



ASPECT LAZEER

**Aspirating Smoke Detector,
Addressable and Stand-alone**

INSTALLATION MANUAL

IMA 201 011 R1D

ENGLISH

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1. INTRODUCTION

1.1. THE ASPECT LAZEER

The ASPECT LAZEER Aspirating Smoke Detector is employed for early warning in clean rooms with high demands for early detection of smoke and fire gases.

This detector supports two pipes for one detection area.

The LAZEER indicates three distinct levels of smoke, and can be configured to trigger a fire alarm on any of these levels.

The ASPECT LAZEER can be connected to addressable systems – wired as well as wireless – or function as a stand-alone unit.

Each version uses a specially adapted CPU board and firmware for optimal function.

The stand-alone LAZEER is approved as a control panel, and can be supplied with a number of integrated modules that provide extra functionality.

- GSM transmitter for alarm transmission with voice messages or text (SMS)
- Network module for remote control or connection to building management systems
- Control module for approved wireless smoke detectors/alarms and alarm device in the 868 MHz band.

The aspirating fan and housing are designed to balance effect and noise, which makes the ASPECT one of the most silent aspirating smoke detectors available.

- Human speech produces approximately 60 dB, an ASPECT with standard settings produces 55 dB.
- The noise level can be lowered further (5-10 dB) by installing the exhaust kit AU 002.
- Special soundproofing with the fan in “silent mode” can be delivered, lowering the emitted noise all the way down to 35 dB – the pipeline will naturally have to be shortened correspondingly (see separate pipe design for dwellings).

A 7 Ah backup battery is integrated, but the ASPECT can also communicate with an external power supply in cases where extra capacity is required. (The internal battery should then be removed.)

ASPECT has several levels of internal tests:

- Airflow is constantly monitored in order to reveal problems with filters or pipelines.
- Every month, an automatic control of the flow sensor is performed to ensure that the constant filter monitor isn't degraded. By performing this test, the ASPECT achieves a complete test of its internal processes.
- Sensors run continuous self-diagnosis, and possess an intelligent test system that provides notification when the sensor needs to be cleaned (CleanMe).

Simple installation and service:

- External flanges ensure that the unit can be installed without touching its internal components, and helps maintain the integrity of the protective housing.
- The top lid has been designed to allow easy access to the connection terminals in the upper part of the unit, and can be opened using special tools concealed behind the bottom lid.
- ASPECT allows the door to be opened for inspection and optional filter replacement for 4.5 minutes with no need to operate the control panel.
- No manual calibration is required, neither for sensitivity nor filter monitoring. This means the sensitivity can never be adjusted outside the approved range.

The planning software “EloDraw” provides assurance that EN 54 is followed, and is very easy and efficient in use. Required components are listed and priced automatically, both for ordering with Elotec and for the offer to the customer.



1.2. APPLICATIONS

The ASPECT is very well suited for many different areas. A few examples are shown below.



Churches



Offices



Server rooms / switchboards and technical installations



Hospitals/institutions



Clean rooms / laboratories

1.3. INSTALLATION INSTRUCTIONS

Please read this manual carefully before beginning the installation.

Throughout the manual, there will be paragraphs marked . These are to be considered recommendations or advice to make the installation easier.

Other paragraphs are marked . These instructions **must be followed** to ensure that the system will function as intended.

The symbol  may be used to indicate other interesting facts.

Study the plans made by the project planner, and follow them carefully. The authorized planner must approve any divergence from the plan. Use cable and pipe types as prescribed by Elotec. Pipes, bends and fixing sleeves must be delivered by ELOTEC for the system to be approved. ELOTEC can also supply a selection of signal cable for wired systems. Other installation materials should be provided by the electrical contractor.

The connection of mains voltage to the unit must be performed by an authorized electrical contractor, and in accordance with existing regulations.



As an option, the ASPECT supports quick and simple status read-outs and programming using an app on your chosen smart phone.

2. OPERATING THE ASPECT



2.1 INDICATIONS

Green Power LED on:.....	Normal operation
Green Power LED off:.....	Mains fault
Green Power LED flashing:.....	Battery- or charger fault (specified in event log)
Fault LED flashing:.....	Aspect not calibrated
Red Fire LED(s) on:.....	Smoke detected, increasing level indicated as A/B/C
CleanMe-LED on:.....	Sensor needs to be cleaned
Fault LED on:.....	Generic fault (specified in event log)
Disabled LED on:.....	Aspect disabled
Disabled LED flashing:.....	Test mode
Yellow LEDs cycling:.....	Demo mode

2.2 STANDARD USER OPERATIONS

2.2.1 Buttons

Two buttons – * and # – are used for status read-outs and programming of device options.
 Two buttons – red and green – are used for different user functions depending on product version. Make sure the text inserts are installed correctly.

Stand-alone Aspect:

Red button: Deactivate the integrated sounder output.
 Green button: Reset the Aspect.

NB! Silencing the attached sounders with the red button will activate the fault output. This is logged as proof of intentional user operation.

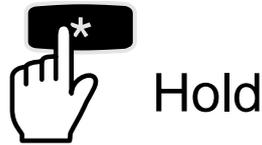
Addressable:

Red button: Disable Aspect.
 Green button: Enable Aspect.

2.2.2 Test Mode (Stand-alone only)

By pressing and holding * for **five seconds**, the sounder output will be temporarily configured to only activate in a short burst upon alarm, for more comfortable testing.

Please note that the fire relay will still activate, so any dialers should be physically disconnected if they are not supposed to activate during testing.



Test mode is indicated by flashing the Disabled LED.

Alarms can be reset without exiting the test mode.

The test mode is ended automatically after 60 minutes, or by holding # for five seconds.

2.3 STATUS READ-OUTS

Safe operation – no risk of changes to programming.

Certain information can be read by holding # for a given number of seconds.

The read-out mode is indicated by slow flashing of the power LED.



The following paragraphs show how to display and read information through flashing patterns on the ASPECT front. In addition, the optional ASPECT-NET interface will allow clear text representations of the information through an app on your smart phone.

2.3.1. Fault log

NB! A stand-alone unit will also log fire alarms and disablements.

- Hold # for **5 seconds** – until Aspect gives off **one short beep**.
- Pressing # will display the most recent event. “Disabled” flashes, accompanied by **one long beep**.

There are 22 different event types (see Appendix F – Event codes, page 31).

Example: 1x		with 1 short beep = mains fault
Example: 5x		with 5 short beeps = low air flow
Example: 20x		with 20 short beeps = fire (stand-alone only)

Exit by pressing *. Read-out mode is also ended automatically after 15 minutes.

2.3.2. Memory

If you wish to see older events (up to 10 events), initiate display of faults as described above, but press # again for each event you wish to see. The number of flashes with the Disabled LED accompanied by long beeps indicate how far back in the memory the event is.

Read-out can be ended by pressing # after the last event has been displayed, or * at any time. Read-out also ends automatically after 15 minutes without key presses.

2.3.3. Calibrated flow limits:

It is recommended to write down these values. Verify that the current flow is not too close to either limit without there being an explanation for this.

- Hold # for **7 seconds** – until Aspect gives off **two short beeps**.
- Subsequent presses of **#** will display the following values:
 - The first press** shows the calibrated low flow limit
 - The second press** shows the present flow
 - The third press** shows the calibrated high flow limit

Values are indicated using the red “FIRE C”-LED and the yellow Clean Me-LED.

Example: **1x**  +  **8x = 1,8**

The digit **before** the decimal point is given by **slow** flashes and beeps for **FIRE C**
The digit **after** the decimal point is given using **fast** flashes and beeps for **CleanMe**.

Numeric value 0 is indicated by **two flashes** accompanied by a **long beep**.

Read-out is ended by pressing * at any time.

2.3.4. CPU version

- Hold # for **9 seconds** – until Aspect gives off **three short beeps**.
- Pressing **#** will display the CPU version using 2 to 3 flashes of both the red “FIRE C”-LED and the yellow Clean Me-LED:
 - 2 flashes mean the unit is **addressable**
 - 3 flashes mean the unit is **stand-alone**

Exit by pressing *.

3. CABLE AND INSTALLATION MATERIALS

3.1. CABLE TYPES

- Cables (if any) should be selected according to the requirements of the system in which ASPECT will be used.
- The necessary dimensions of the cable will depend on the number of detectors connected to the loop, and the total length of the loop. Likewise, conductor dimensions may limit the permitted length of the loop, or the number of connectable devices.
- National or local regulations may specify minimum requirements for alarm system cable.



In harsh environments, all connections should be protected from corrosive agents. For this reason, use only approved Scotchlok (UY), Tel-Splice-AMP clamps or similar clamps that are greased in order to provide such protection.

3.2. SAMPLING PIPES

3.2.1. General

Air samples are transported to the detection chamber in ASPECT through pipes. ASPECT systems use pipes with an outer diameter of 25 mm and an inner diameter of 22 mm.



Original pipes are marked with the Elotec logo to assure that approved pipes are used. Marks are also applied at one metre intervals to assist in correct placement of sampling holes, as well as a guide line along the length of the pipe to help avoid twisting the pipeline.



According to VdS/EN54-20, pipe parts must comply with EN61386-1, at least class 1131. Use only approved original Elotec pipes that fulfil additional demands to rigidity and surface finish. See "IMA 000 109, Pipe layout design and tables".

Elotec pipes are delivered in 4 m segments that may be cut to length where needed. To ensure clean cuts with no burrs, use the ELOCUT cutting tool.



Joins are made through special sleeve couplings or bends – no glue is needed, as the sleeves are conical and supplied with a sealing agent inside.

The entire pipe system is fixed to walls and ceilings using fastening brackets. The standard clamp CL 250 is open, and the pipes can be pushed straight in. Where large temperature variations are to be expected, it is important that the pipes are able to move freely within the clamps. For this purpose, spacious clamps CL 255 or wire suspension may be used.



CL 250



CL 255



CL 250 W



CL 251 W

Other parts may be used in certain applications.

3.2.2. Parts overview

The following are the parts that may make up a pipe system:

4 m lengths of 25 mm pipe:

- PL 252 P – grey plastic, standard package of 13 pipes (total 52 m)
- PL 252 – grey plastic, single pipe
- AL 250 – aluminium, single pipe

Sleeve couplings:

- SK 252 – grey plastic
- AL 250 S – aluminium

Bends:

- BE 252 – 90° grey plastic
- AL 250 B – 90° aluminium

Fastening brackets:

- CL 250 – simple bracket, grey
- CL 250 W – simple bracket for wire suspension, grey
- CL 251 W – 'S-hook' bracket for wire suspension, black
- CL 255 – closed bracket, roomy, white

End plug:

- EP 250

Special purpose parts:

- AU 002 – air exhauster kit
- GG 256 – 80 cm sampling branch
- GG 006 – 40 cm branch extension
- SN 250 – sampling point – clips directly onto tube
- SN 285 M – flexible sampling tube, plastic head, 75 cm
- SN 253 P – flexible sampling tube, plastic head, 300 cm
- SN 253 S – flexible sampling tube, steel head, 300 cm
- KG 250 – 4-way join (special applications only)
- TG 250 – 3-way join (special applications only)



3.2.3. Pipe layout design

3.2.3.1. Pipe length

Sampling pipe layout should be designed to sample air from all of the protected area, while keeping the transport time within the specified limits. VdS/EN54-20 sets this limit at 60 seconds. The number of pipelines that may be connected to the ASPECT 2010 depends on the required sensitivity class.

The LAZEER has one detection area, but inputs for two pipelines. Each input must have a minimum of 10 m of pipe connected.

Refer to "IMA 000 109, Pipe layout design and tables" for details.



100 m of pipe enables the covering of large areas, but is not suited for detection in many small rooms. If a pipe is run through too many rooms, identifying the exact location of the fire will take too long.

3.2.3.2. ASPECT placement and pipe path

Pressure, temperature and humidity need to be taken into consideration when deciding the placement of ASPECT and the path of the sampling pipes.

ASPECT should not be placed in cold rooms, unless the sampled air also comes from cold rooms.

The pipe should always be allowed to run 2 - 2,5 m inside the room where ASPECT is mounted before entering ASPECT.

Both pipe inputs must draw air from rooms with approximately the same pressure.

3.2.3.3. Sampling points

Placement of sampling points must satisfy demands to area coverage as described in local or national regulations. For this purpose, each sampling point can generally be considered a smoke detector.

Sampling points should not be closer to ventilation fans than 100-150 cm.

The size of each sampling hole is determined by the desired sensitivity class.

Refer to "IMA 000 109, Pipe layout design and tables" for details.

3.2.4. Pipe mounting

3.2.4.1. Preparations

Survey the planned path of the pipe. Determine obstacles that may require special attention / routing (walls, beams, ventilation, etc.).



The pipes must be mounted according to project drawings made by an authorized planner.

3.2.4.2. Installing the pipes

Drill holes through walls where required.



When threading pipes through walls, plug the end of the pipe using EP 250 end plugs to prevent insulation and other objects from entering the pipe.

Fix brackets to walls and ceilings along the path of the pipe. Distance between fixing points should not exceed 1 m, and the pipe should be fixed so that the joints are stable. In environments with severe temperature fluctuations the pipes may shrink and expand. To avoid that this causes joints to slip, use fastening brackets that will allow the pipes to move. The CL 255 or the wire suspension brackets address this issue.

Set the pipe segments firmly into the brackets, and connect them with sleeve couplings and bends. No glue is necessary – Elotec bends and sleeves contain a pre-applied sealing agent.

If wire suspension is employed, hang the wire first. *NB! Use only silk covered wire, which will not corrode and also provide less friction for the clamps.* Then, place clamps on the pipe, and slide these onto the wire from one end. Adjust each join to avoid twisting, so that the holes are correctly placed along the pipeline.



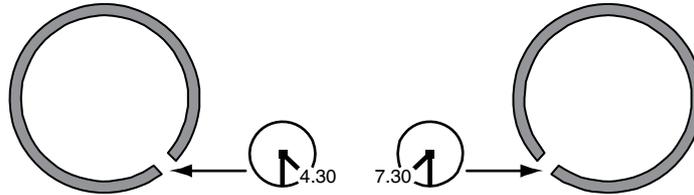
When connecting pipes, take extra care to make the joins tight. It is important to press the pipes into the sleeves tightly. Failure to do so may cause air to be sucked in through the joins, which will adversely affect the performance of the system.



See our installation video at <http://partner.elotec.no/>

3.2.4.3. Sampling points

Drill sampling holes in the pipes as specified in the planning stage. The holes are to be drilled in the lower part of the pipe. It is recommended to place them a little off-center; (4:30 or 7:30), rather than directly underneath, to reduce the possibility of foreign objects in the pipe blocking the holes.



Make sure that the diameter of each hole is exactly as stated on the drawings. Clean the holes after drilling – ensure that no shavings remain in the pipe and that no burrs are formed on the inside that might cause dust to accumulate.



If the ceiling is very high or difficult to access, it may be a good idea to drill the holes *before* the pipes are mounted.

3.2.4.4. Marking sampling points

After drilling, each hole should be marked using special labels. These assist in locating the holes during subsequent testing or service, and should be placed so that they point in the direction of the ASPECT.



Correct marking. ASPECT to the right.

3.3.4.5. Pipe entry into ASPECT



An optional adapter – ASPECT HUB – allows tidier and more flexible pipe routing, with pipe entries from above, below or from either side.

4. INSTALLATION OF THE ASPECT MAIN UNIT

4.1. MOUNTING

The location of the ASPECT should have been determined during the planning phase. Mount the ASPECT in this place while ensuring there is enough space around the unit.

The recommended mounting height puts the lower edge of ASPECT approximately 1.5 m above the floor. There should also be enough room above the ASPECT to accommodate proper entry for the pipes.

ASPECT is fastened to the wall with four screws through easily accessible outside flanges on the top and bottom parts. As the unit is relatively heavy (because of the lead battery), it is important to fasten it securely to the wall.

4.2. OPENING THE ASPECT

To access the inside of the ASPECT, do as follows:



1. Open the bottom cover by grasping the recesses in its upper edge, pulling forward and down.
2. "Keys" for opening the top cover are kept inside the bottom cover.
3. Insert both "keys" as shown, and push them towards the housing to lever the top lid open.
4. Pull the top lid out and raise it; the door can now be opened for full access.

4.3. CABLE ENTRY

All necessary cables enter ASPECT through glands on top of the unit.



The mains cable should be fed through the cable entry on the far left, and loop cables (where applicable) on the right to get the easiest access to the terminals.



Remember to seal the cable entries properly when all cabling is complete and all connections have been made.

The ends of the cable inside ASPECT should be approximately 20 cm long.

4.4. CONNECTIONS



Beware of Electrostatic Discharge while working with the CPU board. To avoid damaging sensitive electronic components, an earthed wristband should always be worn when handling electronics.

4.4.1. Loop connection

For wired systems, the loop should be connected first. Please refer to the appendices for details.

Appendix B – Connections for addressable systems, page 27



On wired systems where cable runs between buildings, the SURGE surge protection device (part no. SV 200 com) must be mounted on the loop 5-10 m before the ASPECT. SURGE should also be used on the alarm panel side of the loop.



Other surge protection devices than the Elotec SURGE may not be used, as these do not take earth faults into consideration, and will complicate fault finding through constant shorting when triggered.



The ASPECT has been tested and approved for transients four times higher than described in EN54.

Surge protection may also be described in national or local regulations.



Use SURGE as a junction box in the transition between the outdoor (underground) and indoor cables.

4.4.2. Wireless systems

ROYAL wireless systems are connected to the panel through radio communication. Please refer to the respective system manuals for details regarding setup of these devices. Certain auxiliary equipment may be connected to the radio interfaces. For a simple overview of these connections, see the appendices.

Appendix C – Connections for wireless systems, page 28

4.4.3. Mains connection

Mains and earth are connected to the terminals marked '230V AC' on the ASPECT CPU board. (See Appendix A – ASPECT CPU board, page 26). This connection must be performed by a certified electrician.



According to EN 60065 (European norms for low-voltage equipment), equipment with a permanent connection to mains shall have a two-pole cut-out switch with a distance between its contacts of at least 3 mm. This requirement is met by installing the ASPECT on a separate circuit with an automatic fuse.

4.4.4. Battery connection

As the final step, connect the battery by plugging the battery leads into the socket on the CPU board (see Appendix A – ASPECT CPU board, page 26).

Only sealed lead acid batteries approved by Elotec should be used.



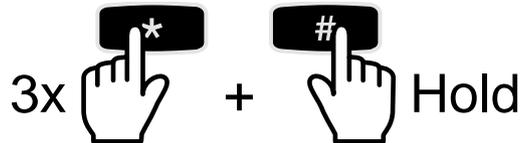
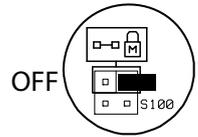
Take proper care of the battery. Lead batteries can be damaged by deep discharge, so if a long-lasting power outage drains the battery completely, it should be replaced. If the battery is disconnected for some reason, self-discharge will also permanently reduce its capacity if it is not recharged within 6-9 months. Standard batteries have an expected lifetime of no more than five years, and should be replaced every 3-5 years.

4.5. COMMISSIONING

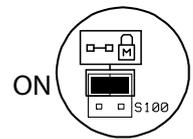
4.5.1. Calibration

After all connections have been made, ASPECT must be calibrated for air flow. Calibration is carried out as follows:

- Remove memory lock (jumper marked with padlock) from the main PCB.
- Hold # while pressing * **three times**. Aspect will sound a confirmation signal.



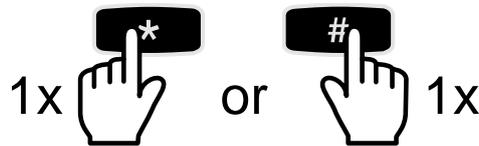
- To allow for stabilization of all involved components, the Aspect will wait for one hour before completing the process. During calibration, the Power, FIRE C and CleanMe LEDs will flash.
- Upon completion, Aspect will sound a confirmation signal and return to normal mode.
- Restore the memory lock jumper to the main PCB when calibration is complete.



Quick start

If conditions are stable, the calibration can be speeded up:

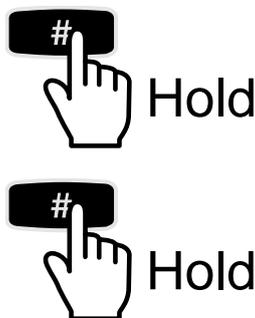
- During the one hour delay described above, press any button. This will immediately start the final phase of calibration.



4.5.2. Demonstration mode

The ASPECT may be set to a special mode for easy demonstration. This mode will disable all false alarm elimination routines.

- Hold # for **five seconds** – until Aspect gives off **one short beep**.
- **Release**, then press and hold # for another **five seconds**.
- An accelerating sequence of beeps will indicate that demonstration mode has been activated, and the yellow LEDs will cycle while this mode is active



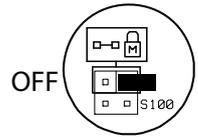
The LAZEER will remain in this mode for 60 minutes, or until reset.

4.5.3. Programming

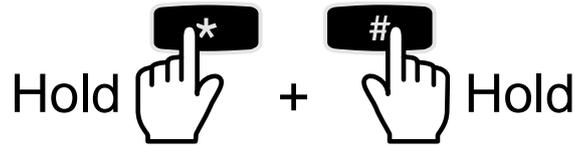
A number of parameters can be configured to achieve optimal function for the Aspect.

See Appendix D – Connections for stand-alone unit, page 29 for an overview of these functions.

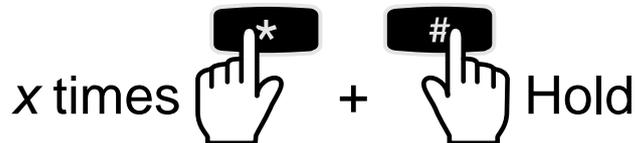
To enter programming mode, the memory lock jumper must be removed from the main PCB.



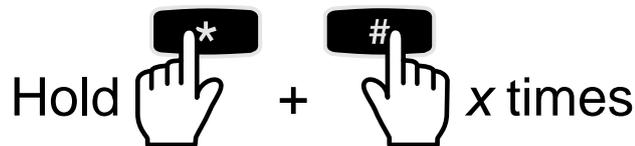
- Press and hold both **#** and ***** for **5 seconds** – until Aspect gives off **2 short beeps**. Programming mode will be indicated by slow flashing of the power LED.



- Select the program number by holding **#** while pressing ***** the number of times corresponding to the required program.

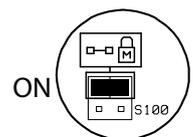


- Enter the desired value by holding ***** while pressing **#** the number of times corresponding to the chosen value.



- Program number and value can be controlled by pressing **#**. Information will be displayed in the following manner:
 1. **Program number** is indicated by flashes of the Disabled LED and **long beeps**.
 2. **Programmed value** is indicated by flashes of FIRE C and CleanMe, and **short beeps**.

Programming mode is ended by pressing *****, by applying the memory lock jumper, or automatically if no buttons have been pressed in 15 minutes.



5. ACCESSORIES

5.1. AU 002 AIR EXHAUST KIT

5.1.1. Purpose of the exhaust kit

ASPECT can be equipped with an optional air exhaust kit. The main application for the AU 002 is elimination of large differences in pressure between the area where air is sampled and the spot where ASPECT is mounted. In such cases, the AU 002 must be employed to lead exhaust air back into the protected area in order to negate the pressure difference. Both pipe inputs must draw air from rooms with approximately the same pressure.



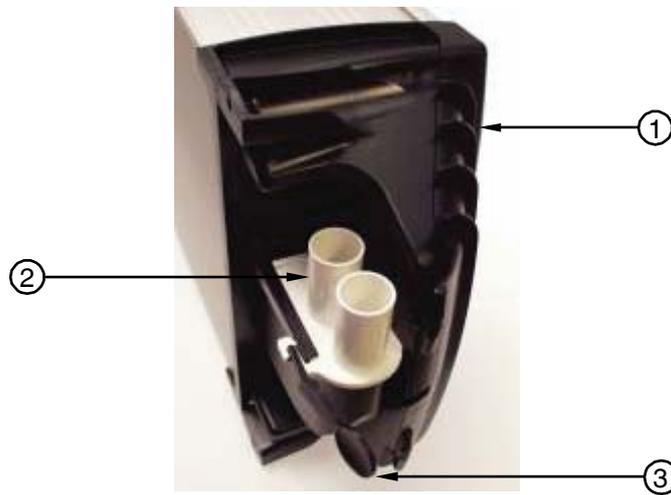
The length of the exhaust pipes must be calculated into the total pipe length. If very long exhaust pipes are required, it may be necessary to shorten the sampling pipes in order to keep the response time of ASPECT within the given limits. As a rule of thumb, exhaust pipes should be no longer than 4m.



The AU 002 can also be fitted to reduce noise from the ASPECT where the sound of the fan is considered disturbing (like in churches and office environments).

5.1.2. Installing or removing the exhaust kit

The exhaust kit is easily installed without tools. Just set the kit into the slot in the exhaust port as shown in the picture, and push until it snaps into place.



ASPECT fitted with AU 002 exhaust kit

1. Bottom cover
2. AU 002 exhaust kit
3. "Key" used for release



The AU 002 accommodates two exhaust pipes, and both must be fitted.

If the kit needs to be removed, one of the "keys" located inside the ASPECT bottom cover may be used to release the snap as shown in the picture. The AU 002 is then easily pulled free.

5.2. SNIFFER

5.2.1. Purpose of the sniffer

The Elotec Sniffer may be used where it is desirable to conceal the pipeline. The sniffer can also be drawn into fuse boxes, server racks and such, to achieve optimal detection in critical spots.

NB! Unoriginal sniffers with filters in the head must not be used, as this naturally impairs the function of the systems when the sniffers are installed in hard-to-reach places.

We have elected to make the sniffer look like a detector in miniature, to avoid painters /craftsmen filling or clogging the sniffer. The sniffer head has a diameter of 3,5 cm, and fits tubes with an inner diameter of 5 mm.

Beyond the outer cover, the actual opening has been divided into four carefully dimensioned holes so that insects cannot become stuck and clog the tube or pipe.

The sniffer **SN 258 M** sports a flexible tube with a steel outer screen that protects against mice and other pests chewing holes in the tube in inaccessible spots. The sniffer is normally supplied with 75 cm of tube.

The sniffer **SN 250** snaps directly onto the pipe over a pre-drilled hole with a diameter of up to 7 mm.



The branch **GG 256** has an 80 cm rigid capillary pipe leading to the head, and is used in situations where the sniffer head can't be fastened to a ceiling.



See also "IMA 000 109, Pipe layout design and tables".

5.2.2. Installing a sniffer with sleeve

- Drill a hole with a diameter of 13 cm in the ceiling.
- Fit the sniffer insert in the pipeline like a regular sleeve coupling. The tube should exit from the top half of the pipe.
- Remove the outer cover from the sniffer
- Pull the tube through the hole in the ceiling, and press it firmly onto the sniffer head.
- Guide the sniffer head into the through-hole.
- Fasten the head using 3 mm wood screws, and press the outer cover back in place.



6. PROCEDURES FOR ALARMS AND FAULTS

6.1. FIRE ALARM

Red LEDs on the ASPECT front indicate that smoke has been detected. Depending on sensitivity settings, the ASPECT will signal a fire to a control panel or through its own sounder output at one of three levels. Check all rooms that are covered by the unit. If no visible smoke can be observed, it is necessary to inspect the area carefully.



A smouldering fire may not be visible until it bursts into flames at a much later time.

6.2. FAULT

Faults are indicated by the generic fault LED on the ASPECT front. To determine the nature of the fault, check the event log as described in 2.3.1.

6.2.1. High air flow (event code 4)

High air flow may be caused by clogged filters, a break in the pipe or a loose filter cartridge.

Check that the internal dust filters are installed properly. Change dirty filters if needed (see 6.4).

Check that all pipes are tightly fitted.

If no obvious fault can be found, minute adjustments to the flow sensor may be needed. Contact authorized service personnel.

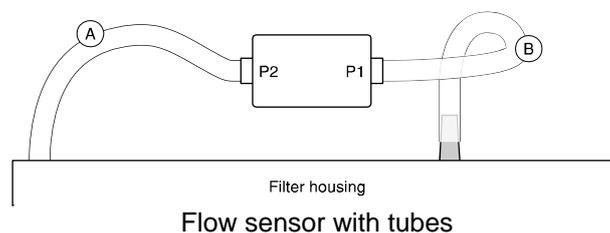
6.2.2. Low air flow (event code 5)

Check that the fan is running.

If the fan is running, the cause may be clogging of the pipe. Disconnect the pipe at the condensation reservoir and check if the red LED on the CPU board is switched off. To keep the fan running while the door is open, cover the photo sensor. See Appendix A – ASPECT CPU board, page 26 for location of LED and sensor.

The flow sensor may be clogged. Use the following procedure to clean the sensor and tubes:

- Disconnect tubes A and B from the flow sensor at P2 and P1.
- Suck any impurities out of each tube.
- Connect a short piece of tube to P1 and suck clean air through the flow sensor.
- Move the tube to P2 and suck clean air through the flow sensor in the opposite direction.
- Reconnect tubes A and B to the flow sensor.



Do not blow into the flow sensor. Wet breath will damage the sensitive components!



It is recommended to use a large syringe with a tip that fits the tubes to suck or blow air through the system. A syringe with an extra length of tube, "SS 001", may be ordered from Elotec.

6.3. IMPORTANT CHECK POINTS

- The mains lamp (green LED on the ASPECT front) is ON.
- The battery is connected.
- Check the status of the LEDs on the CPU board. Only the green LED should be ON when the fan runs.

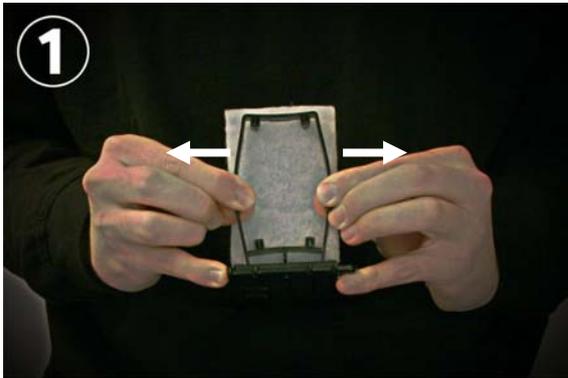


Beware of Electrostatic Discharge while working with the CPU board. To avoid damaging sensitive electronic components, an earthed wristband should always be worn when handling electronics.

6.4. CHANGING THE FILTERS (IF FITTED)

To change the filters, open the ASPECT and wait for the fan to stop. Once the fan has stopped, pull the filter cartridge straight out.

Filter elements are supplied as separate elements, or pre-installed in a complete cartridge. To replace separate elements, first remove old filters from the front piece by holding it as shown below. Bend the frame outwards, then pull towards your body. Next, push the new filters into place in the cartridge.



Finally, reinstall the cartridge, making sure that it is fitted tightly. Use your thumb to feel that the cartridge front is flush with the two raised areas of the filter housing.



7. TECHNICAL SPECIFICATIONS

7.1. GENERAL

7.1.1 Mechanical

- Dimensions (W x H x D): 272 x 530 x 143 mm
- Enclosure: Extruded aluminium profile with PC/ABS top and bottom
- Enclosure rating: IP44
- Noise level: Nom. 55 dB @ 1 m
45-50 dB @ 1 m w/ AU 002
35 dB @ 1m (special silencer kit)

7.1.2 Electrical

- Supply voltage: 230 VAC, 50 Hz
- Current consumption: 500 mA max.

7.1.3 Environment

- Operating temperature: -40 to +60 °C
- Relative humidity: Max. 98 %
- Pressure: Max. 75 Pa under pressure in rooms with sampling points

7.1.4 Indications

- Fire A/B/C: 2/2/4 x red LEDs show increasing level of smoke
- Generic fault: 1 x yellow LED
- Disabled: 2 x yellow LEDs
- CleanMe: 4 x yellow LEDs
- Power: 1 x green LED

7.1.5 Buttons

- Red: Disable / silence sounders (depending on configuration)
- Green: Enable / reset (depending on configuration)
- * : For programming
- # : For programming

7.2. EN54

The ASPECT LAZEER meets all requirements of EN54-20 and EN54-4 as well as relevant clauses of EN54-2 for stand-alone operation.

7.3. OUTPUTS

7.3.1 Voltage outputs

Sounder / parallel indicator output: 12 V, max. 140 mA

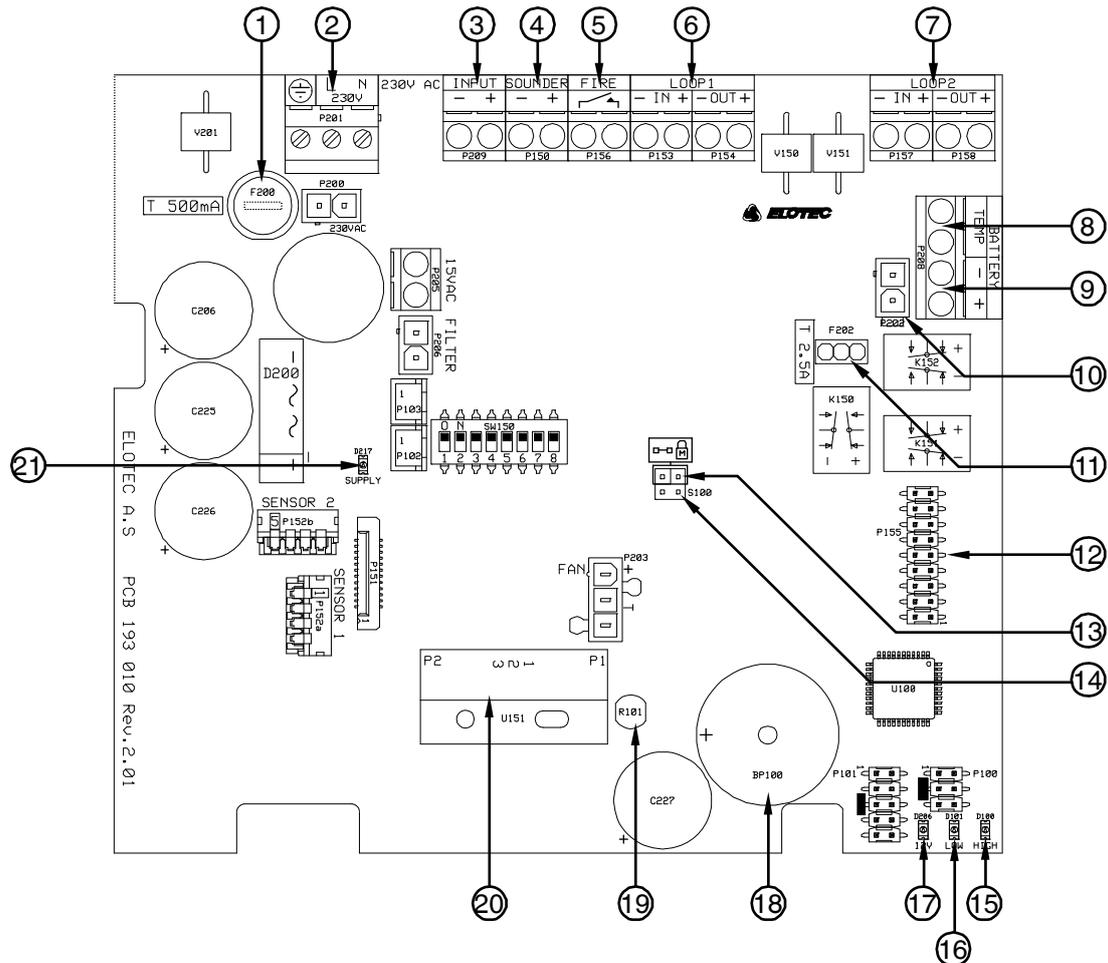
7.3.2 Relay outputs

Fire output: Normally Open, max. 2 A @ 30 V
Fault output (stand-alone only): Normally Closed, max. 2 A @ 30 V

7.4. POWER SUPPLY

Nominal charging current: 800 mA
Maximum charging current: 1300 mA

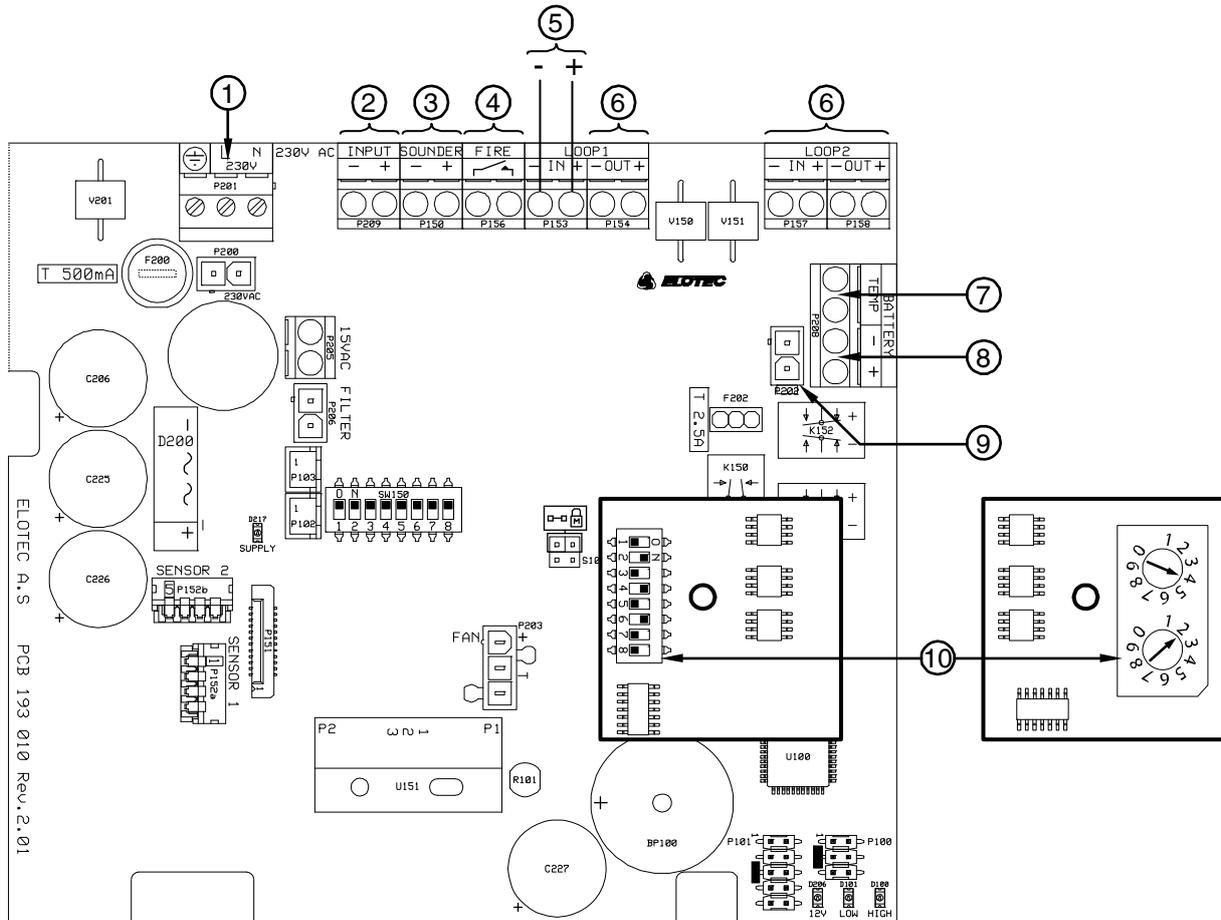
Appendix A – ASPECT CPU board



1. Mains fuse, 500 mA
2. Mains connection
3. Aux input, configurable as disablement or fault input
4. Sounder output (stand-alone configuration only) / parallel indicator output for strobe
5. Relay output, NO
6. Loop connections area 1 (wired centralized systems only)
7. Loop connections area 2 (wired centralized systems only)
8. Battery temperature monitor connection
9. External PSU connection
10. Internal battery connection
11. Battery fuse, 2.5 A
12. Expansion port for addressing interfaces
13. Memory lock for programming
14. S100, erase fault log
15. Yellow LED, high air flow indicator
16. Red LED, low air flow indicator
17. Green LED, power indicator
18. Internal buzzer
19. Photo sensor
20. Flow sensor
21. Green LED, C-filter

Appendix B – Connections for addressable systems

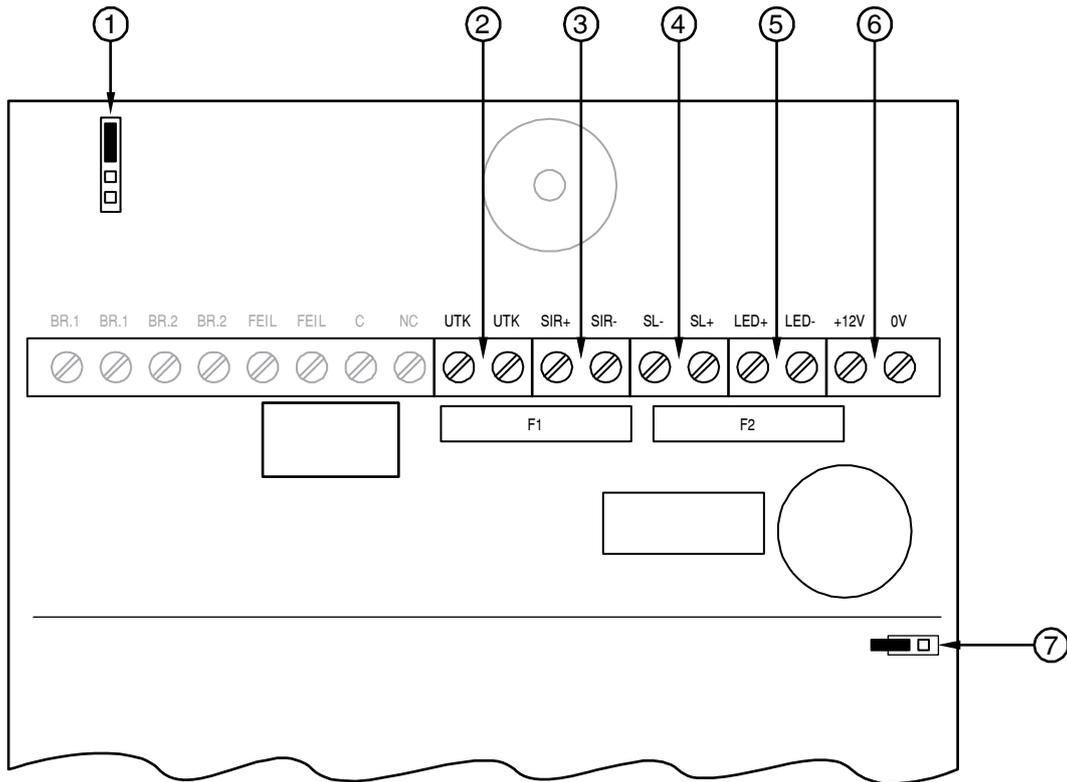
Only the LOOP 1 IN terminals are used to connect the ASPECT to an analogue fire alarm panel. Remaining loop connection terminals should not be used.



- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Mains connection 2. Disable button connection 3. Parallel indicator output for strobe 4. Fire relay output, NO 5. Addressable loop in / out | <ol style="list-style-type: none"> 6. Not in use 7. Connection for battery temperature monitor 8. External supply connection 9. Internal battery connection 10. Example of address setting |
|--|---|

Each device on an addressable system must have a unique address. How this address is set varies from system to system. See documentation regarding the control panel in question.

Appendix C – Connections for wireless systems



- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Programming connector 2. Input for disable button 3. 12 V sounder output, 4,7 KΩ EOL | <ol style="list-style-type: none"> 4. Conventional loop, 1 KΩ EOL 5. 12 V LED output (disable indication) 6. 12V supply 7. Power link |
|---|---|



Observe correct polarity. Pay close attention to the markings.

Each device on the system must have a unique address. For the ASPECT this address is assigned through the programming connector – either by connecting it to the control panel during installation, or by use of a dedicated programming device/PC software. See instructions for the control panel in question.

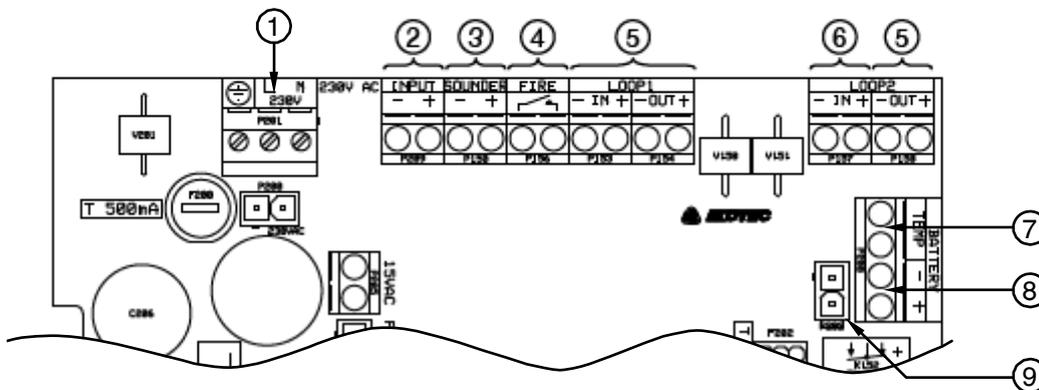
The power link is shown in the active position. By shorting the pins, the radio interface will be shut down even while the ASPECT is operating.

Up to 5 ELOTEC smoke or heat detectors (EO 003 / EV 004) may be connected to the conventional loop.

The supervised sounder output can deliver a maximum of 500 mA for standard 12 V sounders or beacons.

A wired disable button may be connected directly to the UTK and LED connectors on the radio interface. “UTK” accepts the signal from the button, and the LED output provides indication that ASPECT is disabled.

Appendix D – Connections for stand-alone unit



- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Mains connection 2. Connection for disable button 3. Sounder output, 12V, max. 140mA / 10 snd. 4. Fire relay output, NO 5. Not in use | <ol style="list-style-type: none"> 6. Fault relay output, NC 7. Connection for battery temperature monitor 8. External supply connection 9. Internal battery connection |
|--|---|

A disable button may be connected to the AUX input of the CPU board. When properly configured, this button will disable both areas of the ASPECT and stop the aspirating fan. The disable time is configurable through P10 (see Appendix E – Program functions, page 30).

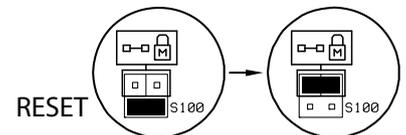
Appendix E – Program functions

Program	Value	Function
  Disabled	 	<ul style="list-style-type: none"> • Hold # and press * to select P1-P10. • Hold * and press # to set the desired value. • During read-out, P1-P10 is indicated first, using the Disabled LED, then the value, using the FIRE C and CleanMe LEDs
P1		Flow fault threshold
	1	Most sensitive
	2	
	3	
	4	Default (EN54)
	5	
	6	
	7	
	8	
	9	
	10	Least sensitive
P2		Power supply
	1	Internal (default)
	2	External
P3		Aux input
	1	Fault input When using internal supply (P2=1): generic fault input. When using external supply (P2=2): external supply fault
	2	Disable button, pulse (default)
	3	Disable button, manual out/in
P4		C-filter
	1	C-FILTER on as needed (default)
	2	C-FILTER on as needed, but turned off during mains fault if internal supply is configured (P2=1)
P5		Mains fault indication
	1	Mains fault is indicated immediately (< 5 seconds)
	2	Mains fault is indicated after 20 minutes – VdS/EN54 (default)
	3	Mains fault is indicated after 2 hours
P6		Flow fault indication
	1	4,5 minutes by both high and low air flow – VdS/EN54 (default)
	2	6 hours by high air flow 30 minutes by low air flow
	3	6 hours by both high and low air flow
P7		Fan speed
	1	Low
	2	High
	3	Normally high, but goes low during mains fault to preserve the battery if internal supply is configured (P2=1). (default)
P8		Function of disable- and enable buttons
	1	Generate 2 and 4 Hz on loop (default)
	2	Local disablement (not VdS/EN54)
P9		Alarm threshold
	1	A HyperSense (not VdS/EN54)
	2	A (default)
	3	B
	4	C
P10		Disable time (stand-alone only)
	1	30 minutes
	2	1 hour
	3	2 hours
	4	4 hours (default)
	5	8 hours

Appendix F – Event codes

Code	Description	Action
	<ul style="list-style-type: none"> Press # to display events Log position from 1 (most recent) to 10 is indicated by flashes of the Disabled LED Event code is shown using by flashes of the FIRE C and CleanMe LEDs 	NB! Authorized service personnel should be contacted for all operations except changing filters.
1	Mains fault	Check mains connection / fuse
2	Not calibrated	Calibrate air flow, see 4.5.1
3	Flow sensor fault	Contact service personnel
4	High air flow	Check filters / pipes, see 6.2.1
5	Low air flow	Check pipe / flow sensor, see 6.2.2
6	Sounder fault	Check integrity of cable / EOL
7	CleanMe	Return Aspect for sensor cleaning / service
8	CleanMe	Return Aspect for sensor cleaning / service
9	High internal resistance in battery	Replace battery
10	High battery temperature	Check batt./sensor, replace battery if needed
11	Battery temperature sensor fault	Check connection (item 8 of Appendix A)
12	Aux fault input activated	Check connected auxiliary equipment/PSU
13	Low supply voltage	Check mains / auxiliary power supply
14	Low battery voltage	Check battery connection / fuse
15	High battery voltage	Contact service personnel
16	Low charging current	Check battery connection / fuse
17	High charging current	Contact service personnel
18	Tacho fault	Return Aspect for cleaning / service
19	DEMO mode activated	
20	Fire (Stand-alone configuration only)	
21	Fire (Stand-alone configuration only)	
22	Disabled (Stand-alone configuration only)	

The fault memory can be cleared by shorting S100 for a moment. This could be done after an annual inspection of the installation.



Appendix G – CE marking and Declaration of Conformity

 0786
Elotec AS , Industriveien S. 1 P.O. Box 43 N-7341 Oppdal, NORWAY 11 0786-CPD-21084
EN54-20 Aspirating smoke detectors for fire detection and fire alarm systems for buildings. Class: A and B Device includes controls and indications according to EN54-2 for stand-alone operation EN54-4 Power supply equipment for fire detection and fire alarm systems for buildings.

Jan Kleven, CEO

Warning / Liability

If the equipment is not used in accordance with the mounting/installation requirements, for other purposes than intended, connected to other equipment than prescribed in this manual, or connected to such equipment in any other way than prescribed, this could result in damage to the equipment or to other connected devices, as well as other damages such as overheating, fire, explosion, electromagnetic interference and so on.

In all above-mentioned cases, the manufacturer of the equipment can not be held responsible for any damage and loss, including damages and losses caused to the property of a third part.

In the cases described above, the buyers warranty is void.

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