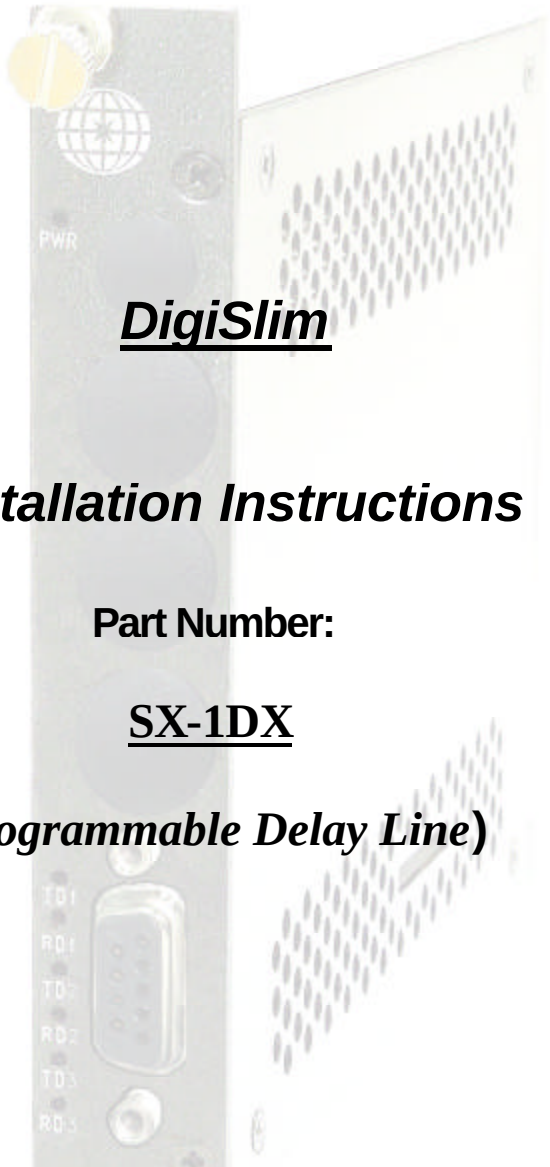

DigiSlim

Installation Instructions

Part Number:

SX-1DX

(Programmable Delay Line)

Meridian Technologies, Inc.
700 Elmont Road, Elmont NY 11003
Telephone: 516. 285. 1000 Fax: 516. 285. 6300
E-mail: sales@meridian-tech.com Web: www.meridian-tech.com
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SX-1DX
Programmable Delay Line System
Installation Instructions

1.0 Product Description

Meridian's SX-1DX product is a single channel programmable delay line module. It has 1024 programmable steps via internal dip switches and provides a delay from 0.008msec to 8.2msec. This product series uses Meridian's standard 1-slot wide chassis mount card assembly and plugs into the following Meridian chassis: SR-500/S, SR-1002/S, SR-1600/S and SR-2001 & SR-2000 series equipment chassis.

Change "DX" to appropriate data format from figure 6.0. Optional conformal coating provides an additional level of protection from environments with high moisture and humidity.

2.0 Installation

Series SX-1DX product is one-slot wide cards and, as such, occupies one slot in Meridian's standard chassis. To install in these chassis, orient the card with the Meridian logo at the top of the module and slide onto the top and bottom card guides in the chassis. Press securely on the top and bottom of the module to ensure that it is fully seated in the chassis so that the electrical connector mates with the chassis-mounted motherboard. Once installed, manually tighten the two thumbscrews located at the top and bottom of the card. Do not use tools to secure these and do not over tighten.

Note: A fully loaded 19" subrack should have forced-air cooling to avoid excessive heat generation inside the chassis. A fan assembly tray (P/N FA-2000) with three (3) fans is available and should be installed under the 19" SR-2000/1 whenever possible.

3.0 Product Delay Specifications

The SX-1DX series products delays the following signals:

Signal Type	Channels	Input	Output
RS-232 (Tx & Rx data)	1	Yes	Yes
RS-422 (Tx & Rx data)	1	Yes	Yes
TTL (Tx & Rx data)	1	Yes	Yes

The tables below identify the specifications for the delay line:

Delay Specifications	
Total Delay	8.2 ms
Taps	1024
Tap-Tap Delay	0.008 ms
Delay Adjustment Range	0.008 – 8.2 ms
Max Input Frequency	3.1 KHz
Min Input Pulse Width	0.16 ms
Pulse Width Distortions	10% max
Delay Tolerance	1% max

Connectors	
Data	DB9 Female (standard)
Optional	BNC, High Density DB-15, RJ45, Screw Terminal

4.0 Data Connector Pin Assignment

The DB9 Female connector on the front of the module is used for all data interfaces. This module supports the following data formats:

RS-232 one channel
RS-422 one channel
TTL one channel

The RS-232 channel is used to delay one channel of the RS-232, RS-422 or TTL signals. Costumer must select appropriate data format from part numbering data table as required. See page 10.

Pin #	RS-422 Data	RS-232 / TTL Data
1	DATA INPUT-	DATA INPUT
2	DATA INPUT+	NA
3	DATA OUTPUT-	DATA OUTPUT
4	DATA OUTPUT+	NA
5	GROUND	GROUND
6	NA	NA
7	NA	NA
8	NA	NA
9	NA	NA

4.1 Front Panel Indicator Lights

There are 3 LED indicator lights mounted on the left side of the module's front panel (see Figure 4.1 below). These indicators show the operation status of the module's power and data channels. These indicators can be used for troubleshooting the module.
Not all of the LEDs apply to all versions of these modules. Please refer to the module's part number for the appropriate signals, description.

Indicator	Function
Power	Green – ON
TX Data	Data input - Green
RX Data	Data output - Green

SX-1DF

PINOUT DIAGRAM

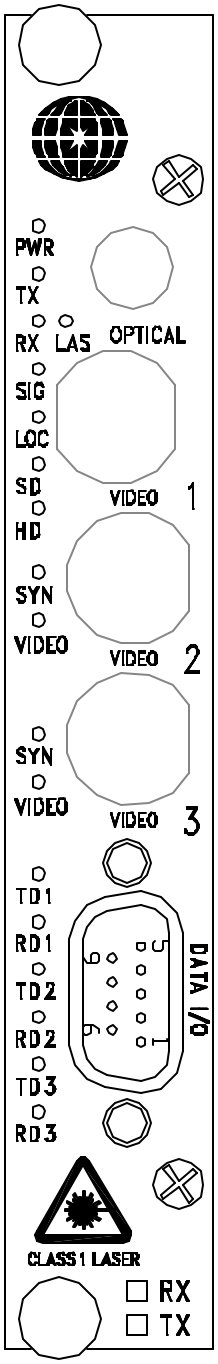
STATUS INDICATORS

PWR - POWER (GREEN)
TX - NA
RX - NA
LAS - NA
SIG - NA
LOC - NA
SD - NA
HD - NA

SYN - NA
VIDEO - NA

SYN - NA
VIDEO - NA

TD1 - (CH.1) DATA INPUT (GREEN)
RD1 - (CH.1) DATA OUTPUT (GREEN)
TD2 - NA
RD2 - NA
TD3 - NA
RD3 - NA



DATA INPUT/OUTPUT (DB-9 FEMALE)

1. (CH.1) RS-422 DATA INPUT-
2. (CH.1) RS-422 DATA INPUT+
3. (CH.1) RS-422 DATA OUTPUT-
4. (CH.1) RS-422 DATA OUTPUT+
5. GROUND
6. NA
7. NA
8. NA
9. NA

Figure 4.1
SX-1DF Module Front Panel

SX-1DD
SX-1DL
PINOUT DIAGRAM

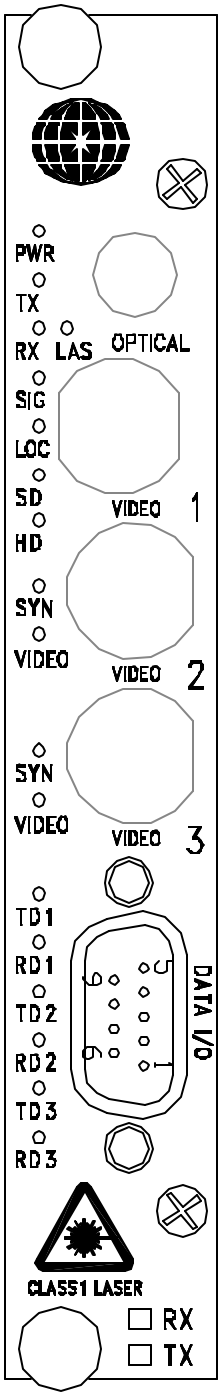
STATUS INDICATORS

PWR - POWER (GREEN)
TX - NA
RX - NA
LAS - NA
SIG - NA
LOC - NA
SD - NA
HD - NA

SYN - NA
VIDEO - NA

SYN - NA
VIDEO - NA

TD1 - (CH.1) DATA INPUT (GREEN)
RD1 - (CH.1) DATA OUTPUT (GREEN)
TD2 - NA
RD2 - NA
TD3 - NA
RD3 - NA



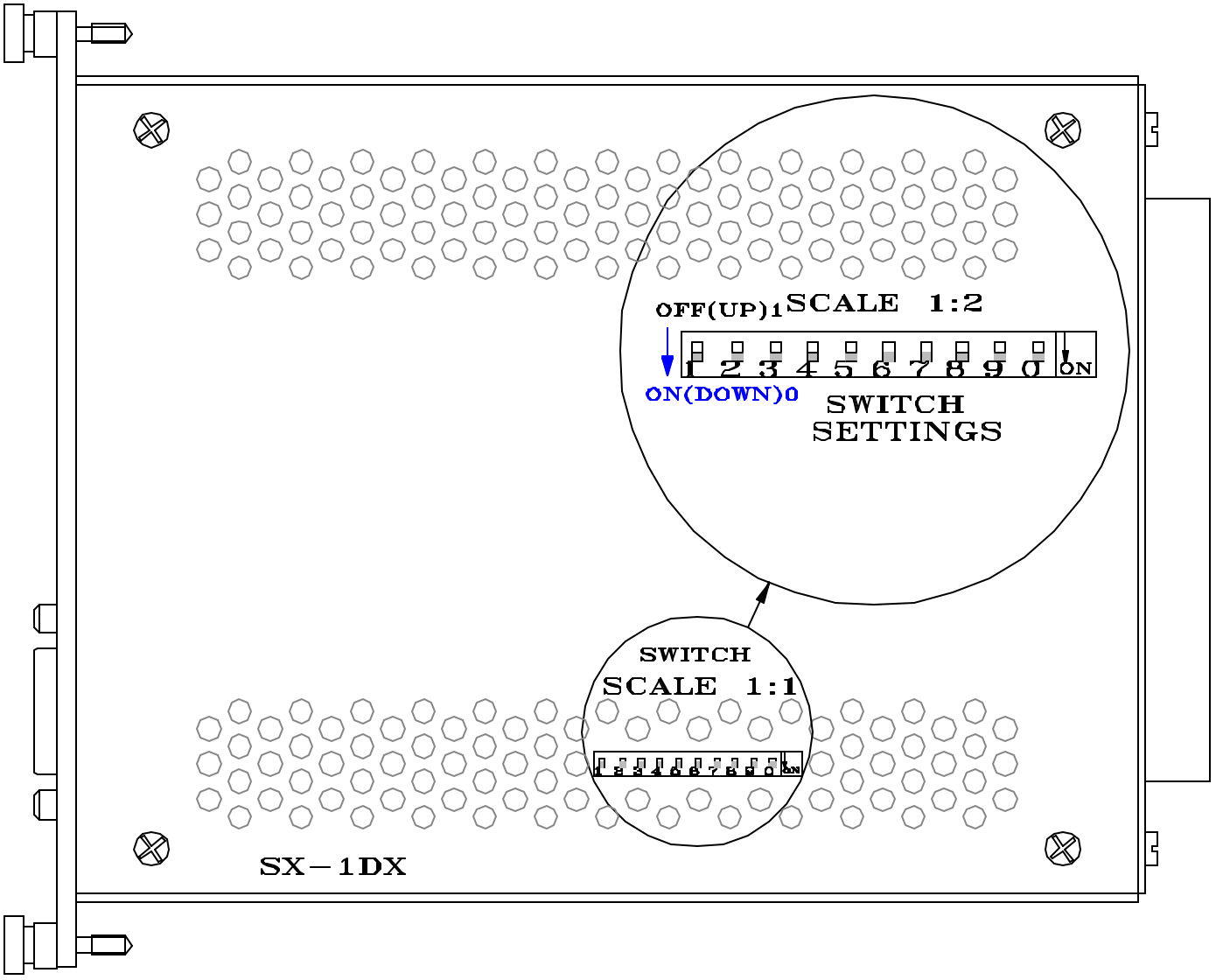
DATA INPUT/OUTPUT (DB-9 FEMALE)

1. (CH.1) RS232/TTL DATA INPUT
2. NA
3. (CH.1) RS232/TTL DATA OUTPUT
4. NA
5. GROUND
6. NA
7. NA
8. NA
9. NA

Figure 4.2
SX-1DD, SX-1DL Module Front Panel

5.0 Signal Conditioning Switch Settings

A group of 10 switches is located on the bottom center of the module's circuit card (see figure below). These switches configure the total delay (see figure 5.1). Table below illustrates these switch locations on the board and how they are configured. The factory-supplied default delay setting is 8.192 ms.



NOTE: This setting can be preconfigured to any selection by customer request.

Figure 5.1

Programmable Delay Line Sample Values										
Time Delay	Switch #1	Switch #2	Switch #3	Switch #4	Switch #5	Switch #6	Switch #7	Switch #8	Switch #9	Switch#10
8.192 mS	OFF (up)	OFF (up)	OFF (up)	OFF (up)	OFF (up)	OFF (up)	OFF (up)	OFF (up)	OFF (up)	OFF (up)
4.096 mS	OFF (up)	OFF (up)	OFF (up)	OFF (up)	OFF (up)	OFF (up)	OFF (up)	OFF (up)	OFF (up)	ON(down)
2.048 mS	OFF (up)	OFF (up)	OFF (up)	OFF (up)	OFF (up)	OFF (up)	OFF (up)	OFF (up)	ON(down)	ON(down)
1.024 mS	OFF (up)	OFF (up)	OFF (up)	OFF (up)	OFF (up)	OFF (up)	OFF (up)	ON(down)	ON(down)	ON(down)
0.512 mS	OFF (up)	OFF (up)	OFF (up)	OFF (up)	OFF (up)	OFF (up)	ON(down)	ON(down)	ON(down)	ON(down)
0.256 mS	OFF (up)	OFF (up)	OFF (up)	OFF (up)	OFF (up)	ON(down)	ON(down)	ON(down)	ON(down)	ON(down)
0.128 mS	OFF (up)	OFF (up)	OFF (up)	OFF (up)	ON(down)	ON(down)	ON(down)	ON(down)	ON(down)	ON(down)
0.064 mS	OFF (up)	OFF (up)	OFF (up)	ON(down)	ON(down)	ON(down)	ON(down)	ON(down)	ON(down)	ON(down)
0.032 mS	OFF (up)	OFF (up)	ON(down)	ON(down)	ON(down)	ON(down)	ON(down)	ON(down)	ON(down)	ON(down)
0.016 mS	OFF (up)	ON(down)	ON(down)	ON(down)	ON(down)	ON(down)	ON(down)	ON(down)	ON(down)	ON(down)
0.008 mS	ON(down)	ON(down)	ON(down)	ON(down)	ON(down)	ON(down)	ON(down)	ON(down)	ON(down)	ON(down)

Factory default: 8.192ms Delay line

You can allso configure your own delay by setting switches in Figure 5.2 by formula

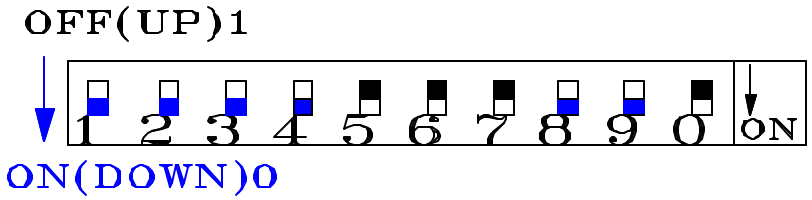
D = 8 x (1+S1+S2+S3+S4+S5+S6+S7+S8+S9+S10) uSec,
where D - delay, S1 to S10 – values from table in figure 5.2

Figure 5.2

Programmable Delay Line Configuration										
SWITCH	Switch #1	Switch #2	Switch #3	Switch #4	Switch #5	Switch #6	Switch #7	Switch #8	Switch #9	Switch#10
OFF (up)	1	2	4	8	16	32	64	128	256	512
ON(down)	0	0	0	0	0	0	0	0	0	0

For example, if you need 5000uS delay, find multiplier closest to to desired value 5000uS divided by 8 = 625. Then select sum of values starting from most significant bit 512 (Switch # 10)

(1+0+0+0+0+16+32+64+0+0+512) = 625



SAMPLE SWITCH SETTINGS

6.0 Product Part Numbers

The SX-1DX is a generic name, the "DX" part of a part number can be selected for a specific data format. For example: DD is RS-232, DF is RS-422, and DL is TTL data. See table below for a list of various part numbers and description that are available for this series of product.

Product Part Number Guide	
Part Number	**Data format**
SX-1DD	RS-232
SX-1DF	RS-422
SX-1DL	TTL

Standard connector for this system is DB-9 Female, but you may have optional connector variations, see data sheet for more information.

7.0 Troubleshooting

Below is a listing of several problems that may arise during the installation & operation of the modules. If you are having difficulty installing or operating the modules please refer to this list below.

Problem: *Module does not fit in chassis slots*
Action: Check module orientation. Meridian "Globe" must be oriented on the top left hand side of the module. Make sure the card guides in the chassis are aligned with the extrusion on the module.
Problem: *Card power LED does not light when power to the module/subrack is applied or power indicator turns on and off*
Action: Check power supply to ensure that it is plugged in and turned on. If flashing continues, move module to another chassis or location in the same chassis, if available.
Problem: *No Data*
Action: Check that the data connections are correct (see section 4.0 for data pinout connections). Check to ensure that the data source is operating properly.

If the problem still persists after reviewing the above items, please contact Meridian technical support (516- 285-1000).

Meridian Technologies, Inc.
700 Elmont Road, Elmont NY 11003
Telephone: 516-285-1000 Fax: 516-285-6300
E-mail: support@meridian-tech.com
Web: www.meridian-tech.com
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