FAAST LT-200

FIRE ALARM ASPIRATION SENSING TECHNOLOGY®

SET-UP AND TROUBLESHOOTING GUIDE

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INTRODUCTION

The purpose of this document is to help installers and technicians connect, commission and check out a FAAST LT-200 system in the field.

It includes information on wiring and setting up, what the indicators and switches do, the device operating modes and factory default settings and how to connect a unit to a PC. It highlights common mistakes that can be made during an installation and provides a useful section of dos and don'ts to ensure a successful application. This document is not a substitute for the comprehensive information contained in the current Quick Installation Guide or the Advanced Set-Up and Control Guide.

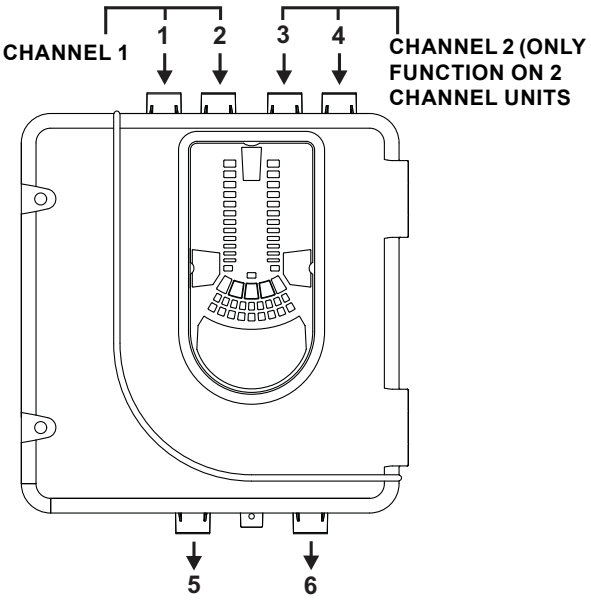
CONNECTING PIPES

Be sure to connect the inlet and outlet pipes to the unit correctly; the table below shows the pipe options available for the different FAAST LT-200 models. Each channel has 2 functional inlets and one outlet. Either inlet can be used for a single pipe design, or the 2 inlets can be used as a T junction for a branched pipe design. If only one pipe is used for a channel, blank off the other inlet.

FAAST LT MODEL	*DEVICE TYPE*	*INLET PIPE*	*OUTLET PIPE*
with **11** in model name	One channel	1 and/or 2	5
with **12** in model name	One channel with 2 sensors	1 and/or 2	6
with **22** in model name	Two channel	Channel 1: 1 and/or 2 Channel 2: 3 and/or 4	5 6

Leave the blanking bungs that are supplied in the inlet/outlet holes in place until the pipework is connected to the unit to avoid any dirt or debris ingress. When not using exhaust pipes, make sure that the blanking bungs have been removed prior to powering the device on.

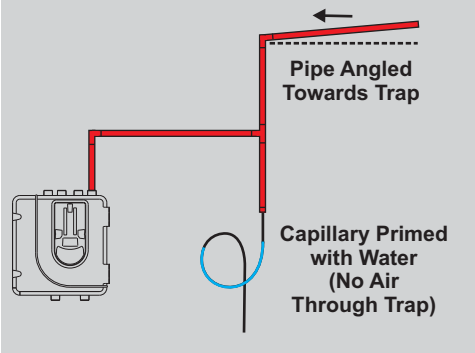
On a 1 channel unit, holes 3 and 4 do not function.



Do not glue the pipes into the inlet and outlet holes. This will invalidate the warranty and also make removing the device difficult should this be necessary at a later date.

Use a socket union joint to simplify device removal without the need to move pipework.

In damp or humid environments, be sure to fit a water trap in the pipeline before the FAAST LT-200 unit so that no liquids are drawn into the aspirating detector. Make sure that the water trap does not run dry or the FAAST LT-200 operation could become compromised.



WIRING UP A FAAST LT-200 UNIT

Figures 1A and *1B* show the terminal connections for FAAST LT-200 devices. The stand-alone units (FL0111E, FL0112E and FL0122E) are slightly different from the loop based devices (FL2011E, FL2012E and FL2022E - Note: Other OEM Brands may use different model numbers).

Figure 1A:
Stand-alone connections

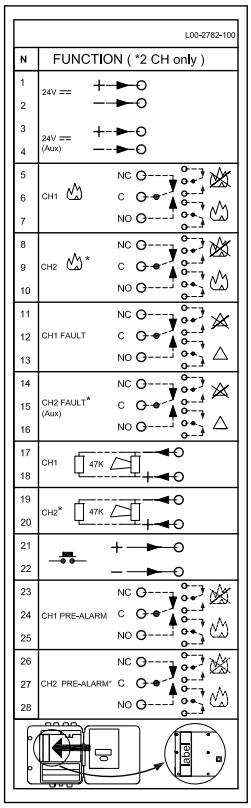
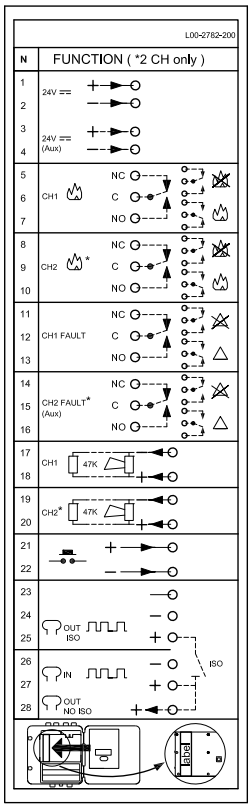


Figure 1B:
Loop-based connections



Power connections and supervision

The primary 24V power supply to the unit should be connected to terminals 1 & 2. Terminals 3 & 4 are available for a secondary, standby power unit if required. Terminals 1 & 2 have supervision monitoring set as a factory default (terminals 3 & 4 are not supervised as a default). With default settings, connecting power to T3 & T4 without connecting T1 & T2 will give a power fault.

Sounder EOLs

The sounder output circuits have supervision monitoring and should be fitted with 47K EOL resistors. Without the EOL resistors, the device will give a sounder fault.

Programmable input (Reset)

There is a programmable input that can have several alternate functions. As a factory default it is configured as a Reset input that will reset all alarms and relays. It is intended to be switched using volt free contacts that are normally open. Leave the input open circuit if not used.

FRONT PANEL LEDS – WHAT THEY SHOW

The front panel indicators use the following colour convention:

Green	**OK**
Red	**Alarm**
Yellow	**Trouble**

For simultaneous faults/alerts on the same LED, the priority order is:

ON (highest) > blink > double blink > triple blink (lowest)

The meaning of all the front panel indicators are detailed in *Tables 1A* and *1B* below:

To test if all the front panel LEDs are functioning, hold the TEST button while the device is powered on. The firmware version number will be displayed for 2 seconds on the Channel 1 smoke level LEDs and then the front panel LEDs are illuminated, in the following sequence: all the red LEDs, all the yellow LEDs, all the green LEDs.

Table 1A: Stand-alone device

ID	Indicator	Colour	Action	Meaning	Notes
1	ALARM	Red	ON	Channel in Fire Alarm	Fire relay is set
		Green	Blink	Sensor poll	In normal operation
2	PREALARM	Yellow	ON	Channel is in pre-alarm	Pre-alarm relay is set
3	SMOKE LEVEL	Yellow	ON	Shows alarm level reached	Numbers 1-9 only used for smoke density
4	INITIALISATION	Yellow	ON	Device is initialising	Takes about 3 minutes
5	FAULT	Yellow	ON	Device has one or more troubles	Relay set; general fault is not latched as default
		Yellow	Blink	Fault delay in progress	Default is 60s; fault relay is set at end of delay
		Red	Blink	Test button pressed	
6	POWER	Green	ON	Power on device	
		Red	Blink	Reset button pressed	
7	POWER FAULT	Yellow	ON	Lo/Hi voltage range warning	Check PSU wiring and voltage
		Yellow	Blink	Power restart alert	Disabled as default
		Red	Blink	Disable button pressed	
8	AIR FLOW	Green	ON	Centre OK; left low; right high	Ch1 upper row; Ch2 lower row
9	LOW FLOW	Yellow	Blink	Fault delay in progress	Default is 60s; general fault set at end of delay
		Yellow	ON	Low air flow problem	Check filter and pipes for blockages
	SENSOR	Yellow	Blink	Sensor initialisation problem	Restart device; change sensor
		Yellow	Double blink	Sensor communications problem	Check sensor address; change sensor
	ASPIRATOR	Yellow	ON	Air flow monitoring problem	Restart device; run diagnostic
		Yellow	Blink	Air flow initialisation problem	Check filter and pipes for blockages; try restart.
		Yellow	Double blink	Fan problem	Try device restart.
	DRIFT COMPENSATION	Yellow	Blink	Sensor drift, alert 1	Clean sensor
		Yellow	Double blink	Sensor drift, alert 2	Clean sensor
		Yellow	Triple blink	Sensor drift limit warning	Clean sensor - urgent
	TEMPERATURE (b)	Yellow	Blink	Low temperature alert	Check air temperature
		Yellow	Double blink	High temperature alert	Check air temperature
	INPUT (a)	Yellow	Blink	External input problem	Blinks Green when set as RESET input (default)
	DISABLE	Yellow	Blink	No alarms or problems reported	Returns to normal mode after 60 min (default).
	SYSTEM	Yellow	Blink	Error in device configuration	Flashes all FAULT LEDs; try device restart
		Yellow	Double blink	EEPROM problem	Check PSU voltage; try device restart
		Yellow	Triple blink	Real Time Clock problem	RTC is corrupted or internal power failed
	SOUNDER	Yellow	Blink	Sounder problem	Check EOL and sounder circuit
	FILTER	Yellow	Blink	Filter cleaning date is reached	Set a valid future date
	HIGH FLOW	Yellow	Blink	Fault delay in progress	Default is 60s; general fault set at end of delay
		Yellow	ON	High air flow problem	Check pipes for breaks and leaks

(For position of the indicators (ID) on the front panel, see *Figure 2A*)

Table 1B Loop based device

ID	Indicator	Colour	Action	Meaning	Notes
1	ALARM	Red**	ON	Channel in Fire Alarm	Fire relay is set
		Green	Blink	When sensor polled by panel	In normal operation
2	PREALARM	Yellow+	ON	Channel is in pre-alarm	Only with panels using Advanced Protocol
3	SMOKE LEVEL	Yellow+	ON	Shows alarm level reached	Numbers 1-9 only used (needs Advanced Protocol)
4	MODULE	Green*	ON	Output set	Controlled by panel
		Green*	Blink	Module communication (poll)	Controlled by panel
5	FAULT	Yellow	ON	Device has one or more troubles	Relay set; general fault is not latched as default
		Yellow	Blink	Fault delay in progress	Default is 0
		Red	Blink	Test button pressed	
6	POWER	Green	ON	Power on device	
		Yellow	ON	Device is initialising	Takes about 3 minutes
		Red	Blink	Reset button pressed	
7	POWER FAULT	Yellow	ON	Lo/Hi voltage range warning	Check PSU wiring and voltage
		Yellow	Blink	Power restart alert	Disabled as default
		Red	Blink	Disable button pressed	
8	AIR FLOW	Green	ON	Centre OK; left low; right high	Ch1 upper row; Ch2 lower row
9	LOW FLOW	Yellow	Blink	Fault delay in progress	Default is 60s; general fault set at end of delay
		Yellow	ON	Low air flow problem	Check filter and pipes for blockages
	INPUT	Yellow	Blink	External input problem	Restart device; change sensor
	SENSOR	Yellow	Double blink	Sensor communications problem	
	ASPIRATOR	Yellow	ON	Air flow monitoring problem	Restart device; run diagnostic
		Yellow	Blink	Air flow initialisation problem	Check filter and pipes for blockages; try restart.
		Yellow	Double blink	Fan problem	Try device restart.
	DISABLE (a)	Yellow	Blink	No alarms or problems reported	Returns to normal mode after 60 min (default).
	SYSTEM (b)	Yellow	Blink	Error in device configuration	Flashes all FAULT LEDs; try device restart
		Yellow	Double blink	EEPROM problem	Check PSU voltage; try device restart
		Yellow	Triple blink	Real Time Clock problem	RTC is corrupted or internal power failed
	TEMPERATURE	Yellow	Blink	Low temperature alert	Check air temperature
		Yellow	Double blink	High temperature alert	Check air temperature
	SOUNDER	Yellow	Blink	Sounder problem	Check EOL and sounder circuit
	FILTER	Yellow	Blink	Filter cleaning date is reached	Set a valid future date
	HIGH FLOW	Yellow	Blink	Fault delay in progress	Default is 60s; general fault set at end of delay
		Yellow	ON	High air flow problem	Check pipes for breaks and leaks

** Set by panel

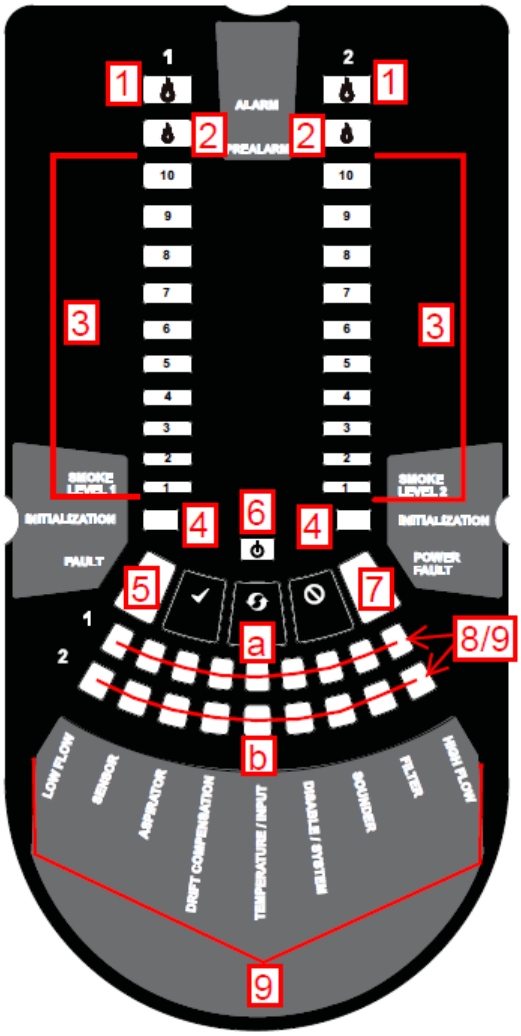
* Controlled by panel

+ Only set by panels using Advanced Protocol

(For position of the indicators (ID) on the front panel, see *Figure 2B*)

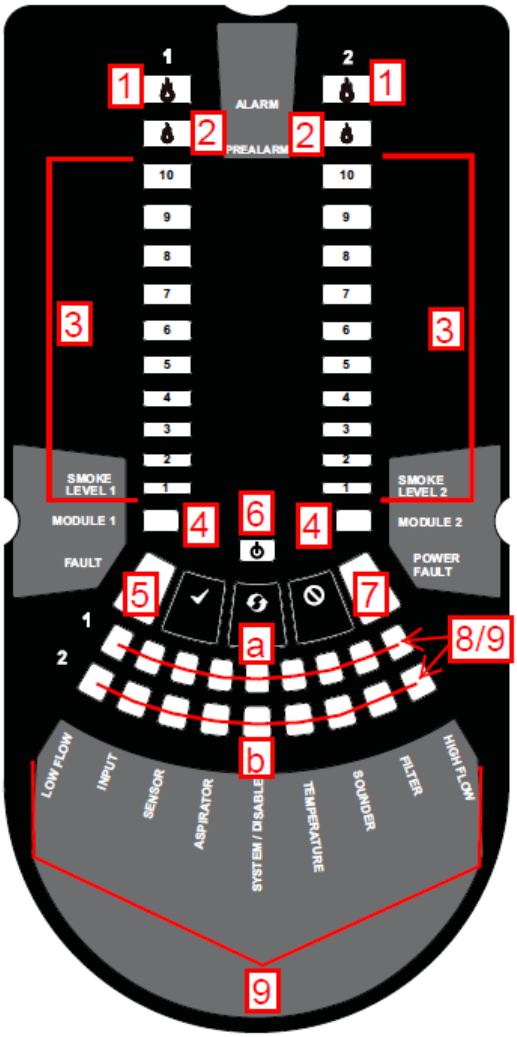
The position of the indicators on the stand-alone device front panel are shown in the *Figure 2A*:

Figure 2A: Stand-alone device front panel



The position of the indicators on the loop-based device front panel are shown in the *Figure 2B*:

Figure 2B Loop-based device front panel



FRONT PANEL BUTTONS – WHAT THEY DO

The front panel buttons are **Reset**, **Disable** and **Test**, They have limited functionality unless the detector is in ***Maintenance*** mode. When pressed, each button will blink an associated front panel LED as shown below:

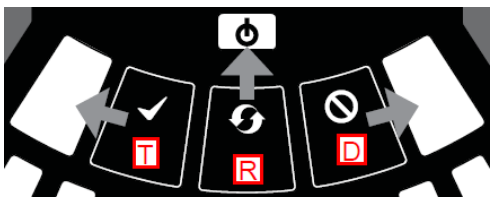


Figure 3 Front panel push buttons

Reset

Used to reset the FAAST LT-200 device from alarm (requires pass-code access). Also resets the device from a simulated alarm in the Test mode and will return a device to normal operation from the Disabled state.

Test

Different simulated alarm tests can be invoked by pressing the Test button when the FAAST LT-200 unit is in *Maintenance* state.

- In stand-alone mode all the alarm levels, pre-alarm and alarm LEDs are switched ON. The pre-alarm and alarm relays are activated after any programmed delay.
- In loop-based operation, the alarm LEDs are switched ON. The alarm relays are activated after any programmed delay.

To exit Test mode, use the *Reset* button.

The test button can also be used to find out the device firmware revision number. Press the TEST button while the device power is switched on. The firmware version number will be displayed for 2 seconds on the Channel 1 smoke level LEDs

Disable

Disable mode is entered by pressing the *Disable* button when the FAAST LT-200 unit is in *Maintenance* state. The Disabled LED will turn on and the device will not report any alarms or faults, or activate any relays. This mode allows the FAAST LT-200 device to be taken offline for a period of time (up to 4 hours – default set to 1 hour) while working on the fire system. At the end of the set time, the FAAST LT-200 unit will leave the Disable mode. By pressing the Reset button, the FAAST LT-200 unit will exit the Disable mode immediately.

Table 2: Front panel push button actions

ID	Button	LED blinks Red	Action in NORMAL mode	Action in MAINTENANCE mode
R	Reset	Power	Press for 2s to start password procedure	Press for 2s to reset latched Alarms, Faults and Sounders
				Press for 2s to leave Disabled state and return to Maintenance mode
D	Disable	Power fault	Increments digits in password procedure	Press for 2s to disable device Alarms, Alerts and Faults for 60 min (default)
				(To exit Disable state: see Reset)
T	Test	Fault	Show firmware revision and check front panel LEDs at power on. Confirms digit set in password procedure	Press for 2s and release; both sensors will simulate Alarm
				Press for 4s and release; sensor #1 will simulate Alarm
				Press for 6s and release; sensor #2 will simulate Alarm
			(Default PASSWORD is 3111)	(Warning: Outputs will be activated by the test.)
COMBINATIONS				
R+D	Reset + Disable		Press for 2s to show fan speed (On smoke scale for a period)	Press for 2s to show fan speed (On smoke scale for a period)
R+T	Reset + Test		No action	Press for 2s to turn off sounders
R+T+D	Reset + Test + Disable		No action	Press for 2s to exit Maintenance mode

PASSWORD ACCESS TO MAINTENANCE MODE

Start PW > Set digit 1 > ✓OK > Set digit 2 > ✓OK > Set digit 3 > ✓OK > Set digit 4 > ✓OK > Maintenance mode

Start PW process > Press RESET button for 2s. Power LED will blink red, the left flow indicator will turn from yellow to green. Then release the RESET button and the FAULT LED will go green. The far left flow indicator will blink green indicating that the device is ready for the first digit of the pass-code >

Set digit 1 > Using the DISABLE button, click to increment the first pass-code digit (indicated as flashing yellow on the smoke level LEDs) and then press TEST when correct. The far left flashing airflow LED will turn solid green and the next segment LED will begin to flash, indicating that the device is ready for the second digit of the pass-code >

Set digits 2, 3 & 4 > Again, using the DISABLE button to set the number followed by the TEST button to confirm it, enter the next 3 digits of the pass-code. After each digit is accepted, the respective airflow LED will turn solid green and the following segment LED will begin to flash, indicating that the device is ready for the next digit. When the fourth digit is accepted, all 4 airflow segments are turned off.

Pass-code correct > If the pass-code is accepted, the FAULT indicator will remain on green and the unit enters *Maintenance* mode.

Pass-code wrong > If the pass-code is entered incorrectly, the FAULT indicator flashes yellow and the unit remains in *Normal* mode.

Should no button be pressed for 10s during the password sequence, the unit returns to *Normal* mode.

Note: The factory default pass-code is **3111**.

To enter the *Remote Maintenance* mode, see the later section.

FAAST LT-200 DEVICE OPERATION

Power on Sequence
The following turn on sequence is normal operation (using factory default settings).

At switch on, the power LED on a stand-alone unit turns on green and the initialisation LEDs turn on yellow. On a loop-base unit, the power LED switches on green and then turns yellow, signifying initialisation. The fan will start and stop, then ramp up through its speeds (audible but no visual indication). At the end of the sequence the initialise LEDs turn off (reverts to green on the loop-based unit) and if everything is normal, one flow LED per channel will turn on green. The whole process takes about 3 minutes.

Normal Operation
In normal operation the front panel LEDs should be indicating as follows (device with default settings):

Power LED on green and one flow LED per channel will be on green. With a well set up system the flow indicator should be around the central point in the curve.

Troubles
Errors, faults, alerts and warnings will set the general fault indicator on yellow. Additional information may be displayed on the flow LEDs which turn on or flash yellow. Hi/lo supply voltage problems are indicated on the power fault LED.

For more information see the *FAAST LT-200 ALERTS AND FAULTS* section.

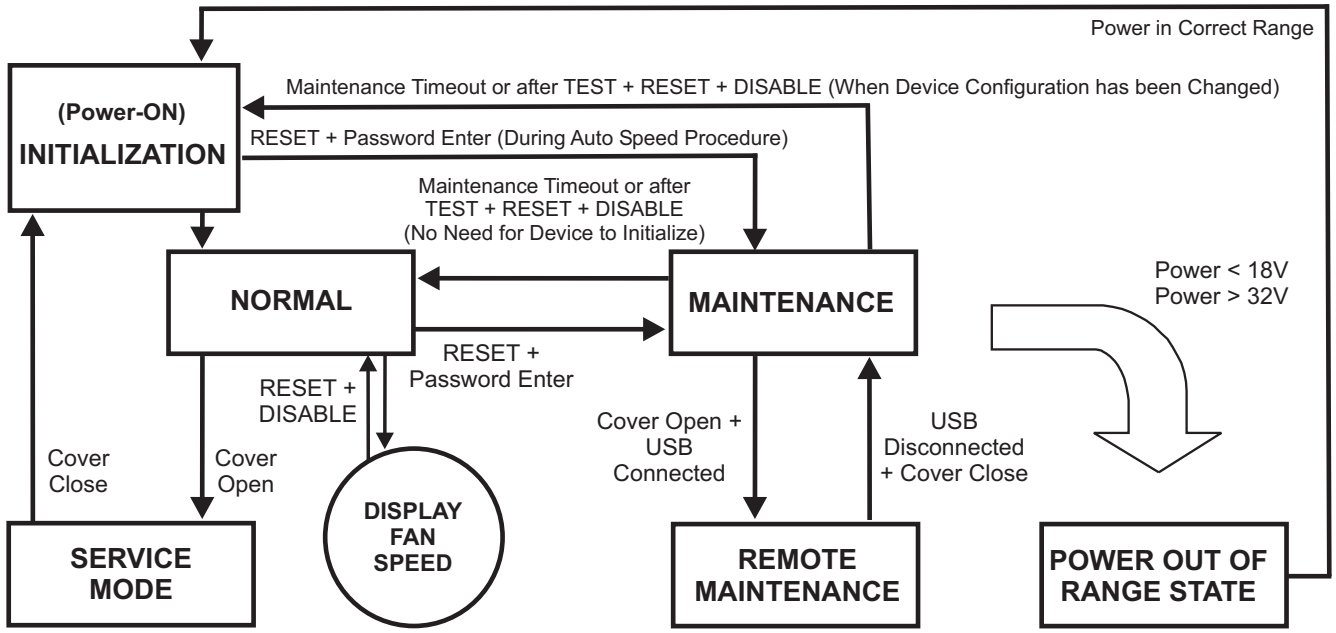
Operating Modes
When powered, the detector can be in one of 6 operating states.

- **Initialisation** – after a power on or reset the detector re-calibrates itself.
- **Normal** – in smoke detection mode following a successful initialisation.
- **Maintenance or Remote Maintenance** – an engineering state, passcode protected.

- **Service** – when the front door is opened, the detector powers off. **Note:** The unit will re-initialise when the door is shut.
- **Power range** – when the PSU voltage is too hi/lo; the detector stops working.

How these modes are linked and how they may be invoked are shown in the sequence diagram below:

Figure 4: FAAST LT-200 device state diagram



FACTORY DEFAULT SETTINGS ('OUT-OF-THE-BOX')

A full list of the factory default settings can be found in the *Advanced Set-Up and Control Guide*. Some key default settings are detailed in Table 3 below:

Table 3: Main default settings

FUNCTION	FACTORY DEFAULT SETTING
Passcode	3111
Maintenance time-out	5 min
Disable time-out	60 min
Alarm latched	Yes
Alarm delay	0
Fan speed mode	Auto
Reference flow	45l/min
Hi/Lo flow threshold	± 20%
Flow fault delay	60s
Filter due date	2099
General fault latched	No
General fault delay	60s – stand-alone unit; 0 – loop-based unit
External input	Normal open; short resets device
Pre-Alarm delay	0 (N/A to loop-based unit)
Alarm level	1 (N/A to loop-based unit)
Alarm mode	Sensor (Loop-based version only)

CONNECTING TO A PC

Important Note: Only PipeIQ version 2.9.1 or higher can be used with a FAAST LT-200. Other versions of PipeIQ will not work with this detector.

A PC connection will only work when the FAAST LT-200 device is in the *Remote Maintenance* mode. Always make sure that PipeIQ is running on the PC and that the FAAST LT-200 unit has been set to ***Remote Maintenance*** mode **before** connecting the USB cable.

IMPORTANT NOTE: See *First time connection* below when a new PC or a new version of PipeIQ is used.

Remote Maintenance mode

To enter the *Remote Maintenance* mode, first set the device to ***Maintenance*** mode (see: *Password access to Maintenance Mode* section). Then open the detector front door by releasing the two Phillips screws. Connect a USB cable from the internal socket in the centre of the device to a spare USB port on the PC; the detector will now be in the *Remote Maintenance* mode.

Make sure that the USB connector is pushed **fully** into the FAAST LT-200 socket – should feel a click. Check the integrity of the cable before looking for other connection problems.

The USB connection must be made within 5 minutes of entering the *Maintenance* password.

First time connection

The first time a PC running PipeIQ is connected to a FAAST LT-200 detector, the USB port drivers will be installed. Follow these instructions carefully to avoid having to uninstall and reinstall the PipeIQ software.

Before plugging in the USB cable, ensure that PipeIQ is running on the PC (an open project is not required), and that the FAAST

LT-200 unit has been set to *Maintenance* mode. (PipeIQ v2.9.1 or higher) is available on the USB stick provided with the FAAST LT-200 unit or from www.faast-detection.com).

For PCs running Vista, Win7 or later, the PC will automatically detect the new hardware, then find and install the necessary driver software.

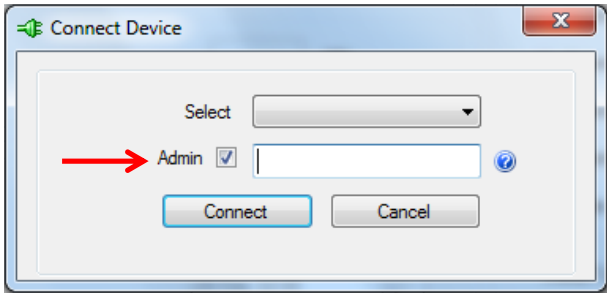
Communicating with a FAAST LT-200 Device
Connect the USB cable to the FAAST LT-200 device as described above.

In PipeIQ, open the project file (.mdf file) that is associated with the FAAST LT-200 device being used.

(If no project file is available, click on **New** and create a new project. Accept the PipeIQ disclaimer, select the measurement units, device type and number of channels. ***Make sure that the device type selected matches the type of FAAST LT-200 device being used***. The project will assume the factory default configuration for a device.)

In the Left Hand pane of PipeIQ, left click on the **FAASTLT Device** in the system tree to highlight it. Right click on the FAAST LT-200 icon in the left hand pane to reveal the menu. Click on **Connect Device**.

Note that to use the full range of connection options, a user must be connected to the FAAST LT-200 device as an Administrator. Tick the ***Admin*** box and enter the Administrator password to access these extra commands. The Administrator password is the same as the Remote Maintenance password (the default is 3111).



Click on ***Connect***. The detector is connected when a small green tick is indicated on the device icon. *FAAST LT-200 Connected* is shown at the bottom left corner of the screen.

Depending on what operations are required, select the *Configuration*, *Design* or *Monitoring* tab at the bottom of the screen as necessary.

The *Send Configuration* option in PipeIQ™ enables a saved configuration to be sent to a FAAST LT-200 device. (A user must be connected to the device as an administrator to access and perform this command - see above).

Note: When changing the configuration of a FAAST LT-200 detector, it is necessary to restart the detector following the configuration download to accept and run the new one. Before this is done, the detector will continue to operate with the old parameters.

Restart the FAAST LT-200 unit by exiting the *Maintenance* mode. Disconnect the PC and remove the USB cable, close the front cover and wait for the *Maintenance* mode time-out (alternatively, press the three front panel buttons for 2 seconds - see *Front panel buttons – what they do section*). The device will restart and re-initialise, running the new configuration.

Disconnecting a FAAST LT-200 device from a PC
In PipeIQ, it is possible to notionally 'connect' and 'disconnect' the software application from the FAAST LT-200 device. Right click on the FAAST LT-200 icon in the left hand pane to reveal the menu. Click on ***Disconnect Device***; *Device disconnected* is shown at the bottom left corner of the screen.

This does not affect the physical USB connection to the unit. Because the *Remote Maintenance* state does not have a time-out, the physical connection can be maintained indefinitely.

To leave the *Remote Maintenance* mode, unplug the USB cable from the FAAST LT-200 device and firmly lock the door. The unit will return to the *Maintenance* state. The FAAST LT-200 device can be reset to normal mode using the front panel buttons, or the device will automatically revert to *Normal* mode after 5 minutes (default setting).

Note that if the door is not shut within 5 minutes of removing the USB cable, the FAAST LT-200 unit will enter the *Service* mode.

SETTING THE FAN SPEED

A default air velocity reference value is set into each FAAST unit before leaving the factory. This equates to an optimum air flow of approximately 45 l/min. Default high/low flow limit thresholds are set to guarantee a flow fault when the air flow is ±20% of the reference flow.

The FAAST LT-200 fan speed in each channel can be set to *Auto* or *Manual* control.

Auto Mode
In automatic fan speed mode, the unit will initialise when it is turned on and find the best fan speed to give the reference air flow value. *Auto* fan mode is the detector's default setting and is likely to be the preferred setting for the majority of aspirating installations. Every time the detector is powered off and on again, it will re-initialise the fan speed to achieve the correct reference flow value.

Manual Mode
In manual fan speed mode, the unit uses the fan speed defined in the configuration, and does not optimise the fan speed to the defined reference flow value. The fan speed can be set to operate in the range between 1 and 10 (highest speed). One of the main uses for the manual fan mode is for testing an installation and checking transport times etc.

Fan Speed Indication
It is possible to check the fan speed setting using the front panel push buttons (*Reset* and *Disable*). The speed value is displayed for a short period on the alarm level LEDs (fan speeds 1 – 10). For more details of this function, see the *Front panel buttons – what they do* section.

FAAST LT-200 ALERTS AND FAULTS

The FAAST LT-200 unit signals two types of warnings (see *Table 2*): these are categorised as faults (major troubles) and alerts (minor troubles). To indicate an alert or a fault, the device uses specific LEDs.

When one or more faults occur, the general fault LED is turned ON and the general fault relay is activated. A general fault can be latched, or not, based on the programmable options (the factory default is *Not Latched*.)

With the default settings, Alerts do not set the general fault condition. However some faults or alerts can be used to set an auxiliary fault relay if programmed to do so. In this case they will also set a general fault at the same time. An auxiliary fault can be latched, or not, based on the configuration.

Fault delay
A user can configure a delay between a general fault condition and fault relay activation. During the delay, if the fault condition is cleared, the relay will not be set.

When a fault occurs, an individual fault LED will be set ON, or starts to blink, depending on the trouble. The general fault LED will also be set on. If a fault delay is programmed the general fault LED will blink until the delay has finished and if the trouble is still present, the general fault LED becomes fixed ON and the fault relay switches.

There is also an optional delay for flow fault (see below).

Flow Fault Delay
An increase/decrease in flow above/below the Flow High/Low limits (±20%) will result in a flow fault. Once the flow is returned to a normal level, the fault condition will be cleared immediately. There is a factory set default delay of 60 seconds between the flow going out of limits and the signalling of a flow fault condition. In environments where the sampled airflow may be affected by sudden temperature/ pressure changes due to air handling units, doors opening/closing etc. or where there is a risk of physical interference with the sampling point, it may be necessary to increase this time delay. Delay values of up to 240 seconds before signalling a fault are available when setting up the FAAST LT-200 detector. This is to allow time for the air pressures to stabilise after the temporary event.

When a flow fault occurs, the flow fault LED blinks during the programmable flow fault delay (default: 60s). At the end of the delay, the LED switches ON and the general fault is triggered. If the general fault also has a delay programmed, this will be added to the flow fault delay before the general fault LED becomes fixed ON and the fault relay is set.

Events log
The detector records operations and trouble states in a log with time and date stamps. The event log is a useful tool to help with for troubleshooting an installation. The user can download data logs via a USB port when connected to a PC running Pipe IQ.

The maximum number of events in the log is 2244. When the recording area is full, the FAAST LT-200 unit continues to store abnormal events by over-writing the oldest records.

For each recorded event, the log contains the following information: event descriptor, date and time, the airflow temperature, the airflow rate, the power supply voltages and the state of the laser sensors.

Events include the detector state (Initialising, normal, service mode etc.), alarms, faults, alerts and relay activation/deactivation.

Trend logging (recording the device status at regular intervals) is disabled in the FAAST LT-200 as a factory default. Enabling the trend log will fill the event log quicker. For example, setting the trend interval to 10 minutes will fill the complete log in just over 2 weeks.

Leaving trend logging on permanently at such short intervals is not recommended as potentially useful long term data will be overwritten unless regularly downloaded.

RELAY OUTPUTS

Single pole changeover volt free unsupervised contacts are provided for Fault, Auxiliary Fault, Alarm and Pre-Alarm (on stand-alone version only). On two-channel devices, there are two sets of alarm and pre-alarm relays. In Table 4 below, SA relates to Stand-Alone and LB relates to a Loop Based FAAST LT-200 device.

WARNING: Because the relays use magnetic latching, the contact output status should be checked prior to use powering any circuit, in case it has changed due to mechanical shock during shipment or installation handling.

Resetting a detector from alarm or fault
When an alarm or fault is latched, the FAAST LT-200 detector should be reset from this condition using one of the following methods. (Note: By default *Alarms* are latched, *Faults* are not.)

- Press the front panel ***Reset*** button when in *Maintenance* mode; (requires pass-code access). Return to normal operation by pressing ***R+T+D*** simultaneously or waiting 5 minutes.
- Use the ***External Input***; set to RESET as factory default. Connect Input terminals 21 and 22 together for a short period.
- It is possible to perform an alarm reset from a PC using the reset control available in the PipeIQ software; (requires activating the USB connection, then go to: Monitoring tab > Actions tab > Click Reset at bottom right).
- For loop based units only, Advanced Protocol panels may send a *Reset* signal over the loop if this feature is enabled (check with panel manufacturer) and the FAAST LT-200 device is operating in module alarm mode.

When a RESET is performed, all relays are reset. The device then enters *Normal* mode operation; it does not re-initialise. If any fault or alarm states remain, the device will re-activate that state automatically.

General reset of a detector
The FAAST LT-200 device will be reset and re-initialised by removing the external power to the device and reapplying it. In general, this is not an acceptable method for clearing latched alarms or faults during normal operation because it will re-initialise the device flow settings.

PASSWORD RECOVERY

There is a procedure that can be used to recover a lost password from a FAAST LT-200 device. It should be used when a unit has been installed and the password has been changed but is subsequently forgotten or misplaced. The default (factory set) password in a new device is 3111.

To reset a FAAST LT-200 password it is necessary to run some special software to obtain a recovery key. For instructions and help with this recovery procedure, contact System Sensor Europe Technical Services (sse.technical@systemsensor.com) and provide the following information:

- Product Model number: (on device label)
- Device Serial Number: (on device label)
- Date code: (4 digit number followed by the letter T, to be found at the bottom right-hand side of the product label on the back of the front door)
- Name of Requester and Requester Organisation:

Note: This service is only available to Honeywell or accredited System Sensor OEM customers.

Table 4: Relays

Type	Relay	Latching	When set	Notes
SA	Alarm	Default = Latched	Sensor reaches alarm level	Default delay is 0
	Pre- Alarm	Not latched	Sensor reaches alarm level	Default delayis 0
	Sounder	Not latched	Alarm or Pre-Alarm	
LB	Alarm (sensor mode)	Default = Latched	Panel sets sensor rem LED ON	Default mode; default delay is 0
	Alarm (module mode)	Default = Latched	Panel sets module output ON	
	Sounder	Not latched	Alarm	
Both	Fault	Default = Not latched	One or more faults	Factory default as CH1 faults
	Auxiliary	Default = Not latched	Configurable with PipeIQ	Factory default as CH2 faults

DOS AND DON'TS WITH FAAST LT-200 DEVICES

Pipe network and device installation

DO:

- Clean any residues of swarf and burrs after drilling holes.
- Use the appropriate accessories in environments with condensing humidity, to prevent moisture from entering the device. (e.g. water trap.)
- Use appropriate filters in a dusty environment and avoid vertical pipes feeding directly from the ceiling into the detector; use elbows or U shaped pipes.
- Use the bracket supplied to mount it on the wall.
- Use IP rated glands on all cable entry points.
- Plan for sufficient space at the side of the detector to allow the front panel door to open fully.
- Check that all the pipes are fitting together properly and there are no air leaks or partial blockages.
- It is preferable that the exhaust is returned to the sampling area wherever possible; this type of piping configuration will minimise pressure differences across the aspirating unit and reduce the likelihood of short term flow faults.
- It is recommended that the inlet and outlet connections remain plugged prior to use, and the outlet is temporarily sealed if the device is turned off during maintenance periods to prevent ingress of creepy-crawlies.

DO NOT:

- Use compressed air around the unit. If compressed air is used to clean the pipework, completely remove the pipe connection with the FAAST LT-200 detector. Also any cleaning of the pipes with a vacuum cleaner must be done with pipes disconnected.
- Bend the pipes; use 45° or 90° swept bends.
- Glue the pipe entering the inlets or outlets of the FAAST LT-200. The product is designed to fasten without glue. Certain glues could damage the plastic of the device. If excessive glue is used it may enter into the device and compromise the internal functioning. Devices with glued pipes are automatically classed as out of warranty because they cannot be tested.
- Use the device in a corrosive environment.
- Install the product on the ceiling, or in any orientation other than vertically on a wall.
- Drill the detector case without using a sealing gland; this will compromise its IP rating.

Device operation and maintenance

DO

- Take particular care when removing the filters, in order to avoid dropping any dirt or waste materials into the device or fan area.
- Always turn the aspiration system off and close sample holes when building or other dusty works are in progress on the installation site. Any un-piped outlet should be temporarily sealed if the device is turned off during maintenance periods.
- Ensure the filter gasket is fitted after cleaning or changing the filter.

DO NOT

- Use aerosol smoke to test the device alarm. Canned test smokes contain oily substances that can leave a residue and may damage the device.
- Test the device with the inlet and/or outlet closed.
- Clean any area around or inside the device with compressed air. If compressed air is used to clean the pipework, remove the pipe connection with the FAAST LT-200, or install the System Sensor Reverse Flush Pipe Cleaning unit. Any cleaning of the pipes with vacuum cleaner must also be done with pipes disconnected from the FAAST LT-200.
- Clean the device with any type of solvent, always use a clean cloth.
- Insert anything into the inlet, outlet openings, or the filter, laser sensor or the fan areas.
- Do not remove the flexible cable connecting the PCB to the front panel. (Figure 5: red arrows). This could compromise a reliable connection between the two PCBs.

Figure 5: PCB cable

Actions that could affect the operability of the detector:

DO NOT DO ANY OF THE FOLLOWING:

- Glue the pipes into the inlet or outlet connections of the FAAST LT-200 detector.
- Remove or loosen the screws (*Figure 6: red arrows*) fixing the PCB cover mounted onto the front panel. This could damage the PCB or the electronic components mounted on it, and compromise the sealing protection of the gasket.

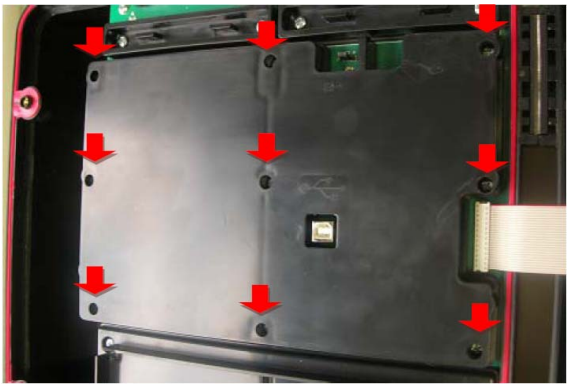
Figure 6: Front panel PCB cover

- Loosen or remove the screws (*Figure 7: red arrows*) fixing the PCB on the main box. This compromises the sealing of the device.

Figure 7: Main PCB fixing screws

- Loosen or remove the screws (*Figure 8: red arrows*) fixing the cover of the main PCB. This could damage the PCB or the electronic components mounted on it, and compromise the sealing protection of the gasket. Do no remove the PCB from the main box for any reason.

Figure 8: Main PCB cover

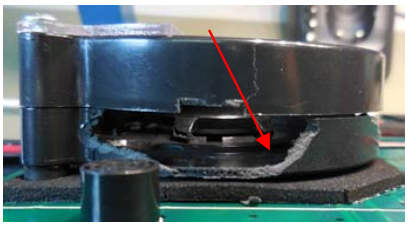


ALL THE ACTIONS DESCRIBED ABOVE WILL INVALIDATE THE WARRANTY.

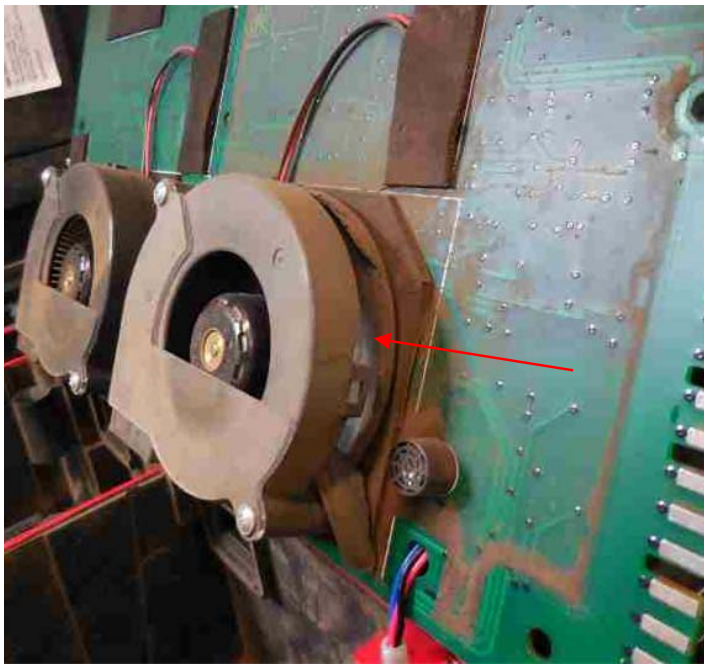
DAMAGE RESULTING FROM POOR INSTALLATION OR MISUSE

Here are some pictorial examples of what can happen when advice in this guide is ignored.

Examples of fans broken by the use of compressed air for cleaning

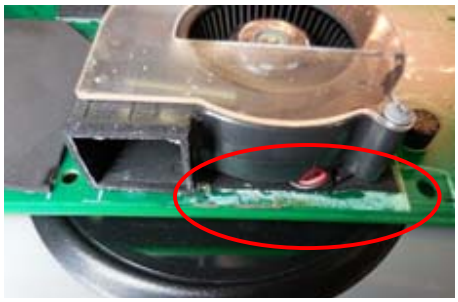


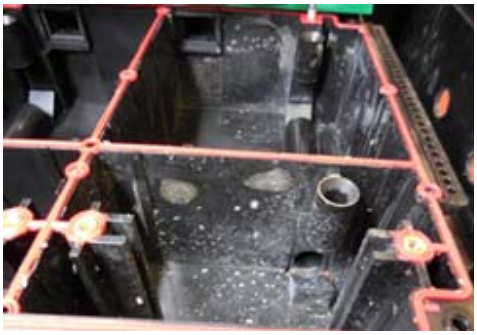
This unit was used in a dirty environment without an external filter being added to the pipe network. Then cleaning was attempted with compressed air:



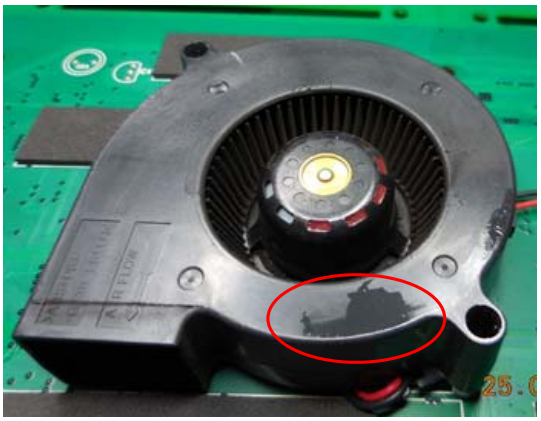
Examples of devices subjected to water or liquid ingress

Fluid ingress marks or attacks the internal parts of the unit:





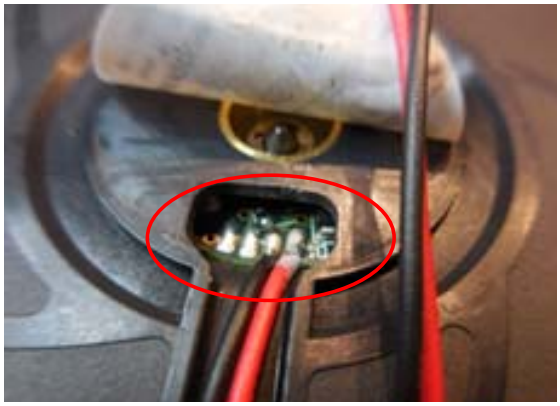
Examples of internal parts coated by oil from the environment or from the use of unsuitable paraffin-based test smoke:



Example of corrosion caused by aggressive chemicals in the environment

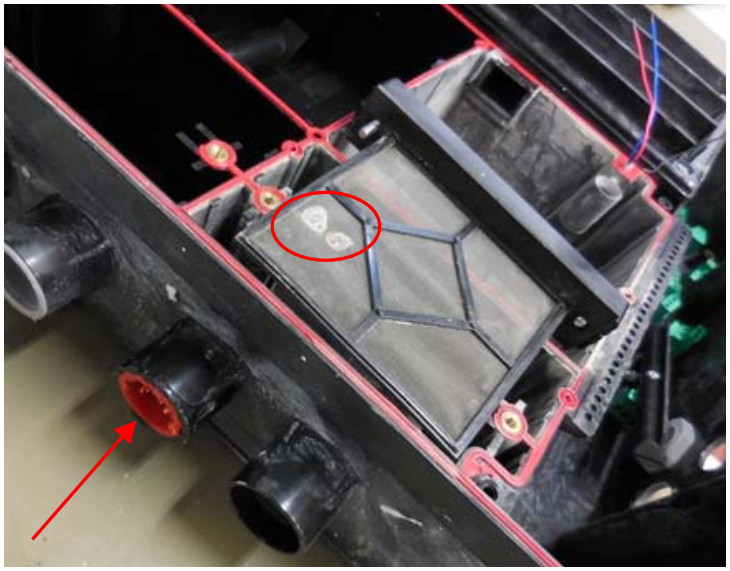
This fan stopped working:

This fan's connections have been attacked:



Example of glued-in pipes

The inlet pipe has had to be cut to remove the unit:



And the glue has run inside, damaging the unit's air path (see the glue drops on the filter).

Examples of contamination and mechanical damage

This filter has been covered in debris and damaged by a dropped object because the pipe inlet connection was open during installation:

Out of warranty

Any device that has a broken anti-tamper label will be deemed out of warranty:

System Sensor Europe
Pittway Tecnologica S.r.l.
Via Caboto 19/3
34147 TRIESTE
Italy
http://www.systemsensoreurope.com