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GETTING STARTED WITH PHABRIX SX

Software Release: 0.4.2362 - 20th August 2008

PACKAGE CONTENTS

The shipping box should contain:

1 black carrying bag containing:

Phabrix SX unit

Power Supply Unit

Mains lead

This Manual on a CD

GENERAL SAFETY

AVOIDING PERSONAL INJURY



This instrument is designed for use by qualified personnel only.

No user serviceable parts are provided. Units should be returned to your local PHABRIX agent for servicing.

The Operator should NOT remove the case from the unit.

Do not spill any liquid onto the unit or its power adaptor.

POWER SUPPLY

Make sure that the unit is connected to the correct power supply voltage. A power supply adaptor is supplied with the unit which may be connected to any AC power supply between 100 and 240VAC at 50-60Hz. Only the supplied power adaptor should be used with the unit. Do not use a damaged AC cable with the unit as it may cause a shock or fire hazard. Replacement AC cables are available from your local PHABRIX agent.

INSTALLATION ENVIRONMENT

OPERATING TEMPERATURE



The unit should only be operated between 0 and 40 °Centigrade. If the unit is operated at a higher temperature there is a possibility of a fire hazard. If the temperature is changed rapidly from a cold environment to a hot environment, moisture can be created internally which can cause malfunction or damage the unit. Allow the unit to sit for 30 minutes without power applied to reduce any possibility of condensation.

INPUT/OUTPUT TERMINALS

Do not connect the input or output BNC connectors to external power as this can damage the internal circuitry and cause the unit to work incorrectly.

WHEN NOT IN USE

Disconnect the unit from the power supply and AC power source when not in use.

MAINTENANCE

Wipe the case, and knobs gently with a soft cloth, lightly dampened with a neutral cleaning agent. A screen cleaning cloth may be used to clean the LCD. Do not apply force to the LCD when cleaning or it may be damaged.



Remove the power supply from the unit and turn OFF before cleaning. Do not allow any water or other liquid to enter the unit while cleaning.

INTRODUCTION

Thank you for purchasing a PHABRIX SX unit. Please read this manual carefully to ensure safe and correct operation. If, on reading this manual you still have questions on using the unit, please contact PHABRIX via the support web site at <http://www.phabrix.com>. You may also register your product at this web site for a FREE extra 1 years warranty.

WARRANTY

The product has been designed and manufactured to be of the highest quality. However, should the unit develop a fault during the warranty period, please return to your local PHABRIX agent for repair.

WARRANTY EXCEPTIONS

PHABRIX are not responsible for free service during the warranty period under the following conditions:

- Incorrect voltage applied to unit.
- Incorrect power adaptor used.
- Fire, natural disaster.
- Repair of instrument by non PHABRIX approved agent
- Repair of damage caused by third party products.
- Repair of damage caused by improper use.
- Repair without proof of purchase.

OPERATING CONDITIONS

EXTERNAL POWER SUPPLY

DC-5V **5V**

MAXIMUM INPUT SIGNALS

SDI input(s) **+/- 5V**

REF input: **+/- 5V**

LCD MONITOR

The LCD may have some pixels that are always turned ON or always turned OFF. This is normal and should not affect normal operation.

LCD FLICKER

The unit supports many video standards. The input SDI signal is displayed asynchronously and may flicker on the waveform display or picture display. The unit stores the input SDI signal internally, and then reads the internal frame using the LCD sync signal, which is asynchronous to the input SDI signal. LCD flickering may occur if a frame is skipped or repeated.

REMOTE NETWORK OPERATION

Remote network operation is only guaranteed when connected to a local machine.

DISPOSING OF THE UNIT



This product is subject to the European WEEE (Waste Electrical and Electronic Equipment) directive and should be disposed of according to the regulations of each country.

This unit contains a Lithium Polymer battery which should be disposed of correctly.

SPECIFICATION

LCD DISPLAY

Display Type	4.3 inch TFT colour
Display Format:	480 x 272 24 bits
Backlight	Variable brightness
Screen Saver	Reduces brightness after user adjustable time under battery operation.

SDI INPUTS

Supported standards	525/59.94, 625/50, 720p/23.98,24/25/29.97/30/50/59.94/60 180psF/23.98,24/25/29.97/30 180i/23.98,24/25/29.97/30 180p/23.98,24/25/29.97/30/50/59.94/60
Connector	BNC
Input Impedance	75 ohm terminated
Input Return Loss	>= 15dB (5MHz to serial clock frequency)
Maximum Input Voltage	+/- 2V

EXTERNAL REFERENCE

Input Signal	Tri-level or Bi-Level (black burst) syncs 50/59.94/60Hz
Connector	BNC
Input Impedance	75 ohm terminated
Maximum Input voltage	+/- 5V

EXTERNAL CONTROL

Ethernet	IEEE802.3 100Mb/s
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Ethernet Connector	RJ-45
USB	USB 1.1 OTG (On the go - simulates flash disk)
USB Connector	Mini-AB

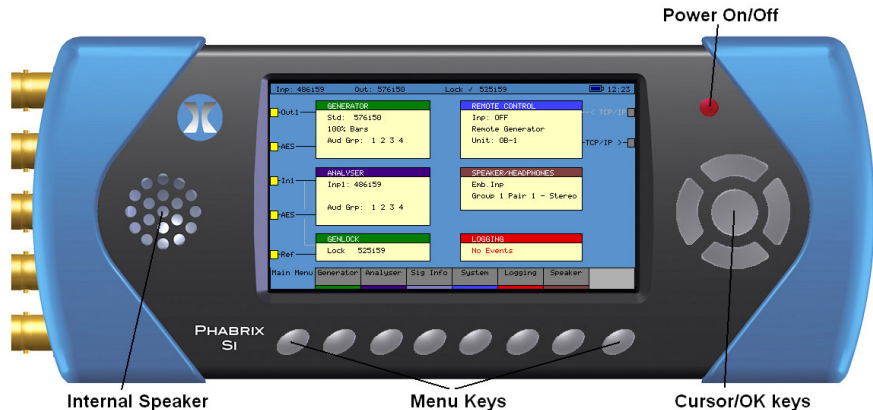
HEADPHONE OUTPUT

Connector	Miniature 3.5mm Stereo Jack
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GENERAL

Environment	
Operating Temperature	0-40 °C
Operating Humidity	<85% RH (no condensation)
Power Requirements	AC 90-250V 50/60Hz 10W max
Dimensions	230 (L) x 93(H) x 45(D) mm
Weight	2kg
Accessories	Instruction Manual on CD AC Adaptor Power Cord Carry Case

OPERATION



TURNING THE UNIT ON OR OFF

To turn on your Phabrix SX press the red button at the top right hand side of the unit.

Once the system has started, pressing the button again will turn it off. If for some reason the unit stops responding, pressing and holding the button for a few seconds will turn it off.

The unit is battery operated and the battery should last for between 3 and 6 hours dependent on which video standard is being used and whether the input and outputs are active. If the unit is turned ON and the battery is almost discharged, it will turn itself OFF. If the battery level starts to get too low for operation a dialog will be displayed prompting the user to turn off the unit. The current settings will also be saved. The unit should then be connected to the power supply unit as soon as possible to recharge the battery. The battery should be fully charged in about 1 hour.

UNIT STATUS LINE



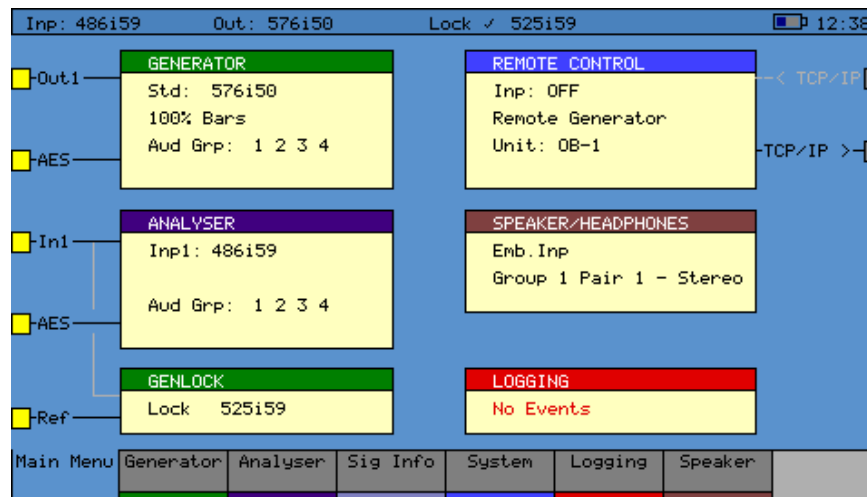
The top line of the menus shows the unit status and includes the Input Video status, Genlock status, battery status and current time. If the unit is being powered by the AC adaptor, the battery status will not be shown. If a command script is being run, this is shown on the top line to the left of the time as "Script". A red "Log" is shown on the status line if there are any events in the event log.

USING THE MENUS

The Menu keys select which instrument is in use as well as selecting the options for the unit. The bottom of the LCD display shows the function of each Menu Key.

When in an instrument, the cursor controls on the right hand of the unit select a field to edit. The current field has a red box around it. Pressing the OK button starts or ends editing of that field. Check boxes are always in edit mode and pressing the OK button inverts the current state. When editing some types of fields, the menu buttons at the bottom take on different functionality to allow cancelling edit mode or setting the default value for the field. When lists of options are displayed the menu buttons allow selection of the first/last item in the list as well as paging through the available options. If the list of items is small, the available items may be displayed on the menu buttons for instant access. The buttons along the bottom of the LCD display change the currently displayed page when not editing a data field. The left hand button always selects the top level menu and system overview page.

MAIN MENU



SYSTEM OVERVIEW

This page displays an overview for the system. It shows the video input and output standards and frame rate. The audio status for the input and generator shows which audio groups are present. If the generator is generating errors then the video

standard is displayed in red. If the input detects errors, then the input standard will be displayed in red if the analyser is monitoring the input.

GENERATOR

This selects the generator page to allow setup of the generator output.

ANALYSER

This selects the analyser page to allow viewing and setup of the video and audio input signal.

SIG INFO

This selects the detailed signal information page which shows video and audio status for the analyser source.

SYSTEM

This allows setting up of system wide settings including memories and date/time.

LOGGING

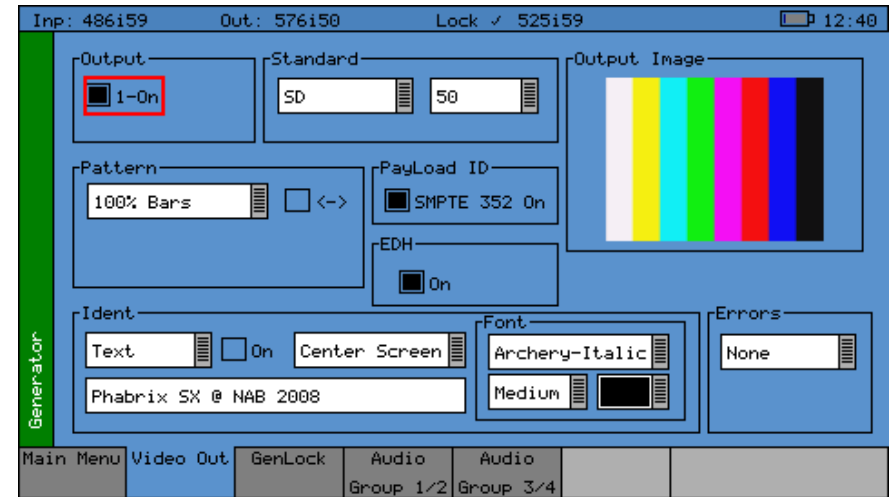
This selects the logging page to view and setup the error logging system.

SPEAKER

This selects the speaker/headphone setup page.

SIGNAL GENERATOR

VIDEO SETTINGS

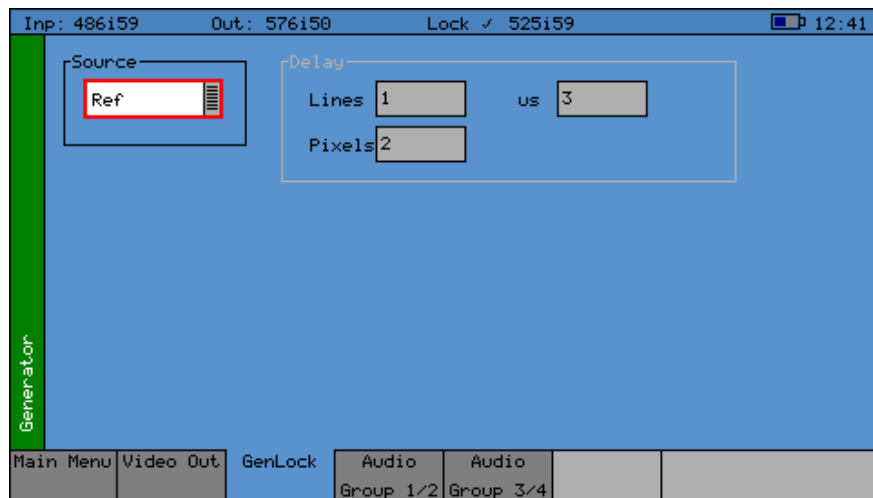


The unit supports all SD and HD SDI output standards including the 3GHz standards at 1080p/50/59/60. It will support Y,Cr,Cb formats as well as RGB formats.

- Output On:** Turns ON the output circuitry. Turn this OFF to save battery power if you are not using the video output.
- Standard:** Sets the video output format. Can select SD/720p/1080i/1080p.
Sets the frame rate for the current video output format. Only valid frame rates for the output standard may be selected.
- Pattern:** This selects the video pattern that is output by the generator. Many standard patterns are provided by the unit. You may also download your own test patterns to the unit into the 'Patterns' directory and then select them using the 'User File' option in this field.
- <->:** This field, when checked, causes the test pattern selected to scroll horizontally. This helps check that a signal has not frozen due to signal loss. (Not implemented yet)

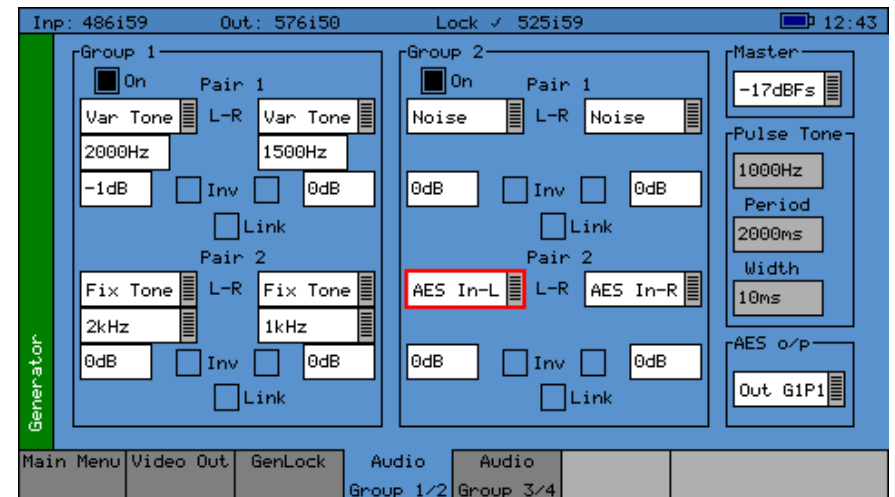
- EDH:** If the output signal is SD (PAL-625 or NTSC-525) the insertion of EDH information may be turned on or off.
- Errors:** This field enables the insertion of CRC or EDH errors into the video signal. This allows checking of third party error detection circuitry. The number of errors inserted per second may be adjusted.
(Currently error generation can only be turned on/off)
- SOA:** This field allows selection of a safe operating area box to overlay the test pattern output. (Not implemented yet)
- Ident:** This section allows selection of either a user defined bitmap picture which has been downloaded into the 'Idents' directory of the unit or user defined text. For both types, the position of the ident can be set to one of Top-Left, Top-Centre, Top-Right, Left-Centre, Centre-Screen, Right Centre, Bottom-Left, Bottom-Centre, Bottom-Right. When text ident is used, the font, font size and colour can be specified. Several fonts are built in to the unit, other fonts may be downloaded as required.
- A smaller version of the video output signal is displayed on this page with any overlaid ident

GENLOCK SETTINGS



- Source:** The generator may be locked to an input reference which may be either the reference input which is a Bi-Level/Tri-Level sync or may be locked to the video input. Alternatively, the generator may free run.
- Delay:** The delay of the video output may be adjusted by either lines and pixels or by micro-seconds. Adjustment of either field results in the alternative field being modified to match.

AUDIO SETTINGS



The unit can embed an audio signal on all 16 embedded audio outputs. If the AES I/O version has been purchased, the AES output source may also be set up.

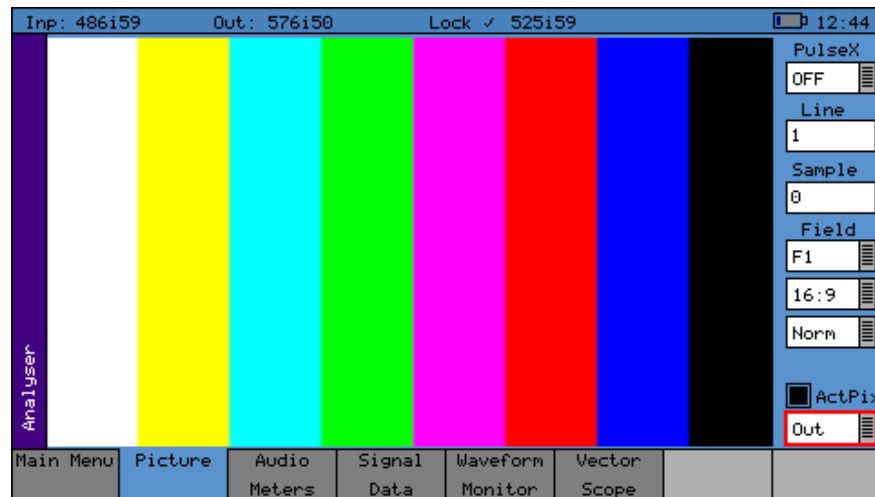
- Group n:** Each of the four groups may be separately enabled. When enabled, the source and level of each channel in a pair can be selected.
- Source:** The source for each channel may be Silence, Fixed tone (a range of fixed frequencies), variable tone (where the frequency can be set on 1Hz steps from 20Hz to 20kHz), white noise, pulse tone or a user defined file downloaded into the 'Audio' directory on the unit. User defined files are looped and so should be set so that they start and finish on a zero crossing point of the signal. Dolby-E signals can also be used, downloaded into the 'DolbyE' directory.

- Inv:** This check-box phase-inverts the audio signal to allow checking of third-party audio mixing.
- Link:** This links the left and right channels of a pair so that changing the level on one channel changes the level on the other channel.
- Pulse Tone** The pulse tone source is used to test audio metering response. The frequency may be set to any frequency from 20Hz to 20kHz in 1Hz steps. **(Not implemented yet)**
- Period:** The time between pulses may be set from 500ms to 10s in 1ms steps. The width of the pulse may be set in 1ms steps. The tone will always start and end on a zero crossing point. **(Not implemented yet)**

ANCILLARY DATA SETTINGS

(Not implemented yet)

ANALYSER



The signal analyser displays the video input or output signal it may also analyse a previously grabbed frame of video. On any page, if the page button is pressed again the video signal will be displayed in full screen mode. While in full screen mode, if the video input signal is not present, a message saying 'No video detected' will be

shown. The source for the analyser is set by the field at the bottom left of the page. The current line and sample are the same for all pages of the analyser and therefore when selecting a sample on the Signal Data page, the cursor will show where that is on the 'Full Picture' page.

PICTURE

On this page, the video picture is displayed in a window as a down-converted display. Select 'Pulse-X' mode to change the picture to display the horizontal and or vertical blanking. Four modes of pulse cross are available:

- OFF:** Normal picture display
- H+V:** Display the horizontal and vertical blank interval for the signal
- H:** Display the horizontal blanking interval.
- V:** Display the vertical blanking interval.

Line: Specify the current line for analysis.

Sample: Specify the current sample for analysis.

Field: (Only for interlaced formats) This control selects the field for analysis. If the current line is in Field 1, changing the field will change to the same line in field 2. The field number will change to show the correct field for the current line number.

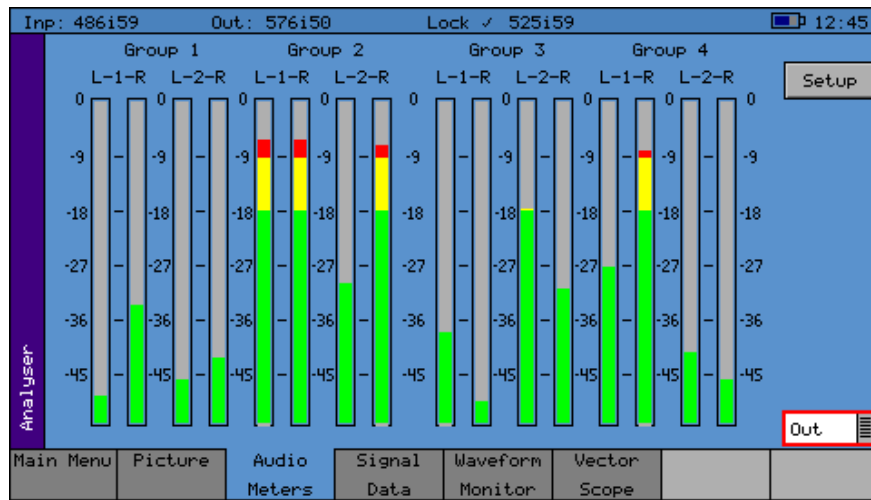
Aspect Ratio: The aspect ratio of PAL (625 lines) may be set to be either Auto, 4:3 or 16:9 as required for the source signal. Auto mode will read the aspect ratio from the WSS/VI signal once supported (**not available at present**). NTSC (525) signals are always 4:3 aspect ratio and HD signals are always 16:9.

ActPix: If checked, only active picture is displayed for picture view and waveform monitor, all other VBI data such as TRS words ANC data and audio is blanked.

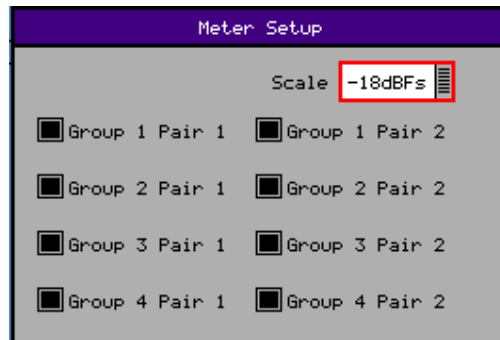
Zoom: If set to 'Norm' the picture displayed is a down-converted picture to fill the window or the full screen as requested. If set to '1:1' then a pixel on the units LCD display will reflect a pixel in the video signal. In 1:1 mode, no filtering is used and by pressing 'OK' the cursor keys can scroll around the full picture.

Cursor: A cursor may be turned ON which highlights the area of the picture specified by the specified line and sample. **(Not implemented yet)**

AUDIO METERS

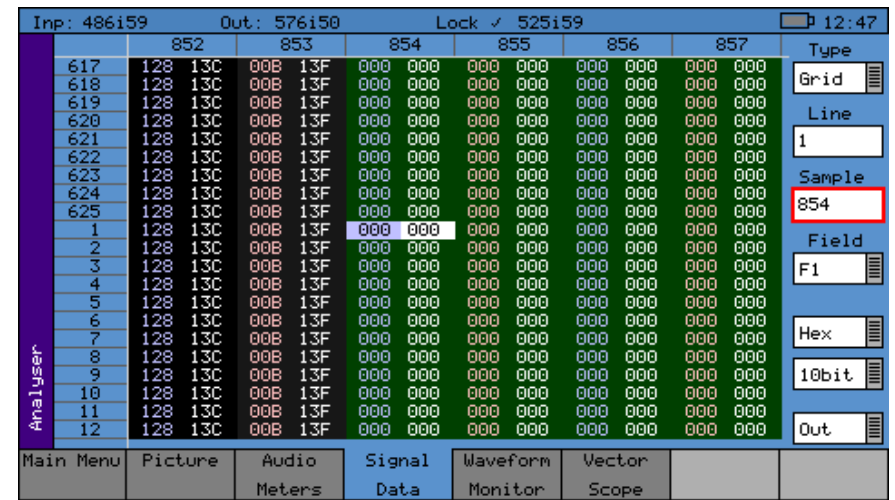


This page shows up to 16 embedded audio channels. The video signal may be optionally displayed behind the meters. The Meter Setup button shows a dialog to set which meters are displayed, what their scale is set to and what labelling is used.



The scale used by the meters may be set to -18dB or -20dB according to the standard operating level used. The scales may be dBfs, EBU, DIN, Nordic or VU.

SIGNAL DATA (ENGINEERING OPTION)



This page shows the video signal as a data stream in several formats as described below. In each mode, the data may be displayed in hexadecimal, decimal or binary formats. The binary format is not available in grid mode. The data may also be displayed as 10bit or 8bit format.

To simplify scrolling around the SDI signal view, use the cursor keys to move the red focus rectangle to the data display and press OK. The focus rectangle should change to a blue colour and the cursor keys allow the display to be scrolled in any direction. The menu keys at the bottom allow the Line/Sample to be adjusted by 10 or 100 in any direction.

Grid: In this mode the data is shown in an X-Y format with lines and samples at the same time. Thus this is a representation of the picture but in data format. If the cursor keys are used to select the grid window and 'OK' pressed, the cursor keys will scroll around the window. The luma (Y) channel is shown in green whilst the Cr and Cb channels are shown in Pink/Cyan respectively.

Strm: This is one of 3 modes for displaying the samples on the current line only. The cursor keys may be used to scroll the sample number when 'OK' has been pressed. The 'info' column shows the type of data being displayed.

AP Active picture
VBL Vertical blanking

HBL	Horizontal blanking
AUD	Audio – not decoded yet
WSS	Wide screen signalling line – not decoded yet
VI	Video Index – not decoded yet
AFD	Active format descriptor line – not decoded yet
F1/F2	Field 1 or Field2 for interlaced formats. – not decoded yet

Comp: This is similar to the Strm mode above but in a component mode with Cr and Cb in different columns. See Strm mode above for the info column description.

Split: This mode shows the 2 streams split into 4 parts to show Y, Y', Cr and Cb in separate columns. See Strm mode above for the info column description.

WAVEFORM MONITOR

SETUP BUTTON/DIALOG

The waveform display format is set using the 'Setup' button. The waveform monitor displays the selected signal in one of 5 formats as set by the Mode control:

Parade	The Y, Cr and Cb waveforms are shown as three separate waveforms
Y	Only the luminance channel is shown
Cb	Only the blue chroma channel is shown
Cr	Only the red chroma channel is shown
Red	Only the red channel is shown
Green	Only the blue chroma channel is shown
Blue	Only the red chroma channel is shown

The contents of the Mode control are determined by the Type control which specifies whether the display is Y-Cb-Cr or G-B-R.

The colour of the waveform display segments depends on the Mode and Type controls.

Active Picture: If checked, only active picture is displayed for picture view and waveform monitor, all other VBI data such as TRS words ANC data and audio is blanked. This control tracks the state of the **ActPix** control on the Picture tab.

WAVEFORM CONTROLS

The line, sample and field controls all track the related controls on other pages.

The Zoom control controls the scaling of the waveform so that more detail of part of the waveform can be seen. Selecting the waveform window with the cursor and pressing 'OK' allows the window to be scrolled around the waveform.

The 'All' checkbox forces the waveform monitor to display all lines, overlaid on each other. Otherwise the specified line is displayed.

The axes for the waveform monitor can be displayed either in percentages or in hex or decimal values as required.

If cursors are turned ON, they will display the position of the current sample with a vertical line. (Not implemented yet)

The H and V controls specify the horizontal and vertical offsets when the waveform display is in x2,x5 or x10 magnification modes. (Not implemented yet)

VECTOR SCOPE

The vector scope may be set to show either the 100% bar positions or 75% positions. The colour bar position boxes will change according to the colour space for the current input video standard.

The 'All' checkbox forces the waveform monitor to display all lines, overlaid on each other. Otherwise the specified line is displayed.

SIGNAL INFORMATION

These pages give a detailed view of the status of the input (or generator output) signal. They are sub-divided into Video, Audio and Ancillary (ANC) status.

VIDEO STATUS

Inp: 486i59 Out: 576i50 Lock ✓ 525i59 12:52

CRC/EDH Errors

	Source	OK Time	Errors	
EDH AP	Out	00:29:41	0	Clear
EDH FF		00:29:41	0	Clear

EDH Data

	1	Field 2
AP - Rx	0001	000A
AP - Calc	0003	000C
FF - Rx	0000	0009
FF - Calc	0002	000B

Payload ID - SMPTE 352

Data: 81 05 00 01

SD 270/360Mb/s 25i

4:2:2 YCbCr 4:3 10bit 100% Ch 1

Main Menu Video Status Audio Status ANC Status

CRC/EDH ERRORS

This displays the EDH or CRC status of the video input as appropriate for the video standard being monitored. The status of each CRC/EDH count is displayed as the number of seconds since an error occurred. The individual CRC fields may be reset individually or together.

EDH DATA

If the signal is SD (PAL-625 or NTSC-525) the EDH values for both active picture (AP) and full-field (FF) are displayed for each field. To enable engineers checking EDH integrity, the EDH values calculated for active picture and full-field are also displayed.

Under normal conditions, the EDH-AP values should be constant, the full-field values may change if audio or other ancillary data is embedded in the SDI signal.

The EDH flags for active picture, full-field and ancillary data are also displayed for diagnostic purposes.

Edh: Error Detected Here:

This is set to 1 if a SDI error was detected. In the case of ancillary data, this means that one or more ANC data packets had an incorrect checksum.

Eda: Error Detected Already:

This is set to 1 if a SDI error was detected in the signal received by the previous device.

Idh: Internal error Detected Here:

This is set to 1 if a hardware error was detected in the previous device.

Ida: Internal error Detected Already: This is set to 1 if an idh flag was received by the previous device.

Ues: unknown error status: This is set to 1 if the previous device received an SDI signal from a device not supporting EDH.

PAYLOAD ID – SMPTE 352

If the unit has detected a SMPTE 352 ancillary packet, it will be displayed here in hex and decoded format.

The display shows the transport media, frame rate and interlaced/progressive/segmented frame mode, as well as colour format, bit depth, dynamic range and channel number. See the SMPTE 352 specification for further details.

AUDIO STATUS

Inp: 486i59 Out: 576i50 Lock ✓ 525i59 12:52

Channel Status

Source: Group 1 Pair 1 - L Out

Consumer PCM Emph: unknown

Fs: unknown Mode: unknown, UsrBits: none

Sample size: 20, level: unknown

Not a ref, Fs: unknown

Origin="" Dest=""

Sample Addr=00000000 Time=00000000

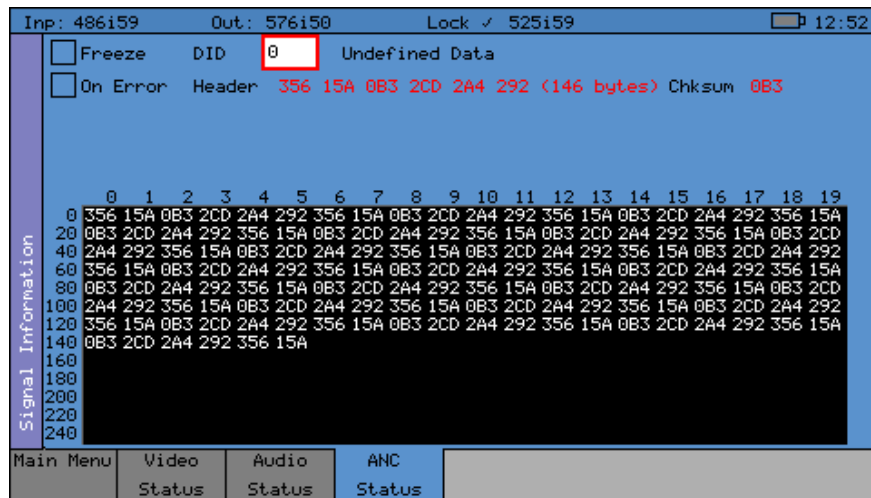
Reliability=All OK CRCC=FAIL

Data: 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00

Main Menu Video Status Audio Status ANC Status

The Channel Status for the selected audio channel is displayed in decoded form as well as a hexadecimal dump of the bytes. The source may either come from the input signal or from the generator for comparison purposes.

ANC STATUS



The data contained in Ancillary packets may be displayed and decoded.

The data ID for the packet to be displayed should be selected using the DID field. A description of the DID is shown next to it and the header of the packet and checksum is displayed immediately below. The data packet is displayed as a hexadecimal list at the bottom of the page and may also be decoded into a text format.

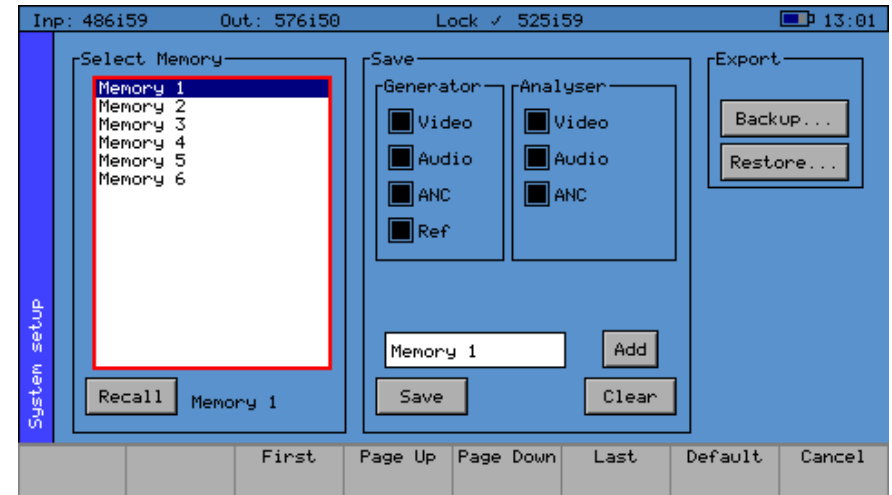
If an error occurs in the packet, the header and checksum are displayed in red.

The display of data may be frozen by pressing the Freeze checkbox.

If the On Error checkbox is checked an error in the data packet will cause the display to be frozen and the Freeze checkbox will turn red. Un-checking the freeze button will restore normal operation.

SYSTEM WIDE SETTINGS

MEMORIES



The current settings in the unit may be saved for future recall. The check boxes on the right-hand side determine what is saved in the memory. Non overlapping memories may then be combined together.

SAVING MEMORIES

Select the memory to save settings to by moving the cursor to the 'Select Memory' list and pressing 'OK'. Use the up/down cursor keys to select the memory and then press 'OK'. The name edit field next to the memory list will be updated with the name of the selected memory.

Specify which aspects of the unit are to be saved in the memory using the check boxes on the right hand side. If you want to change the name of the memory see the section 'Renaming Memories' below before saving.

Move the cursor to the 'Save' button and press 'OK'. The text field under the Memory list will change to show the last Saved or Recalled memory.

RECALLING MEMORIES

Select the memory to be recalled by moving the cursor to the 'Select Memory' list and pressing 'OK'. Use the up/down cursor keys to select the memory and then press 'OK'. The name edit field next to the memory list will be updated with the name of the selected memory.

Move the cursor to the 'Recall' button and press 'OK'. The text field under the Memory list will change to show the last Saved or Recalled memory.

RENAMING MEMORIES

Select the memory to be renamed by moving the cursor to the 'Select Memory' list and pressing 'OK'. Use the up/down cursor keys to select the memory and then press 'OK'. The name edit field next to the memory list will be updated with the name of the selected memory.

Move the cursor to the edit field and press 'OK'. The menu keys at the bottom of the screen will change to show text keys similar to a mobile phone. Pressing a key repeatedly will cycle through the characters for that key. Pressing a different key will move the cursor to the next position and insert the first key value for that key. The cursor left and right keys can be used to move the position of the text cursor which is where the next character will be inserted. The 'Back Space' key will delete the key to the left of the cursor. The 'Cancel' key will cancel edit mode and restore the original text. Once you have finished editing the name, press 'OK' to rename the memory.

ADDING MORE MEMORIES

To add a new memory, press the ADD button. This will use the current memory name and settings.

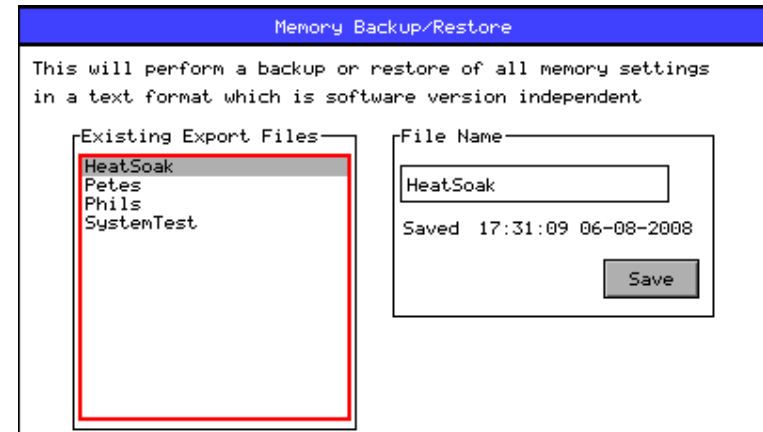
CLEARING MEMORIES

Select the memory to be cleared by moving the cursor to the 'Select Memory' list and pressing 'OK'. Use the up/down cursor keys to select the memory and then press 'OK'. The name edit field next to the memory list will be updated with the name of the selected memory.

Move the cursor to the 'Clear' button and press 'OK'. The memory list will show the default name for that memory. A cleared memory cannot be recalled.

EXPORT

Memories can be exported to a single file for backup purposes and re-imported into the internal format. This allows different sets of memories to be used for different tasks, such as command scripts. Exported memories are in a text format and so may be edited on a PC and downloaded to/from the backups directory on the unit via FTP or USB.

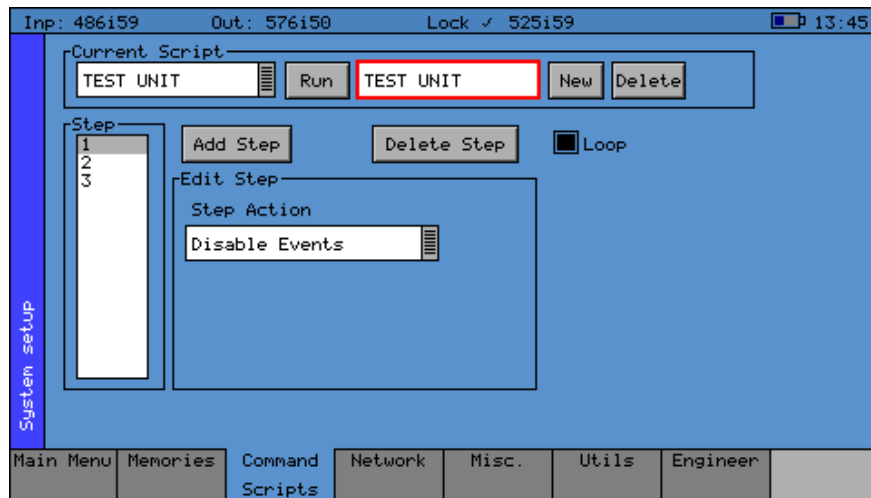


To export memories, select the **Backup...** button which will open a window to select the file to create. Existing files are shown and a new filename may be selected using the **File Name** edit box. Select the **Save** button to create the backup file. The filename created will have a .mem file extension.

To import memories, select the **Restore...** button which will open a window to select the file to import. Existing files are shown and one should be selected before the **Load** button is pressed. Select the **Load** button to import the backup file.

NOTE: When importing a backup file, all existing memories are deleted before the backup file is loaded so make sure that they are backed up first.

COMMAND SCRIPTS (ENGINEERING OPTION)



Command scripts allow sequences of actions to be stored and recalled thus allowing often repeated test procedures to be run. Each step of a sequence has an associated action and time that the action is valid for. Command scripts are stored in the 'Scripts' directory on the unit and may be downloaded to the unit via the USB port or via FTP transfers to the unit. See the section on Remote File access for further details. See also the section on file formats for details of command script formats

CREATING A COMMAND SCRIPT:

Move the cursor to the 'New' button and press 'OK'. A new script will be created called 'NewScriptn' where 'n' is the next available script number. See also 'Renaming a command script'.

ADDING STEPS TO A COMMAND SCRIPT

Move the cursor to the 'Add Step' button and press 'OK'. A new step will be created with the default action of Recalling Memory 1 in 1 second. Multiple steps can be created at this stage and then the actions edited later.

EDITING STEPS IN A COMMAND SCRIPT

Select the step to be edited by moving the cursor to the step list and pressing 'OK' and then using the cursor keys to select the step. Press 'OK' again to select this step

and update the action and time fields for the step. Move the cursor to the field to be edited and edit as required.

SCRIPT ACTIONS

Step Action is one of:

RECALL MEMORY,

Loads the memory specified in the Memory field.

CHECK INPUT ERRORS,

Check for errors in the step Time. If there are any errors an event is added to the event log and the sequence pauses with a message to continue or abort. (Optional? Checkbox to force abort on errors???? Which errors are checked? Use log setup to set errors???)

PROMPT USER

This will put a short prompt on screen in a dialog asking the operator a question and waiting for OK to be pressed to continue.

CLEAR EVENT LOG

This will clear the event log which is useful when starting a test script so that the event log starts in a known state.

DISABLE EVENTS

This disables logging globally while a major change in output/input status is about to take place so that unwanted log events are not added to the log.

ENABLE EVENTS

This re-enables event logging after disabling it above.

CLEAR ERROR COUNTS

This clears all CRC/EDH error counts and should be run before checking for errors.

DELETING STEPS IN A COMMAND SCRIPT

Select the step to be deleted by moving the cursor to the step list and pressing 'OK' and then using the cursor keys to select the step. Press 'OK' again to select this step. Move the cursor to the 'Delete Step' button and press 'OK'.

DELETING A COMMAND SCRIPT:

Move the cursor to the list of command scripts on the left hand side and select the script to be deleted as the current script. Then move the cursor to the 'Delete' button and press 'OK'. The currently selected script is the one that is deleted.

RENAMING A COMMAND SCRIPT:

Move the cursor to the list of command scripts on the left hand side and select the script to be renamed as the current script. Move the cursor to the name edit field and press 'OK'. The menu keys at the bottom of the screen will change to show text keys similar to a mobile phone. Pressing a key repeatedly will cycle through the characters for that key. Pressing a different key will move the cursor to the next position and insert the first key value for that key. The cursor left and right keys can be used to move the position of the text cursor which is where the next character will be inserted. The 'Back Space' key will delete the key to the left of the cursor. The 'Cancel' key will cancel edit mode and restore the original text. Once you have finished editing the name, press 'OK' to rename the script.

RUNNING A COMMAND SCRIPT:

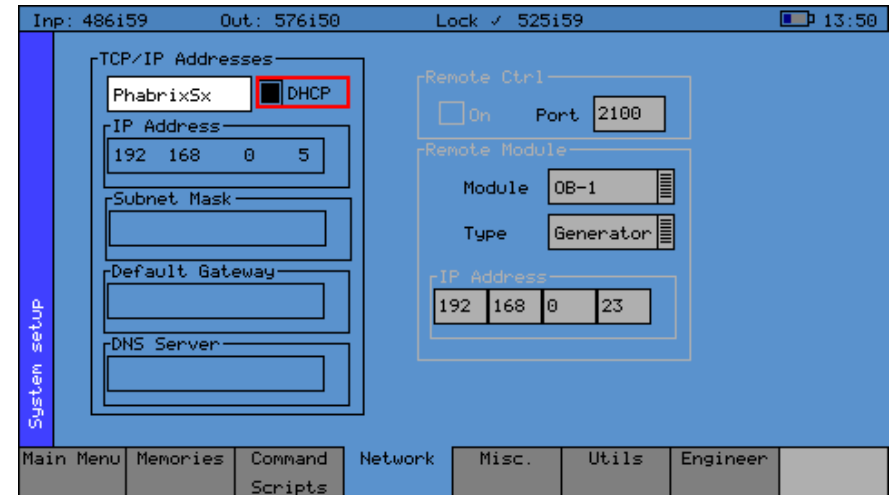
Move the cursor to the list of command scripts on the left hand side and select the script to be run as the current script. Move the cursor to the 'Run' button and press 'OK'. The Run button will now become a 'Stop' button to stop the running script.

LOOPING A COMMAND SCRIPT:

By default a script will run all steps and then stop running. The 'Loop' check box allows a script to loop until stopped. This feature allows testing of a system forever for heat-soak testing in a manufacturing environment or to check for system

reliability over a period of time. The Loop Count field shows how many loops have been run and how many hours and minutes the script has been running for.

NETWORK SETUP



Phabrix SX is fully networkable and has a complete network interface to allow control of any unit from any other unit. This allows a remote generator to be controlled by a local analyser to check video links. All units on a network need an 'address' so that the other systems know how to talk to them. If you have a DHCP server on your Ethernet network, check the DHCP box and a TCP/IP address will be assigned to the unit automatically. If your network has 'static' (non changing) addresses, you will need to see your network administrator to get an address assigned to your unit and to get the Subnet mask and default gateway address.

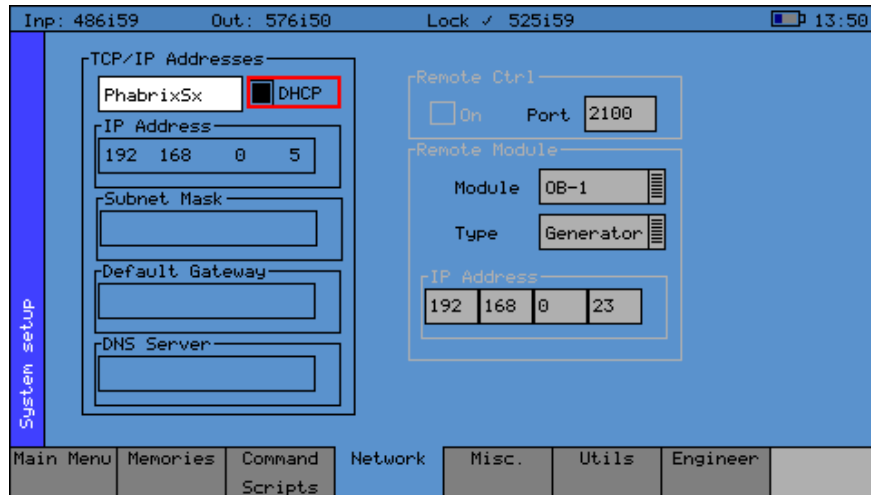
Remote control of units is currently not implemented.

To allow remote control of a unit, you must have the TCP/IP address of the unit set and the Remote Control check box must be checked. To add a new remote unit, click on the 'New' button and edit the name and address for the remote unit to be controlled. Specify which aspect of the remote unit is to be controlled. Multiple remote units may be set up and selected using the 'Module' list which automatically remembers the TCP/IP address for all remote modules setup.

The Remote control Port may need to be changed if it clashes with a port on a remote machine but under normal use, the default value will work.

A Windows PC application is available for remote control of a module. This application uses the same user interface as the Phabrix SX.

MISC.



This page shows serial numbers, unit MAC address, version information and battery state. It also allows the date and time to be set and factory default settings to be recalled. The options security code is entered on this page if options are purchased.

CHANGING THE DATE/TIME:

Check the 'Enable Change' checkbox under the date and time fields and then use the cursor to move around the date and time. Press 'OK' to edit a field and again to complete the change. When all fields have been edited, uncheck the 'Enable Change' check box and the new date and time will be set.

CHANGING THE DATE FORMAT:

The date format used on logging screens etc may be set using the Format selection control. Three formats are available: Date-Month-Year, Month-Date-Year and Year-Month-Date.

SETTING LCD BRIGHTNESS

Use the LCD brightness slider to set the LCD brightness, using a lower brightness will reduce the current drawn from the battery and thus lengthen battery life.

SETTING SCREEN SAVER MODE

When the unit is battery powered the screen saver will operate after a user defined time period and reduce the LCD brightness down to its lowest level. This will lengthen battery life. Pressing any key will restore the previously set LCD brightness.

SETTING USER LANGUAGE

The language used to display the menus in may be changed to one of the supported languages. (Currently only English is supported)

CHANGING OPTIONS SECURITY CODE

When new options are purchased for the unit a new Security Code will be supplied. This is specific to this unit and cannot be used on other units. The security code is entered using the Edit field below the System Option list and is edited by pressing OK and using the menu function keys. If an incorrect Security code is entered a dialog will be displayed. The new Security code will only be saved if it is valid, the old code will be used until a valid code is entered. Once a valid new code has been entered, the list of options provided by that code will be displayed. The options code is stored independently to memories and system settings.

UTILS

This page adds some useful utilities to the system.

GUI TO OUTPUT

When checked, this feature causes the unit LCD display to be copied to the video output in place of the test pattern. This feature is useful for training purposes as it allows other users to see the LCD on a larger LCD screen attached to the unit via an SDI to DVI/HDMI converter. Note that if the test pattern is changed while this feature is turned on that the new test pattern will be displayed for a short time before the LCD display is restored to the output. This allows you to see any output changes.

GRAB INPUT

This feature is currently not implemented.

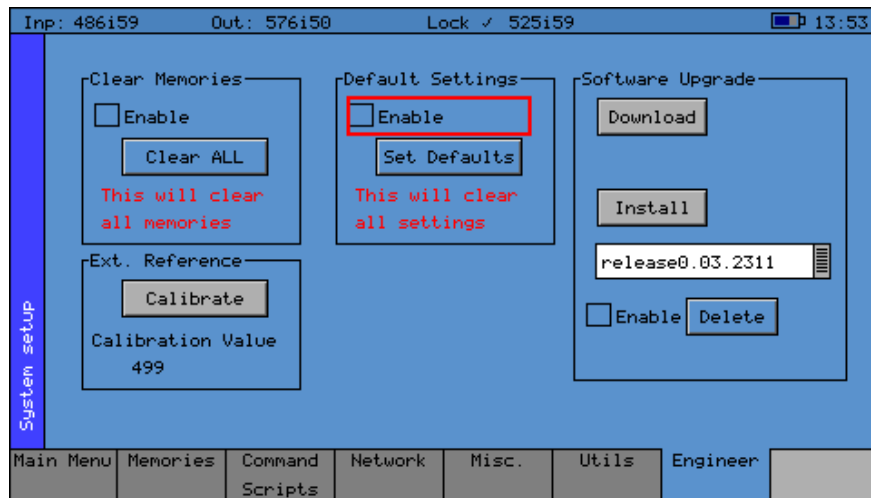
This button grabs the current video input frame and saves it to the internal flash memory. Up to 1Gb is available to store memories, test patterns, user ids, audio wave files and video grabs.

GRAB FRAMES

This feature is currently not implemented.

This section shows a list of grabbed frames and allows them to be deleted if the internal memory fills up. The currently selected frame is that used when 'Grab' is selected in the analyser. Grabbed frames are stored in the 'Patterns' directory on the unit so that they can be sent to the video output by selecting 'User File' and the related filename.

ENGINEER



This page adds features for special use.

CLEAR MEMORIES

Check the 'Enable' checkbox above the 'Clear ALL' button. Press the 'Clear ALL' button and all the user memories will be deleted.

DEFAULT SETTINGS

Check the 'Enable' checkbox above the 'Set Defaults' button. Press the 'Set Defaults' button and the factory defaults will be recalled. This will not affect the system Security Code or Free Run frequency.

EXT. REFERENCE

Press this button to calibrate the free running frequency using the External reference or Video Input as selected by the Generator – Genlock page. If no input is present or the Generator is free running, an error dialog will be shown. The calibration will take a few seconds to take place and once completed, the calibration value will be shown. This reference value is not lost when memories are cleared or factory defaults recalled above.

SOFTWARE UPGRADE

The unit may download and install new versions of software when available. This process is a two stage process: Download the software and then Install it.

DOWNLOAD

Make sure that the network settings are correct and that the unit is connected to the internet via the Ethernet connection. Note that the unit should be connected to the AC adaptor so that the battery state does not affect the download process.

Pressing the Download button will cause the current release of software to be downloaded from the Phabrix Web Site. This will take a short time dependent on the connection to the Internet. Once the download has completed, the software will be checked for errors before being stored on the unit for future installation.

Multiple releases of software may be stored on the system so a unit may go back to a previous release if a test script requires it.

INSTALL

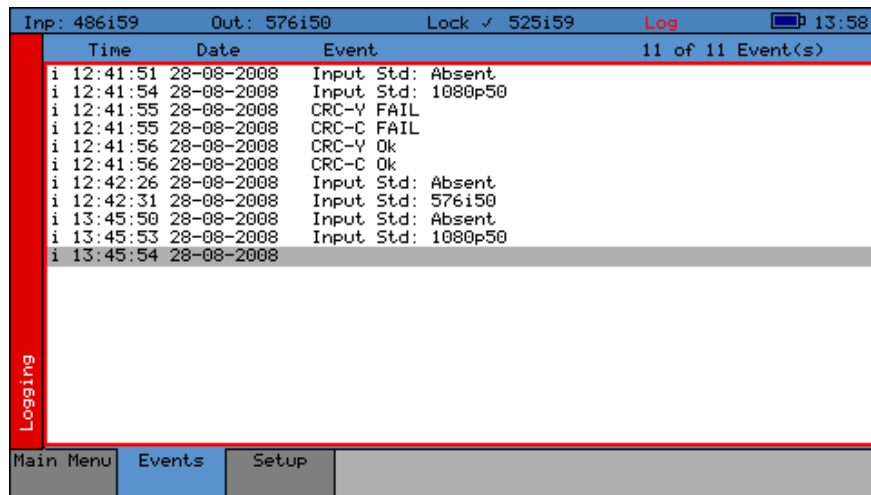
Note that the unit should be connected to the AC adaptor so that the battery state does not affect the installation process. The unit does NOT have to be connected to the Internet during installation.

Select the release of software to install using the field with releases listed. The largest number is the latest release. Select the 'Install' button and the installation will start. This process takes several minutes to decompress the software, extract the files and then reprogram the hardware and during this time the unit MUST be connected to the AC adaptor or corruption of the unit can occur which will stop it working. If an error is given during the installation, retry the installation and or download. Do NOT turn the unit off until an installation has completed correctly.

Once the installation has completed, the unit should be turned off and on again.

LOGGING (ENGINEERING OPTION)

EVENTS LOG

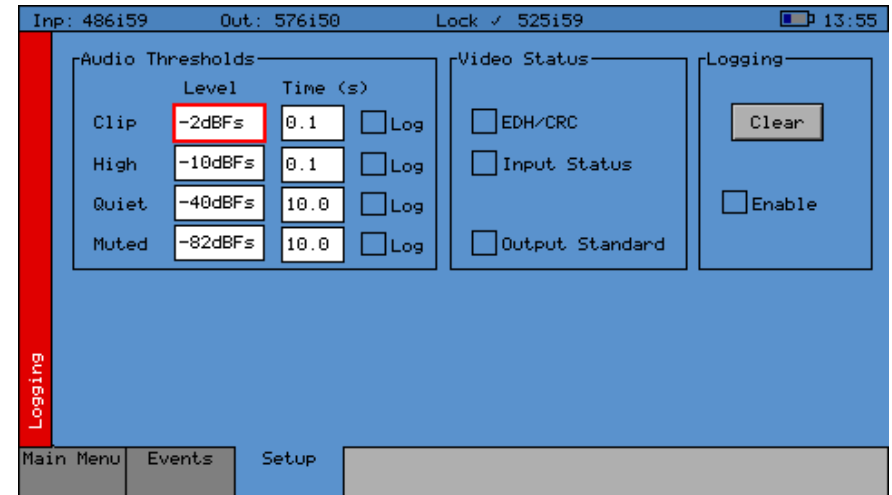


Time	Date	Event
i 12:41:51	28-08-2008	Input Std: Absent
i 12:41:54	28-08-2008	Input Std: 1080p50
i 12:41:55	28-08-2008	CRC-Y FAIL
i 12:41:55	28-08-2008	CRC-C FAIL
i 12:41:56	28-08-2008	CRC-Y Ok
i 12:41:56	28-08-2008	CRC-C Ok
i 12:42:26	28-08-2008	Input Std: Absent
i 12:42:31	28-08-2008	Input Std: 576i50
i 13:45:50	28-08-2008	Input Std: Absent
i 13:45:53	28-08-2008	Input Std: 1080p50
i 13:45:54	28-08-2008	

The event log displays a list of events with a time stamp showing when they occurred. If the logging system is set to use SMPTE time code logging, the time stamp will be the time-code value last received. The event log may be cleared by pressing 'Clear' button on the Setup page. Pressing OK on the event log page allows the event log to be scrolled through to view all events in the list. The currently selected event is

shown on the event log header. The date format may be changed using the Date 'Format' control on the System-Misc page.

EVENTS LOG SETUP



Level	Time (s)	Log
Clip -2dBfs	0.1	<input type="checkbox"/>
High -10dBfs	0.1	<input type="checkbox"/>
Quiet -40dBfs	10.0	<input type="checkbox"/>
Muted -82dBfs	10.0	<input type="checkbox"/>

Video Status: EDH/CRC, Input Status, Output Standard

Logging: Enable, Clear

The events to be logged are set up on this page by checking the appropriate 'Log' checkboxes.

AUDIO THRESHOLDS

This section allows the thresholds for audio events to be set. If the audio level for a channel is higher than that specified for the Clip or High fields for the number of video frames specified then an event will be added to the event log. If the audio level for a channel is lower than that specified for the Quiet or Muted fields, then an event will be added to the event log. Logging may be limited to specified audio pairs.

VIDEO STATUS

EDH/CRC

A log event will be added whenever a CRC/EDH error state changes. If the CRC/EDH state is correct, the event will show OK, else it will show FAIL. Separate Luma and Chroma CRC events may be shown. Note that CRC/EDH events may occur when an SDI signal is connected or removed.

INPUT STATUS

A log event will be added whenever the input video standard changes or if the input is lost or re-appears.

OUTPUT STANDARD

A log event will be added whenever the generator video standard changes.

LOGGING

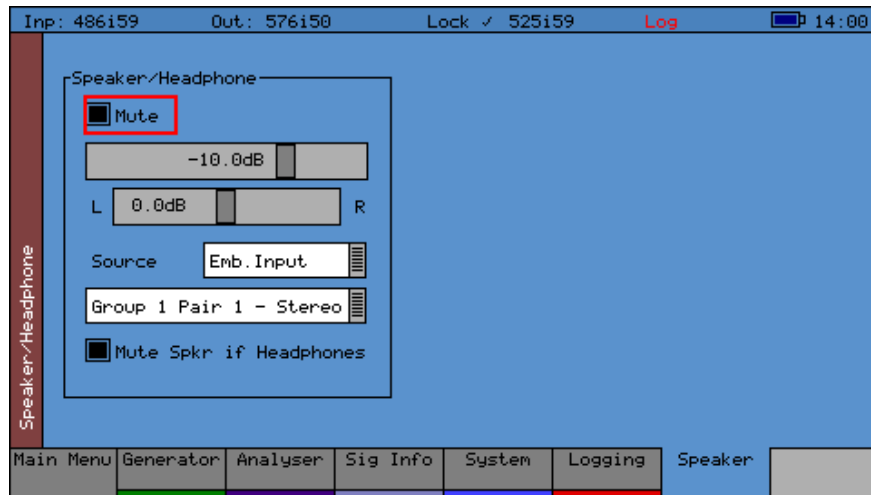
CLEAR

This allows the event log to be cleared.

ENABLE

This disables or enables logging of any event irrespective of that events individual Logging state.

SPEAKER



The unit contains a single loud speaker and associated stereo headphone socket which can be connected to any of the audio input or output channels or pairs.

The 'Mute' checkbox allows both signals to be muted.

A volume control is provided to adjust the level to headphones and speaker together. The balance control can be used to adjust the Left-Right balance for the source being monitored.

The monitored source can be set to the input or output of the unit and the input and output sources can be set independently to either a stereo pair or single audio channel.

The speaker can be muted when headphones are plugged in by checking the 'Mute Spkr if Headphones' control.

REMOTE FILE ACCESS

Files may be uploaded or downloaded from/to the Phabrix SX by a remote PC using either the USB connection or over Ethernet.

FTP

You will need an Ethernet cable to connect the unit to a PC. If connecting directly to a PC, you will need a cross-over cable but if connecting via a router or switch, a normal Ethernet cable can be used.

To connect to the unit you will need to use a FTP client which may be a GUI based one such as FileZilla or that built into windows. To log onto the system you will need a login and password. The login for the system is 'sxuser' and the password is 'phabrixsx'.

'FileZilla' is available for download from <http://filezilla-project.org/download.php>
Other FTP applications are available for other computer platforms.

Once you have connected to the unit, you should be able to see the unit structure below:

USB

This feature is currently not implemented.

You will need a USB to mini USB lead (not provided) to connect the unit to a PC. On connecting to the PC, a new 'Device with Removable Storage' will appear in 'My Computer'. Open this device and you will see the files present on the unit.

DO NOT DELETE ANY FILES OR DIRECTORIES IN THE TOP DIRECTORY OF THIS DEVICE AS THEY ARE REQUIRED FOR SYSTEM OPERATION.

UNIT FILE STRUCTURE

Several directories are provided for user files these are:

PATTERNS

Video test patterns may be downloaded into this directory.

Test patterns are .pat files for the standard line based pattern files or user files. Supported user file formats are: .bmp (Windows bitmap files), **future formats will include:** jpeg files, dpx files (10 bit video files), tga files ????

SCRIPTS

Command scripts may be downloaded into this directory. See FileFormats-Command Scripts for more details.

AUDIO

.WAV audio files may be downloaded into this directory. They should be relatively short and edited so that they can be looped without clicking. The start and end audio levels should be at zero crossing point and have a similar slope.

SETUP

This directory contains the installer files for different releases of the software. Each release is comprised of a .tar.gz file and is self contained. If a release of software is copied onto the unit, the list of available releases will be updated within a minute.

IDENTS

This contains bitmap idents as used by the generator. Supported user file formats are: .bmp (Windows bitmap files), **future formats will include:** jpeg files, dpx files (10 bit video files), tga files ????

FONTS

The fonts available for use by the generator to add text idents may be enhanced by downloading new True Type fonts into this directory.

FILE FORMATS

COMMAND SCRIPTS

Command scripts are text files with an file extension of .cmd. They are formatted with one step per line. The line is formatted as StepTime,StepAction,StepParameters

StepTime is a numeric value in seconds 0....n

StepAction is one of:

LOADMEM,

Loads the memory specified in the StepParameters field – must be a numeric value 1...num memories.

CHECKERRS,

Check for errors in StepTime seconds. If there are any errors an event is added to the event log and the sequence pauses with a message to continue or abort. (Optional? Checkbox to force abort on errors????? Which errors are checked? Use log setup to set errors???)

PROMPT

This will put a short prompt on screen in a dialog asking the operator a question and waiting for OK to be pressed to continue. The time field is ignored and the parameter following is the text displayed.

CLEARLOG

This clears the Event Log

DISABLEEVT

This disables Event logging

ENABLEEVT

This enables Event logging

CLEARERRORS

This clears all error counts (CRC/EDH etc.)