



**User's Manual
Installation and Operation Guidelines**

**EventSensor[™]
Models ES1 - ES10, ES-CCU**

Asentria Corporation
1200 North 96th Street
Seattle, Washington, 98103
U.S.A.
Tel: 206.344.8800
Fax: 206.344.2116
www.asentria.com

Event Sensor Installation and Operation Guidelines

Manual Rev. B
for Firmware Version 2.00

Asentria Corporation

1200 North 96th St.
Seattle, WA 98103
U.S.A.
Tel: 206.344.8800
Fax: 206.344.2116
www.asentria.com

© 2007 Asentria Corporation. All rights reserved.

The content of this manual is provided for informational use only, and is subject to change without notice. Examples, data, and names used in this manual are examples and fictitious unless otherwise noted. No part of this document may be reproduced or electronically transmitted without permission from Asentria Corporation.

Asentria, SNMP-Link, SL61, EventSensor, ESBUS, and AlarmManager are trademarks of Asentria Corporation.

Table of Contents

Introduction	1
Definitions and Abbreviations	1
Important Notices	1
EventSensors and Ethernet	1
Hot-swapping	1
Powering the ES	1
What is an EventSensor?	2
The EventSensor Family	2
Comparison of Version 1 and Version 2 ES Modules	3
SNMP Trap Numbers	3
Setup and Configuration	4
Assigning the EventSensor (V1 only)	4
Configuring the EventSensor (V1 and V2)	5
ES-1 thru ES-5.....	5
ES-8	9
ES-9 and ES-10	11
CCU32 and CCU64	13
Warranty Information	14

Introduction

Definitions and Abbreviations

ES - EventSensor™. A satellite input/output module connected to an Asentria host unit via the ES Bus.

ES Bus - The proprietary means used to connect ES modules to each other and the host unit. The ES Bus has the means to deliver power to several types of ES. The ES Bus is an RJ45 connector labeled as such on the back panel of the Asentria host unit, and is installed in pairs on the ES modules themselves so that more than one ES can be daisy chained together.

Host unit - The Asentria product (DL150, SL81, SL61, or SL10) that controls and interprets the data from an ES.

Slot - The configuration space required by each ES within the host unit. Some ES modules require more than one slot. For example, the CCU32 requires two slots, and the CCU64 requires four slots. Slots are either assigned manually via the Setup menu in the host unit (version 1 ES units) or via jumpers on the ES unit (version 2 ES units). Please refer to the section that compares version 1 and version 2 ES units for a further explanation.

Host units also vary in how many slots they have for use by ES modules.

- SL10 and SL12 – 2 slots available
- DL150 – 4 slots available
- SL61 – 4 slots available
- SL81 – 16 slots available

CC - Contact closure. This is a two-terminal sensor that detects whether the connected circuit is closed or open.

Important Notices

EventSensors and Ethernet

EventSensor (ES) modules connect to the host unit (Asentria DL150, SL81, SL61, SL10, or SL12 products) using straight-thru Ethernet cable with RJ45 connectors, the same as standard Ethernet. Connecting a powered Ethernet device (computer, hub, router, etc.) to an ES Bus has the potential to damage that device or the Asentria unit. Most Ethernet devices, including Asentria products, are built with proper isolation and current protection that would prevent damage from the incompatible line voltages on the ES Bus; however, not all Ethernet products are built to this standard. Such damage may void the manufacturer's warranty. For best results, make sure your ES cables are clearly marked at both ends and that Ethernet devices are not cross-connected.

Hot-swapping

Event Sensors are "hot-swappable." It is not necessary to power down the host product before adding any ES modules to the ESBus.

Powering the ES

ES modules have varying power requirements. Their power needs can be broken down into two categories: line-powered and individually-powered. Any device that is individually powered contributes to the power for other line-powered devices on the ES Bus.

Line-powered devices can pull all of the power they need to function off of the ES Bus or they may be individually powered. The rule to providing ample juice for line-powered devices is four "unpowered" ES for every power supply on the line. The host product counts as the first power supply. After that, one out of every five line-powered ES should have a supply.

Individually-powered ES require their own power supply. These devices have higher power needs for things such as relay outputs or numerous sensor inputs. Individually powered ES will provide enough power to the ES Bus to be considered a power supply source for line-powered devices.

See The EventSensor Family for a complete listing of ES types and their power needs

What is an EventSensor™?

The EventSensor Family

Asentria offers a wide range of EventSensor modules to suit many environmental sensing needs. The following list of available EventSensors is subject to change without notice.

Model	Features	Power	Slots
ES1	8 Contact Closures	Line	1
ES2	Temp	Line	1
ES3	8 CC, Temp	Line	1
ES4	Temp, Humidity	Line	1
ES5	8 CC, Temp, Humidity	Line	1
ES8	Voltage Sensor	Line	1
ES9	Relay Output	Individual	1
ES10	Open Collector Output	Line	1
ES-CCU 32	32 CC	Individual	2
ES-CCU 64	64 CC	Individual	4

See [Powering the ES](#) for more information on power. "Slots" indicates the number of configuration slots each ES type requires within the host unit.

Contact Closure

There are many sensors that can be used "off the shelf" with contact closures. Door sensors, thermostats, and alarms of all sorts can be used without modification. With all of the options available, the contact closure sensor is the most versatile sensor offered by Asentria.

Temperature

Monitor valuable equipment for early detection of potential disasters. High temperatures can be a sign of cooling system failure or fire. Low temperatures can indicate flooding or malfunctioning environmental controls.

Humidity

Some applications require a specific humidity ranges. Optical storage units fail in the same high humidity ranges that greenhouses must maintain. A large investment can ride on the amount of moisture in the air. Knowledge of this factor can be key to product security.

Voltage

Many circuits can be monitored for operability via a voltage sensor. There are a wide range of applications to monitor, from RS-232 or backup batteries. These sensors provide the ability to take graduated readings of input voltages and then take action on them.

Relay

Relay output devices provide a host unit the ability to react to an event by opening or closing a relay. These relays can be used to perform actions such as switching on a backup cooling system, triggering an intruder alarm, or simply turning on the coffee pot. Accessories such as relay amplifiers are available to enable switching of high voltage devices.

Contact Asentria for more information on any of the above sensors.

Comparison of Version 1 and Version 2 ES Modules

Version 2 (V2) ES modules are identical to Version 1 (V1) ES modules except they support setting the slot # manually via jumpers rather than auto-aliasing. (Jumpers found on the older V1 sensors cannot be used.) The following chart shows the jumper settings and the corresponding slot #:

x = jumper on o = jumper off

Jumper	Slot	Jumper	Slot	Jumper	Slot	Jumper	Slot
xxxx	= 1	xxox	= 5	xxxo	= 9	xxoo	= 13
oxxx	= 2	oxox	= 6	oxxo	= 10	oxoo	= 14
xoxx	= 3	xoox	= 7	xoxo	= 11	xooo	= 15
ooxx	= 4	ooox	= 8	ooxo	= 12	oooo	= 16

» Note: Jumpers cannot be set for a slot # that is greater than the number of slots available on the host unit.

How to Distinguish V2 from V1 Event Sensors

V2 EventSensors can be visually distinguished from V1 EventSensors by the diagram on top of the sensor case that shows how to set the jumpers for a specific slot.

» Note: Some V2 sensors have been previously sold without this diagram. (If the sensor card is removed from the case, a sticker showing "ESV2.0" can be seen on the PIC chip.)

Host Units

V2 EventSensor modules can be used with any SL61, SL81, SL10 and SL12 SNMP Site Monitoring unit, or DL150 Call Buffer unit, as long as that unit has the optional ES Bus port on the back panel and the firmware version of the host unit is 1.10 or higher (SL61 or SL81) or version 3.10 (SL10 or SL12).

Using v2 Sensors Along With Older v1 Sensors

V2 EventSensors can be used on a host unit that is also using the older V1 Event Sensors, but cannot occupy the same slot occupied by a V1 sensor

Other Data

The CCU32, CCU64 products are also considered part of the "Event Sensor" line of Omnitronix products, but are not affected by this Version 2 change. They should continue to be assigned slots via auto-aliasing as they always have been.

SNMP Trap Numbers

Some network management systems employ a SNMP trap numbering system to help identify incoming traps. The following table outlines the default and available trap numbers available to each sensor type.

Sensor	Default	Alternate Range
Contact Closure	110	1000-1199
Temperature	120	1000-1199
Humidity	130	1000-1199
Analog Input	140	1000-1199
Voltage	150	1000-1199

Setup and Configuration

To connect the ES to the host device, connect the cable between the ES and the host.

- If the ES is V1, the host will automatically detect the ES and will allow for configuration if slots are available. If you are configuring multiple ES modules for the first time, take note of their serial ID and installed location as that is how you will identify them within the host unit.
- If the ES is V2, the host will slot the ES in the slot determined by the jumpers on the ES.

>> Note: The example screens shown in this manual are menus from an SNMP-Link SL81. While they may not be identical to those in the SL61 and DL150, they all contain similar options. The assigning and configuration of ES modules in the SL10 and SL12 products is significantly different than what is shown below, since those two products are usually configured with the SL10 Configuration program – a graphical user interface. Please refer to the user manuals for the SL10 and/or SL12 if you are using either of those products as the host unit.

Assigning the EventSensor (V1 only)

The first step in configuration is to assign the ES slot(s) within the host device. To do so, go to the Settings/Event Definitions/EventSensor Sensor Device Settings menu and select an unassigned slot. A menu containing all of the ES that are available and not yet assigned will be displayed. Select the ES you want. (This example features an ES-5 with temperature, humidity and 8 CC's.)

```
Currently Available and Unassigned Sensors
A) 090212E9 - LOCAL - 1-TS 1-HS 8-CC
B) Assign Unlisted EventSensor
```

The ES will then be assigned to the Sensor Events menu:

```
AlarmsPro SL81 Sensor Events Menu
  Name                ID           Alive    Number    Configuration
A) INTERNAL SENSORS  -----    -        200       1-TS 16-CC
B) 090212E9         090212E9  N        1        1-TS 1-HS 8-CC
C) <none>
D) <none>
. . .
Q) <none>
R) Sensor Unresponsive Settings
```

Configuring the EventSensor (V1 and V2)

Selecting the newly assigned ES displays a menu with options specific to that module:

```
SNMP-Link SL81 External Events Menu
Device Number: 1      Device ID: 090212E9
A) Device Name                []
B) Temperature Sensor
C) Humidity Sensor
D) Contact Closure 1          []
E) Contact Closure 2          []
F) Contact Closure 3          []
G) Contact Closure 4          []
H) Contact Closure 5          []
I) Contact Closure 6          []
J) Contact Closure 7          []
K) Contact Closure 8          []
L) EventSensor Reporting Enabled [OFF]
M) Clear Settings for This EventSensor
```

Above is a representative External Events menu showing an ES-5 EventSensor that features a temperature sensor, humidity sensor, and 8 contact closures. This will be used for the following descriptions of how to set up all three of those types of input found in the ES-1 thru ES-5 modules. Descriptions of [analog voltage](#) (ES-8) and [relays](#) (ES-9 and ES-10) will follow that.

ES-1 thru ES-5

The line below the menu header indicates the **Device Number** and the **Device ID**. The Device Number is the position of this ES in the listing of the previously described Sensor Events menu. Device ID is the serial number of the ES.

[Temperature Sensor](#) displays the menu for configuring temperature sensor settings and associated event actions.

[Humidity Sensor](#) displays the menu for configuring humidity sensor settings and associated event actions.

[Contact Closure *n*](#) displays the menu for configuring each of the contact closure points.

Clear Settings for This EventSensor when selected will immediately clear all of the configured settings for this sensor and remove it from the Sensor Events menu. Return to the Sensor Events menu to assign it a new slot, if desired, and reconfigure it.

Temperature Sensor Setup

```
SNMP-Link SL81 External Temperature Event
Device Number: 1      Device ID: 090212E9      Device Name: Test ES-5
A) Temperature Sensor Enabled [OFF]
B) Sensor Values Represented in [FAHRENHEIT]
C) Temperature Deadband [3]
D) Very High Event Settings [100] [] [120] [Info]
E) High Event Settings [80] [] [120] [Info]
F) Return to Normal Settings [-] [] [120] [Info]
G) Low Event Settings [50] [] [120] [Info]
H) Very Low Event Settings [30] [] [120] [Info]
```

Temperature Sensor Enabled toggles ON/OFF to enable the temperature sensor.

Sensor Values Represented In toggles either FAHRENHEIT or CELSIUS for the desired temperature scale.

Temperature Deadband is the range, in degrees, on either side of a temperature setting that prevents the event from repeatedly going in and out of the "event state" as the actual temperature fluctuates above and below the temperature setting.

[Very High/High/Low/Very Low Event Settings](#) display a menu where the temperature at each level can be configured to alarm along with the action(s) to occur, trap number, and class. In the case of Very High or High levels, the alarm will occur as the temperature rises above the setting. In the case of Low or Very Low, the alarm will occur as the temperature drops below the setting.

[Return to Normal Settings](#) displays a menu where the actions to occur when the temperature returns to normal (drops below the High/Very High settings, or rises above the Low/Very Low settings) can be configured.

Very High/High/Low/Very Low Event Settings Setup

```
Data-Link SL81 - External Temperature Event Settings
Device Number: 1          Device ID: 090212E9      Device Name: Test ES-5
A) Very High Event Temperature           [100]
B) Very High Event Actions                []
C) Very High Event Trap Number           [120]
D) Very High Event Class                  [Info]
```

The menu for setting Very High Temperature settings is shown. Menus for High/Low/Very Low are identical.

Very High Event Temperature sets the temperature at which the Very High Event Actions will be triggered.

Very High Event Actions displays a list of actions from which the action(s) to be taken for this alarm are configured. This field will be empty [] if no actions have been configured. Refer to the user manual for the Asentria host product you are using for more information on the actions that are available.

Very High Trap Number sets the trap number which can be useful when using SNMP trap managers that employ a trap numbering system to help identify incoming traps. The default trap number for Temperature Events is 120, but any number in the alternate range of 1000 – 1199 can be used.

Very High Event Class sets the class for the event. Refer to the user manual for the Asentria host product you are using for more information on defining a Class definition for this sensor event.

Return to Normal Settings Setup

```
SNMP-Link SL81 External Temperature Event Settings
Device Number: 1          Device ID: 090212E9      Device Name: Test ES-5
A) Return to Normal Event Actions         []
B) Return to Normal Event Trap Number     [120]
C) Return to Normal Class                 [Info]
```

Return to Normal Event Actions displays a list of actions from which the action(s) to be taken for this event are configured. This field will be empty [] if no actions have been configured. Refer to the user manual for the Asentria host product you are using for more information on the actions that are available.

Return to Normal Event Trap Number sets the trap number which can be useful when using SNMP trap managers that employ a trap numbering system to help identify incoming traps. The default trap number for Temperature Events is 120, but any number in the alternate range of 1000 – 1199 can be used.

Return to Normal Class sets the class for the alarm. Refer to the user manual for the Asentria host product you are using for more information on defining a Class definition for this sensor event.

Humidity Sensor Setup

```

SNMP-Link SL81 External Humidity Event
Device Number: 1      Device ID: 090212E9      Device Name: Test ES-5
A) Humidity Sensor Enabled      [OFF]
B) Humidity Deadband            [3]
C) Very High Event Settings     [90] [] [130] [Info]
D) High Event Settings          [80] [] [130] [Info]
E) Return to Normal Settings    [-] [] [130] [Info]
F) Low Event Settings           [20] [] [130] [Info]
G) Very Low Event Settings      [10] [] [130] [Info]

```

Humidity Sensor Enabled toggles ON/OFF to enable the humidity sensor.

Humidity Deadband is the range on either side of a humidity setting that prevents the alarm from repeatedly going in and out of the "event state" as the actual humidity fluctuates above and below the humidity setting.

[Very High/High/Low/Very Low Event Settings](#) display a menu where the humidity at each level can be configured to alarm along with the action(s) to occur, trap number, and class. In the case of Very High or High levels, the event will occur as the humidity rises above the setting. In the case of Low or Very Low, the event will occur as the humidity drops below the setting.

[Return to Normal Settings](#) displays a menu where the actions to occur when the humidity returns to normal (drops below the High/Very High settings, or rises above the Low/Very Low settings) can be configured.

Very High/High/Low/Very Low Event Settings Setup

```

SNMP-Link SL81 External Humidity Event Settings
Device Number: 1      Device ID: 090212E9      Device Name: Test ES-5
A) High Event Humidity          [80]
B) High Event Actions           []
C) High Event Trap Number       [130]
D) High Event Class             [Info]

```

The menu for setting High Humidity settings is shown. Menus for Very High/Low/Very Low are identical.

High Event Humidity sets the humidity at which the High Event Actions will be triggered.

High Event Actions displays a list of actions from which the action(s) to be taken for this event are configured. This field will be empty [] if no actions have been configured. Refer to the user manual for the Asentria host product you are using for more information on the actions that are available.

High Trap Number sets the trap number which can be useful when using SNMP trap managers that employ a trap numbering system to help identify incoming traps. The default trap number for Humidity Events is 130, but any number in the alternate range of 1000 – 1199 can be used.

High Event Class sets the class for the event. Refer to the user manual for the Asentria host product you are using for more information on defining a Class definition for this sensor event.

Return to Normal Settings Setup

```

SNMP-Link SL81 External Humidity Event Settings
Device Number: 1      Device ID: 090212E9      Device Name: Test ES-5
A) Return to Normal Event Actions      []
B) Return to Normal Event Trap Number  [130]
C) Return to Normal Event Class        [Info]

```

Return to Normal Event Actions displays a list of actions from which the action(s) to be taken for this event are configured. This field will be empty [] if no actions have been configured. Refer to the user manual for the Asentria host product you are using for more information on the actions that are available.

Return to Normal Event Trap Number sets the trap number which can be useful when using SNMP trap managers that employ a trap numbering system to help identify incoming traps. The default trap number for Humidity Events is 130, but any number in the alternate range of 1000 – 1199 can be used.

Return to Normal Class sets the class for the event. Refer to the user manual for the Asentria host product you are using for more information on defining a Class definition for this sensor event.

Contact Closure Setup

```
SNMP-Link SL81 External Contact Closure Event 1
Device Number: 1          Device ID: 090212E9      Device Name: Test ES-5
A) Sensor Name           []
B) Contact Closure Enabled [OFF]
C) Event State           [CLOSED]
D) Threshold             [2]
E) Event State Actions   []
F) Return to Normal Actions []
G) Event State Class     [Info]
H) Return to Normal Class [Info]
I) Event Trap Number     [110]
J) Return to Normal Trap Number [110]
K) Active Alarm Alias    []
L) Inactive Alarm Alias  []
```

Contact closures (CC) sense the state of a circuit. A weak voltage is applied to the source pin and if pulled to ground by a connection on the circuit, the sensor reports a "closed" state. If it remains high, the sensor reports an "open" state. All of the CCs share a common ground. The contact closures may be configured to alarm in either the open or closed state, depending on the needs of the attached devices.

Sensor Name is a text-entry field that allows you to name this contact closure.

Contact Closure Enabled toggles ON/OFF to enable this contact closure.

Event State toggles OPEN/CLOSED to set whether an event will be triggered when the contact closure circuit is opened or closed. The default state is open.

Threshold is the number of seconds (0-255) the sensor must remain in the event state before an actual event occurs.

Event State/Return to Normal Actions displays a list of actions from which the action(s) to be taken for this event are configured. This field will be empty [] if no actions have been configured. Refer to the user manual for the Asentria host product you are using for more information on the actions that are available.

Event State/Return to Normal Class sets the class for the event. Refer to the user manual for the Asentria host product you are using for more information on defining a Class definition for this sensor event.

Event/Return to Normal Trap Number sets the trap number which can be useful when using SNMP trap managers that employ a trap numbering system to help identify incoming traps. The default trap number for Contact Closure Events is 110, but any number in the alternate range of 1000 – 1199 can be used.

Active Alarm Alias is a special sensor name used when reporting active events for this sensor.

Inactive Alarm Alias is the same as Active Alarm Alias, but used with Return to Normal events.

ES-8**Analog Voltage Sensor Setup**

```

SNMP-Link SL81 External Events Menu
Device Number: 4          Device ID: 20021828
A) Device Name                               [Test ES-8]
B) Analog Input 1
C) Analog Input 2
D) Analog Input 3
E) Analog Input 4
F) Analog Input 5
G) Analog Input 6
H) Analog Input 7
I) Analog Input 8
J) Clear Settings for This EventSensor

```

The analog voltage sensors provide individual voltage sensing for ranges from 0-5VDC or 0-60VDC (depending on configuration ordered). These sensors can be used in various applications, from monitoring a power supply to verifying RS232 voltage levels.

Device Name is the optional name given to the sensor.

[Analog Input *n*](#) displays a menu where each analog voltage sensor can be configured.

Clear Settings for This EventSensor when selected will immediately clear all of the configured settings for this sensor and remove it from the Sensor Events menu. Return to the Sensor Events menu to assign it a new slot, if desired, and reconfigure it.

Analog Input *n*

```

SNMP-Link SL81 External Analog Input Event 1
Device Number: 4          Device ID: 20021828          Device Name: Test ES-8
A) Analog Input Enabled          [OFF]
B) Input Polarity                 [POSITIVE]
C) Deadband                       [30]
D) Very High Event Settings       [750]   []   [140]   [Info]
E) High Event Settings            [750]   []   [140]   [Info]
F) Return to Normal Settings      [-]     []   [140]   [Info]
G) Low Event Settings             [0]     []   [140]   [Info]
H) Very Low Event Settings        [0]     []   [140]   [Info]
I) Unit Conversion Settings       [Volts]

```

Analog Input Enabled toggles ON/OFF to enable this analog sensor.

Input Polarity toggles POSITIVE/NEGATIVE to set the input polarity.

Deadband is the range on either side of a voltage setting that prevents the alarm from repeatedly going in and out of the "event state" as the actual voltage fluctuates above and below the voltage setting.

[Very High/High/Low/Very Low Event Settings](#) displays a menu where the voltage at each level can be configured to alarm along with the action(s) to occur, trap number, and class. In the case of Very High or High levels, the event will occur as the humidity rises above the setting. In the case of Low or Very Low, the event will occur as the humidity drops below the setting.

[Return to Normal Settings](#) displays a menu where the optional action definition for alarms as they return to a normal state can be configured.

[Unit Conversion Settings](#) displays a menu where "real world" values can be configured

Very High/High/Low/Very Low Analog Input Event Settings

```
SNMP-Link SL81 External Analog Input Event Settings
Device Number: 4      Device ID: 20021828      Device Name: Test ES-8
A) Low Event Value           [0]
B) Low Event Actions         []
C) Low Event Trap Number     [140]
D) Low Event Class           [Info]
```

The menu for setting Very High Event Value settings is shown. Menus for High/Low/Very Low are identical.

Very High Event Value sets the voltage (in tenths) at which the Very High Event Actions will be triggered.

Very High Event Actions displays a list of actions from which the action(s) to be taken for this event are configured. This field will be empty [] if no actions have been configured. Refer to the user manual for the Asentria host product you are using for more information on the actions that are available.

Very High Event Trap Number sets the trap number which can be useful when using SNMP trap managers that employ a trap numbering system to help identify incoming traps. The default trap number for Analog Events is 140, but any number in the alternate range of 1000 – 1199 can be used.

Very High Event Class sets the class for the event. Refer to the user manual for the Asentria host product you are using for more information on defining a Class definition for this sensor event.

Return to Normal Settings

```
Data-Link SL81 External Analog Input Event Settings
Device Number: 4      Device ID: 20021828      Device Name: Test ES-8
A) Return to Normal Event Actions []
B) Return to Normal Event Trap Number [140]
C) Return to Normal Event Class [Info]
```

Return to Normal Event Actions displays a list of actions from which the action(s) to be taken for this event are configured. This field will be empty [] if no actions have been configured. Refer to the user manual for the Asentria host product you are using for more information on the actions that are available.

Return to Normal Event Trap Number sets the trap number which can be useful when using SNMP trap managers that employ a trap numbering system to help identify incoming traps. The default trap number for analog events is 140, but any number in the alternate range of 1000 – 1199 can be used.

Return to Normal Event Class sets the class for the event. Refer to the user manual for the Asentria host product you are using for more information on defining a Class definition for this sensor event.

Unit Conversion Settings

```
SNMP-Link SL81 Analog Input Event Unit Conversion
Device Number: 4      Device ID: 20021828      Device Name: Test ES-8
A) Unit Name           [Volts]
B) Low Voltage Amount (tenths) [0]
C) Low Unit Amount (tenths) [0]
D) Low Unit Sign       [POSITIVE]
E) High Voltage Amount (tenths) [750]
F) High Unit Amount (tenths) [750]
G) High Unit Sign      [POSITIVE]
```

ES-9 and ES-10

Relay Output Setup

```
Data-Link SL81 - External Events Menu
Device Number: 10      Device ID: 0B021358
A) Device Name                [Test ES-9]
B) Relay 1                    []
C) Relay 2                    []
D) Relay 3                    []
E) Relay 4                    []
F) Relay 5                    []
G) Relay 6                    []
H) Relay 7                    []
I) Relay 8                    []
J) Clear Settings for This EventSensor
```

The relay outputs provide electrical output that can open or close an external circuit. Typically this is used with devices that would not otherwise be able to interface with a host product, like audio alarms, LEDs, custom circuitry, and an almost limitless number of other applications.

The ES-10 is an open collector output. The [open collector circuit diagram](#) can be used to help you or your EE design a proper OC receiver.

Device Name is the option name given to the relay module. Default is [Internal] if the relays are internal to the SL81, and blank if the relay is a separate ES-9 module.

[Relay *n*](#) displays a menu where each relay output can be configured.

Clear Settings for This EventSensor when selected will immediately clear all of the configured settings for this relay and remove it from the Sensor Events menu. Return to the Sensor Events menu to assign it a new slot, if desired, and reconfigure it.

Relay *n*

```
SNMP0-Link SL81 External Relay Event 1
Device Number: 10      Device ID: 0B021358      Device Name: Test ES-9
A) Relay Name                []
B) Relay Active State        [CLOSED]
C) Relay Control Mode        [EVENT]
```

Relay Name is a text-entry field that allows you to name this relay.

Relay Active State toggles CLOSED/OPEN to set whether the relay will close or open when activated.

Relay Control Mode toggles EVENT/COMMAND to set the method in which the relay will be controlled. EVENT mode allows the relay to be used as an action during events. Refer to the next section on [Relays as Alarm Action](#) for information about how to configure this. COMMAND mode configures the relay to be triggered via command.

Relays as Alarm Action

Relays can be used to open or close part of a circuit of your design or part of another product. Relays can be toggled based on sensor readings, data events, or even remotely by SNMP.

» Caution: Do not exceed maximum ratings for relays. ES-9 relays are only designed to switch relatively low voltages and amps, and are not intended to switch AC powered devices. Only a certified electrician should work with and connect AC Voltage to the ES-9. Improper use outside the guidelines of this manual could cause injury or death.

Max switched voltage: 60V
 Max switched current: 1A
 Max switched power: 30W

Remember Ohm's law: $W = V \times A$ (watts = volts x amps)
 $30W = 1A \times 30V$
 $30W = .5A \times 60V$

» Note: Be aware of the inrush (startup) current of the device you are connecting to the relays. A device drawing 1A while powered up can draw many times that upon power up. This is especially true with capacitive or inductive circuits.

Action Definition

Relay action definitions are somewhat more complicated than other alarm actions in that they must declare the action to perform, which sensor the relay is on, and which relay on that sensor to switch.

Relay actions are declared with the following syntax:

Raxxyy

a: The action to perform. Options are C (close), O (open), A (active), I (inactive). Active and Inactive states are determined by the relay's configuration.

xx: The EventSensor slot the relay is on. This value is a two-digit number starting with 01, corresponding to the slot (Number) the EventSensors are declared in the setup menu. Relays on internal sensors use an xx value of 00.

yy: Two-digit indicator of which relay to toggle.

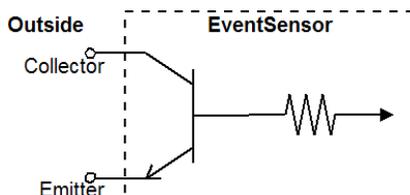
Example: RC0207 -or- RA0103RI0104

Relay actions for a single event are limited to any combination of relays on a single EventSensor. One event cannot trigger relay actions on multiple EventSensors.

» Note: Unlike other action definitions, each relay definition must start with an R. Where other sensors may be defined as T23 (for SNMP trap managers 2 and 3), multiple relay actions must be defined in the following manner: RC0401RO0402.

Open Collector Circuit Setup

The following circuit diagram represents the internal workings of each open collector output on the ES10.



CCU32 and CCU64

The Contact Closure Unit (CCU) offers either 32 or 64 individual contact closure sensors. Because of their large number of sensors, the CCU32 occupies two EventSensor slots within the host product, and the CCU64 occupies four. Both of these units are represented by a single entry in the Sensor Events Menu. The following is an example of a page of the CCU32 setup menu:

```
SNMP-Link SL81 External Events Menu
Device Number: 12, Device ID: 14000000
A) Device Name                               []
B) Contact Closure 1
C) Contact Closure 2
D) Contact Closure 3
...
P) Contact Closure 15
Q) Contact Closure 16
R) Next 16 Contact Closures
S) Clear Settings for This EventSensor
```

The settings within all of the CCU menus are identical to those of other ES modules with contact closures. Please refer to the section on [ES-1 thru ES-5](#) for more information on configuring contact closures.

 **Note:** The CCU is not a standalone device. The unit sends data on each sensor back to the host product, which evaluates that data and then instructs the CCU as to which LEDs it should light. A restart of the CCU and host product may become necessary if the two devices become disconnected.

Warranty Information

Asentria Corporation hereby warrants that it will, as the buyers sole remedy, repair or replace, at its option, any part of the EventSensor which proves to be defective by reason of improper materials or workmanship, without charge for parts or labor, for a period of 12 (twelve) months. This warranty period commences on the date of first retail purchase, and applies only to the original retail purchaser.

To obtain service under this warranty, you must obtain, by telephone, postal letter, or email, a return authorization number from Asentria Technical Support. This authorization number may be obtained by contacting Asentria Technical Support at the address and/or phone number below. The defective unit is to be returned to Asentria with shipping prepaid, and the return authorization number must be clearly marked on the outside of the package containing the defective unit.

The dealer's bill of sale or other satisfactory proof of the date of purchase may be required to be presented in order to obtain service under this warranty.

This warranty applies if your EventSensor fails to function properly under normal use and within the manufacturer's specifications. This warranty does not apply if, in the opinion of Asentria Corporation, the unit has been damaged by misuse; neglect; or improper packing, shipping, modification, or servicing by other than Asentria or an authorized Asentria Service Center.

In no event shall Asentria Corporation be liable for any loss, inconvenience or damage, whether direct, incidental, consequential or otherwise, with respect to the EventSensor. Asentria Corporation's liability shall be limited to the purchase price of the EventSensor. No warranty of fitness for purpose, or of fitness of the EventSensor for any particular application is provided. It is the responsibility of the user to determine fitness of the EventSensor for any particular application or purpose.

This warranty gives you specific legal rights. These rights may vary from state to state, as some states do not allow limitations on liability.

You may request information on how to obtain service under this warranty by contacting Asentria Technical Support at the address and phone number below:

Asentria Technical Support
1200 North 96th St.
Seattle, WA 98103
(206) 344-8800
www.asentria.com