Handbuch und Bedienungsanleitung
Operation Manual

SOAPbox

HDTV / SDTV Test Generator
2nd Generation

TAMUZ BROADCAST

Tiedenkamp 16 ~ D- 24558 Henstedt-Ulzburg ~ Germany

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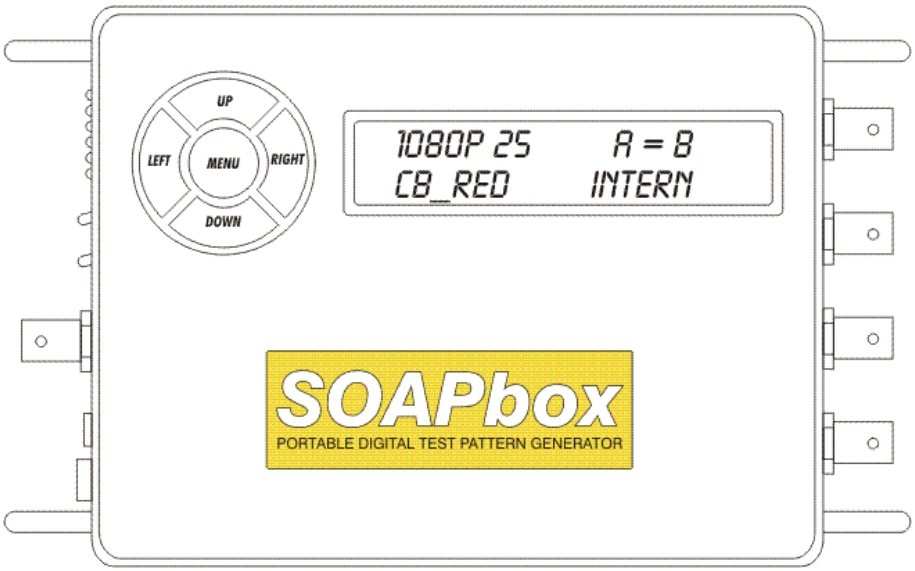
Introduction

SOAPbox Serial Or Analog Pattern Generator

This manual is written for the second generation of **SOAPbox**. Some more patterns and a little different menu structure are the main improvements.

Where ever you need a digital or analog test pattern, **SOAPbox** is the right choice. A handy tool box with broadcast quality test patterns for analog or digital video with embedded audio.



The test pattern generator **SOAPbox** is developed as an easy to handle tool for the digital broadcast production environment. It can be used as a battery powered portable unit or with the power supply in a firm installation.

Additional features are analog video outputs as composite or component.

Features:

- The **SOAPbox** is designed to offer video and film professionals a low-cost portable test generator to calibrate and test video equipment, monitors, projectors and more at facilities like TV and film studios, post productions, concert halls, theaters, R&D labs or during outside broadcasting.
- The **SOAPbox** provides broadcast quality 10 bit test patterns in HD, SD and 2K formats as still or animated images.
- Additionally analog outputs for composite SD and component SD/HD are available.
- The digital signal's carries embedded audio tones and timecode information.
- Integrated battery allows independent operation from mains power. Rechargeable with external 12 V DC power supply.
- Optionally a Genlock Input can be activated to synchronize the **SOAPbox** to a external clock.

General Safety Instructions

Duty of care of the user

The **SOAPbox** was designed and built under the harmonized norms to be adhered as well as further technical specifications. It corresponds to the state of the art and ensures a maximum amount of safety.

However, this safety can only be reached, if all measures required for this are taken in the operational practice. It is the duty of the **SOAPbox** user, to plan these measures and check their explanation.

The user must guarantee particularly, that

- *the* **SOAPbox** *is only used as agreed (cf. chapter product specification)*
- *the* **SOAPbox** *is operated only in faultless, working condition and particularly the safety facilities are checked for their function efficiency regularly*
- *the* **SOAPbox** *operator's manual always be placed in a complete and legible condition for disposal*
- *only sufficiently qualified and authorized staff uses, maintain and repairs the* **SOAPbox**
- *this staff is instructed in all questions of work safety and environmental protection regularly and knows the operator's manual as well as there particularly contained safety instructions*
- *all appropriate safety and warning notes not being removed and remaining legible at the* **SOAPbox**

Constructive changes at the **SOAPbox** may be carried out only after written permission by the manufacturer!

Safety symbols

The following safety symbols are applied in this operator's manual. These symbols shall primarily draw the attention of the reader to the text of the accompanying safety note.

This symbol points out that there are dangers for life and health of persons.

This symbol indicates information which contributes for a better understanding of the function of the equipment.

This symbol points out that there are dangers for material and environment or the equipment himself.

Warning about dangerous electrical voltages to or within the equipment.

Basic Safety Instructions

The **SOAPbox** only may be used by persons who are trained, authorized and has knowledge of the operator's manual.

Before every production starts, check the **SOAPbox** for visible damages and make sure that it is operated only in faultless condition! Report noticed lacks to the supervisor immediately or arrange the remedying by qualified persons.

Service and Maintenance

Adhere the specified inspection and maintenance intervals in the operator's manual!

- *Before maintenance and repair work it has to be guaranteed that all parts of the* **SOAPbox** *perhaps to be touched have cooled down on space temperature!*
- *Smear-, cool- or cleaning-fluids, endangering the environment, have to be disposed duly!*
- *Repair work on the electrical power supply of the* **SOAPbox** *system only may be done by a trained electric qualified employee!*
- *Damaged lines or cables have to be immediately replaced!*

Released bolted joints have to be checked for solid seat before putting into operation after maintenance or repair work and it has to be guaranteed, that removed system-unit cover parts or filters were installed again!

Environmental protection prescriptions

At all works at and with the **SOAPbox** the legal duties for waste avoidance and proper utilization or elimination have to be adhered!

During repair, installation and maintenance work water endangering substances as

- *Lubricating greases and oil*
- *Hydraulics oils*
- *Coolant*
- *solvent containing cleaning liquids*

don't load the floor or reach into the sewage system!

***Note**: The valid environmental protection prescriptions must be observed.*

These water endangering substances must be kept, transported, caught and disposed in suitable containers!

Recycling

If **SOAPbox** no longer operates or is un-repairable, please do not dispose the receiver in the trash.

Please return the receiver to your local dealer or TAMUZ directly, we will grant the correct and suitable recycling of the old monitor.

***Note**: Don't waste unused, old or broken monitors. Follow your local environmental protection prescriptions.*

Recognition of the copyrights

The user of the **SOAPbox** appreciates, that in the **SOAPbox** contained software programs as well as this documentation is subject to the copyright laws as well as copyright propriety and other protection right and he does not purchase this with the acquisition or the use of the **SOAPbox** system by any time. The user gets rather merely the right for the exclusive use of the **SOAPbox**.

In the **SOAPbox** contained software as well as the accompanying documentation may not be changed, enlarged or adapted to other systems or translated into other languages, without written permission of the author. With the installation and use of the **SOAPbox** the user recognizes these license and use conditions.

Note: The **SOAPbox** *contains copyright protected software and documentation's.*

Guarantee agreement:

The in the **SOAPbox** system contained software and the instructions are leave to the user as they are. This means, the author of the software or the instructions does not assume any liability for the suitability of the software or the documentation to any special purpose. He particularly is not liable for damages or sequential damages which indirectly deliberately or unintentionally arise from the use of the **SOAPbox** or the documentation directly.

The **SOAPbox** system and the documentation can be changed and enlarged without previous announcement at any time and there does not exist it any right for updates free of charge.

Guarantee period

The manufacturer of the **SOAPbox** grants a guarantee period of 24 months on the faultless function of the system and its components.

Guarantee Certification

Please, send in the full guarantee certification upon receipt of the product to the manufacturer or suppliers within 21 working days. The manufacturer or supplier only then can grant possible rights to claim under guarantee in full size and transmitting current information about software updates and indications for expansions or for the operation of the equipment to you.

***Note**: Only if the guarantee card of the* **SOAPbox** *has been returned intime to the manufacturer or supplier, rights to claim under guarantee can be asserted against the manufacturer or supplier.*

Warranty Card

To come in the position to reclaim your warranty rights, send in this warranty card within 21 days to the manufacturer (***TAMUZ Monitors, Germany***) or your local dealer. Check the web site www tamuz.tv, www tamuz.de or www tamuz.us for the correct address.

Garantie Registrierungskarte - Warranty Registration Card		
Model:	***TAMUZ** SOAPbox*	***Type:***
Seriennummer:		***Serial Number:***
Dieses Gerät wurde gekauft bei: - The Unit was purchased from:		
Händler:		*Dealer:*
Ort.		*City:*
Land:		*Country:*
Verkaufsdatum:		*Purchase Date:*
Dieses Gerät wurde gekauft von: - The Unit was purchased by:		
Kunde:		*Customer:*
Ansprechpartner:		*Contact Person:*
Firma:		*Company:*
Strasse:		*Street:*
PLZ:		*Zip Code:*
Ort:		*City:*
Land:		*Country:*
Telefon:		*Phone:*
Telefax:		*Fax:*
Email:		*Email:*
Dieses Gerät wird eingesetzt im: - This Unit will be used at:		
Regieraum:		*Control Room:*
Schaltraum:		*Distribution:*
Studio:		*Studio:*
Ü-Wagen:		*OB-Truck:*
Kopieranlage:		*VTR-Dubbing:*
Schnittplatz:		*Editing:*
Sprecher-Raum:		*Off-Room:*
Andere:		*Other:*
Unser Bestreben ist es, unsere Produkte kundengerecht zu entwickeln und fertigen. Wir sind Ihnen dankbar, wenn Sie sich Zeit für Anregungen oder Kommentare nehmen: *Our mutual interest is, to design and manufacture practical products. We appreciate you taking the time to note your information and comments you may have.*		

Transport of the equipment

Transportation

The **SOAPbox** is a sensitive electronic product and should be transported with all caution. Throwing the equipment or hard pushes during the transport must be avoided.

Weight

The **SOAPbox** weights inclusive of the accessories and his packing less 10 kg and can be carried under consideration of the accident prevention measures or transported with help of corresponding aids therefore alone by a person.

***Note**: Observe the accident prevention prescriptions at the transport of the* **SOAPbox** *to the avoidance of persons and damages to property.*

Packing

The **SOAPbox** is delivered in a special transport container. It recommends itself to keep this container and the accompanying packaging. So in the case of a later necessary transport and dispatch the equipment can be packed and protect against damages as delivered to you.

Return dispatch

At a return dispatch without original packing to the supplier or manufacturer the liability is excluded. In case of a return to the manufacturer don't forget to ask for a RMA number.

Damages in transit

Check the contents of the received transport carton with the delivery note or the invoice on completeness and inform your supplier about perhaps missing parts upon receipt of the product within 5 working days. Please, if you receive a delivery on which the transport carton or the contents is damaged, proceed after the known guidelines of the cargo shipper, which as a rule is enclosed with the delivering papers. Perhaps stricter terms have to be taken into account here.

***Note**: Check before using the* **SOAPbox** *whether damages in transit have been happened and arrange a repair of these damages if necessary.*

Conformity Declaration

to EMV guideline (89/336/EC)

to low-voltage guideline (73/23/EC chapter 10)

The manufacturer:

TAMUZ Broadcast
Tiedenkamp 16
D-24558 Henstedt-Ulzburg

declares hereby, that the product:

Product name:	**Digital Pattern generator**
Model number:	**SOAPbox**
Year of construction:	**2005**

corresponds to the regulations of the guidelines described above:

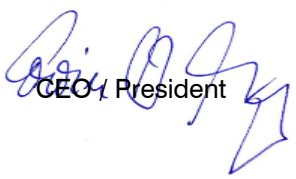
The following harmonized norms were used:

EN 55011	ISM Equipment, Group 1, Class A
EN 55022	Conducted Emissions, Class B
EN 50081-2	Generic standard interference transmission, industry area
EN 50082-2	Generic standard interference immunity, industry area
prEN55103-1	EMV product family norm for Audio-, Video and audio-visual facilities as well as for studio light control facilities for the professional usage, -Part 1: Limiting values and measurement procedure for disturbing emissions
prEN55103-2	EMV product family norm for Audio-, Video and audio-visual facilities as well as for studio light control facilities for the professional usage, -Part 2: Requirements on the interference immunity
EN 61000-3-2	Power Factor Harmonic Correction
EN 61000-3-3	Flicker & Voltage Fluctuation Limits
EN 61000-4-2	Electrostatic Discharge Immunity
EN 61000-4-3	Radiated Electromagnetic Fields
EN 61000-4-4	Fast Transients-Burst Immunity
EN 61000-4-5	Input Surge Immunity
EM 61000-4-6	Conducted RFI
EN 61000-4-11	Voltage Dips

The following national or international norms (or parts/clauses from this) and specifications were used:

DIN EN 6099	Verbindungsmaterial für Niederspannungsstromkreise für Haushalt und ähnliche Zwecke; Teil 1: Allgemeine Anforderungen
IEC 127-6	Geräteschutzsicherungen

Henstedt-Ulzburg, 23.07.2005



CEO / President

Technical Data

System Hardware

The hardware of the generator consists of the following components which are installed in an elegant and emission shielded full metal system-unit cover of high quality:

Item	SOAPbox		
System Frame	*SOAPbox*		
Dimensions	*180 x 110 x 54*		
Weight	*950 g*		
Mounting	*desktop*		
Video Output	*Serial digital video, analog video*		

*[1] = or similar alternative, *[2] = optional feature

System Features

The **SOAPbox** is designed and equipped for the following requests, tasks and applications:

The video monitor **RD-I receiver** series is designed and equipped for the following requests, tasks and applications:

Item	SOAPbox		
Application	*Digital Pattern Generator*		
Analog Video Output	*CCVS @ BNC 75*		
Digital Video Output	*SD/HD-SDI with embedded audio @ BNC 75*		
Video Encoding	*4:2:2 oder 4.4:4 10 bit*		
Video Format	525/60 and 625/50		
Video Aspect Ratio	*16:9*		
Digital Audio Output	*Embedded in SD/HD-SDI @ BNC75*		
Serial Remote	*RS232 @ 9pin MiniDIN*		
Power Requirements	*+12 V DC*		
Power Consumption	*12 W operation, 30 W charging*		
Line Voltage	*85 – 264 V AC, 50-60 Hz, short circuit proofed*		
Mains Input I/O	*IEC320 2pin*		
Operation Temperature	*0°C to +50°C at max. 80% humidity*		
Storage Temperature	*-30°C to +60°C at max. 95% humidity*		

*[1] = or similar alternative, *[2] = optional feature

Installation

First putting into Operation

The digital generator **SOAPbox** has an especially designed system-unit housing. This contains all components of the generator and they are installed operational. Usually they don't require any modification by the user.

Take the generator **SOAPbox** from the packing and check it for possible damages in transit. Please, necessary indications for this take from the transportation documents.

Ventilation

The equipment is self ventilated and has therefore on the side air ventilation openings. There is no integrated fans producing a continuous stream of cooling air. The ventilation openings aren't provided with an air filter.

***Note**: When required check the fans for faultiness and clean them and the ventilation openings regularly.*

Cleaning

Remind that surface itself is a sensitive device, don't scratch it. This device may be cleaned with usual household glass cleaning fluids only. Avoid scrapers and rub on the screen surface.

***Note**: When required check the device for faultiness regularly and clean it with a gentle glass cleaner and soft cotton cloths. No acids or solvent may be used for cleaning.*

External Control Units

External control units aren't necessary for the normal use of the monitor.

For remote operation a serial RS232 port are available. Instructions see later chapters.

Switching the Unit on

Guarantee the connection with the external power supply unit at the rear IEC connector indicated as +12 V DC input. Push the POWER switch on the side. The generator thereupon starts test routines automatically and then represents the video on his outputs. For switching the **SOAPbox** off, you have to push the POWER switch opposite or disconnect the external power at the side.

***Note**: The digital generator* **SOAPbox** *becomes current supplied with an external power supply.*

Connecting the Unit

How To Use The SOAPbox

Switching first the POWER switch on. Therefore push the switch POWER for a while.

Connect your video equipment with one of the BNC output jacks.

Use the menu to select the correct video format and standard or test pattern.

The following using instructions and steps apply to the each segment. All inputs and outputs are located on the side panel of the **SOAPbox**. Signals and connector types are listed below. The rear panel labels indicate the appropriate connection point for each signal.

Note: *All features and operation modes of the digital pattern generator* **SOAPbox** *are independent from each other for each group.*

DC Voltage

The DC voltage to power the digital pattern generator **SOAPbox** becomes supplied by the internal battery system. For operating or recharging an external Power Supply is enclosed. The connection to the **SOAPbox** happens with a IEC 2pin port at the left hand side.

The pin-out of the IEC port is shown in following table:

Pin	*Function*
1	**Ground**
2	**+ 12 V DC**

External Power Supply

Interconnect the mains output using a reliable cord with the IEC port of the external Power Supply. The external power supply is a universal type, accepting mains voltages from 100 to 240 V with 50 or 60 Hz frequency AC.

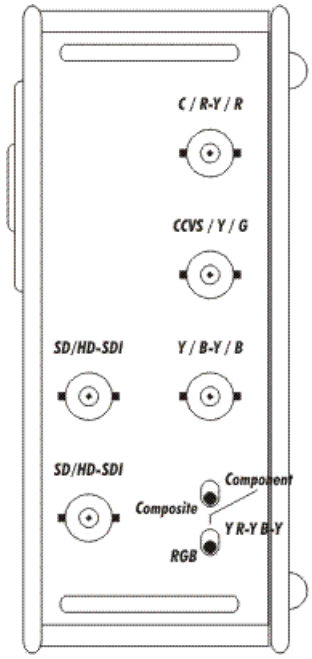
The pin-out of the IEC port is shown in following table:

Pin	*Function*
1 (N)	**Neutral**
2 (P)	**Phase**
3 (GND)	**Ground**

Note*: Warning about dangerous electrical voltages to or within the equipment. Take care to use the correct power cord depending to your local electricity safety system.*

Video Output

Interconnect the digital or analog video devices using a standard 75 Ohm BNC cable to the outputs.



The pin-out of the BNC port is shown in following table:

Pin	Funktion	Pin	Funktion
1 (inner)	Signal	2 (outer)	Ground

Out A and Out B output the same serial digital signal in HD or SD-SDI, except in 2K mode (Link A + Link B).

Out C to D feeds analog video signals when the analog section is powered (separate power switch). The format of the analog path depends on the setting of the dip-switches on the side panel. Composite (when NTSC or PAL is selected in the menu), component SD (when NTSC or PAL is selected in the menu) and component HD (when 720p, 1080p or 1080i is selected in the menu).

Signal Format

The **SOAPbox** outputs conforming to SMPTE 125M/296M/274M/372M/352M/259M at either 525 or 626 lines. All outputs must use the same standard. (The output is genlocked to a separate reference.)

RGB/YUV Output

Interconnect the external monitor using a standard 75 Ohm BNC cable to the RGB/YUV outputs.

The pin-out of the BNC port is shown in following table:

Pin	Funktion	Pin	Funktion
1 (inner)	Signal	2 (outer)	Ground

Audio Formats

In SD (576i / PAL or 480i / NTSC), 2 pairs are embedded on the SDI stream with 6 or 8 packets per line (SMPTE 272M).

In HD, 2 pairs are embedded on the HDSDI stream (SMPTE 299M).

Timecode Formats

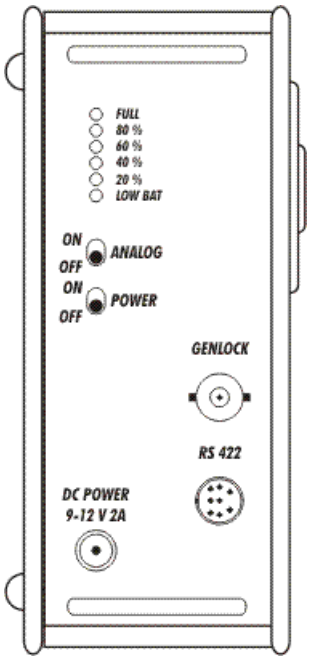
Ancillary Timecode (ATC) is similar to linear time code (LTC). ATC is incremented each frame and is reset to 0 after 24 hours. LTC is on Line-10 Field-1 and VITC is on Line-9 Field-1 and on Line-571 Field-2.

LTC is transmitted on Line-10 Field-1 for all formats except for PAL where it's transmitted on line 6. (SMPTE RP188).

VITC is transmitted on Line-9 Field-1 and Line-571 Field-2.

Reference Input (Genlock)

Genlock is a software option for the **SOAPbox**. The genlock option can be purchased through your dealer.



Interconnect the reference sources using a standard 75 Ohm BNC cable to the REF inputs. Don't forget to terminate the REF correctly.

The pin-out of the BNC port is shown in following table:

Pin	Funktion	Pin	Funktion
1 (inner)	Signal	2 (outer)	Ground

Remote Control Port

The **SOAPbox** is equipped with an remote port for external control.

Interconnect the external controller using a standard RS422/485 cable to the REMOTE CTL port. The data rate is 38.400 baud. The port is internally selectable between RS 232 / 422 / 485 mode. See chapter External Remote for reference.

The pin-out of the Sub-D9 port is shown in following table:

Pin	Funktion	Pin	Funktion
1	NC	6	Ground
2	TX-	7	TX+
3	RX+	8	RX-
4	Ground	9	NC

Pin	Funktion	Pin	Funktion
5	NC		

The new generation of **SOAPbox** have a different remote port connector, its a Mini-DIN style. The pin-out of the Mini-DIN8 port is shown in following table:

Pin	Funktion	Pin	Funktion
1	NC	5	RX-
2	NC	6	NC
3	TX-	7	NC
4	Ground	8	RX+

To connect the **SOAPbox** with a PC, you need a adapting cable to convert the RS422 at the **SOAPbox** in a RS232 at the PC side. The pin-out for this cable is shown in following table:

RS422 Mini-DIN8		RS232 SubD9	
Pin	Funktion	Pin	Funktion
3	TX-	2	TXA
4	Ground	5	Ground
5	RX-	3	RXB
8	RX+	5	Ground
Frame	Ground	Frame	Ground

SOAPbox ASCII Protocol

Introduction

The RS-422 port is used for external control of **SOAPbox** units. The RS-422 port allows the customer to control the **SOAPbox** via a PC or self-defined customized control device.

Connector for the RS-422 port is a Sub-D9 female. The connection between the connectors is made one-to-one. The Data-rate is 38400 baud with 8 data-bit, 1 stop-bit, no parity.

Protocol format

Transmission from PC:

[start] [SOAPbox ID] [sep] [channel ID] [sep] [operation] <sep> <settings> [endl]

Command	***Description***

Note:

Response from **SOAPbox** device:

[start] [response] <sep> <settings> [endl]

Battery System

Internal Battery

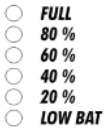
The DC voltage to power the digital pattern generator **SOAPbox** becomes supplied by the internal battery system. For operating or recharging an external Power Supply is enclosed.

The battery system is designed to allow 1000 or more recharging cycles, no matter if it was empty or not. The internal Li-Ion battery itself is insensitive against the memory effect.

Note: *The* **SOAPbox** *battery system has protection to avoid deep discharging.*

DC Voltage Level

The DC voltage value is displayed with the LED's on the left hand side.



The LED's indicates the different states and values during discharging or recharging.

LED	*Color*	*Dis-Charging*	*Re-Charging*
FULL	**Green**	**flash**	**durable when full**
80 %	**Green**	**flash**	**run light**
60 %	**Green**	**flash**	**run light**
40 %	**Green**	**flash**	**run light**
20 %	**Green**	**flash**	**run light**
LOW BAT	**Red**	**flash**	**durable**

Low Battery

If the battery becomes low power, the „LOW BAT“ LED will flash and the **SOAPbox** switches OFF automatically to avoid a deep discharging.

In case of low power switching the **SOAPbox** ON with the switch POWER, the red LED „LOW BAT“ will flash for few seconds only. The **SOAPbox** generator itself will not start. Now it's time to use the enclosed power supply for charging the battery.

The flashing LED „LOW BAT“ always indicates that the voltage is to low to power the **SOAPbox**.

If no LED lit when you push the switch POWER, battery is down. Please use the recommended (enclosed) power supply to recharge the battery.

Discharging the Battery

During discharging the green LED's will flash and indicates the voltage value.

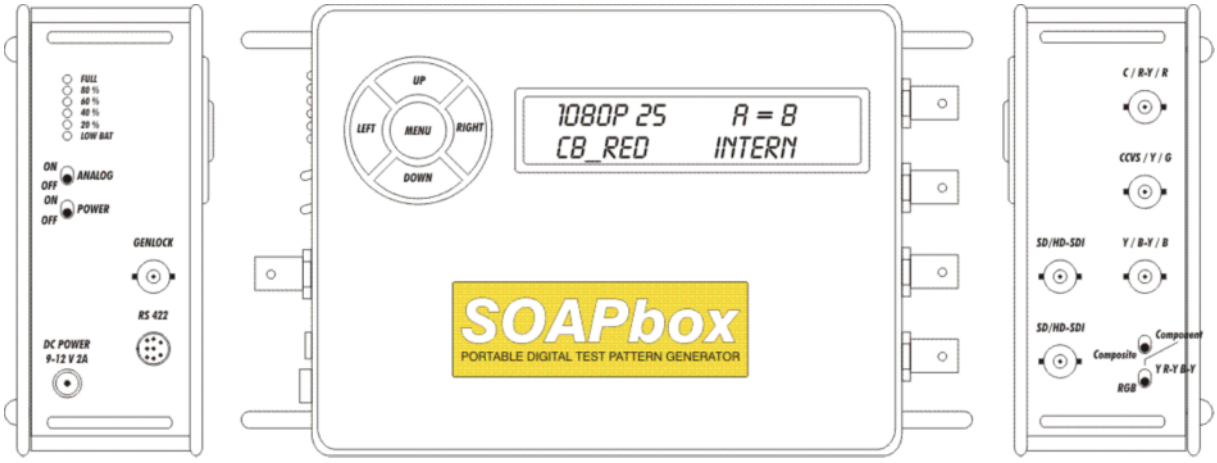
Recharging the Battery

During recharging the green LED's will operate like a run-light and indicates the voltage value. Charging is done when the upper LED constantly lits.

Operation

Front Panel Controls

The front panel of the **SOAPbox** is shown in figure below.

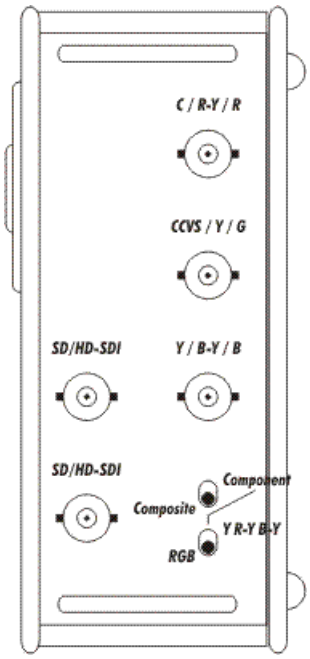


The controls are grouped into three sets.

The left group operates the power selection. The middle group operates the menu. The right group operates the video format. The functionality of these keys is described in the following sections.

Right-Hand Function Keys

The right-hand function keys are used to control the analog video format of the **SOAPbox**.



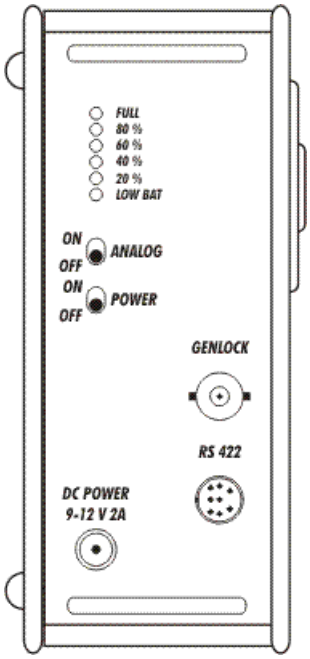
Composite / Component: If **SOAPbox** is in COMPOSITE mode, the analog outputs will deliver analog composite and YC signals

If **SOAPbox** is in COMPONENT mode, the analog outputs will deliver analog component signals as RGB or YUV.

RGB / YUV: Selects the analog component format between RGB and YUV.

Left-Hand Function Keys

The left-hand function keys are used to select and control the image on screen.



These keys allow the user to access the various power modes of **SOAPbox**

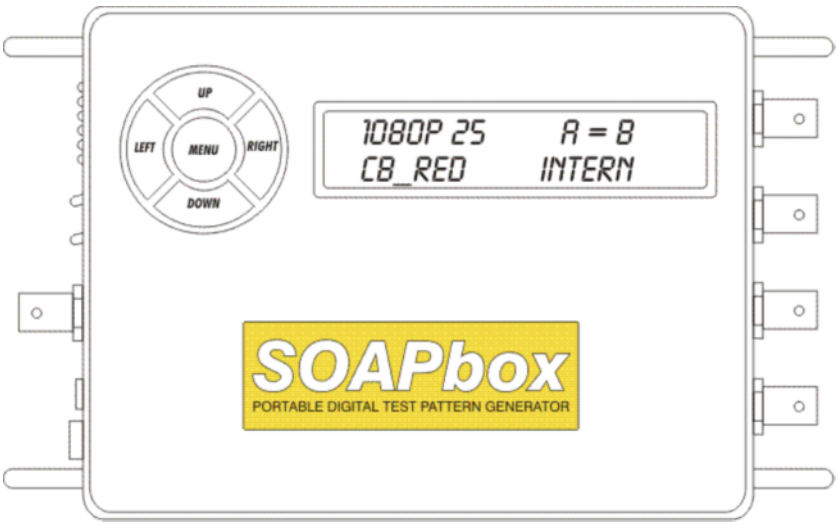
POWER : Switching the power for general operation by pushing the button for while. When OFF the generator is inactive and the display is dark. When ON the generator is active and the display is lit.

ANALOG : Switching the power for the analog electronic part. When OFF the analog part is inactive. When ON the analog part is active.

LED Voltage Level Meter : A set of six LEDs indicates the status of the integrated battery system. The red LED indicates a low battery status, the five green LEDs indicates the battery voltage level in steps of 20% up to full. When the battery is fully charged **SOAPbox** is able to operate more then 3,5 hours.

Menu Function Keys

The middle function keys (menu navigation) are used to control the analog video format and test patterns at the **SOAPbox**.



These keys allow the user to access the menu of **SOAPbox**

MENU :	Open or confirms the Menu of the **SOAPbox**.
ARROW KEY LEFT :	Selects the current menu step or any item in that. (coming soon)
ARROW KEY RIGHT :	Selects the current menu step or any item in that.
ARROW KEY UP :	Selects the next step in the menu.
ARROW KEY DOWN :	Selects the step before in the menu.

The **SOAPbox** menu system allows the user to set up various aspects of the **SOAPbox** operating configuration. The menu is displayed on the display. Navigation is accomplished by moving a cursor and selecting options using the ARROW keys on the left of the **SOAPbox** front panel. The menu structure is described in the following sections.

Using the Menus

Navigate the menus by using the four arrow keys and the menu key in the front panel key group. A cursor is displayed beside the current selection. If a list of options is displayed, with one highlighted using a different color, then the left and right arrow keys are used to choose an option.

If a right-arrow is shown at the right-hand side of the menu, indicating that there is another menu to display, then using the RIGHT-ARROW key will access that menu. Push the MENU/ENTER key to save or confirm selections. Push MENU/ESCAPE to leave the current menu and return to the previous level. From the main menu, MENU quits the menu system.

On power up the **SOAPbox** displays the firmware version number for 2 seconds, then displays the current video format with the current pattern.

The LC-Display

Within the LC-display the **SOAPbox** shows information about the status of the unit.

1080i25	**A = B**
Random	**Intern.**

Display Mode at Power On

On power up the **SOAPbox** displays the firmware version number for 2 seconds, then it goes in Display Mode.

SOAPbox	**V. 2.40**

Display Mode

During normal operation the LC-display basically shows the output resolution, outputs mode, pattern and genlock status. The graphic below shows the display after a factory reset.

Video Format		Outputs
	1080i25 **A = B** **Random** **Intern.**	
Test Pattern		Genlock

Main Menu SOAPbox

The **SOAPbox** menu allows the user to select whether patterns and features are displayed, and with what attributes (e.g. position, color, text formatting). The menu structure is in 3 levels, main, sub und features.

Use the UP or DOWN ARROW keys to select the item you want to modify. Modify this item with the LEFT or RIGHT ARROW key. When the item line ends with an arrow, open the followingly menu step with the RIGHT ARROW key.

Menu	Item	Functionality
00 FORMAT	*Resolution*	480i / 576i / 720p / 1080i / 1080p / 2K-sf / 2K-p
	Frame Rate	23.98 fps / 24 fps / 25 fps / 29.97 fps / 30 fps
	Output Mode	A = B / Dual YPbPr / Dual RGB
01 VIDEO	*Pattern*	Look for the test pattern list in chapter „List of pattern“
	Title	Off / Large-White / Large-Black / Small-White / Small-Black
	Time Code	Off / On – W/B / On – B/W
	Video Filter	Off / On
	Insert Position H	Adjustable between 0 and 100% horizontal
	Insert Position V	Adjustable between 0 and 100% vertical
02 AUDIO	*Mode*	Off / On
	Group	1 / 2 / 3 / 4 / 1+2 / 3+4 / 1+2+3+4
	Level	Silence / -42 / -36 / -30 / -24 / -20 / -18 / -12 / -06 / random / flash (in dB)
	Mask	1 / 2 / 3 / 4 / 1+2 / 3+4 / 1+2+3+4
03 MOTION	*Mode*	No Motion / Square 1 / Square 2 / 2 Squares / Squares Inv. / Full Motion / Snow
	Speed	1 / 2 / 3 / 4 / 5 / 6 / 7
04 GENLOCK	*Mode*	Off / On
	Input	Displays the Genlock input format
	H Trig	Horizontal changes in pixels
	V Trig	Vertical changes in pixels
05 ANC DATA	*Close Caption*	Off / On 608 / On 708
	Time Code	Off / On – non-drop / On - drop
	VANC	Off / On -1 / On -12 / On – 123 / On - 1234
06 SYSTEM	*Version*	Displays the current version
	S/N	Displays the serial number
	Save	Save settings to internal flash memory
	Reset	Reset factory settings
	Quick Access	Off / On

Press the MENU button to open the menu and navigate inside the different operation menus. Select the parameter you want to set by pressing the UP and DOWN buttons. Then, to enable or change the selected setting press the RIGHT or LEFT button.

Once you have completed your individual settings you can leave the menus by pressing the MENU button. The **SOAPbox** will then display the current format, frame rate, and pattern. But keep in mind that this individual setting is not saved and will be lost when power is off.

***Note:** If you don't save your individual setup, the* **SOAPbox** *will restarts in the former setup, when powering again.*

If you want to keep the setting, use the menu step SAVE in SYSTEM.

Menu FORMAT

Within the menu step 00 FORMAT the video format can be set.

Menu
00 FORMAT

Three sub-menus are selectable; RESOLUTION – FRAME RATE – OUTPUT SYSTEM

Push the RIGHT button to enter the sub-menu level.

Sub-Menu Resolution

Within this sub-menu the video format can be set.

Menu – 00	**FORMAT**
Res:	**576i#**

Six different video formats or resolutions are available: 480 interlaced, 576 interlaced, 720 progressive, 1080 interlaced, 1080 progressive, 2K segmented frames and 2K progressive

Push the RIGHT button to enter the selection level. The symbol # will change to a symbol *. Use the buttons UP and DOWN to select your individual issue. Confirm the selection by pushing the RIGHT button again, thereafter the symbol * appears, which will change to the symbol # when you leave the selection menu level by pushing the MENU button once.

Sub-Menu Frame Rate

Within this sub-menu the video format can be set.

Menu – 00	**FORMAT**
Fps:	**29.97#**

SOAPbox displays the different frame rates available for this format.

Push the RIGHT button to enter the selection level. The symbol # will change to a symbol *. Use the buttons UP and DOWN to select your individual issue. Confirm the selection by pushing the RIGHT button again, thereafter the symbol * appears, which will change to the symbol # when you leave the selection menu level by pushing the MENU button once.

Sub-Menu Output

Within this sub-menu the video format can be set.

Menu – 00	**FORMAT**
Out:	**A=B#**

SOAPbox can output a duplicate SDI stream (A=B) or a 4:4:4 dual link YUV or RGB signal, compliant with SMPTE 372 and SMPTE 352 standards.

Push the RIGHT button to enter the selection level. The symbol # will change to a symbol *. Use the buttons UP and DOWN to select your individual issue. Confirm the selection by pushing the RIGHT button again, thereafter the symbol * appears, which will change to the symbol # when you leave the selection menu level by pushing the MENU button once.

Menu VIDEO

Within the menu step 01 VIDEO the test pattern can be set.

Menu
01 VIDEO

Four sub-menus are selectable; PATTERN – TITLE – TC INSERT - FILTER

Push the RIGHT button to enter the sub-menu level.

Sub-Menu Pattern

Within this sub-menu the video format can be set.

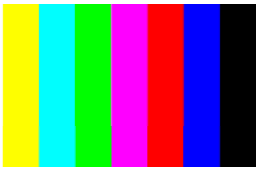
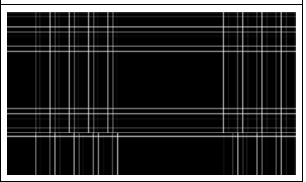
Menu – 01	**VIDEO**
Pat:	**Random#**

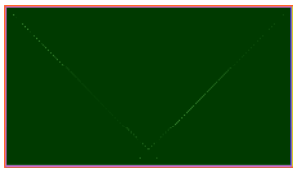
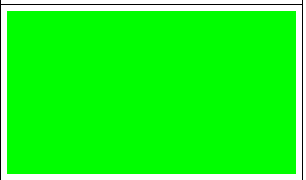
Several different test patterns are available. Details see chapter List of Pattern

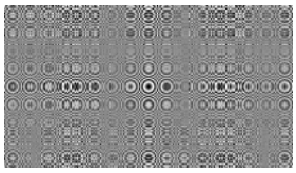
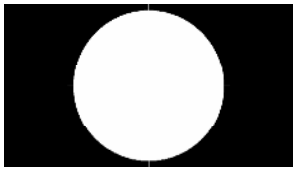
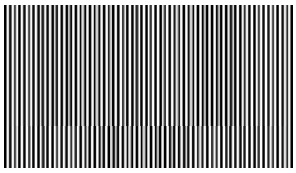
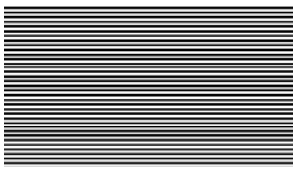
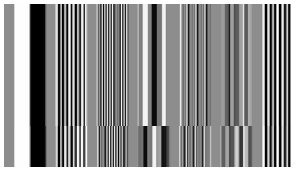
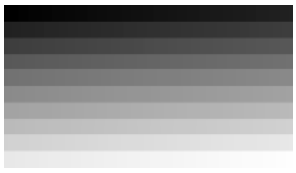
Push the RIGHT button to enter the selection level. The symbol # will change to a symbol *. Use the buttons UP and DOWN to select your individual issue. Confirm the selection by pushing the RIGHT button again, thereafter the symbol * appears, which will change to the symbol # when you leave the selection menu level by pushing the MENU button once.

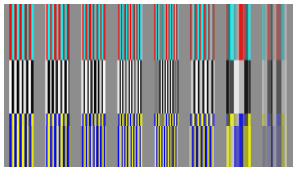
List of Patterns

Following patterns are available:

Pattern Number	***Pattern Description***	***Pattern adjustable***	***Pattern***
00	*SMPTE bars, standard color bars with pluge*	*no*	
01	*100 % color bars, 100% luminance and 100% chrominance values*	*no*	
02	*Checkfield: This pattern tests the clock recovery, and maximizes the DC component on the SDI signal*	*no*	
03	*Cross Hatch: White cross hatch on black background*	*no*	

Pattern Number	Pattern Description	Pattern adjustable	Pattern
04	Border lines: This pattern is useful to center the video on a screen. Border Lines can be used to find if a device is displaying all lines and pixels. It has 8 colors, 2 pixels (or 2 lines) each to make a total of 16 pixels (or 16 lines) on every side of the image.	no	
05	Grey Ramp: 10 bits gradient (grey shade), from black to white	no	
06	Grey levels: 16 bars of continuously Grey levels, from black to white	no	
07	Green levels: 16 bars of continuously Green levels, from black to Green	no	
08	Blue levels: 16 bars of continuously Blue levels, from black to Blue	no	
09	Red levels: 16 bars of continuously Red levels, from black to Red	no	
10	100% White: 100% IRE White flat pattern	No – fixed pattern	
11	100% Red: 100% IRE Red flat pattern	YES - Color between o and 100%	
12	100% Green: 100% IRE Green flat pattern	YES - Color between o and 100%	
13	100% Blue: 100% IRE Blue flat pattern	YES - Color between o and 100%	

Pattern Number	Pattern Description	Pattern adjustable	Pattern
14	25%Grey: 25% IRE Grey flat pattern	YES - Color between o and 100%	
15	15%Grey: 15% IRE Grey flat pattern	NO – fixed pattern	
16	Black: 100% black video frame	NO – fixed pattern	
17	Noise: This is a white noise used, for example, to test video compression	NO	
18	Zoneplate: Moire pattern	NO	
19	Target: It's a perfect circle in the center for aspect ratio testing	NO	
20	V lines: vertical lines of 1 pixel, black and white	NO	
21	H lines: horizontal lines of 1 pixel, black and white (1 field white, 1 field black in interlaced mode	NO	
22	MultiBurst: horizontal frequency packages, from left to right increasing frequencies, 500 kHz – 1 MHz – 2 MHz – 3 MHz – 5 MHz – 10 MHz – 30 MHz in HD	NO	
23	Horizontal grey ramps with 10%-grade in ten vertical steps from black to white	NO	

Pattern Number	Pattern Description	Pattern adjustable	Pattern
24	*EBU 75% Color Bars with red field*	*NO*	
25	*Random: activates the pattern change randomly from pattern 0 to pattern 24*	*NO*	
26	*User Color 1: flat pattern, user adjustable values for Y, R-Y and B-Y for any legal or un-legal pattern*	*Luminance and chrominance values between 000 and 1020, (10 bit)*	
27	*User Color 2: flat pattern, user adjustable values for Y, R-Y and B-Y for any legal or un-legal pattern*	*Luminance and chrominance values between 000 and 1020, (10 bit)*	
28	*User Color 3: flat pattern, user adjustable values for Y, R-Y and B-Y for any legal or un-legal pattern*	*Luminance and chrominance values between 000 and 1020, (10 bit)*	
29	*Pluge: standard pattern with +/- 2% black stripes and grey steps*	*NO*	
30	*RP 219: Standard test pattern regarding SMPT RP219*	*NO*	
31	*Chroma Burst: test pattern for measuring delays in chroma to luma processing*	*NO*	

Sub-Menu Title

Within this sub-menu the video format can be set.

Menu – 01	**VIDEO**
Title:	**Large-Wh#**

If the Title is “On”, the **SOAPbox** displays a scrolling text message in selectable sizes on top of the test pattern moving from the bottom to the top of the picture.

The motion is 2 pixels per frame.

Size	Pattern Description	Pattern
Large-W	*Four lines of text, 32 characters each, rolling upwards, large font size, white text color*	
Large-B	*Four lines of text, 32 characters each, rolling upwards, large font size, black text color*	
Small-W	*Four lines of text, 32 characters each, rolling upwards, small font size, white text color*	
Small-B	*Four lines of text, 32 characters each, rolling upwards, small font size, black text color*	
Off	*No rolling text*	

Push the RIGHT button to enter the selection level. The symbol # will change to a symbol *. Use the buttons UP and DOWN to select your individual issue. Confirm the selection by pushing the RIGHT button again, thereafter the symbol * appears, which will change to the symbol # when you leave the selection menu level by pushing the MENU button once.

Sub-Menu Time Code

Within this sub-menu the video format can be set.

Menu – 01	**VIDEO**
TC BIW:	**On-W/B#**

When activated, an ancillary time code is sent on the SDI signal, and a burn-in window displays the time code. The time code is incremented each frame, and is reset to 0 after 24 hours.

Size	Pattern Description	Pattern
W/B	*Timecode Insertion, white characters on black,* *position lower third - middle, adjustable over H and V*	
B/W	*Timecode Insertion, black characters on white,* *position lower third - middle, adjustable over H and V*	

Size	Pattern Description	Pattern
W/B	*Timecode Insertion, white characters on black,* *position top edge - middle, adjustable over H and V*	
Off	*No Timecode insertion*	

The insertion is selectable between white characters on black or black characters on white.

Push the RIGHT button to enter the selection level. The symbol # will change to a symbol *. Use the buttons UP and DOWN to select your individual issue. Confirm the selection by pushing the RIGHT button again, thereafter the symbol * appears, which will change to the symbol # when you leave the selection menu level by pushing the MENU button once.

Sub-Menu Filter

Within this sub-menu the video format can be set.

Menu – 01	**VIDEO**
Filter:	**Off#**

Set the filter ON for smoother transitions between colors. When video filter is OFF, color transitions are sharp and the change of color occurs on the next pixel.

When video filter is ON, color transitions are smooth and it takes few pixels until the change of color occurs.

Push the RIGHT button to enter the selection level. The symbol # will change to a symbol *. Use the buttons UP and DOWN to select your individual issue. Confirm the selection by pushing the RIGHT button again, thereafter the symbol * appears, which will change to the symbol # when you leave the selection menu level by pushing the MENU button once.

Menu AUDIO

Within the menu step 02 AUDIO the test tone can be set.

Menu
02 AUDIO

Four sub-menus are selectable; MODE – GROUP – LEVEL - MASK

Push the RIGHT button to enter the sub-menu level.

Sub-Menu Mode

Within this sub-menu the audio format can be set.

Menu – 02	**AUDIO**
Mode:	**On#**

This sub-menu set the audio on or off.

When on, a 1 kHz sine wave is embedded on the SDI stream. **SOAPbox** generates 2 pairs of embedded audio (1 group).

Audio is embedded on SDI / HD-SDI as SMPTE 272M or SMPTE 299M.

In SD (PAL or NTSC), 2 pairs are embedded on the SDI stream with 6 or 8 packets per line (SMPTE 272M). In HD, 2 pairs are embedded on the HDSDI stream (SMPTE 299M).

Note: *In the 2K mode, ancillary data is output only on Link A to match SMPTE 372M specifications.*

Push the RIGHT button to enter the selection level. The symbol # will change to a symbol *. Use the buttons UP and DOWN to select your individual issue. Confirm the selection by pushing the RIGHT button again, thereafter the symbol * appears, which will change to the symbol # when you leave the selection menu level by pushing the MENU button once.

Sub-Menu Group

Within this sub-menu the audio format can be set.

Menu – 02	**AUDIO**
Group:	**01#**

Select the audio group, from 1 to 4.

- If Group 1 is selected, audio is sent on channel 1 to 4.
- If Group 2 is selected, audio is sent on channel 5 to 8.
- If Group 3 is selected, audio is sent on channel 9 to 12.
- If Group 4 is selected, audio is sent on channel 13 to 16.

Push the RIGHT button to enter the selection level. The symbol # will change to a symbol *. Use the buttons UP and DOWN to select your individual issue. Confirm the selection by pushing the RIGHT button again, thereafter the symbol * appears, which will change to the symbol # when you leave the selection menu level by pushing the MENU button once.

Sub-Menu Level

Within this sub-menu the audio format can be set.

Menu – 02	**AUDIO**
Level:	**random#**

Audio level can be set from –42 db to –06 db or silence or Flash.

In random mode, the volume of embedded audio changes each time motion square 1 touches a border of the picture. This helps detect video to audio delays.

Audio Flash for Lip-Sync Test

Within this sub-menu the audio format can be set.

Menu – 02	**AUDIO**
Level:	**Flash#**

In flash mode, the audio tone will toggle between ON and OFF periodically with an additional superimposed white or black colored square in the video. The flash mode operates with any of the patterns. This helps to detect video to audio delays.

Flash Mode	Pattern Description	Pattern
00	*Test pattern with superimposed white square, the audio test tone is ON*	
01	*Test pattern with superimposed black square, the audio test tone is OFF*	

Video and Audio must be in sync (lip-sync) when toggling from white to black and back to white.

Detecting the switching square with a simple photo-diode at the monitor and measure the pulse at a scope comparing with the audio tone, any delay between audio and video during transmission or processing is precisely.

Push the RIGHT button to enter the selection level. The symbol # will change to a symbol *. Use the buttons UP and DOWN to select your individual issue. Confirm the selection by pushing the RIGHT button again, thereafter the symbol * appears, which will change to the symbol # when you leave the selection menu level by pushing the MENU button once.

Sub-Menu Mask

Within this sub-menu the audio format can be set.

Menu – 02	**AUDIO**
Mask:	**Ch 1+2#**

Selects which audio channels are not silent within a group. Possible selections are

Audio Mask Number	Audio Mask Description
00	***Ch 1:** Only channel 1 has the sinewave, channels 2,3,4 have silence*
01	***Ch 2:** Only channel 2 has the sinewave, channels 1,3,4 have silence*
02	***Ch 3:** Only channel 3 has the sinewave, channels 1,2,4 have silence*
03	***Ch 4:** Only channel 4 has the sinewave, channels 1,2,3 have silence*
04	***Ch 1 + 2:** Only channels 1,2 have the sinewave, channels 3,4 have silence*
05	***Ch 3 + 4:** Only channels 3,4 have the sinewave, channels 1,2 have silence*
06	***Ch 1+2+3+4:** All 4 channels have the sinewave (default)*

Push the RIGHT button to enter the selection level. The symbol # will change to a symbol *. Use the buttons UP and DOWN to select your individual issue. Confirm the selection by pushing the RIGHT button again, thereafter the symbol * appears, which will change to the symbol # when you leave the selection menu level by pushing the MENU button once.

Menu MOTION

Within the menu step 03 MOTION the test pattern animation can be set.

Menu
03 MOTION

Two sub-menus are selectable; MOTION – SPEED

Push the RIGHT button to enter the sub-menu level.

Sub-Menu Motion

Within this sub-menu the motion feature can be set.

Menu – 03	**MOTION**
Mot:	**2 Squares#**

Seven motion modes are available:

Motion Number	*Motion Description*
00	***No motion***
01	***Square 1**: 1 square with a changing size is moving around the picture. Each time the square touch a side of the frame, the color switches to the next color (white, yellow, cyan, green, magenta, red, blue, black)*
02	***Square 2**: 1 blue square (with fixed size) moves on the screen*
03	***2 Squares**: Square 1 + Square 2*
04	***Squares Inv**.: The squares are inverted, and display the pattern inside the squares with a black background*
05	***Full motion**: a full motion effect is applied on the pattern*
06	***Snow**: a small moving white noise is displayed on the top of the pattern*

Push the RIGHT button to enter the selection level. The symbol # will change to a symbol *. Use the buttons UP and DOWN to select your individual issue. Confirm the selection by pushing the RIGHT button again, thereafter the symbol * appears, which will change to the symbol # when you leave the selection menu level by pushing the MENU button once.

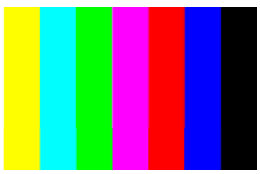
Full Motion Patterns

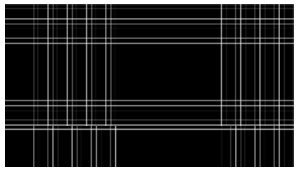
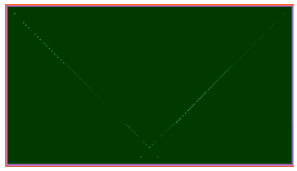
Within the sub-menu MOTION the motion can be set to FULL MOTION, to animate the test pattern it-self.

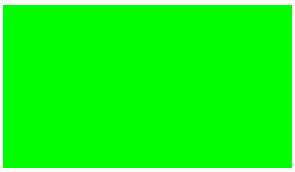
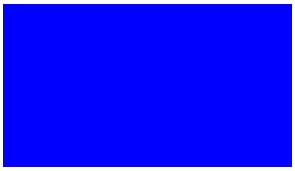
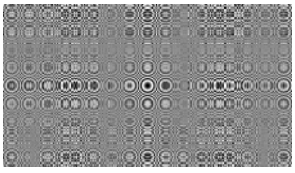
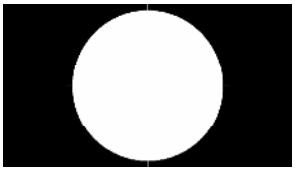
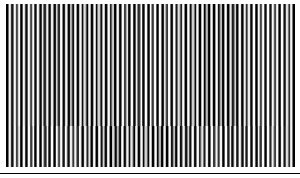
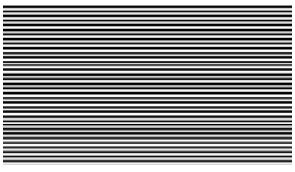
Menu – 03	**MOTION**
Mot:	**Full Motion#**

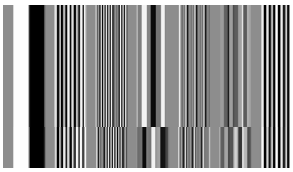
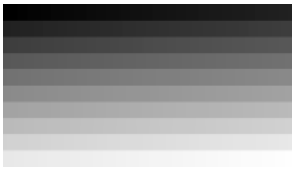
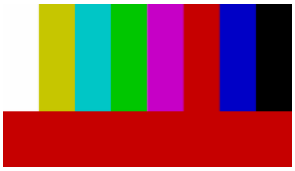
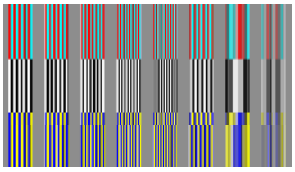
The full motion is using specific settings adapted for each pattern.

The motion is field based in interlaced mode, and frame based in progressive. The exact speed is only for the blue moving square. The other square has variable speed depending on direction of motion.

Pattern Number	*Pattern*	*Pattern Description*	*Motion Animation*
00		*SMPTE bars*	*Pattern moves continuously from right to left, like a crawl*
01		*100 % color bars*	*Pattern crawls from right to left, leaving a black screen, jumping back to crawls again*

Pattern Number	Pattern	Pattern Description	Motion Animation
02		*Checkfield*	*Pattern moves up and down, randomly*
03		*Cross Hatch*	*Pattern moves randomly diagonal to the NE, SE, SW or NW corners*
04		*Border lines:*	*Pattern moves randomly on a white background diagonal to the NE, SE, SW or NW corners*
05		*Grey Ramp*	*No motion*
06		*Grey levels*	*Pattern crawls from right to left, leaving a white screen, jumping back to crawls again*
07		*Green levels*	*Pattern crawls from right to left, leaving a green screen, jumping back to crawls again*
08		*Blue levels*	*Pattern crawls from right to left, leaving a blue screen, jumping back to crawls again*
09		*Red levels*	*Pattern crawls from right to left, leaving a red screen, jumping back to crawls again*
10		*100% White*	*No motion visible*
11		*100% Red*	*No motion*

Pattern Number	Pattern	Pattern Description	Motion Animation
12		100% Green	No motion
13		100% Blue	No motion
14		25%Grey	No motion
15		15%Grey	No motion
16		Black	No motion
17		Noise	Pattern randomly moves to produce a chaotic image
18		Zoneplate	Pattern is not a linear function, so it moves randomly back and force regarding to the selected speed
19		Target	Pattern moves continuously on a black background up and down
20		V lines	No motion
21		H lines	No motion

Pattern Number	Pattern	Pattern Description	Motion Animation
22		MultiBurst	Pattern moves randomly from right to left or left to right, like a crawl
23		Horizontal grey ramps	Pattern moves continuously on a white background up and down
24		EBU 75% Color Bars with red field	The red field moves like a center wipe back and force and flashes white in the moment when the red field is zero. During this frame an audio tone may be embedded for lip-sync tests, regarding to the audio settings.
24		EBU 75% Color Bars with red field	White flash in the moment when the red field is zero. During this frame an audio tone may be embedded for lip-sync tests, regarding to the audio settings.
27		User Color 1	No motion
28		User Color 2	No motion
29		User Color 3	No motion
30		Pluge	Pattern moves randomly on a black background diagonal to the NE, SE, SW or NW corners
31		RP 219	Pattern moves randomly diagonal to the NE, SE, SW or NW corners
32		Chroma Burst	Pattern moves randomlydiagonal to the NE, SE, SW or NW corners

The motion is field based in interlaced mode, and frame based in progressive. For the speed see chapter Sub-Menu Speed.

Sub-Menu Speed

Within this sub-menu the motion speed can be set.

Menu – 03	**MOTION**
Speed:	**2#**

The user can choose one of the 7 available speeds, from slow to fast motion.

The motion is field based in interlaced mode, and frame based in progressive. The exact speed is only for the blue moving square. The other square has variable speed depending on direction of motion.

The blue square with fixed size respects the following horizontal and vertical motions:

Motion Speed	*Real Speed horizontal*	*Real Speed vertical*
1	***2 pixels per frame*** *(i.e. 50 pixels in 25 fps, 59.94 pixels in 29.97 fps)*	***1 pixel (line) per frame*** *(i.e. 25 pixels (lines) in 25 fps, 29.97 pixels (lines) in 29.97 fps)*
2	***4 pixels per frame***	***2 pixels (lines) per frame***
3	***8 pixels per frame***	***4 pixels (lines) per frame***
4	***12 pixels per frame***	***6 pixels (lines) per frame***
5	***16 pixels per frame***	***8 pixels (lines) per frame***
6	***24 pixels per frame***	***12 pixels (lines) per frame***
7	***40 pixels per frame***	***20 pixels (lines) per frame***

Push the RIGHT button to enter the selection level. The symbol # will change to a symbol *. Use the buttons UP and DOWN to select your individual issue. Confirm the selection by pushing the RIGHT button again, thereafter the symbol * appears, which will change to the symbol # when you leave the selection menu level by pushing the MENU button once.

Menu GENLOCK

Within the menu step 04 GENLOCK the synchronisation can be set.

Menu
04 GENLOCK

Five sub-menus are selectable; MODE – INPUT – H-TRIGGER – V-TRIGGER – INV.-FIELD

Push the RIGHT button to enter the sub-menu level.

Sub-Menu Mode

Genlock is a software option for **SOAPbox**. If you don't have purchased you will see as follows on the LC-display.

Menu – 04	**GENLOCK**
No Licence	**#**

The genlock option can be purchased through your dealer. A utility is provided that can be used with an authorization code to enable Genlock support. If Genlock is enabled on your **SOAPbox** you will have access to.

Within this sub-menu the genlock can be set.

Menu – 04	**GENLOCK**
Mod:	**On#**

This sub-menu set the genlock on or off.

Push the RIGHT button to enter the selection level. The symbol # will change to a symbol *. Use the buttons UP and DOWN to select your individual issue. Confirm the selection by pushing the RIGHT button again, thereafter the symbol * appears, which will change to the symbol # when you leave the selection menu level by pushing the MENU button once.

Sub-Menu Input

Within this sub-menu the genlock can be set.

Menu – 04	**GENLOCK**
Input:	**576i#**

This is a display only selection that shows the Sync Input video format.

The genlock input can accept any of the following signals:

Video Format	***Frame rates***
1080i @ 23.98	For 2K and all 23.98 FPS HD formats
1080i @ 24	For 2K and all 24 FPS HD formats
1080i @ 25	For PAL and all 25 and 50 FPS HD formats
1080i @ 29.97	For NTSC and all 29.97 and 59.94 FPS HD formats
1080i @ 30	For all 30 and 60 FPS HD formats
480i (NTSC)	For NTSC and all 29.97 and 59.94 FPS HD formats
576i (PAL)	For PAL and all 25 and 50 FPS HD formats

Sub-Menu H-Trigger

Within this sub-menu the genlock can be set.

Menu – 04	**GENLOCK**
H-Trig:	**+ 123#**

Sets the horizontal trigger value. Holding down the UP or DOWN buttons will cause the value to change faster and faster. The number is a pixel indication and can be moved from – half line to + half line. You don't need to hit ENTER for this value to change.

Push the RIGHT button to enter the selection level. The symbol # will change to a symbol *. Use the buttons UP and DOWN to select your individual issue. Confirm the selection by pushing the MENU button once.

Sub-Menu V-Trigger

Within this sub-menu the genlock can be set.

Menu – 04	**GENLOCK**
V-Trig:	**123#**

Sets the vertical trigger value on lines. You don't need to hit ENTER for this value to change.

Push the RIGHT button to enter the selection level. The symbol # will change to a symbol *. Use the buttons UP and DOWN to select your individual issue. Confirm the selection by pushing the MENU button once.

Sub-Menu Inv.-Field

Within this sub-menu the genlock can be set.

Menu – 04	**GENLOCK**
Inv-Field:	**Off#**

On or Off. This parameter can be used to invert the field polarity of the output.

Push the RIGHT button to enter the selection level. The symbol # will change to a symbol *. Use the buttons UP and DOWN to select your individual issue. Confirm the selection by pushing the RIGHT button again, thereafter the symbol * appears, which will change to the symbol # when you leave the selection menu level by pushing the MENU button once.

Menu ANC DATA

Within the menu step 05 ANC DATA the synchronisation can be set.

Menu
05 ANC DATA

Three sub-menus are selectable; CLOSED CAPTION – TIMECODE – VANC

Ancillary data can be used to embed meta-data in the HD-SDI stream. Audio, Timecode, closed caption, etc. are all embedded in the ancillary data space.

Push the RIGHT button to enter the sub-menu level.

Sub-Menu Closed Caption

Within this sub-menu the Ancillary Data can be set.

Menu – 05	**ANC DATA**
CC:	**On#**

When on, closed captions are sent as ancillary data (VANC) on line 12 (EIA 608 / SMPTE 334). The message sent by the **SOAPbox** is a pop-up captioning on service 1, writing “TAMUZ” (underlined), and “SOAPbox”.

Push the RIGHT button to enter the selection level. The symbol # will change to a symbol *. Use the buttons UP and DOWN to select your individual issue. Confirm the selection by pushing the RIGHT button again, thereafter the symbol * appears, which will change to the symbol # when you leave the selection menu level by pushing the MENU button once.

Sub-Menu Timecode

Within this sub-menu the Ancillary Data can be set.

Menu – 05	**ANC DATA**
TC:	**On/No Drop#**

Enables timecode on the ancillary data. For NTSC, 720p-59.94, 1080i-29.97 and 1080p-29.97, you can also decide if the timecode is drop or non-drop. For HD formats embedded LTC is compliant with SMPTE Standard RP-188. Timecode starts at 0 every time you change this selection or when it reaches 24 hours. **SOAPbox** outputs LTC and VITC.

Push the RIGHT button to enter the selection level. The symbol # will change to a symbol *. Use the buttons UP and DOWN to select your individual issue. Confirm the selection by pushing the RIGHT button again, thereafter the symbol * appears, which will change to the symbol # when you leave the selection menu level by pushing the MENU button once.

Sub-Menu VANC

Within this sub-menu the Ancillary Data can be set.

Menu – 05	**ANC DATA**
VANC:	**Off#**

Enables the VANC counter that adds 1, 2, 3 or 4 packets to the ancillary data. For more information on the packet content, refer to the VANC Counter Appendix at the end of this manual.

Push the RIGHT button to enter the selection level. The symbol # will change to a symbol *. Use the buttons UP and DOWN to select your individual issue. Confirm the selection by pushing the RIGHT button again, thereafter the symbol * appears, which will change to the symbol # when you leave the selection menu level by pushing the MENU button once.

Menu SYSTEM

Within the menu step 06 SYSTEM the general setup can be set.

Menu
06 SYSTEM

Five sub-menus are selectable; FIRMWARE – SERIAL NUMBER – SAVE – RESET – QUICK

Push the RIGHT button to enter the sub-menu level.

Sub-Menu Firmware

Within this sub-menu the general System can be set.

Menu – 06	**SYSTEM**
SOAPbox	**V 2.40#**

This is a display only selection that shows the current firmware version number.

Sub-Menu Serial Number

Within this sub-menu the general System can be set.

Menu – 06	**SYSTEM**
SN:	**0000xxxx**

This is a display only selection that shows the serial number.

Sub-Menu Save Settings

Within this sub-menu the general System can be set.

Menu – 06	**SYSTEM**
Save Settings?	**#**

The user can save all the current settings in memory by toggling this menu.

Push the RIGHT button to enable the saving.

Menu – 06	**SYSTEM**
Save:	**Done***

The symbol # will change to a symbol *. Leave the SAVE menu by pushing the MENU button once.

Sub-Menu Factory Reset

Within this sub-menu the general System can be set.

Menu – 06	**SYSTEM**
Factory Reset?	**#**

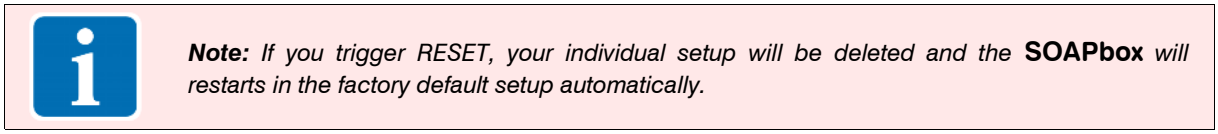
The user can rest all the current settings back to the factory default by toggling this menu.

Push the RIGHT button to enable the reset.

The **SOAPbox** reset back to the factory default and closes the menu automatically.

1080i25	**A = B**
Random	**Intern.**

But keep in mind that all individual setting are lost, when you enable this sub-menu.



Note: *If you trigger RESET, your individual setup will be deleted and the* **SOAPbox** *will restarts in the factory default setup automatically.*

If you want to keep your individual settings, use the menu step SAVE in SYSTEM.

Sub-Menu Quick

Within this sub-menu the general System can be set.

Menu – 06	**SYSTEM**
Quick:	**Off#**

Set to ON if you want to change the test pattern in Display Mode using the UP and DOWN buttons. This allows a faster selection for test patterns, without having to open the menu before.

Push the RIGHT button to enter the selection level. The symbol # will change to a symbol *. Use the buttons UP and DOWN to select your individual issue. Confirm the selection by pushing the RIGHT button again, thereafter the symbol * appears, which will change to the symbol # when you leave the selection menu level by pushing the MENU button once.

Technical Notes

Circle and Target patterns

The Target pattern is based on a square pixel ratio for high definition formats, 11/10 pixel ratio in NTSC and 54/59 pixel ratio in PAL.

The Circle pattern is based on a square pixel ratio for all formats. Since NTSC and PAL do not have a square pixel ratio, the circles will look like ellipses on standard definition CRT monitors.

Crosshatch

Crosshatch pattern are usually made with 2 consecutive lines, one on each field. On the **SOAPbox** product line we intentionally made the crosshatch with lines showing only on Field-1 so it can be used to identify problems related to field inversion.

Border Lines

Border Lines can be used to find if a device is displaying all lines and pixels. It has 8 colors, 2 pixels (or 2 lines) each to make a total of 16 pixels (or 16 lines) on every side of the image.

Timecode Window

The burned-in Timecode Window shows the timecode in 00:00:00:00 format. The character separating the seconds from the frames can be used to identify Field-1 from Field 2 for interlaced formats. It can also be used to identify drop and non-drop formats.

Example:

Timecode	*Description*
00:00:01.04	indicates a non drop timecode for Field-1 interlaced
00:00:01:04	indicates a non drop timecode for Field-2 interlaced
00:00:01,04	indicates a drop frame timecode for Field-1 interlaced
00:00:01;04	indicates a drop frame timecode for Field-2 interlaced

Genlock parameters

Each video format has its own set of HTRIG, VTRIG and Inv Fields values. They are saved to flash using the 06 SYSTEM > Save Settings sub-menu. If you use a bi-level sync source and keep switching between NTSC and 1080i for example, you don't need to keep adjusting the H and V settings every time you change the output. You would adjust each format, with that same input, once, and save the settings to flash.

Changing the Sync input signal format will require re-adjusting the H and V values.

Battery Charging

To avoid deep discharging the LiO battery, a special protection is built-in therefore. When the battery becomes low the LED „LOW BAT“ will flash. Now it's time to use the enclosed power supply for charging the battery.

The flashing LED „LOW BAT“ always indicates that the voltage is to low to power the **SOAPbox**.

During charging the green LED's will flash and indicates the voltage value. Charging is done when the upper LED constantly lits.

Firmware Upgrade Instructions:

To upgrade the firmware on your **SOAPbox**, you will need a new firmware package that would be named **SOAPbox**_123.zip or a similar name. In this package you should find 4 different files:

1. manual-**SOAPbox**.pdf: This manual
2. **SOAPbox**_123.bin: The new firmware
3. **SOAPbox**.exe: The command prompt flash utility (do not double click or run, use the batch file instead)
4. **SOAPbox**_update.bat: A batch file with the proper commands to upgrade the **SOAPbox**

Place all 4 files in the default command prompt folder. This is the folder that Windows goes to when you run the Command Prompt application.

- Recycle power on your **SOAPbox**
- Enter **SOAPbox**_update.bat
- You will be prompted to enter the COM port number connected to the **SOAPbox** device,

Enter 1 for COM-1 or 2 for COM-2

- Enter the firmware filename, i.e. **SOAPbox**_123.bin
- Recycle power on when the update is done.

Appendix A: Closed Captioning

The CEA 608 Closed captioning sent on SDI stream is SMPTE 334 compliant. Two bytes are sent each frame in ancillary data, with a cycle of 251 frames:

frame 0 : 0x94, 0xae => Clear Buffer
frame 1 : 0x94, 0xae => Clear Buffer
frame 2 : 0x94, 0x20 => start pop up
frame 3 : 0x94, 0x20 => start pop up
frame 4 : 0x94, 0x7a => move cursor to row 15 column 20
frame 5 : 0x94, 0x7a => move cursor to row 15 column 20
frame 6 : 0x94, 0xa2 => move over 2 more columns
frame 7 : 0x94, 0xa2 => move over 2 more columns
frame 8 : 0xC4, 0xC8 => Write “S” , Write “O”
frame 9 : 0xC9, 0x20 => Write “A” , Write “P ”
frame 10 : 0x31, 0xB0 => Write “b” , Write “o”
frame 11 : 0x94, 0x2c => Clear current Caption
frame 12 : 0x94, 0x2c => Clear current Caption
frame 13 : 0x80, 0x80 => No operation
frame 14 : 0x80, 0x80 => No operation
frame 15 : 0x94, 0x2f => Display Caption
frame 16 : 0x94, 0x2f => Display Caption
frame 17 – 119 : 0x80, 0x80 => No operation
frame 120 : 0x94, 0xae => Clear Buffer
frame 121 : 0x94, 0xae => Clear Buffer
frame 122 : 0x94, 0x20 => start pop up
frame 123 : 0x94, 0x20 => start pop up
frame 124 : 0x94, 0xf7 => move cursor to row 15 column 12, and write underlined
frame 125 : 0x94, 0xf7 => move cursor to row 15 column 12, and write underlined
frame 126 : 0x94, 0xa2 => move over 2 more columns
frame 127 : 0x94, 0xa2 => move over 2 more columns
frame 128 : 0xC4, 0xC8 => Write “T” , Write “A”
frame 129 : 0xC9, 0x20 => Write “M” , Write “U”
frame 130 : 0x31, 0xB0 => Write “Z” , Write “”
frame 131 : 0x94, 0x2c => Clear current Caption
frame 132 : 0x94, 0x2c => Clear current Caption
frame 133 : 0x80, 0x80 => No operation
frame 134 : 0x80, 0x80 => No operation
frame 135 : 0x94, 0x2f => Display Caption
frame 136 : 0x94, 0x2f => Display Caption
frame 137 – 250: 0x80, 0x80 => No operation

Each control code is transmitted twice, as requested in EIA 608 specifications.

Appendix E: VANC Counter

For 1080i-59.94 formats, when VANC is enabled, the **SOAPbox** can embed up to 4 data packets on each of the following lines:

- Field-1: Lines 9 to 20
- Field-2: Lines 572 to 583

All packets are identical except for UWD0, UWD1 and UWD255 that are used to indicate the line number, packet number / field identifier and the checksum. The packet is structured as follows:

- ADF1= 0x00
- ADF2= 0xFF
- ADF3= 0xFF
- DID= 0x5F
- SDID= 0xFA
- DC= 0xFF
- UWD0= LSB byte of the line number
- UWD1= Packet Number and Field Identifier, 0x30 for packet-3 field-1 or 0x2F for packet-2 field-2
- UWD2 .. UWD254= Hex value of a counter that starts at 0x00 and ends 0xFC
- UWD255= Checksum