E-SDS-CELC(P)-V2
PHOTOELECTRIC SMOKE DETECTION SENSOR

Installation Instruction

Introduction

The E-SDS-CELC(P)-V2 is a smoke detection sensor intended for connection to an NTI E-MICRO-TRH(P), E-16D/5D/2D, E-MINI-LXO, or E-1W(P) (ENVIROMUX).   When properly connected, the E-SDS-CELC(P)-V2 will provide signals to the ENVIROMUX that with proper configuration will result in alert messages being sent to users of the ENVIROMUX. The E-SDS-CELC(P)-V2 has screw terminals for easy user connections and the E-SDS-CELC**P**-V2 includes a 12VDC AC adapter.

This Photoelectric smoke detector (hereinafter called Detector) detects smoke using a couple of infrared diodes. The principle of detecting is based on the fact that a granule of smoke can reflect infrared light. Infrared diodes are placed in a special chamber. The chamber can shield external light, but doesn't prevent smoke from entering it.   In the absence of smoke, the diodes can detect very weak infrared light. As smoke enters the chamber, the diodes will receive more and more light. When the smoke reaches a certain density, the Detector will sound out an alarm signal. In order to reduce interference and lower power consumption, the emitting circuit uses a pulse signal. The Detector has a special structural design and ASIC, providing a dust-resistant, mothproof and anti-outside light interference feature. The Detector is suitable for detecting the smoke in a house, shop, hotel, restaurant, office building, school, bank, library, etc.

Product Features

The detector works once connected directly to DC power. A flashing LED indicates the Detector is working normally and an LED that stays ON solid indicates an alarm condition. Normally-closed output contacts will open in an alarm condition.   Connections to these contacts are made when the Detector is secured to the mounting base.

- Infrared Photoelectric Smoke Detector
- LED alarm indicators
- Selectable Alarm Output N/C or N/O Relay (Default is N/C)
- Selectable Latching Feature (Default is latch ON)
- Open Contact/LED Indicating Alarm
- Anti-light, Mothproof, Dust-resistant
- Stainless steel shield, Anti-RFI (20V/m-1GHz)
- Metal dust deterrent filter – dust/debris accumulates on the surface of the filter, leaving the mesh openings clear for smoke to travel through.

Note: The E-SDS-CELC(P)-V2 is NOT intended to be used as a primary fire and smoke detection device.

Preparation for Installation

1. There should be no large objects that would block airflow within 0.5m (20 inches) of the Detector.

2. There must be no source of wind flow within 1.5m (60 inches) of the Detector.

3. The Detector should be mounted more than 0.5m (20 inches) from any wall.

4. The distance between two Detectors can be no less than 15m (50 feet) and the distance between Detector and corner must he less than half of the distance between Detectors.

5. Always install the Detector on a horizontal surface.   If it must be installed on a slanted surface, the angle of slant must be less than 45 degrees.

6. Clean the Detector by brushing the openings in the metal dust filter with a soft brush every six months to ensure the sensitivity and life of the product. Be sure to power OFF the Detector before cleaning.
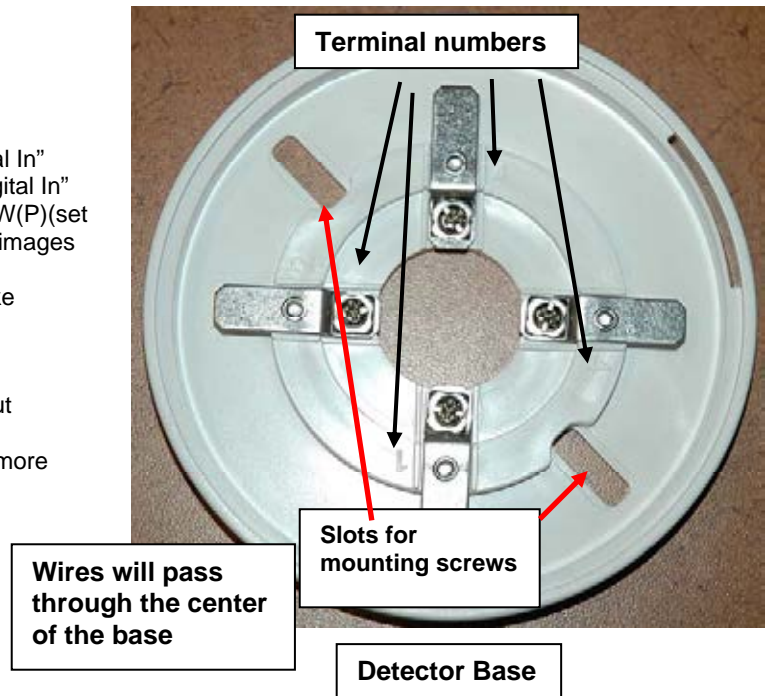
Clean dust filter every six months with a soft brush
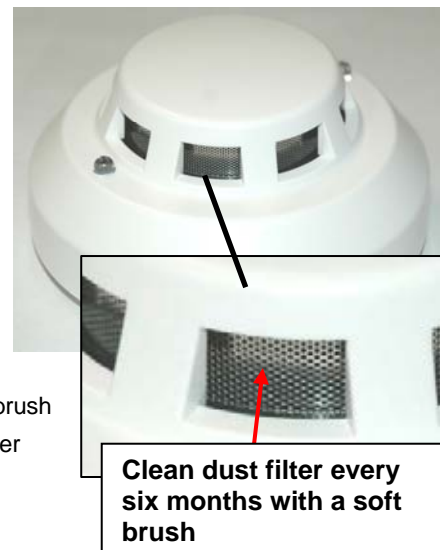
Installation

Switch Contact Connection

1. Connect two 18-22 awg wires (not supplied) to "Digital In" terminals "+" and "---"on the E-16D (sets 1-8) , or "Digital In" terminals on the E-MINI-LXO, E-MICRO-T(RHP),E-1W(P)(set 1 or 2), E-2D and E-5D (sets 1-5).   (All shown in the images below)
2. Connect the other end of those two wires to the smoke detection sensor base at terminals "3" and "4".
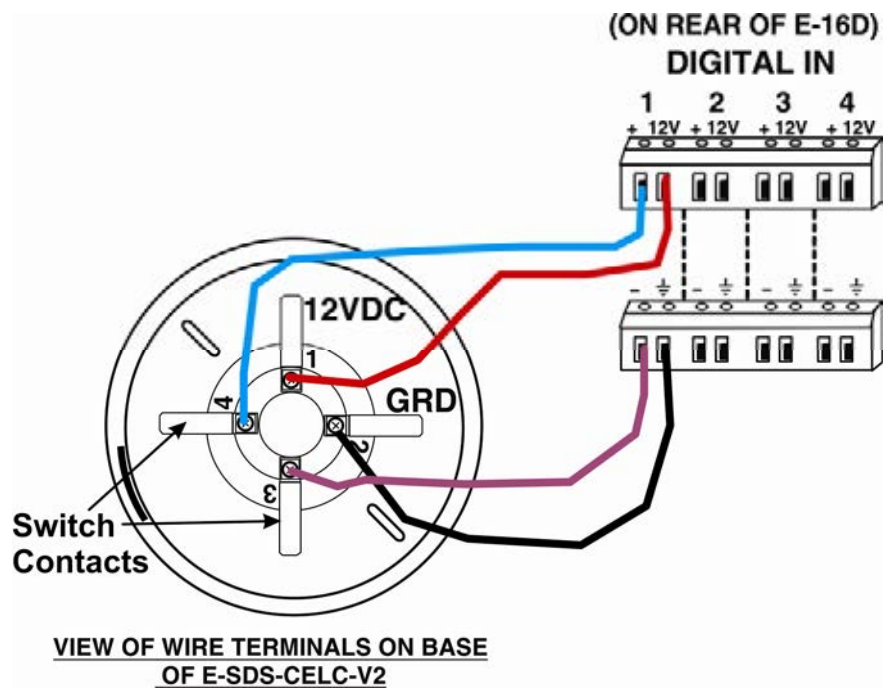
For more Digital In connections in conjunction with the E-16D/5D/2D, add an E-DI16DO16(R) Digital Input/Output Expander.
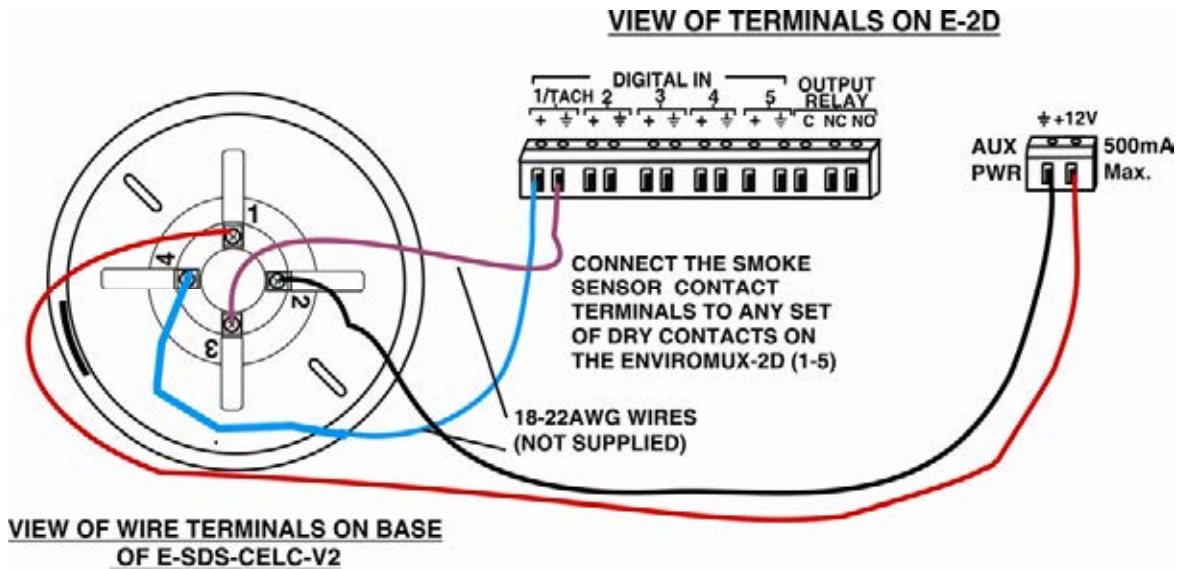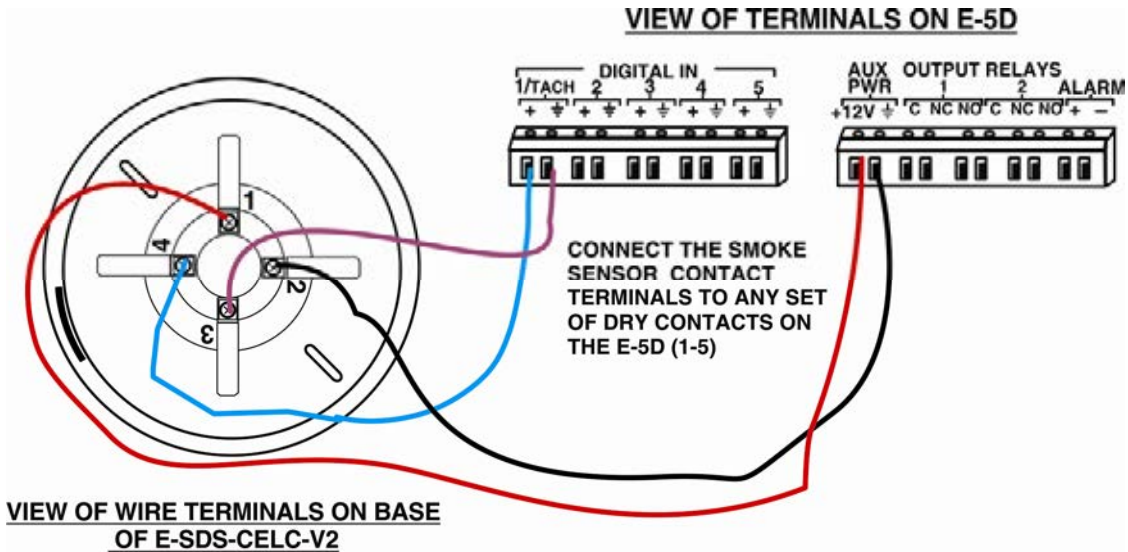See http://www.networktechinc.com/io-expander.html for more details.

Terminal numbers

Wires will pass through the center of the base

Slots for mounting screws

Detector Base

Power Connection

1. Connect two 18-22awg wires (not supplied) between the E-16D and the E-SDS-CELC-V2 as shown below.
    (Wiring for E-2D and E-5D also shown.)
     a. Connect one wire between "12V" on the SYSTEM and terminal "1" on the smoke detector.
     b. Connect the other wire between " ⏚ " (ground) on the SYSTEM and terminal "2" on the smoke detector.

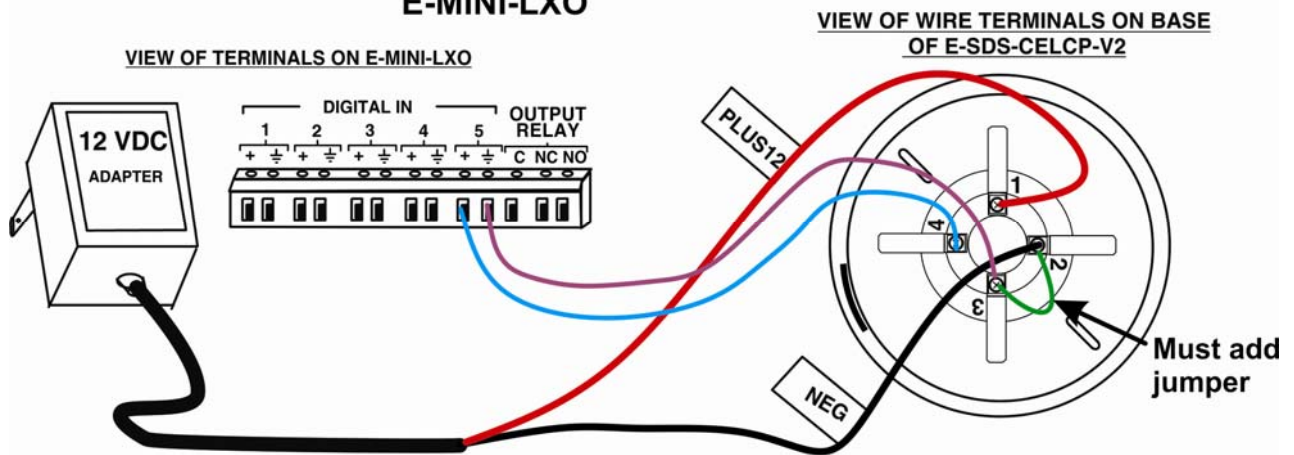2. Be sure to tighten terminals to secure each conductor.

VIEW OF WIRE TERMINALS ON BASE
OF E-SDS-CELC-V2

VIEW OF TERMINALS ON E-5D

DIGITAL IN
1/TACH 2   3   4   5
+ ÷ + ÷ + ÷ + ÷ + ÷

AUX OUTPUT RELAYS
PWR   1   2   ALARM
+12V ÷ C NC NO C NC NO + —

CONNECT THE SMOKE
SENSOR CONTACT
TERMINALS TO ANY SET
OF DRY CONTACTS ON
THE E-5D (1-5)

VIEW OF WIRE TERMINALS ON BASE
OF E-SDS-CELC-V2

VIEW OF TERMINALS ON E-2D

DIGITAL IN
1/TACH 2   3   4   5
+ ÷ + ÷ + ÷ + ÷ + ÷

OUTPUT
RELAY
C NC NO

÷ +12V
AUX   500mA
PWR   Max.

CONNECT THE SMOKE
SENSOR CONTACT
TERMINALS TO ANY SET
OF DRY CONTACTS ON
THE ENVIROMUX-2D (1-5)

18-22AWG WIRES
(NOT SUPPLIED)

VIEW OF WIRE TERMINALS ON BASE
OF E-SDS-CELC-V2

Model E-SDS-CELC**P**-V2 can be used when a 12VDC power supply is not available on the SYSTEM. (For example, E-MICRO-TRH(P), E-1W(P) and E-MINI-LXO do not include terminals to provide 12VDC power to sensors)
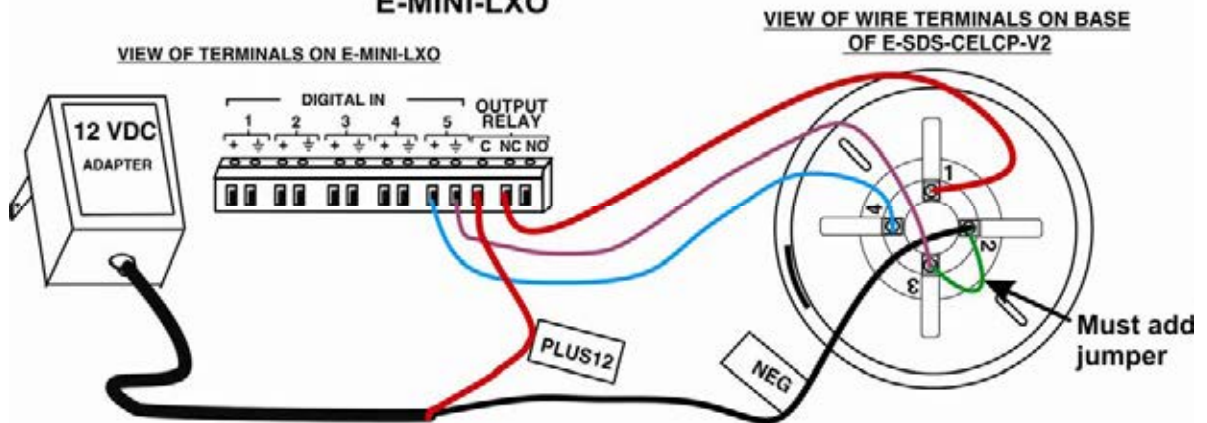
1. Connect the AC adapter wire labeled "PLUS 12" to terminal "1" on the smoke detection sensor.
2. Connect the AC adapter wire labeled "NEG" to terminal "2" on the smoke detection sensor.
3. Add a jumper wire between terminals "2" and "3" on the smoke detector.
4. Be sure to tighten terminals to secure each conductor.
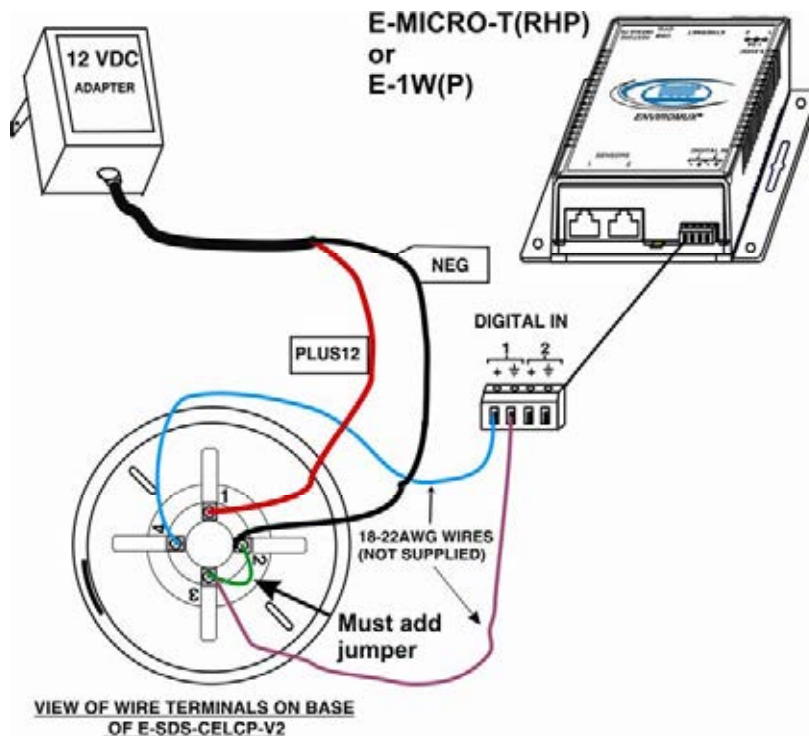
E-MINI-LXO

VIEW OF TERMINALS ON E-MINI-LXO

VIEW OF WIRE TERMINALS ON BASE OF E-SDS-CELCP-V2

12 VDC ADAPTER

DIGITAL IN 1 2 3 4 5

OUTPUT RELAY C NC NO

PLUS12

NEG

Must add jumper

Wired using this method the smoke detector must be manually power-cycled in order to reset it when it goes into alert.

E-MINI-LXO

VIEW OF TERMINALS ON E-MINI-LXO

VIEW OF WIRE TERMINALS ON BASE OF E-SDS-CELCP-V2

12 VDC ADAPTER

DIGITAL IN 1 2 3 4 5
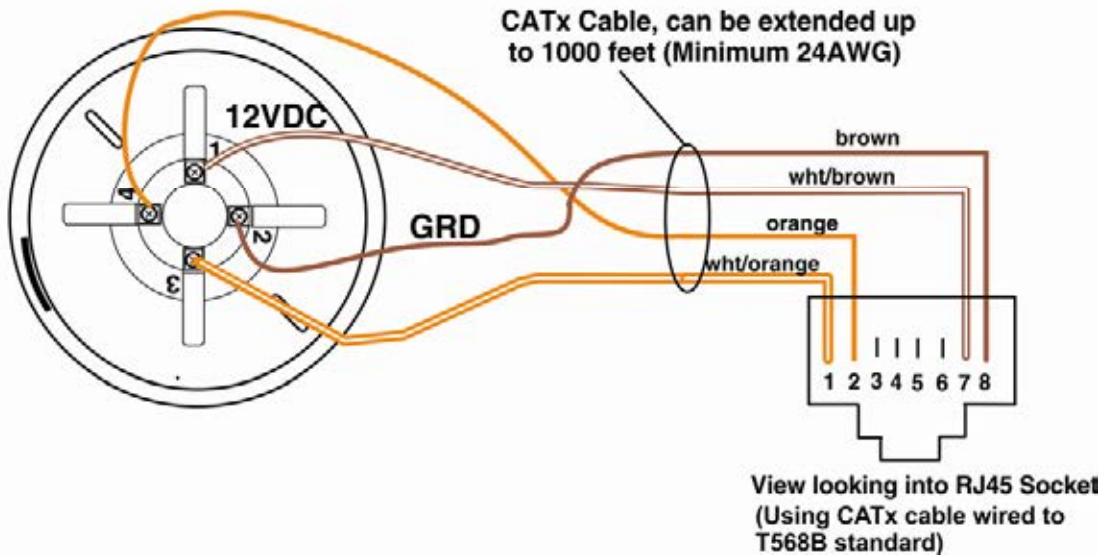
OUTPUT RELAY C NC NO

PLUS12

NEG

Must add jumper

Wired using this method the smoke detector can be power-cycled through the web interface when it is in alert.   Make sure that no sensors are configured to activate the output relay when in or out of alert. (See page 9)

E-MICRO-T(RHP) or E-1W(P)

12 VDC ADAPTER

NEG

PLUS12

DIGITAL IN 1 2

18-22AWG WIRES (NOT SUPPLIED)

Must add jumper

VIEW OF WIRE TERMINALS ON BASE OF E-SDS-CELCP-V2

To wire your own CATx patch cable to an E-SDS-CELC-V2 sensor, follow the wiring instruction below.

Wiring when connected to "RJ45 Sensors" socket
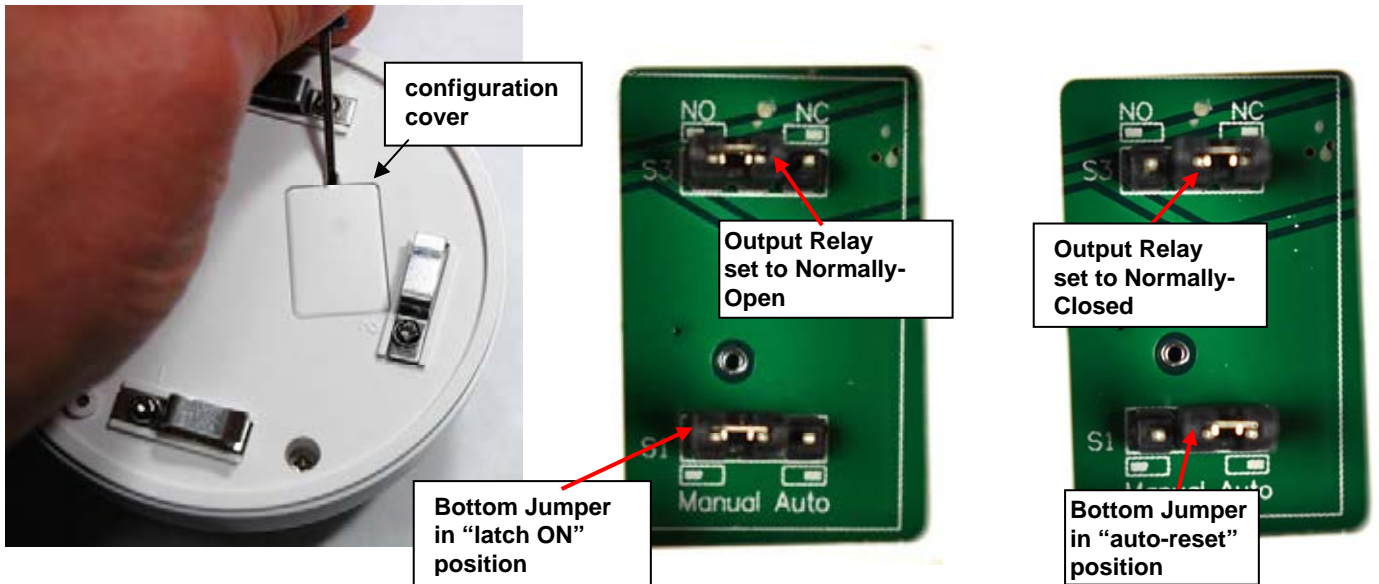### (Applicable to E-xD Models only)

VIEW OF WIRE TERMINALS ON BASE
OF E-SDS-CELC-V2

CATx Cable, can be extended up
to 1000 feet (Minimum 24AWG)

12VDC

GRD

brown

wht/brown

orange

wht/orange

1 2 3 4 5 6 7 8

View looking into RJ45 Socket
(Using CATx cable wired to
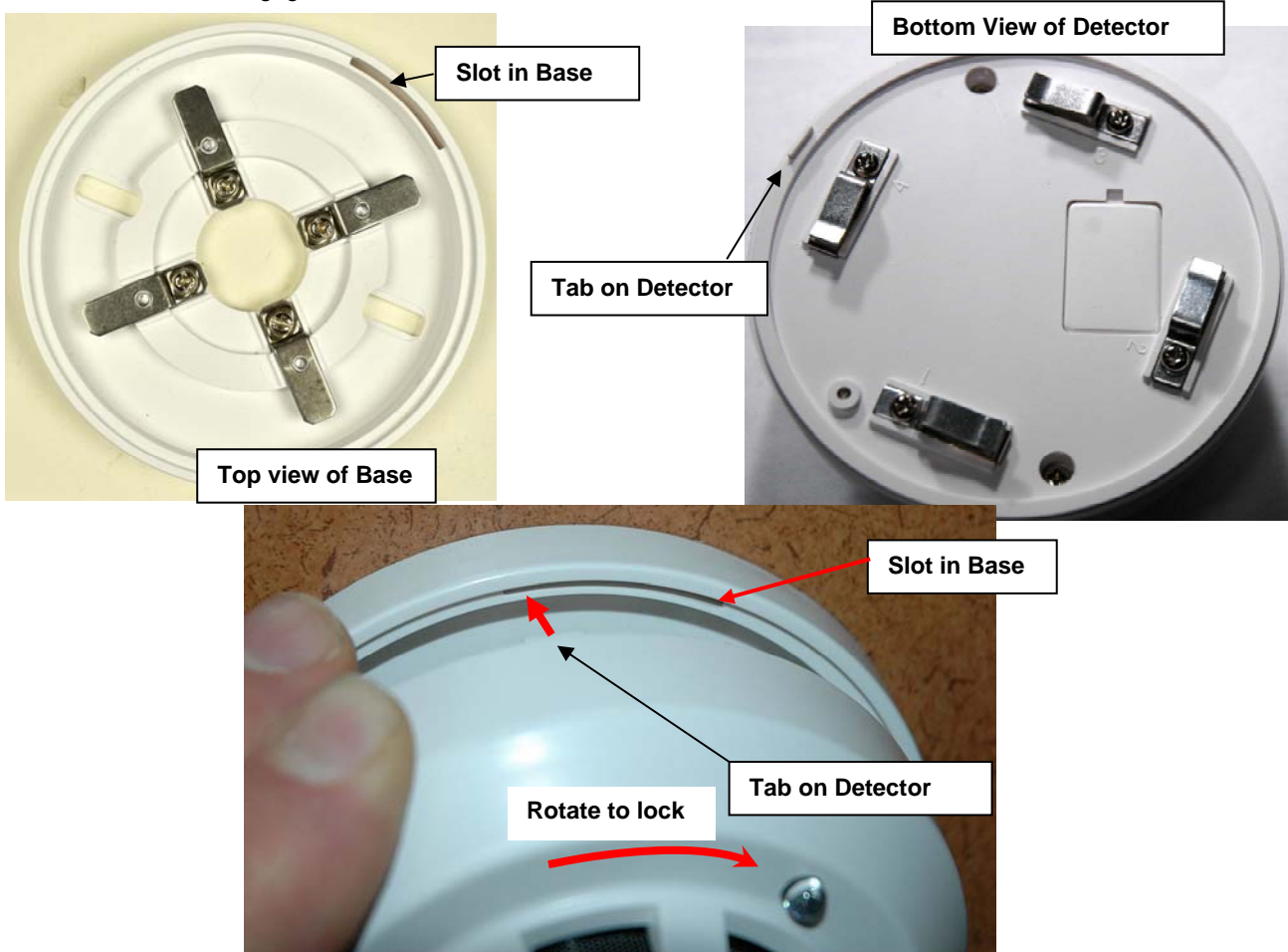T568B standard)

Selectable Features

For the E-SDS-CELC(P)-V2, you can select whether the alarm output relay is in a normally-closed (the default) or normally-open position, and whether the alarm should latch ON until the unit is power-cycled (default setting) OR auto-reset and return to OFF when the alarm condition clears.

To change this setting, remove the configuration cover with a very small flat-blade screwdriver or similar tool. Using tweezers, place the jumpers in the desired position.

configuration cover

Output Relay set to Normally-Open

Bottom Jumper in "latch ON" position

Output Relay set to Normally-Closed

Bottom Jumper in "auto-reset" position

Install Detector to Base

Connect the Detector to the base. Line the tab on the Detector up with the left end of the slot in the base. Press the Detector into the slot so that the detector is evenly resting on the base all the way around. Then rotate the Detector clockwise approximately 1" to lock in the detector and engage the contacts on the base.

Slot in Base

Top view of Base

Bottom View of Detector

Tab on Detector

Slot in Base

Tab on Detector

Rotate to lock

Operation

1. Power up the ENVIROMUX (if not already powered ON), or, when used, connect the AC adapter to an appropriate power source. The LEDs on the Detector will flash red to indicate the sensor is functioning and in status-ready condition. The LEDs will illuminate solid red when smoke is detected.

2. Configure the ENVIROMUX to report signals from the connected dry contact sensor as smoke detection sensor alerts. (Refer to the ENVIROMUX manual for details on configuration- see also example below and on the following pages.) When smoke is detected, the switch terminals on the E-SDS-CELC(P)-V2 will close to cause an alert message to be sent from the ENVIROMUX.

Configure Alert

Alert Settings									
Associated Sensor	Digital Input #1								
	Sensor associated to this alert								
Groups	☐ Group 1	☐ Group 2	☐ Group 3	☐ Group 4	☐ Group 5	☐ Group 6	☐ Group 7	☐ Group 8	
Trigger Event	Open ▾ ◄								
Alert Delay	0	(sec)							
	Duration the sensor must be out of thres								

Use "Open" if the Detector is configured with the output relay set to normally-closed (the default)

Example of sensor configuration in E-MICRO-T(RHP)

Cycle Sensor Power on E-xD Models

When the smoke detection sensor senses smoke and an alert condition is triggered, in order to reset the smoke detector to a ready state after the presence of smoke has been resolved, the smoke detector must be power-cycled.

A "Cycle Sensor Power" button (below) is provided for each sensor connected to the "Digital In" terminals on the E-16D (locally-powered-by Digital Inputs only). To momentarily disrupt power to any sensor powered-by a Digital Input terminal, click on this button. The 12VDC power will be disrupted to the sensor for 5 seconds and then automatically restored.

Note: On E-5D and -2D, the "Cycle Sensor Power" will cause the "AUX PWR" terminals to cycle power. This will only be effective for the smoke detection sensor if the sensor is being powered from these terminals. If your sensor is powered, for example, from an AC adapter, the "Cycle Sensor Power" button will have no effect on that sensor, but it will still cycle power on the "AUX PWR" terminals, disrupting any device getting power from these terminals for 5 seconds. Keep this in mind if more than one sensor (or device) is being powered from these terminals.

Digital Input #2 Status

Type: Digital Input	Connector:2
Open	
Status: Normal	

Handle Alert: Dismiss ▾ | Apply Changes
Last alert was at: Never

Clear Records

Cycle Sensor Power → Cycle Sensor Power

Configure

Application Note:

A smoke detector connected to an RJ45 Sensor Port does not have "Cycle Sensor Power" button and must be manually disconnected (unplugged) and reconnected in order to reset it. To use this feature, make sure the smoke detector is wired to a Digital Input.

Cycle Sensor Power on E-MINI-LXO

The power to the smoke detector can also be power-cycled on the E-MINI-LXO when wired as shown on the lower image on page 4.   If the output relay is used to control power to the smoke detector, the output relay can be manually activated (to open power to the smoke detector) and then deactivated (to restore power to the smoke detector.

When wired in this fashion, make sure that none of the sensors are configured to have the output relay status change to "Active".   Both fields (below) must be set to "Inactive".   Otherwise, when the relay is active the smoke detector will be powered OFF.

Make sure the ENVIROMUX Output Relay status for both fields in all sensor configurations is set to "Inactive" if the output relay is used to power the smoke detector.

To power-cycle the smoke detector using the web interface, set the output to "Activate", click "Apply Changes", then set to "Deactivate" and click "Apply Changes" again.

Digital Input Configuration

⊟ Digital Input Settings

Description
`Smoke Detector`
Descriptive name for the digital input

Group
`1 ▾`
Select which group the digital input belongs to

Normal Status
`Open ▾`
Select the normal status for the digital input

Refresh Rate
`20` `Sec ▾`
The refresh rate at which the digital input view is updated

⊟ Alert Settings

Disable Alerts
☐
Disable alert notifications for this digital input

Alert Delay
`1` `Sec ▾`
Duration the digital input must be out of normal status before alert is generated

Notify Again Time
`4` `Hr ▾`
Time after which alert notifications will be sent again

Notify on return to normal
☐
Send a notification when this digital input returns to normal status

Auto acknowledge
☑
Automatically acknowledge alert when digital input returns to normal status

Enable Syslog Alerts
☑
Send alerts for this digital input via syslog

Enable SNMP Traps
☑
Send alerts for this digital input via SNMP traps

Enable E-mail Alerts
☑
Send alerts for this digital input via e-mail

E-mail Subject
`Smoke Detected`
Subject of e-mails sent for alerts

Attach IP camera capture to e-mail
☑ `Bench Camera ▾`
Attach captured image from selected IP camera to alert e-mail

Enable SMS Alerts
☐
Send alerts for this digital input via SMS

Associated Output Relay
`Output Relay #1 ▾`
Name of the output relay that can be controlled by this digital input

Output Relay status on alert
`Inactive ▾`
Status of the output relay when going to alert

Output Relay status on return from alert
`Inactive ▾`
Status of the output relay when returning from alert

⊞ Data Logging

`Save`

Example of sensor configuration in E-MINI-LXO

New Sensor Configuration

☐ Digital Input Settings

Description	Smoke Detector
	Descriptive name for the digital input
Group	1 ▾
	Select which group the digital input belongs to
Normal Status	Open ▾
	Select the normal status for the digital input
Refresh Rate	20 Sec ▾
	The refresh rate at which the digital input view is updated

☐ Alert Settings

☐ Data Logging

Save

Alert Simulation

Simulate Alert   Clear Alert

Example of sensor configuration in E-16D/-5D/-2D

For the E-MICRO-TRH(P) and E-1W(P), configuration of an alert provides the desired response from a sensor connected to digital inputs.

Configure Alert

Alert Settings

Associated Sensor	Digital Input #1
	Sensor associated to this alert
Groups	☐ Group 1 ☐ Group 2 ☐ Group 3 ☐ Group 4 ☐ Group 5 ☐ Group 6 ☐ Group 7 ☐ Group 8
Trigger Event	Closed▾
Alert Delay	0 (sec)
	Duration the sensor must be out of thresholds before alert is generated

Example of alert configuration in E-MICRO-TRH(P) or E-1W(P)

Specifications

Operating Voltage	9-35VDC
Standby Current	100uA
Alarm Current	35mA
Relay Contact Rating	500mA @ 24VDC
How it indicates Standby	LEDs flash (every 12 sec)
How it indicates Alarm	LEDs are constantly ON
Output Relay	N.C. or N.O. Factory Default is N.C.
Sensitivity	0.15dB/m ±0.03dB/m
Size (Diameter x Height)	4.06 x 2.09 in (103.00 x 53.00 mm)
Operating Temperature	14 to 122°F (-10 to 50°C)
Operating Humidity	0% to 95% R.H. (non-condensing)
Compliance	CE, RoHS

Warranty Information

The warranty period on this product (parts and labor) is two (2) years from the date of purchase. Please contact Network Technologies Inc at **(800) 742-8324** (800-RGB-TECH) or **(330) 562-7070** or visit our website at http://www.networktechinc.com for information regarding repairs and/or returns. A return authorization number is required for all repairs/returns.

CHANGES
The material in this guide is for information only and is subject to change without notice. Network Technologies Inc reserves the right to make changes in the product design without reservation and without notification to its users.

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