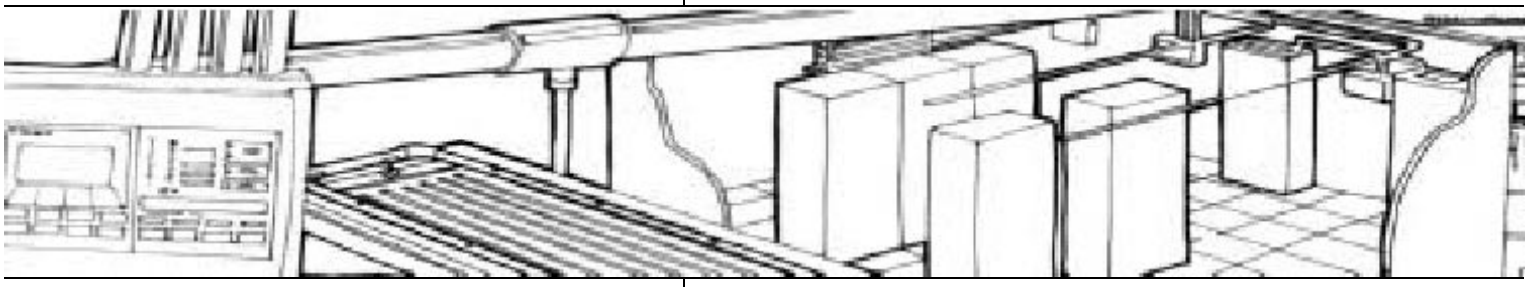
VESDA®

ASPIRATING SMOKE DETECTION



VESDA Troubleshooting Guide

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Codes and Standards Information
Vision Fire & Security strongly recommends that this guide is read in conjunction with the appropriate local codes and standards for smoke detection systems and electrical connections. This guide contains generic information and some sections may not comply fully with all local codes and standards. In these cases, the local codes and standards must take precedence.

Icons Used

Icon	Description
	Caution
	Danger
	Important Information
	Note

Icon	Description
	Regional Significance
	Shock Warning
	Useful Hint/Tip

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1. Introduction

1.1. Scope

The VESDA Troubleshooting Guide helps understand the faults that may arise from a VESDA Laser System and how to rectify these faults.

This guide is written for those involved with the management, commissioning, maintenance and servicing of VESDA Laser Systems.

It is assumed that persons troubleshooting a VESDA Laser System are knowledgeable about the Local Fire and Electrical Codes and Standards. It is recommended that only persons who have an understanding of VESDA Laser Products and Aspirating Smoke Detection Systems attempt at troubleshooting a VESDA Laser System.

☞ **This guide is for the standard VESDA product range only. Faults not applicable to the standard VESDA range of products have not been included in this guide.**

1.2. Introduction to Troubleshooting

It is possible that occasionally a VESDA Laser System may indicate certain faults. It is normal for a new system to highlight Factory Defaults and Air Flow faults. These are rectified as part of the setup and commissioning process. Faults that may arise in the course of normal operations have been identified and this Guide provides information on how to troubleshoot and rectify those faults.

Faults can be identified and rectified through a physical check (such as on some power and communications Faults), by using the LCD Programmer or a VESDA PC Software. In the unlikely event of a Fault not mentioned in this Guide occurring, please contact a VESDA Distributor, or the nearest Vision Fire & Security Technical Office.

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2. Fault Reporting on VESDA Laser System

Any Fault on a VESDA Laser System is reported through Display Modules, the LCD Programmer and the VESDA PC Software. Information pertaining to the fault is signalled through one of two fault relays - minor and urgent (by default relay K2 and K3). All faults are logged into the Event Log giving the time, date and the details of the fault.

2.1. Reporting Faults on the Display Module

When a Fault occurs it is reported by the illumination of relevant LED(s) on the Display Module. Refer to Table 2 for a representation of faults reported through a Display Module.

2.1.1. Fault LEDs

- **URGENT -** When illuminated, this LED indicates a serious fault requiring immediate attention
- **SYSTEM -** When illuminated, this indicates a fault effecting the network to which the Display is connected
- **ZONE -**The illumination of this LED indicates a fault in the VESDA Zone monitored by the Display Module
- **POWER -** If the GPI Function is used, the illumination of this LED indicates a fault in the Power Supply
- **NETWORK -** A communications fault on VESDAnet illuminates this LED
- **AIRFLOW -** Higher or lower than acceptable levels of Air Flow through the Inlet Pipe is indicated when this LED is illuminated
- **FILTER -** This LED illuminates when the Air Filter requires changing

Figure 1 Example of an Airflow Fault reported on a Display Module (black arrow heads represent LEDs that are illuminated)

2.2. Fault Finding with a LCD Programmer

The LCD Programmer reports individual device faults. The faults are reported in the status screen and are clearly identified with a “F” icon against the fault. Details of the faults can be interrogated through the “status” option of the respective device. For further details please refer to the VESDA LCD Programmer Product Guide.

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2.3. Fault Finding with VESDA PC Software

The VESDA PC Software displays a Fault on the Active Event List screen as these occur. The Active Event List screen displays the Date and Time of the fault, the serial number of the device on which the fault has occurred, the zone number, fault number, and a description of the fault. For detailed information about a fault access the Device Tree Menu, highlight the device and select Device Information. This displays the details of the fault.

VConfig PRO automatically stops displaying faults once the fault is cleared. When a fault occurs VSM3 displays the fault in the Active Event List screen and the Status Bar at the bottom of the screen. A warning beeper is activated in the computer hosting VSM3 (provided the computer has a sound card). The beeper will continue to sound until the fault is acknowledged.

For further details on PC Software please refer to the VESDA Software online help.

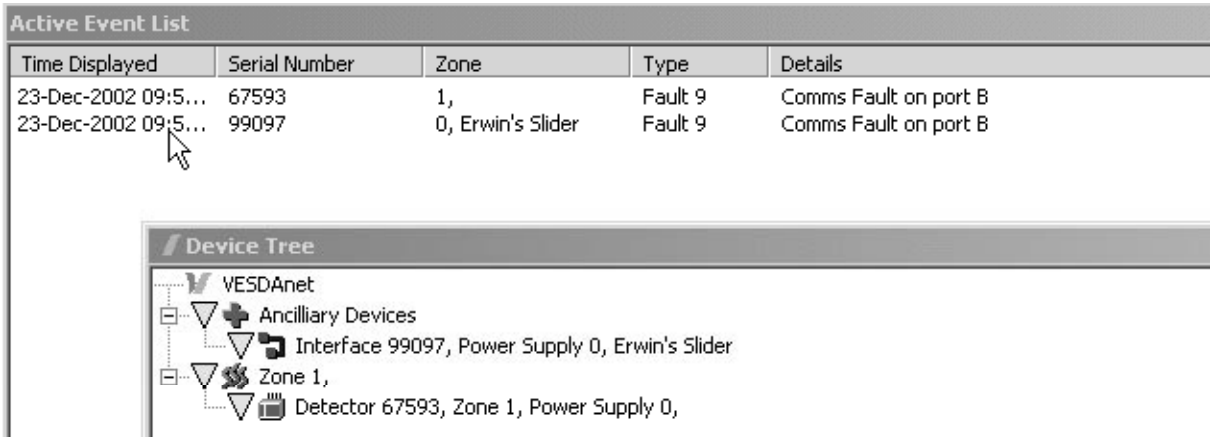

Figure 2 Representation of Faults in VConfig PRO

2.4. Fault Reporting Through Relays and HLIs

VESDA devices are often interfaced with FACPs and building management systems and may not be connected to Display Modules. In such instances the Fault Relays signal the fault to the FACP or the Building Management System which then reports the fault.

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3. List of Faults

Table 1 lists faults that may occur in a VESDA Laser System. The Table mentions the Fault No., the Fault Description of the corresponding fault, Cause of the Fault and the Action required to rectify the Fault. The "Key" column Refers to the illustrations in the following Table.

Fault No.	Fault Description	LED Key	Cause	Action
0	Aspirator failed	A	The Detector's aspirator is not working.	Call your nearest VESDA Technical Office to replace the aspirator.
1	Power supply battery failed.	B	There has been a loss of battery power.	Replace battery.
	This fault relates to the VESDA Intelligent Power Supply Unit. For other Power Supply Units refer to respective manufacturer's manuals			
2	Comms fault on port A	C	There is a communications fault at port A.	• Check that the wiring is correct. Tighten connections or repair any break in the wiring. • The location of the fault can be traced because the devices on either side of the loose connection or broken wire will both report the fault. • The device that reported the fault can be determined using the Status screen on the LCD Programmer. For single Detector systems, check that the two VESDAnet connectors on the termination card are connected together. Also switch the power off and check all internal connections. Refer to Figure 3 • If a system is intentionally wired as an open-ended loop this fault will continue to occur unless the devices on each end of the loop have been configured as open-ended using the Programmer. Refer to the LCD Programmer Guide or the VESDA PC Software online Help
3	Detector PIC failure.	G	The Detector processor board has a hardware fault.	Call your nearest VESDA Technical Office to replace the Detector chassis.
4	Filter removed	J	The air filter has been removed from the Detector.	The filter should be replaced.

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Fault No.	Fault Description	LED Key	Cause	Action
5	Reference Detector loss	I	The Detector has not received any messages from its configured Reference Detector.	Check to see that the Detector is configured to look for the correct Reference Detector. Also switch the power off and check all internal connections. If this is OK, call your nearest VESDA Technical Office.
6	Power supply DC output failure	F	The Power supply has a hardware failure.	Call your nearest VESDA Technical Office to repair or replace the Power supply.
	This fault relates to the VESDA Intelligent Power Supply Unit. For other Power Supply Units refer to respective manufacturer's manuals			
7	Software fault found	G	The software is malfunctioning.	Call your nearest VESDA Technical Office.
8	Aspirator speed control failure	D	The aspirator cannot continue to run at set speed, because: The set rpm is outside the operating range. Either the aspirator or the speed sensor have failed.	• Set speed should be as indicated by ASPIRE™. • Call your nearest VESDA Technical Office.
9	Comms fault on Port B	C	There is a communications fault at port B.	• Check that the wiring is correct. Tighten connections or repair any break in the wiring. • The location of the fault can be traced because the devices on either side of the loose connection or broken wire will both report the fault. • The device that reported the fault can be determined using the Status screen on the LCD Programmer. For single Detector systems, check that the two VESDA*net* connectors on the termination card are connected together. Refer to Figure • If a system is intentionally wired as an open-ended loop this fault will continue to occur unless the devices on each end of the loop have been configured as open- ended using the Programmer. Refer to the LCD Programmer Guide or the VESDA PC Software online Help

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Fault No.	Fault Description	LED Key	Cause	Action
10	LED card on Display not found	I	A Display Processor is configured to have a dis play card but cannot find it (or vice-versa). This may be due to a failed connector or an error in the Display configuration.	Check that the display card is plugged in and power cycle the Display; i.e. turn the power supply off and on. If the fault persists call your nearest VESDA Technical Office to have the display card replaced.
11	Filter approaching capacity	E	The air filter is approaching its capacity. This is based on the amount of dust detected or age of the filter.	The filter must be replaced and the filter counter reset.
12	Zone setup = factory defaults	G	The common setup area on the reporting device has either not been altered from the factory defaults or has reverted to the factory defaults.	The fault must be cleared by calling the Administrator to select 'Defaults OK' from the Factory Defaults menu.
13	More than one Detector in zone	G	An error in the system configuration has occurred and more than one Detector has been detected in the zone.	This fault will recur every minute until the fault is cleared. Ensure that each detector is allocated a different VESDA Zone. If the fault continues call your VESDA Technical Office.
14	Flow sensors = factory defaults	I	The flow sensor calibration area on the Detector has either not been altered from (or has returned to) the factory defaults.	Contact your local Vision Fire & Security Office to return the detector for factory calibration
15	AC mains failure	F	The source supplying AC power has failed, or a fault with an external PSU has been signalled through the GP Input on the VESDA Detector	Restore the AC power/Batteries if failed. Ensure the GPI mains monitoring option has not been incorrectly set. If the fault persists call your Vision Fire & Security Office
16	Relays not found	G	A Display or a Detector is configured to have a Relay card but cannot find it (or vice-versa). This may be due to a failed connector or an error in the Display con figuration.	Once the fault is corrected this fault can be cleared by turning the power supply off and on or pressing the Reset button. Ensure the number of relays configured match the number of installed relays. If the fault persists call your nearest VESDA Technical Office
17	No comms from Detector	G	A display has not received the regular 'health check' message from its Detector. The Detector may not be configured correctly or the wiring may be faulty. Alternatively, the Detector in the zone may have failed.	Call your Administrator to check the configuration of the system. Arrange for the wiring to be checked. If the configuration and wiring are OK, call your nearest VESDA Technical Office to repair the Detector.

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Fault No.	Fault Description	LED Key	Cause	Action
18	Too many Displays in zone	I	There may be more than 20 devices in the zone.	Call the system Administrator to alter the number of devices configured in this zone.
19	Flow sensor failure pipe 4	D	The flow sensor on pipe 4 has failed.	Check the Flow Sensor Cable Loom is properly connected between the Main Chasis and the Pipe Inlet Manifold. If fault persists, call your nearest VESDA Technical Office to replace the flow sensor and manifold.
20	Flow sensor failure pipe 3	D	The flow sensor on pipe 3 has failed.	Refer to Fault 19
21	Flow sensor failure pipe 2	D	The flow sensor on pipe 2 has failed.	Refer to Fault 19
22	Flow sensor failure pipe 1	D	The flow sensor on pipe 1 has failed.	Refer to Fault 19
23	Laser signal too low	G	The Detector's pre-processor has detected a loss of smoke level signal.	Call your nearest VESDA Technical Office for a replacement detector.
24	Cannot find Display/Relay	G	One of the Displays in a Detector's zone has not sent its regular Health Check message. This will occur if the Display has failed or has been disconnected.	• Use the Rebuild List option to clear the fault If the Display has been disconnected or a new one installed. • If the Display has failed, call your nearest VESDA Technical Office to repair or replace the Display. Do not use Rebuild List.
25	Comms on Port A while open-ended	C	Devices on the system can be configured as open-ended on one port. If a device such as an LCD Programmer or a HLI is attached to this port this fault will be reported. This fault will also be reported if there has been an error in the system configuration.	• If this fault is due to the temporary plugging in of an LCD Programmer or HLI, the fault will be cleared when the device is removed (If the devices have been programmed as non-latching). If however the devices have been programmed as latching it is necessary to reset after the fault condition is removed. • Check that if there is communcations on both A and B ports, that Open port should be set to none.
26	Comms on Port B while open-ended	C	Devices on the system can be configured as open-ended on one port. If a device such as an LCD Programmer or HLI is attached to this port this fault will be reported. This fault will also be reported if there has been an error in the sys tem configuration.	Refer to Fault 25

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Fault No.	Fault Description	LED Key	Cause	Action
27	AutoLearn aborted	G	AutoLearn has been aborted/interrupted before the set time	After the cause of the interruption has been determined, AutoLearn can be restarted.
28	Scanner option misconfigured	G	• A non-Scanner Display has been put into a zone with a Scanner Detector or vice versa • The Scanner valve cable is disconnected	• Check that all Displays in a zone match the Detectors in that zone. That is, if the Detector in a zone has the Scanner option all Displays for that zone must be Scanner Displays • Ensure the scanner valve cable is connected to the Head Processor Card (HPC). • The programmer is allocated to a LaserPLUS or LaserCOMPACT Zone. A programmer can only be allocated to a LaserSCANNER zone. Move the Programmer to Zone 0
29	Manufacturer setup corrupted	G	The manufacturer setup on the reporting device has either not been altered from the factory defaults or has reverted to the factory defaults.	Call your nearest VESDA Technical Office.
30	Relay config = factory defaults	G	The part of the setup that determines which relays correspond to which condition has not been altered from default set tings, or has reverted to the defaults. This may be because corruption of the system has been detected	Refer to the LCD Programmer Guide or the VESDA PC Software online Help for details on how to accept the Factory Defaults. If the problem per sists, call your nearest Vision Fire & Security office. Note: If this fault is due to a Scanner Display's zone having been changed, setting the relay assignment to that for the new zone will clear the fault.
31	Relay state = factory defaults	G	The part of the Relay setup that determines the startup settings has not been changed from the default settings or has reverted to these settings.	Refer to the LCD Programmer Guide or the VESDA PC Software online Help for details on how to accept the Factory Defaults. If the problem persists, call your nearest VESDA Technical Office.
32	Detector clocks not synchronised	I	The internal clock on all devices in the system are checked daily. If the time on any device has drifted by more than one minute this fault will be reported.	The system Administrator should check the time settings on the devices. Set the new time as a global function. If this drift in time continues to occur, call your nearest VESDA Technical Office. This fault may occur on the first day of use if the clocks are not synchronized under the Set Date and Time menu of the System All Devices menu.

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Fault No.	Fault Description	LED Key	Cause	Action
33	User list = factory defaults	I	The user list has not been changed from the default settings or has reverted to the defaults. This may be because corruption of the system has been detected.	The system Administrator is required to OK the use of the defaults or to alter the user list. Refer to the LCD Programmer Guide or the VESDA PC Software online Help for details.
34	Detector Setup = factory defaults	G	The Detector setup has not been changed from the default settings or has reverted to the defaults. This may be because corruption of the system has been detected.	The system Administrator is required to OK the use of the defaults. Refer to the LCD Programmer Guide or the VESDA PC Software online Help. If the problem persists, call your nearest VESDA Technical Office. Note that the Detector alarm thresholds and other configurations are kept in the Detector setup area. If this fault occurs you will have to reset all Detector configuration parameters.
35	Programmer Setup = factory defaults	K	The Programmer settings have not been changed from the default settings or has reverted to the defaults. This may be because corruption of the system has been detected.	The system Administrator is required to OK the use of the defaults or to alter the settings. Refer to the LCD Programmer Guide. If the problem persists, call your nearest VESDA Technical Office.
36	Event Log corrupt	I	The Detector Event Log has been found to be corrupted and has been cleared.	If this fault persists call your nearest VESDA Technical Office.
37	Detector cal = factory defaults	G	The Detector calibration has not been changed from the default settings or has reverted to the defaults. This may be because the data has been detected as being corrupt.	Call your nearest VESDA Technical Office. Your system may not detect smoke correctly.
38	Detector EPROM failure	I	The Detector data storage area has not been changed from the default settings or has reverted to the defaults. This may be because the data has been detected as being corrupt.	Refer to the LCD Programmer Guide or the VESDA PC Software online Help for instructions on how to accept the Factory Defaults. If this problem persists call your nearest VESDA Technical Office. Note that the filter life information is kept in this storage area. If this fault occurs, the filter life count will be set to zero.

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Fault No.	Fault Description	LED Key	Cause	Action
39	Urgent high airflow pipe 4	A	The airflow in the pipe of the Detector has exceeded the 'High Urgent' threshold. This may be because the aspirator setting has been changed or because there is a break in the pipe.	If the aspirator setting has been changed the system Administrator must be called to Normalize the air flow. If this does not rectify the problem a contractor should examine and repair any broken air sampling pipes.
40	Minor high airflow pipe 4	D	The airflow in the pipe has exceeded the 'High Minor' threshold. This may be because the aspirator setting has been changed or because there is a change in the flow in the pipe.	If the aspirator setting has been changed the system Administrator must be called to Normalize the air flow. If the fault continues to occur a contractor should be called to examine the pipe and repair any abnormalities.
41	Minor low airflow pipe 4	D	The airflow in the pipe has dropped below the 'Low Minor' threshold. This may be because the aspirator setting has been changed or because some sampling holes are becoming obstructed.	If the aspirator setting has been changed the system Administrator must be called to Normalize the air flow. If the problem is not the aspirator setting, call a contractor to clean the sampling points. The sampling points should be cleaned with a suitable implement.
42	Urgent low air flow pipe 4	A	The airflow in the pipe is below the 'Low Urgent' threshold. This may be because: • the aspirator setting has been changed; or • there is a blockage in the pipe; or • all pipes may be selected as "not in use"	If the aspirator setting has been changed the system Administrator must be called to Normalize the air flow. If the aspirator setting has not been changed call a contractor to check for blockages in the pipe. Check the number of pipes as selected "in use". Refer to the LCD Programmer Guide or the VESDA PC Software online Help for instruc tions on how to select pipes and Normalize the airflow.
43	Urgent high airflow pipe 3	A	Refer to Fault 39	Refer to Fault 39
44	Minor high airflow pipe 3	D	Refer to Fault 40	Refer to Fault 40
45	Minor low airflow pipe 3	D	Refer to Fault 41	Refer to Fault 41
46	Urgent low airflow pipe 3	A	Refer to fault 42	Refer to fault 42
47	Urgent high airflow pipe 2	A	Refer to Fault 39	Refer to Fault 39
48	Minor high airflow pipe 2	D	Refer to Fault 40	Refer to Fault 40
49	Minor low airflow pipe 2	D	Refer to Fault 41	Refer to Fault 41
50	Urgent low airflow pipe 2	A	Refer to fault 42	Refer to fault 42

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Fault No.	Fault Description	LED Key	Cause	Action
51	Urgent high airflow pipe 1	A	Refer to Fault 39	Refer to Fault 39
52	Minor high airflow pipe 1	D	Refer to Fault 40	Refer to Fault 40
53	Minor low airflow pipe 1	D	Refer to Fault 41	Refer to Fault 41
54	Urgent low airflow pipe 1	A	Refer to fault 42	Refer to fault 42
55	Too many power supplies.	I	More than one power supply has been detected in one power zone.	Ensure “Power Supply” menu option is set to Zone 0 if a VESDA Intelligent Power Supply is being used.
	This fault relates to the VESDA Intelligent Power Supply Unit. For other Power Supply Units refer to respective manufacturer’s manuals			
56	Clock failed	I	The real time clock is not functioning properly.	Contact your nearest VESDA Technical Office to rectify the fault.
57	Display setup = factory defaults	I	The Display is operating with the default configuration.	The system Administrator is required to OK the use of the defaults. Refer to the LCD Programmer Guide or the VESDA PC Software online Help. If the problem persists, call your nearest VESDA Technical Office.
58	Too many auto scans in one week	I	There have been more than 500 auto scans in a seven day period.	To clear fault Reset. Increase the Scan threshold by setting a higher Alert threshold.
59	Fault test	G	A fault test is currently in progress.	This fault will cease when the Fault test has finished. You can clear the fault by prematurely ending the test.
60	Battery charger failure.	F	The Power supply has a hardware failure.	Call your nearest VESDA Technical Office to repair or replace the Power supply.
	This fault relates to the VESDA Intelligent Power Supply Unit. For other Power Supply Units refer to respective manufacturer’s manuals			
61	Power Supply fuse failure.	B	The DC output fuse in the Power supply has failed.	Call your nearest VESDA Technical Office to replace the fuse.
	This fault relates to the VESDA Intelligent Power Supply Unit. For other Power Supply Units refer to respective manufacturer’s manuals			
62	Power Supply PIC failure.	B	The Power Supply preprocessor has failed.	Return the Power Supply to your nearest VESDA Technical Office so that it can be repaired or replaced.
	This fault relates to the VESDA Intelligent Power Supply Unit. For other Power Supply Units refer to respective manufacturer’s manuals			

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Fault No.	Fault Description	LED Key	Cause	Action
63	No comms from Power Supply. **This fault relates to the Intelligent Power Supply Unit. For other Power Supply Units refer to respective manufacturer's manuals**	B	A Detector has not received the regular 'health check' message from its Power Supply. The Power Supply or Detector may not be con figured correctly or the wiring may be faulty. Alternatively, the Power Supply in the zone may have failed.	Call your Administrator to check the configuration of the system. Arrange for the wiring to be checked. If the configuration and wiring are OK, call your nearest VESDA Technical Office to repair the Power Supply.
64	Power Supply output relay failed. **This fault relates to the VESDA Intelligent Power Supply Unit. For other Power Supply Units refer to respective manufacturer's manuals**	B	One of the relays in the Power Supply is not functioning correctly.	Return the Power Supply to your nearest VESDA Technical Office so that it can be repaired or replaced.
65	Incompatible SW version detected	K	Some of the devices on the system have different versions of software.	Call your nearest VESDA Technical Office to assist you in determining which software versions are compatible.
66	Status report period too short	K	The parameter Min Intvl has been set too low when compared with the number of devices in the system.	You must call your nearest VESDA Technical Office to reset the Minimum Interval. Refer to the LCD Programmer Guide or the VESDA PC Software online Help.
67	Network delay too short	K	The time allowed for a device to send a message around the network is too short.	Arrange for your nearest VESDA Technical Office to reset the Network Delay. Refer to the LCD Programmer Guide or the VESDA PC Software online Help.
68	HLI Setup = factory defaults	K	The HLI is operating with the default configuration.	The system Administrator is required to OK the use of the defaults or to alter the user list. Refer to the LCD Programmer Guide or the VESDA PC Software online Help. If the problem persists, call your nearest VESDA Technical Office.
69	Ref Detector has reference	G	A Reference Detector is using another Detector as a reference. Loops or chains of Reference Detectors are not supported.	Call the system Administrator to reconfigure the Reference Detector.
70	*Fault No. not in use*			
71	*Fault No. not in use*			
72	LC Module setup = factory defaults	G	The LC Module is operating with the default configuration.	The Administrator should okay the use of default settings.

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Fault No.	Fault Description	LED Key	Cause	Action
73	Filter clogging warning	J	This fault will be generated if dust count exceeds dust limit or the filter Service Interval has expired.	Filter must be urgently replaced and reset filter count.
74	*Fault Rectified. Fault No. not in use*			
75	Normalization has failed	D	This fault will occur if air normalization has been unsucessful	• Ensure atleast one exhaust port is open • Check the number of pipes selected as "in use" • Re-try air normalization. If fault persists contact your Administrator • If fault occurs at commissioning ensure pipe has airflow of >20 liters per minute (The fault may be caused by surplus air from an area with a relatively high or low pressure. Consider venting the exhaust back into the protected area to balance the pressure across the detector)
76	Filter replaced but not acknowledged	E	The filter on a Detector has physically been replaced but not acknowledged in the software.	• Acknowledge Filter Change in Software • Call your Administrator to check the positioning of the filter **If a new filter has not been fitted DO NOT reset the filter monitoring data**
77	Normalization in progress	D	Normalization is currently in progress on the detector.	This fault is generated as a reminder that the detectors normalizing the air flow. This will clear when normaliza tion completes. If the devices have been programmed as non-latching, the fault will be cleared when the device is removed. If however the devices have been programmed as latching it is necessary to reset after the fault is generated
78	No Sliding Windows Dial- Out Dial String	I	This fault is generated if the HLI attempts to dial out without having a dial up number configured in the modem configuration	Ensure that a dial up number is configured in the dial-out HLI
79	Both Dial Numbers failed during a modem dial out	I	This fault occurs if the HLI fails to dial out using either of the dial up num bers configured in the modem configuration	• Ensure modem is powered up and connected • Ensure modem is configured to a baud rate of 19200 • Test the receiving station
80	*Fault No. not in use*			
81	*Fault No. not in use*			

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Fault No.	Fault Description	LED Key	Cause	Action
82	Valve stuck shut on Pipe 1 Urgent	G	The Scanner Valve is not fully open and may be preventing the free flow of sampled air.	Check inlet ports for obstruction. Perform manual scan to check normal operation once obstruction is cleared. Contact your local Vision Fire & Security office for technical support if fault persists.
83	Valve stuck open on Pipe 1 Minor	I	The Scanner Valve is stuck in the open position. The sector scan feature of the Laser SCANNER Detector is non-functional	Check inlet ports for obstruction. Perform manual scan to check normal operation if cleared. Contact your local Vision Fire & Secutiry office for technical support if fault persists.
84	Valve stuck shut on Pipe 2 Urgent	G	Refer to Fault 82	Refer to Fault 82
85	Valve stuck open on Pipe 2 Minor	I	Refer to Fault 83	Refer to Fault 83
86	Valve stuck shut on Pipe 3 Urgent	G	Refer to Fault 82	Refer to Fault 82
87	Valve stuck open on Pipe 3 Minor	I	Refer to Fault 83	Refer to Fault 83
88	Valve stuck shut on Pipe 4 Urgent	G	Refer to Fault 82	Refer to Fault 82
89	Valve stuck open on Pipe 4 Minor	I	Refer to Fault 83	Refer to Fault 83

Table 1 - Troubleshooting Table

Table 2 below, illustrates the combination of illuminated LEDs on a Display Module representing different type of faults. Each combination is represented with a letter (A to L) which corresponds to the Key column in Table 1.

The Zone, Network or System LEDs are illuminated to indicate Zone, Network or System faults respectively. The Urgent LED is illuminated in the event of a fault categorized as urgent (e.g. An Urgent High Airflow Fault). Power, Airflow and Filter LEDs represent faults due to power supply, airflow or the filter respectively.

*LED key			
A	FAULTS ▶ Urgent System Power ▶ Airflow ▶ Zone Network: Filter	**G**	FAULTS ▶ Urgent System Power Airflow ▶ Zone Network: Filter
B	FAULTS ▶ Urgent System ▶ Power Airflow ▶ Zone Network: Filter	**H**	FAULTS Urgent System Power Airflow ▶ Zone ▶ Network: Filter
C	FAULTS Urgent ▶ System Power Airflow Zone ▶ Network: Filter	**I**	FAULTS Urgent System Power Airflow ▶ Zone Network: Filter
D	FAULTS Urgent System Power ▶ Airflow ▶ Zone Network: Filter	**J**	FAULTS ▶ Urgent System Power Airflow ▶ Zone Network: ▶ Filter
E	FAULTS Urgent System Power Airflow ▶ Zone Network: ▶ Filter	**K**	FAULTS Urgent ▶ System Power Airflow Zone Network: Filter
F	FAULTS Urgent System ▶ Power Airflow ▶ Zone Network: Filter	**L**	FAULTS Urgent ▶ System ▶ Power Airflow Zone Network: Filter

☞ **The ▶ in Table 1 indicates that a LED is illuminated.**

Table 2 - LED Combinations for Fault Reporting on a Display Module

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4. Communication Faults

Often communication faults occur due to improper network connections. Figure 3 illustrates the proper internal network connections for LaserPLUS and LaserSCANNER detectors to assist with tracking communication faults.

Detector

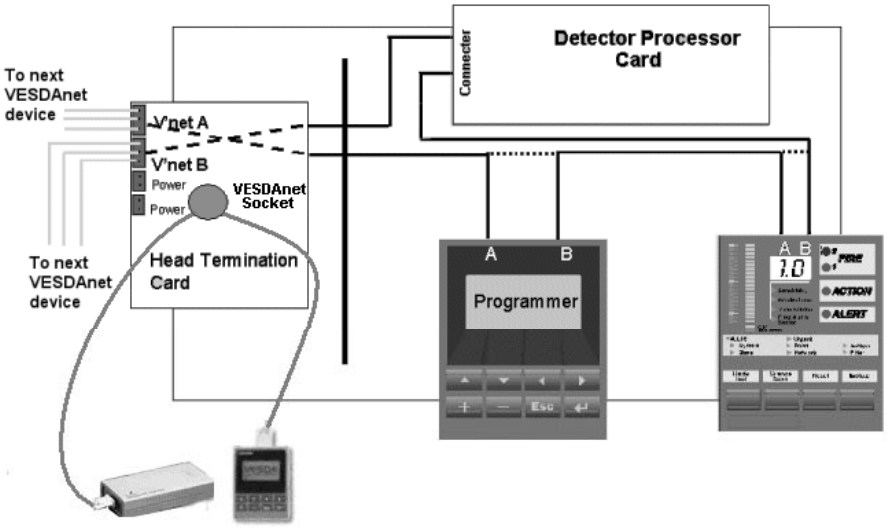

Figure 3 - Internal Network Connections for LaserPLUS & LaserSCANNER detectors

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