

# AVAAB

# 201

## MANUAL

**AVAAB**  
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AVAB 201 Manual 7.OE  
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Program version 31  
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# AVAB 201

- TO TAPE
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- IR. ACTIVE
- PRINT

- CHANNEL
- FLASH
- BLIND
- CHASE
- LIGHTORGAN

- 2nd
- EDIT
- TIME
- MASTER
- X-TIME
- TIME ON

VERSION	JUMP	PREHEAT	PATCH	IR	SEQ. JUMP	SEQ. EDIT	GRANU
TO TAPE	ORGAN	CHASE	MODIFY	PRESEL	NEAR	LAST	ELLU
VERIFY	BLACK	LOCK	CH		SEQ. AUTO	EXTR-	MAST
TAP	OUT	TIME	ALTER	REC	WAL	PRINT	
TAPE	MASTER	MASTER			TIME	PAGE	2=1

00	X1
33	X2
00	

7	8	9
4	5	6
1	2	3
0	C	.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

CROSSFADE

GRAND MASTER

1

2

3

4

5

6

7

8

9

10

11

12

## A: General notes about AVAB 201 and about this manual

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### The AVAB 201 in general

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The control philosophy of the AVAB 201 incorporates features which until now were only available on much larger lighting control systems. The 201 bears only a cursory resemblance to a single-scene manual lightboard. We therefore recommend that you forget the analogy and simply approach the 201 with help from this manual as a completely new system. You will not be disappointed in the creative possibilities!

AVAB has taken advantage of recent developments in computer technology to make the 201 a very advanced lightboard. Automatic sequences of presets and up to 26 working registers, to each of which can be assigned individual fade times, are just two features which set the 201 apart from other lightboards.

The 201 does not "forget" your lighting program, since a built-in, rechargeable battery maintains the integrity of the memory, even when mains power has been switched off for several weeks. You can turn off the lightboard in the middle of a timed crossfade, for instance, and continue that same crossfade a couple of weeks later, when you turn it on again!

A basic principle used in creating the 201 was this:

All of the control features should be combinable without restrictions. The 201 does not block your way to creating interesting and dynamic lighting effects. The basic features of the system are covered in this manual. With a bit of experimentation and imagination you can come up with more advanced applications for the 201. Try programming a chase light effect over a light organ effect which you "bump" on and off with a "flash" key. It works! We do not doubt that you can find elegant solutions to lighting problems that not even the designers at AVAB conceived of!

The 201 has been designed to grow with your needs. Start by programming presets which you combine to create new presets. Next, build up a simple sequence of presets, linked with fade times. Go on to automatic fade times, special effects and master presets.

When you have have a firm grasp of these features, you can "play" with the 201, let your imagination guide you to more complex effects.

We wish you good luck and good lighting with your new 201!

### About this manual

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Throughout this manual pointed brackets < > enclose names of function keys.

Quotation marks " " enclose the names of LED:s.

References to other parts of the manual are enclosed by parentheses ( ).

# denotes a number entered on the keypad.

For example:

<REC>	means the key marked REC.
Channel	means the LED marked Channel.
(C3)	refers to section C3 of this manual.

Some terms used in this manual:

Preset	A lighting "look" recorded into memory. Each Preset has its own identification number (1-99). No information can be recorded into Preset 0, which is thus always empty.
Crossfade	The fading in of one Preset and simultaneous fading out of another.
Field	A working register containing one Preset.
X1-Field	Contains the Preset fading out.
X2-Field	Contains the Preset fading in.
Time	All Fade Time settings referred to in this manual range from 0.0 to 99 seconds. The first ten seconds can be divided into tenths of seconds.

The 201 has a number of working areas called Fields. There are a

total of 26 Fields (14 for the 12-channel version): 24 (12) Master Fields and the X1 and X2 Crossfade Fields.

You can program Presets or modify previously recorded Presets in any of these Fields. In the Master Fields you can control and assign Fade Times to recorded Presets. You use the Crossfade Fields to run a Sequence of Presets in a definite order with Fade Times.

Command syntax:

There are three basic types of command syntax:

1. <FUNCTION>                      Function key only
2. # <FUNCTION>                    A number entered on the keypad followed by a function key
3. # <PREFIX> <FUNCTION>        A number followed by a prefix entry such as <TIME> or <MASTER>, followed by a function key, such as <ASSIGN>.

There are a few exceptions to these rules, such as the definition of chase light and light organ effects, which are explained in detail below.

The following keys constitute the group of function keys:

<VERSION>, <TO TAPE>, <FROM TAPE>, <VERIFY TAPE>, <JUMP>, <BLACKOUT>, <PREHEAT>, <PATCH>, <IR>, <NEXT PRESET>, <REC>, <SEQ NEXT>, <SEQ TIME>, <SEQ AUTO>, <SEQ EDIT>, <SEQ LAST>, <PAGE>, <PRINT>, <ASSIGN/FLASH>, <CHANNEL/MASTER>, all <ASSIGN> keys, <LOCK>.

The function keys execute the related function as soon as they are pressed.

The following keys constitute the group of prefix keys:

<TIME>, <MASTER>, <TIME MASTER>, <ALTER>, <EXTERNAL>, <SEQ JUMP>, <CH>.

The prefix keys execute no function directly, but rather influence the function of the key which immediately follows.

For example:

# <ASSIGN> assigns the Preset # to a fader.

# <TIME> <ASSIGN>, on the other hand, assigns the Fade Time # to a fader.

It is a general rule that you can use a number in the keypad display for as many different commands as you like.

Resetting the operational program AND clearing the light memory  
=====

To RESET the entire lightboard, hold down keys <TO TAPE> and <LIGHT ORGAN> and simultaneously connect the board to mains power. This feature allows you to clear the entire memory of the 201 before starting a new production.

Restarting the operational program ONLY and keeping the light memory  
=====

To RESTART the operational program, hold down keys <CHASE> and <MODIFY> and simultaneously connect the board to mains power. This restarts the operational program without destroying the lighting program in memory. This feature helps you in a situation where for reasons of static electrical discharge, for instance, the operational program no longer functions as it should.

**B: AVAB 201 controls**  
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(See figure 1)

1. 12 or 24 combined CHANNEL/MASTER faders

In Channel-mode, these faders control their respective Channels. In Master-mode they function as Masters for previously recorded Presets. The <CHANNEL/MASTER> key toggles between the Channel-mode and the Master-mode. The Channel-mode is indicated by the "Channel"-LED.

2. 12 or 24 combined <ASSIGN/FLASH> keys

These keys are referred to as <ASSIGN> keys below. In Assign-mode, the keys are used to assign Presets, Fade Times and other parameters to each fader. They are also used to define chase and light organ effects. In Flash-mode these keys work as <FLASH> keys or "bump buttons", that is, they activate the Channel (Channel-mode) or Preset (Master-mode) assigned to a fader as long as they are depressed. The <ASSIGN/FLASH> key toggles between the Assign-mode and the Flash-mode. The Flash-mode is indicated by the "Flash"-LED.

3. Functions keyboard

These keys provide access to all AVAB 201 control functions. Most keys have double functions. To access the upper function, first press <2nd>. This "second" function is indicated by the "2nd"-LED.

Note: In the examples below the <2nd> key entries are NOT included.

4. Numerical keypad

Here you enter all numerical values used in commands. It also contains a clear-key - <C> - and a decimal point - <.>.

5. Keypad display

This display shows the last number entered on the keypad.



6. (ASSIGN) key for the X1-Field with display ((ASSIGN-X1))

This key is used to assign Presets to the X1-Field (the active Preset) and to define Fade Times. Note: You have to press this key twice to assign a preset to the X1-field. This is for safety reasons because this action changes the light on stage quite dramatically! The number of the active Preset is shown in the display.

7. (ASSIGN) key for the X2-Field with display ((ASSIGN-X2))

This key is used to assign Presets to the X2-Field (the next Preset) and to define Fade Times.

8. These 16 LED:s indicate the status of different functions and modes.

9. Crossfader

When moved to its end position this fader fades out the Preset in the X1-Field while simultaneously fading in the Preset in the X2-Field. When the Crossfade is complete, the Preset in the X2-Field moves to X1-Field (since it is now the active Preset) and the next Preset in the Sequence is automatically called up in the X2-Field.

10. Grand Master for the control output

Normally this fader is set to 100. However, if it is set to a level below 15, the level indication on the monitor blinks as a reminder.

# AVAB 201

<input type="checkbox"/> TO TAPE	<input type="checkbox"/> CHANNEL	<input type="checkbox"/> 2nd
<input type="checkbox"/> FROM TAPE	<input type="checkbox"/> FLASH	<input type="checkbox"/> EDIT
<input type="checkbox"/> IR ACTIVE	<input type="checkbox"/> BLIND	<input type="checkbox"/> TIME
<input type="checkbox"/> PRINT	<input type="checkbox"/> BLACKOUT	<input type="checkbox"/> MASTER
	<input type="checkbox"/> CHASE	<input type="checkbox"/> X-TIME
	<input type="checkbox"/> LIGHTORGAN	<input type="checkbox"/> TIME ON

VERSION	GROUP	TIME MAT	PATCH	NO	214	215			
10 TAP	10 TAP	CHASE	GROUP	NET	NO	NO	NO	NO	NO
10 TAP	10 TAP	CHASE	GROUP	NET	NO	NO	NO	NO	NO
10 TAP	10 TAP	CHASE	GROUP	NET	NO	NO	NO	NO	NO

88	33
X1	X2

00
----

7	8	9
4	5	6
1	2	3
0	C	.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

100	0	100	100
80	10	80	80
60	20	60	60
40	30	40	40
20	40	20	20
0	50	0	0
100	60	100	100
80	70	80	80
60	80	60	60
40	90	40	40
20	100	20	20
0	110	0	0

1 2

9 10

8 3 6 7 5 4

## C: Channels, Presets and Masters

---

Note: Before starting to create your Presets, make sure the Grand-Master is set to 100.

The 201 has 24 (12) different Master Fields and the X1 and X2 Crossfade Fields. You can build Presets in any of these Fields. To work blind in a Master Field, you set the fader for that Field to 0. The X2 Crossfade Field is by its very nature a blind Field.

You choose the Field in which you wish to work by entering <ALTER> followed by the <ASSIGN> key for the desired Field.

The working Field is hereafter referred to as the active Field.

Note: When first switched on the 201 automatically sets up the X1-Field as the active Field. This means the Preset in X1 is immediately active. There is no need to draw up a Master fader to activate this Preset.

### 1: Programming a Preset

---

<CHANNEL/MASTER>

Select the Channel-mode. The "Channel"-LED is on.

<ASSIGN/FLASH>

Select the Assign-mode. The "Flash"-LED is off.

When you first switch on the 201, the X1-Field is active. You can immediately proceed to draw up the Channel faders.

If you wish to work in another Field:

<ALTER> <ASSIGN>

Press the <ASSIGN> key for the Field in which you wish to work. Remember that the X1- and X2-Fields may also be selected in this manner. If the fader for the Field which you have chosen is set to 0 you will see active Channels only on the monitor, since you are working blind.

Set Channel levels by drawing up their respective faders.

# Select a number from 1 to 99 on the keypad.

<REC> The Preset is now recorded into memory under the number entered on the keypad. You have now programmed one Preset. If a Preset was previously recorded under this number, it is erased and replaced by this new information.

Note: If there was any light previously recorded under this number then you will hear 2 short beeps. This is a warning that you are going to destroy an old preset. If you want to record anyway press <REC> again.

## 2: Assigning a Preset to a Master fader

---

<CHANNEL/MASTER> Select the Master-mode. The "Channel"-LED is off.

<ASSIGN/FLASH> Select the Assign-mode. The "Flash" LED is off.

# Enter the number of the Preset which you wish to assign to a Master fader.

<ASSIGN> Press the <ASSIGN> for the Field to which you wish to assign the Preset.

You can now control the entire output of the Preset using the fader.

## 3: Using several Presets to build a new Preset

---

<ASSIGN/MASTER> Select the Master-mode. The "Channel"-LED is off.

# <ASSIGN>, # <ASSIGN>,

# (ASSIGN), etc.

Assign the Presets you wish to mix together to different Masters (C2).

Set the desired levels for the Presets using the Master faders.

#

Select a number on the keypad, under which you want to record this new information.

(REC)

The Preset mixture is now recorded under the selected number as a new Preset.

#### 4: Assigning a Fade Time to a Master fader

---

(CHANNEL/MASTER)

Select the Master-mode. The "Channel"-LED is off.

(ASSIGN/FLASH)

Select the Assign-mode. The "Flash"-LED is off.

#

Select a Fade Time between 0.1 and 99 seconds.

(TIME)

Define this number as a Fade Time.

(ASSIGN)

Press the (ASSIGN) key for the Field to which the Fade Time is to be assigned.

Now when the fader is moved, the Fade Time determines the rate at which the up fade or down fade occurs.

Note: Even while the fade is running you can enter a new Fade Time to change this rate.

#### 5: Flashing with a Channel or Master

---

<CHANNEL/MASTER> Select the Channel-mode (the "Channel"-LED is on), if you wish to flash single Channels or the Master-mode (the "Channel"-LED is off), if you wish to flash with entire Presets.

<ASSIGN/FLASH> Select the Flash-mode. The "Flash"-LED is on.

<ASSIGN>, <ASSIGN>,

<ASSIGN>, <ASSIGN>...

The <ASSIGN> keys activate the Channels or Presets in their respective Fields.

Note: In the Channel-mode you flash the Channels which are present in the active Field. Therefore you can draw down the Master for that Field and thus reduce the intensity of the effect. If the Master is set to 0, the effect is not visible at all!

Note: You can set the Flash-level for each individual channel or Master. You just enter the level on the numerical keypad and then press <2nd> and the <ASSIGN>-key of the desired Channel/Master. Please note that you must be in Flash-mode to do this.

Note: To Reset all Flash-levels to 100 you enter 99 on the keypad and then press <ASSIGN/FLASH>-key. In this case you will not change Flash-mode, just set all Flash-levels to Full.

## 6: Building a fixed Sequence in the X1 Crossfade Field

---

The 201 can automatically create a fixed Sequence of Presets. This means that the Presets are automatically called up in numerical order. The other option, the free Sequence, is covered in (D).

<CHANNEL/MASTER>

Select the Channel-mode. The "Channel"-LED is on.

(ALTER) (ASSIGN-X1)

Activate the X1-Field.

Build up a preset as described in (C1).

#

Enter a number on the keypad.

(REC)

The preset is recorded under the number entered on the keypad AND automatically recorded in numerical order as part of the Sequence. Note that this fixed Sequence function only applies if the X1-Field is active.

You can combine this method with the (SEQ NEXT) and (SEQ LAST) functions. See (D).

Channel levels, Master and Fade Time assignments, along with abbreviated Sequence information are shown on Page 1 of the monitor.

## D: Sequence

-----

You can build a Sequence of Presets in any order with the 201. These Presets are then called up automatically in the X2-Field one after the other each time you move the Crossfader to its end position. The complete Sequence is shown on Page 2 of the monitor. Page 1 shows an abbreviated Sequence.

The Sequence can contain up to 200 steps, which means that you can use any of the the 99 recorded Presets several times. The Master Preset function reduces the number of steps in the Sequence, depending upon the number of such functions recorded in the Sequence.

For information on running through the Sequence, see (B9).

For information on recording a Sequence of Presets in numerical order, see (C6).

- |                       |   |
|-----------------------|---|
| # (SEQ LAST)          | Adds Preset # to the end of the Sequence.   |
| # (SEQ NEXT)          | Inserts Preset # between the present X1- and X2-Presets. Preset # will thus be faded in during the next Crossfade. If # equals zero, the Preset presently occupying the X2-Field will be deleted from the Sequence.   |
| # (SEQ TIME)          | The Fade Time # is recorded in the Sequence between the X1- and X2-Presets. This is the Fade Time of the next Crossfade.  |
| # (SEQ AUTO)          | Sets a wait Time before the automatic Crossfade to the X2-Preset begins. This is the length of time during which the X1-Preset remains active before the Crossfade to the X2-Preset is started automatically. By pressing the (SEQ AUTO) key a second time, the command can be rescinded. If the entered Fade Time equals zero, then the Autostart condition is removed. If you want to have an immediate start then enter a time of 0.1 seconds. |
| # (SEQ JUMP) (ASSIGN) | Sets a conditional automatic jump from the Sequence position, where this  |



command has been entered. (See below for information on programming the <SEQ JUMP> command.)

Every time this Sequence position is reached, the 201 checks the level of the Master for which you pressed the <ASSIGN> key. If the Master is set to any level other than 100, then permission to execute the conditional <SEQ JUMP> is granted. The jump will occur to the Sequence position specified in the <SEQ JUMP> command.

If, on the other hand, the Master is set to 100, then permission to execute the conditional <SEQ JUMP> is denied. The jump will not occur and the 201 continues with the Sequence of Presets as usual.

This feature can be used, for instance, if you wish to repeat a chain of Presets over and over again, until a certain condition has been fulfilled.

Using the <SEQ AUTO> function, you can even create a loop of Presets, which runs indefinitely until permission to execute the conditional <SEQ JUMP> is denied (by moving the Master fader to 100).

At the end of a series of Presets linked by automatic Fade Times, you program a jump to the first Preset in the series. The 201 will repeat that portion of the Sequence, until you move the Master fader to 100. An alternative to moving the Master manually is using the Master Preset function (see below).

There are virtually no limits to this <SEQ JUMP> function. You can "nest" several such functions together, one inside the other. You can even jump to a Sequence position, which jumps to another Sequence position!

# <SEQ JUMP> <C> <C>

Clears the conditional jump to Sequence position #.

- <SEQ EDIT> Deactivates all automatic Fade Times and jumps so that revision of these is possible.
- # <JUMP> Jumps to Sequence position #. At next Crossfade, the Preset occupying Sequence position # will be faded in.
- Note: To jump to a sequence position greater than 100 use the decimal point to indicate one hundred. Example: 2.3 means position 123 in the sequence.
- # <MASTER> <SEQ NEXT> Records the status of Master # as part of the next sequence position. The function is called the Master Preset function, because the status of any Master recorded is "mastered" by the Sequence Preset. When the position in the Sequence is reached during playback, where the Master's status was recorded, the Preset and Fade Time which were assigned to the Master are automatically called up by the 201. Even the Masters for chase and light organ effects can be recorded as part of the Sequence in this manner.
- Note: This function also remember if the master is going to fade in or out. If the master is down when you enter this command then it is supposed that the master should fade in. If the master is up then it is supposed that the master should fade out.
- # <MASTER> <C> <C> Clears the Master Preset for Master # in the Sequence position currently residing in X2. This function assumes, of course, that the Master has been assigned a Master Preset function by the command given above.
- # <MASTER> <SEQ AUTO> Same as <MASTER> <SEQ NEXT> but in addition, the fade is started automatically when the crossfade starts. To remove the autostart function press # <MASTER> <SEQ NEXT>.



F: Tape recorder  
-----

- # (TO TAPE)                      Records Preset and Sequence information onto a standard cassette tape. The play is given the number # for later identification. The "To Tape"-LED is on during recording process. First press (TO TAPE) then start the tape recorder.
- # (FROM TAPE)                     Loads the play with the number # into memory from the tape recorder. The "From Tape"-LED is on during the playback process. First start the tape recorder, then press (FROM TAPE). If # is 0 then the first play on the tape is loaded into memory.
- # (VERIFY TAPE)                  Compares the play on tape with the one in memory. Both the "To Tape"- and the "From Tape"-LED:s are on during the verification process. First start the tape recorder, then press (VERIFY TAPE).

As a security measure you must press the (TO TAPE) and the (FROM TAPE) keys (but not the (VERIFY TAPE) key!) twice before the function is executed.

While a play is being transferred to or from tape, the displays will show TAPE and a small circle jumping up and down in the keypad display to indicate tape transfer.

An error in recording or loading will display an error code number, 97, 98 or 99.

When the recording or loading procedure has been completed, the display shows the play number.

Note that the 201 puts out a constant signal for the first 30 seconds of the recording process. This is to allow the tape recorder:s automatic level control to stabilize itself and to wind past the leader tape. Therefore every recording begins after this 30-second start-up procedure.

The 201 finds the play no matter where it is on the tape. It simply skips plays whose identification number does not match the one entered on the keypad. Note that plays must be recorded in immediate succession. Otherwise the error code 98 (time-out) will be displayed. This error code will also be generated if the

201 cannot find the right play.

The tape recorder's volume control should be set to maximum. Make sure the cable to the tape recorder is not in close proximity to the TV, since the high voltage components there can interfere with the recording.

Note: If the 201 cannot find the right play it will take about 1 minute before the error code 98 is generated.

Note: The <TAPE> functions stop all special effects. They should be reactivated following the successfully completed operation.

Error Code	Meaning
97	Verify error: The information in memory does not correspond to the information on tape. Repeat the recording procedure.
98	Time-out: The 201 cannot find a play on the tape. Wind the tape forward a bit.
99	Data error: Faulty data. There is a problem with the tape or the recording. Try again.

## G: IR remote controller

<IR> Activates or deactivates the IR control function. The "IR"-LED is on when the remote controller is active.

## IR Commands

Number	Key	Function
1-24	F	Sets the level of the Channel or Master to 100.
1-24	^ , v	Fades the Channel or Master up or down.
1-24	0	Sets the level of the Channel or Master to 0.
997	.	Sets the Channel-mode.
998	.	Sets the Master-mode.
999	.	Sets all Channels in X1 to 0.
0-99	.	Calls up Preset 0-99 in X1.
100-199	.	Calls up Preset (1)00 to (1)99 in X2.
200	.	Executes a Crossfade in the recorded Fade Time.
201-299	.	Executes a Crossfade in (2)01-(2)99 seconds.
301-399	.	Records the active Preset as Preset (3)01-(3)99.

The IR remote controller can always be active, but we recommend that you deactivate the IR function, whenever it is not needed.

The IR receivers are factory-adjusted to respond only to encoded information in a narrow bandwidth of the infrared portion of the spectrum. However, the infrared component of the light from nearby lighting instruments can effect the IR receivers slightly causing the 201 to react a little sluggishly.

If you start timed fades with the IR remote controller, hold down the key until you see a light change, then release. It can happen that the light "hops" very slightly when you release the key. This is because the IR remote controller slows down the 201's operating speed. When the transmission ceases, the 201 returns to full operating speed.

## H: Printer

-----

# <PRINT>                      Produces printer format number #. The "Print"-LED is on.

## Printer formats

Number	Function
Format 1	Prints out all Presets which contain recorded information.
Format 2	Prints out the complete Sequence of Presets with Fade Times and indications of special effects.
Format 3	Prints out the Sequence plus all Channels levels involved in the Sequence.
Format 4	Prints out all special effects (chase light and light organ).
Format 5	Prints out patching information (requires the PATCH-kit).

If the paper runs out before the end of a printing job, the 201 waits until you have replaced the paper and then continues with the printing job. If you want to abort the printing simply press the <CLEAR>-key and keep it pressed until the printing stops. The printer will stop right after the current printer step. In a few seconds the "Print"-LED goes out.



### I: External triggering

---

You can externally trigger fades on the Masters or the Crossfader using a simple pushbutton or foot switch. In conjunction with a tape recorder and special interface equipment the 201 can take its cues for triggering Crossfades from audio signals on a tape.

Pushbuttons can also be built into set decorations. Actors can then trigger their own lighting changes -- to accompany the switching on of a lamp, for instance.

# (EXTERNAL) (ASSIGN)      Connects input # (1 or 2) to the specified Field (1-24, X1 or X2). A pulse on the external input circuit sets the Master for that Field 100. Another pulse will set the Master to 0.

If connected to X1, it activates the Crossfader.

If connected to X2, it activates the Crossfader backwards.

If a Fade Time is assigned to a Field, a pulse on the circuit fades the Channel or Preset in that Field in or out respectively in the specified Time.

# (EXTERNAL) (C) (C)      Clears the External triggering assignment #.

## J: Chase light effects

---

You can program up to 10 different chase light effects. Monitor page 3 shows all programmed chase light effects.

You build up a chase light effect using component Presets on the Master faders. This means you can chase not only with single Channels but with complete Presets.

Each effect must be assigned to a Master and Time Master.

### Setting up:

# <ASSIGN> ,

# <ASSIGN> ,

# <ASSIGN> , etc.

Note: Assign-mode!

Assign the Presets to be used in the chase light effect to different Masters.

### Programming:

# <CHASE> <ASSIGN>

<ASSIGN> <ASSIGN>

<ASSIGN> ... <CHASE>

The chase light effect # is programmed to run in the order you press the fader <ASSIGN> keys. AVAB 201 records the Presets and Fade Times residing in the different Masters at the time of definition. At the start of a chase they will be read down automatically. If no Fade Time is assigned to a Master, then a default Fade Time of 0.1 seconds applies. Terminate the chase light program with <CHASE>. The "Chase"-LED indicates the Chase-mode. Each effect can have up to 24 steps.

Note: If you have an old definition of a chase sequence you must clear this one before defining a new one. This is to prevent accidentally overwriting. Use # <CHASE> <C> <C> to clear the old one.

Note: You are not allowed to record the same master twice in succession. This

means that you can have a chaser that begins and ends with the same master. The 201 will automatically remove the second entry.

#### Clearing:

# <CHASE> <C> <C>

Clears chase light effect #.

Note: The <C> key must be pressed twice as a security measure.

#### Starting:

# <CHASE> <MASTER>

<ASSIGN>

Assigns the chase light effect to the selected Master. The assigned Master becomes the Master for the entire effect. You can assign a Fade Time to the Master to fade the effect in or out while it is running. You can also flash the chase light effect.

#### Setting the Time Master:

# <CHASE> <TIME MASTER>

<ASSIGN>

The assigned Master adjusts the speed of the chase light effect #. By assigning a Fade Time to the Time Master you can continuously change the speed of the effect while it is running. You can run the effect at a slow rate at first, for instance, and then speed up gradually to maximum speed. Here too the <FLASH> function can be used.

#### Stopping the effect:

<O> <ASSIGN>

Stops the effect running on the selected Master. Any Preset called up in this manner has the same result. This command will also remove all of the component presets of the Chaser.

#### Step a chase manually:

(2nd) (ASSIGN)

After this command you can use the (ASSIGN)-key for the chase master to step through the chaser. You rescind this mode by entering (2nd) (ASSIGN) again. The chaser will then be restarted automaticly.

Note: You can draw up the Masters a bit to set a background level for a chase light effect.

Note: If you want you can define a chase to chase with the masters of other effects (chase or light organ).

## K: Light organ

---

You can program up to 10 different light organ effects. Monitor page 4 shows all programmed light organ effects.

You use four component Presets, assigned during the set-up to four different Master Fields, which correspond to the the bass, low-midrange, high-midrange and high-frequency portions of the program source.

Each effect must be assigned to a Master.

### Setting up:

# <ASSIGN> ,

# <ASSIGN> ,

# <ASSIGN> ,

# <ASSIGN>

Note: Assign-mode!

Assign the four component Presets of the light organ effect to different Master Fields.

### Programming:

# <LIGHT ORGAN>

<ASSIGN> <ASSIGN>

<ASSIGN> <ASSIGN>

<LIGHT ORGAN>

Defines the four Masters involved in the light organ effect. The first Preset entered corresponds to the bass portion of the program source, the second to the low-midrange portion, and so on. By entering Preset 0 for any of the four positions, the light organ function ignores that portion of the sound source. The "Light Organ"-LED indicates an activated light organ effect.

### Clearing:

# <LIGHT ORGAN>

<C> <C> Clears the light organ effect #.

Starting:

# <LIGHT ORGAN> <MASTER> <ASSIGN> Assigns the light organ effect to the selected Master. The assigned Master becomes the Master for the entire effect. You can assign a Fade Time to the Master to fade the effect in or out while it is running. Flashing the Master is also possible.

Stopping the effect:

<O> <ASSIGN> Stops the effect running on the selected Master. Any Preset called up in this manner has the same result. This command will remove all the component presets of the Light Organ effect.

Note: You can define a Light Organ Effect to use masters for other effects as component presets.

## L: Patching Program

(The patching program requires that your 201 be equipped with the optional PATCH-kit.)

These are the main features of the patching program:

The 201 patching program allows the control of either 128 or 250 Channels -- depending upon the kit version -- via the 24 faders.

Several Channels can be controlled from the same fader.

No conflicts are allowed, meaning that a Channel can only be assigned to one fader.

A relative level allows several Channels which are controlled by the same fader to have individual levels which do not necessarily correspond to the level set by the fader.

## Setting up a Patch

<5> <PAGE>

Selects page 5 on the monitor. This page shows the Patching set-up and automatically selects the Patching-mode.

Note: In this mode some keys function differently.

#

Enter the Channel number (from 1 to 128 or 250). In order to display three-digit numbers on the keypad display (with two digits), the Channel numbers are coded as follows:

0-99 are displayed as 00-99

100-199 are displayed as 0.0-9.9

200-250 are displayed as 00.-50.

<ASSIGN>

Press the <ASSIGN> key above the fader to which you wish to assign the Channel.

Page 5 on the monitor shows the present Patching set-up for the selected fader, as well as for the faders just before

and after the selected fader.

For each Fader the following information is shown:

1. Fader #
2. Channel #
3. Relative level in percent
4. Additional Channel and relative levels

The X1 display shows the selected Channel.

- # Enter the desired relative level in percent (0-100, 100 is shown as 0.0).
- (.) This entry defines the number as a relative level.  
The X2 display shows this level in percent.  
The following entries allow you to increase or decrease the relative level in steps of 5:
- <X1> Increases the relative level in 5-steps.
- <X2> Decreases the relative level in 5-steps.  
The relative level is shown continuously both in the X2 display and on the Monitor.
- <0> (.) Deletes a Channel from the Patching set-up.

Repeat the procedure outlined above until you have completed your Patching set-up.

- <1> <PAGE> Exits from the patching-mode and records all patching assignments.

Changing the Patching set-up



---

<5> <PAGE>

Selects the patching-mode.

#

Enter the number (from 1 to 24) of the fader whose patching assignment you wish to change.

<PATCH>

Now the first 24 Channels of the fader:s patching assignment are called up on the faders. The Channel assigned to each fader is shown at the bottom of page 5 on the monitor.

The X1-Field is automatically activated and the output levels correspond to the fader at full so that you can see any changes you make.

You can adjust the relative levels of the Channels now directly using the faders. This feature lets you balance Channels against each other.

Note that the actual Channel relative levels are not updated continuously. They are obtained by pressing <C>.

Note that the faders can be "locked" until they are moved past the relative levels previously set for the Channels.

Monitor page 5 must be visible at all times while performing this operation.

<0> <PATCH>

Decouples the faders from their Channel assignments.

#### Printing out a Patching set-up

---

For Patch versions of the 201 there is the additional printer format: number 5. This gives you a printout of the Patching set-up with the Channels and relative levels assigned to each fader.

M: Other Functions  
-----

- <ALTER> <ASSIGN>                   Selects the Field in which you wish to work.
- <ALTER>                               Shows the number of the active Field in the keypad display. Repeating the same entry restores the previous display. The numbers 1 through 24 correspond to the Master Fields, 25 to the X1-Field and 26 to the X2-Field.
- <BLACKOUT>                           Severs the control output to the dimmers. The "Blackout"-LED indicates an active blackout. Repeating the same entry deactivate the blackout.
- # <CH> <ASSIGN>                      Lets you control selected individual Channels in the Master-mode. Channel # is controlled by the assigned Master.
- # <LOCK>                              Gives you the possibility of electronically locking the 201, so that it cannot be used without authorization. All the faders function as usual, but the keys are locked to prevent changing the information in memory. # is the locking code (1-99). To regain use of the control functions, press the same two-digit number with which you locked the 201 followed by <LOCK>.
- # <NEXT PRESET>                      Shows the number of the first free Preset above Preset # in the keypad display.
- <NEXT PRESET>                        <NEXT PRESET> without a preceeding number will give you the first empty preset number in the system.
- # <PREHEAT>                          Sets a lower level limit of # for all Channels. The function increase the longevity of lamps, since they are not switched on cold, but rather are always

slightly "preheated".

<VERSION>

Show you the number and type of the operational program used in your 201 on the displays.

The information is coded as follows:

X1-display (Number of channels: 12, 24, 2.8 (=128) and 50. (=250)).

X2-display (Video Type: P=PAL, N=NTSC).

Keypad display (Program version).

<2nd> <X1>

Steps forward one position in the Sequence.

<2nd> <X2>

Steps backward one position in the Sequence.

Appendix A: LED Legend

LED	Indicates
To Tape	A recording to cassette is in progress (F).
From Tape	A loading from cassette is in progress (F).
To Tape	A verification of a cassette recording is in progress (F).
IR Active	The infrared remote controller is activated (G).
Print	The printer is activated (H).
Channel	Channel-mode is active. If off, then Master-mode is active (B1).
Flash	The Flash-mode is active. If off then Assign-mode is active (B2).
Blackout	The Blackout function is active (M).
Chase	A Chase light effect has been selected (J).
Light Organ	A Light organ effect has been selected (K).
2nd	The <2nd> key has been pressed, which means that the next function selected will be a second function (B3).
Edit	The <SEQ EDIT> function is active (D).

Time                   The <TIME> key has been pressed (C4).

Master                  The <MASTER> key has been pressed  
(J,K).

Time                    The <TIME MASTER> key has been pressed  
(J).

X-Time                  The next Crossfade has a Fade Time  
assigned to it (D).

Time On                 A timed fade is in progress (C4).

## Appendix B: FUNCTIONS

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Key	Function
<2nd>	Is used before pressing a function key to select the upper function on that key. If pressed twice the lower function will then be selected (B3).
<ALTER>	Selects the active Field (C1,M).
<ASSIGN/FLASH>	Shifts between the Assign- and Flash-modes (B2).
<BLACKOUT>	Severs the control output to the dimmers. When pressed again the control output is restored (M).
<CH>	Selects a fader as Master for a single Channel while in the Master-mode (M).
<CHANNEL/MASTER>	Shifts between the Channel- and the Master-mode (B1).
<CHASE>	Defines a chase light effect or starts the same (J).
<EXTERNAL>	Defines the Master to be controlled by the external input (I).
<FROM TAPE>	Reads a play from a cassette into memory (F).
<IR>	Activates the infrared remote controller (G).
<JUMP>	Jumps to the desired Sequence position (D).

<LIGHT ORGAN> Defines the light organ effect or activates the same (K).

<LOCK> Locks or unlocks the 201 (M).

<MASTER> Defines the chase light or light organ Master or defines the Masters to which Presets are automatically called up in the Sequence (D,J).

<PAGE> Selects a monitor page (E).

<PATCH> Connects different control Channels with the selected output Channels (L).  
Note: Requires Patch-kit

<PREHEAT> Defines the lower level limit for all Channels (M).

<PRINT> Activates the printer (H).

<REC> Records a Preset (C).

<SEQ AUTO> Defines the automatic Fade Time for the X2-Field or for the Masters (D).

<SEQ EDIT> Deactivates all automatic Fade Times and jumps (D).

<SEQ JUMP> Sets a conditional jump to the selected position in the Sequence (D).

<SEQ LAST> Assigns the selected Preset to the end of the Sequence (D).

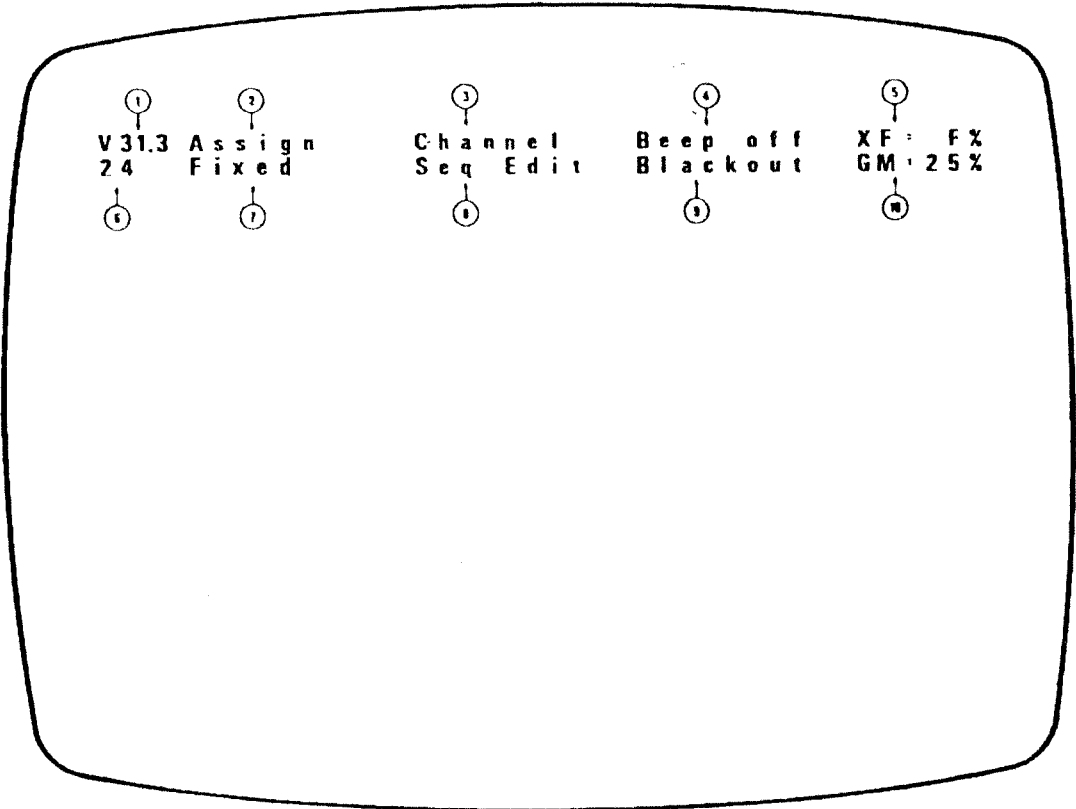
<SEQ NEXT> Inserts the selected Preset into the Sequence between the X1 and X2 Presets (D). It is also used to record Master Presets (D).

<SEQ TIME>	Defines a Fade Time for the Crossfade in the Sequence (D).
<TIME>	Defines the Fade Time for a Field (C4).
<TIME MASTER>	Defines the Time Master for a chase light effect (J).
<TO TAPE>	Records a play onto a cassette (F).
<VERIFY TAPE>	Verifies the information on the cassette against the memory contents (F).
<VERSION>	Displays the program version number used in your 201 on the keypad display (M).
<2nd> <X1>	Advances the sequence one step forward. (D)
<2nd> <X2>	Moves the sequence one step backwards. (D)



Monitor Header:

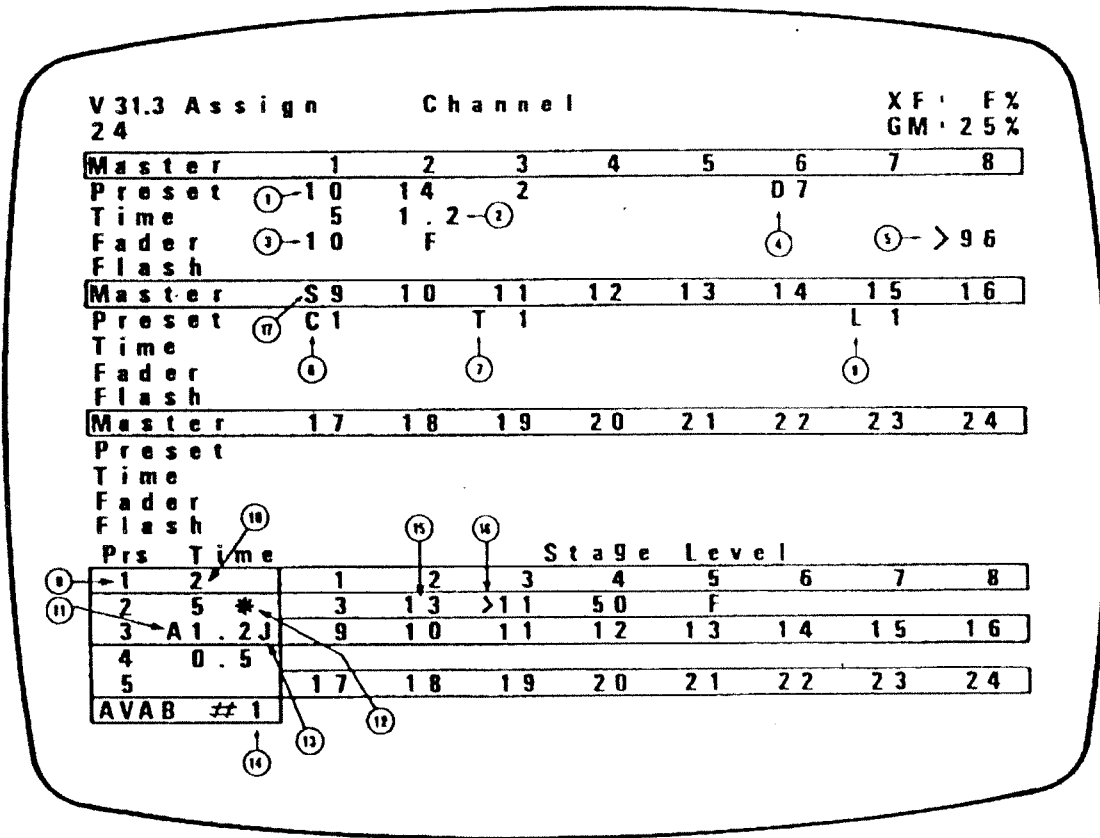
1. Shown the version number of your 201.
2. "Assign" here means Assign-mode, "Flash" means Flash-mode.  
"Locked" means that the 201 is locked.
3. "Channel" here means Channel-mode, "Master" means Master-mode.
4. "Beep Off" means that the acoustic signal is not active.
5. Shows the actual level of the Crossfade.
6. Shown the number of channels in your system.
7. "Fixed" means that the 201 is in Fixed sequence mode.  
"Free" means Free sequence mode.
8. "Seq Edit" means that the (SEQ EDIT)-function is active.
9. "Blackout" means that the (BLACKOUT)-function is active.
10. Shows the level of the Grandmaster.



Monitor Page 1  
-----

1. Shows the Preset assigned to the Master (C2).
2. Shows the Fade Time assigned to the Master (C5).
3. Shows the level set on the Master in percent (F=full) (B1).
4. "D" indicates that the Master controls a single Channel in the Master-mode (here Channel 7) (M).
5. ")" shows that the fader is "locked" in the Master-mode (C3).
6. "C" indicates that the fader is the Master for a chase light effect (here for effect no. 1) (J).
7. "T" indicates that the fader is the Time Master for a chase light effect (here for effect no. 1) (J)
8. "L" indicates that the fader is the Master for a light organ effect (here for effect no. 1) (K).
9. Shows the Presets in the Sequence (here Preset 2 in X1, Preset 3 in X2, etc.) (D).
10. Shows the Crossfade Times (here 5 seconds in X1, 1.2 seconds in X2) (D).
11. "A" indicates an Autotime (D).
12. "\*" indicates Master Presets recorded for the Sequence position (D).
13. "J" indicates a jump in the Sequence (D).
14. Shows the monitor page number (E).

- 15. Shows the stage (actual output) level for the Channel (E).
- 16. ")" shows that the fader is "locked" in the Channel-mode (C3).

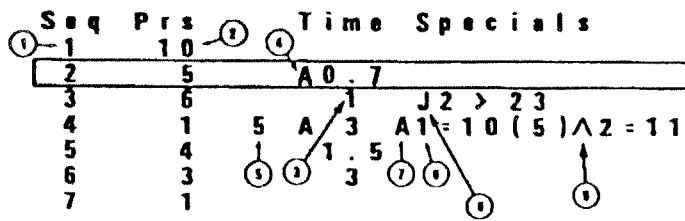


**Monitor Page 2**  
-----

1. Shows the Sequence position number (here position 2 in X1, position 3 in X2, etc.)
2. Shows the Preset corresponding to each position (here position 2 = Preset 5, position 3 = Preset 6).
3. Shows the Crossfade Time.
4. "A" indicates an Autotime.
5. "5 A" indicates an Autotime of 5 seconds.
6. "1=10(5)" means that Preset 10 is assigned to Master 1 with a Fade Time of 5 seconds.
7. "A" indicates an automatic start for the corresponding Master.
8. "J 2>23" indicates a conditional jump to Sequence position 2, which is performed until Master 23 is set to 100.
9. "U" means that this master will fade in. "v" means that the fader will fade out.

V31.3 Assign Channel

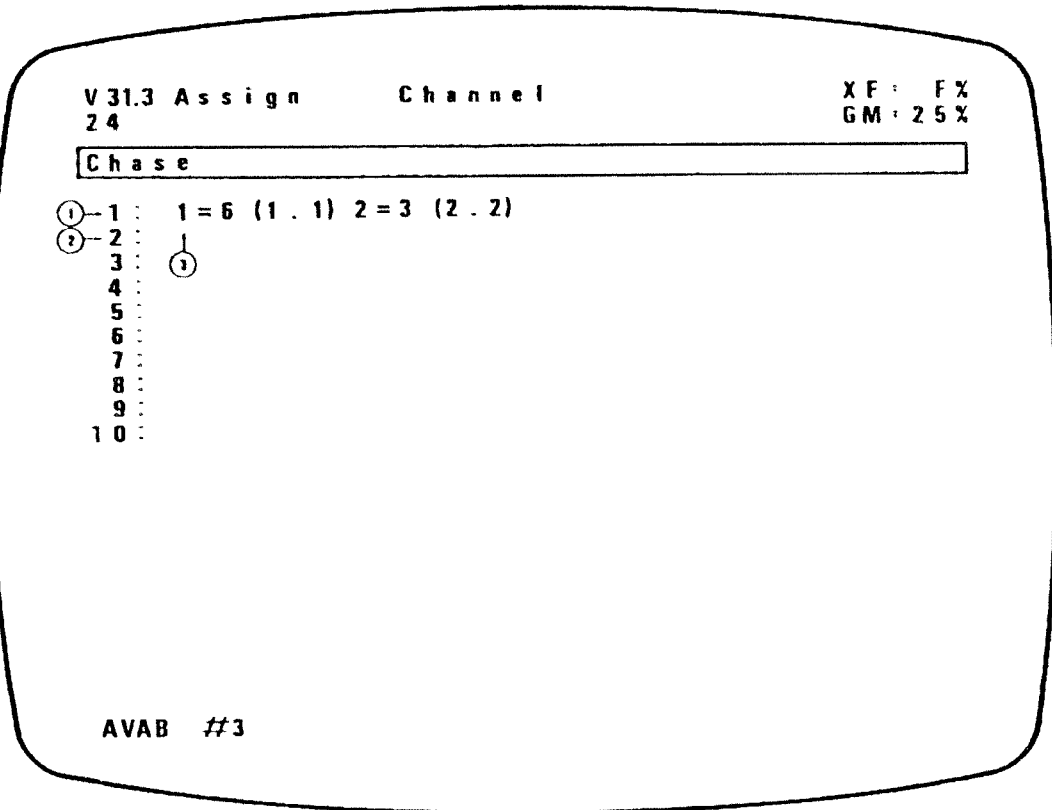
XF: FX  
GM: 25%



AVAB #2

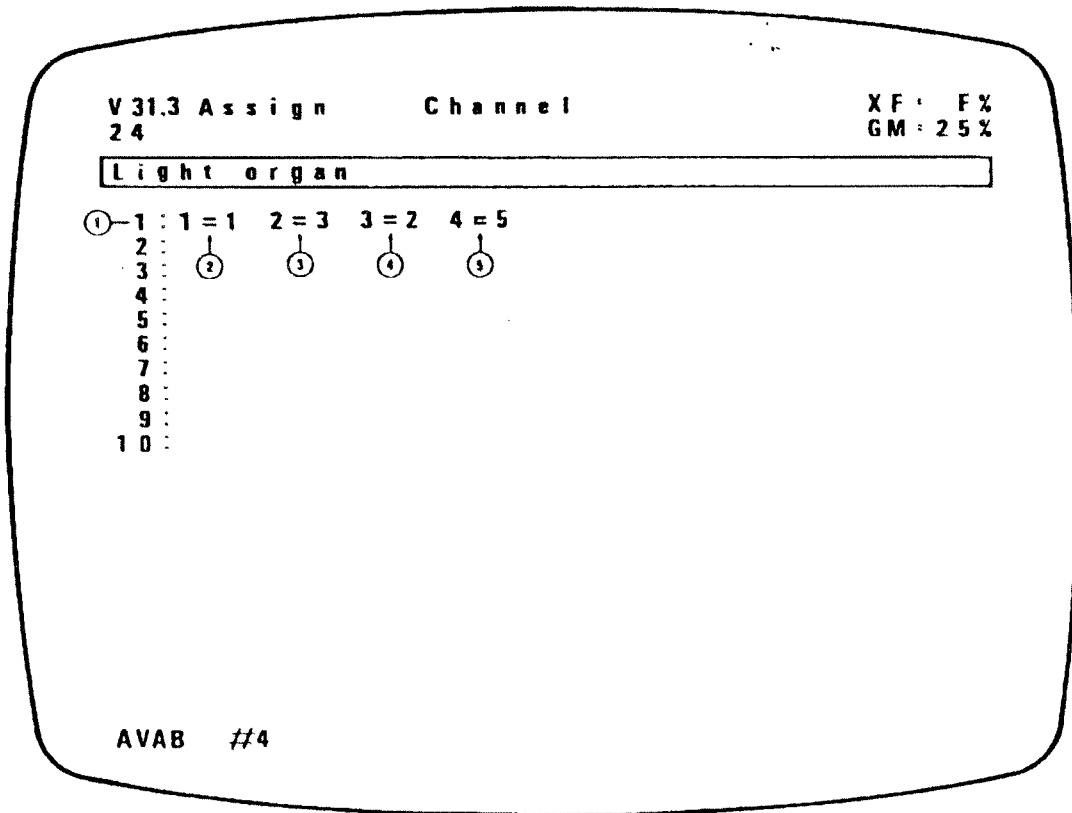
Monitor Page 3

- 1. Indicates chase light effect no. 1.
- 2. Indicates chase light effect no. 2, etc.
- 3. "1=6" means that Preset 6 is assigned to Master 1.  
 "1.1" means that the Master is assigned a Fade Time of 1.1 seconds.



Monitor Page 4

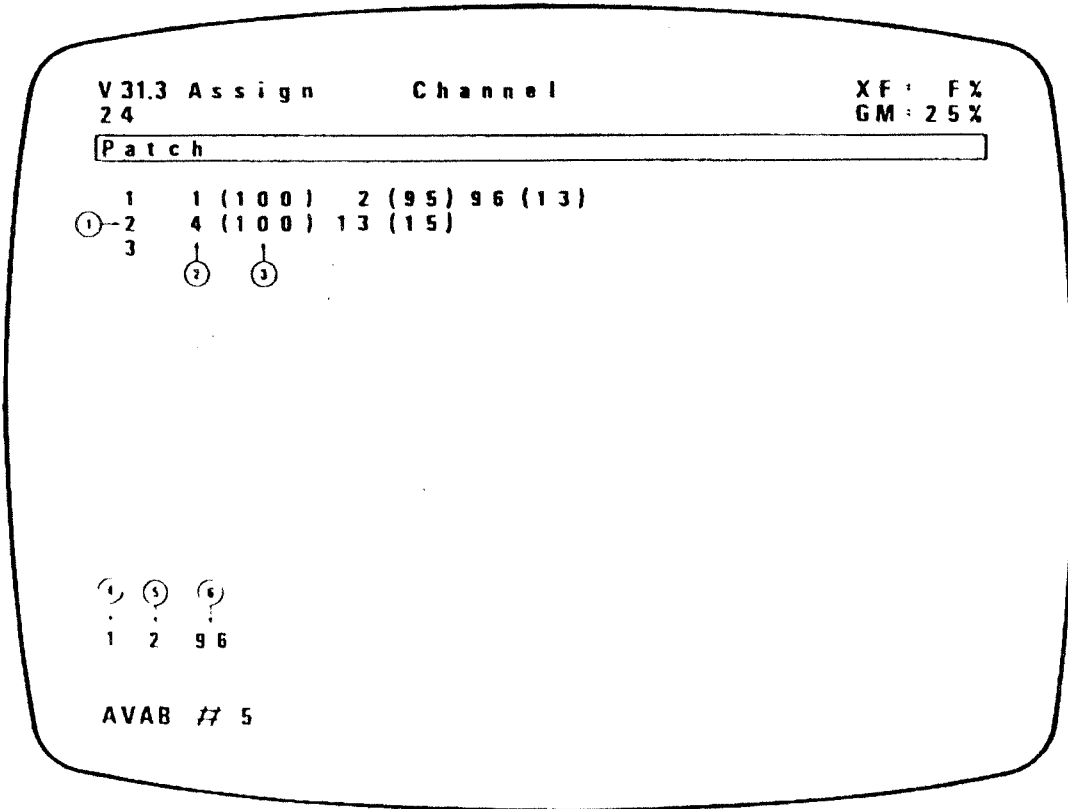
1. Indicates light organ effect no. 1.
2. Means the Preset 1 is assigned to Master 1 for the bass frequencies.
3. Means the Preset 3 is assigned to Master 2 for the low-midrange frequencies.
4. Means the Preset 2 is assigned to Master 3 for the high-midrange frequencies.
5. Means the Preset 5 is assigned to Master 4 for the high frequencies.





Monitor Page 5  
-----

1. Fader 2 on the 201 controls ...
2. Channel 4 with ...
3. a relative level of 100.
4. The level of Channel 1 is controlled directly by fader 1 -- see (L).
5. The level of Channel 2 is controlled directly by fader 2.
6. The level of Channel 96 is controlled directly by fader 3, etc.



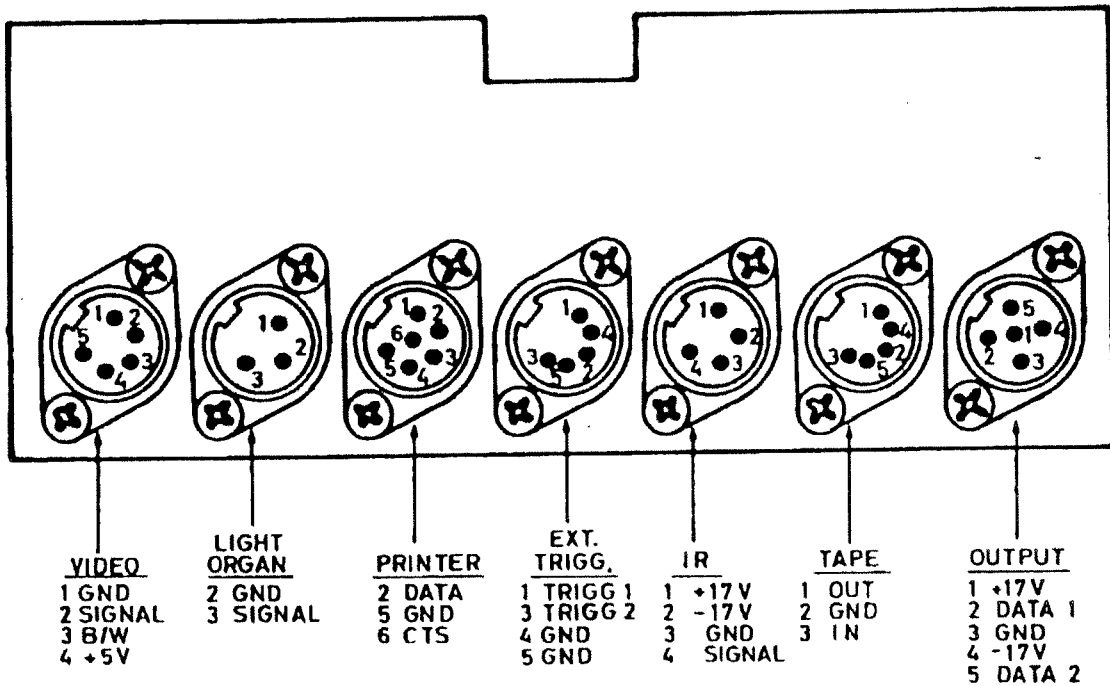
## 201: Block Diagram

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Note: The numbers in parentheses refer to the 12-channel version.

1. This block symbolizes the faders 1 through 24 (or 1 through 12).
2. The faders are switchable to function either as Channel or Master faders. The switch is marked "CHANNEL/MASTER".
3. In the Channel-mode the fader levels pass through a switch with 26 (or 14) different positions (the (ALTER) function). This function selects the active Field to which the faders are assigned.
4. The X1-Field contains the decreasing Channel levels in the Crossfade.
5. The X2-Field contains the increasing Channel levels in the Crossfade.
6. The 24 (or 12) Master Fields. Each Field can contain one Preset.
7. The levels from 4 and 5 are mixed at the Crossfader to produce a dipless Crossfade.
8. In the Master-mode each fader controls an entire Field. The levels from the Presets in the various Fields -- 6 -- pass through the corresponding the Master faders, which control the final output levels for each Field.
9. Here the levels from the X1-, the X2- and the Master Fields are compared with the result that the highest level for each Channel has priority. These Channel levels go further to ...
10. The Grand Master, which controls the entire output from the 201.
11. After the Grand Master a preheat level may be added.

12. The (BLACKOUT) function acts as a switch to allow the output either to leave the 201 or to be severed.
13. Here the output leaves the 201 en route to the dimmers.
14. Here is the Preset memory where Channel level information is recorded. A Preset can be recorded either directly from the faders (in Channel-mode) or after modification via the Grand Master (in Master-mode).
15. Here the data from different control entities are coordinated (for instance, Sequence, Fade Time or special effects information). These data then control the Masters and the calling up of Presets to the various Fields.
16. Here is the Sequence memory which determines the order in which Presets are called up to the X2-Field following each completed Crossfade.
17. Here Fade Times are calculated and controlled.
18. Here the chase light effects are controlled.
19. Here the incoming audio signal is processed to produce control "pulses" for the light organ.
20. Here the (FLASH) function is controlled.
21. Here the switching of the external triggering inputs is controlled.
22. The infrared remote controller automatically manipulates information in the X1-Field.
23. Here the output to the monitor is controlled.
24. Here the output to the printer is controlled.
25. Here the output/input to/from the tape recorder is controlled.



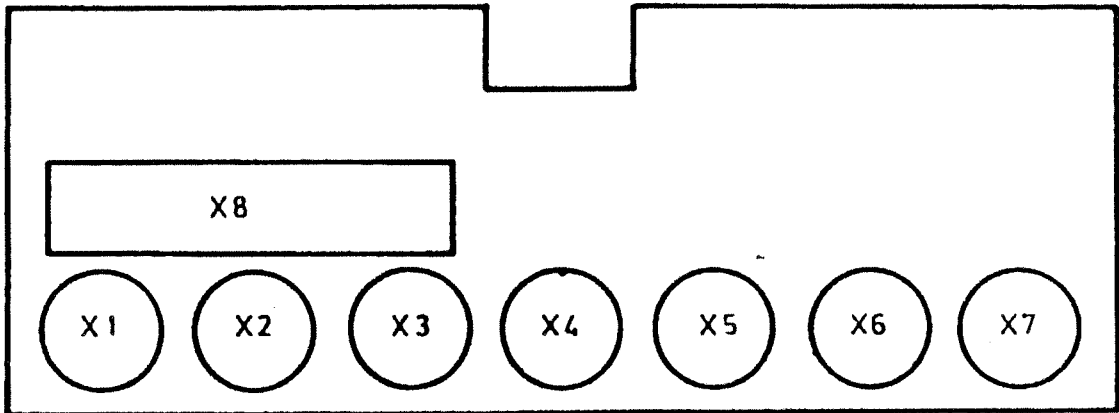
REG	ANT	REGISTRERINGEN AVSER	SIGN	DATUM

## AVAB Elektronik AB

V. Hamngatan 1  
 411 17 Göteborg  
 Sweden  
 Tel 031-17 92 40

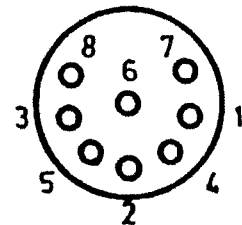
Karlvägen 81  
 114 59 Stockholm  
 Sweden  
 Tel 08-63 10 65

AVAB 201  
 Connection card



<u>X1 = VIDEO</u>	<u>LIGHT- X2 = ORGAN</u>	<u>X3 = PRINTER</u>	<u>EXT- X4 = TRIGG</u>
1 G	1 -	1 -	1 -
2 GND	2 GND	2 GND	2 GND
3 SIGNAL	3 SIGNAL	3 -	3 TRIGG 1
4 B	4 -	4 DATA TXD	4 -
5 SYNC	5 -	5 CTS	5 TRIGG 2
6 -	6 -	6 -	6 -
7 R	7 -	7 -	7 -
8 +17V	8 -	8 -	8 -

<u>X5 = IR</u>	<u>X6 = TAPE</u>	<u>X7 = OUTPUT</u>
1 -	1 OUT	1 DATA +
2 GND	2 GND	2 GND
3 SIGNAL	3 IN	3 -
4 -	4 -	4 DATA -
5 -	5 -	5 -
6 -17V	6 -	6 -17V
7 -	7 -	7 -
8 +17V	8 -	8 +17V



1 GND	10 GND	18 GND
2 TXD Printer	11 -17V	20 Light organ
3 NC	12 +17V	21 GND Light org.
4 NC	13 GND	22 IR
5 CTS Printer	14 GND	23 -17V
6 NC	15 Ext.trigg 1	24 +17V
7 GND	16 Ext.trigg 2	25 GND
8 D+ Output	17 Option input	
9 D- Output	18 Option output	

X8  
MULTI

REG	ANT	REGISTRERINGEN AVSER	SIGN	DATUM

## AVAB Elektronik AB

V. Hamngatan 1  
411 17 Göteborg  
Sweden  
Tel 031-17 92 40

Karlavägen 81  
114 59 Stockholm  
Sweden  
Tel 08-63 10 65

AVAB 201  
CONNECTIONCARD "NYR"  
(HD 850313)

UTFÖRD KONSTR AV	GRANSKAD AV	ARBETSNUMMER	DATUM	SKALA	RITNINGNUMMER
AJ		136-079	850610	1:1	510P-116

