

GE
Security

FASD700 aspirated smoke detector installation manual

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CONTENTS

1	Introduction.....	4
1.1	Product description	4
2	Installation.....	5
2.1	Electrical connections	5
2.2	Detector installation.....	6
2.3	Panel installation	7
2.4	Pipe installation	7
2.5	External connections.....	7
3	User guide	8
3.1	Selecting and programming functions.....	8
3.2	FASD710 / FASD712 operation.....	9
3.3	FASD715 / FASD717 operation.....	11
4	Maintenance.....	14
5	Technical specifications.....	15

1 INTRODUCTION

1.1 Product description

The FASD700 range of aspirated smoke detectors includes:

- FASD710 and FASD712 panels (conventional or analogue addressable detectors).
- FASD715 and FASD717 panels (laser detectors).

All panels are IP50 rated. An optional IP65 rating is available to allow use in many harsh environments and where regular hosing is performed.

1.1.1 FASD710 and FASD712 panels

FASD710 and FASD712 panels have the following features:

- Installation of up to two conventional or analogue addressable detectors (not supplied) providing the ability for failsafe redundancy or mixed detection strategies.
- High performance aspirator and flow monitoring circuit. The flow level is displayed on a 10 element bar graph with adjustments for high and low flow thresholds. Flow failure is reported to the central panel as a device fault on the primary detector.
- In-line air filter to remove dust particles from the air sample. This is housed in a removable transparent cartridge enabling rapid inspection and maintenance.
- Closed loop sampling (the exhausted air can be completely returned to the sampled area) making it ideal for use in small spaces.

1.1.2 FASD715 and FASD717 panels

FASD715 and FASD717 panels have the following features:

- Two laser detectors (supplied) in single or two-channel configurations. This gives a large monitored area using sampling holes in the place of point detectors. The FASD717 has two pipes and can cover twice the area of the FASD715.
- High performance aspirator and flow monitoring circuit to ensure a constant, monitored flow level which can be displayed on a 10 element bar graph with adjustments for high and low flow thresholds. Three alarm levels give warnings at their pre-set levels.
- In-line air filters to remove dust particles from the air samples. These are housed in removable transparent cartridges enabling rapid inspection and maintenance.
- RS232 Modbus port to download all the data that is logged within the unit. This can then be used to look at events or trends over a period of time.

In addition to the above FASD715 panels also have the following features

- Closed loop sampling whereby the exhausted air can be completely returned to the sampled area.
- Can be configured to require both detectors to go into alarm to avoid false discharges of suppression systems. By using two independent detectors this removes the need for two separate systems.

2 INSTALLATION

2.1 Electrical connections



WARNING! The power supply should not be connected until all other connections have been completed.

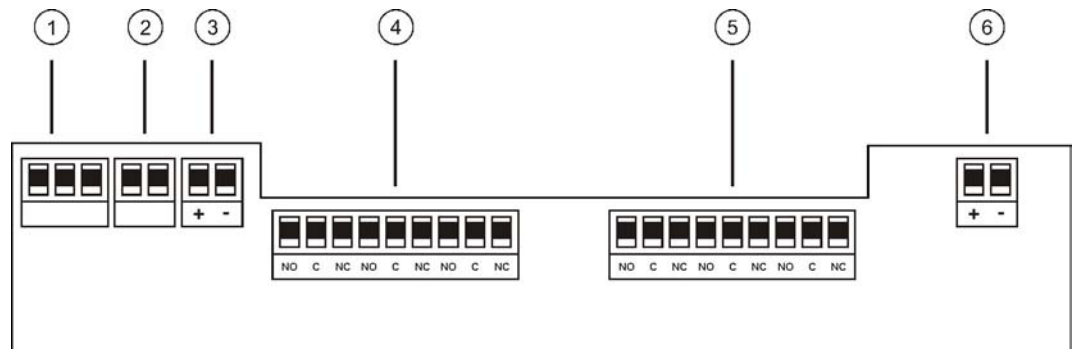
To access the PCB connectors the inner cover of the panel must be removed.

Figure 1: PCB connectors for FASD710 / FASD712 panels



1. Battery
2. Fault relay
3. Loop in
4. Loop out

Figure 2: PCB connectors for FASD715 / FASD717 panels



1. Mains power supply (left to right: earth, neutral, live)
2. Temperature sensor
3. Battery
4. Channel 1 relays (left to right: fire, action, fault)
5. Channel 2 relays (left to right: fire, action, fault)
6. External reset

2.2 Detector installation

Up to two detectors may be installed.

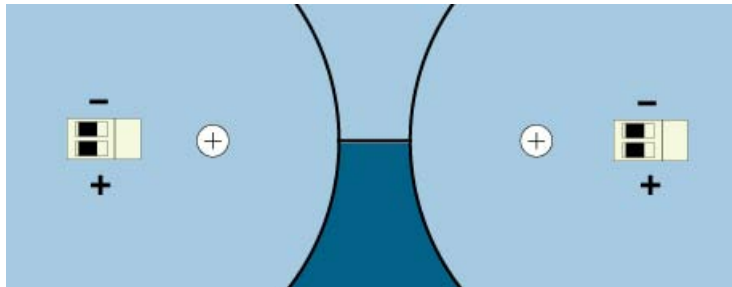
- For the FASD710 / FASD712 panels conventional or analogue addressable detectors may be used (not supplied).
- For the FASD715 / FASD717 panels laser detectors are supplied.

2.2.1 Connecting detectors

To connect the detector(s):

1. Remove the panel front cover.
2. Connect the loop terminals of the detector(s) to the 2-way connector block(s) on the inner panel (see Figure 3: Panel detector connection).

Figure 3: Panel detector connection

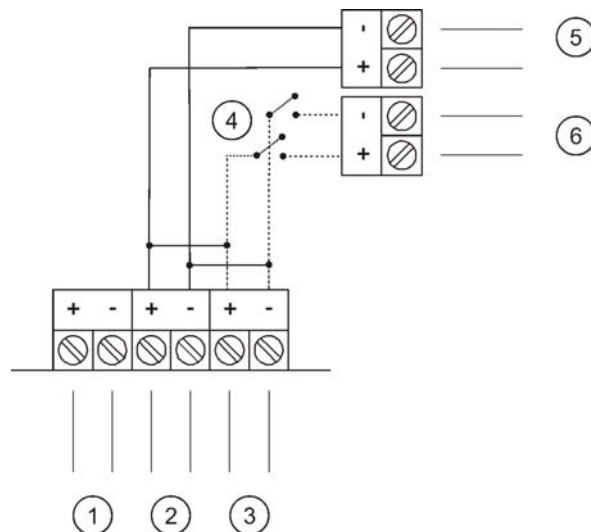


2.2.2 Configuration for analogue addressable detectors (FASD710 / FASD712)



A flow fault is reported as a device fault on detector 1.

Figure 4: FASD710 / FASD712 analogue addressable detector connection



- | | |
|---------------------------|------------------|
| 1. To 24 VDC power supply | 4. Relay contact |
| 2. Loop in to fire panel | 5. To detector 1 |
| 3. Loop out to fire panel | 6. To detector 2 |

Note:

- For detector connection details and for alarm / end-of-line resistor values refer to the detector / fire panel manual.
- In the event of a fault on the FASD710 / FASD712 panel, the relay on the main PCB will open the fault monitor line "DET1". This will give the fault signal on the fire panel.

2.3 Panel installation

The panel should be secured to a suitable surface using the 4 corner fixing points.

2.4 Pipe installation



For pipe installation guidelines refer to the FHSD700 Ducts Installation manual.

Note the following:

- ABS, UPVC, copper or stainless steel pipe may be used.
- Pipe with an outer diameter of 25 mm or 26.7 mm may be used. An adapter is required for used with 25 mm pipe.
- Pipe lengths are cut as required and joined by sockets (permanent), solvent welded or socket unions (removable).
- Smoke tests should be performed before planning and installing the pipe network.



CAUTION! *Do not use T-joints in low-pressure wide-bore systems. These make pipe design and air-flow calculation difficult to predict accurately.*

2.5 External connections

The panels allow the following external connections.

2.5.1 FASD710 / FASD712 panels

- Mains supply
- 24 VDC
- External loop disconnect alarm relay (optional)
- I/O module (optional)

2.5.2 FASD715 / FASD717 panels

- Mains supply
- 24 VDC
- Alarm relays
- RS232
- Isolate
- External loop disconnect alarm relay (optional)
- I/O module (optional)

3 USER GUIDE

3.1 Selecting and programming functions

Panels are programmed using the SELECT and CHANGE keys located on the side of the unit.

1. Press and hold the SELECT and CHANGE keys simultaneously for 1 second to initialise function selection.
2. Press and hold the SELECT key to step through each function. Each LED on the front panel will be illuminated sequentially. Keep the SELECT key pressed until the LED for the function you wish to change is selected.
3. Press and hold the CHANGE key to modify the setting.



A complete list of available functions for each panel is available in sections 3.2.2 FASD710 / FASD712 functions and 3.3.2 FASD715 / FASD717 functions.

3.1.1 Code entry

The code **510** must be entered to allow any function change. To enter the code:

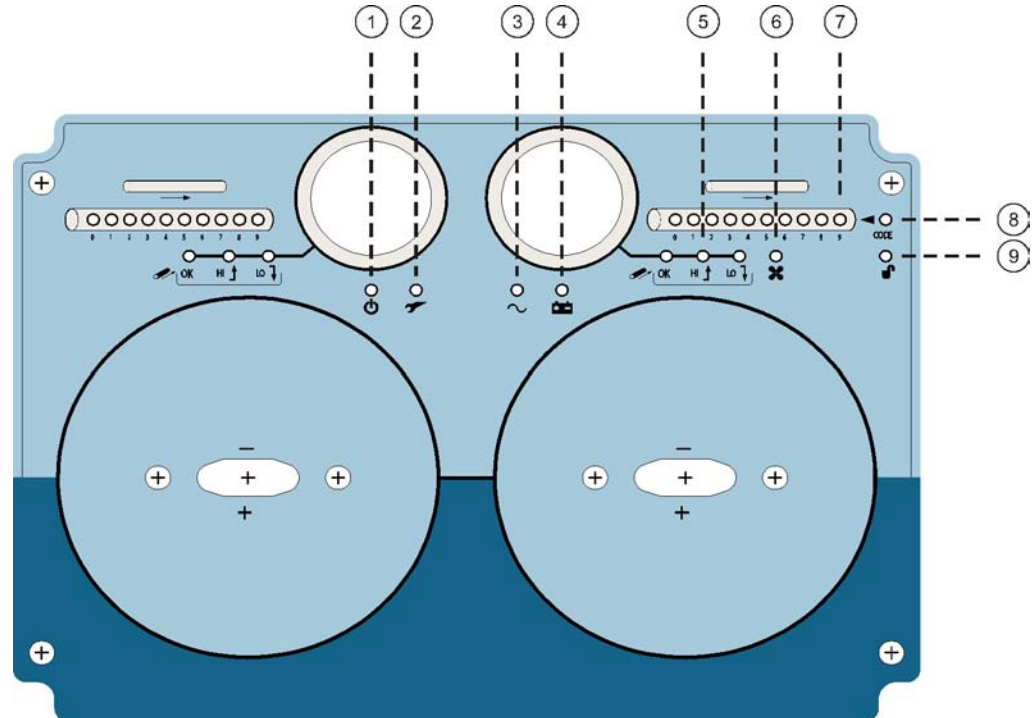
1. Initialise function selection (see above) and select the Code entry LED. Press change. The Code entry LED will flash.
2. Press and hold the CHANGE key until the number 5 LED on the bar graph is illuminated.
3. Press the SELECT key.
4. Repeat steps 1 to 3 until the complete access code (510) has been entered.

The Unlocked LED will flash when the code has been entered correctly.

3.2 FASD710 / FASD712 operation

3.2.1 Display LEDs

Figure 5: FASD710 / FASD712 front panel and display LEDs



- | | |
|----------------------------|-------------------------------|
| 1. Power | 6. Fan fault |
| 2. General fault | 7. Bar graph of airflow speed |
| 3. Mains fault | 8. Code entry |
| 4. Battery low | 9. Unlocked |
| 5. Airflow ok / high / low | |

3.2.2 FASD710 / FASD712 functions

Access the required function as described in section 3.1 Selecting and programming functions. The relevant LED will flash continuously to indicate the active function.

Table 1: FASD710 / FASD712 functions

Function	Description
1	Code entry. See section 3.1.1 Code entry. The Code entry LED flashes.
2	Set fan speed. The Power LED flashes.
3	Set sensitivity of bar graph to changes in airflow velocity. The Flow OK LED flashes.
4	Select the bar graph LED segment above which the Flow HI LED will be illuminated. The Flow HI LED flashes.
5	Select the bar graph LED segment below which the Flow LO LED will be illuminated. The Flow LO LED flashes.
6	Select Mains/Battery fault detection. The general Fault LED flashes (Mains / Battery LED flashes if selected)
7	Calibrate flow sensors at zero and selected airflow speed. The Fan fault LED flashes (Fan and Power LEDs flash during calibration).
8	Exit function selection and return to normal mode. A 20 second time-out function will also exit calibration mode.

3.2.3 Unit alarms

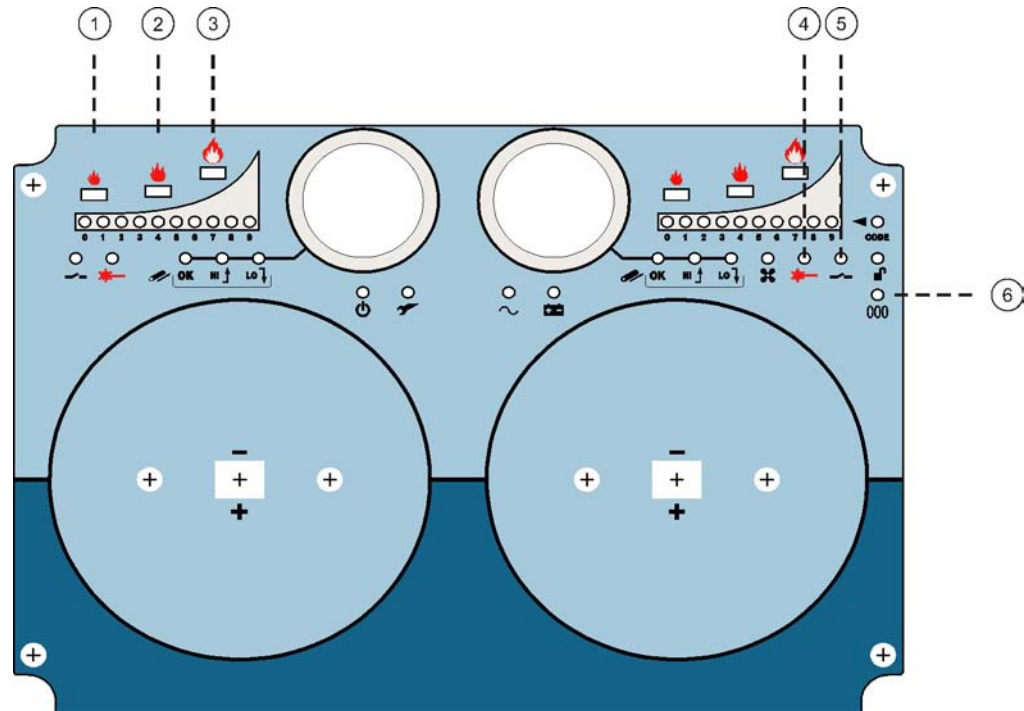
- Airflow or Power fault (1 relay).

3.3 FASD715 / FASD717 operation

3.3.1 Display LEDs

The FASD715 / FASD717 panels use the same interface and LEDs as the FASD710 / FASD712 panels (see Figure 5) with the following additions.

Figure 6: FASD715 / FASD717 front panel and display LEDs



- | | |
|-----------------|-------------------------|
| 1. Alert alarm | 4. Smoke detector fault |
| 2. Action alarm | 5. Isolate |
| 3. Fire alarm | 6. Reset |

3.3.2 FASD715 / FASD717 functions

Access the required function as described in section 3.1 Selecting and programming functions. The relevant LED will flash continuously to indicate the active function.

Table 2: FASD715 / FASD717 functions

Function	Calibration mode
1	Code entry. See section 3.1.1 Code entry. The Code entry LED flashes.
2	To RESET the panel press SELECT when the Reset LED is flashing.
3	Select Isolate channel. The Isolate LEDs flash (constant illumination when set).
4	Set fan speed. The Power LED flashes.
5	Set sensitivity of bar graph to changes in airflow velocity. The Flow OK LED flashes.
6	Select the bar graph LED segment above which the Flow HI LED will be illuminated. The Flow HI LED flashes.
7	Select the bar graph LED segment below which the Flow LO LED will be illuminated. The Flow LO LED flashes.
8	Set smoke detector ALERT alarm threshold. The Alert LED flashes.
9	Set smoke detector ACTION alarm threshold. The Action LED flashes.
10	Set smoke detector FIRE alarm threshold. The Fire LED flashes.
11	Select Mains/Battery fault detection. The general Fault LED flashes (Mains / Battery LED flashes if selected)
12	Calibrate flow sensors at zero and selected airflow speed. The Fan fault LED flashes (Fan and Power LEDs flash during calibration).
13	Exit function selection and return to normal mode. A 20 second time-out function will also exit calibration mode. Smoke detector level displayed as cumulative bar graph on each display.

3.3.3 Unit alarms

- CH1 FIRE; CH1 ACTION; CH2 FIRE; CH2 ACTION (4 relays).
- CH1 smoke detector, airflow or power Fault (1 relay).
- CH2 smoke detector, airflow or power Fault (1 relay).

3.3.4 Bar graph levels

The bar graph on the front panel indicates the level of smoke being detected. Table 3 shows how the levels on the bar graph correspond to the smoke levels being detected. These are also the levels at which the alarms can be set.

Table 3: Bar graph levels

Bar graph LED	Obscuration % / metre
1	0.065
2	0.098
3	0.164
4	0.327
5	0.655
6	1.637
7	3.273
8	4.887
9	6.516

4 MAINTENANCE

The filter should be inspected every six months. This is housed in a removable transparent cartridge enabling rapid inspection and maintenance

The lifespan of the filter will depend on the installation environment. A dirty filter will reduce airflow and lower the accuracy of smoke detection.

To change the filter:

1. Remove the panel cover.
2. Remove the filter from the acrylic housing.
3. Insert the new filter.
4. Replace the panel cover.

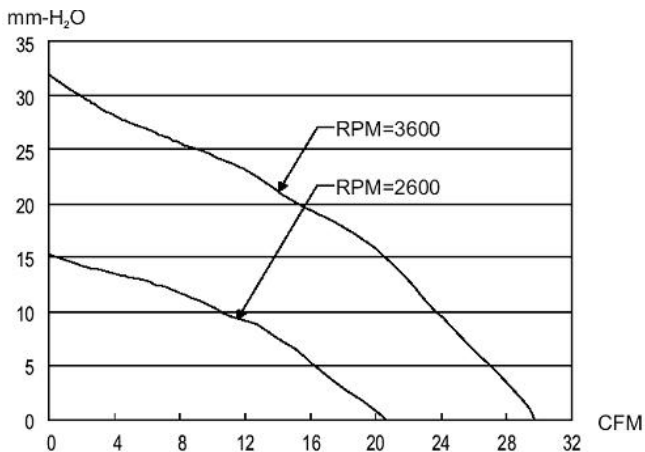
5 TECHNICAL SPECIFICATIONS

Dimensions (FASD710 / FASD712)	254 x 180 x 165 mm
Dimensions (FASD715 / FASD717)	254 x 180 x 112 mm
Maximum number of detectors	2
Filtration	Cartridge dust particle filter
Flow monitoring	Thermal device, hi / lo thresholds, 10 element indication, loop fault reporting
Supply voltage	24 VDC
Supply current (without aspirating pipe)	460 mA
Supply current (Dependant on fan speed / pipe length.)	See Table 4
Maximum pipe length (per channel)	100 m
IP rating	IP50 (IP65 optional)
Operating temperature	-10 to 60°C
Operating humidity	10 to 95% RH (non-condensing)

Table 4: Fan speed / supply current with 20 m pipe length and 6 mm end hole

Fan speed	Supply current (mA)
9	330
8	260
7	200
6	160
5	125
4	100
3	75
2	60
1	50
0	50

Figure 7: Static Pressure and CFM graph for fan at 2600 rpm and 3600 rpm





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