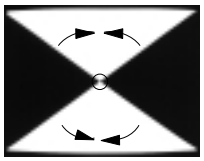
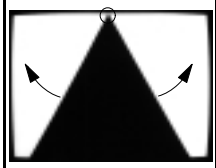
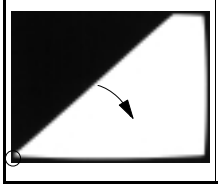
Wipe	SMPTE Wipe No. (Wipe No for SONY Editors)	Fraktal or not comb	Matxix wipe	Sensetive for 16/9	–	X-Multi	Ratio	Position	H-Modulation	V-Modulation	H-Multi	V-Multi	Rotation	H-Stretch	V-Stretch	O-Multi
	**130**	●		●				●	●	●	●	●				●
	**132**	●		●		●	●	●	●	●	●	●	●	●	●	●
	**133**	●		●		●	●	●	●	●	●	●	●	●	●	●
	**134**	●		●			●	●	●	●	●	●	●	●	●	
	**135**	●		●			●	●	●	●	●	●	●	●	●	
	**136**	●		●			●	●	●	●	●	●	●	●	●	
	**137**	●		●		●	●	●	●	●	●	●	●	●	●	
	**138**	●		●			●	●	●	●	●	●	●	●	●	

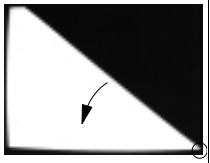
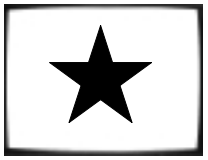
Wipe	SMPTE Wipe No. (Wipe No for SONY Editors)	Fraktal or not comb	Matxix wipe	Sensetive for 16/9	–	X-Multi	Ratio	Position	H-Modulation	V-Modulation	H-Multi	V-Multi	Rotation	H-Stretch	V-Stretch	O-Multi
	**140**	●		●			●	●	●	●	●	●	●	●	●	●
	**141**	●		●			●	●	●	●	●	●	●	●	●	●
	**142**	●		●			●	●	●	●	●	●	●	●	●	●
	**143**	●		●		●	●	●	●	●	●	●	●	●	●	●
	**144**	●		●		●	●	●	●	●	●	●	●	●	●	●
	**145**	●		●		●	●	●	●	●	●	●	●	●	●	●
	**146**	●		●		●	●	●	●	●	●	●	●	●	●	●
	**147**	●		●		●	●	●	●	●	●	●	●	●	●	●

Wipe	SMPTE Wipe No. (Wipe No for SONY Editors)	Fraktal or not comb	Matxix wipe	Sensetive for 16/9	–	X-Multi	Ratio	Position	H-Modulation	V-Modulation	H-Multi	V-Multi	Rotation	H-Stretch	V-Stretch	O-Multi
	**148**	●		●		●	●	●	●	●	●	●	●	●	●	●
	**149**	●		●			●	●	●	●	●	●	●	●	●	●
	**150**	●		●			●	●	●	●	●	●	●	●	●	●
	**151**	●		●			●	●	●	●	●	●	●	●	●	●
	**152**	●		●			●	●	●	●	●	●	●	●	●	
	**182 (58)**	●							●	●	●	●				
	**183 (60)**	●							●	●	●	●				
	**184 (57)**	●							●	●	●	●				

Wipe	SMPTE Wipe No. (Wipe No for SONY Editors)	Fraktal or not comb	Matxix wipe	Sensetive for 16/9	–	X-Multi	Ratio	Position	H-Modulation	V-Modulation	H-Multi	V-Multi	Rotation	H-Stretch	V-Stretch	O-Multi
	**185** **(59)**	●							●	●	●	●				
	**186**	●							●	●	●	●				
	**187**	●							●	●	●	●				
	**188**	●							●	●	●	●				
	**189**	●							●	●	●	●				
	**190**	●							●	●	●	●				
	**191** **(51)**					●		●	●	●	●	●	●			
	**192** **(52)**					●		●	●	●	●	●	●			

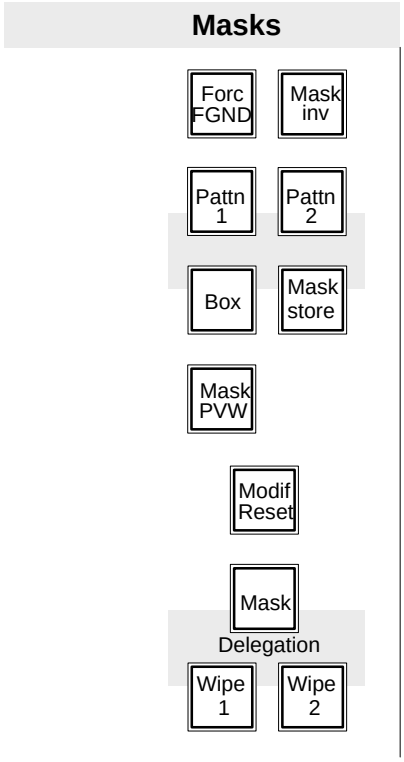
Wipe	SMPTE Wipe No. (Wipe No for SONY Editors)	Fraktal or not comb	Matxix wipe	Sensetive for 16/9	–	X-Multi	Ratio	Position	H-Modulation	V-Modulation	H-Multi	V-Multi	Rotation	H-Stretch	V-Stretch	O-Multi
	**193 (53)**					●		●	●	●	●	●	●			
	**194 (54)**					●		●	●	●	●	●	●			
	**195 (56)**					●		●	●	●	●	●	●			
	**196**					●		●	●	●	●	●	●			
	**201**					●		●	●	●	●	●	●			
	**202**					●		●	●	●	●	●	●			
	**203**					●		●	●	●	●	●	●			
	**204**					●		●	●	●	●	●	●			

Wipe	SMPTE Wipe No. (Wipe No for SONY Editors)	Fraktal or not comb	Matxix wipe	Sensetive for 16/9	–	X-Multi	Ratio	Position	H-Modulation	V-Modulation	H-Multi	V-Multi	Rotation	H-Stretch	V-Stretch	O-Multi
	**205**					●		●	●	●	●	●	●			
	**207**					●		●	●	●	●	●	●			
	**210**					●		●	●	●	●	●	●			
	**211**					●		●	●	●	●	●	●			
	**213**					●		●	●	●	●	●	●			
	**214**					●		●	●	●	●	●	●			
	**235**	●							●	●	●	●				
	**244**	●							●	●	●	●				

Wipe	SMPTE Wipe No. (Wipe No for SONY Editors)	Fraktal or not comb	Matxix wipe	Sensetive for 16/9	–	X-Multi	Ratio	Position	H-Modulation	V-Modulation	H-Multi	V-Multi	Rotation	H-Stretch	V-Stretch	O-Multi
	**247**	●							●	●	●	●				
 Only with wipe processor hardware index 12 or higher	**128** **(75)**	●		●		●	●	●	●	●	●	●	●	●	●	●

2.11 MASKS PANEL

The compact switcher *Diamond digital DD10* has extensive masking capabilities by means of which also difficult picture patterns can be corrected. For the keyers, square masks are available. Alternatively, also the wipe patterns of the wipe generator can be used for masking. The volatile mask store offers new ways of masking. A key or pattern signal can be stored. The **PaintModeMasking** feature permits creation of own masks which are optimally matched to the individual requirements.

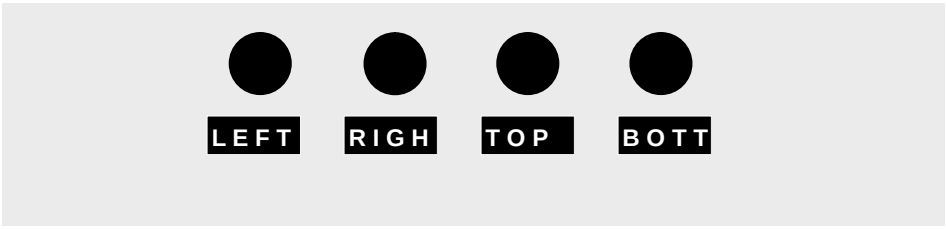


Creating a box mask

The keys **Pattn 1**, **Pattn 2**, **Box** and **Mask store** enable selection of the mask type which has to be used for masking.

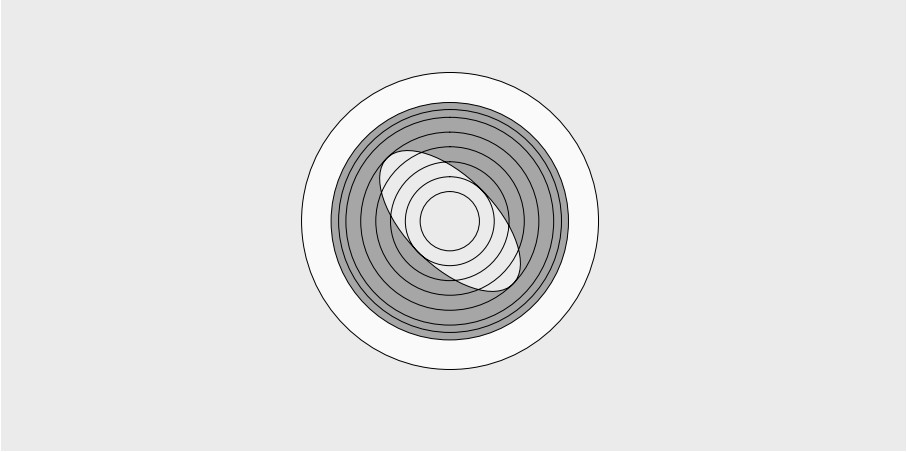
Box

Box selects a square mask for masking. The size of the mask can be adjusted with the four controls **LEFT**, **RIGH**T, **TOP** and **BOTT**OM on the Wipe panel.



Adjusting the mask position

With the trackball on the Positioner panel, the mask can be optionally positioned. See the section ***Positioner Panel***.

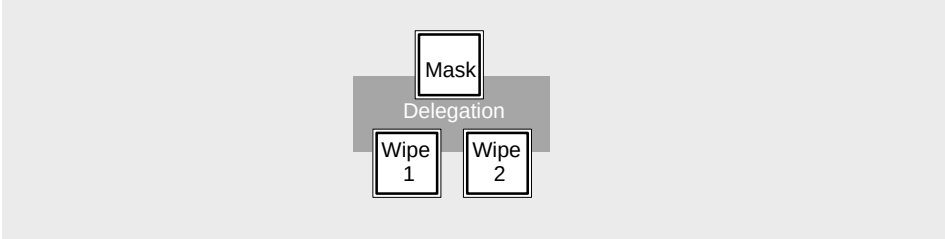


Modif Reset

Pressing **Modif Reset** generates a box mask in the picture center having the size 1/3H and 1/3V.

Delegation

The auto delegation system automatically switches over the Wipe panel to mask control when pressing **Box**. Switchover of the Wipe panel can be also performed by pressing **Mask** on the Delegation panel.



Creating a wipe mask

Pattn 1, Pattn 2

Using **Pattn 1** or **Pattn 2**, one of the wipe generators can be selected for masking. The wipe pattern can be directly selected with the wipe selection keys on the Wipe panel. The size of the wipe pattern can be adjusted with the **SIZE** control on the Wipe panel.

The wipe mask can be positioned with the trackball on the Positioner panel. For this purpose, previously activate **Pos** on the Wipe panel.
The wipe mask can be optionally positioned in the picture.

Further details about wipe pattern control are contained in the section ***Wipe Panel***.

Note: Please note that the wipe generators can be used at the same time for different applications which may interact with one another.

Mask store

Mask store selects the mask store as a mask source. The auto delegation system automatically switches over the Stores panel to mask store control.
Further details about store control and **PaintModeMasking** are contained in the section ***Stores Panel***.

Forc FGND

Pressing the assiciated function key permits to select whether the mask suppresses (masked) or forces the foreground picture. When the key lights, forced foreground is activated.

Mask inv

Mask inv inverts the mask signal.
With a square mask, for instance, the contents of the square is not used any more for masking but the outer field of the square.

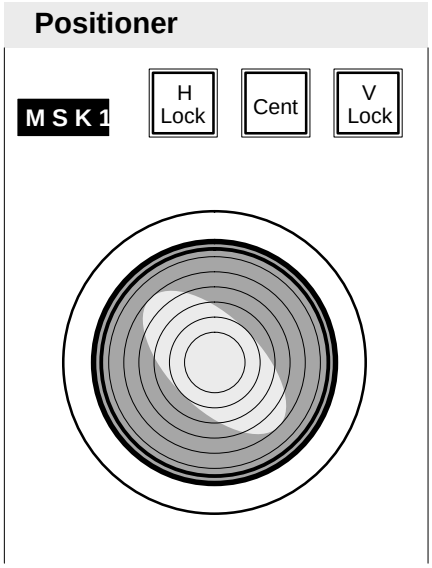
Mask PVW

Pressing the associated function key highlights the mask signal on the preview monitor.
The function serves the adjustment of the mask.

*Note: In the Mask PVW mode, the mask is only represented as 1-bit signal. If you want to exactly position a mask with softness, switch on the mask with the **Mask on** key on the Keyers panel.*

2.12 POSITIONER PANEL

The wipe generators and the mask generators in the compact switcher *Diamond digital DD10* can be sensitively positioned with the trackball. For mask generation with **PaintModeMasking**, the trackball serves to use the cursor as a ”brush” or ”rubber”.



H Lock, V Lock **H lock** and **V lock** permit locking the trackball in H or V direction. Thus, it is possible, for instance, to exactly position a wipe pattern along a horizontal or vertical line.

Note: When both keys are pressed, the trackball is locked.

Center **Center** re-positions the trackball back to the center of the screen.

The display to the left of the keys shows the function which can be influenced with the trackball.

The following displays are possible:

WIP1 **WIP2** **MSK1** **MSK2** **MSK3** **KEY1** **KEY2** **ST1M**

The auto delegation system automatically assigns the trackball to the function used by you. If the trackball has to be assigned to another function, select the corresponding function on the respective panel.

The definition of the trackball can be easily matched in the setup mode to the respective requirements. See the section ***Setup***.

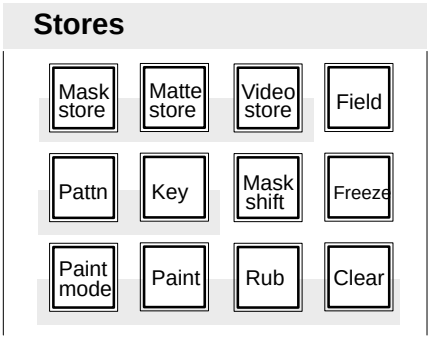
2.13 STORES PANEL

The compact switcher *Diamond digital DD10* includes three volatile stores for video signals and key or mask signals by means of which new effects can be generated without using external units.

Video store enables storing a 4:2:2 video signal which can subsequently be faded in as a freeze picture.

Matte store enables storing a key or wipe signal which can then be used for modulation of the background matte. **Matte store** is also used for storage of *FractalTextures.*

Mask store enables storing a key or wipe signal or creating own masks with **PaintModeMasking**.



Store delegation

The delegation keys **Mask store**, **Matte store** and **Video store** delegate the control functions to one of the three stores.

Field

Field enables selecting for each store separately whether both fields or one defined field should be read out of the store. The key is operable for all stores. Pressing the key repeatedly, cycles though 3 operational states:

For the mask store, also the read-in operation can be switched over to field or frame mode, thus enabling to avoid field flickering when storing.

- FRAME (key lamp off)
- 1st FIELD (key lamp on)
- 2nd FIELD (key lamp on)

Freeze

Freeze enables storing a picture signal. The key lamp is lit in the freeze mode

Note: Please note that a signal is delayed by one frame when passing through the store.

Video store

Storage of a video picture has to be performed as follows:

- Activate **Video store** on the **Aux Bus** and subsequently select a picture source. Beside the input sources, of course also the matte signals or the outputs **Preview** or **Program** can be selected.
- The stored picture signal can be recalled as an input signal on the Source Selection panel using the keys **2nd** and **Video store**.

Matte store

Storage of a background has to be performed as follows:

- Select with **Pattn** or **Key** on the Stores panel the signal type which has to be stored in the matte store.
- For storing a wipe signal, hold down **Pattn** and simultaneously select **Wipe 1** or **Wipe 2** on the Wipe panel. The desired wipe and the modification can subsequently be selected on the Wipe panel.
- If a texture has to be stored in the matte store, press **Text** on the Wipe panel and select a texture with the pattern selection keys.
- In order to assign a key signal as a source to the store, hold down **Key** and simultaneously select the desired keyer with **Key 1**, **Key 2** or **DSK** on the Keyers panel.
  The required adjustments can subsequently be made on the Keyers panel.

Mask store

Storage of a mask has to be performed as follows:

- Select with **Pattn** or **Key** on the Stores panel the signal type which has to be stored in the mask store.
- In order to assign a key signal as a source to the store, hold down **Key** and simultaneously select the desired keyer using **Key 1**, **Key 2** or **DSK** on the Keyers panel.
  The required adjustments can subsequently be made on the Keyers panel.
- For storing a wipe signal, hold down **Pattn** and simultaneously select **Wipe 1** or **Wipe 2** on the Wipe panel. The desired wipe and the modification can subsequently be selected on the Wipe panel.
- **Clear** deletes the contents of the mask store.
- **Mask shift** enables shifting the output picture of the store with the trackball.

PaintMode Masking

For creating an individual mask, preferably use a wipe signal as a brush. For this purpose, select with **Pattn1** or **Pattn2** the corresponding generator.

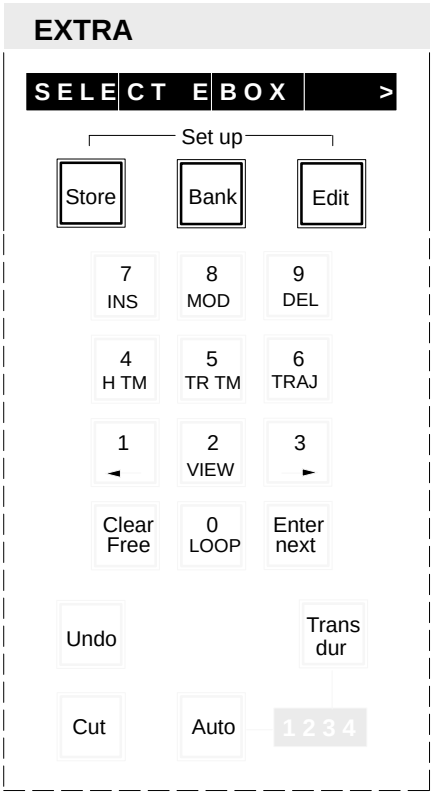
- In order to freely design a mask, recall with **Paint mode** the PaintModeMasking mode. On the preview monitor, the pattern is now displayed as a cursor which can be freely positioned with the trackball.
  Pattern size and modification can be adjusted on the wipe panel.
  The size can be adjusted with the **SIZE** control.
- **Paint** enables the painting procedure and the cursor can be used as a ”brush” for painting.
- **Rub** enables the cursor to be used as a ”rubber” for rubbing out
- **Clear** deletes the contents of the mask store.
- **Mask shift** enables shifting the output picture with the trackball.

When selecting a key signal as a brush, either the key signal can be stored as a still picture or with moving pattern, e.g. camera pan or zoom, a paint mask can be generated.

Note: Storing a key or pattern signal automatically selects the mask store on the Masks panel and enables the Mask PVW mode. The mask is dispayed in the Mask PVW mode as a 1-bit signal only. If you want to exactly position a mask with softness, simply select the associated keyer on the Transition panel and switch the mask on.

2.14 SETUP

With the Set up function you can set the system parameters of the switcher and easily change them for a desired configuration.
Control is made via the 16-digit display on the EXTRA panel and the keys **Store**, **Bank**, and **Edit** located directly below the display as well as via the cursor keys ← and →.



Starting Set up

Simultaneously press **Store** and **Edit** to enable the Set up mode. The keys change their functions:

Store
- Press Store to leave Set up mode.V
- If your are in a sub-loop during set up, you are returned to the main loop.

Bank
- Press Bank to cycle through the set up points of a loop.

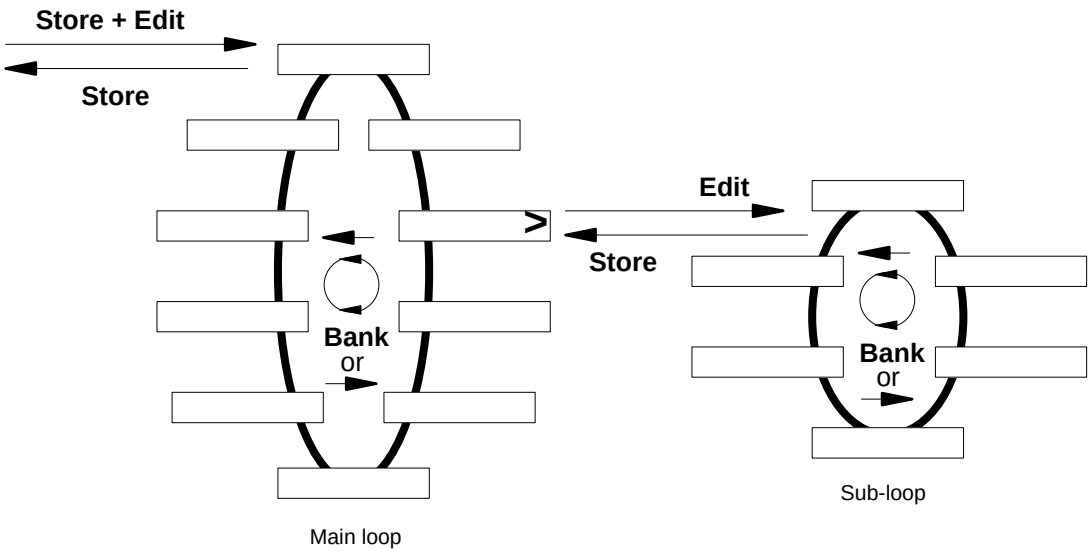
Edit
- Press Edit to select the desired set up adjustment. If a ”>” (please see figure below) appears at the right edge of the display, a sub-loop can be recalled with **Edit**.

→
- Moving to next setup point in a loop.

←
- Moving to previous setup point in a loop.

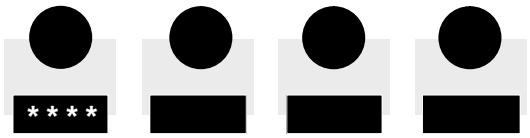
*Note: When the Set up mode is enabled, the **Edit** and **Store** keys must not be active.*

Setup mode with main and sub-loop



Adjusting analog values

If the set up mode requires adjustment of an analog value, one control in the **Wipe panel** is marked with ********. This control can be used to adjust the desired value.



Possible adjustments in Set up mode

SELECT EBOX: >

In the sub-loop all E-Box types in the network can be indicated and then be selected with **Edit**. A selected E-Box is marked with an asterisk.
The E-box has a freely selectable 10-digit name with an extension indicating the unit type (e. g. **D30**).

SELECT ME: >

Only applies to DD5 and DD10 control panel!
In this sub-loop, the control authority may be fixed for individual switcher levels and control functions in a connected *DD20* or *DD30* E-box:

SEL.ME1: f mtwwkk
SEL.ME2: f mtwwkk
SEL.PP: f mtwwkk

With the first actuation of the **Edit** key, the control panel is assigned the control authority for the following functional groups:

m	matrix
t	transition
w	wipe1
w	wipe2
k	key1
k	key2

The display **mtwwkk** changes to capital letters **MTWWKK**.
With the second actuation of the **Edit** key, the control panel is also assigned the control authority of the fader (indication **f**). The display **f** changes to **F**.
The control authority may only be revoked in the ACCESS menu of the switcher.

CLEAN FEED OUT. 1

The content of the CLEAN FEED output is selectable using SETUP item **CLEAN FEED OUT**.

The following table shows which signals **are included** in CLEAN FEED:

CLEAN FEED OUT	**DD5**	**DD10**	**DD20 DD30**	**DD20 / DD30 PP = Layered**
1	BGD	BGD	BGD	1 layer from bottom (normally BGD-A)
2	BGD + under key	BGD + under key	BGD + under key	2 layers from bottom (normally BGD-A + BGD-B)
3	BGD + under key + over key	BGD + under key + over key	BGD + under key + over key	3 layers from bottom (normally BGD-A + BGD-B + Key1)
4	BGD + under key + over key	BGD + under key + over key + DSK	BGD + under key + over key	4 layers from bottom (normally BGD-A + BGD-B + Key1 + Key2)

`FIELD DOMIN: ANY`

The **Edit** button can be used to switch over between ANY, FIELD1 and FIELD2.
The setting concerns the switching of the crosspoints on all busses (without Ext Anz), the start of auto transitions, switching with **Cut** and the recalling of snapshots and timelines.
In position ANY switching occurs at the beginning of the next frame.
In position FIELD1/2 switching or starting occurs before the corresponding field.

`VERT TRANSP: ON`

The **Edit** button can be used to switch over between ON and OFF.
In OFF position the V-gap is replaced by BLACK.
In ON position the information contained in the V-gap (VITS, videotext etc.) are kept.

`BG/PSTGERM: ON`

Edit permits switching over between ON and OFF.
If ON, the Program and Preset key banks are reversed, i. e. **Program** is on the lower bank and **Preset** is on the upper bank.

`CUT RIGHT: ON`

Changing of **AUTO**- and **CUT**-key in the transition-panels.

`BLACK BTN: ..▮`

Press **Edit** to switch the BLACK picture source optionally to the right-hand or the left-hand side of the key bank. The left or right position is indicated in the display with a bar symbol.

`MOUSE GAIN: 50%`

The mouse gain can be adjusted between 12 and 100 % with the **** control in the **Wipe panel**.

`T–BALL GAIN: 50%`

The trackball gain can be adjusted between 12 and 100 % with the **** control in the **Wipe panel**.

`LOW–LIGHT: 30%`

The low light of all key lamps can be adjusted between 0 and 100 % with the **** control in the **Wipe panel**.

`BEEP: ON`

Edit enables switching between the states ON and OFF.
If ON, a beep sound in the control panel indicates that in the adjustment of an analog value the final position has been reached.

`COLOR LIMIT: ON`

The level limitation for the internal matte signals will be switched **ON** or **OFF** by pressing **EDIT**.

`COL.LIMITER: 130%`

The level limitation for the internal matte signals can be adjusted between 100 and 130 % with the **** control in the **Wipe panel**.

`AUTO PVW: ON`

Press **Edit** to enable or disable the **Auto PVW** mode. When Auto PVW is enabled, the key PVW, mask PVW or Chroma Key cursor signal is switched on the PVW bus.

KEY MEMORY: ON

Press **Edit** to enable and disable the key memory function. When this function is enabled, the adjusted parameters of the previous key source are stored whenever a new key source is selected. When the previous key source is selected again, the parameters are again available.

LOOK AHEAD PVW:>

In this sub-loop, the preview facility for the individual switcher levels can be selected in three modes:

OFF	PVW output =	ME output
ON	PVW output =	LOOK AHEAD PVW

DD20 / DD30 only:

oAIR	If ME On–Air:	PVW output = LOOK AHEAD PVW
	otherwise	PVW output = ME output

AUX COUPLED: >

In the sub-loop, the available Aux output banks AUX 1... 3 can be coupled with the internal switcher signals:

Coupling with itself is not possible.

KEY COUPLED: >

In the sub-loop, key and fill sources from different inputs can be coupled permanently.
The fill sources (e. g. F:IN01) can be selected successively with the **Bank** key.
The desired key source (e. g. K:IN01) can then be selected with the **Edit** key.

PORT P:

With the **Edit** key you can select a protocol for the port interface at the control panel:

-- (no protocol)

For details on the interfaces please refer to the installation manual.

EBOX PORT PROT: >

In the sub-loop, a protocol can be selected for each of the available port interfaces PORT1, PORT2, and PORT3 of the E–box:

-- (no protocol)

For details on the interfaces please refer to the installation manual. The list is updated continuously.

DVE1 CONNECTION>

DVE2 CONNECTION>

(DD20 / DD30 only)

In the sub-loop, the inputs can be selected separately for the **DVE1 KEY** and **DVE1 VIDEO** signals. The inputs **IN1 ... IN32** are available. In addition, the interfaces **DVE1 PORT IN1 ... IN3** can be selected.

DVE1 (2) DELAY: When the limit position is reached, the transformed signals are removed from the signal path with a delay. The delay can be selected between 0 and 16 fields. It is advisable to select a delay at which the effect just stops jumping at the end of the DVE transition

DVE1 (2) TALLY: Here you can select either Internal or External.

INT is default as it was in the past. **EXT** is recommended. Though this needs additional Tally wiring.

Note: For external Tally evaluation the READY Input on TALLY IN 1 must be closed. See also: DD Instalation Manual and Supplements.

GPI STANDRD: GPI7

Enables remote switching of television standard using the selected GPI input GPI1...8 (DD5/DD10 only GPI7...8, GPI1...6 are pre-selected).

Contact OPEN = 625/50
Contact CLOSED = 525/60

An upgrade of OUTPUT PROCESSOR board RY1911, RY1912, RY1914, RY1916 respectively is required.
Ensure that the seleted GPI does not trigger another pre-selected GPI (e.g. AUTO-Transition).

GPI FORMAT: GPI 8

Enables remote switching of image size format using the selected GPI input GPI1...8 (DD5/DD10 only GPI7...8, GPI1...6 are pre-selected).

Contact OPEN = 4/3
Contact CLOSED = 16/9

Ensure that the seleted GPI does not trigger another pre-selected GPI (e.g. AUTO-Transition).

VIDEO RATIO: 4/3

With the **Edit** key you can switch over between the 16/9 and the 4/3 formats.
In ”16/9” position, the switcher processes video signals of an aspect ratio of 16:9.
In ”4/3” position, the switcher processes video signals of an aspect ratio of 4:3.

REPL.ASYNC: ON

Edit: permits the selection of different modes for the treatment of asynchronous sources in the switching levels (ME1, ME2, PP):

ON: If Background/Program are asynchronous, enabled keyers are disabled. If Background/Program are synchronous and the fill signal of a keyer becomes asynchronous, the enabled keyer is disabled. If Background/Program or Preset are asynchronous and a transition is selected, a cut is performed at the end of the transition.

OFF: Asynchronous signals are phased over H and are passed.

OUTPUT ROUND: >

In the sub-loop, the video quantisation can be switched to 8 or 10 bit for each output separately.

GENL.PHASE: 1000

With the ******** control in the **Wipe panel** the timing of the switcher can be adapted to the synchronising Genlock signal within the range of 0 ... 4095 steps.
This corresponds to a delay of 3 lines.

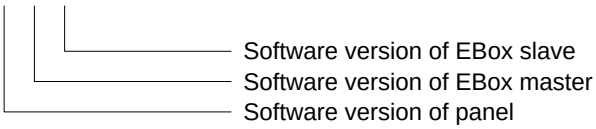
LOAD SOFTWARE >

In a sub-loop it is possible to select between the following loading modes:

load my panel
load ebox master
load ebox slave
load other panel.

For further information please refer to the separate description in section 5.1.

SW–VERS.: H H H



2.15 ENABLING EDITOR AND GPI

Edit Enable enables the switcher to be controlled by an external editing system. In the activated state, the switcher can be switched from the control panels as well as from an editor.

Simultaneously, this key also activates the GPI inputs and GPI outputs.

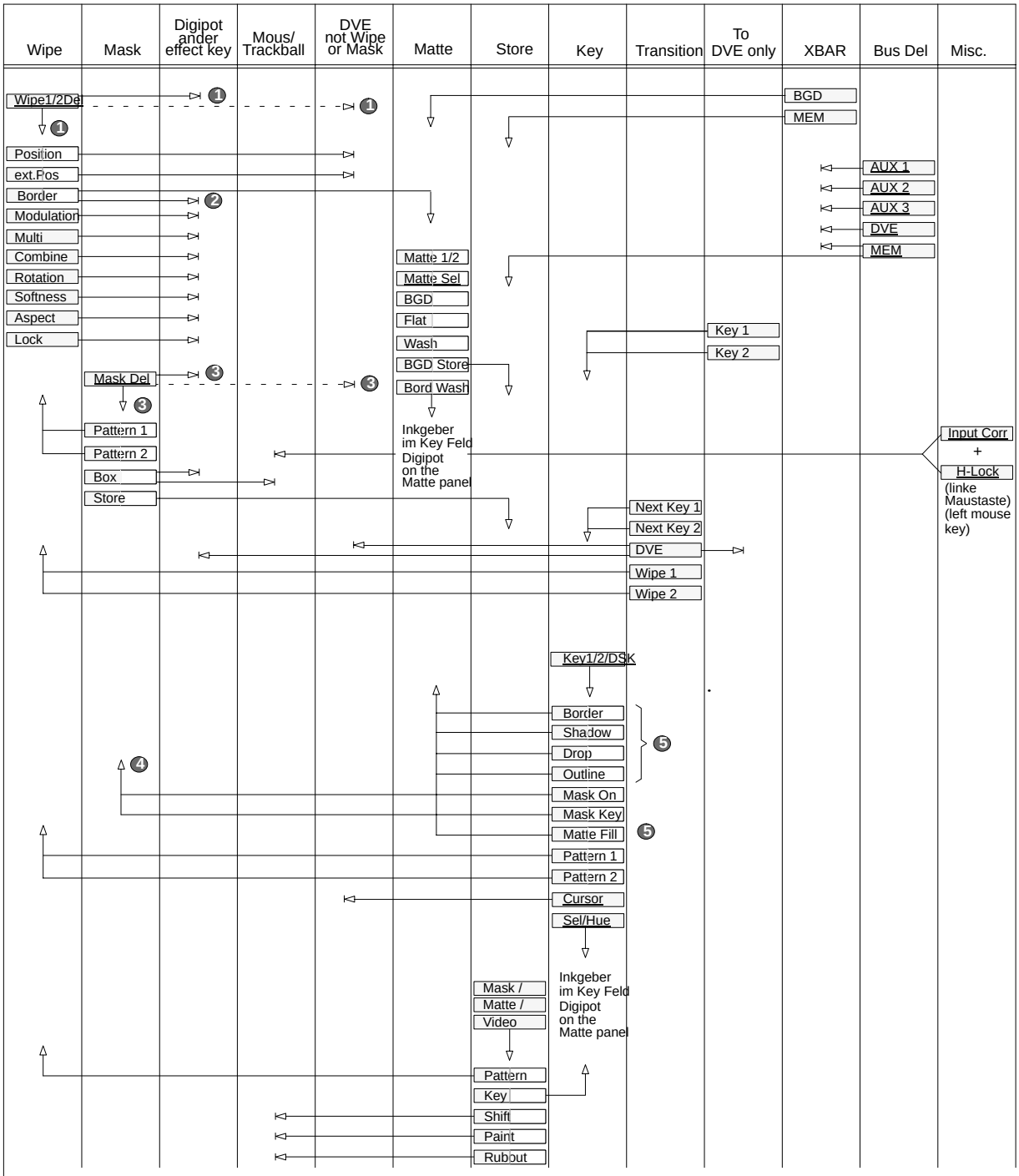
The GPI inputs have a fixed assignment:

GPI IN 1	ME Auto transition
GPI IN 2	Key1 Auto transition
GPI IN 3	Key2 Auto transition
GPI IN 4	FTB Auto transition
GPI IN 5	DSK Auto transition
GPI IN 6	EXTRA Auto

2.16 AUTO DELEGATION

To simplify operation, the mixers include an auto delegation system. From software version ”G”, the auto delegation system was substantially improved and extended. The available auto delegation facilities are represented in detail in the following mixer-specific delegation diagrams. The diagrams are divided into functional groups (Wipe, Mask, ...) which the keys or status are assigned to.

For example: If key **Next Key1** is pressed on the **Transition** control panel, a delegation of the key control panel is carried out automatically. Depending on the status of the individual keys on the key control panel, a further delegation is possibly initiated.



= Tastendruck / Key pressed

= Zustand (Funktion war vor der Delegation schon eingeschaltet). / Status (functio was enabled prior to delegation.

Hue = Bei Betätigung keine Auswirkung auf das Video. / When activated, no effect on the video.

= Delegationsstop / Delegation stop

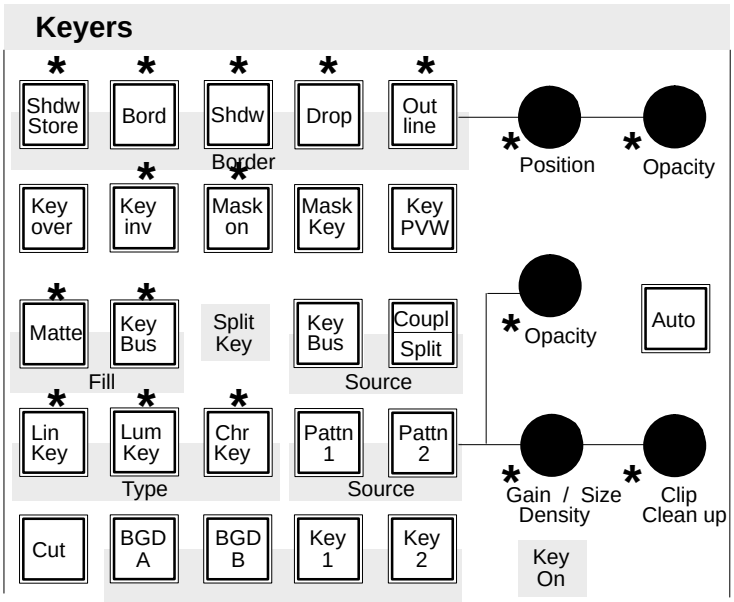
= Im delegierten Feld wird weiter delegiert. / On the delegated panel, delegation is continued.

1. Wenn Wipe 1/2 Del=OFF, dann wird auf Wipe delegiert, bei Wipe 1/2 Del=ON auf DVE. / When Wipe 1/2 Del=OFF, delegation is made to Wipe, when Wipe 1/2 Del=ON to DVE.
2. Nur bei Tastendruck. / Only when key is pressed.
3. Bei Mask Del=OFF wird je nach Maskentyp delegiert, bei Mask Del=ON auf DVE. / When Mask Del=OFF, delegation is made in depedence on the mask type, when Mask Del=ON, to DVE.
4. Wenn der Key als Quelle für den Store angewählt wird, dann endet die Auto-Delegation im Key- und Maskenmodul. /When the key is selected as a source for the store, Auto delegation
ends in the key and mask module.
5. Wenn Key-Border und Matte Fill gleichzeitig angewählt sind, hat bei der Matte-Delegation der Border die höhere Priorität. / When Key Border and Matte Fill are selected simultaneously,
the border has the higher priority when performing Matte delegation.

2.17 KEY MEMORY

Stored adjustments:

The key memory can store a complete key adjustment for any input of the mixer.



These are the following parameters (marked in the figure with ∗):

- Key Type (Lin, Lum, Chr, Chr with FGD Fade)
- Border (Shadow, Drop, Outline, ...)
- Border Position, Border Opacity
- Key Invert
- Mask on, Mask Source (Box, Pattern, ...), Box Mask (right/left/top/bottom), Mask Bus Clip/Gain
- Fill Matte/Bus
- Opacity
- Clip, Gain
- Chroma Key Color and Selectivity
- Adjustments of Fill Matte and Border Matte

The following parameters are **not** stored:

- Synthetic Key Sources (Mask Key, Pattern Key)
- Key Over
- Key PVW
- Cursor/Auto
- Source Key Bus / Coupl / Split Key
- The source of the Mask Bus

Condition

Adjustment of the SETUP function **KEY MEMORY = ON**

Storing into the key memory

The key parameters are stored into the key memory,

- when another key source is selected on the key bus,
- when the momentarily used key source is selected again on the key bus.

Calling from the key memory

The key parameters of a key source stored in the key memory are called

- when switch-over is made to this key source on the key bus,
- when a synthetic key source (Mask Key, Pattern Key) is disabled by pressing the key once more.

Restoring from the key memory

If an adjustment already stored for the same source should be restored during a key adjustment, a synthetic source (Mask Key, Pattern Key) has to be switched on and switched off with the same key.

NOTE

– If only the key crossbar is switched over with EXTRA, neither a storage of the former key state nor a call of the new key state is made.
– If the COUPL mode is selected or the key bus is selected as a source, the key source is automatically selected when selecting the fill signal, thus calling the stored adjustment of the source signal.
– If the KEY SPLIT mode is selected, the key source signal can be selected on the key bus, thus calling the stored adjustment.
– For each input, only one adjustment can be stored. If an input is used for several keyers in a different way, each procedure described under ”Storing”, effects a storage into the key memory. The last storage procedure will be the contents for this input in the key memory.

3. MENU CONTROL

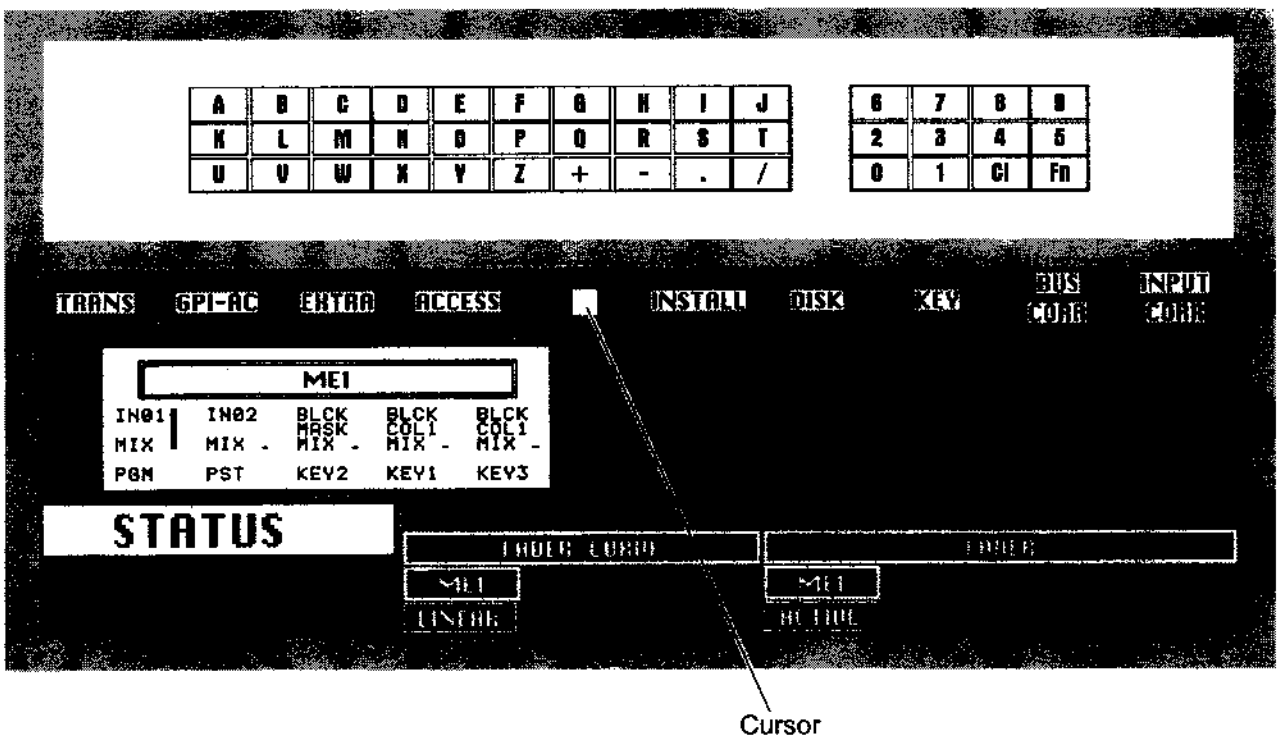
NOTE *The menus shown in section 3 are available for USERS with system permit. For USERS with lower permit level, the menus differ and only some of the menu options are available.*

Monitor For the display and operation of the softkeys, an EGA monitor may be connected to the *DD10* control panel. For further details please refer to the Installation Manual.The connection of a VGA monitor is being prepared.

The EGA monitor is connected with the standard cable.

Note *The following chapters also expamples of menu displays of the DD30 switcher which are recalled if a DD30 Electronics Box is connected.*

Switching on When the monitor is switched on, the screen shows the menu that was selected last. Above the menu, a keypad with alphabet, numbers and special characters is displayed which are required for the operation of some menus. For further details please refer to the relevant sections.



Cursor

Note: *The characters "+", "/" and "." are not used, because of the DOS-name conventions. The characters are replaced with "_".*

Enabling cursor To enable the menu control and to show the cursor on the screen, press the key combination of **Input Corr** + **H-Lock** (in the *DD10* positioner panel). If a mouse is connected and enabled, the cursor is displayed automatically. The digipots below the wipe selection keypad are switched over to menu operation by pressing the right–hand mouse key. In the first display this is indicated by **MENU**.

Note: *A function can only be selected if the centre of the cursor is moved to the display field of the relevant softkey. The sensitive field of all softkeys is always* ***two*** *lines high, even if the lettering covers only one line.*

Enabling softkey

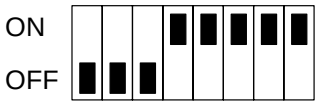
The cursor can be moved in the menu with the trackball or the mouse. The **H-Lock** key above the trackball takes over the Enter function for the selection of a softkey in the menu.In mouse operation the **left mouse key** takes of the Enter function. The right-hand mouse key is unassigned.

Screen Saver

In order to avoid burn-ins on the monitor, the Screen Saver function in the INSTALLATION menu permits the setting a time after which the screen is switched to dark if no control operations have been made. The maximum period is 60 minutes.

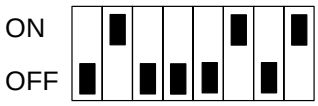
Monitor

The **T4** DIP switch on the control panel controller RY 1822 permits a selection of various color combinations for the monitor.
The best representation for monochrome monitors:



T4

The best representation for VGA monitors:



T4

For further details please refer to the Installation Manual.

3.1 SHORT INTRODUCTION TO THE MENU SYMBOLS

3.1.1 CONTROL WITH GRAPHIC OBJECTS

Since we understand and process information much faster when it is represented in form of pictures or graphs, the design of the menu is based on graphic objects. This type of user interface is well established in the world of personal computers. It simplifies the access for all users that are not familiar with EDP.

Depending on the selected mode, the menus only show options that can be immediately enabled in the current status. This makes the operation much clearer and simpler.

The functions may be selected with the softkeys directly assigned to the respective menu.

Several frequent operating functions and system messages are represented with graphic symbols as follows:

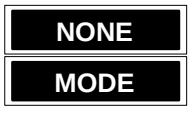
Active/Inactive status

Inactive operating statuses are represented with white title on dark background or with dark symbols. Active operating statuses are represented with black title on light background or with light symbols.

Example for function selection: COMMON user is logged in.

Functions with options

If a control function permits several options, these options can be called by pressing the same function key several times. The menu field will show these control functions as follows:



The control function **MODE** in the ACCESS menu can thus be scrolled through from **NONE** to **SHARED** and **EXCL**. etc. in cyclical order.

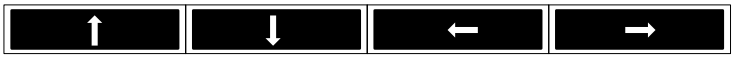
The text in the display above the respective function changes accordingly.

Autorepeat function:

If the corresponding function key is held down, all selection options are scrolled through. The Autorepeat function will stop in starting position (e.g. **NONE**).

Cursor control

For system configuration, setups, etc., some menus include cursor functions. The cursor can be moved in the entry fields with the arrow keys.



Insertion of blanks in text

Deletion of character left of cursor

Autorepeat function:

If the corresponding key is held down, the functions are executed continuously.

Leaving the menu

In all menus the **EXIT** softkey is used to leave the menu.

If you press the associated function key, the system returns to the higher order menu.

3.1.2 OPERATIONAL AID BY RUNNING LIGHT IN KEYS

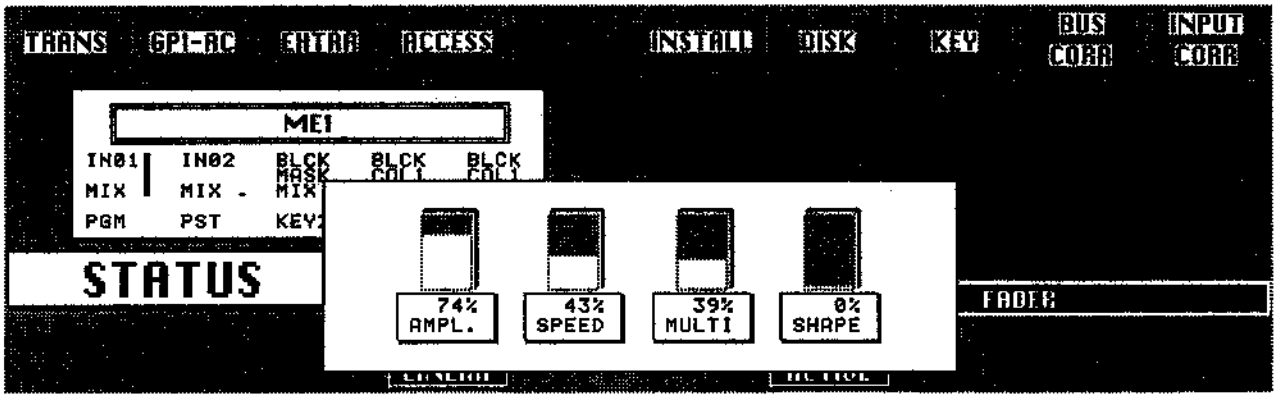
In various operational sequences you may have to select a second option after you have selected a function. To facilitate the operation, the relevant keys in the respective mode are highlighted with a running light or by conection of all lamps of the keybloc (e.g. wipe pattern keypad for the entry of text).
Thus you can easily see which options are available to produce the desired effect. If you press one of this keys, the light will go out.

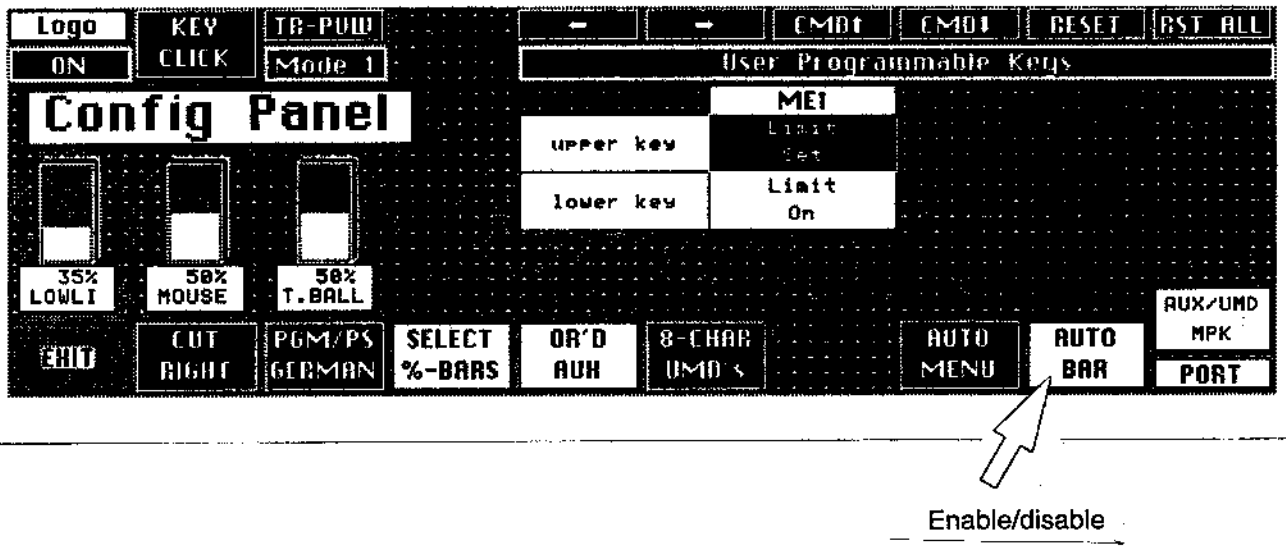
To facilitate the operation, the software of the switcher contains a number of warnings which, for instance, point to internal switcher lockings in case of an illogical operational step. These warnings are self-explanatory and are faded in in the menu field of the switcher.
Normally the operational step and the warning can be cancelled without changing the current setting with the **CANCEL** softkey or by pressing any key. Some warnings also permit the use of further softkeys, which are appropriately labelled, in order to cancel the locking and thus select the desired function at the expense of another function.

3.1.3 AUTOMATIC ANALOGUE VALUE INDICATION IN MENU

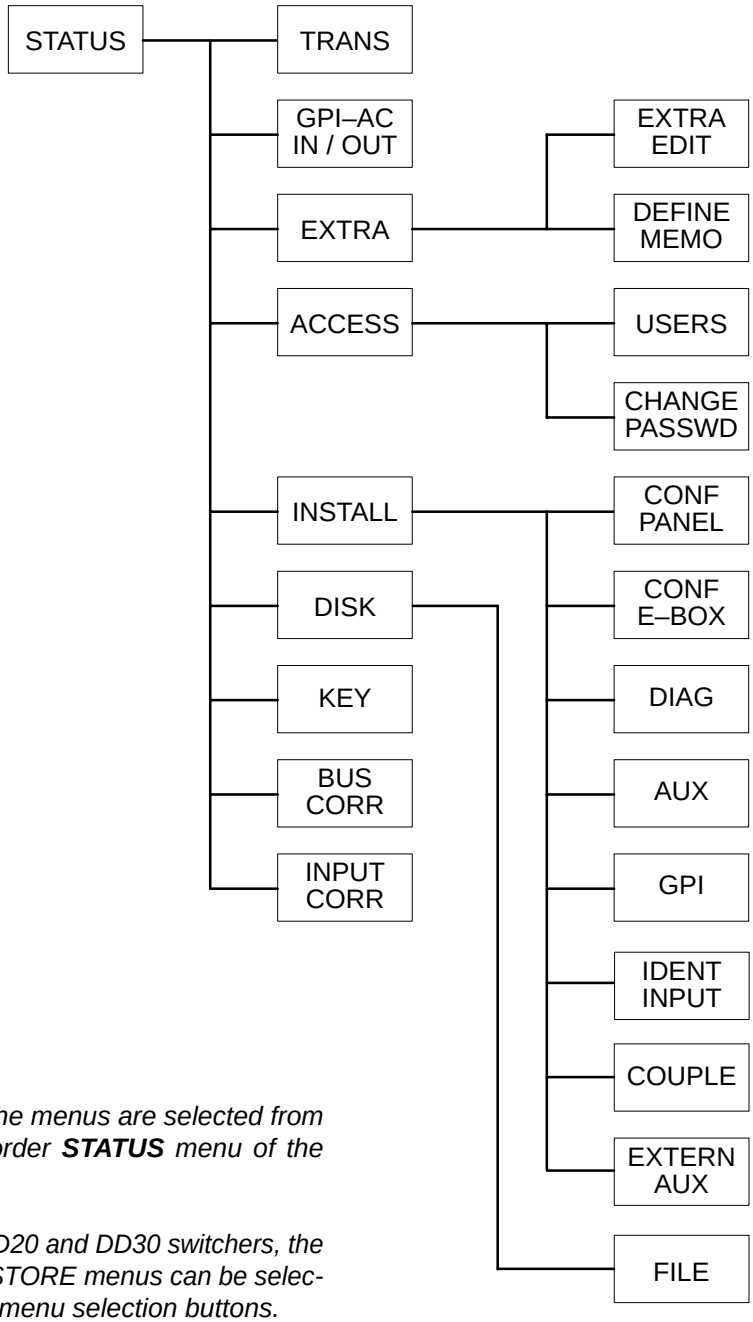
As from software version "F", when analogue values are changed, a window can be displayed in the selected menu which shows the various settings in a bar graph. This mode can be enabled or disabled in **Installation** sub menu **Config Panel**.

For *DD20* and *DD30* switchers, the window can be switched off by pressing **Exit** (on the right hand side below the display).
For *DD5* and *DD10* switchers, click on an EXIT panel on the menu monitor using the mouse or the trackball to switch off the window.





3.2 MENU OVERVIEW

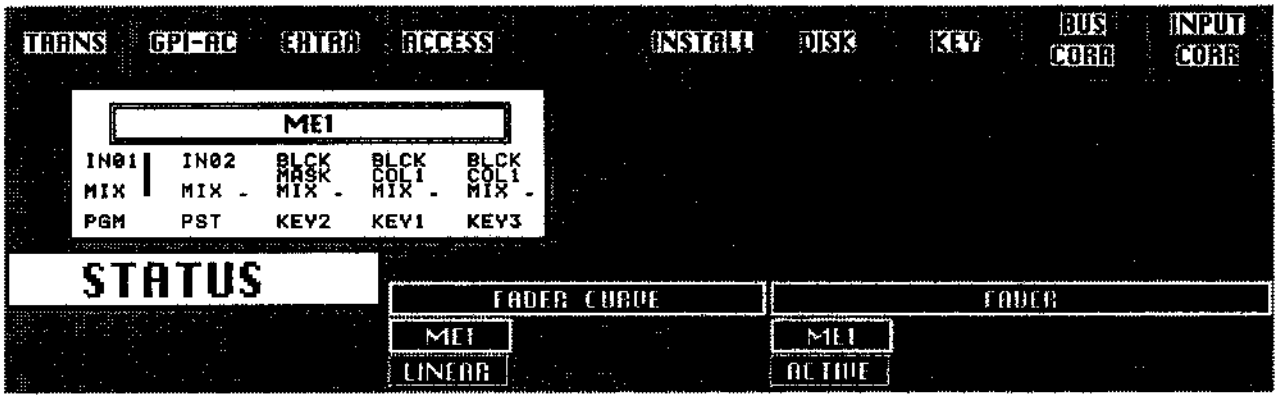


NOTE:
*In General the menus are selected from the higher order **STATUS** menu of the switcher.*

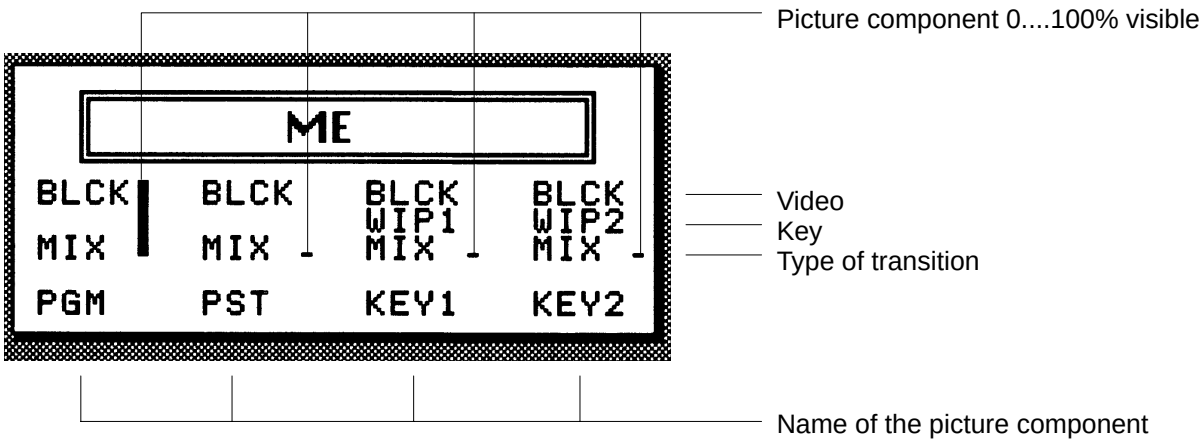
In case of DD20 and DD30 switchers, the MASK and STORE menus can be selected with the menu selection buttons.
In case of DD5 and DD10 switchers the menus are displayed automatically by the automatic delegation system, if a key in the corresponding panels is actuated.

3.3 STATUS MENU

The STATUS menu serves as the main menu for the selection of the various sub-menus (please refer to ***Menu Overview***) and offers a range of higher order switcher settings that are not tied to any particular operating mode. The STATUS menu also informs about the status of the various mixing levels.

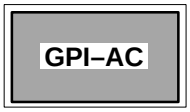


3.3.1 INDICATION OF THE MIXING LEVEL STATUS



3.3.2 SELECTION OF SUBMENUS

Press the associated key to select the **TRANS** submenu which permits copying or exchanging settings between the various mixing levels.



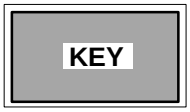
Press the associated key to select the **GPI-AC** submenu which serves to define the signal parameters for the GPI inputs and outputs.

Press the associated key to select the **EXTRA** submenu which serves to store, process and recall switcher statuses and operational sequences.

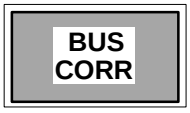
Press the associated key to select the **ACCESS** submenu which serves to enter the users of the switcher with their respective access rights and to determine the control authority for switcher electronics (E-box) in the network or for parts of a switcher electronics.

Press the associated key to select the **INSTALL** submenu which serves to define the system configuration.

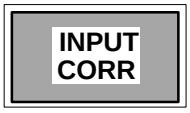
Press the associated key to select the **DISK** submenu which permits file management within the switcher and the entire network



Press the respective key to select the **KEY** sub-menu which permits defining the key parameters of the key signal.

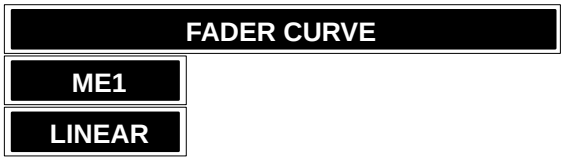


Press the associated key to select the **BUS CORR** submenu which serves to modify the color parameters of the internal video buses.



Press the associated key to select the **INPUT CORR** submenu which serves to modify the color parameters of the video inputs.

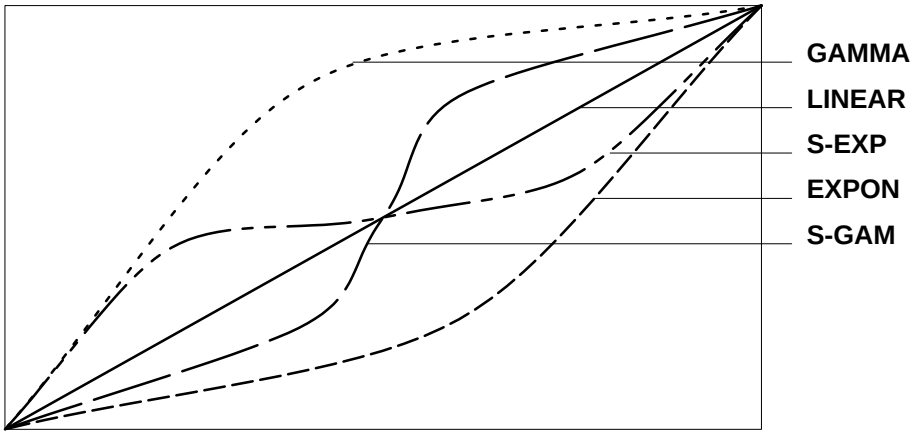
3.3.3 SETTING THE FADER CURVE



Press the associated function key to select the transition characteristics for the faders. Each time you press this key, the following curve functions will appear in cyclical order:

- **LINEAR** transition on the basis of a linear function
- **EXPON** transition on the basis of an exponential function
- **GAMMA** transition on the basis of a gamma function
- **S-EXP** transition on the basis of an exponential gamma function
- **S-GAM** transition on the basis of a gamma exponential function

The selected curve function will be displayed in the menu below the mixing level identification.



3.3.4 SETTING THE FADERS

Press the associated function key to enable or disable the fader of the individual mixing levels. The EXTRA fader cannot be disabled.
The active status is indicated by black text on light background.

Example: ME1, PP, and EXTRA are active and ME2 is inactive.

3.4 ACCESS MENU

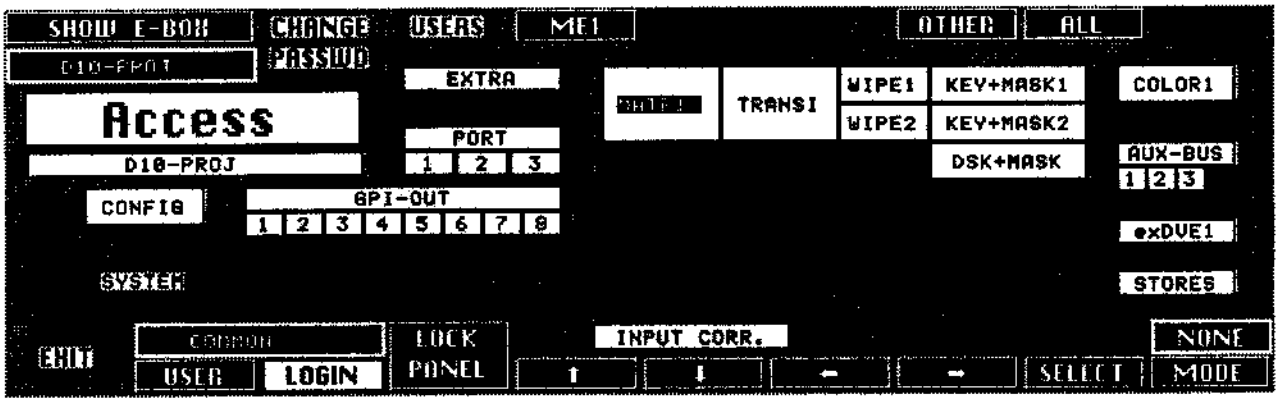
The ACCESS menu serves to determine the access rights.

This comprises

- assignment of the control authority for the various electronics boxes within the network
- setup and determination of the user rights (operator, system manager, configuration administrator)
- password entry to prevent unauthorized access.

Next to the softkeys, the menu contains a symbolic representation of the switcher with all its functional units.

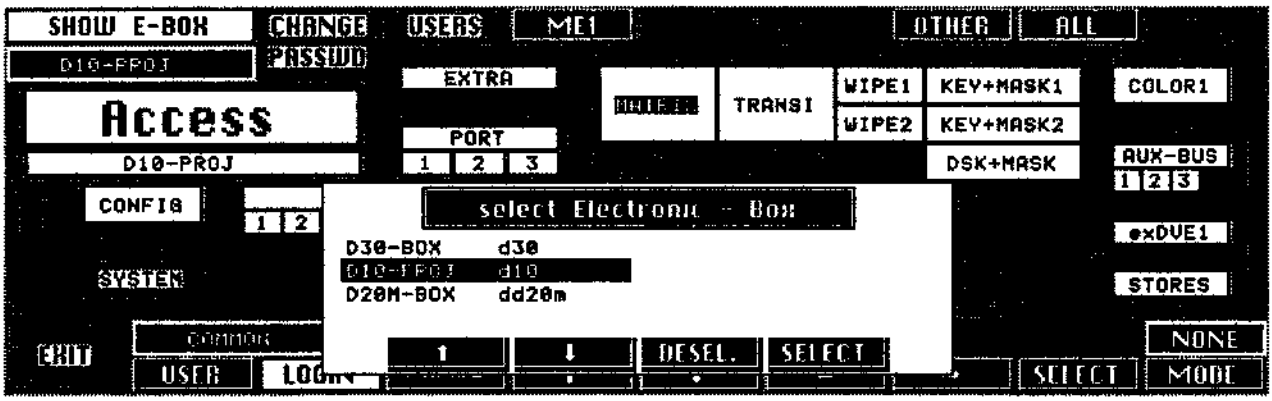
If you select a functional unit, you permit the access to the selected electronics box from the current control panel.



3.4.1 SELECTION OF THE ELECTRONICS BOX

SHOW E-BOX

If you press the associated function key, a window with a new key assignment appears in the menu, listing all electronics boxes connected to the network. This window permits the selection of the desired electronics box in the network to which the control unit (device) is to have access.
Next to the name, the list also indicates the type of the electronics box (e. g. DD20, DD30).
After the initial installation of the electronics box, the name of the devices must be entered via the SERVICE submenu (e.g. device=STUDIO 1).
As an alternative, the name can also be entered with the Rename function in the DISK menu.



↑ ↓

Press the associated function key to move the marker bar up or down in the list.

DESEL

Press the associated function key to cancel a previous selection.

SELECT

Press the associated function key to select the electronics box marked with the bar. The name of the electronics box is then displayed below the SHOW E-BOX function keys.

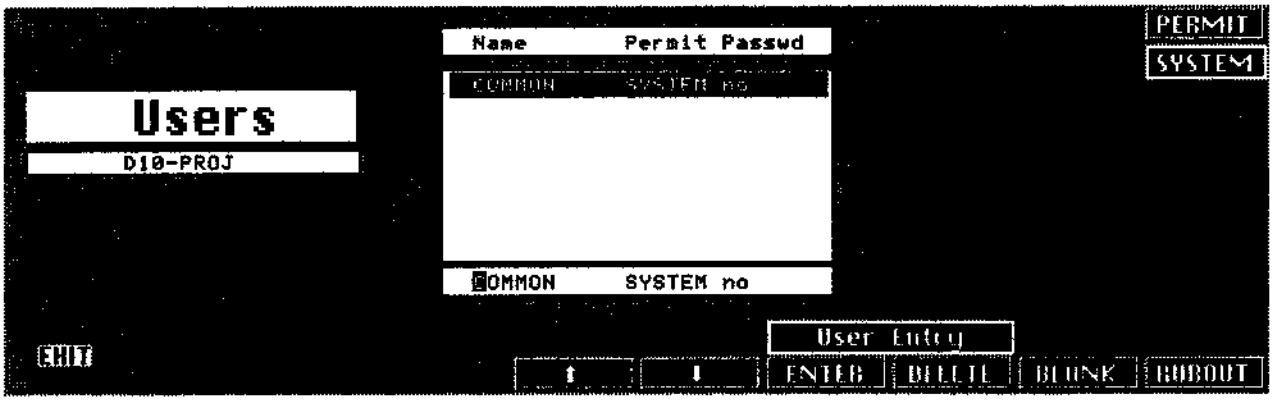
3.4.2 ENTERING NEW USERS AND USER ACCESS RIGHTS

USERS

If you press the associated function key, the USERS menu appears with a new key assignment. This menu permits entering users or user groups with differing access rights. Only users with system permission (PERMIT=SYSTEM) have access to this menu.
The unit is delivered with the user COMMON entered with highest access right (PERMIT=SYSTEM). The user COMMON cannot be deleted!

The menu field lists the logged-in users in a table that also shows the access right in the Permit column and the existence of a password (yes/no) in the Password column.

A maximum of 8 users (and/or user groups) can be entered.



PERMIT

Press the associated function key to give the user access to various control levels. Each time you press this key, the following options will appear in cyclical order:

SYSTEM Ssystem manager, has the same access rights as Config and Operator users but can also enter users and determine their rights of access to the functional units of the switcher.

OPERATOR operating staff, has access to control functions.

CONFIG configuration management, has also access to the configuration in the INSTALL menu and its submenus.

Press the associated function key to move the marker bar up or down the list. New user names can be entered with the alphabetical keypad (Wipe panel) and the numeric keypad. The cursor indicates the entry position in the entry field (editing line).

Press **ENTER** to store the added user.

Press **DELETE** if you want to delete the user selected with the marker bar from the list.

Press the associated function key to enter a blank during the entry of the user names.

Press the associated function key to delete the character left of the current cursor position.

Press the associated function key to return to the higher order ACCESS menu.

3.4.3 LOGIN OF A USER

USER

Press the associated function key to select a user name already entered with the **USERS** submenu. This is the first step to log in the new user in the system. Each time the key is pressed, a new user name appears so that all registered users can be scrolled through. The user name is indicated in the field above the **USER** softkey.

LOGIN

Pressing the associated function key enables the user whose user name was selected with the **USER** softkey to log into the switcher system. For each user, a separate data area will be opened automatically, which serves to store the user-specific switcher settings. If the user has protected his or her area against unauthorized access with a password, a window appears in the menu, where the password (maximum 4 digits) must be entered.

3.4.4 ENTERING AND CHANGING A PASSWORD

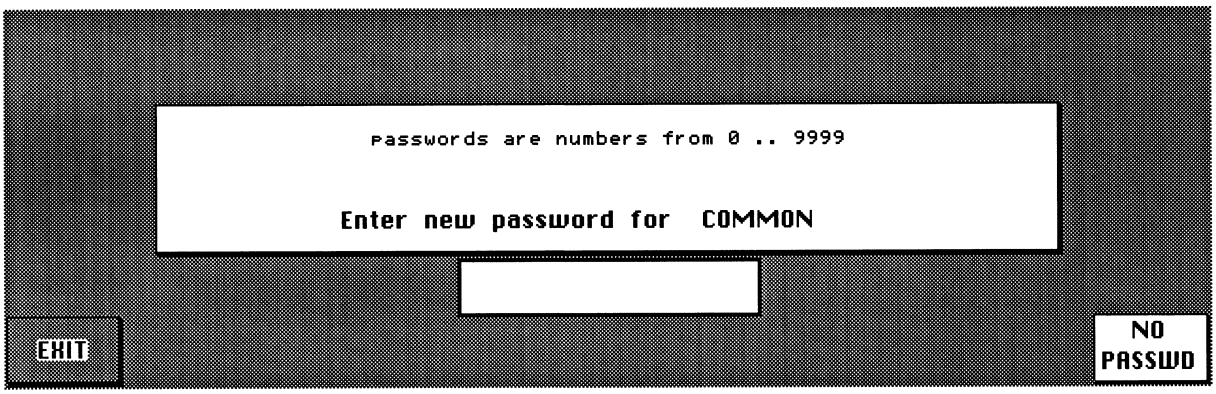
CHANGE PASSWD

If the associated function key is pressed, the PASSWD menu appears with a new key assignment, where the current user can enter a password or change an existing password. A password may be any number up to 4 digits (0 ... 9999) and is entered with the numeric keypad.

Confirm the entry with the **ENTER** key of the numeric keypad.The access right must be proved by entering a system manager password.

To avoid erroneous password entries, a second verification entry is required.

Note: Any zeros preceeding the figures of a password will be ignored (e. g. 0123 = 123).
*If password = 0, it is sufficient to press **Enter**.*



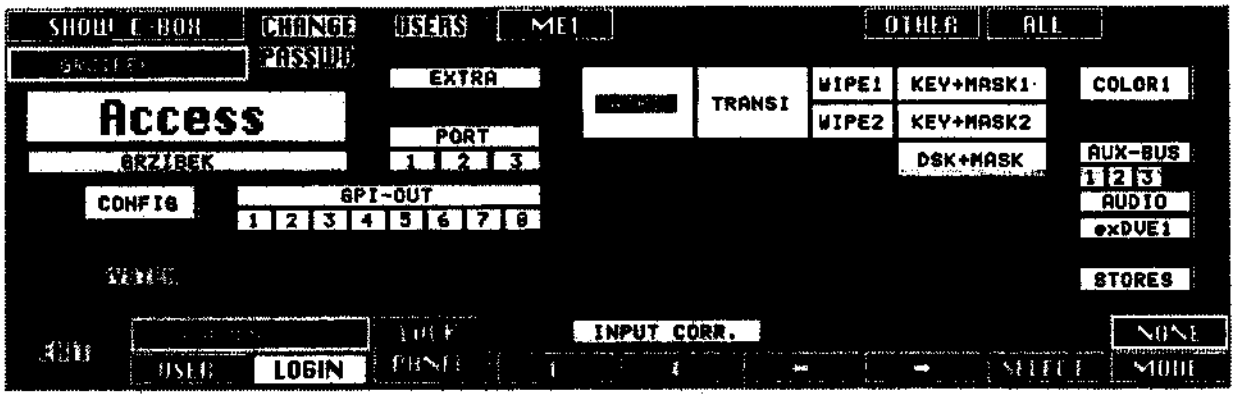
EXIT

Press the associated function key to leave the menu window.

NO PASSWD

Press the associated function key to delete an existing password.

3.4.5 ASSIGNMENT OF USER ACCESS RIGHTS TO THE ELECTRONICS BOX



ME1	OTHER	ALL

If you press the associated function key, you assign special functional groups in the video electronics to the current control panel. In the menu, enabled functional units are light while disabled functional units are dark.
The type of access is preselected with the **MODE** softkey.

↑	↓	←	→

Press the associated function keys to move from one functional unit to the next in order to select individual units for the determination of access rights.

SELECT

Press the associated function key to establish the access to the functional unit of the switcher electronics that is selected with the cursor. The type of access is determined with the **MODE** preselection. Thus the access right is assigned to the control panel (not to the user).

MODE

Press the associated function key to preselect various modes for the access to the individual functional units of the switcher electronics. Each time you press this key, the following modes will appear in cyclical order:

NONE black marking, access denied

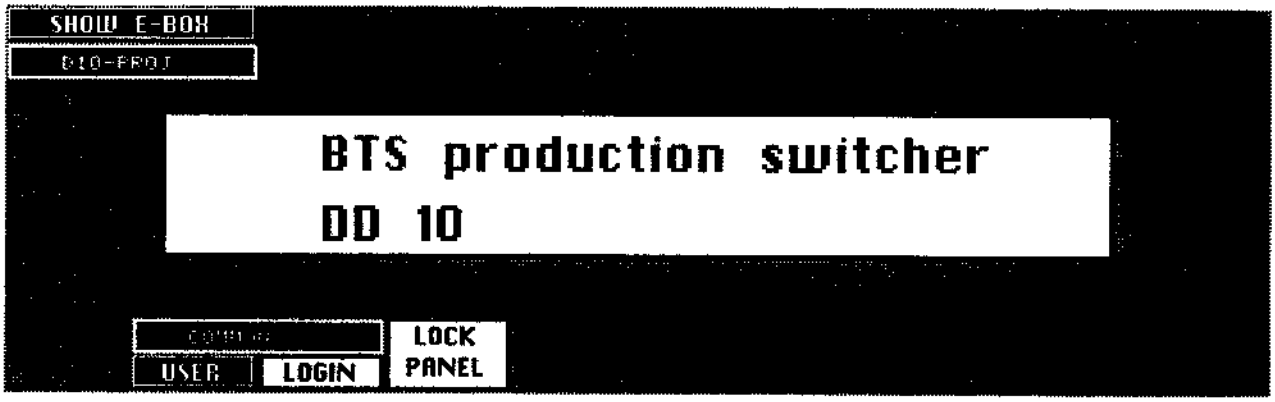
SHARED hatched marking, access possible from several control units (devices)

EXCL bright marking, access exclusively from this control panel.

The **MODE** function applies to **SELECT** as well as to **ME1, OTHER, ALL**.

3.4.6 LOCKING THE CONTROL PANEL

Pressing the associated function key permits the logged-in user to lock the control panel so that no unauthorized access to the settings is possible.
After locking, a new menu with a new key assignment appears.



The panel can only be unlocked if the same user presses the function key again and enters the password in a window.
If necessary, also a user with system access can unlock the panel, who only has to enter his or her own password.

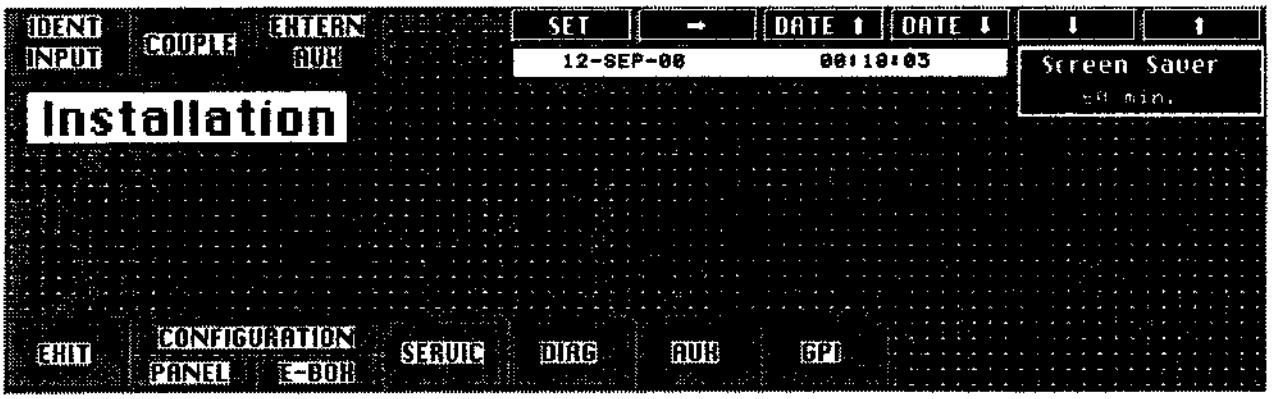
3.4.7 LEAVING THE ACCESS MENU

Press the associated function key to return from the ACCESS menu to the higher order STATUS menu.

3.5 INSTALL MENU

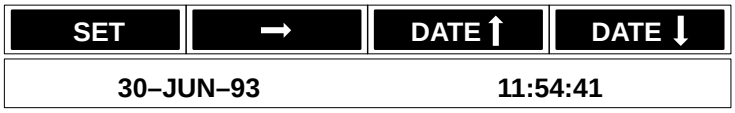
The installation menu serves as higher order selection menu for the system installation and configuration. From this menu, the submenus assigned to functional groups and components are selected (please refer to ***Menu Overview***).

Note: *The SERVICE menu can be called by using a terminal or PC (see service manual).*



3.5.1 SETTING THE SCREEN SAVER

The screen saver switches off the display in order to avoid burn-ins when the control panel is inactive for a given period. This period can be set with the arrow softkeys.



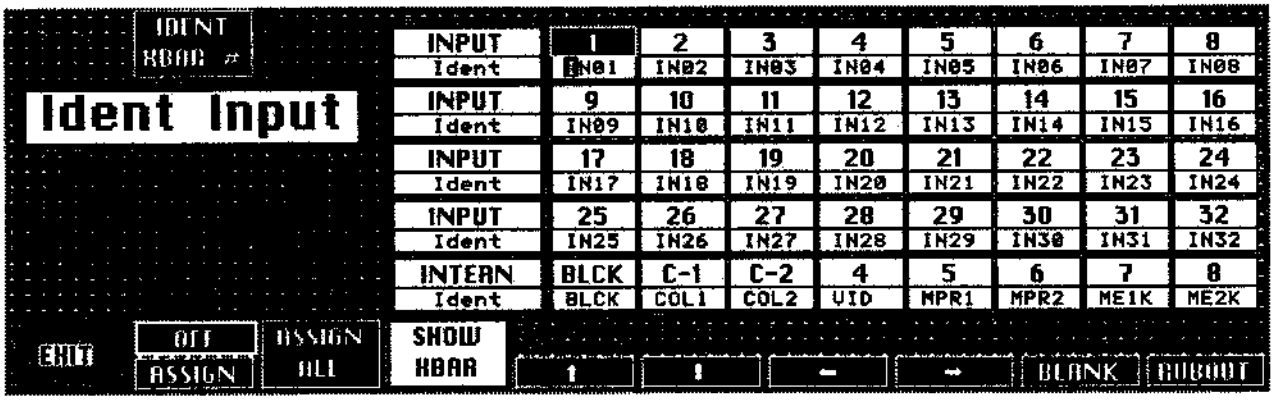
Press the associated function key to set the system clock of the switcher.

To set date and time, proceed as follows:

- Press **SET**.
  The cursor will appear at the first position of the entry line.
- Press **DATE** ↑ and **DATE** ↓ until the desired date is reached.
- Press →.
  Cursor moves to the next entry position.
- Repeat the above process until date and time have been set.
- Press **SET**.
  The entry is completed, the data are taken over by the computer and are updated even when the switcher is switched off.

3.5.2 IDENT INPUT SUBMENU

Press the associated key to select the IDENT INPUT submenu.



The IDENT INPUT menu serves to assign the video inputs to the individual keys of the source selection banks on the control panel and to define the abridged source names. For the individual (internal and external) signals, an entry field is provided which can be accessed with the cursor keys of the menu. The abridged source name can then be entered with the alphabetical keypad (Wipe panel) and the numeric keypad.

The entry fields are arranged as follows:

1st line	INPUTS	1 - 8
2ndline	INPUTS	9 - 16
3rd line	INPUTS	17 - 24
4th line	INPUTS	25 - 32
5th line	INTERNAL	(internal switcher signal sources such as Black, BGD matte etc.

IDENT XBAR #

The source mnemonic codes from upstream crossbars can be transferred to the switcher using the IDENT XBAR protocol. For this purpose a corresponding control cable must be provided in addition to the video cable between switcher E–box and external crossbar (*TVS, Mars, Venus*) and the protocol for the relevant port must be selected in the CONFIG EBOX menu. For further details please refer to Supplement 3 ***TVS Interface***.

The mnemonic code transfer is enabled with the **IDENT XBAR#** softkey in the IDENT INPUT menu.
For this purpose the desired switcher input must be selected with the cursor. By pressing the **IDENT XBAR#** softkey a "#" appears in the **Ident** line of the selected source. The desired output number of the external crossbar can be entered with the numeric keypad.

EXIT

Press the associated function key to return to the higher order INSTALL menu.

OFF
ASSIGN

Pressing the associated function key permits an optional assignment of the input signals to one or several keys of the source selection banks.

ASSIGN ALL

Pressing the associated function key the same sources are assigned on all levels.

The ME1 key bank is highligted with a running light. Selecting a key in this bank will assign the signal source marked with the cursor in the menu to this position. This status is indicated with a permanent light in the key. Press the key once more to cancel the assignement.

SHOW XBAR

Pressing the associated function key switches the menu between **ON** and **OFF**.

- **ON**: Display the "#<no.>" and "$<no.>" for inputs which get their mnemonics using IDENT XBAR or EXTERN XBAR
- **OFF:** Display of these mnemonics

↑ ↓ ← →

Press the associated function keys to move the cursor from field to field within the entry mask, or from entry position to entry position within a field.

BLANK

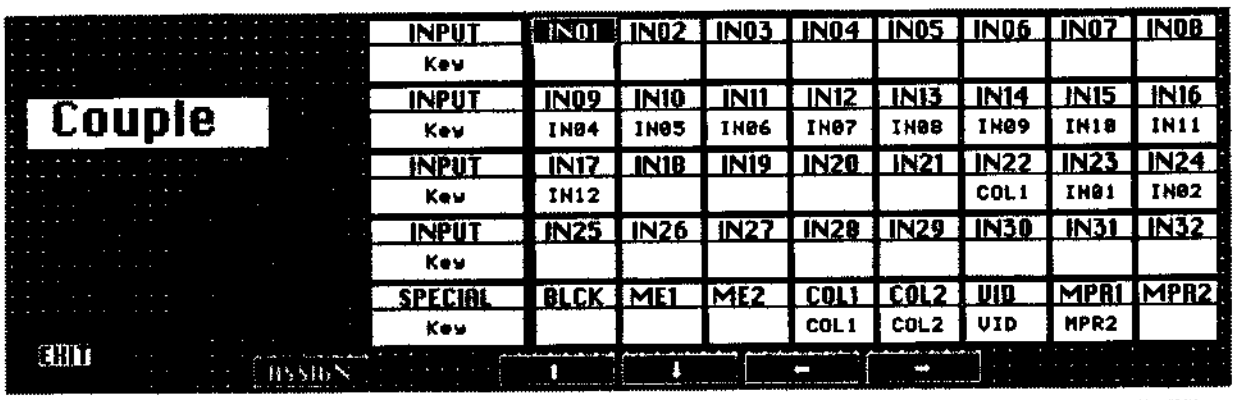
Press the associated function key to enter a blank in the source name entry.

RUBOUT

Press the associated function key to delete the contents left of the current cursor position.

3.5.3 COUPLE SUBMENU

Press the associated key to select the COUPLE submenu.



The COUPLE submenu serves to permanently assign variable key sources to selectable fill sources.
These "couples" are enabled when the Couple mode is selected in the Keyers panel (**COUPL**), i.e. when a fill source is selected, the key source is set automatically.

For the individual fill signals a key entry field is provided where the desired key source can be entered.

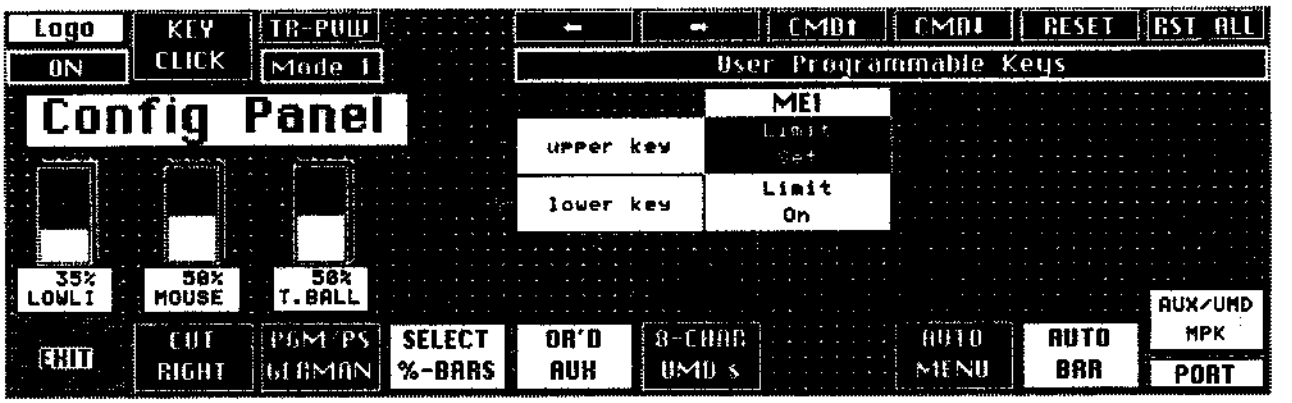
Press the associated function key to return to the higher order INSTALL menu.

Press the associated function key to form ”couples” of fill and key signals. For this purpose, select the desired fill source with the cursor keys in the menu. After you have pressed the **ASSIGN** softkey, the available key bank is highlighted with a running light.
Press the desired key signal key to form the ”couple” and to enter the abridged source name into the entry field.

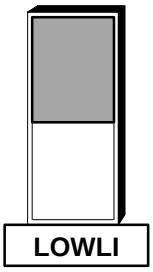
Press the associated function key to move the cursor from field to field in the entry mask. The active field is provided with a black background.

3.5.4 CONFIGURATION PANEL SUBMENU

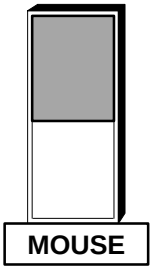
Press the associated key to select the **CONFIG PANEL** submenu.



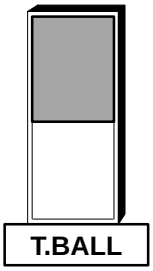
The CONFIG PANEL menu serves to set system parameters for the control panel of the switcher. Some analog parameters to optimize operation are also set in the INSTALL menu.



The first digipot can be used to adjust the background brightness of the key lamps for the inactive status in order to adapt the key lighting to the light conditions at the work place.



The third digipot serves to adjust the sensitivity of the mouse (option).



The second digipot serves to adjust the sensitivity of the trackball. This is recommended if during masking in Paint mode the mask is painted too rough (i.e. with leaps).

LOGO
ON

On a DD20 or DD30 panel (where the LEDs and LED driver below the BTS logo on the upstanding part are equipped!) it is now possible to select whether the BTS logo illumination is **OFF**, **ON** or **ON/OFF** depending on the ON-AIR status of the mixer.

Prepared panels:

DD20:panel serial number 149 and higher
DD30:panel serial number 140 and higher

KEY CLICK

KEYCLICK enables a short acoustical “Click” when a button is pushed.

TR-PVW
Mode 1

At end of transition with TRANS PREVIEW on, the PGM and PST Bus do not longer switch.

Operation of TRANS PVW can be modified. New setting TR-PVW

“Mode 1”	=	compatible operation. TRANS PVW stays on and shows in endposition the final image on the PVW output.
“Mode 2”	=	TRANS PVW goes automatically to the begin of the transition when reaching the endposition
“Mode 3”	=	“One shot mode”. TRANS PVW switches automatically off, when T-Bar goes to either endposition. *Note: Also when returning to the begin TRANS PVW is switched off.* *Does not apply with LIMIT ON.*

Note: *Mode 2 and 3 behave as described when using the T–Bar for controlling the transition. AUTO transition behaves as before equivalent to Mode 1.*

EXIT

Press the associated function key to return to the higher order INSTALL menu.

CUT RIGHT

Press the respective function key to exchange the position of the **AUTO** and **CUT** keys in the transition control panel. This function may be selected in the **SETUP** of the switcher.

PGM/PST GERMAN

Press the associated function key to exchange the position of the Program and Preset banks.
In inactive status the Program or Background bank is above the Preset bank as is international custom.
In active status the Program or Background bank is below the Preset bank as is general practice in German TV broadcasting corporations.

SELECT %–BARS

If you press the associated function key, all bar graphs of the menus will include a percentage value indicating the current analog value. This indication only serves as a general guideline and does not show e.g. exact levels.

OR'D AUX

When ON, the ***on air*** indicators on the panel signal ***on air*** if the respective bus is on air **OR** a coupled (internal) AUX–BUS is on air.
When OFF, the ***on air*** indicators on the panel signal ***on air*** if theonly the respective bus is on air.

AUTO MENU

Press the associated function key to select the AUTO MENU function. In active status the associated menu will be called automatically whenever a key is selected in the various control panels of the desk. The automatic selection is always disabled when the EXTRA menu is selected.
In inactive status the individual menus can be selected with the associated keys if necessary.

AUTO BAR

As from software version"F", when analogue values are changed, a window can be displayed in the selected menu which shows the various settings in a bar graph. This mode can be enabled or disabled by pressing the softkey AUTO BAR.

For DD5 and DD10 switchers, click on an EXIT panel on the menu monitor using the mouse or the trackball to switch off the window.

PORT

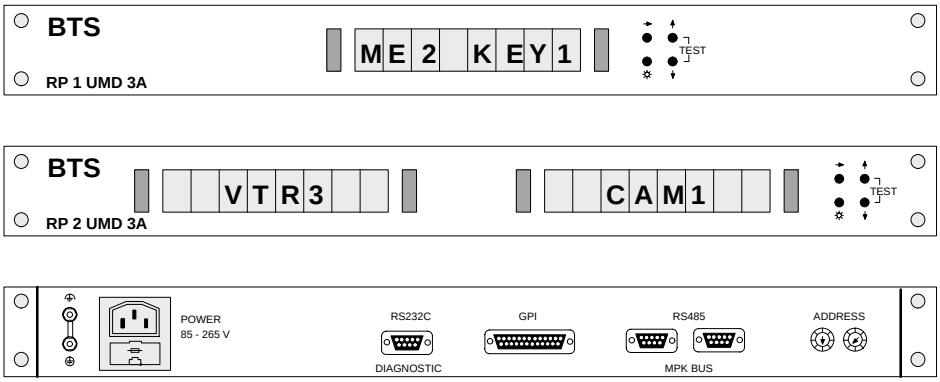
If the associated function key is pressed, an additional selection field appears where the function of the PORT connector at the control panel can be defined. Currently the following port protocol is available:

– AUX / UMD-MPK

8-CHAR UMDS

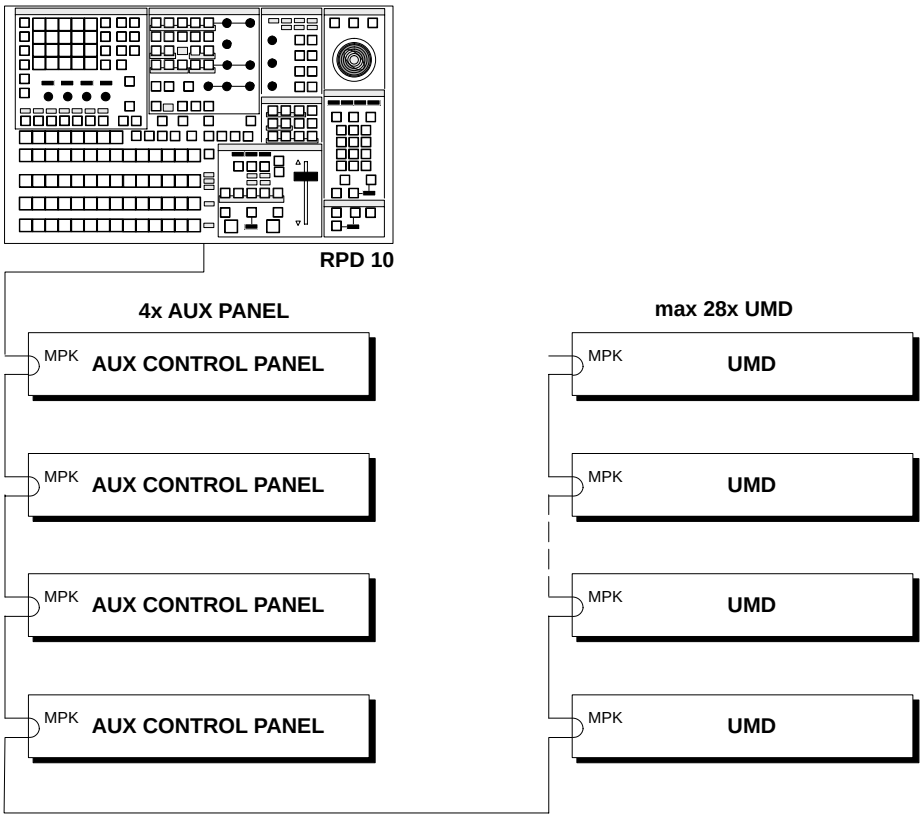
CONNECTION OF THE STATUS DISPLAYS RP 1/2 UMD

In addition to the AUX panels, status displays (UMDs) can be connected to the MPK bus. Since maximally 32 devices can be operated at the MPK bus, the number of the connectable UMDs depends on the number of the connected AUX panels.



Connection to the MPK bus is made in the same way as for the AUX panels. Power supply can be universally with line voltages of 85 V ... 265 V AC. The respective use of the UMDs can be adjusted with the two rotary switches **ADDRESS** on the terminal panel.
Each rotary switch has t he hexadecimal range **0** ... **F**. See the table below.

Number of UMD = 32 – Number of AUX-Panel

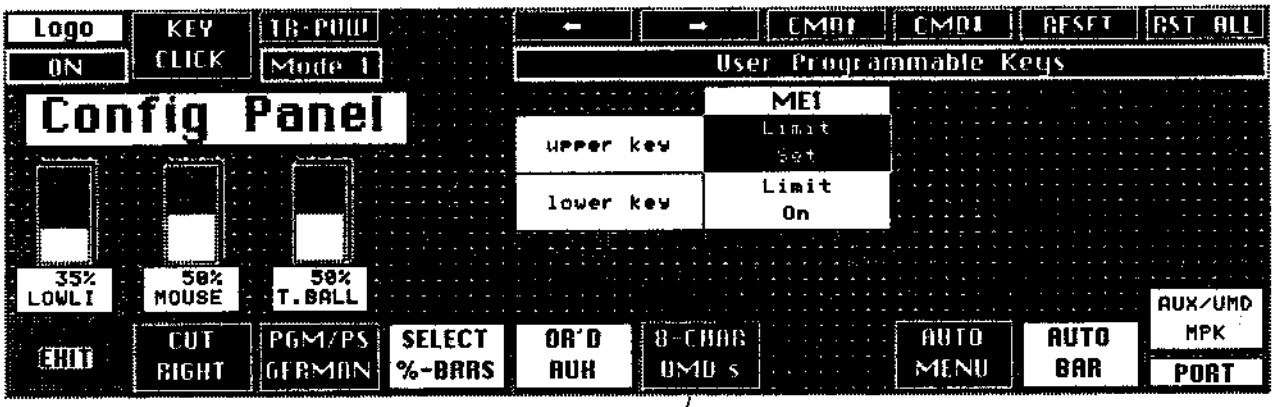


In this application, the following addesses are used:

Address H	Address L	Display Left display RP 2 UMD	Display Display RP 1 UMD right display RP 2 UMD	Note
0	0	–	Input 1	1)
0	1	Input 1	Input 2	
0	2	Input 2	Input 3	
⇓		⇓	⇓	
0	F	Input 15	Input 16	
1	0	Input 16	Input 17	
⇓		⇓	⇓	
1	F	Input 31	Input 32	
2	2	–	Output ME1	2)
2	3	Output ME1	Output ME2	
2	4	Output ME2	Output MAIN	
2	5	–	PVW ME1	3)
2	6	PVW ME1	PVW ME2	
2	7	PVW ME2	PVW PP=PST=MAIN PVW	
2	8	PVW PP	CLEAN FEED	4)
2	9	CLEAN FEED	PVW BUS	5)
2	A	PVW BUS	Output DP	6)
2	B	–	AUX1	7)
2	C	AUX1	AUX2	
2	D	AUX2	AUX3	
2	E	AUX3	AUX4	
2	F	AUX4	AUX5	
3	0	AUX5	AUX6	
3	1	DVE1 KEY	DVE1 VIDEO	8)
3	2	DVE1 VIDEO	DVE1 KEY	
3	3	DVE2 KEY	DVE2 VIDEO	
3	4	DVE2 VIDEO	DVE2 KEY	

Attention: Other addresses are not admitted. Each address must be adjusted at one UMD only!

The presentation on the display is mostly made with 4 characters. At the UMDs for CLEAN FEED and for the DVEs, alternatively an 8-character display can be selected.
Adjustment is made via the softkey "**8-CHAR UMD's**" in the menu **Config Panel** of the mixer.



Softkey "8-CHAR UMD's"

Notes to the address adjustment:

1) The displays for the 32 inputs show the 4-digit source name.
2) The displays for the three outputs can show the following:
   a) The source name of the input being visible in the output picture, if it is the only picture component,
   b) "....", when a mixed picture is at the output,
   c) "**FTB**", when the output has been faded to black with the fade-to-black function.
3) The displays for the PVW ME1 / ME2 / PP Preview can show the following:
   a) "**PROG**", when no Preview is selected,
   b) "**AKAx**", when the cursor for Auto-Chroma-Key-Adjustment is selected,
   c) the states of the next transition keys are displayed with graphical symbols (on/off).
      e.g. "_■_■" In this case: **NXT BGD A = off, NXT BGD B = on, NXT KEY 1 = off, NXT KEY 2 = on**

      This preview mode is displayed when Look-Ahead-Preview is switched on.

   d) "**TRAN**", when Transition Preview is selected.
   e) "**KEYx**", when Key Preview is selected (Video: Key to background)
   f) "**keyx**", when Key Preview is selected (Video: pure key signal (SW))
   g) "**MSKx**", when Mask Preview is selected
   h) 4-digit source name of the DSK2, when PP-Preview = DUAL or CASC is selected.

x = **1** or **2** for ME1,
4 or **5** for ME2
7 or **8** for PP

4) The Clean Feed display shows in the 4-character mode "**CLEA**" and in the 8character mode "**CLEAN FD**".

5) The display of the Preview AUX output shows the 4-digit source name of the selected input.

6) The display of the DP output shows the 4-digit source name of the selected DSK1 input when PP–Preview = DUAL or CASC.
In the other cases: "**####**" (no meaning).

7) The displays for the 6 AUX outputs show the 4-digit source name of the selected input.

8) The displays for the 4 DVE outputs can show the following:

   a) The 4–digit source name of the selected input
   b) "**1PST**", "**1PGM**", "**1 K1**", "**1 K2**", "**2PST**", "**2PGM** ", "**2 K2**", "**PPST**", "**PPGM**", "**P K1**", "**P K2**" for the selected ME output in the 4–character mode.
   c) "**ME1 PST**", "**ME1 PGM**", "**ME1 KEY1**", "**ME1 KEY2**", "**ME2 PST**", "**ME2 PGM**", "**ME2 KEY1**", "**ME2 KEY2**", "**PP PST**", "**PP PGM**", "**PP KEY1**", "**PP KEY2**" for the selected ME output in the 8–character mode.

- MON IDENT/I
- MON IDENT/B
- AUX-MPK

The items will be updated gradually.

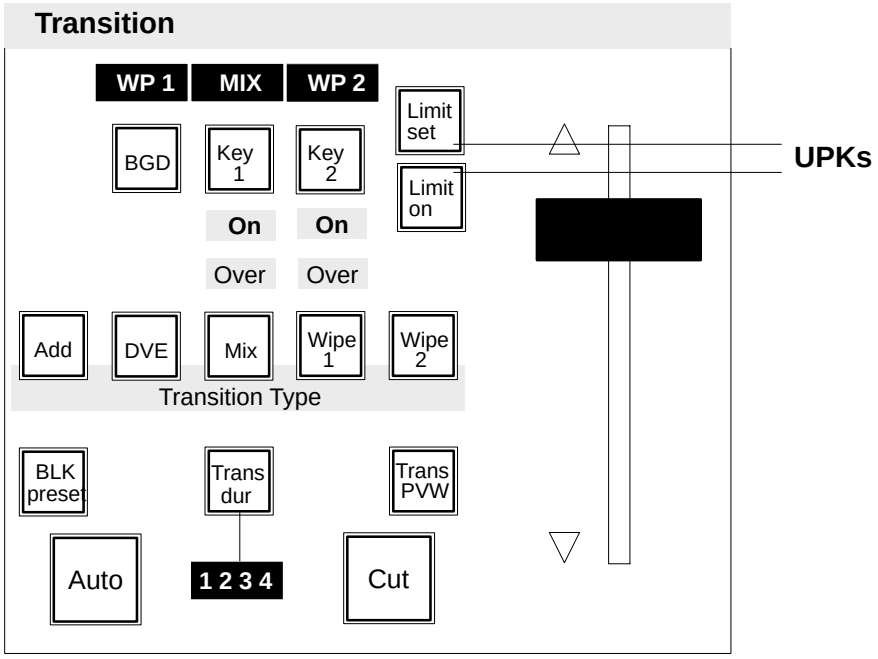
Each time you press this key, these options will appear in cyclical order.

3.5.4.1 User programmable keys

From software version ”H-plus” or ”I”, the mixers DD10, DD20 and DD30 include the function ”user programmable keys – UPK” which enables direct control of a connected device (e.g. DVE) from the Transition panel by generating GPO triggering pulses.

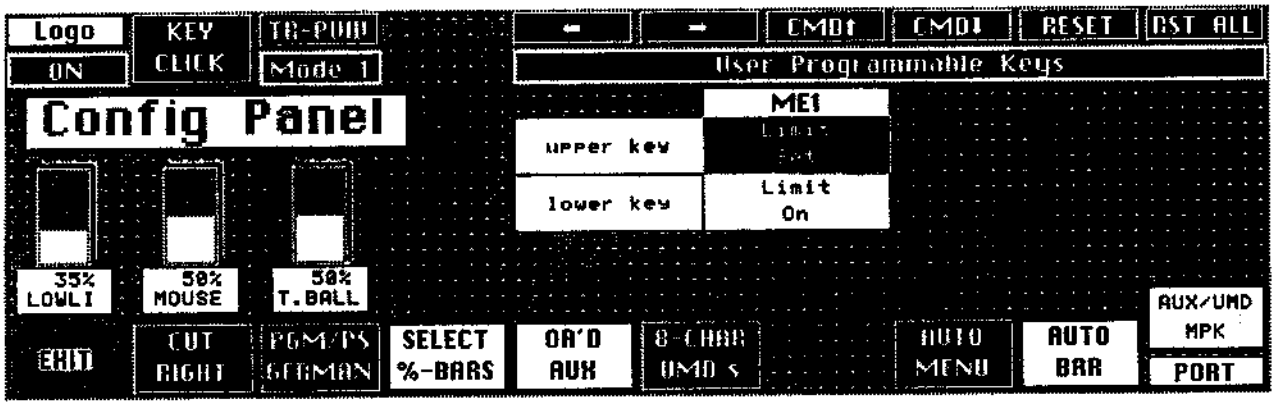
The keys Lim on and Lim set are available for control. Depending on the application, they can be programmed in the new software version in the menu Config Panel.

Additionally, it is possible to supply automatically a GPO triggering pulse from the Transition panel which is generated when actuating the keys Cut or Auto.



Example: DD10 Transition panel

Menu Config Panel



Softkey → ← Movement of the cursor within the table.

Softkey **CMD↑ CMD↓** In the field marked with the cursor, each time the key is pressed, switchover is made to the next or previous programming version. The indicated version corresponds to the respective key function.

The following functions can be assigned to the two keys:

- **Limit set/on** (default)
- **Trigger GPO1**
  :
- **Trigger GPO8**
- **Enable GPO Trigger**
- **Enable DVE1 shotbox**
- **Enable DVE2 shotbox**

When one of the keys is programmed on Enable GPO Trigger, the Auto key is used to additionally trigger the GPO2, and the Cut key to additionally trigger the GPO3.

Not for "Enable DVEx shotbox":

"Enable DVEx shotbox" can be switched on by pushing the programmed button. Switching OFF is done by pushing a Next Transition button.
*When ON, the transition control field serves as DVE shotbox, i. e. all lamps and displays are switched-off, the fader is inactive. The **AUTO** and **CUT** button have differen functions:*

- ***AUTO***	*triggers*	*GPO2*	*in*	*DVE1 shotbox mode*
- ***CUT***	*triggers*	*GPO3*	*in*	*DVE1 shotbox mode*
- ***AUTO***	*triggers*	*GPO4*	*in*	*DVE2 shotbox mode*
- ***CUT***	*triggers*	*GPO5*	*in*	*DVE1 shotbox mode*

As a side effect the keyers control field is delegated to key1.

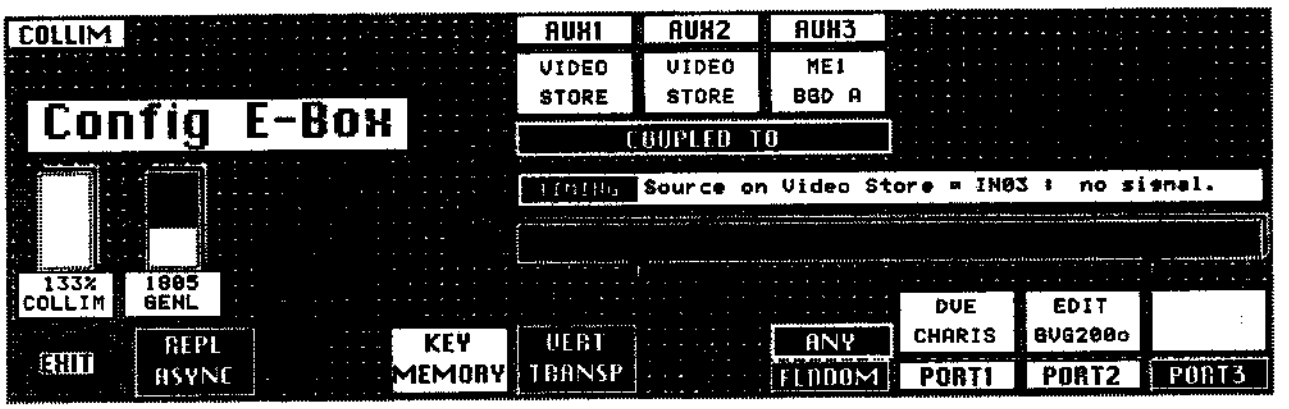
Softkey **RESET** The field marked with the cursor, is reset to the default function. Default function of the upper key is Lim set, and of the lower key Lim on.

Softkey **RST ALL** All keys are reset to the default function.

3.5.5 CONFIGURATION E-BOX SUBMENU

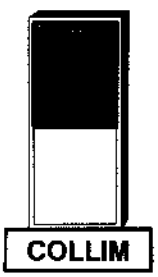
Press the associated key to select the CONFIG E-BOX submenu.

The CONFIG E-BOX submenu serves to set the system parameters for the electronics box of the switcher.



The level limitation for the internal matte signals will be swiitched **ON** or **OFF** by pressing the associated function key.

Note: *Snapshots stored with **COLLIM=OFF** or **COLLIM = 133 %** and high CHROMA and LUMINANCE (e.g. nice YELLOW) cannot be re-created correctly, when they are recalled with another COLOR LIMIT adjustment. Multiple recalls may result in different CHROMA and LUMINANACE.*



The first digipol serves to adjust the signal level of the colors generators. The limit is set to provide for a signal level of 100 ... 130 % after D/A conversion and PAL encoding.

Press the associated function key to return to the higher order INSTALL menu.

REPL ASYNC

In the **REPL ASYNC = ON** mode, the switcher monitors the signals to be keyed. For asynchronous signals a hard cut is performed at the end of the transition.

KEY MEMORY

The key memory can store a complete key adjustment for any input of the mixer.

These are the following parameters (marked in the figure with *):

- Key Type (Lin, Lum, Chr, Chr with FGD Fade)
- Border (Shadow, Drop, Outline, ...)
- Border Position, Border Opacity
- Key Invert
- Mask on, Mask Source (Box, Pattern, ...), Box Mask (right/left/top/bottom), Mask Bus Clip/Gain
- Fill Matte/Bus
- Opacity
- Clip, Gain
- Chroma Key Color and Selectivity
- Adjustments of Fill Matte and Border Matte

The following parameters are **not** stored:

- Synthetic Key Sources (Mask Key, Pattern Key)
- Key Over
- Key PVW
- Cursor/Auto
- Source Key Bus / Coupl / Split Key
- The source of the Mask Bus

Condition

Adjustment of the SETUP function **KEY MEMORY = ON**

Storing into the key memory

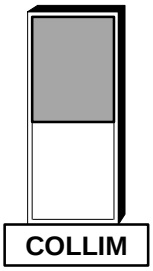
The key parameters are stored into the key memory,

- when another key source is selected on the key bus,
- when the momentarily used key source is selected again on the key bus.

Calling from the key memory

The key parameters of a key source stored in the key memory are called

- when switch-over is made to this key source on the key bus,
- when a synthetic key source (Mask Key, Pattern Key) is disabled by pressing the key once more.



The first digipot serves to adjust the signal level of the color generators. The limit is set to provide for a signal level of 100 ... 130 % after D/A conversion and PAL encoding.

Press the associated function key to return to the higher order INSTALL menu.

Restoring from the key memory

If an adjustment already stored for the same source should be restored during a key adjustment, a synthetic source (Mask Key, Pattern Key) has to be switched on and switched off with the same key.

NOTE

- If only the key crossbar is switched over with EXTRA, neither a storage of the former key state nor a call of the new key state is made.
- If the COUPL mode is selected or the key bus is selected as a source, the key source is automatically selected when selecting the fill signal, thus calling the stored adjustment of the source signal.
- If the KEY SPLIT mode is selected, the key source signal can be selected on the key bus, thus calling the stored adjustment.
- For each input, only one adjustment can be stored. If an input is used for several keyers in a different way, each procedure described under ”Storing”, effects a storage into the key memory. The last storage procedure will be the contents for this input in the key memory.

VERT TRANSP

Press the associated softkey to switsch over between ON and OFF.
IN OFF position the V-gap and the H•gap is replaced by black and the mixer-internal sync frame is added..
In ON position the information contained in the V-gap (VITS, videotext etc.) are kept.

ANY FLDDOM

Press the associated softkey to switch over between ANY, FIELD1 and FIELD2.

The setting concerns the switching of the crosspoints on all busses (without Ext Anz), the start of auto transitions, switching with **CUT** and the recalling of snapshots and timelines.
In position ANY switching occurs at the beginning of the next frame.
In position FIELD1/2 switching or starting occurs before the corresponding field.

AUX1	**AUX2**	**AUX3**
ME1 BGD A	ME1 BGD B	ME1 FILL 1
COUPLED TO		

Press the associated function key to couple the selection on the Aux matrices with the other matrices, i.e. when a picture source is selected on one of the matrices the Aux bus is selected as well. If you press the key again, a new window will appear in the menu which enables you to select the matrix with which the respective Aux bus is to be coupled.

EDIT1 GVG100		DVE PRIZM
PORT1	**PORT2**	**PORT3**

If you press the associated function key, an additional selection field appears which permits defining the functions of the PORT connectors at the E-box. Currently the following port protocols are available.

- EDIT GVG200o
- AUDIO MASTER
- DVE A53D
- DVE PRIZM
- DVE ADO
- EDIT1 GVG100
- EDIT2 GVG100
- IDENT TVS
- DVE CHARIS
- DVE VTR
- EDIT GVG200e
- DVE DPM

The items will be updated gradually.
Each time you press the key the indication in the respective active field will change in cyclical order.

GENLOCK ADJUSTMENT

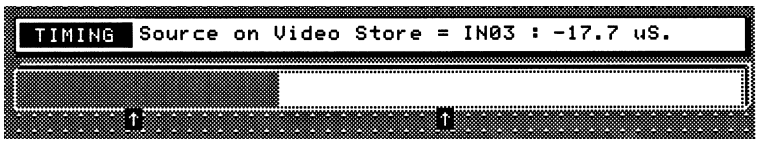
From software version ”G”, the mixers include the possibility to perform the genlock adjustment of the individual input sources in **Install**ation menu **Config E-Box.**

When adjusting the genlock phase, **all** sources have to be successively checked for their timing by switching up on the bus **Video store**.

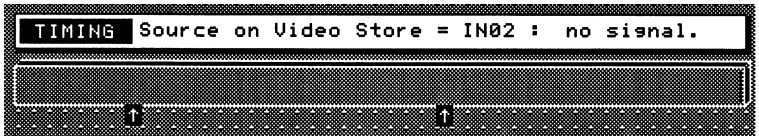
To adjust the genlock phase, select the softkey **Config E-Box** in the **Install** menu. The following display is represented:

With controller **Genlock**, the phase relation of the mixer can be shifted by –1 line up to +2 lines in comparison with the genlock reference signal.
The display **TIMING** serves for checking the timing of the sources.
The bar diagram arranged horizontally under the **TIMING** field displays the timing of the source to the mixer that is selected on bus **Video store**.

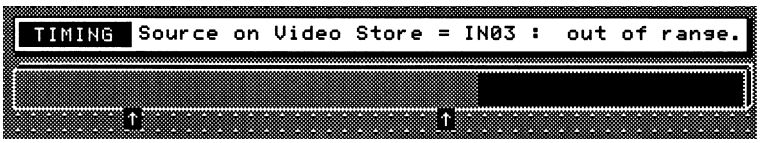
The display can give the following informations:



Input signal IN03 lies 17.7 µs before the earliest mixer input.



No input signal in the selected input.



Input signal does not lie in area of the auto phasers.

The header line **TIMING** displays the source selected on bus **Video store** with the defined source name with the current status (e.g. **IN03: no signal**).
The bar diagram under the header line displays the timing of the sources in the area of the auto phaser. Both arrows mark the area in which the phase relation of the sources can correctly be set for all mixer buses. In the correct timing range, the bar is light. A dark bar indicates that the source does not lie in the valid area. This can also happen when the display is between the arrows!

Attention:
At DD5 and DD10, the mode of representation of the menu monitor can be changed (e.g. to inverse representation) by means of switch T4 on the control panel controller. Thus the bar colors and also all other softkeys can be displayed in the menu in an inverted way.

The right arrow marks the earliest mixer input (latest timing of the sources). The left arrow marks the earliest timing of the sources.

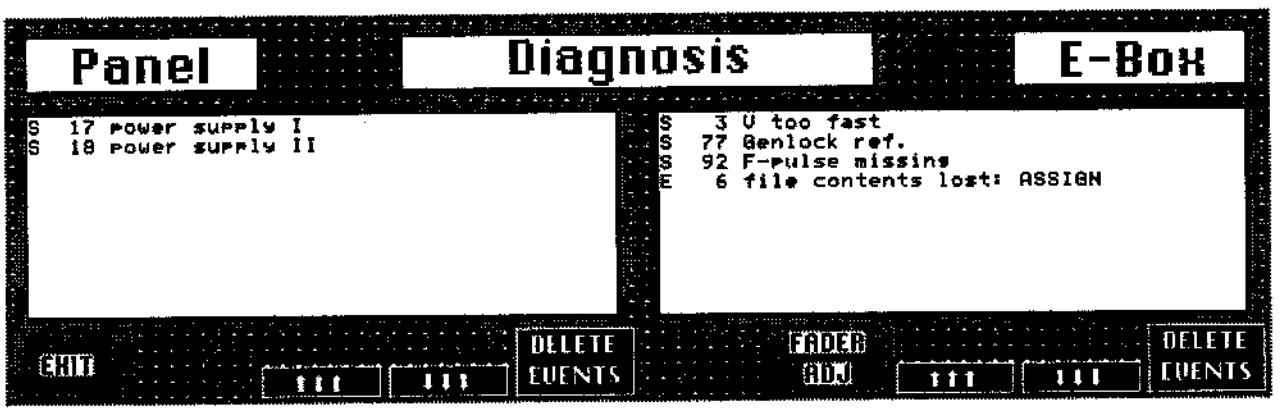
When adjusting the genlock phase, switching procedures in the genlock effect again a running in of the H phase. This is indicated in the bar diagram as bounces. In this case, the run-in procedure has to be waited for.

3.5.6 DIAGNOSIS SUBMENU

Press the associated key to select the DIAGN menu.

The diagnostics submenu serves for the output of error messages. The error messages are listed in the menu in separate windows according to error sources, i.e. control panel (panel) and electronics box (E-box).
In the representation of the errors, error states (S) are distinguished from error events (E). The errors in the list are marked accordingly. A defective p.c. board in the E-box, for instance, will be indicated as an error state. The message (e.g. "S RY 1917") continues until the fault is remedied. Error events (e.g. "E watchdog reset") are stored and deleted only after a specific intervention of the user.

The diagnostics menu permits the indication of many different error messages. All error states are indicated and updated continuously, while only the last 16 error events are indicated. These 16 error messages are lost when the switcher is switched off.



Press the associated function key to return from the DIAGN menu to the higher order INSTALL menu.

Press the associated function key to page up within the list of panel or E-box error messages.

Press the associated function key to page down within the list of panel or E-box error messages.

Press the associated function key to delete error events from the list of panel or E-box error messages.

POSSIBLE ERROR MESSAGES IN THE DIAGNOSTICS MENU

No.	Error messages	Source of error
01	watchdog reset	Control desk E-Box
02	V missing	
03	V too fast	
04	V too slow	
05	main display controller	
06	file contents lost: FILE NAME	
07	CHEAPERNET interface	
08	CHEAPERNET cabling	
09	CHEAPERNET send failed	
10	low battery voltage	Control desk E-Box
11	too many devices at CHEAPERNET	
12	button display controller	
13	no CHEAPERNET communication	
14	realtime clock	
15		
16	V-PLL not locked	
17	power supply I	
18	power supply II	
19	too many panels	
20	port: no communication	Control desk E-Box
21	port: transmitter defekt	
22	port: polled tributary busy	
23	port: network information lost	
24	port: protokol error	
25	port: system service error received	
26	port: destin. tributary unavailable	
27	port: communication distorted	
28	port: common error mess. received	
29	port: network too large	

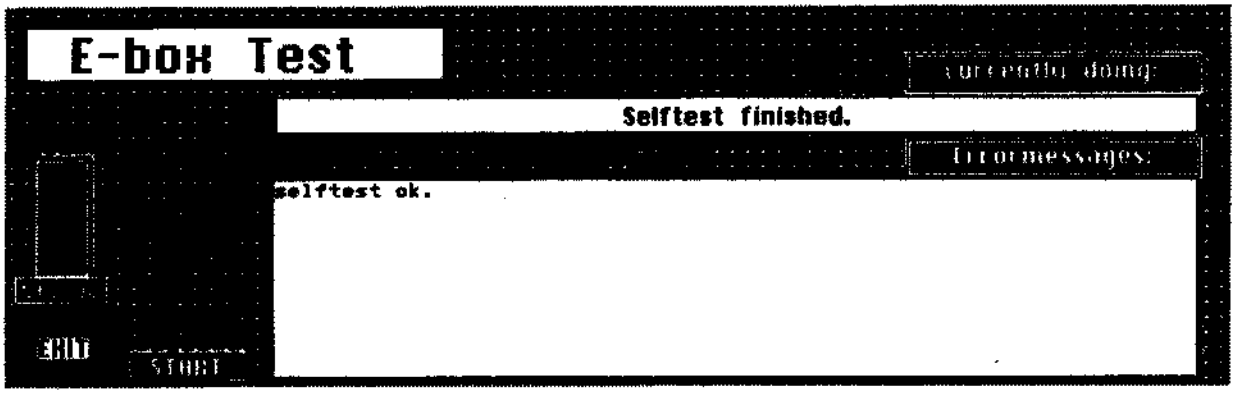
No.	Error messages	Source of error
30	port2: no communication	E-Box
31	port2: transmitter defekt	
32	port2: polled tributary busy	
33	port2: network information lost	
34	port2: protokol error	
35	port2: system service error received	
36	port2: destin. tributary unavailable	
37	port2: communication distorted	
38	port2: common error mess. received	
39	port2: network too large	
40	port3: no communication	E-Box
41	port3: transmitter defekt	
42	port3: polled tributary busy	
43	port3: network information lost	
44	port3: protocol error	
45	port3: system service error received	
46	port3: destin. tributary unavailable	
47	port3: communication distorted	
48	port3: common error mess. received	
49	port3: network too large	
50	DUART 1	Control desk E-Box
51	Interrupt 3	
52	EPROM checksum bank x/y	
53	RAM	
54	DUARD 2	
55	Interrupt 2	
56	I/O to boards	
57	too many foreign devices	
58	Memory Disk	
59	file contents lost: Disk	
60	Input Proc.1	E-Box
61	Input Proc.2	

No.	Error messages	Source of error
62	Input Proc	E-Box
63	ME Proc.1	
64	ME Proc.2	
65	ME Proc.3	
66	ME Proc	
67	Key Proc	
68	Key Proc.1	
69	Key Proc.2	
70	Key Proc.3	E-Box
71	Wipe Proc	
72	Wipe Proc.1	
73	Wipe Proc.2	
74	Wipe Proc.3	
75	Out Proc	
76	low –5V	
77	Genlock ref.	
78	Bankload	
79	Clock	
80	V-proc	E-Box
81	Field Puls	
82	Vert. Puls	
83	H-Input Puls	
84	H-F Puls	
85	H-S Puls	
86	H- P Puls	
87	H-Out Puls	
88	H-Aux Puls	
89	+ Power supply failed!	
90	– Power supply failed!	E-Box
91	read/write to RM1923 failed!	
92	F-Pulse missing	
108	slave processor not loaded	

3.5.6.1 FADER ADJUST

By pressing the FADER ADJ softkey, a routine for the adjustment of the switchers faders is triggered.
In this process, the user is asked to move all faders first to the bottom and then to the top limit position.

Example:



3.5.7 AUX-PANELS SUBMENU

Press the associated key to select the AUX-PANELS submenu.

For the switchers *DD5, DD10, DD20* and *DD30*, two types of AUX panels are available. Type *CP-300* with 24 source selection keys and six bus delegation keys, and type *CP-330* with 48 source selection keys and six bus delegation keys.

In addition to the AUX panels, two types of status displays (UMDs) can be connected to the same control bus. Type RP 1 UMD includes a display with eight characters and type RP 2 UMD includes two displays with eight characters.

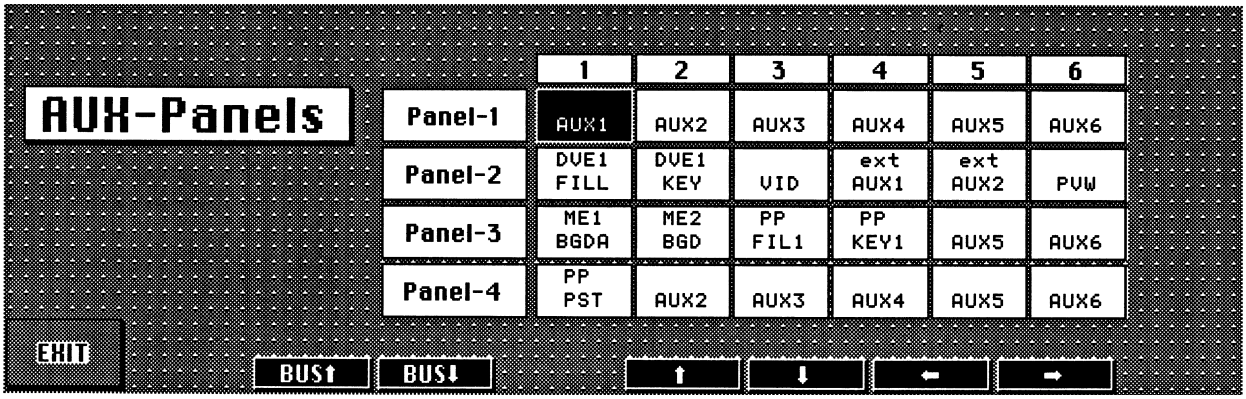
Since maximally 32 devices can be operated at the MPK bus, the number of the connectable UMDs depends on the num ber of the installed AUX panels.

Number of UMD = 32 – number of AUX panels

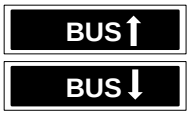
AUX delegation

The bus delegation keys can be assigned in menu AUX Panels to all buses. For this purpose, the mixer types DD5 and DD10 require the connection of a menu monitor.

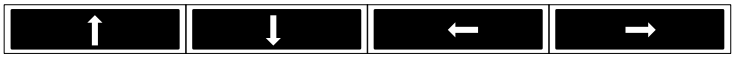
As default, the bus delegation keys are assigned to the AUX buses AUX1 to AUX6. Not all of the smaller mixer types have these buses.



Press the associated function key to return from AUX-PANELS menu to the higher order INSTALL menu.



Press the associated function key to select the controlled bus.



Press the associated function key to move the cursor from field to field in the entry mask. The active field is provided with a black background.

AUX assignment for internal busse

The assignment of the video signals to the keys of the AUX control panels *CP-330* and *CP-300* cannot be changed, however, it depends on the electronics box selected at the control panel. For *DD20* and *DD30*, **only** *CP-330* (with 48 source selection keys) should be used, in order to be able to select all signals. For *DD10* and *DD5*, both panels can be used. The lower row of *CP-300* (keys 24 .. 47) has the same assignment as the upper one.

Key	**DD20 and DD30** Input or internal signal	Key	**DD5 and DD10** Input or internal signal
0	Black	0	Black
1	IN 01	1	IN 01
⇓	⇓	⇓	⇓
32	IN 32	16	IN 16
33	COL1	17	COL
34	COL2	18	VIDEO STORE
35	VIDEO STORE	19	CLEAN
36	MONT PROC 1	20	PVW
37	MONT PROC 2	21	PGM
38	ME1	22	Black
39	ME2	23	Black
40	PP (= PGM)	24	Black
41	PVW ME1	25	IN 01
42	PVW ME2	⇓	⇓
43	PVW PP	40	IN 16
44	ME1 KEY	41	COL
45	ME2 KEY	42	VIDEO STORE
46	CLEAN	43	CLEAN
47	Black	44	PVW
		45	PGM
		46	Black
		47	Black

AUX assignment for external AUX busses

In case of delegation the AUX panels to external crossbars (Ext Aux 1...6) the following assignment is valid:

Key	Signal
0	Input 0 of external crossbar
1	Input 1 of external crossbar
⋮	⋮
47	Input 47 of external crossbar

Installation

Each master control panel RPD-xx allows connection of up to **four** AUX panels to the serial port (RS-422). Previously, the address has to be adjusted at each AUX panel, adjusting at each of the four AUX panels another address.

Proceed as follows:

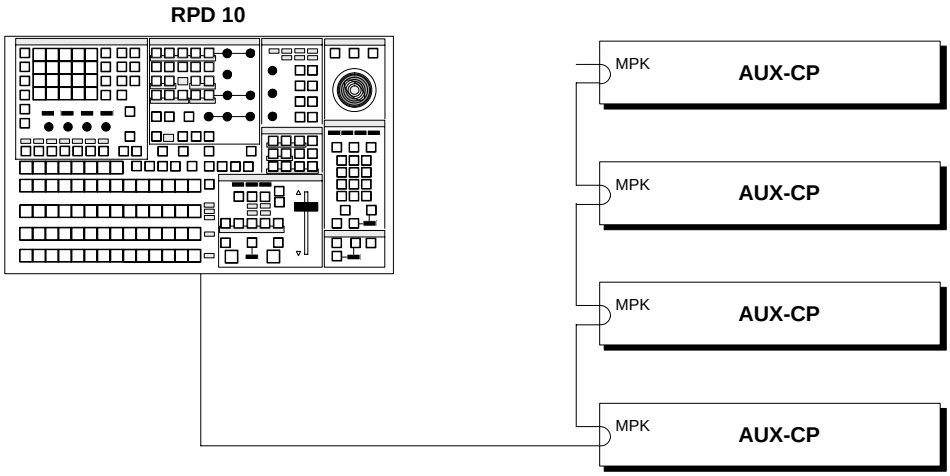
1. Remove on the rear of the panel the small cover cap, revealing a DIP switch module with 8 switches.
2. Adjust the DIP switches 1 to 8 as follows:
   (0 means switch OFF = downwards, 1 means switch ON = upwards)

Schalter	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
1. Panel	0	0	0	0	0	0	0	1	
2. Panel	1	0	0	0	0	0	0	1	Is applicable up to
3. Panel	0	1	0	0	0	0	0	1	software DS0041L
4. Panel	1	1	0	0	0	0	0	1	

From software version ”DS0011G” which replaces the under–monitor displays, the switches have to be set as follows:

Schalter	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1. Panel	0	0	0	0	1	1	1	1
2. Panel	1	0	0	0	1	1	1	1
3. Panel	0	1	0	0	1	1	1	1
4. Panel	1	1	0	0	1	1	1	1

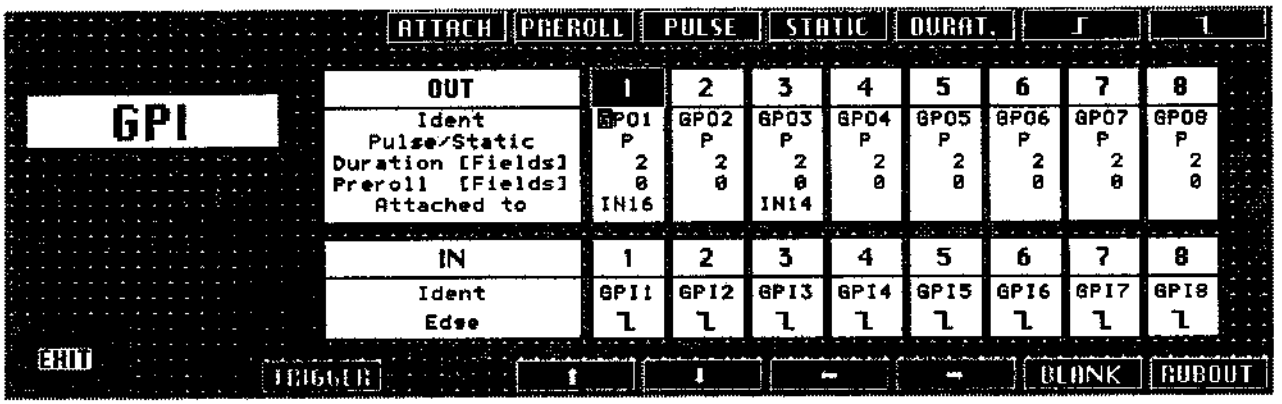
3. Fasten the cover cap.
4. Connect the panels among each other and with the serial port of the master control panel. For this purpose, a 9-wire cable with 9-pin Sub-D connectors is required (connected) by means of which the sockets MPK of the AUX panels and the serial port of the master control panel are connected.



5. Apply 5V DC to the AUX panels.
6. Select the protocol **AUX / UMD** in the SETUP of the master control panel at PORTP.

3.5.8 GPI SUBMENU

Press the associated key to select the **GPI** submenu.



Press the associated key to select the GPI submenu.The GPI submenu serves for the definition of the signal parameters for the GPI inputs and GPI outputs 1...8. An entry field is provided for the individual signals that can be accessed with the cursor keys.

In the **Ident** line, an abridged symbolic name of the respective input and output can be entered. Default settings are GPO1...8 and GPI1...8. The alphabetical keypad in the Wipe panel and the numeric keypad in the EXTRA panel can be used to change the names.

In the **Preroll** line, a preroll time (in fields) can be entered, for instance, to switch a VTR with a defined run-up time. The time value is entered with the numeric keypad in the EXTRA panel.

The Attach function offers a major advantage. If you select a fixed source in the **Attached to** line and also select the Auto function in the GPI OUT menu, the associated GPI signal is always set with a defined preroll time as soon as the source is faded-in whenever the fixed source is selected on one of the buses. This automatic function is particularly helpful with several VTRs with different preroll times.

Press the associated function key to return to the higher order INSTALL menu.

ATTACH

Press the associated function key to assign a fixed video source to the GPI channel marked with the cursor. For this purpose, the keys of the Background bus are highlighted with a running light. Select one of these keys to link the associated video source permanently with the GPI channel. The source identification is shown in the entry field.

PREROLL

Press the associated function key to enter a preroll time in fields. The time can be entered with the numeric keypad in the EXTRA panel.

PULSE

Press the associated function key to define the signal to be sent (GPI OUT) as a pulse signal. In this case, **P** is entered in the **Pulse/Static** line.

STATIC

Press the associated function key to define the signal to be sent (GPI OUT) as a static signal. In this case, **S** is entered in the **Pulse/Static** line.

DURAT.

Press the associated function key to set the pulse duration (**P** status) of the signal to be sent (GPI OUT). After you have pressed this key, a running light in the numeric keypad prompts the entry of a numeric value:
Number of fields = max. 254 = 5 seconds.

Press the associated function key to determine whether the positive or negative edge of the arriving signal (GPI IN) is to be evaluated. The corresponding symbol for positive or negative pulse edge is entered in the **Edge** line.

TRIGGER

Press the associated function key to simulate GPI IN and GPI OUT for testing or installation purposes. The channel whose entry field is marked with the cursor will be triggered.

Press the associated function key to move the cursor from field to field within the entry mask. The active field is provided with a black background.

BLANK Press the associated function key to enter a blank during the source name entry (Ident).

RUBOUT Press the associated function key to delete the contents left of the current cursor position.