

IDS Application and Component Charts

The security manager must be familiar with the various intrusion detection systems to include their characteristics and application. This appendix provides information on principle of activation, application, maintenance supervision problems, nuisance alarms, and credibility rating of each system. Additionally, this appendix outlines a component selection reference.

CHART I. TYPES AND APPLICATION OF INTRUSION DETECTION SYSTEMS

System	Principle of activation	Application	Maintenance supervision problems	Nuisance alarms	Rating
Audio	Sound	Interior only (for vaults and low sound level areas).	Regular inspection to replace inoperative parts.	Frequent (from extraneous sounds).	Not as reliable as ultrasonic.
Sonic	Movement	Interior only	Same as above	Few	More reliable than audio.
Ultrasonic	Movement	Interior only	Same as above	Few	More reliable for protection of rooms.
Microwave	Movement	Interior only	Same as above	Few	Most reliable within patterns set by antennae
Electro-mechanical	Breaking of electric circuit.	Interior only (doors, windows, skylights.	Same as above	Few (metallic foil may break).	Affords minimum protection for buildings and rooms.
Electrostatic (interior)	Movement	Interior only (metal cabinets and safes).	Same as above	Few	Reliable for metal safes and cabinets.
Electrostatic (exterior)	Same as above	Exteriors only (perimeters and also can be attached to side of building).	Same as above. Also to remove snow, ice, and debris from fence.	Many	Best device developed for fence line security.
Closed circuit TV	Visual	Interior and exterior	Same as above. Also to dry fences.	None	Very effective for remote surveillance.
Photoelectric	Interrupting light beam	Interior and exterior (rooms, halls, gates, an perimeters).	Same as above. Also to clean transmitter and receiver.	Interior (few) exterior (many) (due to fog, rain, birds, etc.).	Interior: reliable when beams are crisscrossed for short distances. Exterior: gates and short distances only.
Vibration	Vibration	Interior only	Same as above	Few	Not as reliable as ultrasonic.

CHART II. COMPONENT SELECTION WORKSHEET

Feature	Material	Recommended sensor	Area coverage per sensor	Notes
*Exterior door	Metal or metal plate	Passive ultrasonic.	15 ft by 20 ft	Room sealed from outside sounds.
*Exterior door	Wood or wood substitute	Grid wire kit	160 sq ft per kit.	
*Exterior door	NA	Balanced magnetic switch	One per door—two for dutch or double doors.	
*Interior door	NA	Balanced magnetic switch	One per door—two for dutch or double doors.	
*Interior	Metal or metal plate	Passive ultrasonic	15 ft by 20 ft	Room sealed from outside sounds.
*Interior door	Wood or wood substitute	Grid wire kit	160 sq ft per kit.	

*Exterior door is any door opening into the secure area whether indoors or out; interior door is any door wholly within the secure area.

Feature	Material	Recommended sensor	Area coverage per sensor	Notes
Solid walls, floor, ceiling	Wood plaster	Grid wire kit	160 sq ft per kit	Maximum 20 microphones per electronics unit—room sealed from outside sounds.
Solid walls, floor, ceiling	Metal masonry	Passive ultrasonic	15 ft by 20 ft	
Open walls, ceiling	Metal wire mesh bars	Grid wire kit	160 sq ft per kit	Additional wall inside required. Additional wall outside required. Room sealed from outside sounds.
Open walls, ceiling	Metal wire mesh bars	Passive ultrasonic	15 ft by 20 ft	
Windows	Glass and open work metal barrier (bars/mesh).	Passive ultrasonic	15 ft by 20 ft	When passive ultrasonic cannot be used. When passive ultrasonic cannot be used. Max of 10 transducers per sensor.
Windows	Glass and open metal (bars/mesh) barrier (outside).	Capacitance proximity	1200 sq ft of surface area per sensor.	
Windows	Glass and open metal (bars/mesh) barrier (inside).	Vibration	3 ft radius per transducer.	Room sealed from outside sounds. Room sealed from outside sounds. Max of 10 transducer per sensor For openings larger than 96 sq inches.
Windows	Glass with metal shutter	Passive ultrasonic	15 ft by 20 ft	
Ventilation openings	With metal shutter	Passive ultrasonic	15 ft by 20 ft	When opening can be covered. When opening cannot be covered.
Ventilation openings	NA	Vibration	3 ft radius per transducer	
Ventilation openings	NA	Capacitance proximity	1200 sq ft of surface per sensor.	When opening cannot be covered. When opening cannot be covered.
Construction openings	Temporary wood covering	Grid wire kit	160 sq ft per kit	
Construction openings	NA	Capacitance proximity	1200 sq ft of surface area per sensor.	Room sealed from outside sounds. Max 20 transducers per electronics unit. Detect weapon removal from storage rack.
Air conditioner	NA	Capacitance proximity	1200 sq ft of surface area per sensor.	
Interior motion detection	NA	Ultrasonic motion	20 ft by 30 ft check for shading sensor.	Foot or hand operated switch-alarm signal bypasses local audible alarm. For roving guard-alarm bypasses local audible alarm.
Weapon removal detection	NA	Magnetic weapon	One wire loop per weapon rack	
Storage cabinets	NA	Capacitance proximity	1200 sq ft surface area per sensor.	Provided as visual and audible indication of control unit status. Not actuated by duress switches. Used in place of monitor unit. Required when rigid wall conduit not used between control unit and monitor unit.
Duress	NA	Fixed duress switch	Any number switches	
Duress	NA	Portable duress switch	Any number switches	
Control unit	NA	NA	One per secure area.	
Monitor unit	NA	NA	Max—one SI Module per control unit. Enclosures for 1, 5, 25 SI modules.	
Local Alarm	NA	NA	NA	
Telephone dialer	NA	NA	One per control unit	
Type I data transmission system.	NA	NA	One per control unit	