DESCRIPTION

The FAAST LT Series is part of the Fire Alarm Aspiration Sensing Technology® (FAAST) family. FAAST is an advanced fire detection system for use where early warning and very early warning are a requirement. The system continuously draws air from the controlled environment through a series of sampling holes to monitor the environment for smoke particulate. The FL20 Series is the addressable version of the FAAST LT range, communicating with the Fire Panel via a proprietary loop protocol.

The FL20nnEI is available in 3 different models each, 6 models total:

FL2011EI - has single channel capability with one laser smoke detector.

FL2012EI - has single channel capability with two laser smoke detectors in a common chamber for coincidence detection.

FL2022EI - has two channel capability with two laser smoke detectors in separate chambers, one detector per channel.

This guide provides information for mounting and basic installation using the unit's default factory settings.

SPECIFICATIONS

Environmental Ratings

Temperature:	-10°C to 55°C
Relative Humidity:	10% to 93% (non-cond)
IP Rating:	IP65

Mechanical:

Exterior Dimensions:	403 x 356 x 135mm
Wiring:	0.5mm^2 to 2.0mm^2 max
Maximum Single Pipe Length:	100m (Classes A, B & C)
Maximum Number of Holes:	See Table 1A
Pipe Spec (EN54-20 Compliance):	to EN61386 (Crush 1, Impact 1, Temp 31)
Outside Pipe Diameter:	25mm or 27mm (nom.)
Shipping Weight:	6.5kg (incl. detectors)

Colour Code Key: (refer to back page)

Black: applies to both FL01nn and FL20nn Series

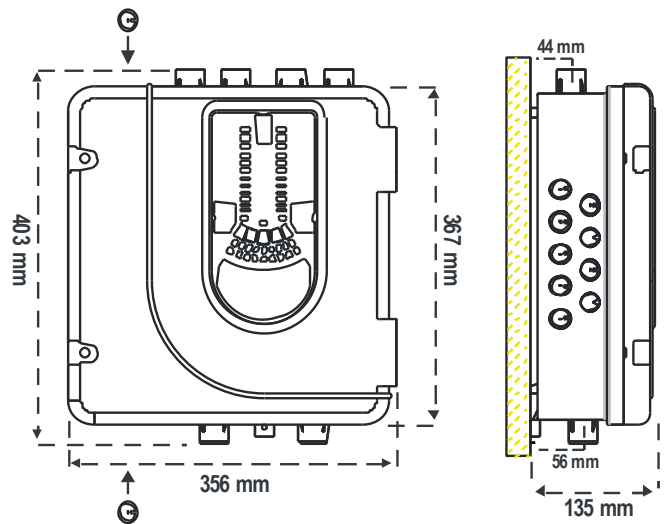Blue: refers to Important Settings which should be verified

Figure 1: Dimensions and Knock-Outs

PARTS LIST

Description	Quantity
FAAST LT Unit	1
Mounting Bracket	1
3-pin Terminal Block	6
4-pin Terminal Block	1
2-pin Terminal Block	3
47KΩ EOL Resistor	2
USB Cable	1
Front Panel Labelling Pack	1
USB Memory Stick with documents	1
FAAST Carton Contents Guide	1

Important Note

Aspirating Smoke Detectors supplied and installed within the EU must conform to the EU Construction Products Directive (89/106/EEC) and the related European Product Standard EN 54-20. FAAST LT has been tested and certified to ensure that it conforms to the necessary Standards, but strict adherence to this instruction guide is advised to ensure that the installation meets the requirements of the CPD Directive.

Electrical Characteristics

Voltage Range:	18.5 - 31.5 V$_{DC}$, Nominal = 24V$_{DC}$	
Supply Current:	@ 24V$_{DC}$, 25°C - excludes Sounders	
1 Channel:	170mA (typ), 360mA (max)	
2 Channel:	270mA (typ), 570mA (max)	
Fan Speeds:	Min = 1 Typ = 5 Max=10	

Panel Loop:

Supply Voltage:	15-29V$_{DC}$ (Loop Current ⩽900mA)
Standby Current:	900µA @ 24V$_{DC}$ (max). Poll every 5s

Module Isolator Characteristics:

Maximum Rated Switching Current (under short circuit)
Is max: 0.9A@⩽29V

Maximum Leakage Current with switch open (isolated state)
IL max :   15mA

Maximum series impedance with the switch closed :
(Zmax):   190mΩ @ 15V$_{DC}$; 1A

Power Reset:	0.5sec
Configurable Input-Activation Time:	2sec (minimum)
Relay Contact Ratings:	2.0A@30V$_{DC}$ 0.5A@30V$_{AC}$

Note: this equipment and all associated pipe work must be installed in accordance with all relevant codes and regulations.

Section A : PHYSICAL INSTALLATION
Front Panel Labels
The FAAST LT is shipped without the front panel labels fitted. This allows the installer to select the language required from the Front Panel Labelling Pack.
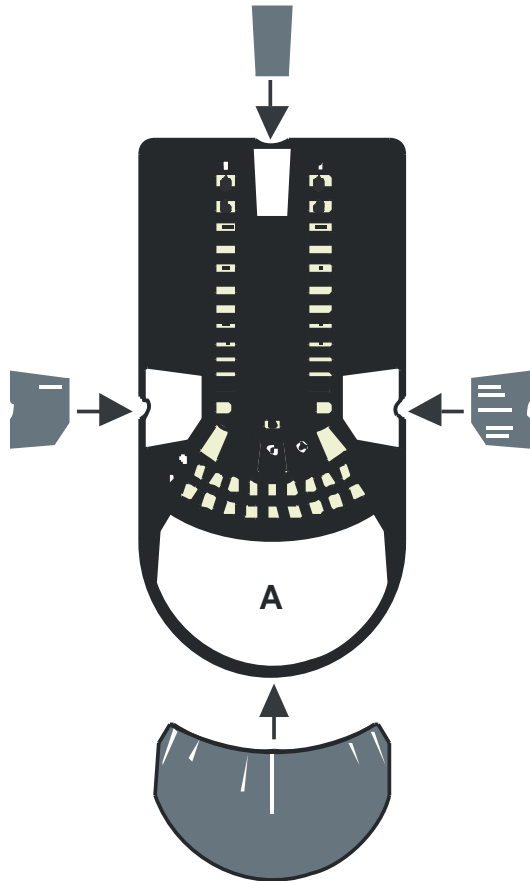Figure 2 shows where to place the labels:

Figure 2: Front Panel Label Locations

When label A is in place, remove the protector from the bottom of the clear cover to stick the cover down, as shown in Figure 3:

Figure 3: Remove backing tape to stick cover down

Cable Access
Knock out cable gland holes where required.
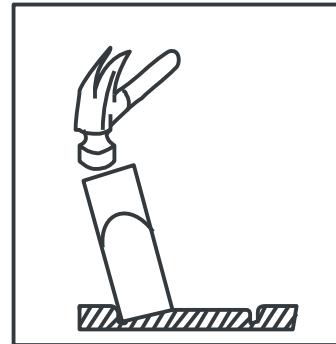The location of the cable glands is shown in Figure 1, represented by the ⌒ icon:

Figure 4: How to Knock Out Cable Gland Holes

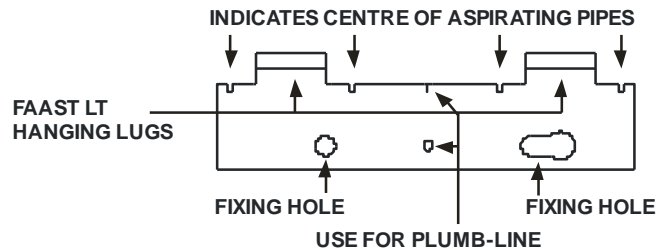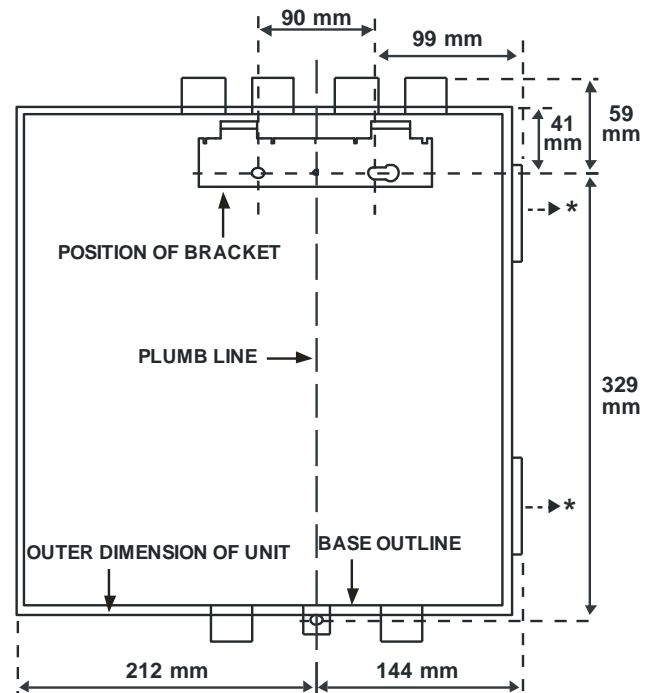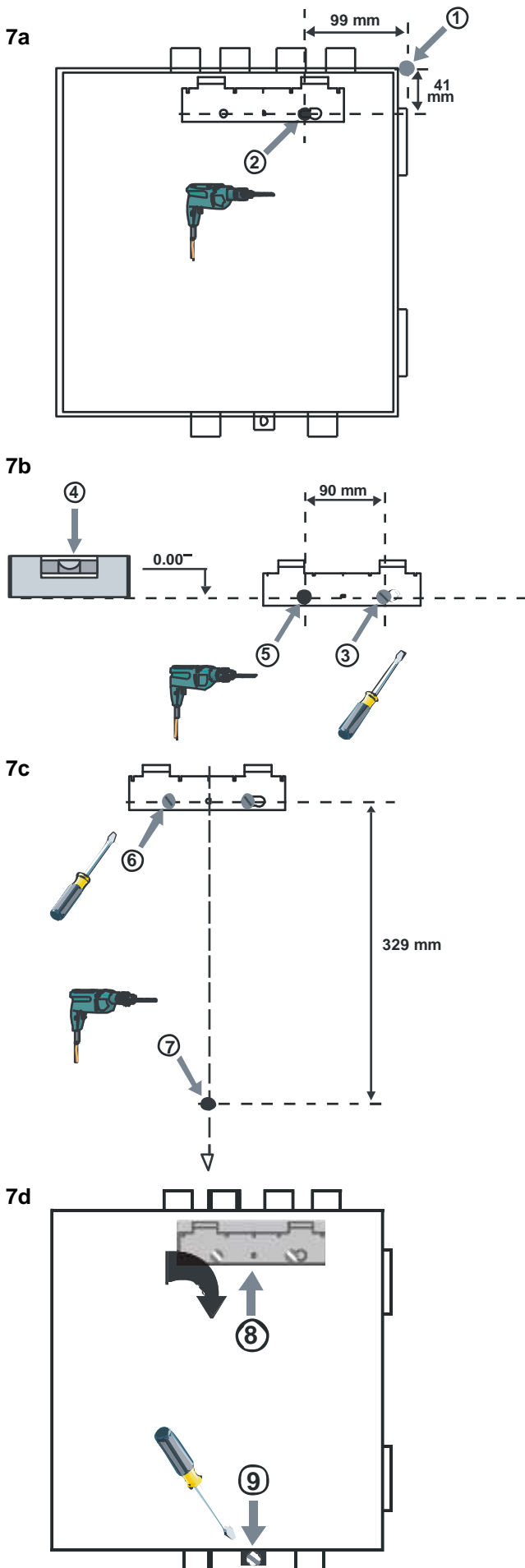### Mounting the FAAST LT to the Wall

Figure 5: Mounting Bracket

* Minimum clearance required from hinges to open door = 35 mm.
Figure 6: Fasten the mounting bracket to the wall

Figure 7: Sequence (1 to 9) to Mount the Detector on the Bracket

7a

99 mm

①

41 mm

②

7b

④

0.00

90 mm

⑤ ③

7c

⑥

329 mm

⑦

7d

⑧

⑨

Pipe Hole Configuration
Figure 8 shows the pipe holes available on the unit. Each unit has 2 pipe holes per channel (so if installing a 1 channel unit, holes 3 and 4 do not function). Use Table 1 to locate the holes required for the installation:
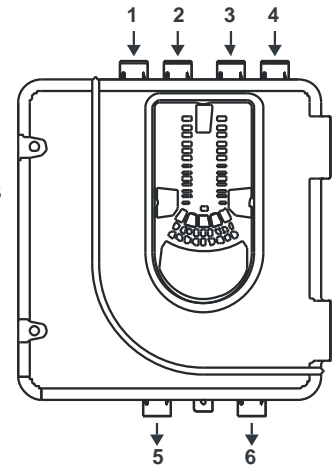

1   2   3   4

Figure 8: Pipe Holes

5   6

Table 1: Pipe Holes Used for Each FAAST LT Model

FAAST LT Model	Inlet Pipe Hole	Outlet Pipe Hole
FL2011EI	1 & 2, or 1 OR 2	5
FL2012EI	1 & 2, or 1 OR 2	6
FL2022EI	Channel 1: 1 & 2, or 1 OR 2	5
	Channel 2: 3 & 4 or 3 OR 4	6

Notes: a) Unused Pipe Holes **MUST** be kept sealed
         b) Do **NOT** glue pipes into Pipe Holes

Table 1a: Maximum Number of Pipe Holes Allowed Per Channel
All figures quoted using highest (Level 1) sensitivity.

CLASS	Pipe Length (m)	Max Number of Holes per Channel
C	100	18: 10 x 2.5mm, 8 x 3mm PLUS 3mm Non-Sensing End Hole
B	100	6: 4 x 4mm, 2 x 5mm Including End Hole
A	100	2 x 6mm PLUS 6mm Non-Sensing End Hole
A	80	3: 1 x 5mm, 2 x 6mm Including End Hole

Pipe Installation

Figure 9: Pipe Installation

Exhaust Pipe

SAMPLING AREA
(Unequal Pressures)

SAMPLING AREA
(Equal Pressures)
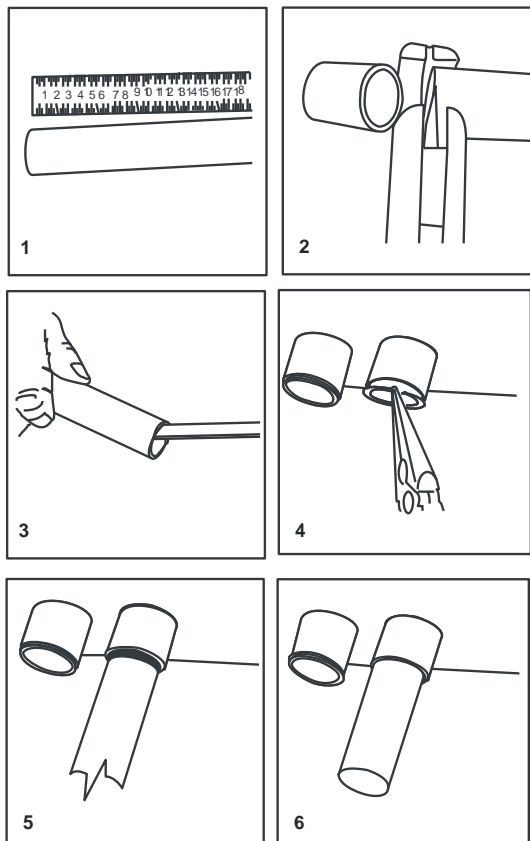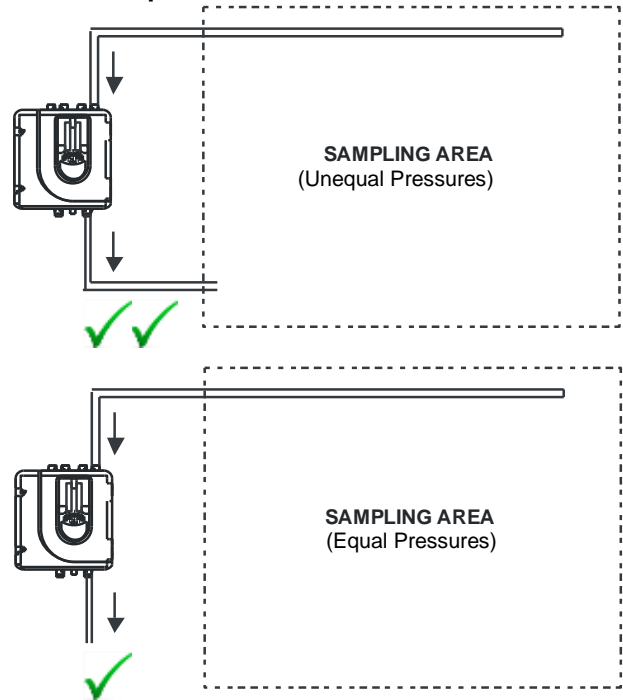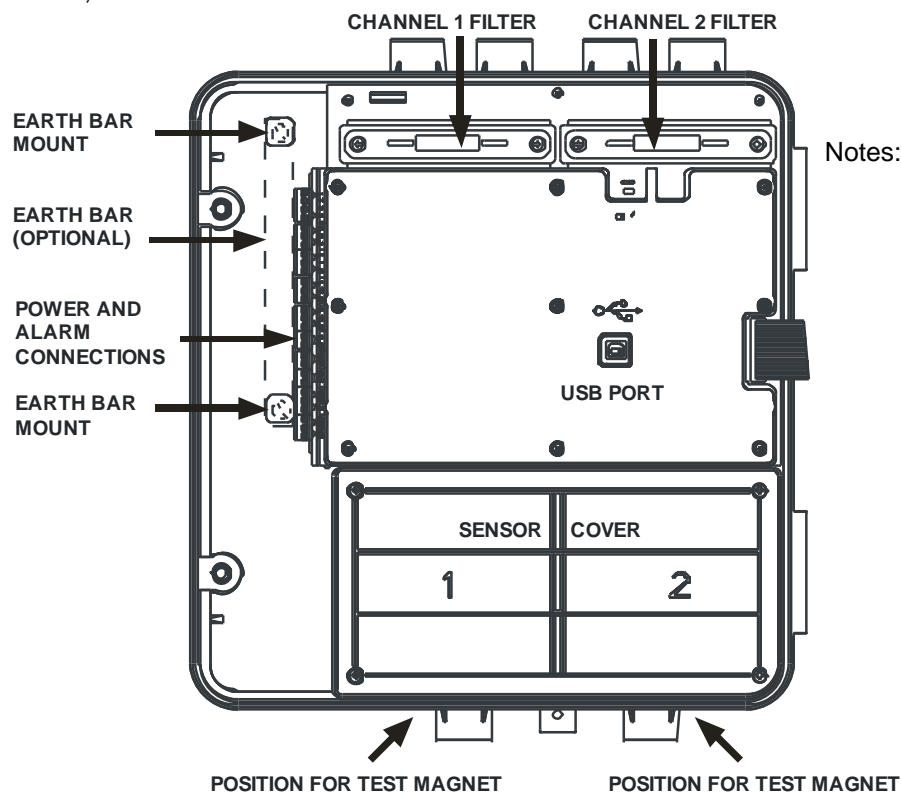
Notes:
- use the PipeIQ BOM Report to order the Pipe components required to assemble the system
- use the PipeIQ Pipe Layout Report to assemble the pipe layout

Important: follow the Pipe Layout report as closely as practical.
- ensure Pipe Lengths are correct
- ensure Sampling Point holes are drilled at the stated positions
- ensure Sampling Point Hole Size is as defined

The PipeIQ design is based upon the information provided to the designer - this is often incomplete and therefore inaccurate.

If it is not practical to install the system as designed, stop work, record the issues taking care to measure the changes required, then redesign the PipeIQ BEFORE proceeding

Wiring Installation

Power, Alarm and Control Connections

Notes: a) All wiring should comply with local requirements and regulations.
b) Loop wiring must observe the recommendations of the panel manufacturer

Figure 10: Inside the Detector

FL20nnEI Loop-Based Terminal Connections
Table 2: Wiring Terminal Designations
(Note - Terminals marked CH2 are only available on 2 channel models)

No	Function				Connector
1	Ext Power In +			Primary PSU	T1
2	Ext Power In -				
3	Aux Power In +			Not Used in Default	
4	Aux Power In -				
5	NC	Alarm Relay	CH1		T2
6	C				
7	NO				
8	NC	Alarm Relay	CH2		T3
9	C				
10	NO				
11	NC	Fault Relay	CH1		T4
12	C				
13	NO				
14	NC	Fault Relay (AUX)	CH2		T5
15	C				
16	NO				
17	Sounder Output 1 -			47KΩ EOL Resistor	T6
18	Sounder Output 1 +				
19	Sounder Output 2 -			47KΩ EOL Resistor	T7
20	Sounder Output 2 +				
21	Configurable Input +		(Reset)	Default is Active = Short-Circuit (unsupervised)	T8
22	Configurable Input -				
23	Not Used			To Use Isolator	T9
24	Loop Out -				
25	Loop Switched Out +				
26	Loop In -				T10
27	Loop In +				
28	Loop Not Switched Out +	Internally Connected to 27			

Table 3: Relays

RELAY	ACTION	NOTES
ALARM 1 or 2	Controlled by the panel when it determines Alarm condition has been met.	Set ON and OFF by panel; not Latched
FAULT 1 or 2	When FAULT CONDITION on Ch1 or Ch2 or a common FAULT occurs. Fault is also signalled when in Service mode and when the device is unpowered	Fault state is not Latched (default)
SOUNDER 1 or 2	Set ON when a channel is in ALARM. Sounder 1 corresponds to Ch1 and Sounder 2 corresponds to Ch2	Set ON in ALARM (default)

Setting the Sensor Addresses:
Each aspiration channel uses loop communications to report its status information to the CIE (Fire Panel).
As a factory default, the unit will report Smoke Alarm and sensor information at an associated Detector address and general Alerts and Faults on a different Module address.
The default addresses are:
        Channel 1 = 01
        Channel 2 = 02

Setting the Detector Addresses:
Sensor: the Sensor address is set on rotary decade switches on the rear of the Laser (7251) detector. The sensors are located under the Sensor Cover inside the unit (see Figure 10). The Smoke Detector section of **Service** (refer to Page 9) shows how to remove the sensors
As supplied, the default address for Channel 1 is Address 1; in 2 channel units, (or when two detectors are fitted) the second device is set to Address 2. Hence, Address 99 is not valid for Channel 1 on a two sensor detector.
Module:
The Module address is set using rotary decade address switches located behind the door - rotate the wheels to the desired address. The selected address refers to Channel 1; on 2 channel units the device assigns the next (+1) module address to Channel 2 automatically.
Note: the Module address only responds to a panel poll when in **Normal** mode.
Configure the Module as an Output device: RLYM or as AUXM if the ability to isolate it as an AUX device is required.
In Alarm mode: By Sensor, the module provides a detector Defect to the panel, eg for an Aspirator fault.
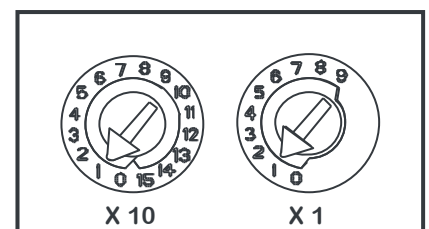When the door is open the Module reports MISSING

Figure 11: Address Switches

POWER UP
Using Default Settings
1. Connect a suitable 24VDC supply (eg Pertronic AUX24V/1.3PSU-BLK) to pins 1 and 2 on Terminal T1 (refer to Table 2)
2. Check the voltage at the connector. Make sure it is within the required voltage range.
3. If the voltage is within the specified range, connect the power connector to the unit.
4. Close and secure the housing door; verify the fan starts up and air flows out of the exhaust port. The unit takes 1-3 minutes to initialise and stabilise in Normal mode.

Configuring Other Options
To change any of the default options, it will be necessary to connect the detector to a PC/laptop with the PipeIQ software installed; see USB Connection section later in this guide for more information on this (and the FAAST LT Advanced Setup and Control Guide).

EXTERNAL RESET
The default setting for the configurable external input is Device Reset (terminal block T8). A short circuit connection between these terminals will cause the FAAST LT unit to perform a Reset.

FRONT PANEL
The front panel differs depending on which of the 6 x FAAST LT models is being installed - each is shown below. The following information is displayed:
- Detector Status: Normal, Alarm, Fault or Isolate
- Alarm Level: Pre-Alarm and Alarm   - not FL20nn detectors
- Particulate Levels:; 1-9   - not FL20nn detectors
   - Particulate Levels are NOT available with Pertronic panels which use the CLIP Protocol
- Flow Level:
- Test, Reset and Disable Buttons:

Figure 13: Front Panel Display
FL20nnEI Loop Based Detector:
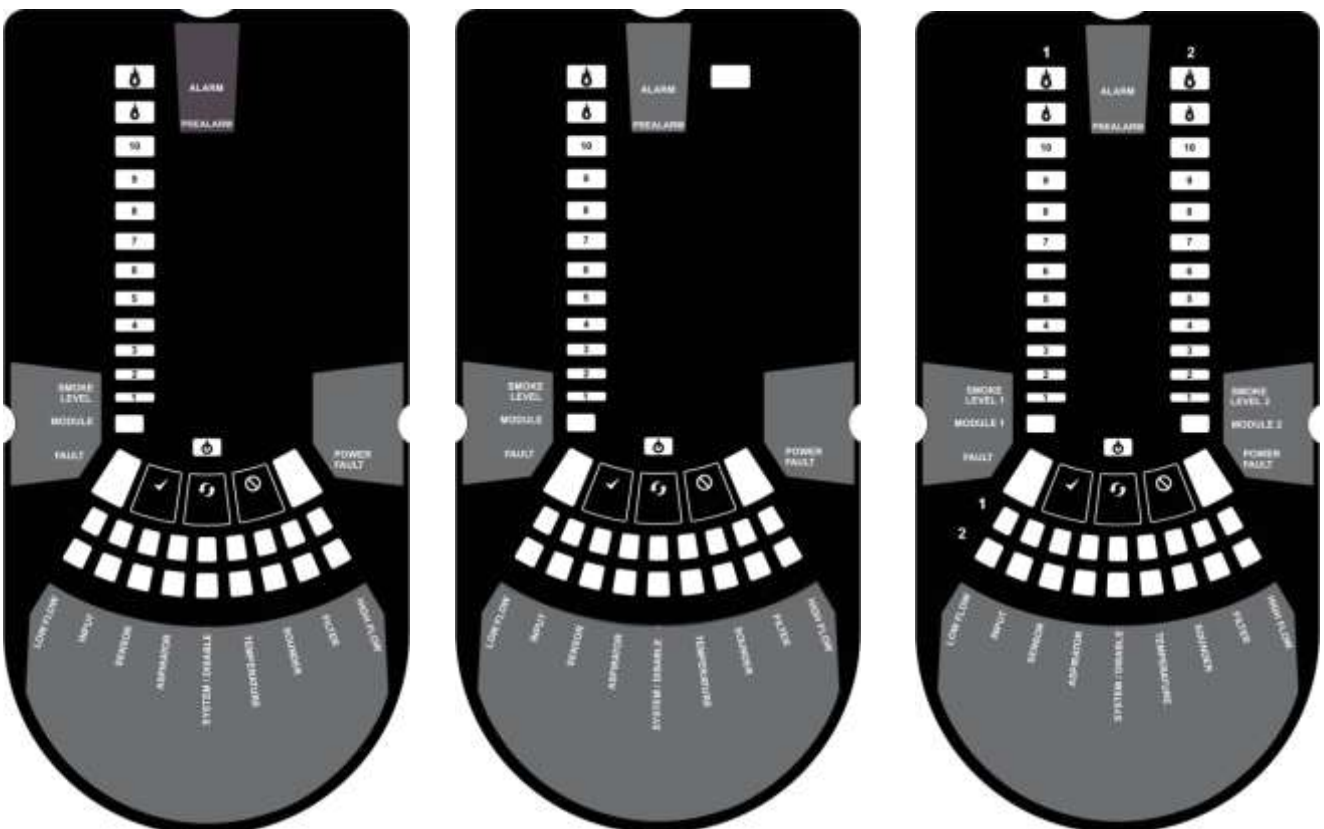
13a: FL2011EI	13b: FL2012EI	13c: FL2022EI
1 Channel Detector (1 Sensor)	1 Channel Detector (2 Sensors)	2 Channel Detector

Table 4: FL20nnEI Loop-Based Front Panel Indicators and Fault Descriptions

INDICATOR	ACTION	WARNING OR TROUBLE	COMMENT / ACTION
CHANNEL 1/2 ALARM	ON Red (Set by panel)	Channel is in Alarm (relay is set ON)	No Delay with Default setting
	1 BLINK Green (Polled by panel)	When sensor is polled	Not when in Alarm
CHANNEL 1/2 PRE-ALARM	ON Yellow	Channel is in Pre-Alarm	- NOT Available
SMOKE LEVEL 1/2	ON Yellow (Set by panel)	LED number indicates detector Alarm level reached	Only numbers 1 – 9 used - NOT Available
CHANNEL 1/2 MODULE	ON		
	BLINK	Module communication	
FAULT	ON Yellow	Common or multiple Faults	
POWER	ON Green	FAAST LT is powered	Displays Yellow when initialising
POWER FAULT	ON Yellow	Low Power alert / High Power fault	Check the Power Supply voltage
CHANNEL FLOW INDICATORS 1/2	ON Green	The LED indicates the Air Flow for a channel: - Centre = Normal flow - Left = Low flow; (-20% at extreme) - Right = High flow; (+20% at extreme)	On 2 channel unit: Ch1 : Upper row Ch2 : Lower row
LOW FLOW	ON	Low Flow fault	check filter; check pipe network for blockages
INPUT	1 Blink	External Input fault	Not used with default settings
SENSOR	2 Blinks	Detector communication fault	Check detector addresses and installation; replace detector
ASPIRATOR	ON	Air Flow sensor fault	Try to restart device
	1 Blink	Flow initialization fault	Check filter; check pipe network for blockages; try to restart device
	2 Blinks	Fan fault	Try to restart device
DISABLE	1 Blink	Alarms, Faults & Alerts not reported	Returns to Maintenance then Normal operation after 60min (default)
SYSTEM	1 Blink	Incorrect configuration	Flashes all FAULT LEDs; try to restart device
	2 Blinks	EEPROM fault	Check power supply voltage. Try to restart device
	3 Blinks	Real Time Clock (RTC) fault	RTC is corrupted or time reading failed
TEMPERATURE	1 Blink	Low Temperature alert	Check the Air Flow temperature
	2 Blinks	High Temperature alert	
SOUNDER	1 Blink	Sounder fault	Check the sounder circuit and the EOL
FILTER	1 Blink	Filter alert at Set Date	No date set as default
HIGH FLOW	ON	High Flow fault	Check pipe network for breaks or leaks

When simultaneous Alerts/Faults occur on the same LED, priority order is:

ON (Highest), 1 blink, 2 blinks, 3 blinks (Lowest)

Note: The channel Alarm and Smoke Level LEDs are controlled by the Fire Panel

Front Panel Buttons
The front panel has three (3) user buttons:
     TEST, **RESET** and **DISABLE**
These buttons are used to enter the pass-code which then allows simple test functions to be performed.
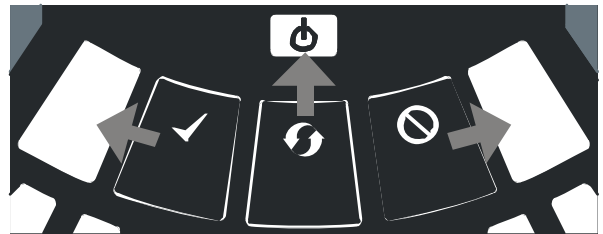Note: In Remote Maintenance and Service Mode these buttons are disabled.

Table 5: Front Panel Buttons

BUTTON	NORMAL Mode	MAINTENANCE Mode
RESET	Press for 2s to start PASSWORD PROCEDURE to enter MAINTENANCE mode	Press for 2s to Reset latched Alarms, Faults and sounders (relays). Alarm controlled by panel: if the Alarm persists, set again immediately after the Reset In DISABLE Mode, press for 2s to exit from DISABLE Mode (but remains in MAINTENANCE Mode)
DISABLE	Use to increment Password digits in PASSWORD PROCEDURE	Press for 2s to enter DISABLE Mode for 60 minutes (default). Alarms, Alerts and Faults not reported (To exit DISABLE Mode see RESET)
TEST	Use to confirm password in PASSWORD PROCEDURE. Default Password = 3111	Press for 2s then release - both detectors will simulate Alarm Press for 4s then release – Detector #1 will simulate Alarm Press for 6s then release – Detector #2 will simulate Alarm
COMBINATIONS		
RESET + DISABLE	Press for 2s to show Fan Speed (on Smoke Level scales) for a preset time	Press for 2s to show Fan Speed (on Smoke Level scales) for a preset time
RESET + TEST	No action	Press for 2s to turn Sounders OFF
RESET + TEST + DISABLE	No action	Press for 2s to exit MAINTENANCE mode

Password Sequence to Enter MAINTENANCE mode
a) press and hold **RESET**; Left Flow indicator turns yellow, then green
b) release **RESET** and **FAULT** indicator turns ON (green). The left Flow indicator blinks green indicating the device is ready for the first digit
c) press **DISABLE** to increment the LEDs 1…9; press **TEST** to select a digit
The flashing airflow segment turns ON (green) and the next segment begins to flash indicating set the next digit. When the 4th digit is selected, all 4 airflow segments turn OFF.
-   if the password is accepted the **FAULT** indicator remains green and the unit enters **MAINTENANCE** mode.
-   if the password is incorrect, the **FAULT** indicator flashes yellow and the unit remains in **NORMAL** mode.
    The default Password is **3111**
If no button is pressed for 10s during the password sequence, the unit returns to **NORMAL** mode.
If there is no activity in **MAINTENANCE** mode for 5 minutes (default), the **FAULT** indicator blinks green for 15secs and then the unit returns to the **NORMAL** state.
TESTING:
Note that the Laser detector LEDs, which are controlled by the Fire Panel, must be turned ON to activate the front panel Alarm indicators
Magnet Test:
The alarm signalling can be tested for functionality by placing a test magnet in the position shown in Figure 10 (refer Page 4). This method does not test the air flow in the pipe-work
Smoke Testing:
The system alarm response can be tested for functionality using smoke. The choice of smoke source is dependent on the installation but Pertronic industries recommends the use of a Smoke Pen (PN: SMOKEPEN)
In all cases the smoke must be present for the duration of the test.
Smoke pellets or matches can be used close to the sampling point to introduce smoke particulates into the system. It is recommended that smoke with a particulate life cycle of greater than 120 seconds should be used – standard aerosol sprays for point detector testing do not work well on aspirated systems and therefore a re not recommended.
Fault Testing:
Simulate a fault on the detector (for example, block the outlet pipe) and check that a fault is signalled on both the front panel of the unit and at the Fire Panel.

SERVICE:

Service Mode:

The device enters SERVICE Mode if the cabinet door is opened during Normal operation. The FILTER LEDs blink, the unit switches off the power to the fans and stops communicating with the Fire Panel - the Laser smoke detectors continue to communicate with the panel.

When the cabinet door is closed, the unit restarts automatically.

Filters:

Periodic cleaning or replacement of the filters is required.

The filters are located inside the cabinet at the top of the unit (see Figure 10 displayed on Page 4) and are removed as shown in the following sequence:
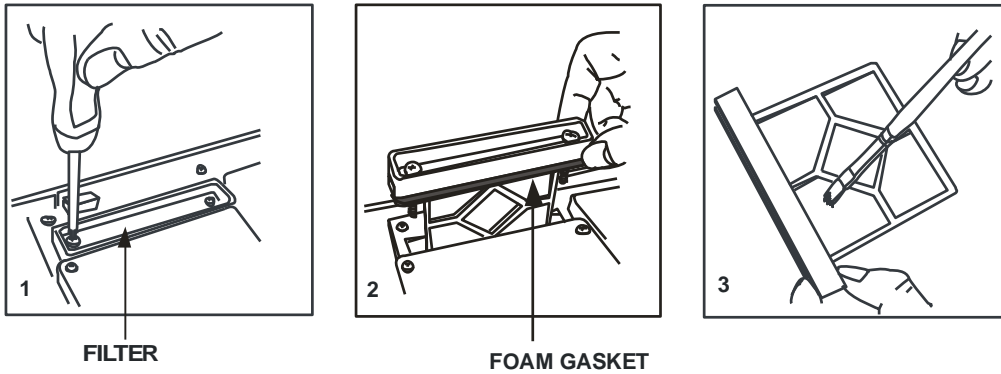
FILTER   **FOAM GASKET**

Either replace the filter assembly or carefully brush off the accumulated dust.

Note: if replacing the filter, remove the foam gasket from the old filter and place onto the new filter. When placing the new filter into the slot, ensure that the gasket is correctly aligned.

Refit the filter, close and secure the cabinet door. The unit will initialise and restart.

Laser Smoke Detectors:

The smoke detectors are located under the sensor cover (see Figure 10 displayed on Page 4). To access the detectors, follow the sequence below:
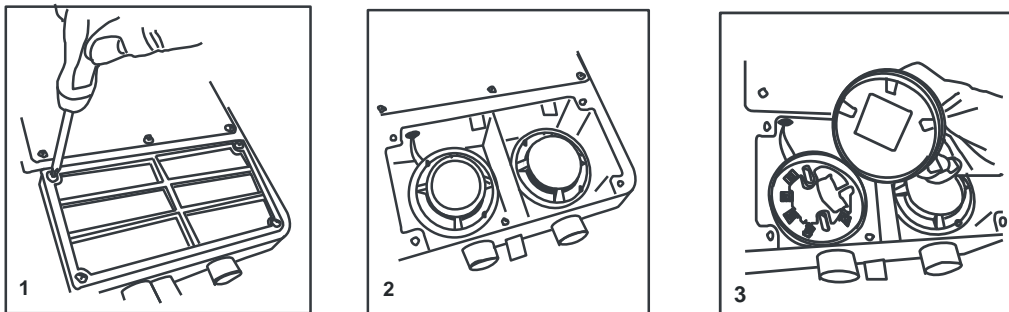
If replacing a detector, ensure that the address set on the new detector is the same as on the detector being replaced.

LASER SAFETY INFORMATION:

The detector contains a Class 1 laser product. Radiation emitted inside the smoke sensor is completely contained within its housings and protective covers during all phases of operation.

Section B : CONNECTING to FAAST LT from PipeIQ

USB CONNECTION:
PC connectivity is provided by an on-board USB B socket located centrally between the filter and the sensor (refer to Figure 10 on Page 4). The USB interface allows access to a range of additional options, via the **PipeIQ** application software, when connected to a PC. The USB connecting cable should be removed during normal operation.

PipeIQ™ QUICK START INSTRUCTIONS
Overview: the PipeIQ software program is a convenient and powerful Windows® based application used to quickly and accurately design pipe networks, generate configuration parameters for correct set-up and operation, and facilitate commissioning and monitoring of the performance of FAAST LT Aspiration devices.

PipeIQ provides a graphical interface on a PC to:
- design and verify the performance of pipe network solutions.
- draw and view pipe designs in 3D
- configure the design parameters to suit local fire codes and standards.
- generate Pipe Layouts, BOMs, Configuration and Event Log Reports.
- test relays and Alarms, perform smoke test, and fans speed test
- retrieve and view logs in graph and tabular form
- control, test and monitor FAAST aspirating detectors.

A comprehensive **Help** Menu is available from the Menu Bar to guide the user through the different windows and options : **Help\PipeIQ Help**.

The contents have a detailed index and a versatile search facility to locate relevant topics.

Refer to **I56-3888-001P FAAST LT PipeIQ Configuration Guide** for detailed instructions on configuring the FAAST LT ASD detector
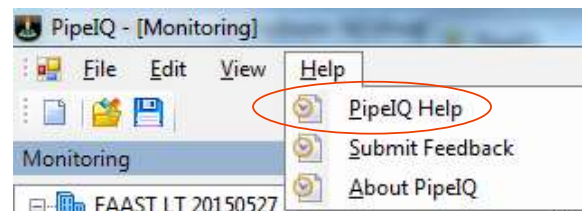
QUIK-START GUIDE
Equipment Required:
a) USB printer Cable USB 2.0 Type Male A to USB Type B Male. The FAAST LT uses a USB 2.0 type B socket.
b) PC with PipeIQ v2 or greater installed. The PipeIQ software is available for download from:
   https://www.systemsensor.com/en-us/Pages/PipeIQ.aspx
You will be requested to register and login to the site to gain access to the software.
Caution: DO NOT use PipeIQLT or PipeIQ v1, available from the CD included with the FAAST detector or available from : http://www.faast-detection.com/contact-us/download-pipeiq/

Connection to the FAAST LT:
a) Open PipeIQ (v2 or greater) on the PC – by default, PipeIQ opens in **Configuration** mode
b) Open a project file (*.mdf) to continue – use one of the following methods:
   i. open an existing project configuration (*.mdf) file for the FAAST LT or
   ii. start a New Config and add a FAAST LT detector of the type to be installed or being maintained
      - save this Config file : use a filename which will readily relate to the detector under test
         eg. FL2011EI-3 20150528 for the third Single Channel, Single Sensor FAAST LT detector on the site
c) Power up the FAAST LT - wait until the FAAST has completed initialisation (the Power LED turns green)
d) Log the FAAST LT into Maintenance Mode
   i. press and hold RESET until the Low Flow indicator turns yellow, then green.
   ii. release RESET and the FAULT indicator switches on green. The left Flow indicator blinks green indicating the device is ready for the first digit
   iii. press DISABLE to increment the LEDs 1…9; press TEST to select the first digit. (Default Password = 3111) The first flashing Airflow LED will turn solid green to indicate the first digit has been selected and the next segment will begin to flash indicating the next digit is ready to be selected. When the 4th digit is selected, all 4 airflow segments turn off. If the password is accepted the FAULT indicator remains green and the unit enters Maintenance mode. If the password is incorrect the FAULT indicator flashes yellow and the unit remains in Normal mode.
   iv. if there is no activity in Maintenance mode for 5 minutes (default), the FAULT indicator blinks green for 15 secs and then the unit returns to the Normal state
e) Open the FAAST LT door and connect the USB connector from the PC
f) select **View \ Configuration** from the Menu bar, right click the detector configured in Section b) above and then select **Connect Device**
g) Select the detector at the appropriate COM Port. select Admin and enter the password, then Connect:
h) Align the detector and PC Configurations by either:
   i. b) i. above. Right click the device and select Send Configuration to a new detector or a detector which is being updated
   ii. b) ii. above. Right click the device and select Get Configuration for an existing detector being maintained

Section C : CONFIGURING FAAST LT in PipeIQ

The following tables identify the parameters which are configurable on the FAAST LT devices. Review all parameters to ensure they are appropriate, taking particular care to ensure the parameters in blue are correct

General Configurable Parameters:
The General Configurable Parameters enables the FAAST parameters to be edited and modified.
The device configuration page of PipeIQ consists of the following parameter tabs.
- General
- Channels and Sensors
- Alarms and Relays

To restore the default parameters:
a) Select **Configuration** on the left pane.
b) Click the device. By default, the **General** tab appears.
c) Click the **Restore Default Values** button.
All the configuration parameters are restored with default values.

General:
To configure the device, set the General parameters in the **General** tab.
a) Select **Configuration** on the left pane.
b) Click the device. By default, the **General** tab appears.

Specify the following details:

Fields	Description
General Parameters	
Pressure	Specify the atmospheric pressure (in Pascal).
Both supplies monitored	By default, the first power supply is monitored to signal a low power. Select **Yes** to monitor the second power supply.
Power Restart Alert	
Alert for	The device signals the power restart alert for this period.
Alert till Reset	Select to enable alert until the reset is performed.
Disable	Select to disable the power restart alert.
Trend Log	
Log for every	Specify the time interval (in minutes) used by the device to log its state.
Disable	Select to disable the trend log.

c) Save to implement the changes.

d) It is prudent to monitor detector performance by turning Trend Log ON for an appropriate period (1 week??), then review the log to verify the settings are appropriate for the site (refer to Section E2f, System Check):

(i) Sensitivity: note the difference between the background particulate level and the Sensitivity Levels to ensure the configured Alert/Alarm levels are appropriate and note variations in background particulate levels which may generate nuisance Alerts/Alarms. Adjust the Alert/Alarm Sensitivity Levels, to suit.

(ii) Flow Rate: confirm the flow(s) for each channel to verify they match the calculated values and to identify variations resulting from environmental factors – AHU operation, doors opening and closing, etc.

Channels and Sensors:

To configure the device, set the parameters in the **Channels and Sensors** tab.

    a) Select **Configuration** on the left pane.

    b) Click the device. The General parameters configuration screen appears in the right pane.

    c) Select the **Channels and Sensors** tab.

Specify the following details.

Fields	Description
Channels:	Enable the required **Channel**(s). The options are: • Channel 1 • Channel 2
Note:	The following fields are configured based on the specific **Channel** which is selected
Label:	Specify a label to identify the zones served by the channels
Alarm is Latched	Select either of the following: • **Yes**: The device retains the Alarm relay activated state until a Reset is performed • **No**: The device automatically de-activates the relay
Fan Speed Mode:	Select either of the following: • **Auto**: the device automatically sets the fan speed, at every power ON, to reach the configured reference flow • **Manual**: the device uses the configured manual speed.
Fan Speed:	Drag and set the speed scale for the fan
Note:	The fan speed set here is considered for the calculations of the built network when the fan speed mode is selected as **Manual**
Reference Flow:	Specify the flow value in litre per minute (l/min)
Filter Due Date:	Specify the due date for the air filters. The device displays a filter fault after the due date
Sensors:	The Sensor Enabled state is based on the **Channel Enabled** state: • Sensor 1 enabled • Sensor 2 enabled **Note:** either of the two **Sensors** may be disabled if the device has one channel and two sensors
Sensor blinking replicated:	Select either of the following. • **Yes**: The channel alarm LED blinks a steady green when the sensor is polled • **No**: The channel alarm LED does not blink when the sensor is polled
Common chamber:	Select either of the following. • **Yes**: Alarm is set when one sensor is in the Alarm condition • **No**: Alarm is set when both the sensors are in the Alarm condition

    d) Save to implement the changes.

To configure the **Advanced** parameters, refer to Advanced Configurable Parameters

Alarms and Relays:

To configure the device, set the parameters in the **Alarms and Relays** tab.

- a) Select **Configuration** on the left pane.
- b) Click the device. The General parameters configuration screen appears in the right pane.
- c) Select the **Alarms and Relays** tab.

Fields	Description
Automatic Sounder Turn Off	
Turn off sounder after:	Select the cut-off time. When the Alarm condition is reached, the sounder automatically turns off after the specified cut-off time
Disable:	Select to disable the automatic sounder turn off
Also, specify the following details	
Alarm Delay:	Specify the alarm delay. When the alarm condition is reached, the alarm relay activation is delayed until the specified period. The delay is reset if the alarm condition is left
Flow Fault Delay:	Specify the flow fault delay. When the flow condition reaches low or high, the flow fault is delayed until the specified period. The delay is reset if the fault condition is left
General Fault Delay:	Specify the fault relay delay. When there is a fault condition, the device waits for this delay period before giving fault and set general fault relay. The delay is reset if the fault condition is left
General Fault Latched:	Select either of the following: • **Yes**: The device retains the fault relay activated until a reset is performed. • **No**: The device automatically deactivates the relay

Auxiliary Relay used for Channel 2 Fault:	Select either of the following:
	• **Yes**: The device activates
	    • the general fault relay for the faults of channel 1 and faults common to both channels.
	    • the auxiliary fault relay for faults of channel 2 and for the faults/alerts configured to activate auxiliary relay.
	• **No**: The auxiliary relay is not used for the channel 2 fault

Auxiliary Relay is Latched:	Select either of the following: • **Yes**: The device retains the auxiliary relay until a reset is performed. • **No**: The device automatically deactivates the relay
Events Triggering Auxiliary Relay:	Select to trigger the activation of the auxiliary relay
Auxiliary Relay set on Temperature Alert:	Select to trigger the activation of the auxiliary relay due to temperature alert
Auxiliary Relay set on External Input In Not Normal State:	Select to trigger the activation of the auxiliary relay due to external input
Auxiliary Relay set on Low Power Alert/High Power Fault:	Select to trigger the activation of the auxiliary relay due to low power alert
Auxiliary Relay set on Flow Fault:	Select to trigger the activation of the auxiliary relay due to flow fault
Auxiliary relay set on Sensor Communication Fault or Low Chamber Fault:	Select to trigger the activation of the auxiliary relay due to sensor communication fault
Auxiliary Relay set on Power Restart Alert:	Select to trigger the activation of the auxiliary relay due to power restart alert

- d) Save to implement the changes.

Advanced Configurable Parameters:

The Advanced Configurable Parameters allows FAAST parameters to be edited and modified.

The **Advanced** tab consists of the following parameter tabs.

- General
- Intelligent Loop - enabled only for FL20nnEI **Loop-Based** devices
  Before configuring the **Advanced** parameters, ensure that the **General Parameters** are configured

General:

To configure the device, set the advanced parameters in the **Advanced** tab.

a) Select **Configuration** on the left pane.
b) Click the device. By default, the **General** tab appears
c) Select **Advanced**. The **Advanced Parameters** dialog box appears

In the **General** tab, specify the following details:

Fields	Description
Maintenance	
Password:	Click **Change** to modify the existing password. The password should have four characters and must be with in the range of 1-9 digits.
Disable Time:	Specify the time for the device to stop working. During this time, all the alarms and faults are not reported. When the set time is complete, the device goes to maintenance state
Maintenance Timeout:	Specify the maintenance timeout. The device returns to the normal state after the timeout
Daylight Saving	
Yes:	Select **Yes** to automatically change the device real time clock date when the date is in the daylight saving period (1 hour is added).
No:	Select **No** to disable the daylight saving option.
Auto:	Select **Auto** to automatically set the start date as last Sunday of March 02:00 and the end date as the last Sunday of October 02:00
Start Date:	Select the start date of daylight saving period
End Date:	Select the end date of daylight saving period
Note:	The **Start** and **End Date** option is enabled only when the daylight saving is set as **Yes**

External Input	
External Input Normal State	
Open:	Specifies **Open** as the normal state of the external input line. No actions are triggered in this state
Short:	Specifies **Short** as the normal state of the external input line. No actions are triggered in this state
Event Triggered by External Input	
External input triggers fault:	Select to specify the action triggered by the device when external input line is not defined in normal state
External input silences sounders:	Select to specify the action triggered by the device when external input line is not defined in normal state
External input reset device:	Select to specify the action triggered by the device when external input line is not defined in normal state
External input disables device:	Select to specify the action triggered by the device when external input line is not defined in normal state
None:	Select to specify none of the events
FAAST LT Disabling Time:	Specify the Disable period used by the device

d) Save to implement the changes

Intelligent Loop:
To configure the device, set the advanced parameters in the **Advanced** tab.
- a) Select **Configuration** on the left pane.
- b) Click the device. By default, the **General** tab appears
- c) Select **Advanced**. The **Advanced Parameters** dialog box appears
 In the **Intelligent Loop** tab, specify the following details:

Fields	Description
Remote Output Alarm Time:	Specify the Alarm Time for the remote output
Sensor Communication Timeout:	Specify the Timeout period (in seconds). The device gives a sensor communication fault when the sensor is inactive for this period of time
Alarm Mode:	
By Sensor:	In Sensor Mode, the device monitors the remote outputs. - when the remote output is ON for the configured time, the corresponding channel goes into Alarm. - when the output returns to OFF, the channel exits Alarm
By Module:	In Module mode, sending an OUTPUT ACTIVATION command to a channel module enables the channel to go into Alarm. To exit the Alarm, an OUTPUT DEACTIVATION command must be sent
Note	When the **Alarm Mode** is **By Module**, the Alarm is not latched

- d) Click **Apply** to implement the changes
- e) Click **OK**. The main page appears.

Note: Click **Cancel** to return to the main page without implementing changes

Detector Sensitivity:
Detector Sensitivity for Loop-Based FAAST LT detectors is configured on the **Pertronic F100** or **F120** panel:
- a) Configure the FAAST LT detector as Type=LASER in the F100 or F120 Config Utility to set the Alarm level
- b) Define the Flags as appropriate for an ALARM within the Config
- c) Configure a second address as Type=VIRTUAL (vLASER) in the F100 or F120 Config Utility to set the Pre-Alarm level
- d) Define the Flags as appropriate for an ALERT or PRE-ALARM within the Config
- e) The Alarm and Pre-Alarm Sensitivity Levels are determined after the pipe network Design has been completed and the system is correctly balanced for Flow and Transport Time.
  - determine the Sensitivity required at each Sampling Point, then use the appropriate Alarm Level as assigned during the PipeIQ Design Calculation
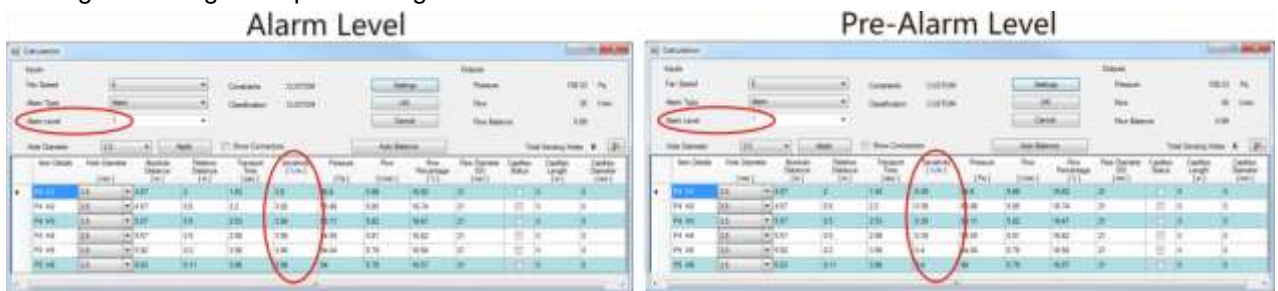
- f) Generally, the FAAST LT ALARM level will be 3, 4 or 5. The PRE-ALARM level may be selected from 1 to a setting less than the ALARM level selected
- g) Use the following Table to determine the appropriate Sensitivity setting to use on an **F100** or **F120** panel

	Type	Sensitivity	PipeIQ Sensitivity	F100	F120
Version				v5.22 or Greater	v4.24 or Greater
Pre-Alarm (Alert)	vLASER	Increasing	1	1	+3
			2	2	+2
			3	3	+1
Alarm	LASER		4	4	0
			5	5	-1
			6	6	-2
			7	7	-3
			8	8	-4
		Decreasing	9	9	-5
Limitations	2 x Alarm Levels available : Base (Alarm) plus 1 x Virtual (Alert) level				

- h) Configure the Module addresses as Type=RLYM (or AUXM if using AUX ISOLATE to isolate)

Section D : MONITORING FAAST LT using PipeIQ

This section identifies options for testing the FAAST LT and monitoring its environment:

Actions:
The PipeIQ™ **Actions** tab enables:
- Test Relays
- Smoke Test
- Test Fan speed
- Alarms Test
- Sounder
- Restart
- FAAST LT Clock
- Operating Hours
- Reset

D1a Test Relays: to test relays
a. Click **Monitoring** on the left pane.
b. Select the device to set the actions. The **Actions** tab appears on the right pane.
c. Under **Test Relays**, set the following relays.
  i. Alarm Relays:
    - Under **Alarm 1** and **Alarm 2**, click the status button to activate or deactivate the alarm.
  ii. Pre-Alarm Relays
    - Under **Pre-Alarm 1** and **Pre-Alarm 2**, click the status button to activate or deactivate the Pre-Alarm.
  iii. Sounder Relays
    - Under **Sounder 1** and **Sounder 2**, click the status button to activate or deactivate the sounder relay.
  iv. Fault Relays
    - Under **Fault** and **Aux Fault**, click the status button to activate or deactivate the fault relay
    Note: Click **Refresh** to obtain the current state of all the relays

D1b Smoke Test: to perform Smoke Tests
a. Click **Monitoring** on the left pane.
b. Select the device to set the actions. The **Actions** tab appears on the right pane.
c. Under **Smoke Test**, set the time for the following two options:
  i. Start at a set time:
    - Select **Start at** and select the time to schedule a start time for the smoke test
    - Click **Schedule**
  ii. Start now
    - Select **Now**
    - Click **Start**
      - The **Alarm Time** (mins/secs) specifies the measured time between the insertion of smoke and activation of an Alarm
      - The **Transport Time** (mins/secs) specifies the measured time between the insertion of smoke into the pipe system and the time taken for the smoke particles to reach the detector.
        The measurement is stopped when the smoke level reaches **Level 1**.
    - Click **Stop**.

D1c Test Fan Speed: to test Fan Speeds
a. Click **Monitoring** on the left pane.
b. Select the device to set the actions. The **Actions** tab appears on the right pane.
c. Under **Test Fans Speed**, set the channel speed:
  i. Set the **Channel 1** speed on the scale
  ii. Click **Test Fan 1**
      The Fan 1 speed rate is checked and the change in **Flowrate 1** is displayed
  iii. Click Stop
      Note: Repeat Steps i. through iii. to set the speed for **Channel 2**

D1d   Alarms Test: to test Channel Alarms
a. Click **Monitoring** on the left pane.
b. Select the device to set the actions. The **Actions** tab appears on the right pane.
c. Under **Test Channels Alarm**, the following options can be set:
  i.   Test Channel 1 Alarm: click to test the Channel 1 Alarm
  ii. Test Channel 2 Alarm: click to test the Channel 2 Alarm
  iii. Test Both Channels Alarm: click to simultaneously test both the channels Alarm

D1e   Sounder: to set Sounder
a. Click **Monitoring** on the left pane.
b. Select the device to set the actions. The **Actions** tab appears on the right pane.
c. Under **Sounder**, the following options can be set:
  i.   Silence Sounder 1:   click to silence Sounder 1
  ii. Silence Sounder 2:   click to silence Sounder 2
  iii. Silence Sounder 1,2::   click to simultaneously silence Sounders 1 and 2

D1f   Restart: to restart
a. Click **Monitoring** on the left pane.
b. Select the device to set the actions. The **Actions** tab appears on the right pane.
c. Under **Restart**, set the following options:
  i.   **Normal**:   select to restart the device in Normal mode
  ii. **Maintenance**:   select to restart the device in Maintenance mode
d. Click **Set** to apply the restart settings

D1g   FAAST LT Clock: to set the FAAST Clock
a. Click **Monitoring** on the left pane.
b. Select the device to set the actions. The **Actions** tab appears on the right pane.
c. Under **FAAST Clock**, obtain or modify the clock settings:
  i.   **Get**:   click to obtain the current device time
  ii. **Change**:   click **Change FAAST Clock**, (which appears as a hyperlink) to change the clock

D1h   Operating Hours: to obtain the Operating Hours
a. Click **Monitoring** on the left pane.
b. Select the device to set the actions. The **Actions** tab appears on the right pane.
c. Under **Operating Hours**, obtain the number of hours the device has operated:
  i.   **Get**:   click to obtain the operating hours of the device
  ii. **Clear**:   click to clear the operating hours for the device

D1i   Reset: to Reset the device
a. Click **Monitoring** on the left pane.
b. Select the device to set the actions. The **Actions** tab appears on the right pane.
c. Click **Reset** to reset the device

D2.   Log View:

The PipeIQ™ **Log** view provides:

- Graph views
- Device Logs : read and clear
- Generate Reports

D2a   View Graphs

a) Click **Monitoring** on the left pane.
b) Select the device to view the events. The **Actions** tab appears on the right pane.
c) In the **Log** tab, click the **Graphs** tab.
    i. Under **Trend Graph: Parameters**, select from the following parameters:
- Flow Rate 1
- Flow Rate 2
- Temperature
- Sensor1 Smoke Concentration
- Sensor2 Smoke Concentration

        Note: just two parameters can be viewed at one time on the Trend Graph
    ii. Under **Event Graph: Event Groups**, select graphs for the listed event groups.

D2b   View Events

a) Click **Monitoring** on the left pane.
b) Select the device to view the events. The **Actions** tab appears on the right pane.
c) in the **Log** tab, click the **Events List** tab.
    i. Select **Show All Events** to view all the events of the device.
    ii. **Select Period** to view all the events within the specified date.
        From and **To** dates are available from the drop-down calendar.
    iii. Click **Show**. The list of events appears.
        Note: the **Show Last** drop-down list to select the latest 20/50/100/500 events
          Below the list of events:
- click **First**, **Previous**, **Next** and **Last** to view records present in multiple pages
  - events are displayed with the oldest event first
- select the **Page Size** and **Page No** from the drop-down list

d) Click **Read Device Logs** to retrieve and read all the logs present in the device.
- the Event Log is not dynamic. Select **Read Device Logs** to update the log with recent events

e) Click **Reset Zoom** to reset the zoom settings.
f) Click **Clear Log** to clear the log data.
g) Click **Generate Report** to generate a report for the selected events
- the Report may be saved in one of three formats:
  - *.pdf
  - *.xls spreadsheet
  - *.doc document

    An xls spreadsheet allows the events to be sorted and edited

Section E : SYSTEM TEST AND COMMISSIONING:

E1. Ensure the following items are available:
a) FAAST System Pipe Layout Report:- allows the measured values to be referenced to the values calculated in PipeIQ.
b) FAAST System Bill of Materials Report
c) As-built Installation Drawings
d) Smoke Pen or other source of smoke with a particulate life cycle of greater than 120 seconds
e) Timer or stop-watch - to measure the maximum Transport Time
f) Blue-Tak or similar to block holes during Flow tests
g) Locally Required Forms

Note that the Laser detector LEDs, which are controlled by the Fire Panel, must be turned ON to activate the front panel Alarm indicators

E2. Commissioning and Handover (reference: FIA Code of Practice for ASDs, Issue 3, Feb 2012)

E2a Commission Testing

The Commissioning Tests to be performed depend on the ASD system application but should be carried out only when the building is in its normal, intended running state. Appropriate commissioning tests should also be performed after modifications and/or additions to the ASD system.

Commissioning

The commissioning process has several stages which should be performed, recorded and checked as necessary:

• Inspection of Installation – verify conformity to design, definition of system (see section 5) including mechanical and electrical installation.
• Power Up/Configuration – required checks and configuration
• Commissioning Tests – to include mechanical, functional and performance testing.
• Signalling - to verify the connections between the ASD and other connected systems (e.g. FAP, BMS).
• System Check - to verify the detector settings are appropriate for the site
• System Handover – include relevant documentation and recorded drawings.

E2b Inspection of Installation

Inspect the installation to confirm that it has been designed and installed correctly for the application and conforms to the design documentation - in particular;

- ASD used to replace point-type detectors (Class C) - ensure the installation (particularly Sample Point spacing) conforms to the relevant standard (e.g. NZS4512:2010) and the ASD Sensitivity/Alarm thresholds are correctly set to ensure that the sensitivity of individual holes meets the minimum performance requirements for individual points. Note that this may require reference to the approval compliance notes for the particular ASD system and should also take into account any potential automatic adjustments of the Sensitivity/Threshold settings, which may occur after commissioning.
- ASD used for high and enhanced sensitivity (Class A/B) - ensure that the installation conforms to the design specification (eg. if necessary, measure the air velocities in the protected area to ensure that the design spacing is appropriate.
- ASD used as a Primary Sampling System (refer to Table: 'Sensitivity Class vs Detection Requirements' on page 26), ensure the pipe and sample points are installed correctly onto the Air Handling Unit (AHU) within the airflow. If monitoring more than one AHU, it is important to ensure different running speeds do not cause an unbalanced airflow in the pipe, which may affect ASD performance.
- ASD used for other installations (cabinet, duct work or other specialist protection) - confirm that the ASD system is in accordance with the design.
  Perform a thorough inspection of the mechanical and electrical installation - include;
  - pipe network including correct supports.
  - clear identification of Sampling Points.
  - no obstructions to Sampling Points or remote capillaries.
  - all internal and external electrical wiring has been installed correctly.
  - power supplies are correctly rated and provide the correct emergency battery standby period.
  - correct hole position and sizes.

Before the ASD is powered up, it is very important to check that the pipe is clear of any foreign articles eg. swarf, dust, etc. that will impede or stop the ASD performance.

E2c Power Up/Configuration

It is very important that the ASD manufacturer's technical documentation is followed during system set-up. If there is any doubt refer back to the manufacturer for clarification.

The system should be powered up in accordance with the manufacturer's recommendations. Prior to carrying out any functional and performance tests the ASD equipment should be configured for:

• Fire signal Alarm thresholds and detector sensitivity settings to give required sampling point sensitivity.
• Alarm and Fault delay periods.
• Airflow parameters.
• any other defined parameters.

E2d. Commissioning Tests

Before performing these tests ensure the area being protected is in its fully operational state – both in terms of airflows and cleanliness. For example, any air handling units (AHUs) should be running, all floor and ceiling tiles should be installed and any equipment producing a heat load should be in its normal operational mode.

Results from all tests, particularly details of the test positions, should be recorded so that they can be repeated during Maintenance.

(i) Prescribed Standard : for ASD systems designed to prescribed standards, commissioning tests should include but are not limited to: -
- Maximum Smoke Transport Time from last sampling hole in system.
- Fault detection, including blockage and rupture of the pipe.
- Tests to confirm that Sampling Points are functioning.

(ii) Performance Based : for ASD systems designed to a performance requirement additional performance tests should be performed. They should be conducted in accordance with the design requirements.

a) Transport Time Measurement

Maximum transport time is measured by introducing smoke into the furthest Sample Point (or a dedicated test point) and measuring the time between first introducing the smoke and observing a "reaction" at the detector.

b) Smoke Test:

The system Alarm response MUST be tested for functionality using smoke
- the choice of smoke source is dependent on the installation - Pertronic Industries recommends the use of a Smoke Pen (PN: SMOKEPEN). Aerosol smoke is not recommended as it may leave residue inside the pipe

The procedure for this test depends upon whether the FAAST detector is Loop-Based or Stand-Alone:

Loop-Based:
(i) at the F100 or F120 panel, access Menu \ Status (\ Device) : Loop Address of the FAAST detector. Note the PW4 value
(ii) on each Pipe of a multiple branch system, introduce smoke into the Sampling Point furthest from the detector – if the End Cap is configured as a Non-Sensing Point, use the penultimate Sampling Point
(iii) start the Timer as the smoke enters the Sampling Point, then move to the panel and note the PW4 value. The smoke must be present for the duration of the test
(iv) stop the Timer as the PW4 value begins to rise indicating smoke has been detected – this is the Transport Time for this Sample Point.
  - the Maximum Transport Time shall be less than the maximum time specified within the design documentation/ engineering specifications but must not exceed 90 seconds (NZS4512:2010).

Where an Alarm indication is used it does not generally include any Alarm delays, which are temporarily set to zero for the measurement of Transport Time.

Measured Transport Time should be compared to the predicted design Transport Time.

c) Fault Detection

Simulate the following faults on the detector and check that the fault is signalled at both FAAST detector and at the Fire Panel.

(i) **Pipe Flow :** for each sampling pipe connected to the FAAST unit:
- block the pipe and ensure a Low Flow Defect is reported
- remove the Endcap and ensure a High Flow Defect is reported
- block a single Sampling Point and confirm the Air-Flow indicator responds
- block a series of Sampling Points and record the identity of each hole and number (quantity) required to produce a Low Flow Defect – identifying the holes individually provides the ability to replicate later during Maintenance
- record Flow readings for later reference during Maintenance.
  Note: A 20% reduction in volumetric flow (EN54-20) is considered an appropriate Defect condition.
      Sampling Points do not usually block individually but all become contaminated at similar rates.

(ii) **Power Supply** :
- disconnect the battery and verify that a PSU fault is reported
- disconnect the Mains supply and verify that a PSU fault is reported.

(iii) **Internal Faults :**
- disconnect Sounder 1 (Pins 17/18) and verify that a fault is reported
- disconnect Sounder 2 (Pins 19/20) and verify that a fault is reported (Dual Channel FAAST Only)

d) Functional Tests

Commissioning must include sufficient testing to verify that Sampling Points are fully functional. Careful inspection/validation of the sampling holes to confirm that they are correctly drilled and comparison of measured transport times to predicted transport times is often considered sufficient validation, particularly where performance tests are specified.
- identify and inspect a sample of Sampling Points and verify they are drilled to the correct size and spacing
- measure the actual current drawn from the power supply – record this and use the Battery Calculator (http://www.pertronic.co.nz/engineering/battery_calc/welcome.php) to ensure the PSU and Battery are appropriate to achieve the required Standby period
- activate Configurable Input (Pins 21/22) and verify that it functions as configured

E2e   Signalling
All signalling between the ASD system and Fire Alarm Panel/CIE should be verified in accordance with the design. In particular the signalling and response to each Alarm level and Fault conditions should be checked and verified. Where an ASD system provides local Disablement or Isolation it should be verified that this condition is signalled to the Fire Alarm Panel/CIE

Any "cause and effect" requirements, particularly in relation to the integration with automatic suppression systems should be verified

E2f   System Check
After initial commissioning, it is prudent to monitor detector performance by turning Trend Log ON for an appropriate period, then review the log to verify the settings are appropriate for the site (refer to Section C, General d))

E2g   System Handover
During the commissioning all results shall be recorded. These along with all configuration data shall be submitted as part of the commissioning certificate.

All relevant drawings shall be submitted to include the pipe layout, hole sizes, sampling point positions and detector locations, and shall be deemed part of the system handover.

All the collated documentation along with a signed certificate should be issued to the customer.

Sensitivity Class vs Detection Requirements:

Class (EN54-20)	Class A	Class B	Class C
	Very High Sensitivity	Enhanced Sensitivity	Normal Sensitivity
TF2x End of Test Condition	1.15% obs/m (0.05dB/m)	3.4% obs/m (0.15dB/m)	36.9% obs/m (2dB/m)
Description:	Smoke is not visible due to low quantity and/or high dilution due to air movement	Smoke is visible but insufficient to be detected by Point or Beam detectors	Smoke is visible and sufficient to be detected by Point or Beam detectors
ASD Sampling Type			
Primary Detection: sampling where smoke is likely to travel	Best	Small Areas Only	Not Appropriate
Secondary Detection: sampling holes positioned according to Point detector code	Early Warning	Challenging Applications	Appropriate (prescriptive design may be used)
Localised Sampling: customised protection of specific equipment	High Risk	Low Risk	Not Appropriate
In-Cabinet Sampling: localised sampling	High Risk	Low Risk	Not Appropriate
Duct Sampling:	High Risk	Low Risk	Not Appropriate
Other Motivators: - extreme environments - restricted/difficult access - exceptional ceiling height - heat barriers		- aesthetics - risk of mechanical damage - anti-vandal systems - hazardous environment	

Colour Code Key:
When using this manual, apply the information which applies to the particular FAAST LT model being installed

Black: applies to both FL01nn and FL20nn Series FAAST LT detector

Blue: refers to Important Settings which should be verified. While all settings are important, many can justifiably remain as the default value, but items in Blue should be checked

Section F : FAAST LT System Validation Form:

Customer Name:	
Project Name:	
Site Address:	

	Name	Contact Information	Date
Installer:			
Commissioning Agent:			
Client Representative:			
Witness:			

Required Documents	
Commissioning Form for Each System (this document):	Yes / No
FAAST System Pipe Layout Report	Yes / No
FAAST System Bill of Materials Report	Yes / No
As-Built Installation Drawings:	Yes / No
Smoke Test Results (optional):	Yes / No
Locally Required Forms	Yes / No

Air Handling Units:	Yes / No	**In-Cabinet Sampling:**	Yes / No	**Duct Sampling:**	Yes / No
Number of Sample Points:			**Number of Capillary Points:**		

Conditions:					
Temperature:		Humidity:		Other:	
Power Supply Installed correctly?					Yes / No
Pipe Network Installed in Accordance with the PipeIQ design (per Pipe Layout Report)?					Yes / No
Pipe Network Labelled correctly?					Yes / No
Describe Any Variations?					
Wiring Checked:					Yes / No
Detector Settings Checked:					Yes / No
Relays Tested:					Yes / No

	Sensor 1		Module 1		Sensor 2		Module 2
Loop Address:	L M		L M		L M		L M
Sensitivity: (circle one)	VEWFD / EWFD / SFD Class A / Class B / Class C				VEWFD / EWFD / SFD Class A / Class B / Class C		

		Threshold	Time Delay	
Day:	Alarm:			
	Pre-Alarm:			
Night:	Alarm:			
	Pre-Alarm:			

Transport Time:	Predicted	Actual:	
Transport Time:			

Air-Flow:				
Flow Rate:	Channel 1: l/m		Channel 2: l/m	
Block the Exhaust Pipe:	- Lo Flow Defect Indicated?		Yes / No	
Remove End-Cap:	- Hi Flow Defect Indicated?		Yes / No	

		Ch1, P1	Ch1, P2	Ch2, P1	Ch2, P2
Block a Single Sampling Point:	- Reduced Flow Indicated?	Y / N	Y / N	Y / N	Y / N
Block Sampling Points to produce a Defect:	- List the Holes Blocked				

Outputs:	
Alarm Outputs Verified:	Yes / No
Fault Outputs Verified	Yes / No
Isolate Function Verified	Yes / No

Comments:

Signatures:	
Customer:	**Commissioning Agent:**
Date:	**Date:**