

## Installation Instructions

### Models HTRI-S / HTRI-D / HTRI-R

Addressable Switch Interface Modules

#### INTRODUCTION

The HTRI Series Addressable Modules from Siemens Industry, Inc., shown in Figure 1, interface direct shorting devices to the DLC loop circuit of the FireFinder-XLS or FS-250 System.

The HTRI modules are available in three models. The HTRI-S and HTRI-R can monitor a normally open or closed dry contact. The HTRI-S can only monitor and report the status of the contact, while the HTRI-R incorporates an addressable Form C relay. The HTRI-D is a dual input module that supervises and monitors two sets of dry contacts.

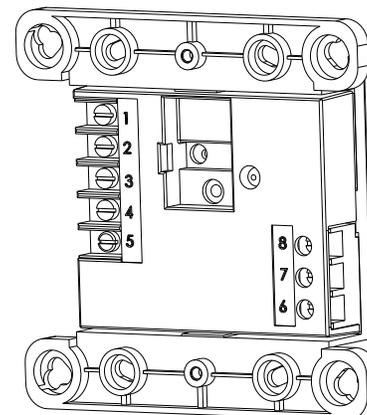


Figure 1  
HTRI Module

#### PROGRAMMING INSTRUCTIONS

Refer to Figure 2 to locate the opening on the HTRI cover that allows access to the programming holes which are on the HTRI printed circuit board.

To connect the HTRI to the DPU Programmer/Tester, insert the plug from the DPU cable provided with the Programmer/Tester into the opening on the front of the HTRI. Be sure to insert the locating tab on the plug into the slot for the locating tab on the HTRI as shown in Figure 2.

To prevent potential damage to the DPU **DO NOT** connect an HTRI to the DPU until at least one wire is removed from terminals 1 or 2 of the HTRI.

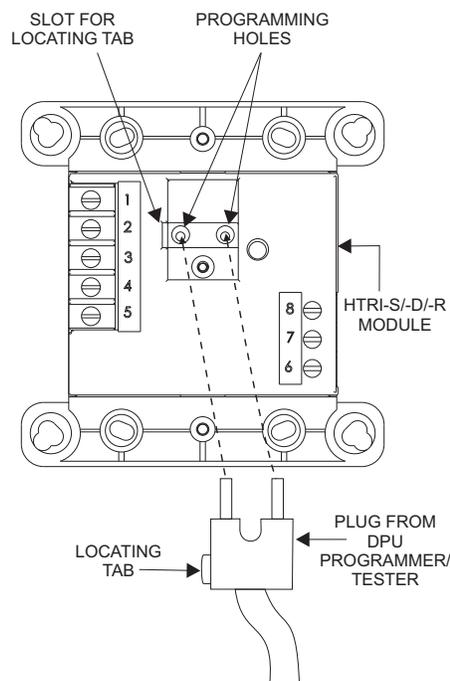
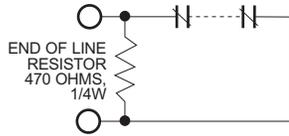


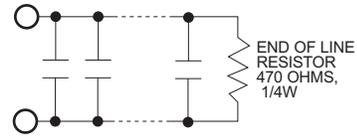
Figure 2  
Connecting The DPU Plug

(Refer to Figure 3.) Follow the instructions in the DPU Manual (P/N 315-033260) to program the HTRI to the desired address. Record the device address on the label located on the HTRI front panel. The HTRI can now be installed and wired to the system.

NORMALLY CLOSED PROGRAMMABLE SWITCHES  
(SEE NOTE 4)



NORMALLY OPEN PROGRAMMABLE SWITCHES  
(SEE NOTES 2, 3 AND 5)



NOTES:

1. There can be any number of normally closed or normally open switches.
2. The end of line resistor must be located at the last switch.
3. Do not wire a normally closed switch across the end of line resistor.
4. Only for use with security and status applications.
5. Do not use N.O. switches for security applications.

Figure 3  
Wiring Switches

WIRING

(Refer to Figures 4 -9 ) Refer to the appropriate wiring diagram below and wire the addressable interface module accordingly.



**Recommended wire size: 18 AWG minimum  
14 AWG maximum  
Wire larger than 14 AWG can damage the connector.**

Power Limited Wiring

In compliance with NEC Article 760, all power limited fire protective signaling conductors must be separated a minimum of 1/4 inch from all of the following items located within an outlet box:

- electric light
- power
- Class 1 or non-power limited fire protective signaling conductors

To meet the above requirements, the following guidelines **must be observed** when installing this interface module.



**If power limited wiring is not used within this outlet box, then these guidelines do not apply. In that case, be sure to follow standard wiring practices.**

HTRI-R Control Module Barrier

The HTRI-R Control Module Barrier must be used when the HTRI-R relay contacts are connected to non-power limited lines. Break apart the barrier to the correct size and shape shown in Figure 4 for either the 4-inch square or double gang box. Install the barrier diagonally into the backbox to create two separate compartments within the backbox to separate the wires, as shown in Figure 4.

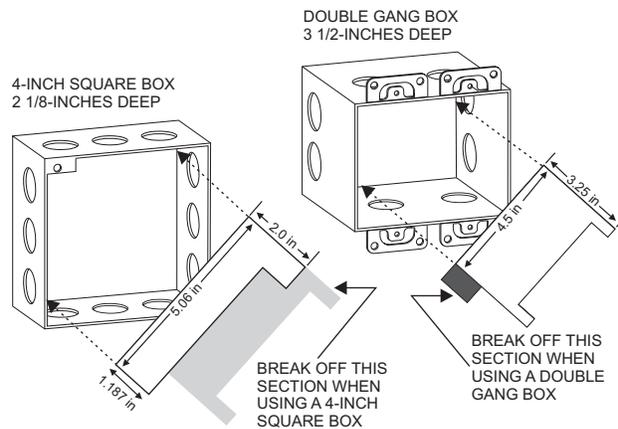


Figure 4  
Installing the HTRI-R Control Module Barrier

Wiring Entering Outlet Box

All power limited wiring must enter the outlet box separately from the electric light, power, Class 1, or non-powered limited fire protection signaling conductors. For the TRI-R, wiring to terminal block positions 1, 2, 3, 4, and 5 must enter the outlet box separately from terminals 6, 7, and 8.



Minimize the length of wire entering the outlet box.

WIRING AT THE TERMINAL BLOCKS

Power Limited Wiring

(Refer to Figure 5) Wiring to positions 1, 2, 3, 4, and 5 is power limited.

Non-Power Limited Wiring

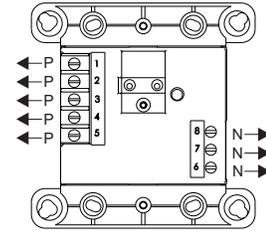
Wiring to positions 6, 7, and 8 is considered non-power limited.



Ground shield ONLY at the specified location on the Control Panel.

EOL device must be a 470 ohm, 1/4 W resistor. When replacing an existing HTRI on a device loop, you must also replace the EOL resistor if it is not 470 ohms, 1/4W.

WIRES CONNECTED TO TERMINALS 1 THROUGH 5 TO ENTER/EXIT ELECTRICAL BOX OPPOSITE SIDE FROM WIRES CONNECTED TO TERMINALS 6 THROUGH 8.



P = POWER LIMITED  
N = NON-POWER LIMITED

Figure 5  
HTRI-R Power Limited Wiring

NOTES:

- All supervised switches must be held closed and/or open for at least a quarter of a second to guarantee detection.
- End of line device: 470 ohm, 1/4W resistor, P/N 140-820164. For Canadian applications, use Model EL33 with 470 ohm, 1/4W resistor.
- HTRI is polarity insensitive. Line 1 and Line 2 can be either line of the loop.
- Electrical ratings:  
Voltage maximum: 30 VDC  
Current maximum:  
1.3mA during polling
- Supervised switch ratings:  
Voltage maximum: 27 VDC  
Current maximum: 6mA during polling  
Contact resistance maximum: 10 ohms  
Maximum cable length: 200 feet (18 AWG)  
C<sub>Line to line</sub>: 0.02uF  
C<sub>Line to shield</sub>: 0.04uF  
Max line size: 14 AWG  
Min line size: 18 AWG
- Relay contact ratings:  
4A, 125 VAC resistive  
4A, 30 VDC resistive  
Inductive:  
4.0A, 250 VAC (0.4 PF.)  
3.5A, 120 VAC (0.6 PF.)  
3.0A, 30 VDC (0.6 PF.)  
2.0A, 120 VAC (0.4 PF.)  
2.0A, 120 VAC (0.35 PF.)  
2.0A, 30 VDC (0.35 PF.)  
The relay is shown in standby condition.

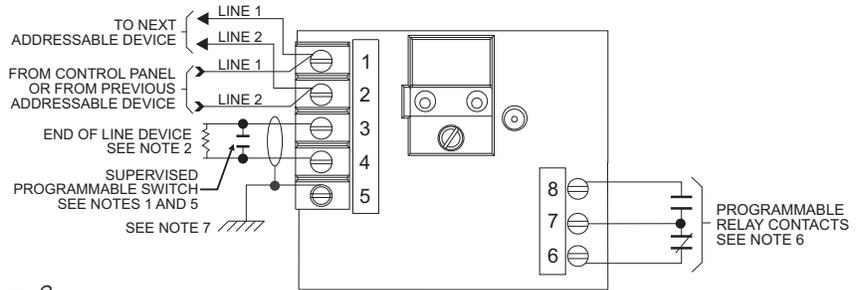


Figure 6  
HTRI-R Wiring

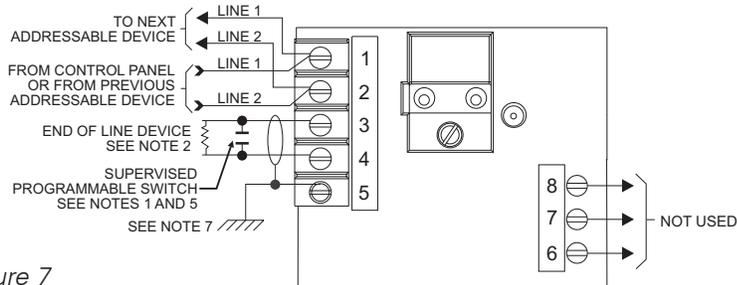


Figure 7  
HTRI-S Wiring

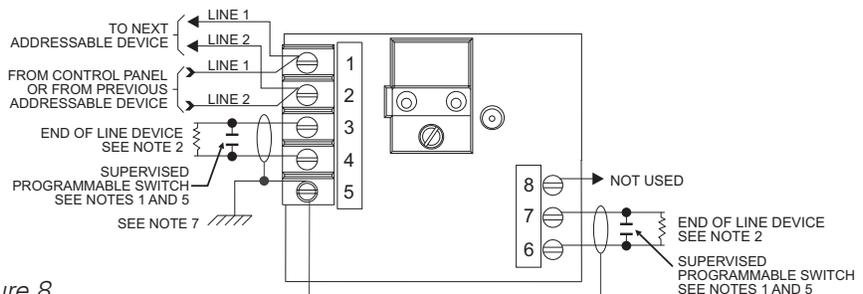


Figure 8  
HTRI-D Wiring

(Cont'd From Previous Page):

7. Terminal 5 must be connected to earth ground.
- a. Use wire nuts to pass the shield wire through the electrical box with **NO** connection to the device terminal block or to local ground.
- b. Use shielded wire to connect the switch wiring.
- c. Tie the switch wiring shield to terminal 5 or the local earth ground.
8. For proprietary burglary application (Refer to Figure 9):
  - a. Use an HTSW-1 tamper switch to monitor the main enclosure.
  - b. Monitor each HTRI-S/-R/-D related to this application continuously by using a listed motion detector (to prevent tampering).
9. In supervisory:
  - HTRI-S/-R draws 1.3mA
  - HTRI-D draws 1.3mA
10. Positive and negative ground fault detected at <25K ohms for terminals 3 and 4.

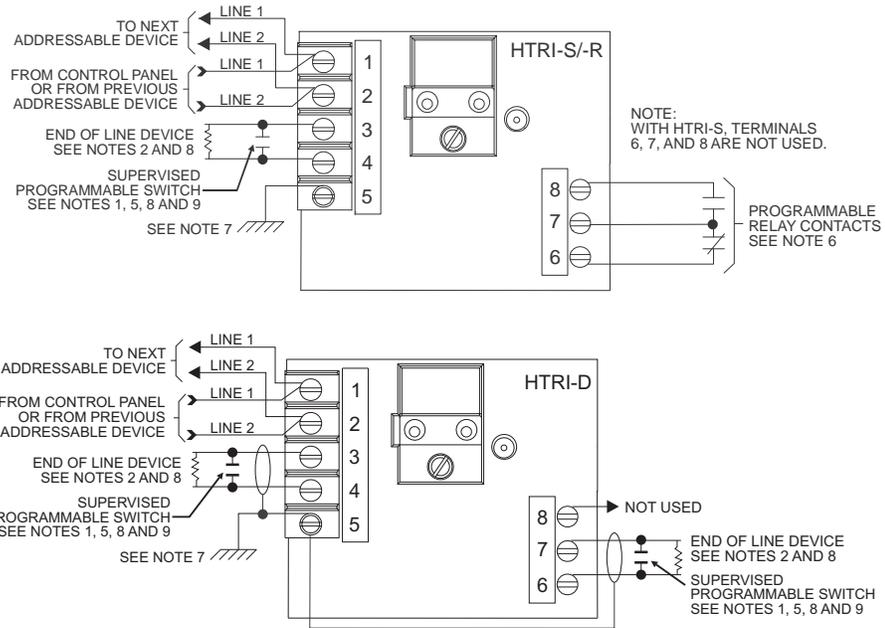


Figure 9  
Security Point (1076) Wiring Connections



Terminal 5 of the HTRI-S/-D/-R must be connected to a known good earth ground for proper operation.

## MOUNTING

Addressable Interface Models HTRI-S, HTRI-D, and HTRI-R mount directly into a (user supplied) double gang or 4 inch switchbox. Fasten the module to the switchbox with the switchplate using the 2 screws provided.

A red LED will blink to indicate an off-normal input switch position and/or an internal relay transfer.



Be sure to program the HTRI before fastening the switchplate to the unit.

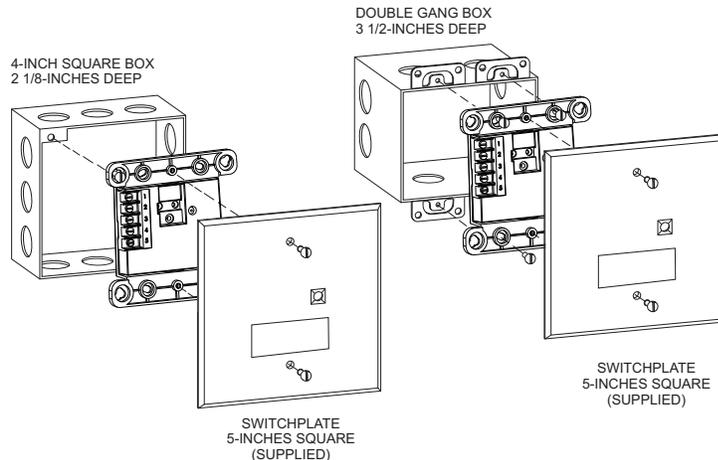


Figure 10  
Mounting the HTRI-S/-R/-D

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ELECTRICAL RATINGS

DLC / FS-DLC Loop	
Max. Current	1.3mA

## **Cyber security disclaimer**

Siemens products and solutions provide security functions to ensure the secure operation of building comfort, fire safety, security management and physical security systems. The security functions on these products and solutions are important components of a comprehensive security concept.

It is, however, necessary to implement and maintain a comprehensive, state-of-the-art security concept that is customized to individual security needs. Such a security concept may result in additional site-specific preventive action to ensure that the building comfort, fire safety, security management or physical security system for your site are operated in a secure manner. These measures may include, but are not limited to, separating networks, physically protecting system components, user awareness programs, defense in depth, etc.

For additional information on building technology security and our offerings, contact your Siemens sales or project department. We strongly recommend customers to follow our security advisories, which provide information on the latest security threats, patches and other mitigation measures.

<http://www.siemens.com/cert/en/cert-security-advisories.htm>

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Siemens Industry, Inc.  
Building Technologies Division  
Florham Park, NJ

Siemens Canada, Ltd.  
1577 North Service Road East  
Oakville, Ontario  
L6H 0H6 Canada

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