

Technology	Advantages	Disadvantages
1 Barrier Mounted PDS	<ul style="list-style-type: none"> <li>• Presence Of Barrier - physical deterrent</li> </ul>	
1.1 Fabric Mounted PDS	<ul style="list-style-type: none"> <li>• Ability to protect an entire perimeter with one continuous length of cable and one processing unit</li> </ul>	<ul style="list-style-type: none"> <li>• Variable performance depending on fence type</li> <li>• Potentially expensive cpu</li> <li>• Set up needs to be done carefully to maximise accuracy</li> <li>• Possible resilience issues</li> </ul>
1.2 Post-Mounted PDS	<ul style="list-style-type: none"> <li>• Provide detection and deterrence (as electrified)</li> <li>• Configurable</li> </ul>	<ul style="list-style-type: none"> <li>• Requires additional maintenance</li> <li>• Potential false alarms if not maintained</li> <li>• Affected by climate</li> </ul>
2 Ground Based PDS	<ul style="list-style-type: none"> <li>• Covertness</li> <li>• Good early warning system</li> <li>• Do not compromise site aesthetics</li> <li>• Less affected by weather</li> </ul>	<ul style="list-style-type: none"> <li>• High cost</li> <li>• Installation can be disruptive</li> <li>• No physical barrier to create delay</li> <li>• and deterrence</li> </ul>
2.1 Radio frequency (RF) radiating field systems	<ul style="list-style-type: none"> <li>• Systems have good discrimination between animal target sizes</li> </ul>	<ul style="list-style-type: none"> <li>• Susceptible to false alarm in certain conditions (e.g. water collection following heavy rain)</li> <li>• RF radiation emitted can be detected</li> </ul>
2.2 Microphonic cable systems	<ul style="list-style-type: none"> <li>• Reasonable performance at modest price</li> <li>• Installation less disruptive than other ground based PDS</li> </ul>	<ul style="list-style-type: none"> <li>• Risk of false alarms from wildlife</li> <li>• Can be vulnerable to heavy traffic nearby</li> </ul>
2.3 Optical-Fibre cable systems	<ul style="list-style-type: none"> <li>• Immune from RF interference</li> <li>• Installation can often require just one CPU and power supply</li> </ul>	<ul style="list-style-type: none"> <li>• CPU can be expensive</li> </ul>
2.4 Balanced Fluid-filled tube systems	<ul style="list-style-type: none"> <li>• Good detection and false alarm performance</li> </ul>	<ul style="list-style-type: none"> <li>• Covertness may be compromised by requirement for access pits used to pressurise tubes</li> <li>• Higher maintenance</li> </ul>
3 Freestanding PDS	<ul style="list-style-type: none"> <li>• Reduced installation cost due to no need for physical barrier and lower level of groundworks required</li> <li>• Do not hinder legitimate activity</li> <li>• Can be designed to be discreet/covert</li> </ul>	<ul style="list-style-type: none"> <li>• No physical barrier to create delay and deterrence - alarm verification needs to be quick</li> </ul>
3.1 Active infrared systems	<ul style="list-style-type: none"> <li>• No dead zones near to the transmitter/receiver units</li> </ul>	<ul style="list-style-type: none"> <li>• Particularly susceptible to the effects of fog causing false alarms</li> <li>• Can only be installed over flat ground as undulations can create dead zones.</li> <li>• Alignment of transmitters and receivers over long ranges can be difficult</li> <li>• Typically require hard-wired</li> </ul>

		<p>synchronisation cable between each pair of transmitters and receivers, preferably in underground ducting</p>
<p>3.2 Passive infrared (PIR) systems</p>	<ul style="list-style-type: none"> <li>Variety of coverage patterns, from short and wide detection zones to long and narrow zones</li> </ul>	<ul style="list-style-type: none"> <li>Not recommended for use as a primary solution for outdoor environments - poor immunity to changing temperatures results in very poor detection or very high false alarm rate</li> <li>Careful positioning required to avoid dead zones and false alarms</li> </ul>
<p>3.3 Bistatic microwave systems</p>	<ul style="list-style-type: none"> <li>Good immunity to the effects of weather</li> </ul>	<ul style="list-style-type: none"> <li>Dead zones exist near both receiver and transmitter units - careful positioning therefore required</li> <li>Requires well-maintained detection area</li> <li>Care should be taken to avoid proximity to metallic objects and moving bodies of water</li> </ul>
<p>3.4 Doppler microwave systems</p>	<ul style="list-style-type: none"> <li>Maximum range can be defined, beyond which targets can move undetected</li> <li>Can be used to cover the dead zones of other free-standing PIDS or where activity beyond the required detection zone might cause false alarms</li> </ul>	<ul style="list-style-type: none"> <li>Possess many of the same disadvantages as bistatic microwave systems, such as a dead zone near to transceiver and susceptibility to objects and moving bodies of water</li> </ul>
<p>3.5 Dual-technology systems</p>	<ul style="list-style-type: none"> <li>Doppler microwave and PIR is a common technology combination for dual technology systems</li> </ul>	<ul style="list-style-type: none"> <li>Requires two technologies to detect before signalling alarm. Therefore more vulnerable to defeat than single technology systems</li> </ul>
<p>3.6 Laser scanner systems</p>	<ul style="list-style-type: none"> <li>Have the ability to define parameters such as minimum target size or beam break time using software</li> </ul>	<ul style="list-style-type: none"> <li>Can be susceptible to the effects of rain and fog</li> </ul>
<p>3.7 Video-based detection systems</p>	<ul style="list-style-type: none"> <li>Designed to be able to automatically detect unusual activity within an imaged scene</li> <li>Provide assistance to human operators in identifying event of interest that occur in areas covered by their CCTV systems</li> <li>Can be configured to give a good (greater than 95%) detection rate. However to maintain performance levels throughout the year, systems often require re-configuration to deal with seasonal variations.</li> </ul>	<ul style="list-style-type: none"> <li>Good detection rate (typically greater than 95%) is required</li> <li>Will only detect reliably when high quality imagery is available.</li> <li>Site must have cameras covering the areas where detection is required</li> <li>If event detection is required at night, suitable lighting must be provided.</li> <li>Environmental conditions can have an adverse effect on detection rates</li> </ul>
<p>4 Rapidly deployable PDS</p>	<ul style="list-style-type: none"> <li>Portability enabling use at different locations</li> <li>No requirement for permanent infrastructure for their use</li> </ul>	<ul style="list-style-type: none"> <li>Only designed for use on a temporary basis, ideally for periods of no longer than two weeks</li> </ul>

	<ul style="list-style-type: none"><li>• Commissioning and set-up time is significantly reduced</li></ul>	<ul style="list-style-type: none"><li>• Longer periods will require the recommissioning of the system every two weeks.</li><li>• Battery powered - limited life between changes</li><li>• Wireless communication schemes generally used are less secure method of transmitting alarm information compared to hard-wired connections</li><li>• Can be susceptible to theft or vandalism when deployed</li><li>• Rapid set up may mean careful alignment of sensors and camera views is compromised</li></ul>
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