

Clipsal Smoke Alarms

Maintenance and Troubleshooting Guide



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CLIPSAL
by Schneider Electric

Maintenance

Smoke alarms are an important safety device in the home designed to give early warning of a fire so residents have enough time to escape safely. It's then very important to make sure smoke alarms are always working properly. Like other electrical accessories in the home, smoke alarms require maintenance to ensure efficient and effective operation. Proper maintenance can also reduce the likelihood of any false alarms.

Once a month

Test smoke alarm and backup batteries – To ensure the smoke alarms are in working order, press and hold test/hush button for at least 5 seconds until the unit alarms. To check the battery, repeat the test while mains power is turned off. The alarm should sound indicating the battery is working. If it does not, replace the battery.

Every three months

Vacuum smoke alarms – Keeping your smoke alarm free of dust particles or cobwebs will help you reduce false alarms and ensure any smoke can easily reach the internal sensing chamber.

Clean and wipe down around unit – Clean around the smoke alarm unit and remove any insects or other contamination which may have occurred. Spray bug repellent on a cloth and wipe the ceiling around the smoke alarm to act as a future bug deterrent. Test the smoke alarm after cleaning.

Every year

Replace 9V backup batteries – Choose a common date to replace your batteries that you will remember, such as daylight savings or a birthdate.

Every 10 years

Replace smoke alarms – Regardless of manufacturer, all smoke alarms have a limited life of 10 years. Contact a licensed electrician to replace your unit after 10 years.

Troubleshooting

Two common problems that may occur in relation to smoke alarms:

- 'False' Alarm – the incorrect firing of the alarm, occurring when it detects something which resembles smoke, or due to another factor such as external electrical noise or surges.
- 'Chirping' Noises – short, continual bursts of alarm which indicates a 'fault' in the mechanism, or a low backup battery condition.

The following are common key factors that may affect the performance of smoke detectors:

1. Location/Positioning

- Care must be taken when choosing the location of the smoke alarm – it must be positioned in location where smoke can easily reach inside its sensing chamber.
- Mount according to the Installation instructions avoiding any dead air spaces.
- Alarm must not be located within 1m of an air duct or air return vent, as smoke may be diffused or blown away from the smoke alarm.
- Photoelectric detectors are sensitive to steam and dust so they should be positioned away from locations where these may occur, such as outside a bathroom.

2. Sensor Contamination and Condensation

- Smoke alarms are sensitive devices so a buildup of a film on the sensor will affect their performance – such build up commonly occurs from oils from cooking, dust or lint, or from insects and their by-products.
- Moisture absorbed by contamination in critical points on the circuit board can cause low impedance tracing – this may be interpreted by the circuitry as either a fault, resulting in chirp, or the sounding of the alarm.
- Moisture absorption is also likely to occur where strong airflow is present (i.e. from the roof space) as moist air may be blown into the smoke alarm. Care should be taken to minimize holes made into the ceiling when mounting.
- Rapid temperature changes may also build up moisture, again affecting alarm circuitry.
- If moisture is building up in the smoke alarm, the alarm may need to be relocated.
- It is recommended that smoke alarms are cleaned regularly to ensure they are free from contamination, such as dust and insects.

Troubleshooting

3. Incorrect Wiring

- Hard wired smoke alarms must always be wired to a permanent active, hence they must not be installed to a switched active, (such as switched lighting circuit). If power off time exceeds power on, the battery will become quickly depleted, as the smoke alarm is running on the battery alone during the period where the switch is off.
- Smoke alarms must never be interconnected across phases or across different circuits, and interconnected alarms must always be tied to a common Neutral.
- If interconnection across phases can not be avoided, a 755RFB must be used to interconnect wirelessly.
- Incorrect wiring may cause false alarms or potentially damage the unit.
- Installers must always follow the installation instructions.

4. Electromagnetic Interference (EMI)

- Smoke alarms are filtered internally to avoid EMI problems however they cannot cover all forms – electrical noise and voltage spikes may be superimposed on electrical supply affecting the performance of the smoke alarm.
- Smoke alarms must be installed away from local electrical noise sources (1m recommended) to provide the best reliable operation.
- EMI may irregularly affect the smoke alarm – certain times of the day or different fittings or environmental factors may cause issues. This can provide difficulty in identifying the source of the fault – however common causes include:
 - Fluorescence fittings – some lower cost fittings do not have the power correction abilities which reduce the impact of spikes on supply.
 - LED Downlights or CFLs – These devices have inbuilt or external drivers or power supplies which generate electrical noise and current spikes at turn on.
 - Heavy inductive loads – loads such as light, heat or fan combinations or air conditioners and ceiling fans, can induce electrical noise on the electrical supply based on the size of their load and voltage spikes generated at turn on/off.
 - External sources to the dwelling can also introduce spikes/ noise on electrical supply (e.g. solar inverters, A/C compressors).
 - Automatic Security Lights – many of switching relays contained in these lights are not fitted with a suppression diode across the coil. This will cause any relay switching to induce back EMF (voltage spikes) onto the electrical supply.
- Where possible, the optimum way to avoid any electrical noise issues is to install smoke alarms on a separate circuit from all other electrical circuits.
- If EMI issues can not be resolved by addressing suspect sources, installing an in-line EMI filter may solve the issues.

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For more information on Clipsal FireTek Smoke Alarms, contact your local Clipsal and Schneider Electric Partner Business Representative, electrical wholesaler or visit clipsal.com

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