SIEMENS

USER'S GUIDE

SCALABLE DIGITAL INPUT MODULE (SDIM), A80293 AND A80295

(PART OF SEAR II ACCESSORY GROUP)

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DOCUMENT HISTORY

Version	Release Date	Sections Changed	Details of Change
A	February 6, 2004		Initial release
A.1	July 3014		Rebrand for Siemens

NOTES, CAUTIONS, AND WARNINGS

Throughout this manual, notes, cautions, and warnings are frequently used to direct the reader's attention to specific information. Use of the three terms is defined as follows:

⚠ WARNING

WARNING

INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY. WARNINGS ALWAYS TAKE PRECEDENCE OVER NOTES, CAUTIONS, AND ALL OTHER INFORMATION.

⚠ CAUTION

CAUTION

REFERS TO PROPER PROCEDURES OR PRACTICES WHICH IF NOT STRICTLY OBSERVED, COULD RESULT IN A POTENTIALLY HAZARDOUS SITUATION AND/OR POSSIBLE DAMAGE TO EQUIPMENT. CAUTIONS TAKE PRECEDENCE OVER NOTES AND ALL OTHER INFORMATION, EXCEPT WARNINGS.

NOTE

NOTE

Generally used to highlight certain information relating to the topic under discussion.

If there are any questions, contact Siemens Industry Inc., Rail Automation Application Engineering.

ELECTROSTATIC DISCHARGE (ESD) PRECAUTIONS

Static electricity can damage electronic circuitry, particularly low voltage components such as the integrated circuits commonly used throughout the electronics industry. Therefore, procedures have been adopted industry-wide which make it possible to avoid the sometimes invisible damage caused by electrostatic discharge (ESD) during the handling, shipping, and storage of electronic modules and components. Siemens Industry, Inc., Rail Automation has instituted these practices at its manufacturing facility and encourages its customers to adopt them as well to lessen the likelihood of equipment damage in the field due to ESD. Some of the basic protective practices include the following:

- Ground yourself before touching card cages, assemblies, modules, or components.
- Remove power from card cages and assemblies before removing or installing modules.
- Remove circuit boards (modules) from card cages by the ejector lever only. If an ejector lever is not provided, grasp the edge of the circuit board but avoid touching circuit traces or components.
- Handle circuit boards by the edges only.
- Never physically touch circuit board or connector contact fingers or allow these fingers to come in contact with an insulator (e.g., plastic, rubber, etc.).
- When not in use, place circuit boards in approved static-shielding bags, contact fingers first. Remove circuit boards from static-shielding bags by grasping the ejector lever or the edge of the board only. Each bag should include a caution label on the outside indicating static-sensitive contents.
- Cover workbench surfaces used for repair of electronic equipment with static dissipative workbench matting.
- Use integrated circuit extractor/inserter tools designed to remove and install electrostatic-sensitive integrated circuit devices such as PROM's (OK Industries, Inc., Model EX-2 Extractor and Model MOS-40 Inserter (or equivalent) are highly recommended).
- Utilize only anti-static cushioning material in equipment shipping and storage containers.

For information concerning ESD material applications, please contact the Technical Support Staff at 1-800-793-7233. ESD Awareness Classes and additional ESD product information are also available through the Technical Support Staff.

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1.0 INTRODUCTION

The SDIM is ideal for applications where a large number of digital inputs need to be monitored, such as control points and yards. Because of the scalability of its digital input arrangement, the SDIM provides a cost-effective solution for applications requiring varying numbers of digital inputs.

The main SDIM unit can handle 24 digital inputs as a standalone unit. Through the addition of the low-cost, low profile SDIMFE, the monitoring capabilities of the SDIM can grow modularly, in 24 digital-input steps. If the application calls for more inputs to be monitored, one or more SDIMFE modules can be added to the SDIM configuration, allowing you to choose the best way to handle the number of inputs to be monitored: 24, 48, 72, 96 or 120. Because the bulk of the interface is located in the main SDIM module, increasing the number of inputs beyond the initial 24 requires only a minor investment in hardware.

Another advantage of the modular architecture of the SDIM is that the low-profile SDIMFE modules do not have to be concentrated near the SDIM main unit. Instead, the SDIMFEs can be installed anywhere in the signal bungalow. This allows the connections to be made near the point or origin of the signals being monitored and reduces the overall wiring inside the bungalow. The connection between SDIM and SDIMFE modules is simple and clean, using CAT5e straight patch cables, the same type of cabling used to connect computers to an Ethernet network. These cables are easily obtained in several off-the-shelf lengths or you can make them in custom lengths if you have crimping tools and modular connectors.

The SDIM system consists of the following 2 modules:

SDIM — Scalable Digital Input Module. An Echelon module that adds 24 to 120 digital inputs to the SEAR II event recorder.

SDIMFE — Scalable Digital Input Module – Front End. Digital input front-end circuitry modules that can be connected to the SDIM to expand the number of digital inputs. Each SDIMFE adds 24 inputs to the SDIM.

Up to four SDIMFE modules can connect to a single SDIM module for a total of 120 digital inputs (4 x 24 inputs in addition to the 24 on-board inputs on the SDIM) that can be added to the SEAR II recorder system.

Multiple SDIMs can be on the Echelon network for an even greater expansion of the number of digital inputs in the event recording system.

WARNING

THE SDIM SYSTEM IS A NON-VITAL SYSTEM AND SHOULD NOT BE USED FOR VITAL APPLICATIONS.

Figure 1 shows how the SDIM system and SEAR II units interact to work together.

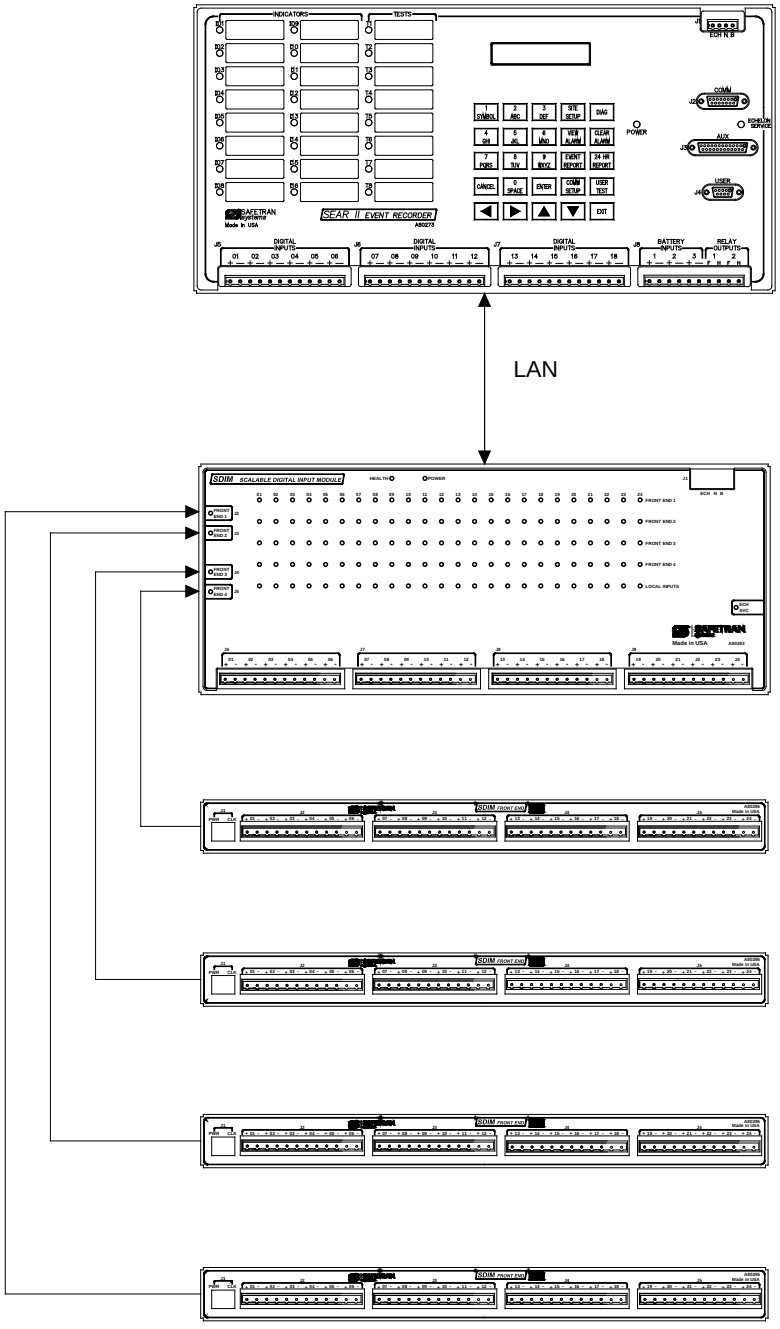


Figure 1. SDIM and SEAR II Data Flow

2.0 HARDWARE DESCRIPTION

This section provides a physical description of the SDIM module and the SDIMFE module.

2.1 SDIM MODULE

The SDIM is housed in a metal enclosure that mounts to a standard 19'' rack or on a wall.

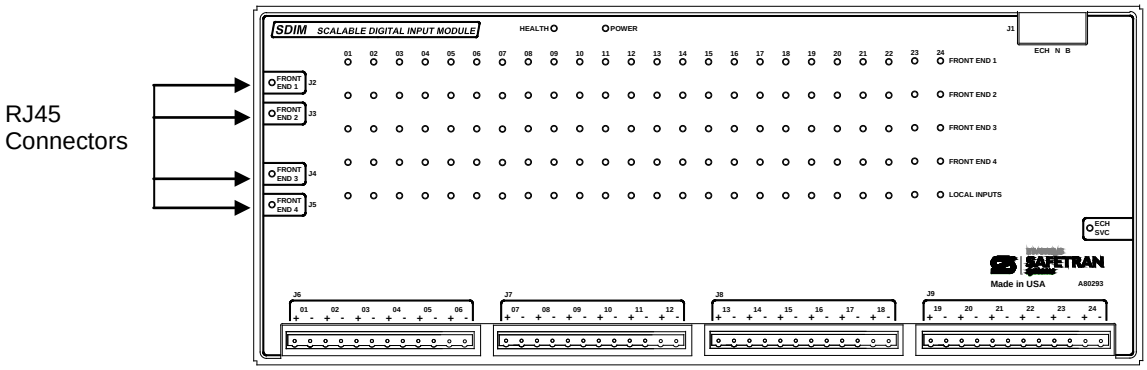


Figure 2. SDIM Module

The SDIM has the following LEDs:

Table 1. SDIM LED Descriptions

LED name	Location	Description
Health	Top center	Blinks slowly when the SDIM is functioning normally. LED is off if an internal failure is detected.
Power	Top center	On when the SDIM is powered. Off if no power is applied.
01-24 Front End 1- Front End 4	Upper Center	1 LED to show the state of each digital input. 4 rows of 24. There is one row for each SDIMFE. The LED is on if the input is energized and off if the input is de-energized.
01- 24 Local Inputs	Lower Center	The LED is on if the input is energized and off if the input is de-energized.
J2 – J5	Left side	The LEDs indicate SDIM is reading data from the SDIMFE modules. On indicates access to corresponding SDIMFE.
ECH SVC	Lower right	On when the SDIM is being installed as an Echelon slave on the SEAR II unit.

2.1.1 Connectors

The top right side of the SDIM has 1 connector for power/Echelon, labeled J1.

The left side of the SDIM has 4 RJ45 connectors for connecting SDIMFE modules using CAT5e cable. These connectors are labeled J2 through J5.

The front of the SDIM module has 4 connectors for digital inputs, labeled J6 through J9. Each connector has six opto-isolated digital inputs with one positive and one negative terminal per input. These are typically used for monitoring relay or switch contact closures.

Table 2. SDIM Connector Pin-Out Descriptions

CONNECTOR, INDICATOR OR DEVICE	PIN NUMBER	FUNCTION	NOTES
J1 mass-terminated terminal block	1	**ECH A** – Echelon Twisted pair connection A.	Echelon network connector to the SEAR II – connections are polarity independent.
	2	**ECH B** – Echelon Twisted pair connection B.	
	3	**N** – Battery input – negative terminal.	Power supply input. Use 16 gauge or heavier wire.
	4	**B** – Battery input – positive terminal.	
J2 – J5 RJ45 connectors	N/A	Connectors for SDIMFE modules.	For standard Ethernet cable EIA568 wiring.
J6 Mass-terminated 12- Pin Terminal Block	1	01+ (Digital Input 01 – positive terminal)	Digital Inputs 1 through 6
	2	01- (Digital Input 01 – negative terminal)	
	3	02+ (Digital Input 02 – positive terminal)	
	4	02- (Digital Input 02 – negative terminal)	
	5	03+ (Digital Input 03 – positive terminal)	
	6	03- (Digital Input 03 – negative terminal)	
	7	04+ (Digital Input 04 – positive terminal)	
	8	04- (Digital Input 04 – negative terminal)	
	9	05+ (Digital Input 05 – positive terminal)	
	10	05- (Digital Input 05 – negative terminal)	
	11	06+ (Digital Input 06 – positive terminal)	
	12	06- (Digital Input 06 – negative terminal)	
J7 Mass-terminated 12- Pin Terminal Block	1	07+ (Digital Input 07 – positive terminal)	Digital Inputs 7 through 12
	2	07- (Digital Input 07 – negative terminal)	
	3	08+ (Digital Input 08 – positive terminal)	
	4	08- (Digital Input 08 – negative terminal)	
	5	09+ (Digital Input 09 – positive terminal)	
	6	09- (Digital Input 09 – negative terminal)	
	7	10+ (Digital Input 10 – positive terminal)	
	8	10- (Digital Input 10 – negative terminal)	
	9	11+ (Digital Input 11 – positive terminal)	
	10	11- (Digital Input 11 – negative terminal)	
	11	12+ (Digital Input 12 – positive terminal)	
	12	12- (Digital Input 12 – negative terminal)	

CONNECTOR, INDICATOR OR DEVICE	PIN NUMBER	FUNCTION	NOTES
J8 Mass-terminated 12- Pin Terminal Block	1	13+ (Digital Input 13 – positive terminal)	Digital Inputs 13 through 18
	2	13- (Digital Input 13 – negative terminal)	
	3	14+ (Digital Input 14 – positive terminal)	
	4	14- (Digital Input 14 – negative terminal)	
	5	15+ (Digital Input 15 – positive terminal)	
	6	15- (Digital Input 15 – negative terminal)	
	7	16+ (Digital Input 16 – positive terminal)	
	8	16- (Digital Input 16 – negative terminal)	
	9	17+ (Digital Input 17 – positive terminal)	
	10	17- (Digital Input 17 – negative terminal)	
	11	18+ (Digital Input 18 – positive terminal)	
	12	18- (Digital Input 18 – negative terminal)	
J9 Mass-terminated 12- Pin Terminal Block	1	19+ (Digital Input 19 – positive terminal)	Digital Inputs 19 through 24
	2	19- (Digital Input 19 – negative terminal)	
	3	20+ (Digital Input 20 – positive terminal)	
	4	20- (Digital Input 20 – negative terminal)	
	5	21+ (Digital Input 21 – positive terminal)	
	6	21- (Digital Input 21 – negative terminal)	
	7	22+ (Digital Input 22 – positive terminal)	
	8	22- (Digital Input 22 – negative terminal)	
	9	23+ (Digital Input 23 – positive terminal)	
	10	23- (Digital Input 23 – negative terminal)	
	11	24+ (Digital Input 24 – positive terminal)	
	12	24- (Digital Input 24 – negative terminal)	
ECH SVC push button	N/A	Press during installation to install the SDIM on the SEAR II Echelon network.	For more information, see page 10.

2.2 SDIMFE MODULE

The SDIMFE is housed in a metal enclosure that mounts to a standard 19'' rack or on a wall.

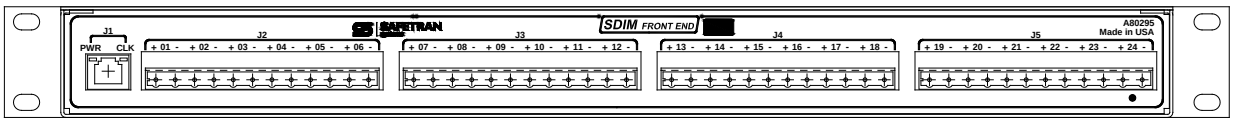


Figure 3. SDIMFE Module

The SDIMFE has the following LEDS:

Table 3. SDIMFE LED Descriptions

LED name	Location	Description
PWR	Left side	On when the SDIMFE is powered. Off if no power is applied.
CLK	Left side	LED shows SDIMFE is receiving the synchronizing clock signal from the SDIM.

2.2.1 Connectors

The left side of the SDIMFE module has 1 RJ45 connector for connecting to the SDIM module using a CAT5e cable.

The front of the SDIMFE module has 4 connectors for digital inputs, labeled J2 through J5. Each connector has six opto-isolated digital inputs with one positive and one negative terminal per input. These are typically used for monitoring relay or switch contact closures.

Table 4. SDIMFE Connector Pin-Out Descriptions

CONNECTOR, INDICATOR OR DEVICE	PIN NUMBER	FUNCTION	NOTES
J1 RJ45 connector	N/A	Connector for SDIM module.	For standard Ethernet cable EIA568 wiring.
J2 Mass-terminated 12-Pin Terminal Block	1	01+ (Digital Input 01 – positive terminal)	Digital Inputs 1 through 6
	2	01- (Digital Input 01 – negative terminal)	
	3	02+ (Digital Input 02 – positive terminal)	
	4	02- (Digital Input 02 – negative terminal)	
	5	03+ (Digital Input 03 – positive terminal)	
	6	03- (Digital Input 03 – negative terminal)	
	7	04+ (Digital Input 04 – positive terminal)	
	8	04- (Digital Input 04 – negative terminal)	
	9	05+ (Digital Input 05 – positive terminal)	
	10	05- (Digital Input 05 – negative terminal)	
	11	06+ (Digital Input 06 – positive terminal)	
	12	06- (Digital Input 06 – negative terminal)	
J3 Mass-terminated 12-Pin Terminal Block	1	07+ (Digital Input 07 – positive terminal)	Digital Inputs 7 through 12
	2	07- (Digital Input 07 – negative terminal)	
	3	08+ (Digital Input 08 – positive terminal)	
	4	08- (Digital Input 08 – negative terminal)	
	5	09+ (Digital Input 09 – positive terminal)	
	6	09- (Digital Input 09 – negative terminal)	
	7	10+ (Digital Input 10 – positive terminal)	
	8	10- (Digital Input 10 – negative terminal)	
	9	11+ (Digital Input 11 – positive terminal)	

CONNECTOR, INDICATOR OR DEVICE	PIN NUMBER	FUNCTION	NOTES
	10	11- (Digital Input 11 – negative terminal)	
	11	12+ (Digital Input 12 – positive terminal)	
	12	12- (Digital Input 12 – negative terminal)	
J4 Mass-terminated 12-Pin Terminal Block	1	13+ (Digital Input 13 – positive terminal)	Digital Inputs 13 through 18
	2	13- (Digital Input 13 – negative terminal)	
	3	14+ (Digital Input 14 – positive terminal)	
	4	14- (Digital Input 14 – negative terminal)	
	5	15+ (Digital Input 15 – positive terminal)	
	6	15- (Digital Input 15 – negative terminal)	
	7	16+ (Digital Input 16 – positive terminal)	
	8	16- (Digital Input 16 – negative terminal)	
	9	17+ (Digital Input 17 – positive terminal)	
	10	17- (Digital Input 17 – negative terminal)	
	11	18+ (Digital Input 18 – positive terminal)	
	12	18- (Digital Input 18 – negative terminal)	
J5 Mass-terminated 12-Pin Terminal Block	1	19+ (Digital Input 19 – positive terminal)	Digital Inputs 19 through 24
	2	19- (Digital Input 19 – negative terminal)	
	3	20+ (Digital Input 20 – positive terminal)	
	4	20- (Digital Input 20 – negative terminal)	
	5	21+ (Digital Input 21 – positive terminal)	
	6	21- (Digital Input 21 – negative terminal)	
	7	22+ (Digital Input 22 – positive terminal)	
	8	22- (Digital Input 22 – negative terminal)	
	9	23+ (Digital Input 23 – positive terminal)	
	10	23- (Digital Input 23 – negative terminal)	
	11	24+ (Digital Input 24 – positive terminal)	
	12	24- (Digital Input 24 – negative terminal)	

3.0 **INSTALLATION**

This section describes the physical installation of the SDIM and the SDIMFE. After the modules are physically installed, you must configure the SEAR II to work with the SDIM and SDIMFE modules.

3.1 **SDIM**

This section describes mounting the SDIM and connecting it to the SEAR II.

3.1.1 Hardware Mounting

Using the mounting tabs on each side of the module, the SDIM can be mounted on a standard 19" rack, shelf, wall, or backboard. The mounting holes accept standard #10 mounting screws.

After mounting, the module needs to be wired to the power supply and to the SEAR II unit.

3.1.2 Wiring to the SEAR II

After you physically mount the SDIM module, you are ready to make power and Echelon connections. Wiring the SDIM to the SEAR II allows the SDIM and the SEAR II to communicate using the Echelon network. The same J1 connector is used to bring power to the SDIM module.

The female connectors supplied with the SEAR II and SDIM module accept wire sizes in the range of #28 AWG to #14 AWG. The connectors contain spring-loaded cage-clamps for connecting the wires. Each connector consists of a row of wire receptors and actuator spring holes to open and close the cage clamps.

NOTE

NOTE

See the specification section on page 15 for information about recommended Echelon wiring. The recommended wire for power connections is 16 AWG or 14 AWG stranded insulated wire.

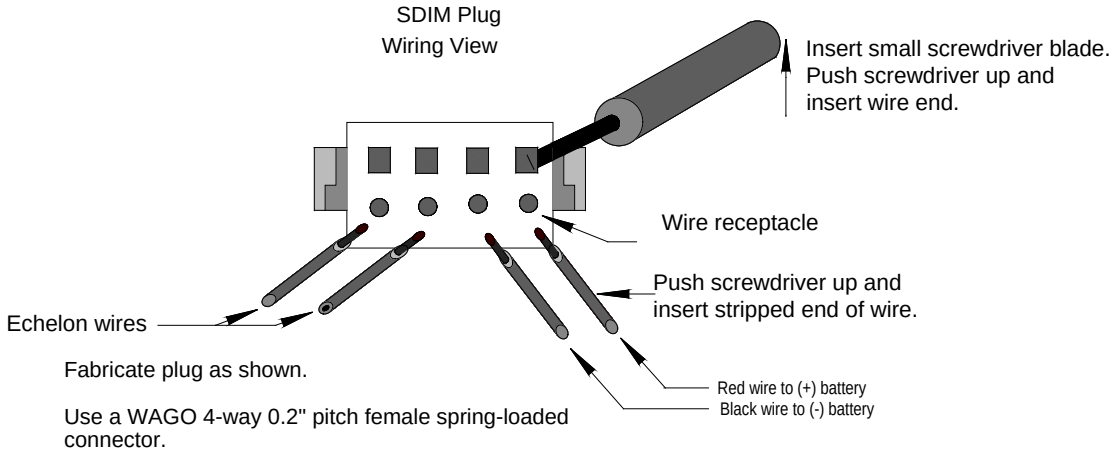


Figure 4. Connecting Wires to the SDIM

Wire the connector using the following steps.

1. On the front of the SDIM module, locate the J1 connector. Remove the supplied plug. The labels on J1 show the following:

Echelon wire A	Echelon wire B	Battery Negative wire	Battery Positive wire
ECH		**N**	**B**

   Make sure you connect the correct wires both on the SDIM module and the SEAR II.

2. Strip approximately 1/4-inch (0.25 inch) of insulation from one end of the wire.

3. Insert a Wago compression tool or a small screwdriver into the square holes at wiring end of the connector. Open the wire receptacle contactor by squeezing the Wago tool toward the body of connector or pry up on the small screwdriver. The contactor receptacle opens to insert the stripped wire. Fully insert the wire into the receptacle. Be careful not to insert the wire jacket insulation into the metal contactors.

4. Remove the Wago tool or the screwdriver. Gently pull the wire to make sure the wire is tightly inserted in the receptacle.

NOTE

NOTE

To jumper the wires, twist the two wires together before inserting them into the wire receptor of the connector.

5. Repeat for the other wires.

6. Insert the plug back into the J1 connector.

7. Connect the other end of the Echelon wires to the SEAR II unit. Connect the other end of the power wires to the power source (battery).

8. After the SDIM module is wired to the battery, the Power LED on the SDIM module comes on.

When you are done, you are ready to connect SDIMFE modules to the SDIM module. See the next section.

3.2 SDIMFE

This section describes mounting the SDIMFE module and connecting it to the SDIM module.

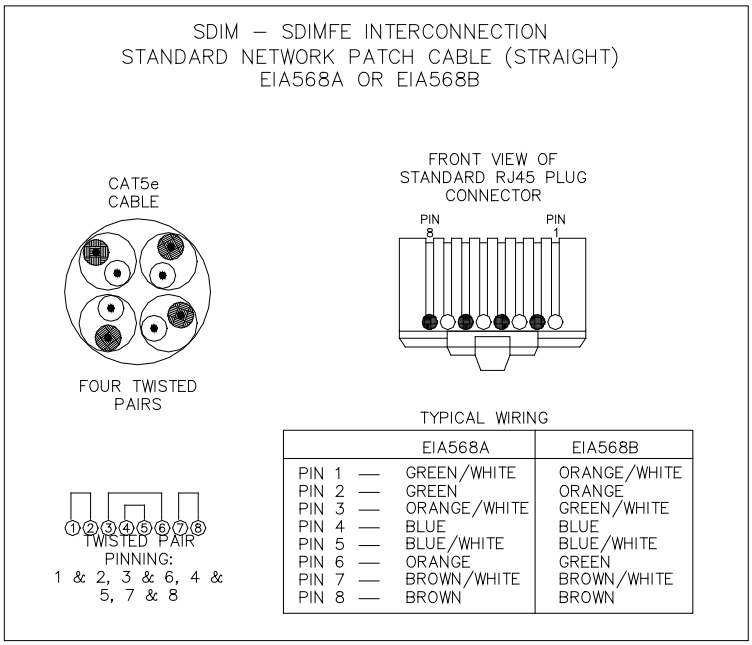
3.2.1 Hardware mounting

Using the mounting tabs on each side of the module, the SDIMFE can be mounted on a standard 19” rack, shelf, wall, or backboard. The mounting holes accept standard #10 mounting screws.

After mounting, the module needs to be connected to the SDIM module.

3.2.2 Connecting to the SDIM

The connection between SDIM and SDIMFE modules uses CAT5e straight patch cables. This is the same type of cabling used to connect computers to an Ethernet network. These cables are easily obtained in several off-the-shelf lengths or you can make them in custom lengths if you have crimping tools and modular connectors. The graphic on the right shows the specifications for the CAT5e cable.



Use the steps below to connect an SDIMFE module to the SDIM module.

If you are installing an additional SDIMFE module to an existing configuration, the steps are the same.

1. Using CAT5e cable, insert one end of the cable into the RJ45 jack on the left side of the SDIMFE.
2. Insert the other end of the cable into an RJ45 connector on the left side of the SDIM module. You can use any available RJ45 connector. Make a note of the label of the specific connector you use. You need this information when you set up the SEAR II unit. The LED on the SDIMFE lights, indicating power is being supplied from the SDIM module.
3. Repeat the above steps for any other SDIMFE modules you want to install.
4. When you are done connecting the SDIMFE modules, you are ready to set up the SEAR II unit. Refer to the next section.

4.0 CONFIGURING THE SEAR II

After you connect the SDIM module to the SEAR II and connect SDIMFE modules to the SDIM module, you are ready to set up the SEAR II.

You can configure the SEAR II unit using either a laptop computer connected directly to the unit or you can use the display/keypad interface on the front of the SEAR II unit. The following instructions assume you are using a laptop computer. For details on using the interface on the front of the SEAR II unit or on connecting a laptop computer to the SEAR II unit, refer to the SEAR II instruction manual.

Use the instructions below to configure the SDIM.

1. Using HyperTerminal or other terminal emulation software, log in to the SEAR II unit.
2. After you are logged in, do the following:
   - Select the Configuration option and press Enter.
   - Select the Module option and press Enter.
   - Select the Add Module option and press Enter.
3. Using the arrow keys, scroll through the options until SDIM appears. Press Enter.
4. Type a name for the module and press Enter.
5. At the Edit Settings prompt, select N.
6. At the prompt, push the ECH/SVC button on the right side of the SDIM module. The SDIM module and the SEAR II unit are now communicating.
7. Now you can edit the settings for the SDIM or exit the software. If you want to edit the settings, see the next section.

4.1 EDITING THE SDIM SETTINGS

You do not have to edit the settings for the SDIM. Customizing the settings lets you set items like sample periods, enabled groups, and tag names.

To customize the settings, follow the instructions in the SEAR II manual, using the table below as a guide to the SDIM options.

Table 5. SDIM Menu Options

Menu option	Setting	Description
Edit Settings	Sample Period	This setting applies to all inputs on the SDIM and the SDIMFE modules. It is set in milliseconds and cannot be set to a value less than 100 or greater than 9999. **Default is 100.**
	Enabled groups	The inputs for an SDIM and the SDIMFE modules are categorized in groups. All the inputs on the SDIM are referred to as the Local group. The inputs for each of the SDIMFE modules are referred to as Front End 1 through Front End 4. Any combination of groups can be enabled or disabled. The shorthand designators for the groups are LCL, and FE1-FE4. **Defaults are: LCL ENABLED and FE1-FE4 DISABLED.**

Menu option	Setting	Description
Edit Timers	Off De-bounce	This setting determines the amount of time an input must be OFF before it is declared off. Each group of inputs has its own setting. It is set in milliseconds and can be any value between 100 and 9999. **Default is 200.**
	On De-bounce	This setting determines the amount of time an input must be ON before it is declared on. Each group of inputs has its own setting. It is set in milliseconds and can be any value between 100 and 9999. **Default is 200.**
	Toggle Period	This setting determines a window of time that if the input changes state 4 or more times within that period, it is declared toggling. Each group of inputs has its own setting. It is set in milliseconds and can be any value between 100 and 9999. **Default is 1000.**
Edit Inputs	Tag name	Every input has a user-definable tag name of up to 10 characters. This name is used when logging the change in state of the input in the SEAR II event log. **Defaults are: LCL INPxx and FE1-FE4 INPxx.**
	Off state name	Every input has a user-definable OFF state name of up to 7 characters. This name is used when logging the change in state of the input in the SEAR II event log. **Default is OFF.**
	On state name	Every input has a user-definable ON state name of up to 7 characters. This name is used when logging the change in state of the input in the SEAR II event log. **Default is ON.**

4.2 MONITORING USING HYPERTERMINAL

You can monitor the SDIM using HyperTerminal or other terminal emulation software. Monitoring allows you to view the following:

Table 6. Status Monitoring Options with HyperTerminal

Comm Status	The state of the communication with the SDIM module. If the comm status is bad, no input state data is arriving from the SDIM module and the state of the inputs remain at the last logged value or are shown with a question mark. The state of an input displayed on the monitor screen is only updated when there is a change of state for that input.
Input States	The states of the inputs for a group are shown. Use the right and left arrow keys to go to other groups of inputs.

4.3 MONITORING USING THE SEAR II LOCAL INTERFACE

You can monitor the SDIM module using the SEAR II local interface.

The local monitor for the SDIM has two different types of view: all inputs or single input. If the comm. status is bad, you cannot view the state of any inputs.

Viewing in all inputs mode	The state of the inputs are shown as ON=1, OFF=0, TOGGLING=T.
Viewing a single input	The tag name and state name for the current state of the input are shown.

In both modes, the right and left arrow keys show the next or previous inputs. The up and down arrow keys move to the next or previous group.

5.0 SPECIFICATIONS

This section describes the specifications for the SDIM system. Both modules are described.

5.1 SDIM GENERAL

The SDIM module includes:

- 4 RJ-45 female connectors to interface with the SDIMFE using individual CAT5e cables. Each connector is labeled J2 through J6.
- 24 digital inputs on the front panel that use pluggable connectors with 0.3” pin spacing. Each digital input is isolated from all other inputs, the power supply, and the CAT5e cables.
- 1 LED for each RJ45 connector to indicate SDIMFE selection.
- 1 LED to indicate the state of each digital input. There are 24 LEDs for local inputs and 24 LEDs for each of up to 4 SDIMFE modules, for a total of 120 LEDs.

5.1.1 Power Requirements

Input Range: 9-30VDC

Isolation: 2000VRMS, 60Hz, 60Sec

5.1.2 Digital Inputs

Input Range:

- 0-36VDC
- Energized if voltage is greater than 4VDC
- De-energized if voltage is less than 1VDC
- Isolation: 2000VRMS, 60Hz, 60Sec

5.1.3 Environmental Requirements

Temperature -40 °F to +160 °F (-40 °C to +71 °C)

Humidity 95%, non-condensing

5.1.4 Dimensions

H x W x D: H. 7.0", W. 18.25" (include mounting tabs), D. 3"

Weight: 3.35 lbs

5.2 SDIMFE GENERAL

The SDIMFE module:

- Has an RJ-45 female connector to accept CAT5e cable.
- Has 24 digital inputs on the front panel.
- Uses pluggable connectors with 0.3" pin spacing. Each digital input is isolated from all other inputs and the CAT5e cable.
- Has two LEDs on the front panel to indicate power and serial clock.

5.2.1 Power Requirements

The SDIMFE is powered through the CAT5e cables from the SDIM module.

5.2.2 Digital Inputs

Input Range:

- 0-36VDC
- Energized if voltage is greater than 4VDC
- De-energized if voltage is less than 1VDC
- Isolation: 2000VRMS, 60Hz, 60Sec

5.2.3 Environmental Requirements

Temperature	-40 °F to +160 °F (-40 °C to +71 °C)
Humidity	95%, non-condensing

5.2.4 Dimensions

H x W x D:	H. 1.75”, W. 18.25” (include mounting tabs), D. 3”
Weight:	3.55 lbs

5.3 ECHELON® LONTALK™ INTERFACE

Data Transfer Rate	1.25 Mbps
Transmission Medium	Level 4 (NEMA) twisted pair cable, shielded or unshielded, solid or stranded, such as Belden 88442002
Topology	Bus (direct daisy-chain)
Number of Nodes	No more than 8 (including any terminations used) in any 16-meter (53 feet) length of transmission cable, 16 maximum total per network segment
Termination	Normally not needed
Network Length	53 feet (16m) recommended maximum, 426 feet (130m) absolute maximum per network segment (with certain restrictions)

⚠ CAUTION

CAUTION

DUE TO THE NATURE OF THE ECHELON LAN INTERFACE, ALL DEVICES CONNECTED TO THE LAN SHOULD BE CONTAINED ENTIRELY WITHIN THE SAME SIGNAL CASE OR BUNGALOW.

6.0 MAINTENANCE

The SDIM module and the SDIMFE modules are maintenance free.

7.0 TROUBLESHOOTING

Problem	Solution
The Power light on the SDIM is off	Check the power supply wiring. The LED may be burned out.
The Health LED on the SDIM is off	SDIM detected an internal system failure. The LED may be burned out.
The SDIMFE module PWR light is off	The CAT5 cable from the SDIMFE to the SDIM provides power to the unit. Check to make sure the cable is connected and plugged in correctly. The LED may be burned out.
SDIMFE CLK light is off	The system timing clock for SDIMFE data transfer may have failed. The LED may be burned out.

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