
Figure 1: Dimensions and Knock-Outs
DESCRIPTION

The LT FL01 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 FL01 is the stand-alone version of the FAAST LT range and is available in 3 different models:

FL0111E - Has single channel capability with one laser smoke sensor.

FL0112E - Has single channel capability with two laser smoke sensors in a common chamber for coincidence detection.

FL0122E - Has two channel capability with two laser smoke sensors in separate chambers. (One sensor for each channel).

This guide provides information for mounting and basic installation using the unit's default factory settings. For more extensive info please see the FAAST LT Advanced Setup and Control Guide.

SPECIFICATIONS
Electrical Characteristics

Voltage Range:	18.5 - 31.5 VDC
Supply Current	200mA (avg); 500mA (max) @ 24 VDC (excluding sounders)
Power Reset:	0.5s
Configurable Input: Activation Time:	1s (min)
Relay Contact Ratings	2.0 A @ 30 VDC, 0.5A @ 30 VAC

Environmental Ratings

Temperature:	-10°C to 55°C
Relative Humidity:	10% to 93% (non-condensing)
IP Rating:	65

Mechanical

Exterior Dimensions:	See Figure 1
Wiring:	0.5 mm ² to 2 mm ² max
Maximum Single Pipe Length	100m (Classes A, B & C)
Maximum Number of Holes	18 (10 x 2.5mm, 8 x 3mm + 3mm end hole - Class C)

Pipe Spec (EN54-20 Compliance):	Red ABS to EN 61386 (Crush 1, Impact 1, Temp 31)
Outside Pipe Diameter:	25mm (nom) or 27mm (nom)
Shipping Weight:	6.5kg (inc sensors)

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
47 k-ohm EOL Resistor	2
Front Panel Labelling Pack	1
Quick Installation Guide	1

FAAST LT Advanced Setup and Control Guide available via download from www.systemsensoreurope.com.

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

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

PHYSICAL INSTALLATION

Front Panel Labels

The LT FL01 is shipped without the front panel labels fixed in place. This allows the installer to choose the language required for the installation from the Front Panel Labelling Pack.

Figure 2 shows where the labels need to be placed:

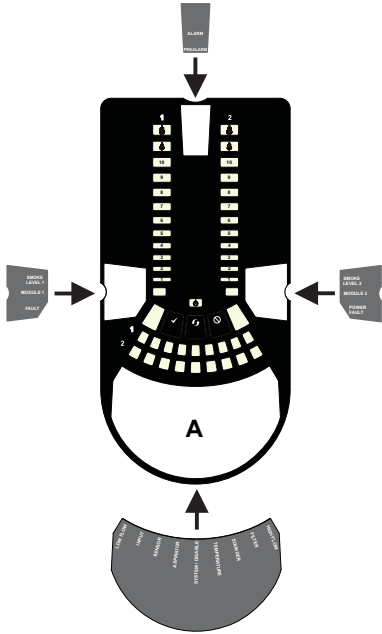


Figure 2: Placing the Front Panel Labels

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:



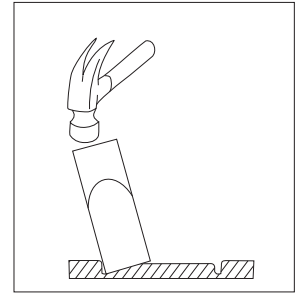
Figure 3: Remove Backing to Stick Cover Down

Cable Access

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



Figure 4: How to Knock Out Cable Gland Holes



Mounting the LT FL01 to the Wall

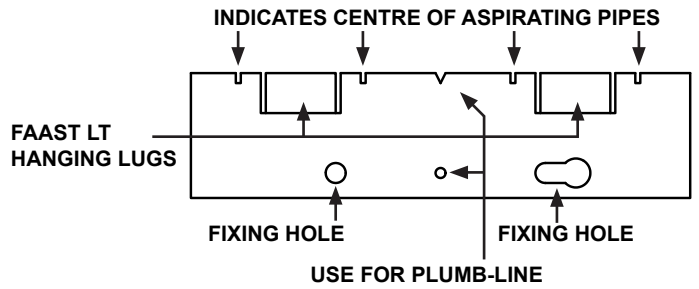


Figure 5: Mounting Bracket

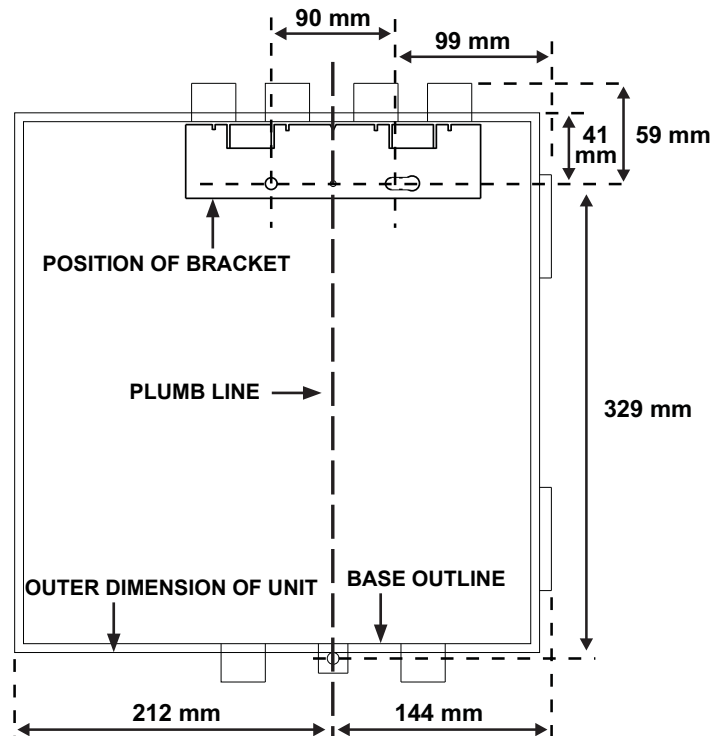
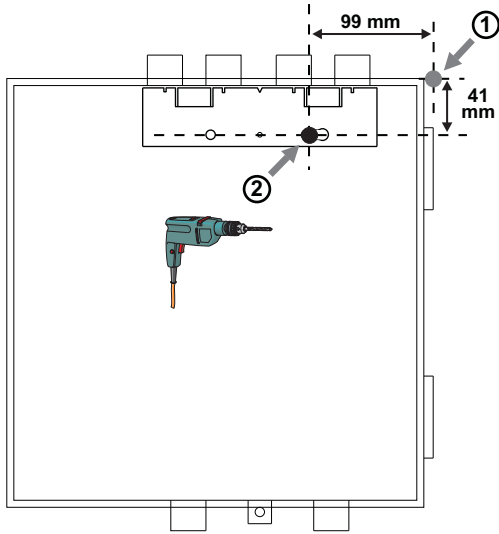


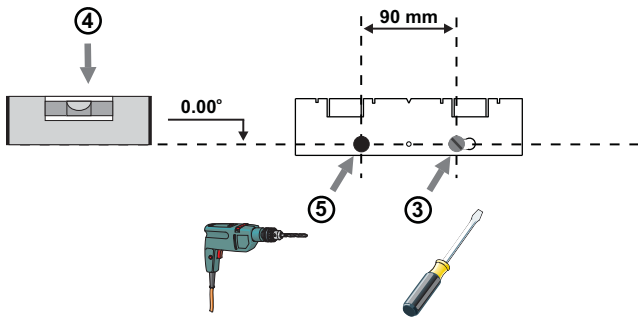
Figure 6: Fasten the mounting bracket to the wall

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

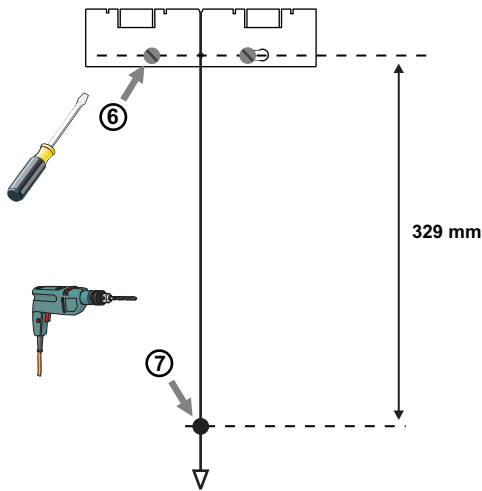
7a



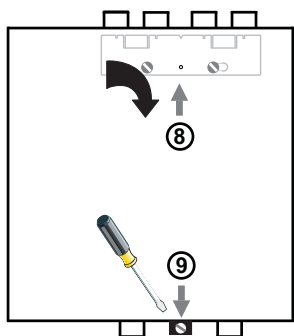
7b



7c



7d



Pipe Hole Configuration

Figure 8 below 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:

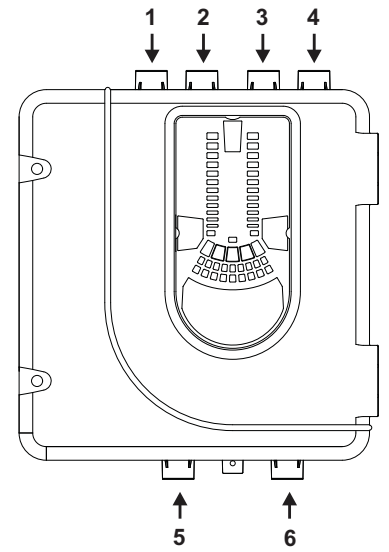


Figure 8: Pipe Holes

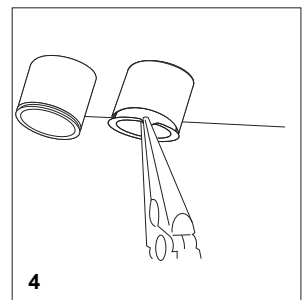
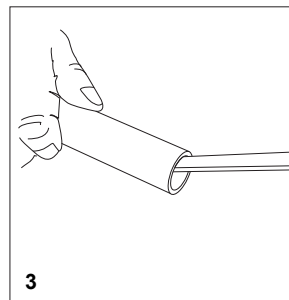
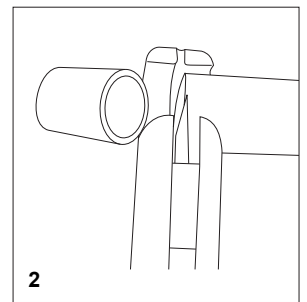
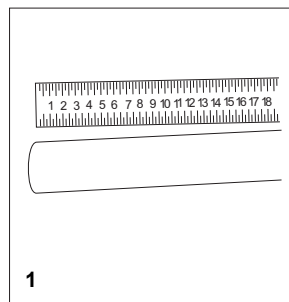
Table 1: Pipe Holes Used for Each FAAST LT Model

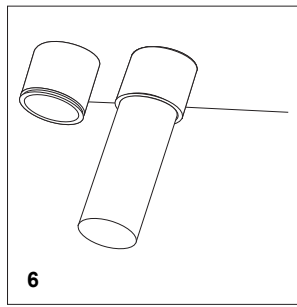
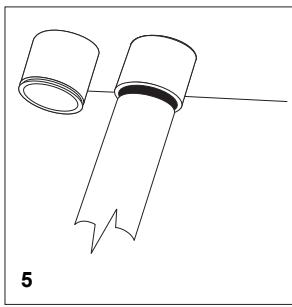
FAAST LT MODEL	INLET PIPE HOLE	OUTLET PIPE HOLE
FL0111E	1 & 2, or 1 or 2	5
FL0112E	1 & 2, or 1 or 2	6
FL0122E	Channel 1 - 1 & 2, or 1 or 2 Channel 2 - 3 & 4, or 3 or 4	5 6

Note 1: Pipe holes not used should be kept sealed.

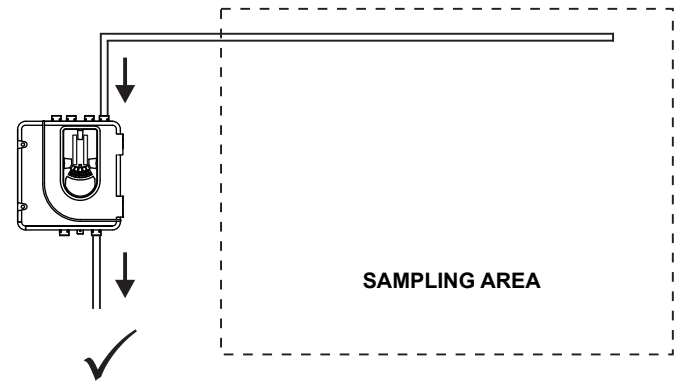
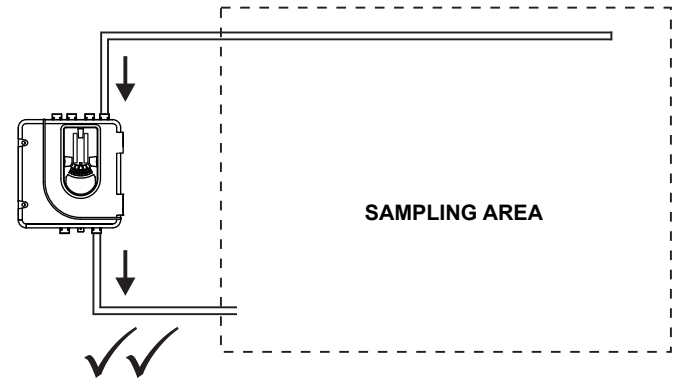
Note 2: Do **NOT** glue pipes into the pipe holes.

Pipe Installation





Exhaust Pipe



WIRING INSTALLATION

Power, Alarm and Control Connections

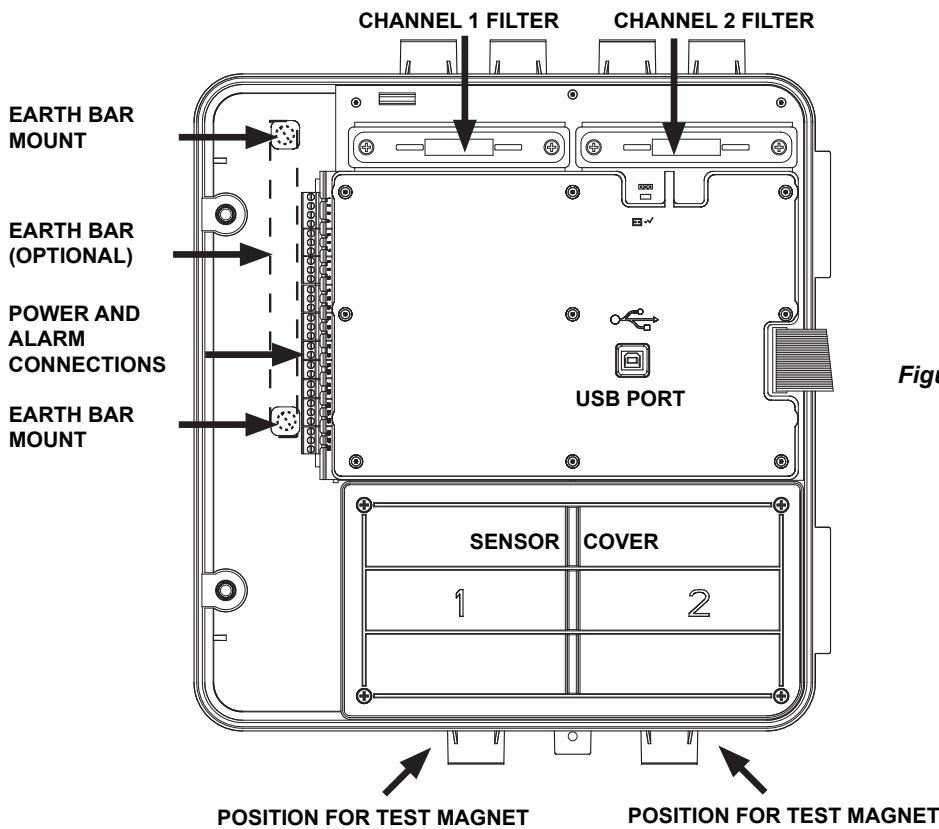


Figure 9: Inside the Detector

Table 2: Wiring Terminal Designations

(Note - Terminals marked CH2 will only be available on 2 channel models)

No.	Function		
1	Ext Power In +		Primary PSU Primary PSU Not used in default Not used in default
2	Ext Power In -		
3	Aux Power In +		
4	Aux Power In -		
5	NC Alarm Relay	CH1	T2
6	C Alarm Relay	CH1	
7	NO Alarm Relay	CH1	
8	NC Alarm Relay	CH2	T3
9	C Alarm Relay	CH2	
10	NO Alarm Relay	CH2	
11	NC Fault Relay	CH1	T4
12	C Fault Relay	CH1	
13	NO Fault Relay	CH1	
14	NC Fault Relay (AUX)	CH2	T5
15	C Fault Relay (AUX)	CH2	
16	NO Fault Relay (AUX)	CH2	
17	Sounder Output 1 -		T6
18	Sounder Output 1 +		
19	Sounder Output 2 -		T7
20	Sounder Output 2 +		
21	Configurable Input +	(Reset)	T8
22	Configurable Input -	(Reset)	
23	NC Pre-Alarm Relay	CH1	T9
24	C Pre-Alarm Relay	CH1	
25	NO Pre-Alarm Relay	CH1	
26	NC Pre-Alarm Relay	CH2	T10
27	C Pre-Alarm Relay	CH2	
28	NO Pre-Alarm Relay	CH2	

Table 3: Relays

RELAY	ACTION:	NOTES
ALARM 1 or 2	Set ON when ALARM CONDITION is met on a channel	Default condition = Level 1. Alarm state is latched as default. A manual RESET is necessary to deactivate LED and relay.
PRE-ALARM 1 or 2	Set ON when PRE-ALARM CONDITION is met on channel.	Default condition = Level 1.
FAULT 1 or 2	When FAULT CONDITION on Ch1 or Ch2 or a GENERAL FAULT occurs. Fault is also indicated when in SERVICE mode and when the unit is unpowered.	Fault state is not latched (default)
SOUNDER 1 or 2	Set ON when a channel is in ALARM / PRE-ALARM. Sounder 1 corresponds to Ch1 and Sounder 2 corresponds to Ch2	Default condition = set on in ALARM.

POWERING UP

Using Default Settings

1. Connect a suitable 24VDC supply to pins 1 and 2 on terminal block T1 (See 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 PipeIQLT software installed; see **USB connection** section later in this guide for more information on this (and the FAAST LT Advanced Setup and Control Guide - reference D200-100-00).

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.

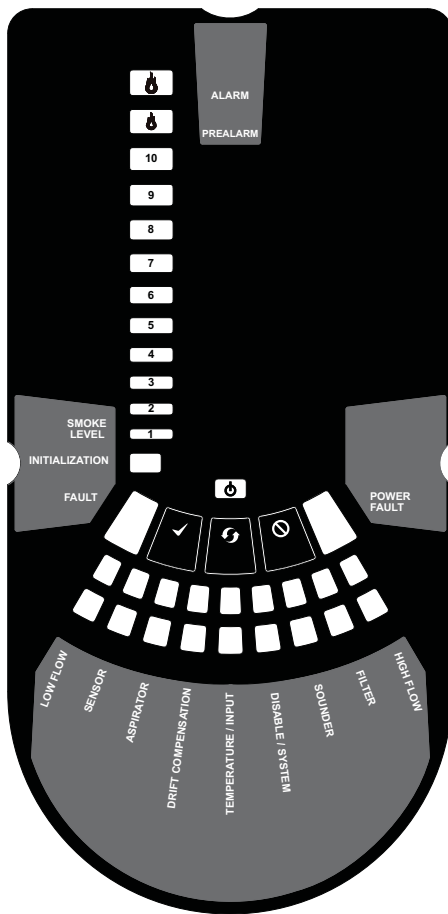
FRONT PANEL

The front panel will be different depending on which of the 3 FL01 models is being installed, and each is shown below.

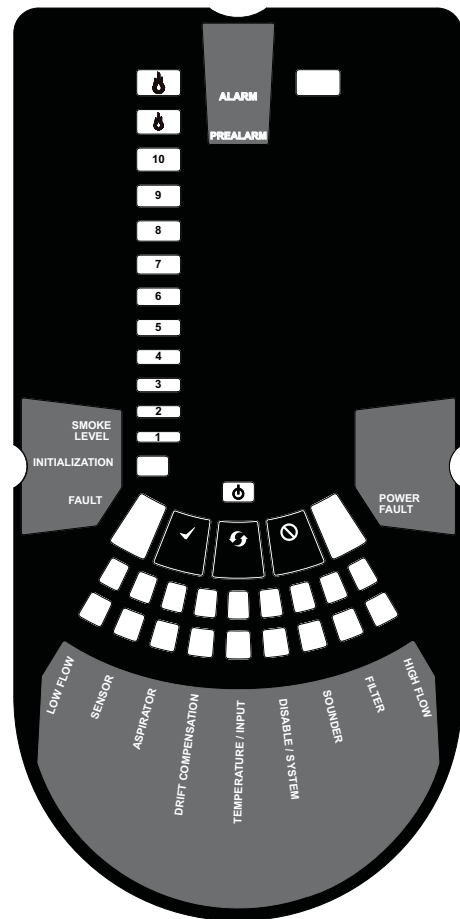
The following information is displayed:

- Detector Status: Normal, Alarm, Fault or Isolate
- Alarm Level; Alarm, Pre-Alarm
- Particulate Levels; 1-9
- Fault Status
- Flow Level
- Test, Reset and Disable Buttons

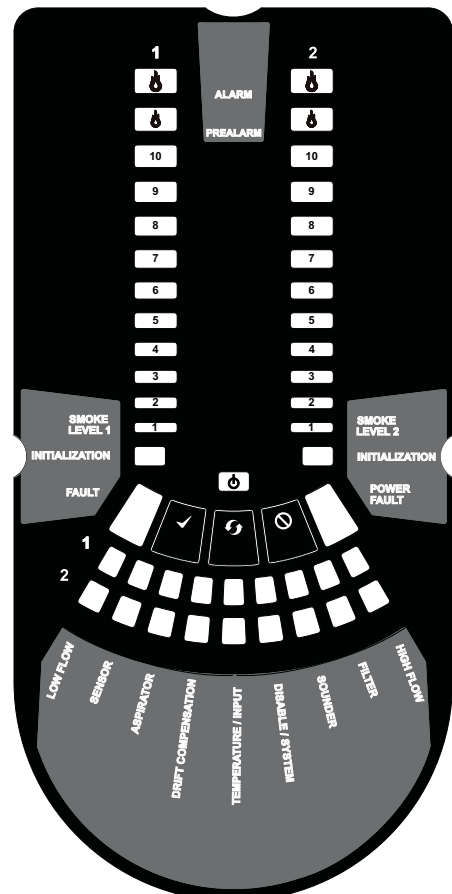
Figure 10: Front Panel Display



10a: FL0111E 1 Channel Detector (1 Sensor)



10b: FL0112E 1 Channel Detector (2 Sensors)



10c: FL0122E 2 Channel Detector

Table 4: Front Panel Indicators and Fault Descriptions

INDICATOR	ACTION	WARNING OR TROUBLE	COMMENT / ACTION
CHANNEL 1/2 ALARM	ON	Red, Channel is in alarm (relay is set)	No delay with default settings
	1 BLINK	Green, when sensor is polled	Not in alarm
CHANNEL 1/2 PRE-ALARM	ON	Channel is in pre-alarm (relay is set)	
SMOKE LEVEL	ON	Led number indicates sensor alarm level reached	Only numbers 1 – 9 used
INITIALIZATION	ON	FAAST LT is in initialization	
FAULT	ON	General or multiple faults	
	1 BLINK	Fault delay	Default = 60s.
POWER	ON	FAAST LT is powered	
POWER FAULT	ON	Low power alert / high power fault	Check the power supply voltage.
CHANNEL FLOW INDICATORS 1/2	ON	The LED indicates the air flow for a channel: - Centre = normal flow - Left = flow low; (-20% at extreme) - Right = flow high; (+20% at extreme)	On 2 channel unit: Upper row = Ch1 Lower row = Ch2
LOW FLOW	ON	Low flow fault	Check filter; check pipe network for blockages.
SENSOR	1 BLINK	Sensor initialization fault	Try to restart device. Replace faulty sensor.
	2 BLINKS	Sensor communication fault	Check sensor addresses and installation; replace sensor.
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 the device.
	2 BLINKS	Fan fault	Try to restart device.
DRIFT COMPENSATION	1 BLINK	Drift compensation, 1st alert	Clean sensor
	2 BLINKS	Drift compensation, 2nd alert	Clean sensor
	3 BLINKS	Drift compensation limit warning	Sensor needs urgent maintenance
TEMPERATURE	1 BLINK	Low temperature alert	Check the air flow temperature
	2 BLINKS	High temperature alert	Check the air flow temperature
INPUT	1 BLINK	External input fault	Not used with default settings
DISABLE	1 BLINK	Alarms, faults & alerts not reported	Returns to Maintenance then Normal operation after 60min (default)
SYSTEM	1 BLINK	Wrong 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 fault	RTC is corrupted or time reading failed.
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.

In case of simultaneous alerts/faults on the same LED, priority order is: ON (Highest), 1 blink, 2 blinks, 3 blinks (Lowest)

Front Panel Buttons

The front panel has 3 user buttons: **TEST**, **RESET** and **DISABLE**. These buttons are used to enter the pass-code which then allows the user to carry out simple test functions.

Note: In *Remote Maintenance and Service Mode*, these buttons are always disabled.

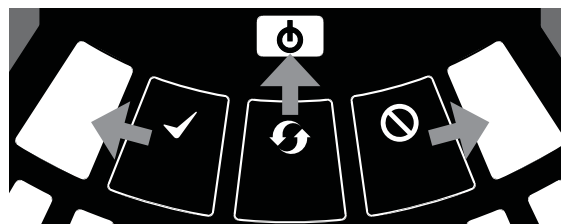
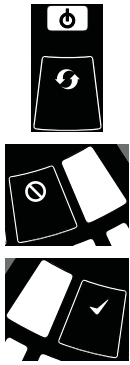


Figure 11: User Interface Buttons

Table 5: Front Panel Buttons



BUTTON	NORMAL Mode	MAINTENANCE Mode
RESET	When pressed for 2 s, starts PASSWORD PROCEDURE to enter Maintenance mode.	When pressed for 2 s latched alarms, faults and sounders (relays) are reset In DISABLE Mode, if pressed for 2 s unit will exit from DISABLE Mode
DISABLE	Used to increment Password digits in PASSWORD PROCEDURE	When pressed for 2 s, device enters DISABLE Mode for 60 minutes (default). (Alarms, alerts and faults not reported). (To exit DISABLE Mode see RESET)
TEST	Used to confirm password in PASSWORD PROCEDURE. Default Password = 3111	When pressed for 2 s and released, both sensor will simulate alarm When pressed for 4 s and released, sensor #1 will simulate alarm When pressed for 6 s and released, sensor #2 will simulate alarm
COMBINATIONS		
RESET + DISABLE	When pressed for 2 s, shows fan speed (on smoke level scales) for a preset time.	When pressed for 2 s, shows fan speed (on smoke level scales) for preset time.
RESET + TEST	No action	When pressed for 2 s, turns off sounders
RESET + TEST + DISABLE	No action	When pressed for 2 s, unit exits from MAINTENANCE Mode

Password Sequence to Enter Maintenance Mode

Press and hold **RESET**; Left flow indicator will turn yellow, then green.

Release **RESET** and **FAULT** indicator will switch on green. The left flow indicator will blink green indicating the device is ready for the first digit.

Press **DISABLE** to increment the LEDs 1...9; press **TEST** to select a digit.

The flashing airflow segment will turn solid green and the next segment will begin to flash indicating set the next digit. When the 4th digit is selected, all 4 airflow segments are turned off. If the password is accepted the **FAULT** indicator will remain 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 in **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 15s and then the unit returns to the **Normal** state.

TESTING

Magnet Test

The alarm signalling can be tested for functionality by placing a test magnet in the position shown in Figure 9 (displayed earlier in the guide). 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 dependant on the installation but 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 120s should be used – standard aerosol sprays for point detector testing do not work well on aspirated systems.

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 CIE (Fire Panel).

SERVICE

WARNING

Isolate the aspirating detector from the fire alarm system to prevent any unwanted alarms when opening the front door of the unit. Make sure all power is removed from the system before removing any covers.

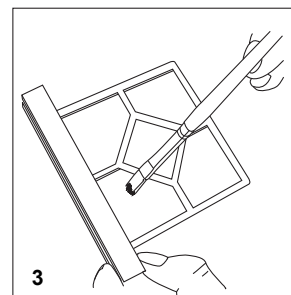
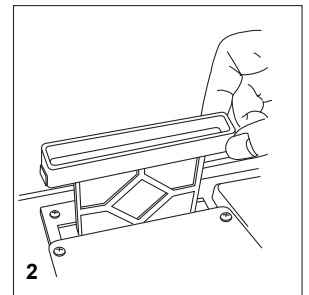
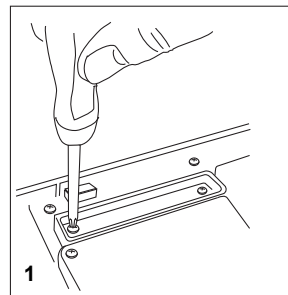
Service Mode

Opening the cabinet door during normal operation will cause the unit to enter **Service** Mode. The **FILTER** LEDs will blink, the unit will switch off power to the fans and stops communicating with the fire panel. When the cabinet door is closed, the unit restarts automatically.

Filters

Periodic cleaning or replacement of the filters will be required.

The filters are located inside the cabinet at the top of the unit (see Figure 9 displayed earlier in the guide) and are removed as shown in the sequence below:

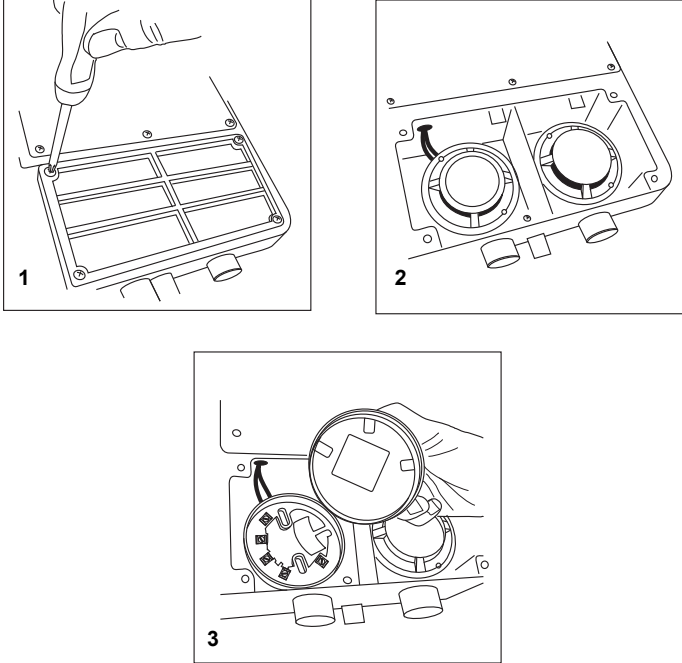


Either replace the filter assembly or carefully brush off the accumulated dust.

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

Smoke Sensors

The smoke sensors are located under the sensor cover (see Figure 9 displayed earlier in the guide). To access the sensors, follow the sequence below:



Do **NOT** interchange the devices and do **NOT** alter the rotary address switch settings on the sensors. If replacing a sensor, ensure that the address set on the new sensor is the same as on the sensor 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.

USB CONNECTION

PC connectivity is provided by an on board USB **B** socket located centrally between the filter and the sensor (see Figure 9 displayed earlier in the guide). The USB interface allows access to a range of additional options, via the PipeIQLT application software, when connected to a PC. The USB connecting cable should be removed during normal operation.

PipeIQ™LT QUICK START INSTRUCTIONS

Overview of PipeIQLT

The PipeIQLT software program is a convenient and powerful Windows® based application that can be 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.

PipeIQLT provides a graphical interface on a PC to:

- Develop and verify the performance of pipe network solutions.
- Configure the design parameters to suit local fire codes and standards.
- Generate Pipe Layouts, BoMs, Configuration and Event Log Reports.
- Control, Test and Monitor FAAST LT devices.

There is a comprehensive **Help Menu** to guide the user through the different windows and options. The contents have a detailed index and a versatile search facility to locate relevant topics.

Minimum System Requirements

Microsoft Windows XP SP3 or Windows 7

1 GB of RAM.

Graphics hardware with 128 MB of memory and support for OpenGL 2.0 or later.

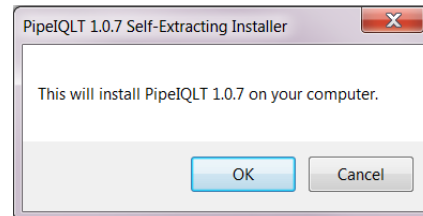
5 GB of free hard disc space

Installing PipeIQLT

PipeIQLT is supplied on a mass storage device with each FAAST LT unit, or it can be accessed as a download from www.systemsensoreurope.com.

To install from the mass storage device

Insert and view the removable storage device. Click on **PipeIQLT Setup**:



Click **OK** and follow the instructions (see: *PipeIQLT Setup and Installation Wizard* section below).

To install from the website

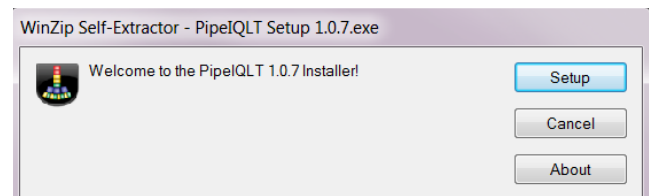
Click on the link to PipeIQLT at www.systemsensoreurope.com.

Click on **PipeIQLT download**. The download security warning will appear. Select **Save**, then click **OK**.

When the download completes, click **Run** to display the above dialog box. Click **OK** and follow the instructions (see: *PipeIQLT Setup and Installation Wizard* section below).

PipeIQLT Setup and Installation Wizard

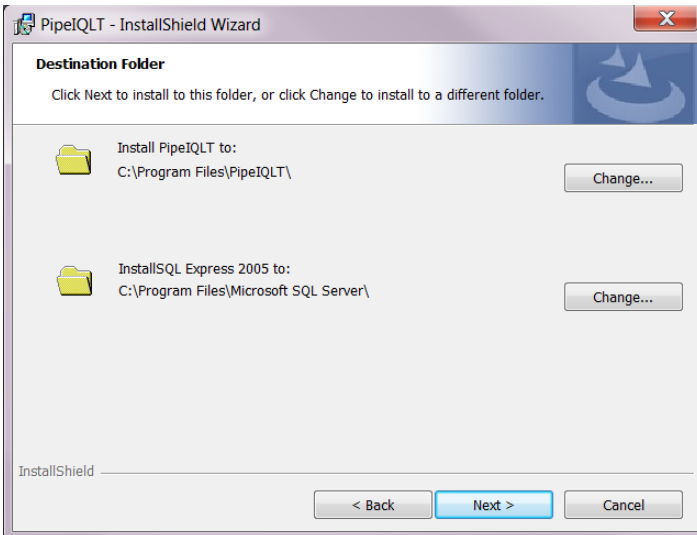
When the below dialog box appears, click **Setup** to start the wizard:





Click **Next** and follow the on-screen instructions.

Unless changed, the install wizard will create and store files at the following locations:



When installation is complete, the wizard will automatically create a shortcut icon on the PC desktop.

It will be necessary to re-boot the PC in order to run PipeIQLT.



Launching

To launch the PipeIQLT application, double click the **PipeIQLT** icon on the desktop.

Or

click **Start** (bottom left corner of the Windows screen) and then select **PipeIQLT** from the programs list.

When the application opens, it is possible to start a new project, or to monitor or modify an existing project. Use the **File** menu to select **New** or **Open**. Choose from the **Pipe Design**, **Configuration** or **Monitoring** tabs to enter the required mode.

To communicate with a FAAST LT detector, connect the USB port to a PC with an appropriate cable. Set the detector to **Maintenance** mode.


Quitting

Exiting the program closes the application completely.

To quit the PipeIQLT application, click **X** in the upper-right corner of the window.

Or click **Exit** from the **File** menu.

PipeIQLT can be uninstalled from the computer in the normal way for your operating system.

 0832
FL0111E: 0832-CPD-1990 12 FL0112E: 0832-CPD-1991 12 FL0122E: 0832-CPD-1992 12
EN54-20 : 2006 Class A B & C Aspirating Smoke Detectors
Pittway Tecnologica S.r.l. Via Caboto 19/3, 34147 Trieste, Italy