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PRODUCT USER GUIDE FOR:

THE TS-1

Test Signal Generator

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Test Signal Generator TS-1

The TS-1 is a full-featured SDI Test Signal Generator system compatible with 270Mbit Serial Digital formats. The unit has full internal 10 Bit processing.

The main features of the TS-1 are as follows:

- Produces 9 test signals including Pathological Matrix, 100% and 75% Bars
- EDH Insertion.
- User Programmable text Ident with Text Motion to identify digital "Freeze" in a system chain.
- 625 and 525 line standards Auto sensing.
- Genlocking to a SDI Input reference with full timing control over 1 full frame.
- 8 User Memories.

Installation of the TS-1 Product

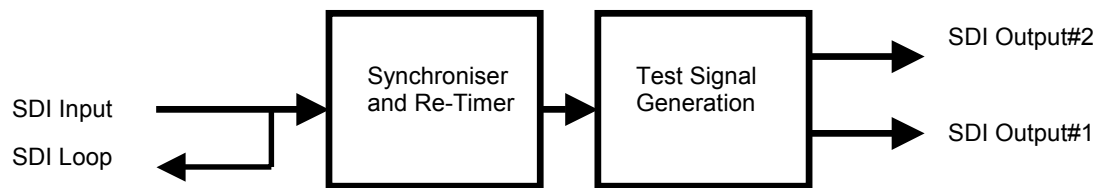
If this unit is already pre-installed in a Flexibox (FB-9) with either a local or remote panel from the Factory then refer to the "Hardware Installation Guide" which will be enclosed with the system.

If this unit has been ordered separately we assume here that you already have a Flexibox system with a Flexipanel and that the Flexibox has at least one "Spare Slot" for the TS-1 card.

Installing the TS-1 into a Flexibox

To install the TS-1 into a flexibox it is not necessary to power down the box. Follow these instructions.

1. On the rear of the flexibox are 6 slots for Products. Remove any spare blanking plate on an unused slot. There are 2 M2.5 Screws, which require unfastening.
2. Slide the Product PCB into the spare slot and firmly push it "home".
3. Use the two thumbscrews to fasten the unit in place.
4. Now refer to the "GeNETics User Guide". If your system consists of a single Flexibox with a single Flexipanel then refer to the section titled "Flexipanel Auto Set-up". If your system is part of a network with more than one Flexipanel then refer to the section titled "Flexipanel Manual Set-up". This will guide you through acquiring your product as a device on the Flexipanel.



Block Diagram of the TS-1 processing chain

Test Signal Generator Processing

This Unit consists of five basic blocks. The Reference input is re-framed and re-timed to produce a set of digital syncs, which can be timed under the processor control. If the reference signal is not present the system will generate a randomly timed set of sync pulses.

The Gain and black control gives +/-100% gain control on the Luma and Chroma individually as well as +/- 20 IRE on the Black sit-up. This is placed prior to the Text overlay, which is a fixed level.

The Test signal generator block generates the appropriate "Test signal" information, which is overlaid onto the sync information. These test signals are programmed from the processor.

The text overlay gives up to a 32-character display over the test signal. This is non-volatile and can be saved as one of the 8 set-up memories. The text is adjustable in character height and width as well as colour. There is also an optional colour background for the text overlay.

Lastly, the system can optionally add an EDH to the final output.

Menus for the TS-1 Unit

The TS-1 has the following menu structure. Automation control also is implicit in the menu structure. Refer to the "GeNETics User Guide" in the section titled "Automation Protocol on the geNETics Platform" for detailed information. The values given in square brackets indicate the values for Automation system purposes.

Menu #	Function	Range of Value	Notes
0	Unit Title (Test Signal Gen)	None	
1	User Programmable Unit Name (e.g. "Test Sigs")	None	The user name of the unit can be programmed in from a Flexi-panel using a PS-2 Keyboard. Refer to the "GeNETics User Guide" under the section titled "Giving Products User Names".
2	Blank	None	
3	Info - "NEXT->"	None	
4	Test Signal Selection, eg Pathological Matrix	100% Bars Y Ramp Y/C Ramp	This selects one of 9 test signals.

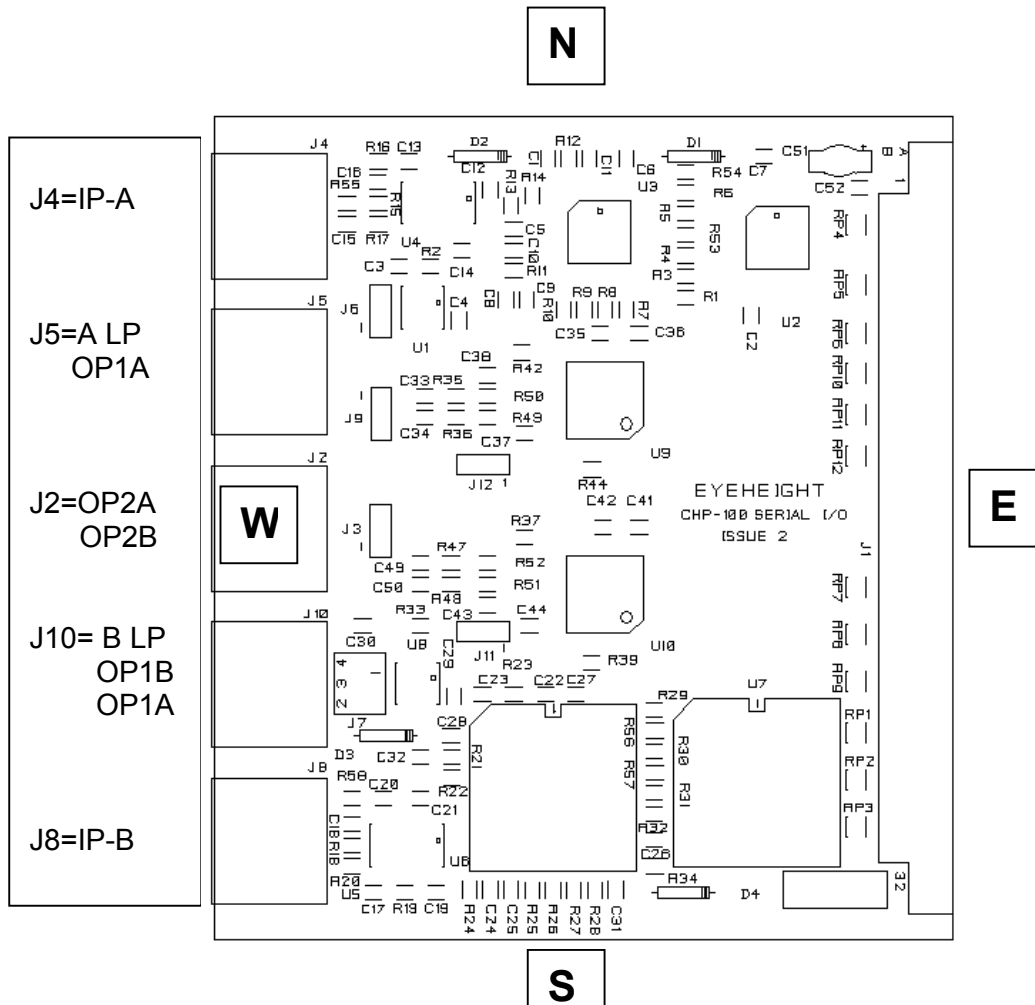
		Cb Ramp Cr Ramp Matrix/PLL Y/C Split Cb/Cr Split [0→8]	
5	Generator Mode	Lock 625 525 [0→2]	This selects the locking mode of the TSG. Lock =The system will lock to the incoming reference signal. This will auto detect between 525 and 625. If the reference is removed the system will stay in the last line standard. 625 = This selects 625 output test signals regardless of the input reference. 525 = This selects 525 output test signals regardless of the input reference.
6	Fine Timing Adjustment	[0→1728]	This is the fine line timing from 0 to 1728 in 37.037nS increments.
7	Line Timing	0→625** {**0→525 for 525 oper} [0→625/525]	This is the fine line timing from 0 to 625/525 in whole line increments.
8→15	Recall Memory #1→8	[Automation must write a "1" to cause a recall Memory command]	Pressing this will overwrite all current settings in favour of those settings saved when the "Save Memory#1→8" Buttons (respectfully) was pressed
16→23	Save Memory #1→8	[Automation must write a "1" to cause a save Memory command]	Pressing this will store all current settings in Memory#1→8.
24	Info "These menus Pass"	None	
25	Info "Control Elsewhere"	None	
26	Pass Control Enable	None	This causes control to be passed to one or two flexipanel on the same I-BUS network with "panel numbers" shown in the next red LCD Window. When control is passed you will see the middle and lower lines of the LCD Display say either "OK" or "FAIL" depending on whether control was successfully passed on to either of the selected panels. Further presses of this button will enable or disable the control.
27	"Panel" numbers to which control can be passed. This feature is used to pass temporary control over to another panel. Upon passing temporary control		When this button is pressed, it changes to "Green". The Three-line display in the window then indicates the two options, which can be changed by adjusting the two rotary digipots A and B.

	over to another panel, that panel will have a flashing "device button LED" indicating that control is available on this device button.	<u>Digipot A</u> 0→58 [0→58] <u>Digipot B</u> 0→58 [0→58]	This will alter the first panel number to which you would like to pass control. This will alter the second panel number to which you would like to pass control. The panel number of any panel can be found by pressing the set-up button momentarily. Setting either of the above panel numbers to "0" will stop any control being passed.
28	Save PowON mem	[Automation must write a "1" to cause a recall Memory command]	Saves the current settings to be the "power on reset" settings
29	Recall PowON mem	[Automation must write a "1" to cause a recall Memory command]	Recalls the "power on reset" settings
30	"Total Reset ". Note also there is a number like "K15090" This is a software version of the GeNETics product's "Kernel"	[Automation must write a "1" to cause a recall Memory command]	This puts all current and power on default settings to the factory default
31	Info - Software Versions	None	This shows the Software Versions of the unit.

TS-1 Configuration of the Serial Digital I/O cards

All GeNETics Products have exchangeable I/O cards. The TS-1 is supplied with the SIO-1 Card. The following table shows the jumper settings on the PCB for the factory delivered unit. This configuration gives the user 2xTS-1 main outputs and an active SDI input loop on channel A.

Rear Legend	Explanation	Jumper settings
IP-A	SDI Input of channel A	None
A-LP OP1A	Input A active loop through	Jumper J6 to N
OP2A OP2B	TS-1 Output number 1	Jumper J3 to N
B LP OP1B OP1A	TS-1 Output number 2	Jumper J7 to E, J9 to S
IP-B	SDI Input of channel B	None



Technical Specification for the SIO-1/2 Dual Serial Digital Card

Number of inputs	2 (SIO-2) or 1 (SIO-1)
Type of Inputs	270Mbit Serial Digital Video Inputs 75 Ohm
Line Length	At least 200 Meters of PSF1/3 (Typically 275 Meters)
Number of Outputs	3 Outputs per Card.
Type Of Outputs	270Mbit Serial Digital Video Outputs, 75 Ohm, 800mV
Total Number Of BNC Connections	5, consisting of 1 or 2 Fixed Inputs and 3 Jumper Configurable outputs.
SDI Output Jitter	The system will add less than 0.2UI to the input Jitter. (This is only guaranteed on issue 2 or later cards)

Jumpering the I-BUS (CAN-BUS) Termination

The I-BUS Network is the "control system" under which all Products and Panels are networked together. Under certain circumstances it is necessary to terminate the network. This can be done on a Flexi-panel or a "Product". Should the network require terminating at the point of this product. To terminate this product, locate J5 on the TS-1 Product supplied which is between U1 (The large square "chip") and the Edge connector. (This is on the half of the card labelled "CHP-100 Processor"). Jumper this with a 2mm Jumper link.

The user should read the "Hardware Installation Guide" to know if this link is to be jumpered.