



WIRELESS INTERCONNECT SMOKE ALARMS: ALL YOUR QUESTIONS ANSWERED

The first wire free interconnect smoke alarms were launched into the residential market in 2004 as a cost effective and easy way to interconnect alarms.

Interconnecting smoke alarms whilst not mandatory in Australia or New Zealand is recommended as a most effective way of increasing early warning. Hard wired interconnection can be time consuming and disruptive and, as a result, costly particularly in existing dwellings. However, the ability to interconnect alarms without hard wiring has made mains powered and battery operated alarms quicker and cheaper to install and has made interconnection itself more popular.

The safety benefits of alarm interconnection are obvious. In the event of one alarm detecting a fire, all interconnected alarms will go into alarm mode, sounding throughout the property. There's not much chance of sleeping through that cacophony, whereas there is a very real danger that a heavy sleeper shut behind a bedroom door may not be woken in time by the alarm in the downstairs hallway. Interconnected alarms provide an earlier warning and the best chance of escape.

Wireless interconnection also makes it far simpler for landlords, specifiers and installers to make changes to a system to help meet the changing needs of different tenants. With so much emphasis being placed on individual risk assessment, this flexibility has got to become an integral part of system planning in the future.

Brooks was the first company to introduce wireless smoke alarm interconnection in Australia and New Zealand. Not only have we been at the forefront of the technology, we have also consequently been at the front end of questions relating to the technology. Here we answer the most commonly asked questions; some are the same from the early days, but others are more recent additions.

WHAT EXACTLY IS WIRELESS ALARM INTERCONNECTION?

It enables smoke alarms to be connected to each other without the need for cabling between the alarms. Instead, a Radio Frequency (RF) signal is used to trigger all the alarms in the system.

DO I HAVE TO WIRE THE ALARMS AT ALL?

Yes, if using mains powered alarms you will need a mains supply to each of the alarms in the system. The power supply can be taken from any convenient light pendant with a permanent (unswitched) live feed to where the alarm is to be sited.

WHAT BENEFIT IS THERE IF I STILL HAVE TO CONNECT TO THE MAINS?

There are significant savings to be made, mainly in time, but also in materials.

a) There is no need to feed the wiring from one alarm to another, which can be very time consuming and can look ugly with trunking running up walls and across ceilings. There is no need to lift floorboards either. This means damage claims to floors, carpets and decoration are minimised, if not eliminated.

b) Less cable and trunking is required so further reducing costs.

WILL INTERFERENCE FROM OTHER RF DEVICES BE A PROBLEM?

Don't be misled by the notorious problems seen with RF doorbells, where ringing one doorbell might lead to next door's bell going also. The problem here was mainly due to there being only a few codes available so there was a distinct possibility that the same code was in use by neighbours.

With RadioLINK Professional RF interconnect smoke alarms, the technology is vastly superior – these are life saving devices after all. The frequency and duration of the RF signal used by any good wireless smoke alarm system should meet strict guidelines, which are designed to virtually eliminate interference. In the case of our own RadioLINK Professional system, interference cannot happen as each alarm base has a unique code that is set at the factory and cannot be repeated.

WILL SECURITY SYSTEMS AND CAR ALARMS AFFECT THE SMOKE ALARM SYSTEM?

Security systems may use the same frequency as wireless interconnect technology but they will be on a different band and/or be restricted to using the channel for 1% of the time, for a maximum of four seconds at any one time. Car alarms and mobile phones use a completely different frequency so interference is not possible from either of these. Television remote controls mostly use infra-red, which cannot affect the system.

HOW FAR WILL THE RADIO SIGNAL TRAVEL?

The radio signal can travel a very long way if there are no obstructions to block it – 150 metres or more. But, it is more relevant to consider the practical application where there will be walls, ceilings and many other obstructions to impede the radio signal path. In the vast majority of properties, where there will be two or three alarms, the signal from a RadioLINK unit will be more than adequate.

IF ALL THE ALARMS CAN INTERLINK HOW CAN I STOP THOSE NEXT DOOR SOUNDING THE ONES IN MY HOUSE?

Simply 'House Code' each separate system of alarms. In this way they cannot cause nearby alarms to sound. 'House Coding' takes a matter of minutes after installation of all the alarms in the system and can be easily undertaken by anyone following the instructions supplied with the product.

CAN YOU INTERCONNECT BETWEEN AS WELL AS WITHIN PROPERTIES?

Yes, this is a big advantage in blocks of flats and Houses in Multiple Occupation (HMOs). In ordinary hard-wired installations it is necessary to cross property boundaries with mains cable in order to interlink the alarms (and provide the mains power). This could pose an electrical safety risk if people working in the dwelling were unaware that there are two

mains power supplies to the property, so it is beneficial to select a system that allows each alarm to be connected to a local power supply.

The interconnect signal is provided by the radio signal, therefore overcoming this risk. In flats and HMOs where interconnection between dwellings is not required, but a connection to the communal areas is (for early warning purposes), it is easy to provide a simple yet effective system. Simply 'House Code' the RadioLINK alarms in each flat separately and then 'House Code' the alarms in the communal areas with, for example, a heat alarm in the individual dwellings. In this way, if a nuisance alarm should occur within one of the dwellings it will not affect the other residents. However, if a real fire has occurred, the heat alarm in the dwelling will operate the communal system – and all other dwellings – when sufficient heat has been generated.

For farms with sheds, caravans or other outbuildings such as “granny flats” etc these can also be wirelessly interconnected to the main residential system.

HOW WILL I KNOW IF THE RF INTERCONNECT ALARM HAS FAILED?

There is a much greater chance that damage will occur to a cable than there is that the RF signal will fail. Cables can be disconnected, a nail can be put through them, or rodents gnaw through them, whereas a RadioLINK RF interconnect cannot be affected by any of these. The only effective method of checking that the RF interconnect link is operating is by pressing the test button on the alarms and checking that they all sound. This is also the only way that you can check a hard-wired interconnect.

WHAT STANDARDS SHOULD THE SYSTEM CONFORM TO?

Check the unit has been third party tested to demonstrate RF performance to AS/NZ4268:2003 and EMC performance to AS/NZ CISPR 22:2006 and for electrical safety. A note here in case you are wondering if AS3786 (the standard that smoke alarms should be certified to) applies here. Wireless interconnect systems come in different formats. Brooks RadioLINK system, for example, has the wireless technology in a separate base or plug in module rather than in-built into the alarms, so AS3786 is not applicable here – only the smoke alarm itself must conform to AS3786 and AS1603.3 for Heat Alarms.

ARE WIRELESS INTERCONNECT ALARMS FOR USE IN ALL PROPERTIES?

Yes, but it is more cost-effective when retro fitting smoke alarms as this is where surface trunking often has to be used. Cable is relatively cheap and easy to install in new build properties without the need for trunking so the extra cost may not be a viable proposition. However, some new build properties have concrete ceilings so in these applications the use of a wire free interconnect system could play a useful role.

Other applications could include:

- a) Individual dwellings within a block of flats or HMOs.
- b) Connection of remote areas to a central smoke alarm system avoiding the need to run cable for extended distances.
- c) Existing systems without any interconnection.
- d) Existing hard wired systems which require expansion into additional rooms or areas.
- e) Heritage listed or protected buildings or dwellings.

HOW MANY ALARMS CAN BE INTERCONNECTED USING WIRELESS TECHNOLOGY?

This will depend on the individual manufacturer. However, at present we do know that it is technically possible to interconnect up to 30 alarms, but the limiting factor is likely to be the distance between alarms and obstructions that may block the radio signal. In most domestic properties a realistic maximum number of alarms would be 12.

IS THERE ANY METHOD OF CONTROLLING A WIRELESS INTERCONNECT SYSTEM?

Again, this will depend on the system you select. In the case of Brooks RadioLINK Professional system, a variety of control options are available including a fixed wall switch which allows Test, Silence, Locate and Memory features to be incorporated without having to reach up to the smoke alarms; a Hand Held Remote Control unit for Test, Locate and Silence, a Manual Call Point for use in larger installations; and a relay to signal to other devices such as additional sounders or strobes.

CAN THE SMOKE ALARMS BE CONNECTED ON DIFFERENT PHASES OF THE MAINS SUPPLY?

Again, this will depend upon individual manufacturers but in the case of RadioLINK systems it is fully technically feasible if the individual smoke alarm heads and wireless bases are not electrically connected.

Wireless interconnect smoke alarms have had a major impact in domestic fire safety and have over 8 years of proven reliability. Here, at last, is a cost-effective way to increase the number of alarms per property, to ensure they are audible throughout a property, and provide the earliest possible warning of a fire. Embrace the technology now for a fire alarm system that gives you the maximum safety benefit and is flexible enough to see you well into the future.

Brooks is the exclusive supplier for RadioLINK Professional wireless interconnect mains powered smoke alarms. For more information, or for free technical assistance, please contact:

**Brooks on 1300 78 3473 (FIRE) or go to www.brooks.com.au
or in New Zealand call 0800 220 007 or go to www.brooks.co.nz**