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SDI   Seriplex® Drive Interface

Effective: 27 Nov. 1996

Introduction

The Seriplex® Drive Interface is a device which allows standard variable speed motor drives to be connected to a Seriplex network. The SDI operates in Seriplex Mode 2 only (not peer-to-peer) and uses one 16 bit input word and one 16 bit output word for an address in a multiplex channel. The SDI will operate on Seriplex networks of 12 or 24 VDC. The SDI provides a 12-bit (10-bit resolution) analog 0-10V output for controlling the motor speed, three Seriplex digital outputs, and three Seriplex digital inputs.

SDI Configuration

The SDI is configured through a DIP switch on its front. This switch is used to set the multiplex channel address for the SDI as well as its starting bit address. Switch bits SW1 through SW4 set the Multiplex Channel 0-15 as shown in Table 1. Switch bits SW5 through SW8 set the bit starting address from bit 16 through bit 240 as shown in Table 2.

Table 1   Channel Number Switch Settings

Channel	SW1	SW2	SW3	SW4
0	0	0	0	0
1	1	0	0	0
2	0	1	0	0
3	1	1	0	0
4	0	0	1	0
5	1	0	1	0
6	0	1	1	0
7	1	1	1	0
8	0	0	0	1
9	1	0	0	1
10	0	1	0	1
11	1	1	0	1
12	0	0	1	1
13	1	0	1	1
14	0	1	1	1
15	1	1	1	1

1 = ON (up), 0 = OFF (down)

Channel 0 may be used for non-Multiplex operation.

Table 2   Address Number Switch Settings

| Starting Address	SW5	SW6	SW7	SW8
16	1	0	0	0
32	0	1	0	0
48	1	1	0	0
64	0	0	1	0
80	1	0	1	0
69	0	1	1	0
112	1	1	1	0
128	0	0	0	1
144	1	0	0	1
160	0	1	0	1
176	1	1	0	1
192	0	0	1	1
208	1	0	1	1
224	0	1	1	1
240	1	1	1	1

1 = ON (up), 0 = OFF (down)

NOTE: The Starting Address of 0 is not valid.

Figure 1 displays the DIP switch settings for a SDI set for Channel 5 and Seriplex bit addresses 176-191. From 1 to 8, the settings are 10101101 (ON, OFF, ON, OFF, ON, ON, OFF, ON).
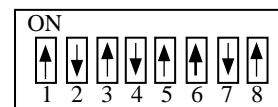
Figure 1   Switch Example for Channel 5, Address 176
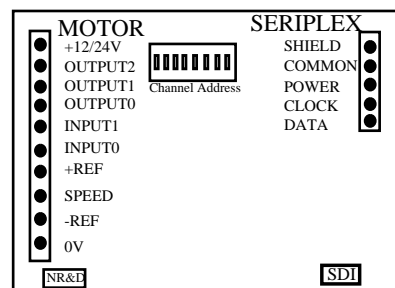
Electrical Connection

The SDI provides two terminal connectors for the Seriplex network and Motor Drive. It is recommended that the user follow the standard Seriplex color code for all Seriplex connections. Table 3 shows the standard color code.

Table 3   Seriplex Color Code

Color	Description
Bare	SHIELD
Black	COMMON
Red	POWER
Green	CLOCK
White	DATA

Motor Drive Connection

The SDI provides optical isolation between the Seriplex connection and the Motor Drive. Additional isolation is also provided between the Speed Reference and the Motor I/O. The Motor connector is described in Table 4 and includes the typical connections to an Altivar^{TM} 66 Drive controller.

Table 4   Motor Drive Connector Pinout

Motor	Description	Typical Altivar Connection
+12/24V	Power from Motor Drive	+24VDC
OUTPUT2	Seriplex OK if high	LI3
OUTPUT1	Seriplex Output Word Bit 13	LI2
OUTPUT0	Seriplex Output Word Bit 12	LI1
INPUT1	Seriplex Input Word Bit 1	LO2
INPUT0	Seriplex Input Word Bit 0	LO1
+REF	Isolated +10V from Motor Drive for speed reference	+10V
SPEED	Analog output for Speed control. 0-10V	AI1
-REF	Isolated 0V from Motor drive for speed reference	COM (+10V)
0V	Common for +12/24V from Motor Drive	COM (+24V)

The digital outputs are sourcing and will provide up to 100mA at either +12 or +24VDC. The digital inputs will operate at rail-to-rail (0-12V or 0-24V) and have an impedance of 4.7K ohm. The analog output will operate on 9-12VDC

reference and has an impedence of 4.7K ohm. The analog output uses a 12 bit word with 10 bit resolution.

Seriplex Output Bits

The 16 Seriplex output bits are described in Table . It is important to note that the Speed reference is a 12-bit word with only 10-bit resolution. (Future models of the SDI may include full 12-bit resolution.) So, write the speed output as a 12 bit word.

Table 5   Seriplex Output Word

Bit	Description
0...11	Speed (lsb=bit 0, msb=bit 11)
12	OUTPUT0
13	OUTPUT1
14, 15	Reserved

OUTPUT2 provides a status of the Seriplex network. If the network is running then OUTPUT2 will be high.

Table 6   Seriplex Input Word

Bit	Description
0	INPUT0
1	INPUT1
2	Motor Powered
3...15	Reserved

Seriplex bit 2 provides a status of the +12/24V power from the Motor drive. If the +12/24V power is present, then Seriplex bit 2 will be on.