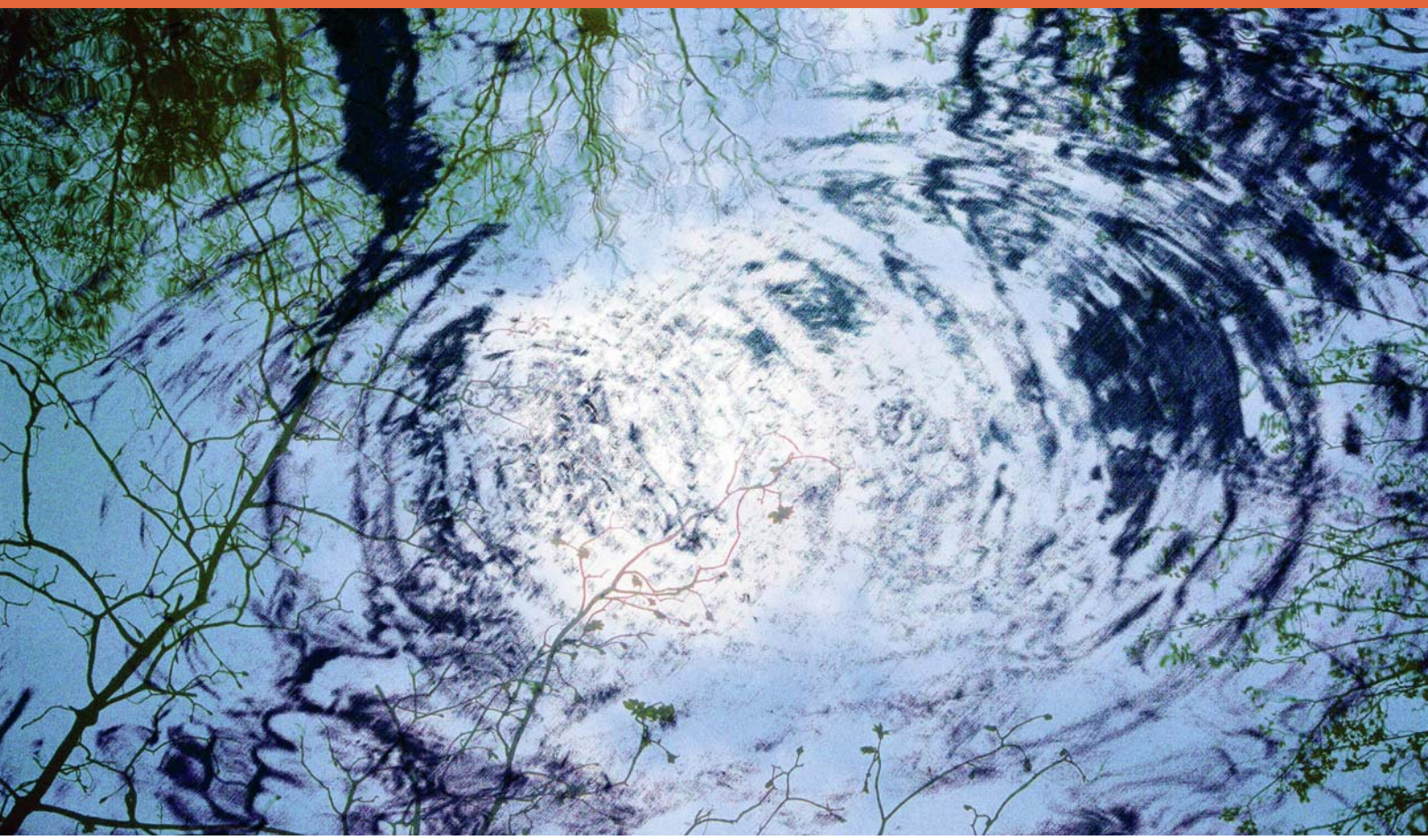
eyeheight



# SD-2/TD-2

subtitle/teletext decoder

## user manual

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# 1 System Overview

This manual describes the function of the SD-2/TD-2. This unit decodes and displays the subtitle/teletext information embedded in a SDI Video Stream.

## 1.1 The SD-2/TD-2 Product

The SD-2/TD-2 are units that will decode the subtitle/teletext signal embedded in a video signal and display the information overlaid onto the screen. The main features are as follows:-

- Page number of subtitle/teletext is selectable.
- Subtitle/teletext information can be viewed as large or small text.
- The level of the subtitle/teletext overlay display can be faded up or down, and it's position on the video image user set, to make the video image more easily viewable.

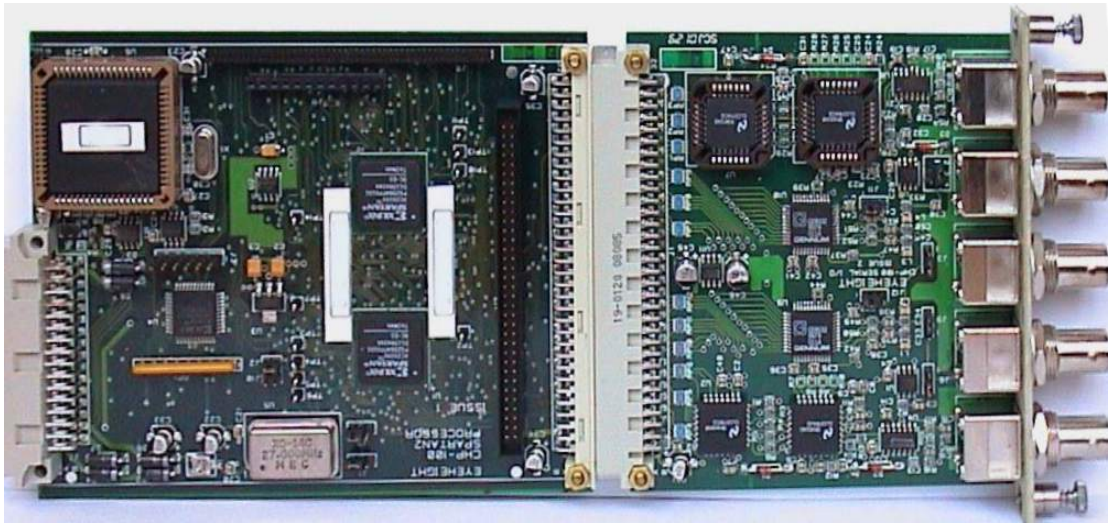

**Figure 1 SD-2/TD-2 Module.**



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## 1.2 Applications for the SD-2/TD-2

**Applications for the SD-2/TD-2 include the following:-**

- Monitoring subtitle information embedded within a SDI video stream.
- Viewing teletext pages embedded in a SDI video stream.


**Figure 2 Decoded subtitles displayed on a monitor**

## 1.3 Associated Equipment for the SD-2/TD-2

**Hardware Requirements**

The SD-2/TD-2 are modules and require both a chassis and a control surface to function. For example if the user required three subtitle decoders in a 1RU Chassis then the recommended requirements would be:

3 off SD-2 Modules

1 off FB-9 Flexi-box

1 off FP-9 Flexipanel



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**Software Requirements**

There are no special software requirements. The system is controlled via the front panel, however, it may be alternatively controlled by an automation system connected to the I-Bus via a DG-9 Eyeheight Dongle.

## 1.3.1 Chassis Types

- **flexiBox** is a 1RU chassis. The order code is FB-9. This will hold a maximum of 6 SD-2/TD-2 Modules with “Hot Swap” redundant PSU option and “Hot Swap” SD-2/TD-2 modules.
- **maxiBox** is an alternative low cost 1RU chassis. The order code is MX-9. This also will hold a maximum of 6 SD-2/TD-2 modules but it has no redundant PSU option and the SD-2/TD-2 units must be factory fitted.

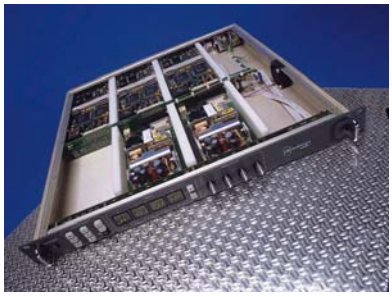

**Figure 1-3 flexiBox with flexiPanel fitted**

## 1.3.2 Control Surfaces

- **flexiPanel** is a IRU control surface that fits on the Front of a 1RU flexiBox. The order code is FP-9. A FlexiPanel can also be used in conjunction with a miniBox, in this case the extra accessory (Order code RR-9) will be required
- **FP-10** is a desk mounting control surface (Order code FP-10). This unit is a modular unit which can be used in conjunction with the units below.


**Figure 1-4 FP-10 desktop modular panel**



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**Figure 1-5 FP-9 1RU modular panel**



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# 2 Installation

## 2.1 Installation of the SD-2/TD-2 product

If this unit is already pre-installed in a flexiBox (FB-9), or a maxiBox, with either a local or a remote panel from the factory then refer to the "Hardware Installation Guide" which will be enclosed with the system. If this unit is pre-installed in a miniBox (MB-9), then also 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 a spare slot above for the SD-2/TD-2 card.

## 2.2 Installing the SD-2/TD-2 into a flexiBox

To install the SD-2/TD-2 into a flexiBox it is desirable (but not necessary) to power down the flexiBox. Follow these instructions.

On the rear of the flexiBox are 6 slots for Products. Remove a spare blanking plate. There are 2 off M2.5 Screws, which require unfastening for each blanking plate.

Slide the Product PCB into the spare slot and firmly push it "home".

Use the two thumbscrews to fasten the unit in place.

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.

## 2.3 Connecting Video to an SD-2/TD-2

A Typical Connection diagram for the SD-2/TD-2 is shown below. All signals are SDI:

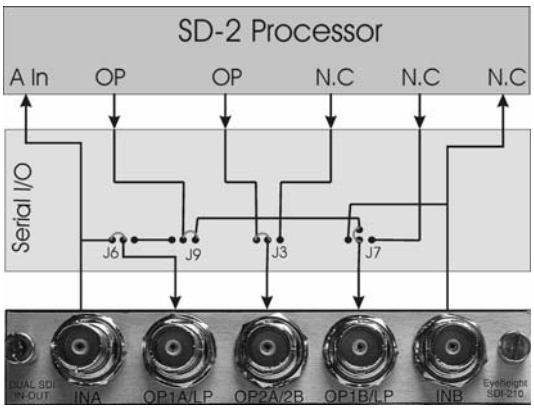


**Figure 2-1 Connections for a SD-2/TD-2 module showing internal links**



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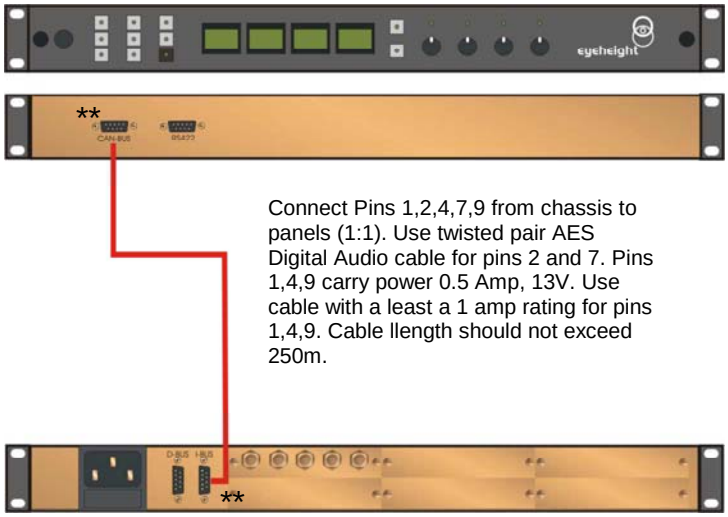
The SD-2/TD-2 Modules have a number of user configurable jumpers which can change the function of the 5 SDI BNC Connectors. These jumpers are found close to the BNC Connectors.

## 2.4 Connecting Panels to the SD-2/TD-2

The SD-2/TD-2 may be operated using a FP-9 Flexipanel locally mounted. For a more operational environment the SD-2/TD-2 may be supplied with a desk mounting FP-10 unit. For detailed information on connecting remote panels refer to the section “Connection of Remote Panels to a flexiBox” in the geNETics Hardware Installation Guide.

Below is shown a typical system consisting of an SD-2/DT-2 in a flexiBox controlled by a remote FP-9.




I-Bus pins 2 & 7

** The I-BUS Network requires terminating with 100 Ohms at each extreme end of the network. Ensure that this is done either by an external 100 ohm resistor OR ONE Panel/Product at each end has the termination set. See the "Genetics User Guide" Under the sections "Flexipanel Power/I-BUS Jumpers".For the 4RU Panels see “4RU Panel (FP-10) Jumpers for I-BUS” and “4RU Panel (VP-10, SW-10, AP-10) Jumpers for I-BUS” . Alternatively The termination can be set on a Product (ie the MW-2 module). Information about this is given in this manual.

**Figure 2-2 I-Bus Connections and Termination**

N.B. From 1/10/02 Eyeheight introduced a change in the flexiBox Chassis. Most versions now have two 9 way connectors on the rear labelled “I-Bus” and “D-Bus”. The “I-Bus” connector is the same as the previously labelled “Can-B” connector. Although a maxiBox is shown in this diagram the same arrangement applies for a flexiBox chassis.



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# 3 Operation

## 3.1 Manual control of the SD-2/TD-2

Manual Control of the SD-2/TD-2 is done using one or more of the following control surfaces:

- The 1RU FP-9 Flexipanel.
- The FP10 Desk mounting Panel

The FP-9 and the FP-10 have identical manual control systems. (The FP-10 is simply a desktop version of the FP-9). The SD-2/TD-2 are, as are all genetics modules, controlled using a set of MENUS. Each of these menus contains up to 3 parameters that are adjusted using the rotary digipots. The Menus define all of the adjustable operational parameters in the SD-2/TD-2. Pressing the rotary digipots brings the parameter to its default value. Device selection is done using the device select switches which, when pressed, will offer the name of the device in the LCD Window. Modules can be acquired and then de-acquired using the set-up switch. For a full description of the operation philosophy of the geNETics system refer to the “geNETics User Guide” (section “Operation of the flexiPanel”)

A full list of the Menus and their functions are given in section 3 of this chapter.

## 3.2 Automation Control of the SD-2/TD-2

Automation of the geNETics products is achieved via an RS422 port.** This port is marked RS422 on the rear of a flexiBox. For the port to work a flexiPanel MUST be connected locally on the front of the flexiBox.

Automation control of the SD-2/TD-2 can be done using two protocol methods:

- geNETics Automation Protocol.
- PresTX Automation Protocol.

Genetics protocol is described in detail in the “GeNETics User Guide” section titled “Automation Protocol on the geNETics Platform”. The menu list in section 3 of this chapter contains the data information for the protocol.

PresTX Automation Protocol is used only for the PresTX Presentation Mixer and channel branding system. In this case an AU-2 Automation card is also required. Refer to the PresTX Product manual

**On most flexiBoxes later than 1/10/02 the RS422 port has been replaced by a “D-Bus” Port. The D-Bus port is for High Speed data transfer and is not used for serial control. In order to achieve serial control of any products on an I-Bus network Eyeheight Ltd have developed a RS232→I-bus converter “dongle”, (DG-9) which enables greater flexibility of products on the I-Bus network whilst using the same protocols as the RS422 port. Please refer to the “User guide for the DG-9 eyeheight dongle and set-up software.



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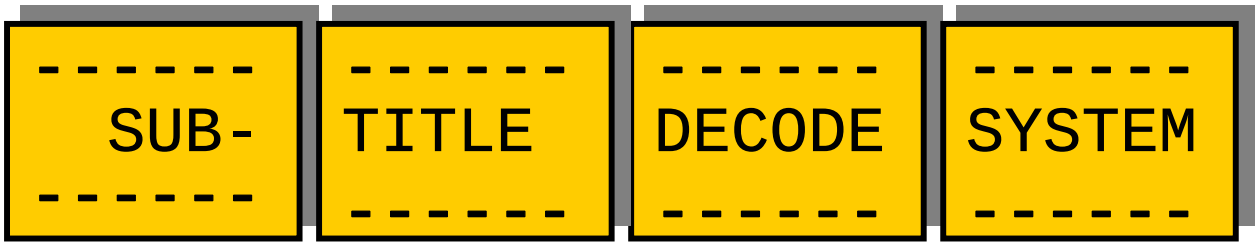
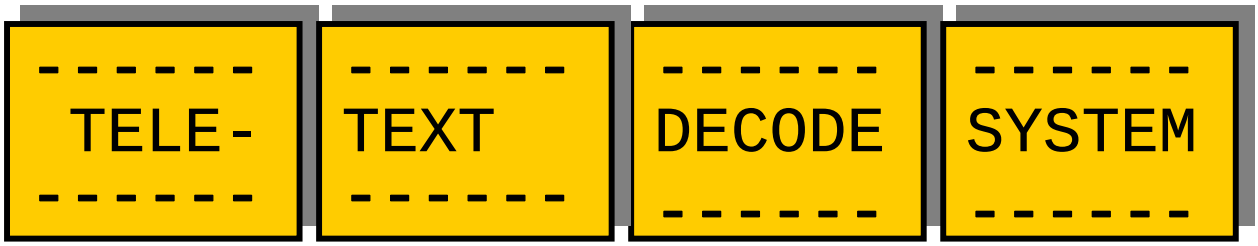
## 3.3 Operational Menus for the SD-2/TD-2

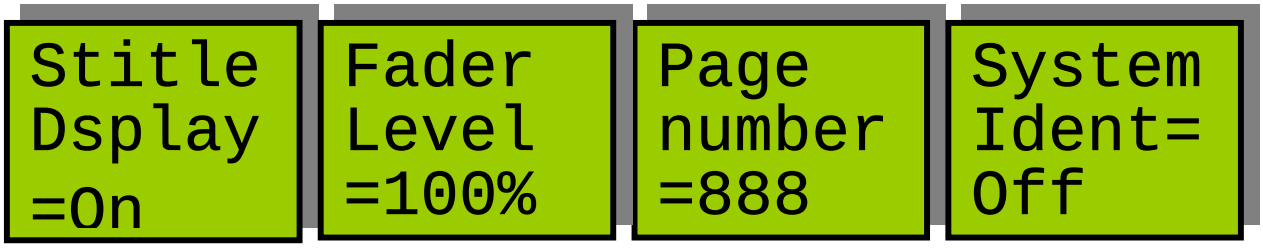
**Menus 00-03: SD-2**



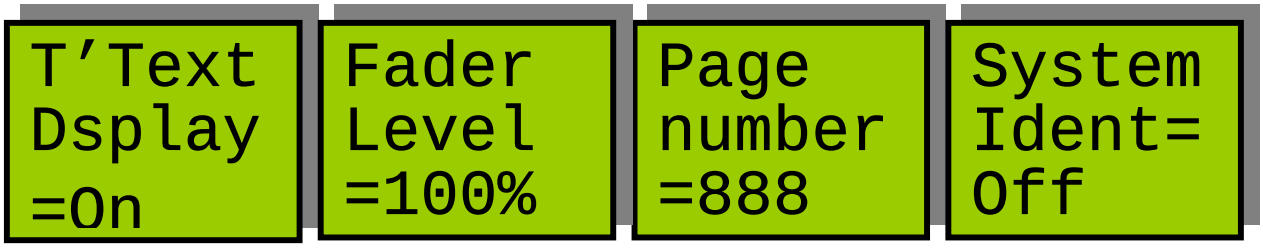

**Menus 00-03: TD-2**




**Menus 04-07: SD-2**




**Menus 04-07: TD-2**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 4 | Stitle/T'Text Dsplay | On/Off Default is On | Pressing this will toggle, turning the Subtitle/TeleText display on or off. |
| 5 | Fader | 0-100% | The intensity of the overlaid text display. 100% is full on and 0% turns the |



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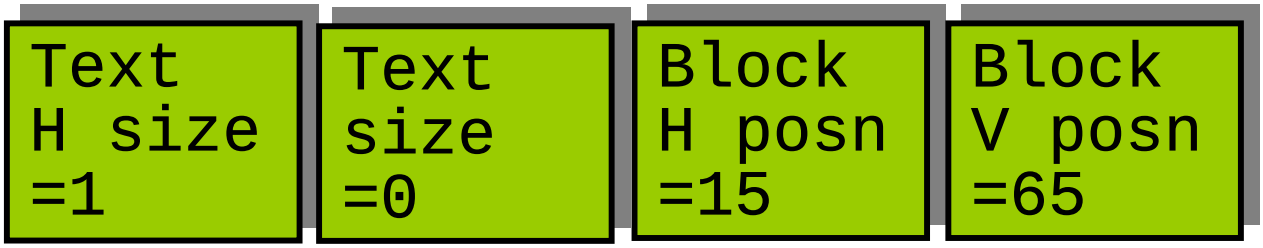
| | | | |
|---|---|---|---|
| | Level | Default is 100% | overlay off. |
| 6 | Page number | 0-999<br>Default is 888 | The selects the teletext page number to display, subtitles are usually found on page 888. |
| 7 | System Ident | On/Off<br>Default is Off | Pressing this will toggle turning the System Ident bar on or off. |

**Menus 08-11: SD-2/TD-2**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 8 | Text H size | 0-2,<br>Default is 1 | This sets the horizontal size of the text. |
| 9 | Text V size | 0-1,<br>Default is 0 | This sets the vertical size of the text. |
| 10 | Block H posn | 0-999<br>Default is 15 | This sets the horizontal position of the overlay screen on the video image. |
| 11 | Block V posn | 0-999<br>Default is 65 | This sets the vertical position of the of the overlay screen on the video image. |



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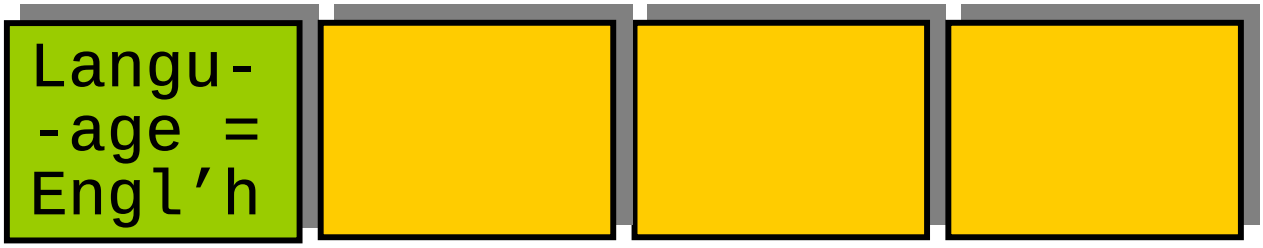
**Menus 12-15: SD-2/TD-2**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 12 | Language | 0-12,<br>Default is 1<br>0=Default<br>1=English<br>2=German<br>3=Swedish<br>4=Italian<br>5=French<br>6=Portugese<br>7=Czech<br>8=Polish<br>9=Turkish<br>10=Serbian<br>11=Estonian<br>12=Lettish | This sets the language of the text. |



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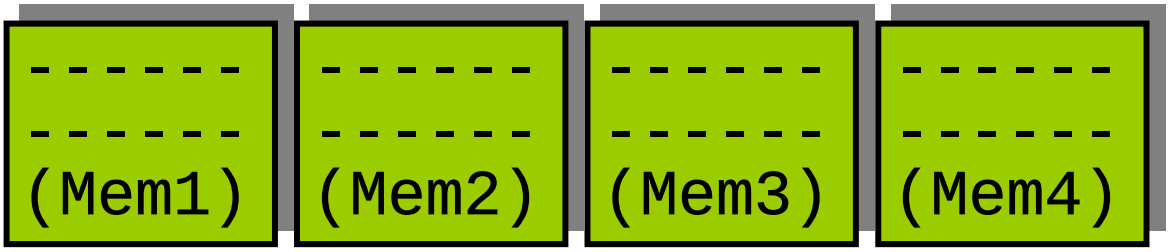
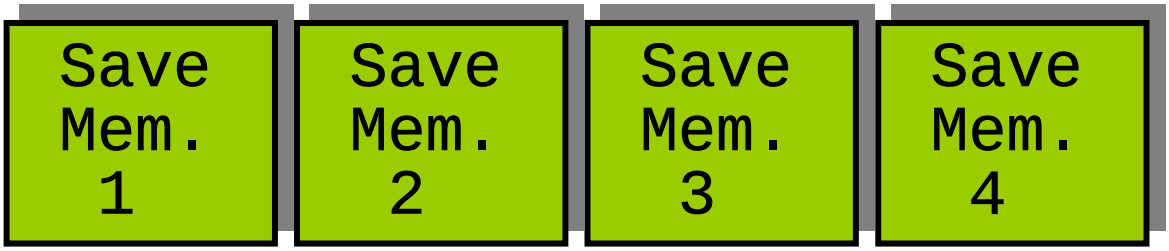
**Menu 16-19: SD-2/TD-2**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 16 | MEM1 | 1=Recall<br><br>(Variable 1) | Pressing this will recall Memory number 1.User Names can be programmed in to the memories using a keyboard. See “geNETics User guide”, section “Giving product Memories names” |
| 17 | MEM2 | 1=Recall<br><br>(Variable 1) | Pressing this will recall Memory number 2. |
| 18 | MEM3 | 1=Recall<br><br>(Variable 1) | Pressing this will recall Memory number 3. |
| 19 | MEM4 | 1=Recall<br><br>(Variable 1) | Pressing this will recall Memory number 4. |

**Menu 20-23: SD-2/TD-2**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 20 | Save Mem. 1 | 1= Save<br><br>(Variable 1) | Pressing this will Save Memory number 1. |



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| | | | |
|---|---|---|---|
| 21 | Save Mem. 2 | 1= Save<br><br>(Variable 1) | Pressing this will Save Memory number 2. |
| 22 | Save Mem. 3 | 1= Save<br><br>(Variable 1) | Pressing this will Save Memory number 3. |
| 23 | Back | 1= Save<br><br>(Variable 1) | Pressing this will Save Memory number 4. |

**Menu 24-27: SD-2/TD-2**


| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 24 | Set As Pow On Memory | 1=save<br><br>(Variable 1) | Pressing this will save the current set up as the power on default. |
| 25 | Recall Pow On Memory | 1=Recall<br><br>(Variable 1) | Pressing this will recall the power on default settings. |
| 26 | TOTAL RESET | 1=Reset<br><br>(Variable 1) | Pressing this will reset the system. |
| 27 | Software Version | N/A | Shows the current software version. |



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# 4 Technical Appendix

## 4.1 Technical Specification for the SD-2/TD-2

| | |
|---|---|
| Number of Inputs | 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 Output BNC's per Card (Configurable). |
| Type Of Outputs | 270Mbit Serial Digital Video Outputs, 75 Ohm, 800mV |
| Total Number Of BNC Connections | 5, consisting of 1 Fixed Input and 3 Jumper Configurable outputs. (One BNC not used) |
| 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) |
| Current Consumption | <800mA at +5V |
| Size | 215mm by 100mm |

## 4.2 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 Panel or a "Product". To terminate this product, locate J6 on the SD-2/TD-2 Processor Card supplied which is between U1 (The large square "chip") and the Edge connector. (This is on the half of the card labelled "CHP-100 Spartan2 Processor"). Jumper this with a 2mm link.



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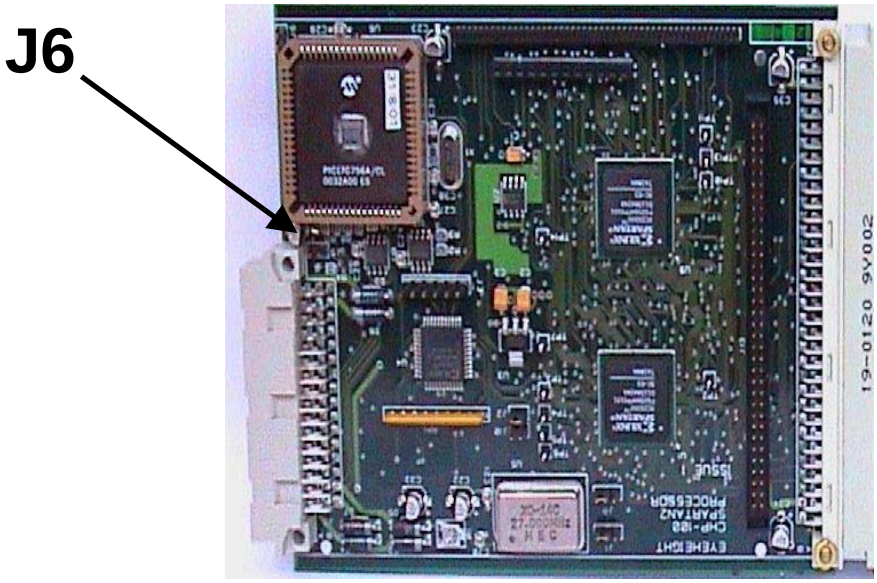


**Figure 4-1 Location Of I-Bus Termination Link**



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