

SDI-100 Audio Bitstream Decoder

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Overview

The Dorrough SDI-100 audio bitstream decoder is designed to decode (de-mux) audio bitstreams encoded according to SMPTE 272M from a component video bitstream encoded according to SMPTE 259M. This decoded digital audio signal can be directly applied to the Dorrough 280/380 digital audio meters for display. The SDI-100 can be used with all tape machines and digital video workstations that support synchronous embedded audio according to SMPTE 272M.

In SMPTE 272M, a total of 16 separate audio signals can be encoded in a single video signal. These audio streams are organized as four groups of four signals with the SDI-100 capable of decoding one group at a time. The four signals from each group are commonly organized as two stereo pairs. Each stereo pair is formatted according to AES-3 standards and output on one of the two BNC connectors on the rear of the SDI-100.

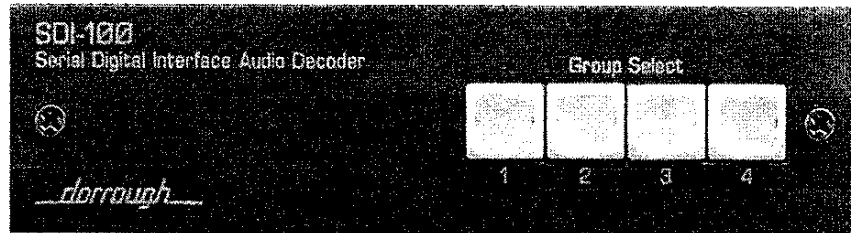


Figure 1-1, The Dorrough SDI-100 Serial Audio Bitstream Decoder

The SDI-100 is packaged with the same form-factor as the Dorrough 280/380 digital audio meters and may be mounted in the rack adapters for the Model 280 meter.

Installation

Installation of the SDI-100 is straightforward, but depends on individual application. Typical installation scenarios are illustrated in Figures 1-2 and 1-3.

Figure 1-2 illustrates the SDI-100 connected to two Dorrough type 280D meters which indicate the audio levels of all four channels of a particular audio group.

The coax cabling between the SMPTE 259M source and the SDI-100 must be made with a low-loss cable, such as Belden 8281 or equivalent. The type 280D audio meters are shown bridging the AES-3 outputs of the SDI-100 using BNC “T” connectors. Their internal 75-ohm termination switch must be OFF in this mode.

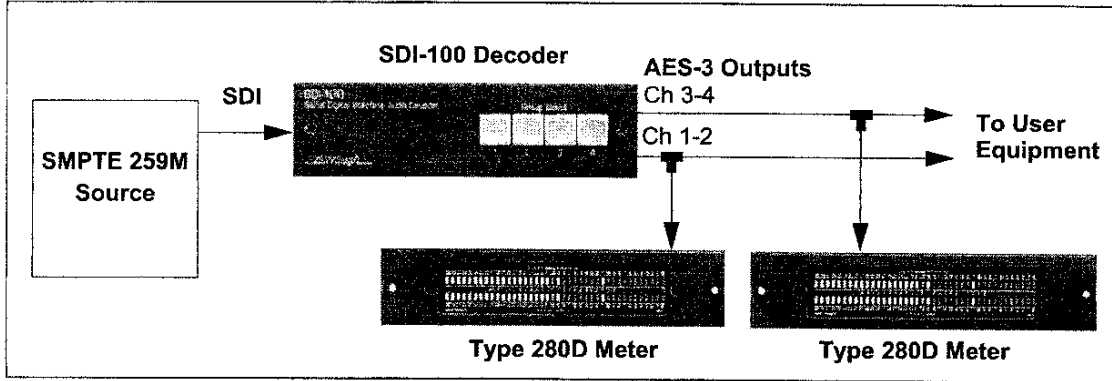


Figure 1-2, SDI-100 Installation for Dual Stereo (4-Channel) Audio Monitoring

Figure 1-3 illustrates the SDI-100 connected to one type 280D meter which indicates the audio level of channels 1 and 2 of the selected audio group. In this installation, a triple-rack adapter can hold the SDI-100, the 280 meter, and the RW-100 remote control for accessing all meter functions.

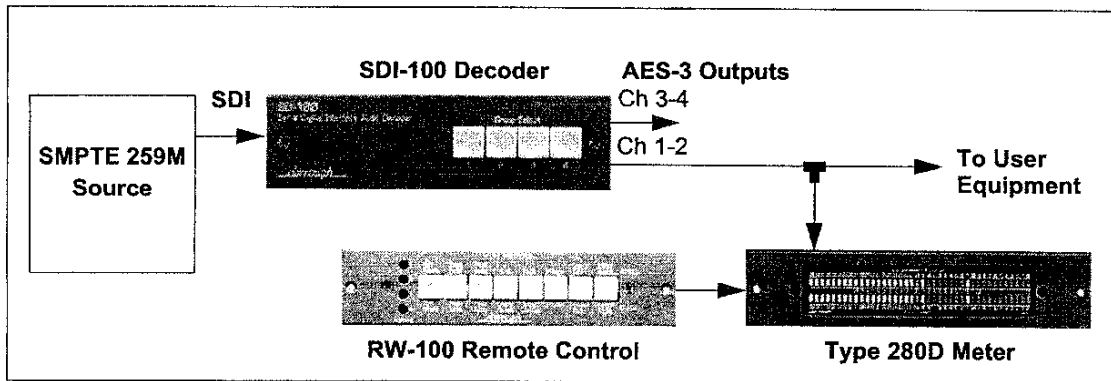


Figure 1-3, SDI-100 Installation for Stereo (2-Channel) Audio Monitoring

Note: *The SDI-100 SDI input connector is internally terminated into a 75-ohm load. Do not attempt to bridge the SDI signal fed to the SDI-100 as erratic or non-operation of the SDI-100 may result.*

DIP Switch Setup

On the rear of the SDI-100 is a 2-position setup DIP switch. Be sure to select the desired settings before applying power, as these settings are read by software upon power up.

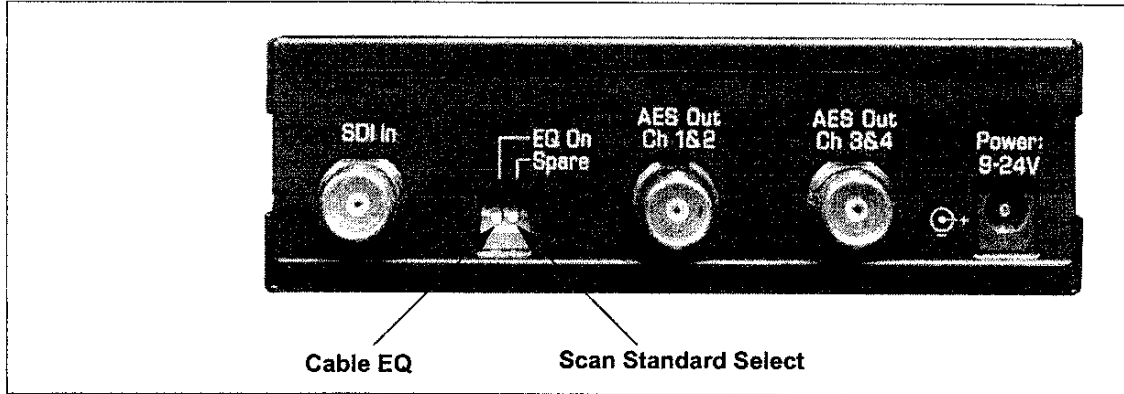


Figure 1-4, SDI-100 DIP Switch Position Functions

Switch 1 (Left) is the SDI Input Cable Equalizer.

Note: *The SDI-100 employs a fixed-gain equalizer optimized for Belden 8281 cable (or equivalent). The equalizer typically provides equalization for approximately 100 meters of coaxial cable.*

Table 1-1, SDI-100 DIP Switch Functions

Position	ON (Down) Function	OFF (Up) Function
Left SDI Input Cable EQ	For input cable runs >10 meters	For input cable runs <10 meters, or if equalization is provided by prior device
Right 525/625 Line Select	625 line systems (Euro)	525 line systems (NTSC)

DC Power

The supplied DC power pack should be connected in the following order:

1. Plug the DC connector into the jack on the SDI-100.
2. Plug the power pack into the AC power source.

After power is applied to the SDI-100, the Group 1 indicator on the front panel lights.

Operation

On the front panel are four Group Select push buttons. Each Group Select represents two stereo channels (or four mono channels) of audio for a total of sixteen possible audio channels. The push button array operates as a 1-of-4 Group Selector: simply press the desired Group push button to select that group.

With a valid SMPTE 259M embedded audio source, Group 1 will carry audio channels 1 through 4. The remaining groups (2 through 4) may or may not be active according to the particular SMPTE 259M source equipment connected to the SDI-100.

On power up, Group 1 is selected by default as indicated by the backlit push button on the front panel. The indicator has two states and indicates when the SDI-100 is decoding a valid audio bitstream:

Steady Glow	1. A valid SMPTE 259M source is connected to the SDI-100, AND 2. The SDI-100 has locked to this signal, AND 3. A valid encoded audio bitstream is present in this signal.
Flashing	1. There is no SMPTE 259M source connected to the SDI-100, OR 2. The SDI-100 has not locked to this signal, OR 3. There is no valid encoded audio bitstream in this signal.

With a properly connected SMPTE 259M source and with Group 1 selected, you should see a steady glow on the Group 1 indicator. If you do not, follow this checklist:

1. Is there a valid SMPTE 259M source with a known valid audio bitstream?
2. Is low-loss coaxial cable being used to connect to the SDI-100?
3. Is the SDI-100 Cable Equalization switch set correctly?

Note: *Remember, even though Group 1 audio may be active, the other groups may not per your SMPTE 259M source signal. In this case, the inactive Group Selector indicators will flash.*

With a properly locked SDI source, the Dorrough type 280 meters indicate normal audio activity and the audio converted to analog downstream by user equipment will sound normal. If for any reason the SDI-100 cannot achieve a lock to the signal, the AES-3 outputs are muted and the audio bitstream is invalidated.

Specifications and Applicable Standards

Input, SDI:	SMPTE 259M, level C, component video 800 mV p-p (nominal) internally terminated into 75 Ω (BNC)
Audio Mode:	Complies with SMPTE 272M A, B, and C Supports 48k sample synchronous audio, 16 to 24 bits. Decodes 1 of 4 audio groups selectable by front panel buttons.
Output 1 (Ch 1-2):	AES-3 digital audio stream, 48k samples, locked to video. 1.0 V p-p into 75 Ω (BNC).
Output 2 (Ch 3-4):	AES-3 digital audio stream, 48k samples, locked to video. 1.0 V p-p into 75 Ω (BNC).
Input power:	8 to 24 Volts DC, 2 Watts maximum. Power supply included with SDI-100.
Dimensions:	5.0W X 2.5H X 5.0D (inches)
Weight:	Approximately 1 pound
Accessories:	280-S Single unit rack adapter, 1 RU. 280-D Double unit rack adapter, 1 RU. 280-T Triple unit rack adapter, 1 RU.

Mechanicals

1. Installation of a 10 meter into a customer provided panel. Typical of all meters that require mounting.
Model 10
Model 12
Model 20

2. Mechanical drawing ~~for~~ face and bezel
280/380 analog and digital meters