



Connecting Cisco ONS 15454 AIC-I Alarm Cables

This document contains information about connecting the cables for the external alarm contacts provided by the AIC-I card. Use this document in conjunction with the *Cisco ONS 15454 Procedure Guide* and the *Cisco ONS 15454 Reference Guide*.

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Alarm Interface Controller-International Card

The optional Alarm Interface Controller-International (AIC-I) card provides customer-defined alarm input/output (I/O) and supports user data and local and express orderwire. It provides 12 customer defined input and 4 customer defined input/output contacts. The physical connections are via the backplane wire-wrap pin terminals. A power monitoring function monitors the supply voltage (-48VDC) for the ANSI platform.

User-Defined Alarms

The AIC-I card provides input/output alarm contact closures. You can define up to twelve external alarm inputs and four external alarm inputs/outputs (user configurable). The physical connections are made using the backplane wire-wrap pins. The alarms are defined using CTC and TL1. For instructions, refer to the *Cisco ONS 15454 Procedure Guide*.

LEDs on the front panel of the AIC-I indicate the status of the alarm lines, one LED representing all the inputs and one LED representing all the outputs. External alarms (input contacts) are typically used for external sensors such as open doors, temperature sensors, flood sensors, and other environmental conditions. External controls (output contacts) are typically used to drive visual or audible devices such as bells and lights, but they can control other devices such as generators, heaters, and fans.



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You can program each of the twelve input alarm contacts separately. Choices include Alarm on Closure or Alarm on Open, an alarm severity of any level (Critical, Major, Minor, Not Alarmed, Not Reported), a Service Affecting or Non-Service Affecting alarm-service level, and a 63-character alarm description for CTC display in the alarm log. You cannot assign the fan-tray abbreviation for the alarm; the abbreviation reflects the generic name of the input contacts. The alarm condition remains raised until the external input stops driving the contact or you provision the alarm input.

The output contacts can be provisioned to close on a trigger or to close manually. The trigger can be a local alarm severity threshold, a remote alarm severity, or a virtual wire:

- Local NE alarm severity: A hierarchy of non-reported, non-alarmed, minor, major or critical alarm severities that you set to cause output closure. For example, if the trigger is set to minor, a minor alarm or above is the trigger.
- Remote NE alarm severity: Same as the Local NE alarm severity but applies to remote alarms only.
- Virtual wire entities: You can provision any environmental alarm input to raise a signal on any virtual wire on external outputs 1 through 4 when the alarm input is an event. You can provision a signal on any virtual wire as a trigger for an external control output.

You can also program the output alarm contacts (external controls) separately. In addition to provisionable triggers, you can manually force each external output contact to open or close. Manual operation takes precedence over any provisioned triggers that might be present.


Note

The number of inputs and outputs can be increased using the Alarm Expansion Panel AEP. If an AEP is used, the direct AIC-I alarm contacts as described in this paper cannot be used. In this case, you can only use the alarm contacts available from the AEP.

Alarm Contact Specifications

- Alarm inputs
 - Number of inputs: 12
 - Opto-coupler isolated
 - Label customer provisionable
 - Severity customer provisionable
 - Common 32V output for all alarm-inputs
 - Each input limited to 2mA
 - Termination: wire-wrap on backplane
- Alarm outputs
 - Number of outputs: 4 (user configurable as inputs)
 - Switched by opto-MOS (metal oxide semiconductor)
 - Triggered by definable alarm condition
 - Maximum allowed open circuit voltage: 60 VDC
 - Maximum allowed closed circuit current: 100mA
 - Termination: wire-wrap on backplane

Install Alarm Wires on the Backplane

Purpose	This task installs alarm wires on the backplane so that you can provision external (environmental) alarms and controls with the AIC or AIC-I card.
Tools/Equipment	• Wire wrapper • #22 or #24 AWG wires
Prerequisite Procedures	Remove backplane covers, see the <i>Cisco ONS 15454 Procedure Guide</i>
Required/As Needed	Required to create external alarms and controls without the AEP
Onsite/Remote	Onsite


Note

If you are using the AEP, do not perform this task.


Caution

Always use the supplied electrostatic discharge (ESD) wristband when working with an ONS 15454. Plug the wristband cable into the ESD jack located on the lower right outside edge of the shelf assembly and ensure the shelf assembly is properly grounded.


Caution

Hazardous voltage or energy may be present on the backplane when the system is operating. Use caution when servicing.

Step 1 Use #22 or #24 AWG wires.

Step 2 Wrap the alarm wires on the appropriate wire-wrap pins according to local site practice. [Figure 1 on page 4](#) shows alarm pin assignments.

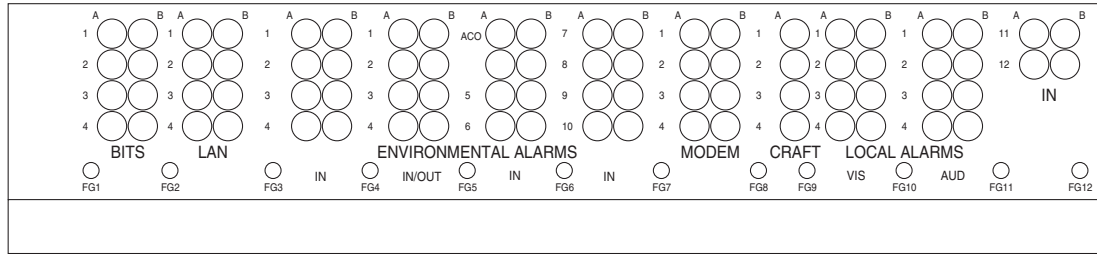

Note

For information about attaching ferrites to wire-wrap pin fields, see the *Cisco ONS 15454 Procedure Guide*.


Note

The AIC-I requires a shelf assembly running Software Release 3.4.0 or later. The backplane of the ANSI shelf contains a wire-wrap field with pin assignment according to the layout in [Figure 1 on page 4](#). The shelf assembly may be an existing shelf that has been upgraded to 3.4. In this case the backplane pin labeling will appear as indicated in [Figure 2 on page 5](#). But you must use the pin assignments provided by the AIC-I as shown in [Figure 1 on page 4](#).

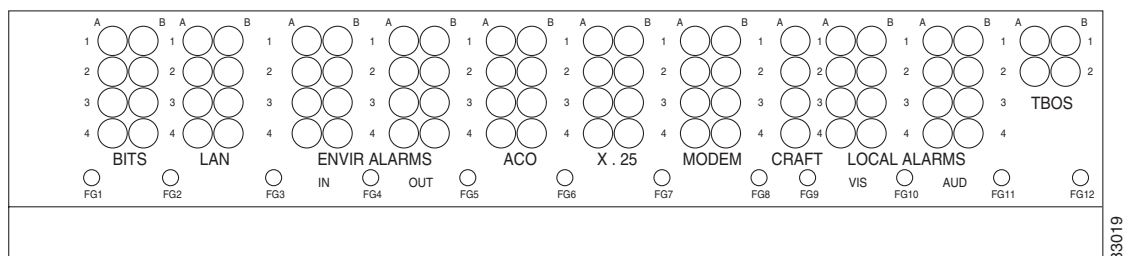
Figure 1 Wire-Wrap Pin Layout in an R3.4 and Higher ANSI shelf assembly



Field	Pin	Function	Field	Pin	Function	
BITS	A1	BITS Output 2 negative (–)	ENVIR ALARMS IN/OUT	A1/A13	Normally open output pair number 1	
	B1	BITS Output 2 positive (+)		B1/B13		
	A2	BITS Input 2 negative (–)		A2/A14	Normally open output pair number 2	
	B2	BITS Input 2 positive (+)		B2/B14		
	A3	BITS Output 1 negative (–)	N/O	A3/A15	Normally open output pair number 3	
	B3	BITS Output 1 positive (+)		B3/B15		
	A4	BITS Input 1 negative (–)		A4/A16	Normally open output pair number 4	
	B4	BITS Input 1 positive (+)		B4/B16		
LAN	Connecting to a hub, or switch		ACO	A1	Normally open ACO pair	
	A1	RJ-45 pin 6 RX–		B1		
	B1	RJ-45 pin 3 RX+	CRAFT	A1	Receive (PC pin #2)	
	A2	RJ-45 pin 2 TX–		A2	Transmit (PC pin #3)	
	B2	RJ-45 pin 1 TX+		A3	Ground (PC pin #5)	
				A4	DTR (PC pin #4)	
	Connecting to a PC/Workstation or router		LOCAL ALARMS AUD (Audible)	A1	Alarm output pair number 1: Remote audible alarm.	
	A1	RJ-45 pin 2 RX–		B1		
	B1	RJ-45 pin 1 RX+		A2	Alarm output pair number 2: Critical audible alarm.	
	A2	RJ-45 pin 6 TX–		B2		
	ENVIR ALARMS IN	B2	RJ-45 pin 3 TX+	N/O	A3	Alarm output pair number 3: Major audible alarm.
					B3	
A4		Alarm output pair number 4: Minor audible alarm.				
B4						
A1		Alarm input pair number 1: Reports closure on connected wires.	LOCAL ALARMS VIS (Visual)	A1	Alarm output pair number 1: Remote visual alarm.	
B1				B1		
A2		Alarm input pair number 2: Reports closure on connected wires.		A2	Alarm output pair number 2: Critical visual alarm.	
B2				B2		
A3		Alarm input pair number 3: Reports closure on connected wires.	N/O	A3	Alarm output pair number 3: Major visual alarm.	
B3				B3		
A4		Alarm input pair number 4: Reports closure on connected wires.		A4	Alarm output pair number 4: Minor visual alarm.	
B4				B4		
A5		Alarm input pair number 5: Reports closure on connected wires.				
B5						
A6		Alarm input pair number 6: Reports closure on connected wires.				
B6						
A7		Alarm input pair number 7: Reports closure on connected wires.				
B7						
A8		Alarm input pair number 8: Reports closure on connected wires.				
B8						
A9		Alarm input pair number 9: Reports closure on connected wires.				
B9						
A10		Alarm input pair number 10: Reports closure on connected wires.				
B10						
A11	Alarm input pair number 11: Reports closure on connected wires.					
B11						
A12	Alarm input pair number 12: Reports closure on connected wires.					
B12						

If you are using an AIC-I card, contacts provisioned as OUT are 1-4. Contacts provisioned as IN are 13-16.

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Figure 2 Wire-Wrap Pin Layout in an ANSI Shelf Assembly Earlier than R3.4

Related Documentation

- *Cisco ONS 15454 Reference Manual*
- *Cisco ONS 15454 Procedure Guide*
- *Cisco ONS 15454 Troubleshooting Guide*

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

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