# Alarms for the Cisco ISA 3000

This chapter gives an overview of the alarm system in the ISA 3000, and also describes how to configure and monitor alarms.


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## About Alarms

You can configure the ISA 3000 to issue alarms for a variety of conditions. If any conditions do not match the configured settings, the system triggers an alarm, which is reported by way of LEDs, syslog messages, SNMP traps, and through external devices connected to the alarm output interface. By default, triggered alarms issue syslog messages only.

You can configure the alarm system to monitor the following:

- Power supply.
- Primary and secondary temperature sensors.
- Alarm input interfaces.

The ISA 3000 has internal sensors plus two alarm input interfaces and one alarm output interface. You can connect external sensors, such as door sensors, to the alarm inputs. You can connect external alarm devices, such as buzzers or lights, to the alarm output interface.

The alarm output interface is a relay mechanism. Depending on the alarm conditions, the relay is either energized or de-energized. When it is energized, any device connected to the interface is activated. A de-energized relay results in the inactive state of any connected devices. The relay remains in an energized state as long as alarms are triggered.

For information about connecting external sensors and the alarm relay, see Cisco ISA 3000 Industrial Security Appliance Hardware Installation Guide.

# Alarm Input Interfaces

You can connect the alarm input interfaces (or contacts) to external sensors, such as one that detects if a door is open.

Each alarm input interface has a corresponding LED. These LEDs convey the alarm status of each alarm input. You can configure the trigger and severity for each alarm input. In addition to the LED, you can configure the contact to trigger the output relay (to activate an external alarm), to send syslog messages, and to send SNMP traps.

The following table explains the statuses of the LEDs in response to alarm conditions for the alarm inputs. It also explains the behavior for the output relay, syslog messages, and SNMP traps, if you enable these responses to the alarm input.

| Alarm Status | LED | Output Relay | Syslog | SNMP Trap |
|---|---|---|---|---|
| Alarm not configured | Off | — | — | — |
| No alarms triggered | Solid green | — | — | — |
| Alarm activated | Minor alarm—solid red<br>Major alarm—flashing red | Relay energized | Syslog generated | SNMP trap sent |
| Alarm end | Solid green | Relay de-energized | Syslog generated | — |

# Alarm Output Interface

You can connect an external alarm, such as a buzzer or light, to the alarm output interface.

The alarm output interface functions as a relay and also has a corresponding LED, which conveys the alarm status of an external sensor connected to the input interface, and internal sensors such as the dual power supply and temperature sensors. You configure which alarms should activate the output relay, if any.

The following table explains the statuses of the LEDs and output relay in response to alarm conditions. It also explains the behavior for syslog messages, and SNMP traps, if you enable these responses to the alarm.

| Alarm Status | LED | Output Relay | Syslog | SNMP Trap |
|---|---|---|---|---|
| Alarm not configured | Off | — | — | — |
| No alarms triggered | Solid green | — | — | — |
| Alarm activated | Solid red | Relay energized | Syslog generated | SNMP trap sent |
| Alarm end | Solid green | Relay de-energized | Syslog generated | — |

# Defaults for Alarms

The following table specifies the defaults for alarm input interfaces (contacts), redundant power supply, and temperature.

| | Alarm | Trigger | Severity | SNMP Trap | Output Relay | Syslog Message |
|---|---|---|---|---|---|---|
| Alarm Contact 1 | Enabled | Closed State | Minor | Disabled | Disabled | Enabled |
| Alarm Contact 2 | Enabled | Closed State | Minor | Disabled | Disabled | Enabled |
| Redundant Power Supply (when enabled) | Enabled | — | — | Disabled | Disabled | Enabled |
| Temperature | Enabled for the primary temperature alarm (default values of 92°C and -40°C for the high and low thresholds respectively)<br>Disabled for the secondary alarm. | — | — | Enabled for primary temperature alarm | Enabled for primary temperature alarm | Enabled for primary temperature alarm |

# Configure Alarms

To configure alarms for the ISA 3000, perform the following steps.

**Procedure**

**Step 1** Configure alarms, monitoring, and logging in the required alarm contact pane.

a) Choose **Configuration** > **Device Management** > **Alarm Port** > **Alarm Contact**.
b) Click the **major** or **minor** radio button to specify the severity. Click **none** to disable the alarm for severity.
c) Click the **open** or **close** radio button to specify the trigger.

The default is close. Specifying open will trigger an alarm when a contact which is normally closed, is open, or when current stops flowing. Specifying closed will trigger an alarm when the contact which is normally open, is closed, or when current starts flowing.

For example, if a door sensor is connected to an alarm input, its normally open state has no electrical current flowing through the contacts. If the door is opened, electrical current flows through the contacts activating the alarm.

d) (Optional) Enter the description in the **description** field. The description may be up to 80 alphanumeric characters long, and will be included in syslog messages.
e) Check the **Enable relay** check box.
f) Check the **Enable system logger** check box to enable syslogs.
g) Check the **Enable notification sent to server** check box to enable SNMP traps.
h) Click **Apply**.

**Step 2** Configure the alarm, monitoring, and logging for redundant power supply.

The redundant power supply has to be enabled for the power supply alarms to work.

To enable the redundant power supply, choose **Configuration** > **Device Management** > **Power Supply**. Check the **Enable Redundant Power Supply** check box, and click **Apply**.

a) Choose **Configuration** > **Device Management** > **Alarm Port**.
b) Click the **Redundant Power Supply** tab.
c) Check the **Enable notification sent to server** check box to enable SNMP traps.
d) Check the **Enable relay** check box.
e) Check the **Enable system logger** check box to enable syslogs.
f) Click **Apply**.

**Step 3** Configure the alarms, monitoring and logging, for temperature.

a) Choose **Configuration** > **Device Management** > **Alarm Port**.
b) Click the **Temperature** tab.
c) Check the **Enable notification sent to server** check box to enable SNMP traps.
d) Check the **Enable relay** check box.
e) Check the **Enable system logger** check box to enable syslogs.
f) Enter the high and low thresholds in the **High Threshold** and **Low Threshold** fields in the required alarm pane.

For the primary temperature alarm, valid values range from –40°C to 92°C. For the secondary temperature alarm, valid values range from –35°C to 85°C. If a high temperature threshold is configured for the secondary alarm, only the secondary alarm will be enabled. The primary alarm cannot be disabled. When threshold values are not specified for the primary alarm, it reverts to the default values of 92°C and -40°C for the high and low thresholds respectively.

g) Click **Apply**.

# Monitoring Alarms

See the following panes to monitor alarms

### Procedure

- Choose **Monitoring** > **Properties** > **Alarm** > **Alarm Settings**.

  This pane displays all global alarm settings.

- Choose **Monitoring** > **Properties** > **Alarm** > **Alarm Contact**.

  This pane displays all external alarm settings.

- Choose **Monitoring** > **Properties** > **Alarm** > **Facility Alarm Status**.

  This pane displays all alarms based on severity specified and displays the following information:

| Column | Description |
|---|---|
| Source | Device from which the alarm was triggered. This is usually the hostname configured on the device. |
| Severity | Major or minor |
| Description | Type of alarm triggered. For example, temperature, external contact, redundant power supply etc. |
| Relay | Energized or de-energized |
| Time | Timestamp of the triggered alarm |

# History for Alarms

| Feature Name | Platform Releases | Description |
|---|---|---|
| Alarm ports support for the ISA 3000 | 9.7(1) | The ISA 3000 now supports two alarm input pins and one alarm out pin, with LEDs to convey alarms' statuses. External sensors can be connected to the alarm inputs. An external hardware relay can be connected to the alarm out pin. You can configure descriptions of external alarms. You can also specify the severity and trigger, for external and internal alarms. All alarms can be configured for relay, monitoring and logging.<br><br>We introduced the following commands: **alarm contact description, alarm contact severity, alarm contact trigger, alarm facility input-alarm, alarm facility power-supply rps, alarm facility temperature, alarm facility temperature high, alarm facility temperature low, clear configure alarm, clear facility-alarm output, show alarm settings, show environment alarm-contact**.<br><br>We introduced the following screens:<br><br>**Configuration** > **Device Management** > **Alarm Port** > **Alarm Contact**<br><br>**Configuration** > **Device Management** > **Alarm Port** > **Redundant Power Supply**<br><br>**Configuration** > **Device Management** > **Alarm Port** > **Temperature**<br><br>**Monitoring** > **Properties** > **Alarm** > **Alarm Settings**<br><br>**Monitoring** > **Properties** > **Alarm** > **Alarm Contact**<br><br>**Monitoring** > **Properties** > **Alarm** > **Facility Alarm Status** |