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PRODUCT USER GUIDE FOR: THE BT-1 VITC TIMECODE READER

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Burnt-in Timecode unit BT-1

The BT-1 Burnt-in Timecode unit extracts the Vertical Interval Timecode (VITC) and displays this as ASCII Characters on the screen.

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

- ◆ Reads VITC from an SDI signal and displays this "Burnt-in" on screen.
- ◆ Displays HH:MM:SS:FF and user bits with field mark.
- ◆ 4 different display modes with user selectable screen position/size and user selectable character colour and background colour.
- ◆ Integral "Safe area generator" with cursors for 4:3 14:9 and 16:9 formats.
- ◆ 2 Channels per Eurocard, up to 12 Channels in a 1RU Enclosure.
- ◆ 8 User Memories

Memory operation on Single and Dual BT-1 Units

A single BT-1 Unit has 8 memories. These memories both store the TOTAL set-up of the unit.

A dual unit has 8 memories. These Store all the settings for **BOTH** Units. The memories cannot be operated independently.

Installation of the BT-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 BT-1 card.

Installing the BT-1 into a Flexibox

To install the BT-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.

Menus for a dual BT-1 Unit

The BT-1, being a geNETics product has the following menu structure. Automation control also is implicit in the menu structure (See the chapter **Automation Protocol on the geNETics Platform**).

NOTE: This menu structure is for a DUAL BT-1, i.e Two BT-1 Units on a single Eurocard. If the user has a single BT-1 Card the menus 20→35 are not present. For automation purposes to access menus after menu#20 you will need to subtract 16 from the menu number.

Menu #	Function	Range of Values for Automation	Notes
0	Unit Title (i.e Dual BITC Unit)	None	
1	User Programmable Unit Name (e.g " Copy Bay#1")	None	The user name of the unit can be programmed in from a Flexi-panel using a PS-2 Keyboard. See the section <u>Using the messaging system for giving products user names.</u>
2	Not Used-Information only	None	
3	Not Used-Information only	None	
4	Horizontal Position of Burnt-in Display of Unit#1.	0→719	In Horizontal Luma Pixels 0=Start at LHS 719=Start at RHS
5	Vertical Position of Burnt-in Display of Unit#1	0→575	In vertical lines 0=Start at Line Top 575=Start at Bottom
6	Horizontal Size of Display of Unit#1	0→31	Each unit adds an extra pair of luma pixels to the width of a chr pixel. Each chr is 8 pixels wide. Size0=16 luma chr width Size1=32 luma chr width Size2=48 luma chr width And so on up to 31.
7	Vertical Size of Display of Unit#1	0→31	Each unit adds an extra pair of lines to the height of a pixel. Each chr is 8 pixels high. Size0=16 line chr height Size1=32 line chr height Size2=48 line chr height And so on up to 31.
8	Enable the Chr Display of Unit#1	0→2	0=No Display 1=Chrs Displayed 2=Chrs+Box Display
9	Write VITC line #1 of Unit#1	0→22	Tells the system where VITC line1 is (Usually Line 19)
10	Write VITC line #2 of Unit#1	0→22	Tells the system where VITC line2 is (Usually Line 21)
11	BITC Display mode of Unit#1	0→3	0=HH:MM:SS 1=HH:MM:SS:FF 2=HH:MM:SS:FF* 3=HH:MM:SS:FF*

			UU-UU-UU-UU Notes: *=Field Mark UU=User Bis
12	Text Colour of Unit #1	0→7	0=Black 1=Blue 2=Red 3=Purple 4=Green 5=Cyan 6=Yellow 7=White
13	Box Colour of Unit#1	0→7	0=White 1=Yellow 2=Cyan 3=Green 4=Purple 5=Red 6=Blue 7=Black
14	Safe Action Area Safe Caption Area Digital Edge Indicate Analogue Edge Indicate	On Off [0→1]	This Switches on and off the currently selected area. The Selected area is chosen by pressing the "Red" switch (menu#15) next to this one and adjusting the rotary digipots with the green leds which are alight.
15	Area selected by menu#14	<u>Digipot A</u> S.Action S.Capt. Dig Edge An Edge [0→3] <u>Digipot B</u> 4:3 16:9 16p4:3 16p149 43p16:9 [0→4] <u>Digipot C</u> Thin Thick Shade Black [0→3]	.When this button is pressed to "Green". The Three line display in the window indicates the three options which can be changed by adjusting the three rotary digipots A,B and C. -Determines the basic Function -Selects "Safe Action" option -Selects "Safe Caption" option -Selects "Digital Edge" option -Selects the "An. Edge" option -Determines the Screen Format. Standard 4:3 Screen Standard 16:9 Screen 16:9 Shoot to protect 4:3 16:9 Shoot to protect 14:9 4:3 Shoot to protect 16:9 Determines the Style of Indicate Thin White lines are used Thick White lines are used Shade is used for "danger area" Black is used for "danger area"
16	Safe Action Area Safe Caption Area Digital Edge Indicate Analogue Edge Indicate	On Off [0→1]	This Switches on and off the currently selected area. The Selected area is chosen by pressing the "Red" switch (menu#17) next to this one and adjusting the rotary digipots with the green leds which are alight.

17	Area selected by menu#16		<p>.When this button is pressed to "Green". The Three line display in the window indicates the three options which can be changed by adjusting the three rotory digipots A,B and C.</p> <p><u>Digipot A</u> S.Action S.Capt. Dig Edge An Edge [0→3]</p> <p><u>Digipot B</u> 4:3 16:9 16p4:3 16p149 43p16:9 [0→4]</p> <p><u>Digipot C</u> Thin Thick Shade Black [0→3]</p> <p>-Determines the basic Function -Selects "Safe Action" option -Selects "Safe Caption" option -Selects "Digital Edge" option -Selects the "An. Edge" option</p> <p>-Determines the Screen Format. Standard 4:3 Screen Standard 16:9 Screen 16:9 Shoot to protect 4:3 16:9 Shoot to protect 14:9 4:3 Shoot to protect 16:9</p> <p>Determines the Style of Indicate Thin White lines are used Thick White lines are used Shade is used for "danger area" Black is used for "danger area"</p>
18	Not Used-Information only		
19	Not Used-Information only		
20	Horizontal Position of Burnt-in Display of Unit#2.	0→719	In Horizontal Luma Pixels 0=Start at LHS 719=Start at RHS
21	Vertical Position of Burnt-in Display of Unit#2	0→575	In vertical lines 0=Start at Line Top 575=Start at Bottom
22	Horizontal Size of Display of Unit#2	0→31	Each unit adds an extra pair of luma pixels to the width of a chr pixel. Each chr is 8 pixels wide. Size0=16 luma chr width Size1=32 luma chr width Size2=48 luma chr width And so on up to 31.
23	Vertical Size of Display of Unit#2	0→31	Each unit adds an extra pair of lines to the height of a pixel. Each chr is 8 pixels high. Size0=16 line chr height Size1=32 line chr height Size2=48 line chr height And so on up to 31.
24	Enable the Chr Display of Unit#2	0→2	0=No Display 1=Chrs Displayed 2=Chrs+Box Display
25	Write VITC line #1 of Unit#2	0→22	Tells the system where VITC line1 is (Usually Line 19)
26	Write VITC line #2 of Unit#2	0→22	Tells the system where VITC line2 is (Usually Line 21)
27	BITC Display mode of Unit#2	0→3	0=HH:MM:SS 1=HH:MM:SS:FF 2=HH:MM:SS:FF* 3=HH:MM:SS:FF*

			UU-UU-UU-UU Notes: *=Field Mark UU=User Bis
28	Text Colour of Unit #2	0→7	0=Black 1=Blue 2=Red 3=Purple 4=Green 5=Cyan 6=Yellow 7=White
29	Box Colour of Unit#2	0→7	0=White 1=Yellow 2=Cyan 3=Green 4=Purple 5=Red 6=Blue 7=Black
30	Safe Action Area Safe Caption Area Digital Edge Indicate Analogue Edge Indicate	On Off [0→1]	This Switches on and off the currently selected area. The Selected area is chosen by pressing the "Red" switch (menu#31) next to this one and adjusting the rotary digipots with the green leds which are alight.
31	Area selected by menu#30	<u>Digipot A</u> S.Action S.Capt. Dig Edge An Edge [0→3] <u>Digipot B</u> 4:3 16:9 16p4:3 16p149 43p16:9 [0→4] <u>Digipot C</u> Thin Thick Shade Black [0→3]	.When this button is pressed to "Green". The Three line display in the window indicates the three options which can be changed by adjusting the three rotary digipots A,B and C. -Determines the basic Function -Selects "Safe Action" option -Selects "Safe Caption" option -Selects "Digital Edge" option -Selects the "An. Edge" option -Determines the Screen Format. Standard 4:3 Screen Standard 16:9 Screen 16:9 Shoot to protect 4:3 16:9 Shoot to protect 14:9 4:3 Shoot to protect 16:9 Determines the Style of Indicate Thin White lines are used Thick White lines are used Shade is used for "danger area" Black is used for "danger area"
32	Safe Action Area Safe Caption Area Digital Edge Indicate Analogue Edge Indicate	On Off [0→1]	This Switches on and off the currently selected area. The Selected area is chosen by pressing the "Red" switch (menu#33) next to this one and adjusting the rotary digipots with the green leds which are alight.

33	Area selected by menu#32	<p><u>Digipot A</u> S.Action S.Capt. Dig Edge An Edge [0→3]</p> <p><u>Digipot B</u> 4:3 16:9 16p4:3 16p149 43p16:9 [0→4]</p> <p><u>Digipot C</u> Thin Thick Shade Black [0→3]</p>	<p>.When this button is pressed to "Green". The Three line display in the window indicates the three options which can be changed by adjusting the three rotory digipots A,B and C.</p> <p>-Determines the basic Function -Selects "Safe Action" option -Selects "Safe Caption" option -Selects "Digital Edge" option -Selects the "An. Edge" option</p> <p>-Determines the Screen Format. Standard 4:3 Screen Standard 16:9 Screen 16:9 Shoot to protect 4:3 16:9 Shoot to protect 14:9 4:3 Shoot to protect 16:9</p> <p>Determines the Style of Indicate Thin White lines are used Thick White lines are used Shade is used for "danger area" Black is used for "danger area"</p>
34	Not Used-Information only		
35	Not Used-Information only		
36→43	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
44→51	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.
52	Info "These menus Pass"	None	
53	Info "Control Elsewhere"	None	
54	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.
55	"Panel" numbers to which control can be passed. This feature is used to pass temporary control over to another panel. Upon passing temporary control over to		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.

	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.
56	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
57	Recall PowON mem	[Automation must write a "1" to cause a recall Memory command]	Recalls the "power on reset" settings
58	"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
59	Info - Software Versions	None	This shows the Software Versions of the unit.

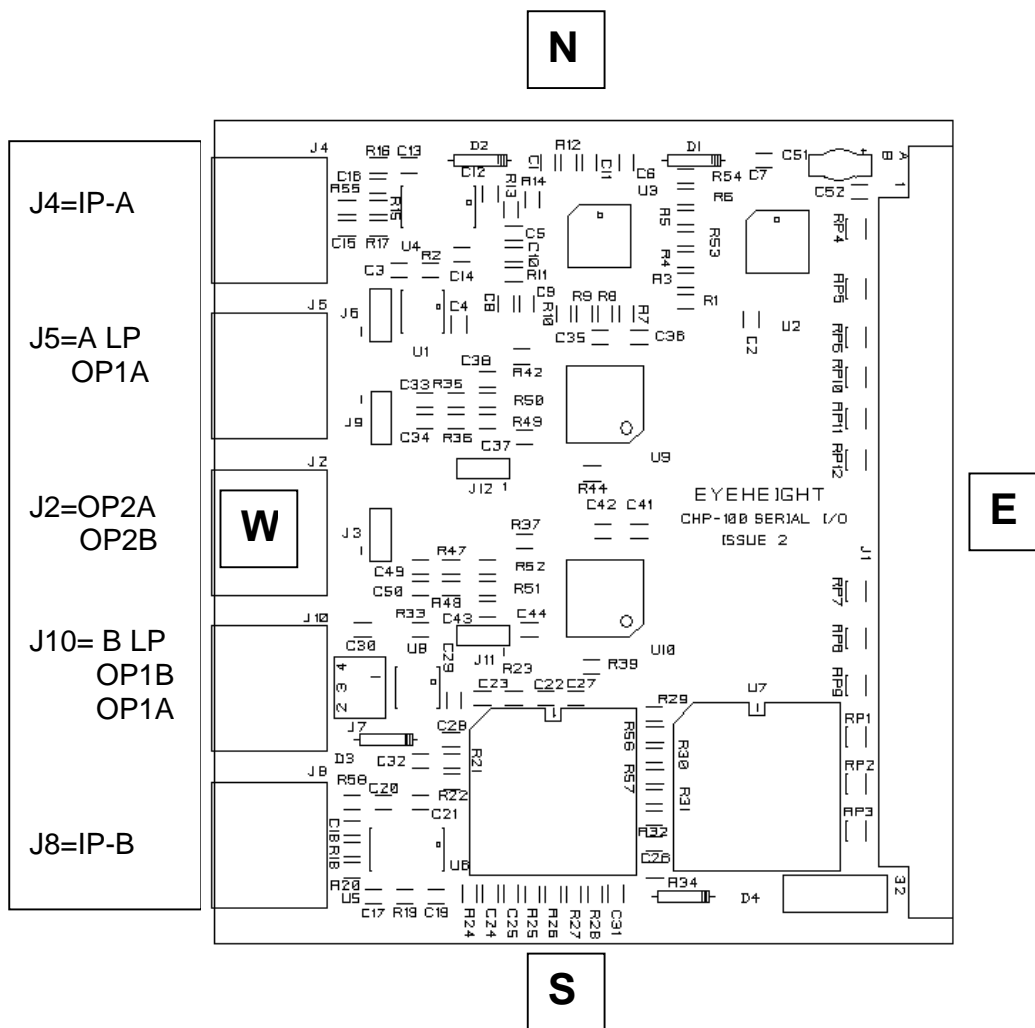
BT-1 Configuration of the Serial Digital I/O cards

All GeNETics Products have exchangeable I/O cards. A single channel BT-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 2xBT-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	BT-1 Output number 1	Jumper J3 to N
B LP OP1B OP1A	BT-1 Output number 2	Jumper J7 to E, J9 to S
IP-B	SDI I/P of channel B (not used)	None

A dual channel BT-1 is supplied with the SIO-2 Card. The following table shows the jumper settings on the PCB for the factory delivered unit. This configuration gives the user 1xBT-1 main outputs for each channel 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	BT-1 ch A Output	Jumper J3 to N
B LP OP1B OP1A	BT-1 ch B Output	Jumper J7 to S J9 not fitted.
IP-B	SDI Input of channel B	None



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

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 BT-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.