

THE IMPORTANCE OF TWO-WAY RADIO FOR SECURITY

Start up a conversation nowadays about security technology and talk is most likely to revolve around cyber security, RFIDs, satellite tracking, ultra HD video surveillance and so on. Little attention seems to be paid to one of the most prevalent – and easily overlooked – tech tools used in the security industry.

Two-way radio and the security sector, in the broadest sense of the term, go back a long way. The first ever use of radio as a mobile communications device was by the police force in Victoria, Australia in the twenties, using vehicle-mounted transmitters and receivers. A decade later, the US military developed the first handheld transceivers, which they nicknamed ‘walkie talkies’. And so the relationship has survived ever since. Portable, robust and extremely reliable within a specified network range, two-way radio remains a trusted communications tool for the military, emergency services, premises security, surveillance and crowd control.

Even as the demands on security operatives have changed, two-way radio has managed to keep pace. In an increasingly mobile world where the sophistication of security threats is ever growing, the need for security personnel to work at speed in bigger teams over greater distances has moved beyond what the original analogue two-way radio technology can cater for. But with the emergence of digital radio, the humble walkie talkie has undergone a transformation. With greater output power meaning bigger operational ranges, and a whole range of new options to boost coverage besides, digital two-way radios can handle long-range deployments even across multiple sites.

With better audio quality than ever and the same qualities of being easy to carry, easy to use and highly robust, modern two-way radios trump even mobile phones for reliability, versatility and intuitive use in the heat of the moment. In addition, digital handsets come with a wide range of emergency alert and tracking features, which make them additionally useful given the demands and dangers of security operations.

First and foremost, the key benefit of two-way radio to security personnel is mobility. Almost a century on from the first use of a radio transmitter and receiver in a police car in Australia, the same principle is still widely used today. Two-way radio vehicle base stations are routinely used by police, security patrols and at large-scale public events alongside familiar handheld walkie talkies. The vehicle-mounted units provide a base for handheld radios to operate from when out on patrol. They tend to have a more powerful output, so are able

to transmit signals back to a central static control, such as a police station.

Where digital two-way radios have really come into their own is the development of different software solutions, which boost their mobility, operational range, network capacity and overall efficiency. One example is known as ‘multisite digital trunking’. Traditionally, two-way radios had to be programmed to connect to a specific frequency network, and were restricted to the range of that network. To be used in another location, or at least on a different network, they would have to be reprogrammed.

With multisite digital trunking, individual radios can be programmed to connect to multiple networks at once. For a security patrol working across different sites, for example, this means their vehicle radio or handset will automatically connect with users based on site in different locations. This isn’t just a case of being able to speak to different operatives who have radios in different locations, either. The connection can also pick up data from different devices, so a single radio will operate to pick up text messages, alarm signals, even data from surveillance equipment as the operative moves between sites.

Multisite technology, and the ability to connect to other data points, has also had a profound impact on the efficiency and scale of command and control for two-way radio use. City and regional-wide deployments like police forces and other emergency services can be managed from a single contact centre. Using IP connections, a single dispatch console can manage dozens of site bases at once, each capable of handling thousands of unique radio connections. Functions such as call queuing, prioritisation and site assignment are managed by the software.

We are starting to see other examples of this type of large scale, multisite deployment of digital two-way radio in crime prevention initiatives. Townlink schemes use two-way radio to form networks of key stakeholders – local businesses, private security firms, police and local authority CCTV control centres – in a bid to tackle high street crime and antisocial behaviour. Via the radio link, individual retailers and security personnel are able to share information and raise the alarm quickly when theft occurs. The direct connection to the police ensures a rapid response, while integration with CCTV means everything is backed up by video surveillance.

Brentwood Communications has been involved in schemes like this in large shopping districts such as Norwich city centre and the Harvey Shopping Centre



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Digital two-way radios can handle long-range deployments across multiple sites

in Harlow, Essex. Again, it is thanks to digital software that so many users over such a widespread area can stay connected to the network. In Norwich, an IP-based system was used to ensure the handsets deployed in all the shops across the city centre were online at all times.

In an emergency situation, as well as having the trust that you will always be able to connect to the network, one other thing you want is a device that is simple to use. On a busy Saturday afternoon in a retail district when you are trying to prevent a theft, the fact that advanced digital handsets have kept their traditional one-button push-to-talk functionality is very welcome indeed.

The benefits of this ease of use can be amplified even

further in crowd control scenarios. Large gatherings are a fact of modern life, and whether you are policing a protest or providing security at a festival, your first obligation is to public health and safety. In an emergency, cool heads and clear lines of communication are vital.

A good example of how digital two-way radio is helping to provide the latter in crowd control deployments is in modern football grounds. Thanks to huge strides in stewarding and policing, the hooligan scourge of the seventies and eighties is now mostly behind us, and football stadia are much safer places to be. But at the top grounds, tens of thousands of people are still packed into relatively small areas week in week

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out, passions run high and low-level disorder is not entirely unheard of. Matchday police and stewards have to keep their wits about them and keep their cool, communicating effectively and remembering at all times their emergency and evacuation protocols, should they ever be needed.

Sports stadia present specific challenges to two-way radio use. Network range is generally not a problem – special devices called repeaters can be used to boost the signal from ordinary handsets to cover the full area. But signal clutter can be a problem. The number of stewards, first aiders and officers working at a match is usually high, and such is the intense nature of activity – particularly before and after the games as crowds file in and out – lots of users are active at once.

Analogue radios only had a very limited number of channels, meaning if they were all in use at any one time, no one else could make a call. Even though digital two-way radios offer many more channels, it can still take time for handsets to work through them searching for one that is available.

The solution is another form of digital trunking. This was something Brentwood Communications recommended when installing a new two-way radio system at Tottenham Hotspur's White Hart Lane stadium a couple of years ago. The trunking software effectively acts as a call management system, identifying and sorting available channels, and even packeting the channels in such a way that more than one call can be made on each one should the need arise. The outcome is 100 percent channel availability for every radio user at all times, no matter how busy the network is.

Of course, at a busy football match with the crowd roaring, getting onto an available channel is no guarantee anyone will hear you at the other end. Fortunately, digital tech has that covered too. With intelligent audio features, modern handsets will cut out background noise, while automatically adjusting volume to ensure optimum audibility.

But by far the most useful, not to mention reassuring,

features of modern digital two-way radios for use in security is the range of emergency alert and safety functions many models now come with as standard. These range from one-push Emergency Button alerts to voice activation controls, making it as easy as possible to raise the alarm whatever the circumstances. Another common feature is 'Man Down', which detects sudden movements such as those caused by a fall to activate an alert.

These alarm features provide peace of mind to workers facing all types of hazardous situations, whether it is a security incident or working with heavy machinery in industry or construction. But in security, when operatives may be facing dangers out on patrol or where it is easy to get cut off from colleagues in crowded environments, tracking and monitoring is equally important to operative safety. Modern digital two-way radios are now GPS enabled as standard, so colleagues don't just know when an alarm has been raised, they can accurately pinpoint where it has been raised from. Many offer features known as 'Lone Worker', which require users to check back in with the network at specified intervals, otherwise an alarm is triggered. Two-way radio is one of the great technology survivors. In security, the industry it has the longest association with, it has evolved to stay in tune with shifting operational demands. In an increasingly dynamic, mobile and crowded world, security services have to be able to cover larger areas, work in bigger teams and operate at greater pace than ever before. Modern digital radios have responded accordingly, with improvements to networking and control technologies meaning they can be deployed in larger fleets over greater areas than ever. Software and IP integration means two-way radios can work in tandem with other security and surveillance technology, and link in with other communications networks. The latest handsets offer advanced alert and tracking features, providing security personnel peace of mind in emergency situations. And underpinning that, digital two-way radios still offer what drew security operatives to their analogue predecessors – mobility, reliability, ease of use and durability.

James Miller is the managing director of Brentwood Communications (www.brentwoodradios.co.uk). His company has more than 40 years' experience supplying bespoke integrated radio solutions to organisations from all sectors of the economy, using tried and tested technology from the world's best manufactures.

Modern two-way radios are far superior to mobile phones when it comes to reliability, versatility and intuitive use in the heat of the moment



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