

## Security Alarm Systems

Monitored alarm systems offer clients peace of mind as they activate on intrusion or tampering at the property and ensure any security alarm will have an appropriate response. However, many clients don't understand how to differentiate between the various types of alarm systems currently on the market. Whilst the onsite detection technology has remained relatively constant in recent times, there has been significant change in the methods employed to transmit the alarm to a monitoring facility. To add to this confusion is Telstra's Securitel network, which will cease operations at the end of 2009. Businesses searching for replacement systems should be made aware of the new Australian Standard, which will allow informed decisions based on the level of reliability, availability and supervision that their business would need from a monitored security system.

The introduction of *AS/NZ 2201.5-2008 Intruder Alarm Systems – Part 5 Alarm Transmission Systems* has standardised the terminology for alarm transmission systems. The standard allows alarm systems to be classified and tested to ensure they meet the standard. Class 1 is considered the lowest reliable alarm transmission from the protected building to the alarm monitoring facility and Class 5 being the highest. Note that the standard refers only to the way the alarm is transmitted to the monitoring facility, and doesn't refer to issues such as coverage, local alarming or the type of equipment used for alarming.

These five classes are determined by:

### Transmission Time

The time it takes for the alarm to be sent from the panel (customer) to the centre's receiving equipment (monitoring centre).

	Class 1	Class 2	Class 3	Class 4	Class 5
<b>Average Delay Time</b>	120 sec	90 sec	60 sec	30 sec	10 sec

### Transmission Supervision

The maximum time it takes before the monitoring centre detects that the alarm transmission system has failed communication from the panel to the centre's receiving equipment.

	Class 1	Class 2	Class 3	Class 4	Class 5
<b>Average Time</b>	8 days	25 hours	120 sec	60 sec	20 sec

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## System Availability

System Availability is dependent on how often the communication path is available and reliable during the year. This availability could be due to faults in the system, transmission times exceeding maximum delays or any downtime due to maintenance on the system.

	Class 1	Class 2	Class 3	Class 4	Class 5
<b>Availability Average</b>	97% p.a	98% p.a	99% p.a	99.7% p.a	99.95% p.a

## Signalling Security

The measures implemented to prevent or detect deliberate attempts to interfere with the transmission of an alarm signal. Refer to the standard for complete details.

After understanding how each alarm system is classified, the next phase is to determine which class of alarm transmission is needed, with consideration given to the likelihood and severity of an attack occurring to the premises. Although there are various alarm systems on the market, the security alarm system can only reach the monitoring centre in four ways.

1. Phone Network (PSTN);
2. Mobile Phone Network (GSM); and
3. Internet Network (IP)
4. Mobile & Internet Network (GPRS)

What businesses should also be made aware of is that many new alarm transmission systems use multi-path combinations so that if the primary communication path is unavailable, the signal automatically gets transmitted via the next pathway. Therefore many of the alarm system networks interrelate and are used as a back-up if the primary signal fails.

The tables on the following pages provide the advantages and disadvantages of the various alarm transmission methods used.

## What should you do about your alarm?

To be comfortable that you have an appropriate security system that you can rely upon, we recommend you determine the class of security alarm transmission that is right for your business, based on the standard AS2201.5. This would depend on the nature of your business and any preference your insurer may have. For example, a company handling high value security goods or significant quantities of cash will need a more reliable alarm transmission than other businesses. But of course this will come at a cost.

Contact your security alarm provider and ask what class does your current alarm system comply. If necessary, work with your security company to investigate costs to upgrade, particularly if you currently use the Securitel technology.

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Networks	Products	Description	Advantages	Disadvantages
Phone Network	Digital Dialler / PSTN	This system uses existing telephone lines to communicate with the monitoring centre.	Cost effective.	<ul style="list-style-type: none"> <li>■ Entirely relies on the phone line network.</li> <li>■ Phone lines can be disrupted accidentally or purposely cut, thus the signal will not reach the monitoring centre.</li> <li>■ Are vulnerable to wiring problems and network congestion.</li> </ul>
Mobile Phone Monitoring	GSM	Utilises existing telephone lines and the mobile telephone network to report any alarms. It is mainly used as a back-up if a loss in the telephone line occurred.	With a GSM signal transmission, three different technologies can be used – SMS, Voice & Data.	<ul style="list-style-type: none"> <li>■ Needs good mobile coverage.</li> <li>■ Environmental issues may interfere with GSM signal.</li> <li>■ Requires a SIM card to operate.</li> <li>■ Does not give a polled service.</li> <li>■ GSM jamming devices are now commonly available on the open market.</li> </ul>
Internet Monitoring	IP	IP signalling uses exactly the same infrastructure as browsing the Internet, or connecting to a central server in a large organisation. Signals are sent down an Ethernet cable and via a router to their destination. It operates similarly to a GPRS except that monitoring charges are	<ul style="list-style-type: none"> <li>■ The benefit of this system is that it communicates over the internet which can be backed up by a GPRS and PSTN.</li> <li>■ There is constant</li> </ul>	<ul style="list-style-type: none"> <li>■ Requires a constant and reliable connection to an Internet Service Provider (ISP).</li> <li>■ IP alarm signalling uses the same infrastructure as if browsing the web and therefore it is imperative to ensure network security is in</li> </ul>

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Networks	Products	Description	Advantages	Disadvantages
		reduced since it isn't making a call compared to phone and mobile networks. The three main IP networks that are currently being used by the security industry are Public Internet, Virtual Private Networks and Enterprise or private networks.	control over the connection between the secured building and the monitoring centre. The receiver and the interface constantly check their connection in set variable intervals (pings).	place, and no viruses or worms or any other problems sometimes associated with the Internet, can get into the system via the IP alarm signalling. <ul style="list-style-type: none"> <li>IP network availability, bandwidth and reliability are all major concerns for any alarm transmission system.</li> </ul>
Mobile & Internet Network	GPRS	GPRS devices use the GSM network to achieve wireless connection to the Internet. It provides a polled service at a predetermined interval thus mitigating the risk of the panel being disabled.	Provides moderate speed data transfer. A jamming device used at a GPRS only monitoring site will result in a loss of poll alarm at the control room, which can be identified and actioned.	<ul style="list-style-type: none"> <li>When the client location is far from the cell tower, the connection speed drops logarithmically with distance from the base station.</li> <li>GPRS networks are still subject to tower failures, poor signal strength, network congestion and atmospheric conditions.</li> <li>Jamming device blocking all GPRS communication to a control room.</li> <li>GPRS devices do not support audio/voice communications.</li> </ul>

Table 1 – Alarm Transmissions

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Abbreviations	Definitions
PSTN	Public Switch Telephone Network
GPRS	General Packet Radio Service
GSM	Global System for Mobile communication
VoIP	Voice over IP
IP	Internet Protocol
Permaconn	Derived from <u>Permanent</u> <u>Connection</u>

Table 2 – Glossary