

VESDA

Accessories Guide

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The following typographic conventions are used in this document:

Convention	Description
Bold	Used to denote: emphasis. Used for names of menus, menu options, toolbar buttons
<i>Italics</i>	Used to denote: references to other parts of this document or other documents. Used for the result of an action.

The following icons are used in this document:

Convention	Description
	Caution: This icon is used to indicate that there is a danger to equipment. The danger could be loss of data, physical damage, or permanent corruption of configuration details.
	Warning: This icon is used to indicate that there is a danger of electric shock. This may lead to death or permanent injury.
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Codes and Standards Information for Air Sampling Smoke Detection

We strongly recommend that this document is read in conjunction with the appropriate local codes and standards for smoke detection and electrical connections. This document contains generic product information and some sections may not comply with all local codes and standards. In these cases, the local codes and standards must take precedence. The information below was correct at time of printing but may now be out of date, check with your local codes, standards and listings for the current restrictions.

FCC Compliance Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures; re-orientate or relocate the receiving antenna, increase the separation between the equipment and receiver, connect the equipment to a power outlet which is on a different power circuit to the receiver or consult the dealer or an experienced radio/television technician for help.

FDA

This Xtralis product incorporates a laser device and is classified as a Class 1 laser product that complies with FDA regulations 21 CFR 1040.10. The laser is housed in a sealed detector chamber and contains no serviceable parts. The laser emits invisible light and can be hazardous if viewed with the naked eye. Under no circumstances should the detector chamber be opened.

FM Hazardous Applications

3611 Hazardous Approval Warning: Exposure to some chemicals may degrade the sealing of relays used on the detector. Relays used on the detector are marked "TX2-5V", "G6S-2-5V" or "EC2-5NU".

VESDA detectors must not be connected or disconnected to a PC while the equipment is powered in an FM Division 2 hazardous (classified) location (defined by FM 3611).

FM Approved Applications

The product must be powered from VPS-100US-120, VPS-100US-220 or VPS-220 only.

ONORM F3014

ONORM F3014, transport times for all tubes (including capillaries) must not exceed 60 seconds from any hole. This means that the predesigned pipe networks that include capillaries cannot be used.

AS1603.8

The performance of this product is dependent upon the configuration of the pipe network. Any extensions or modifications to the pipe network may cause the product to stop working correctly. You must check that ASPIRE2 approves alterations before making any changes. ASPIRE2 is available from your authorized representative.

AS1851.1 2005

Maintenance Standards. Wherever this document and the AS1851.1 differ, AS1851.1 should be followed in preference to this document.

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1 Scope

The VESDA Accessories Product Guide outlines the mounting systems and the modules, mentioning their features, technical specifications and an understanding of the components and their function. It provides the reader with instructions on installing and cabling the respective modules.

The VESDA Accessories Product Guide is written for those people who are involved with the design specifications, maintenance and purchase of VESDA systems.

It is assumed that persons using this guide have knowledge of the local codes and standards. Installers should hold appropriate certification for electrical installations.

2 Introduction

Xtralis offers two systems for the remote mounting of modules:

- The remote box
- The 19" subrack

The VESDA range of modules have been designed to complement VESDA detectors. The modules available for remote mounting are:

- The display module
- The LCD programmer module
- VESDAnet socket module
- 7 and 12 relay remote termination cards and relay processor card module
- system relay module
- analogue output module
- multiple relay module

Other accessories include:

- Labels for sample points and pipes

3 Remote Mounting Options

3.1 Remote Box

The remote box can house a single module with a termination card. The remote box offers the option to mount modules at site specific locations. The remote mounting option is normally exercised where there is a need to monitor and/or manage a stand alone detector, or one connected to VESDAnet, from a remote location.



Figure 3-1: Remote Unit

Table 3-1: Remote Unit Configurations

Product Name	No. of Relays	Product Code
Remote Programmer Unit	0	VRT-100
Remote VESDA VLP Display Unit	7	VRT-200
VESDA VLP Remote Display Without Relays	0	VRT-600
Remote VESDA VLS Display Unit	7	VRT-400
Remote VESDA VLS Display without Relays	0	VRT-700
Remote VESDA VLS Display 12 RTC	12	VRT-800
Remote VESDA VLC Display RTC0	0	VRT-K00
Remote VESDA VLC Display RTC7	7	VRT-J00
Remote VESDA VLF Display without Relays	0	VRT-W00
Remote VESDA VLF Display Unit	7	VRT-V00
Remote VESDAnet Socket Unit	0	VRT-300
System Relay Module	7	VRT-S07
Non Scan 7 relay processor Only	7	VRT-500
12 RTC Processor Only Remote	12	VRT-900
AOM	0	VRT-A10

3.1.1 Product Information

The remote box comes in two sections. The mounting box to house the remote termination card or VESDAnet socket card and the front cover to mount the module with a processor card. The VESDAnet socket does not have a relay processor card.

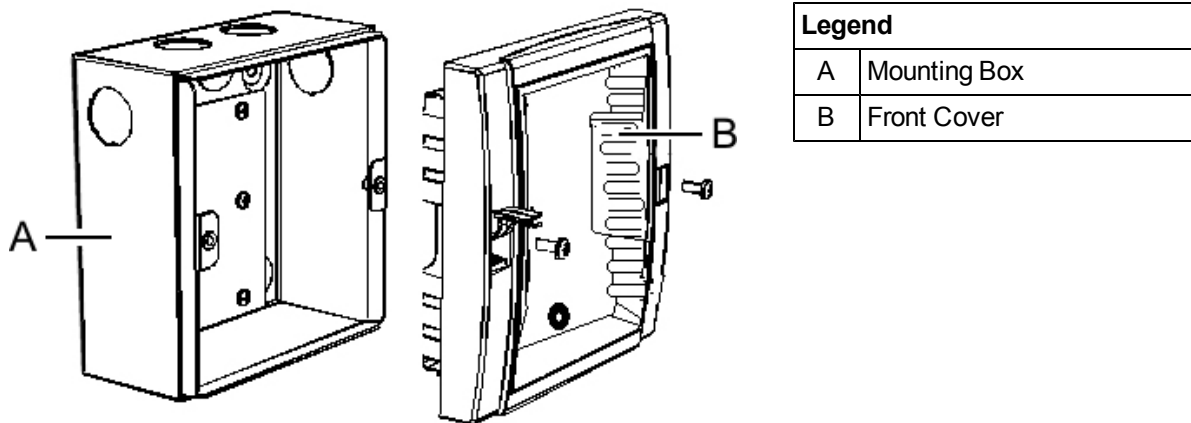


Figure 3-2: Remote Box

3.1.2 Mounting a Remote Box

The remote box can be mounted on any flat surface. To mount the remote box, first unscrew the front cover. Then use the four screw holes to secure the mounting box onto a flat surface ensuring that it is horizontally straight. Connect the power and VESDAnet cables and replace the front cover. The dimensions of the box are width 140 mm (5.5 in), height 150 mm (5.9 in) depth 70 mm (2.75 in).

3.1.3 Cabling the Remote Box

The remote box has six cable entry ports. Determine the port most appropriate for use and press out the knockouts taking care not to damage any relays or terminals on the remote termination card.

3.2 19" Subrack

The 19" Subrack is used for grouping up to 4 Remote modules. The 19 in. subrack assembly is used when multiple modules are required to be located in standard 19 in. racks. An optional wall mounting bracket is available for a single 19 in. Subrack.

Table 3-2: 19" Subrack Modules

Product Name	No. of Relays	Module Number
Blank Plates	0	0
LCD Programmer	0	1
VESDA VLP Display	7	2
VESDAnet Socket	0	3
VESDA VLS Display	7	4
(DRP) 7 Relay Remote Termination Card	7	5
VESDA VLP Display (no relays)	0	6
VESDA VLS Display (no relays)	0	7
VESDA VLS Display	12	8
(DRP) 12 Relay Remote Termination Card	12	9
VESDA VLC Display with Relays	7	J
VESDA VLC Display (no Relays)	0	K
VESDA VLF Display with Relays	7	V
VESDA VLF Display (no relays)	12	W

3.2.1 Product Information

The front section of the 19" Subrack (VSR-6610) houses the relevant VESDA module.



Table 3-3: 19" Subrack Front View

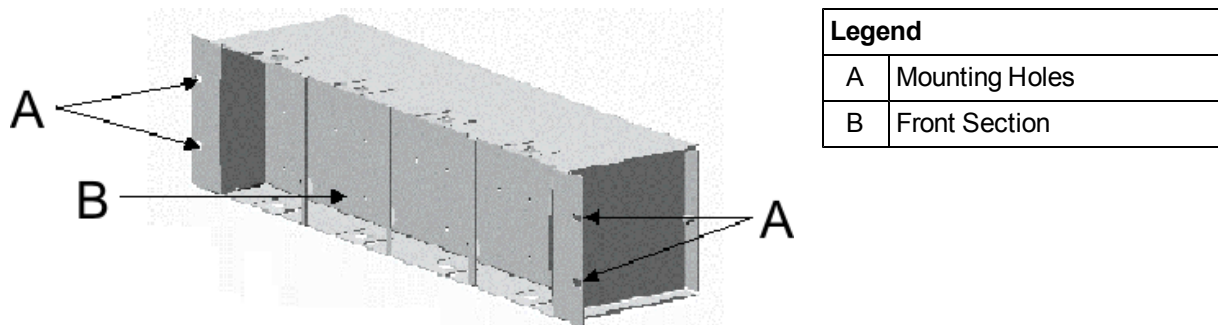


Figure 3-3: 19" Subrack - Isometric View

The back section of subrack houses the remote termination cards or the VESDAnet socket card.

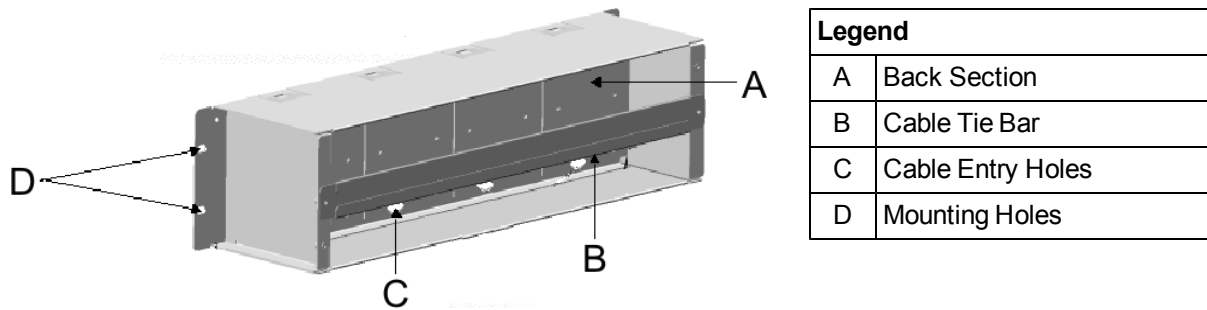


Figure 3-4: 19" Subrack Back View

3.2.2 Mounting a 19" Subrack

The 19" Subrack is secured by bolts to a Standard 3U Subrack System. If the 19" Subrack is to be mounted onto a wall, first fasten the optional wall mounting bracket to the wall and then install the 19" subrack onto the wall mounting bracket. The dimensions of the box are Width 482 mm (19in), height 120 mm (5 in), depth 128 mm (4.75 in).

Other mounting options include the 2 and 5 glazed boxes used in Europe.

Connect the power, VESDAnet and relay cabling to the remote termination cards.

3.2.3 Cabling the 19" Subrack

The 19" Subrack is open at the back facilitating easy cabling between the power source, or VESDAnet and the remote termination card or the VESDAnet socket card. There are four holes in the dividing panel of the 19" Subrack for wiring between the front and the back. VESDAnet and power connections are installed by default in the factory.

3.2.4 Installing Modules

The 19" Subrack may have a blank plate over any of the openings. A module can replace the blank plate as and when required. To replace an empty cavity with a module:

1. Disconnect the power to the 19" Subrack
2. If necessary remove the 19" Subrack from the rack (The rack may be designed to allow access to the rear).
3. Secure the remote termination card or the VESDAnet Socket in the back of the Subrack
4. Connect the relevant wire looms to the connectors on the remote termination card and pass the looms to the front side of the 19" Subrack through the hole in the dividing panel
5. Connect the wire loom to the respective 10 way and/or 11 way connector(s) on the Module Processor Card
6. Secure the modules to the 19" Subrack
7. Remount the 19" Subrack onto the rack if appropriate
8. Reconnect the power and turn it on

3.3 Wiring Remote Systems

3.3.1 Remote Termination Card

The remote termination card can be with or without relays. The remote termination card acts as the interface for VESDAnet terminals, power supply terminals, relays and relay terminals.

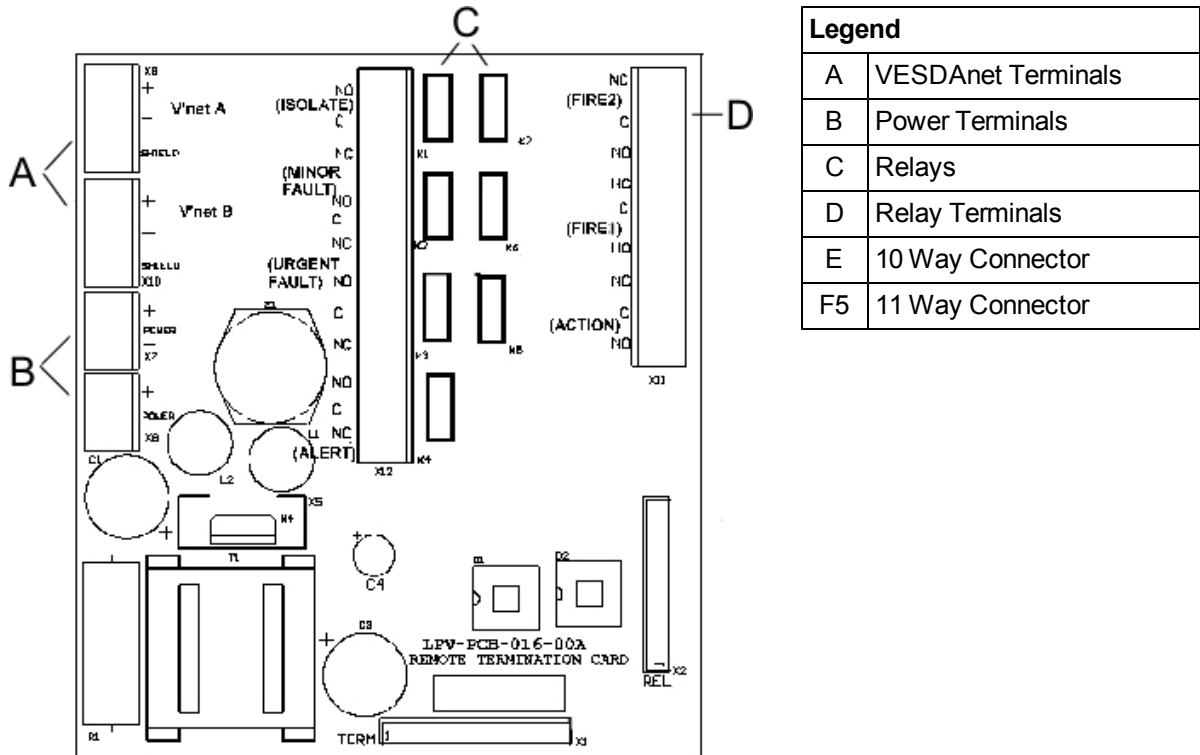


Figure 3-5: Remote Termination Card with 7 Relays

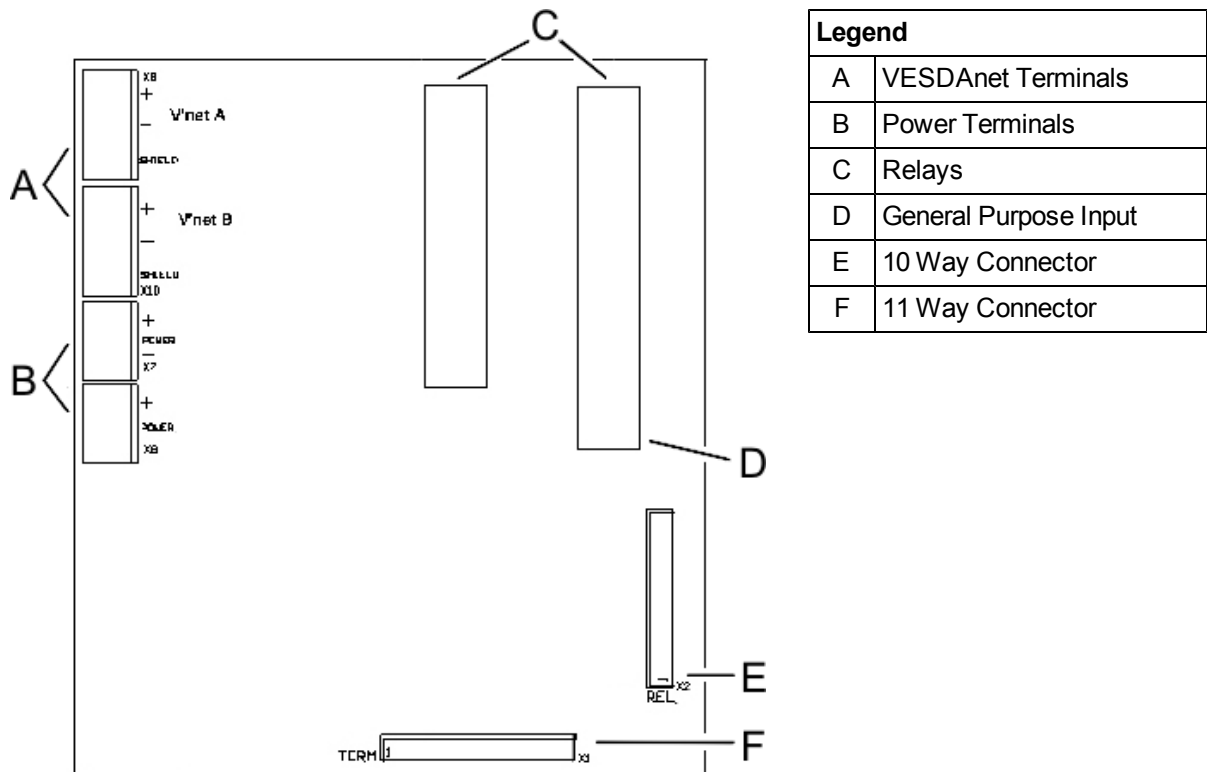


Figure 3-6: Remote Termination Card with 12 Relays

VESDAnet Terminals

The module is connected to VESDAnet through VESDAnet terminals on the remote termination card. The terminals enable VESDAnet communication wires to be brought into the remote box or the 19" Subrack and looped out to another device. Data communication on VESDAnet are bidirectional. The polarity of the data wires must be maintained throughout the network. It is recommended that RS 485 (Belden 9841 - 120 ohm) twisted pair cables be used, however compatible cabling can be used.

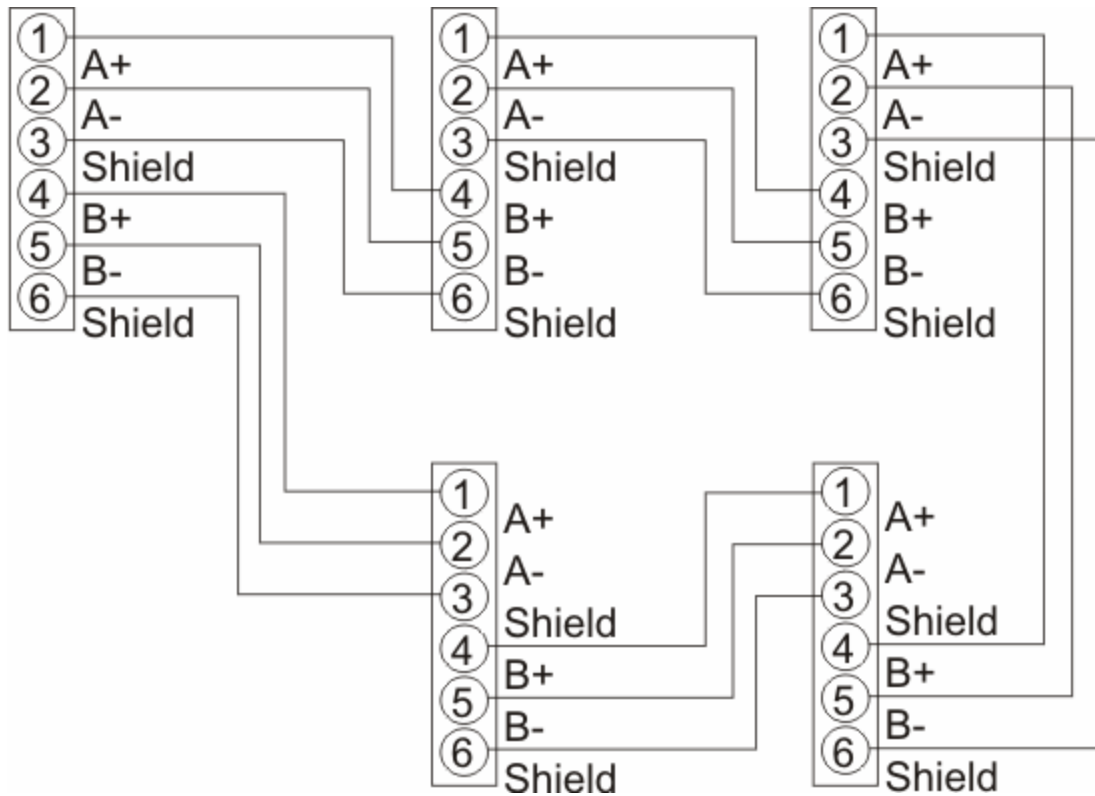


Figure 3-7: An example of the wire connection for VESDAnet (Closed Loop)

Relays

The relays interface with auxiliary external items, such as loop interface modules, beacons or sounders. These may also be interfaced with external devices through a fire indication device, or to fire alarm panels using a High Level Interface (HLI). The relays can be programmed via a PC or the LCD programmer. The relays can be assigned multiple assignments. Refer to software guides and LCD programmer guides for details. Relays 3 and 6 are set for urgent fault and fire 1 respectively and can be programmed for additional functions. For factory default settings and energized/de-energized status refer to Table 3-4 on page 13.

Table 3-4: Relay Change State Conditions

7 Relay Card	12 Relay Card	Default Function	State Change (when in factory default configuration)
1	1	Isolate	Energizes when an operator isolates the detector by pressing the Isolate key on the display module or by activating the command via a PC or a LCD Programmer or GPI option.
2	2	Minor Fault	De-energizes when a Minor Fault is detected.
3	3	Urgent Fault	De-energizes when an Urgent Fault is detected.
4	4	Alert	Energizes when the Alert alarm is initiated.
5	5	Action	Energizes when the Action alarm is initiated.
6	6	Fire 1	Energizes when the Fire 1 alarm is initiated.
7	7	Fire 2	Energizes when the Fire 2 alarm is initiated.
	8	First Alarm Sector 1	Energizes when the First Alarm Sector 1 has been identified.
	9	First Alarm Sector 2	Energizes when the First Alarm Sector 2 has been identified.
	10	First Alarm Sector 3	Energizes when the First Alarm Sector 3 has been identified.
	11	First Alarm Sector 4	Energizes when the First Alarm Sector 4 has been identified.
	12	Scan	Energizes when the Scanner is scanning the inlet ports.

Note: Assignments to relays 3 and 6 are fixed to Urgent Fault and Fire 1 respectively.

3.3.2 Wiring Relay Processor Card and Remote Termination Card

The remote termination card has a 10 way and a 11 way connector. The 10 way connector is for connecting the relays and the 11 Way connector is for connecting the power supply and communications to the relay processor card.

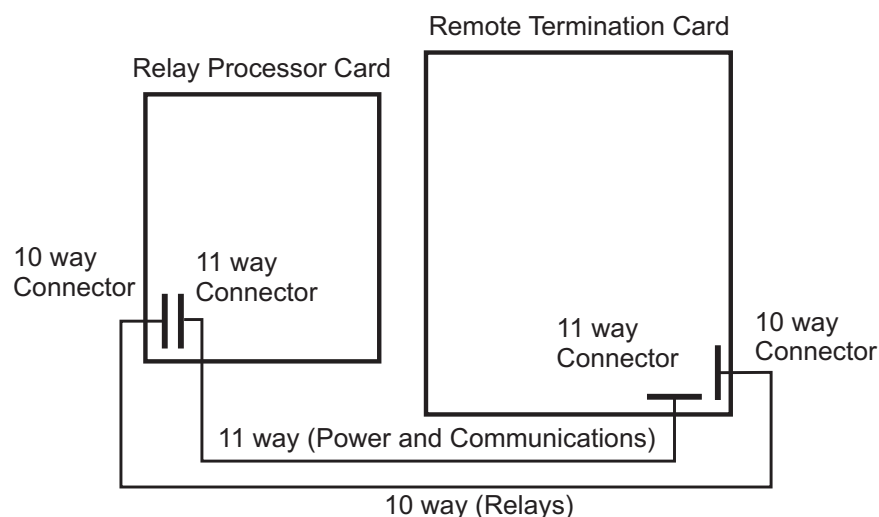


Figure 3-8: Internal wiring between Module Processor Card and Remote Termination Card

3.3.3 Wiring the Modules in the 19" Subrack

The VESDAnet and power connections are looped internally from the factory. It is only necessary to connect power on to the rack and VESDAnet in and out of each end of the rack.

3.3.4 Power Source

The power terminals on the remote termination card connect to a 24 VDC power supply. The four power terminals enable power to be brought to the remote termination card via a single wire pair and looped out to another device via another wire pair. The modules have reverse polarity protection to minimize the risk of reverse power connection to the modules. The modules will not operate when the supply is reversed.

Note: Operating a module when DC supply voltage is outside the voltage range of 18 VDC and 30 VDC may cause damage to the device.

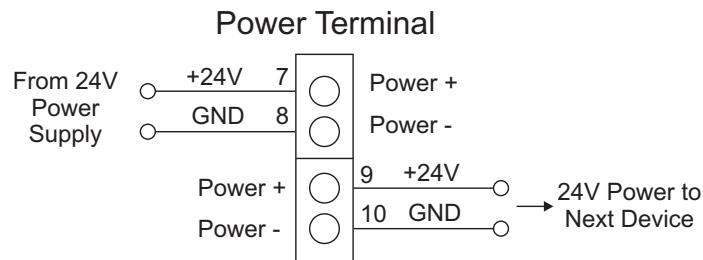


Figure 3-9: Power Connection for a Remote Termination Card

All connectors are polarized and can only be inserted one way into a socket.

Do not attempt to force a connector into its socket. If there is any difficulty, reverse the orientation of the connector before inserting again.

3.3.5 Backup Battery

The power supply for each detector can switch to a back up battery in the event of a mains power supply disruption. The size of the back up battery is determined by local standards and codes, the total power required by the system, back up time required, allowance for reduction in capacity with age and expected temperature variations.

If an intelligent VESDA power supply is fitted it will report power failures (F15) on VESDAnet. VESDA VLP & VESDA VLS with GPI terminals connected will maintain their aspirator speed for an hour after the loss of mains power. After which, the aspirator speed will be limited to 3000 rpm to conserve power.

See the detector product guides for information on how to calculate the size of battery backup required.

4 The Modules

4.1 The Display Module

The display module reports smoke levels and alarm stages for the assigned detector. It has buttons to enable various systems functions. The display module also indicates faults with the detector and VESDAnet.

4.1.1 Features of the Display Module

The display module features:

- Immediate status reporting for assigned VESDA Address (also called Zones)
- High intensity alarm LEDs
- Remote relay option
- 20 segment vertical bar graph display
- Alarm threshold indicators
- In built sounder for audible warning
- Comprehensive fault reporting
- Multi-mode numeric Display

4.1.2 Operation of the Display Module

A display module can be installed directly onto a detector, or at a remote location on a remote box or the 19" Subrack. A display module is assigned to only one detector, however up to 19 display modules can be assigned to one detector. The display module is connected to the detector through the termination card.

- LEDs and Buttons

The Threshold Indicators provide at a glance the visual representation of the programmable alarm thresholds.

The Bar Graph continuously displays the current level of detected smoke. The top segment indicates FIRE 1 smoke threshold level.

The Numeric Display has a two digit readout of:

- FIRE 1 threshold
- Current smoke levels (in % obs/m OR % obs/ft)
- The VESDA Address (also called Zones) number
- First Alarm Sector (VLS only).

The Alarm LEDs indicate the respective thresholds set for ALERT, ACTION, FIRE 1 and FIRE 2 have been reached if an smoke is detected.

The Fault LEDs indicate a fault with the assigned detector or with VESDAnet.

Push Button Keys enable the user to Reset, Isolate or Silence the detector and control the mode of the display module. These buttons can be disabled by the Systems Administrator to prevent operation of its functions.

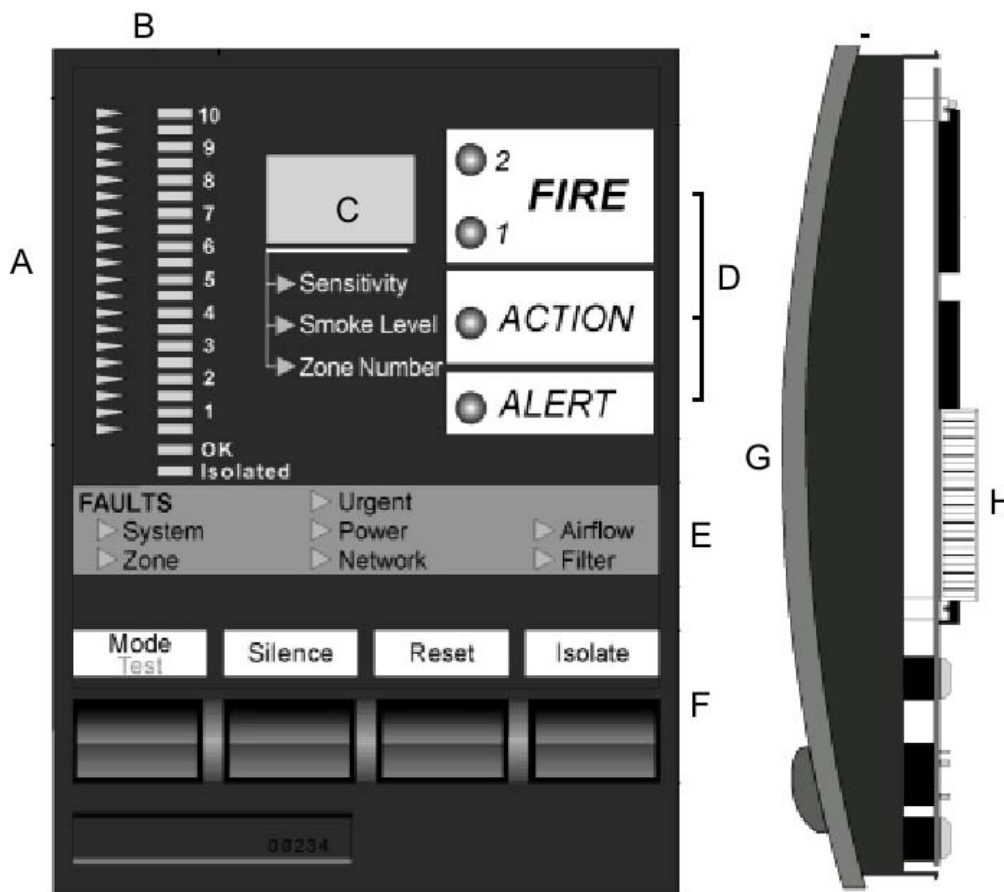
Each detector in the laser series has a display module specifically designed to meet the reporting functions of a particular detector model. The reporting functions of these display modules have been discussed in detail in the respective detector guides.

4.1.3 Product Specification

Table 4-1: Specifications for display module

Supply Voltage	18 to 30 VDC
Dimensions (WHD)	105 mm x 130 mm x 30 mm (4.1 in x 5.3 in x 1.2 in)
Operating Temperature	0° to 39° C (32° F to 103° F)
Humidity	10-99 % RH non-condensing
Alarm Indicators	High Intensity LEDs with 70 degree viewing a
Push Button Keys	Mode/Test Silence/Scan Reset Isolate Can be disabled during commissioning (except Silence)
Fault Indicators	System, Power, Airflow, VESDA Address (also called Zones), Network, Filter, Urgent (This indicator will only illuminate in conjunction with another fault indicator)

4.1.4 Overview



Legend					
A	Threshold Indicators	D	Alarm LED's	G	Front Decal
B	Bargraph	E	Fault LED's	H	Module Processor Card
C	Numerical Display	F	Push button Keys		

Figure 4-1: Display Module

4.1.5 Mounting a Display Module

The display module is easily snapped into place in a detector, remote mounting box, or the 19" subrack.

4.1.6 Wiring up the Display Module

The display module is connected to the remote termination card. For further information refer to Wiring Remote Systems on page 11.

4.2 LCD Programmer

The VESDA LCD Programmer allows configuration, commissioning and maintenance of the VESDA system. It is used to program and maintain the detector. The LCD Programmer Module can be mounted into a detector, remote box, or a 19" Subrack. It is also available as a Handheld model. For detailed description and use of the LCD Programmer please refer to the VESDA LCD Programmer Product Manual.

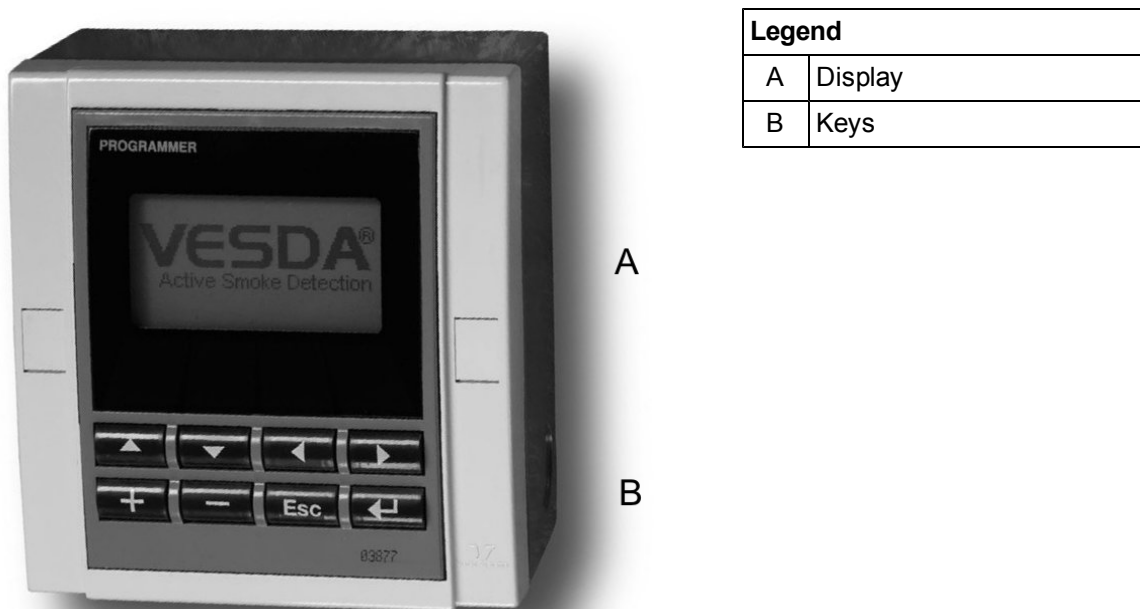


Figure 4-2: The LCD Programmer Module

4.2.1 LCD Programmer Specifications

Supply Voltage	18 to 30 VDC
Dimensions (WHD)	105 mm (4.1 in.) x 130 mm (5.3 in.) x 26 mm (1.02 in.)
Operating Temperature	0° to 39° C (32° F to 103° F)
Humidity	10-99 % RH non-condensing

4.3 VESDAnet Socket Module

The VESDAnet Socket is a 15 Pin Female Connector. It enables external devices to be connected to VESDAnet. The hand-held LCD Programmer and the HLI are connected to VESDAnet using the VESDAnet Socket.

A VESDAnet socket is located on the detector termination card of VESDAnet capable detectors. However the VESDAnet Socket Module can be mounted onto a remote box or a 19" Subrack, enabling access to VESDAnet from a remote location.

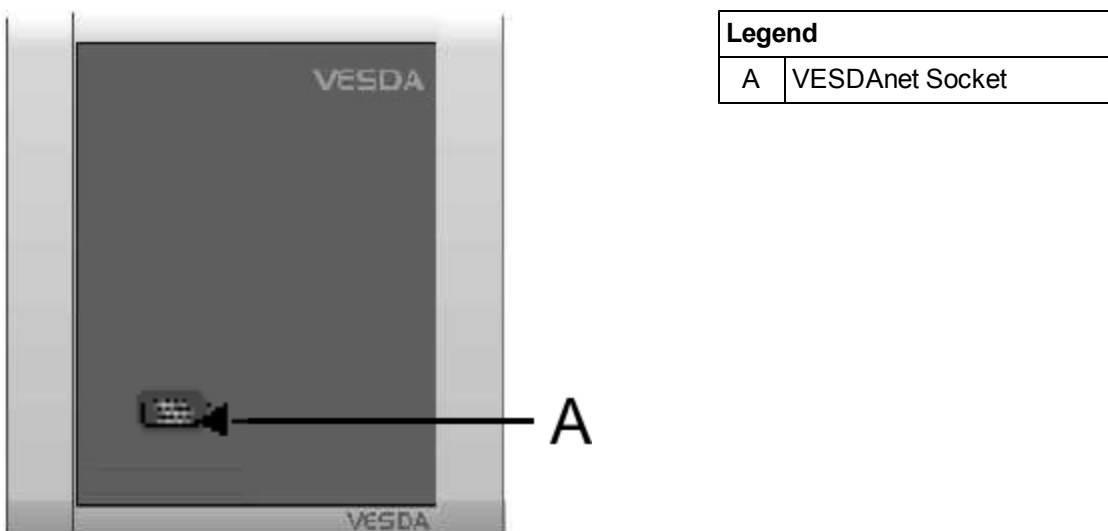


Figure 4-3: VESDAnet Socket Module

4.3.1 Dimensions

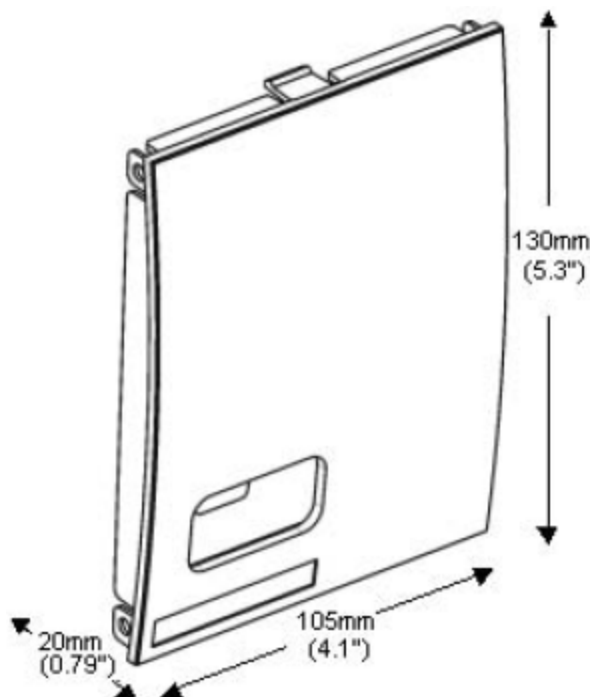
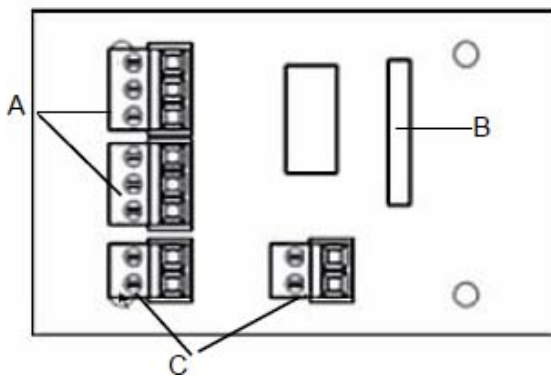


Figure 4-4: Dimensions of VESDAnet Module



Legend	
A	VESDAnet Terminals
B	10 Pin Connector
C	Power supply terminals

Figure 4-5: VESDAnet Interface Socket Card

4.3.2 Operation of VESDAnet Socket

The VESDAnet socket is connected to the (24 VDC) VESDAnet socket card. The terminals on the VESDAnet socket card enable VESDAnet communication wires to be brought into the VESDAnet socket module and looped out to another device. Data communication on VESDAnet is bidirectional. The polarity of the data wires must be maintained throughout the network. It is recommended that RS 485 (Belden 9841 - 120 ohm) twisted pair cables be used, however compatible cabling can be used.

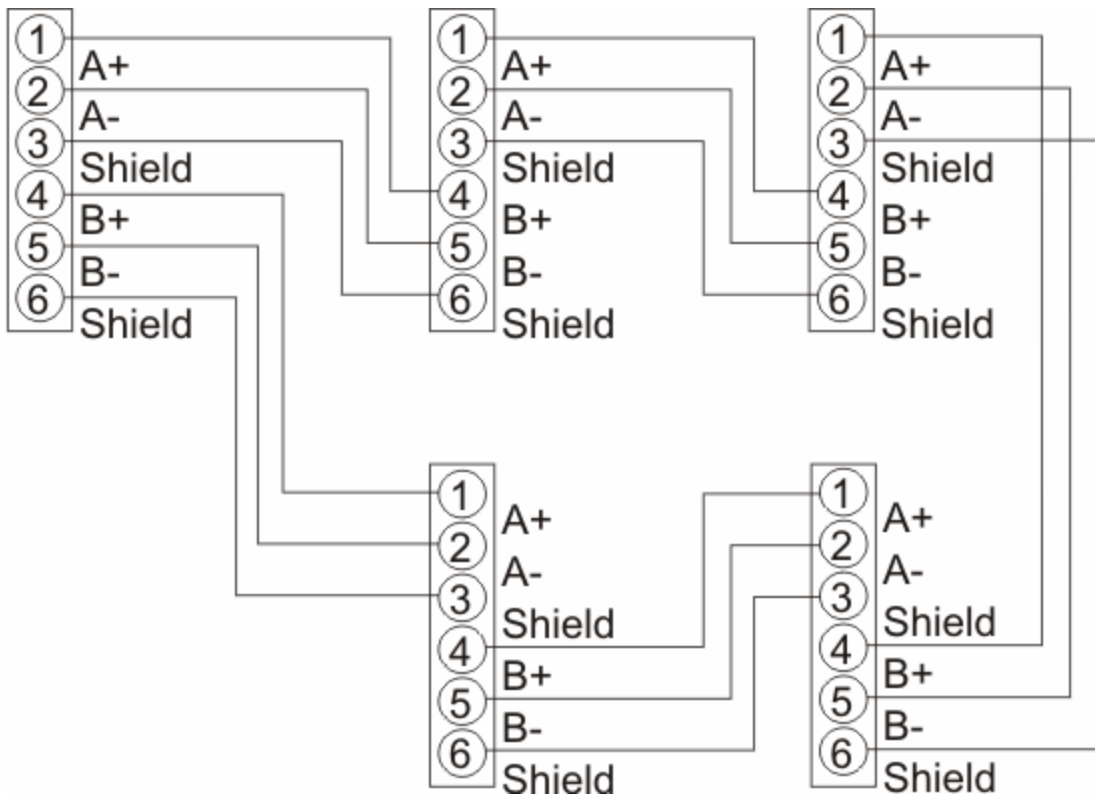


Figure 4-6: VESDAnet Wiring (Closed Loop)

4.4 Remote Termination Card

The remote termination card is available with 7 relays or 12 relays. The remote termination card is used when there is a requirement for reporting and/or triggering an external device, through a fire alarm control panel that is located away from the detector. The remote termination card copies the attributes of the head termination card of the detector to which it is assigned. It can also be programmed to provide remote relay assignments that are different to those of the assigned detector.



Figure 4-7: Remote Termination Card

4.4.1 Features of Remote Termination Card

- 7 programmable relays (or 12 relays for VLS)
- The default values for the relays correspond to respective default values for 7 and 12 Relay Head termination cards. The remote termination card does not have GPI Function.
- Can be wired to a secondary reporting device (e.g. a sounder or a beacon)
- Comprehensive reporting and system management using PC based software or the LCD Programmer
- Option for recessed mounting
- Interfaces with all existing VESDA devices

4.4.2 Operation of the Remote Termination Card

The remote termination card is housed in the remote box or the 19" Subrack. The remote termination card provides the terminals for VESDAnet and power supply to the relay processor card.

4.4.3 Remote Termination Card Module Specifications

Supply Voltage	18 to 30 VDC		
Power Consumption	Power Consumption (W) @24 VDC	Silent	With Alarm
	Remote Termination Card 7 Relay and relay processor card - Power	1.44 W	2.52 W
	Remote Termination Card 7 Relay and relay processor card - Current	60 mA	105 mA
	Remote Termination Card 12 Relay and relay processor card - Power		
	Remote Termination Card 12 Relay and relay processor card - Current		
Dimensions (WHD)	105 mm (4.1 in.) x 130 mm (5.3 in.) x 26 mm (1.02 in.)		
Dimensions in Remote Mounting Unit	140 mm (5.5 in.) x 150 mm (5.9 in.) x 85 mm (3.4 in.)		
Operating Temp.	0° to 39°C (32° F to 103° F)		
Humidity	10-99%RH non-condensing		

4.4.4 Mounting the Remote Termination Card

The remote termination card module is easily mounted onto a remote box and the 19" Subrack. For details on mounting refer to Mounting a Remote Box on page 8 and Mounting a 19" Subrack on page 10.

4.4.5 Wiring the Remote Termination Card Module

The relay processor card is connected to a 7 or 12 relay remote termination card. For details on wiring the remote termination card and relay processor Module please refer to Wiring Remote Systems on page 11.

4.5 System Relay Module

The system relay module is a 7 relay remote termination card with specialized software. The product software allows reporting of any alarm or fault condition initiated by any VESDA Address (also called Zones) on the VESDAnet loop.

Where dedicated VESDA Address (also called Zone) monitoring and management is not required, the system relay module provides an alternative to the remote termination card and relay processor card module.



Figure 4-8: System Relay Module

4.5.1 Features

- Earliest possible reporting of alarms and faults for all VESDA Addresses (also called Zones) on a single VESDAnet loop
- Reports on the VESDA Address (also called Zones) on the VESDAnet loop
- 7 programmable relays
- Can be wired to a secondary reporting device (e.g. a sounder or a beacon)
- Option for recessed mounting
- Programmable with Xtralis VSC
- Interfaces with all existing VESDA devices. Refer to Operation of the System Relay Module on page 19 for software versions required to interface with the system relay module.

4.5.2 Operation of the System Relay Module

The system relay module is connected to the VESDAnet loop and always assumes VESDA Address (also called Zones) 0 for itself. This is the default setting and cannot be changed. It will report on any alarm or fault condition that occurs with any device on the VESDAnet loop. Further investigation can be conducted using the Xtralis VSM4 software monitoring package, VESDA Displays, LCD Programmer or through a Fire Alarm Control Panel.

4.5.3 Specifications

Supply Voltage	18 to 30 VDC		
Power Consumption		Power Consumption (W) @24 VDC	
		Silent	With Alarm
	Power	1.44 W	2.52 W
	Current	60 mA	105 mA
Dimensions (WHD)	105 mm (4.1 in.) x 130 mm (5.3 in.) x 26 mm (1.02 in.)		
Dimensions in Remote Mounting Unit	140 mm (5.5 in.) x 150 mm (5.9 in.) x 85 mm (3.4 in.)		
Operating Temp.	0° to 39°C (32° F to 103° F)		
Humidity	10-99%RH non-condensing		
Software Compatibility	Version: VLP detector - Ver. 3.05.00 and later. VLS detector - Ver. 3.05.00 and later. VLC detector -Ver. 3.07.05 and later. High Level Interface (HLI) - Ver. 3.05.04 and later. LCD Programmer - Ver. 3.02.*1 and later(*denotes language). The LCD Programmer cannot configure the system relay module. Displays - do not need upgrading VSM4 - Ver. 3.00.06 and later. VSC - Ver. 3.00.06 and later.		

4.5.4 Mounting the System Relay Module

The system relay module is mounted onto a remote box. For details on mounting refer to Mounting a Remote Box on page 8.

4.5.5 Wiring the System Relay Module

The relay processor card in a system relay module is connected to a 7 relay remote termination card. For details on wiring the system relay module please refer to Wiring Remote Systems on page 11.

5 Other Accessories

5.1 Labels

Sampling point labels – There are two labels to identify sampling holes:

Miniature sampling point label

These are round labels with a hole in the center to fit around the miniature sampling points



Sampling point decal

This decal is wrapped around a pipe on the sampling hole. The decal has a hole in the center. The hole in the decal must be aligned to the sampling hole drilled into the pipe.



Pipe label

This label identifies the pipe as being a smoke detector pipe and warns against tampering with it.



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