

Design Standard Intrusion Detection

Purpose

ESUHSD's Intrusion Detection design standard is intended to achieve uniformity of functionality, operation, maintenance, training, parts availability, and warranty operations for its intrusion detection systems. The overall design and function of intrusion detection shall be consistent throughout the District to provide easy and intuitive operating systems while realizing cost effective operational solutions.

This design standard also describes the descriptor protocol that shall be used by system programmers to designate devices. This design standard is intended to establish and maintain a consistency in intrusion detection systems from campus to campus and from building to building, thereby maximizing quick intrusion response activities, minimizing staff and emergency response personnel training, and facilitating excellence in the quality of the educational and work facilities of East Side Union High School District.

Design Standard

1. Intrusion Detection System

East Side Union High School District has standardized on Bosch G Series Intrusion Systems. No other systems shall be considered equal, in order to make all systems compatible, which improves functionality while reducing maintenance and operating costs.

At each school and District Office site, a series of decentralized intrusion detection systems together provide comprehensive coverage. Individual systems cover a single building and/or geographically co-located groupings of buildings. There are normally multiple intrusion zones within each system. Bosch RPS user management software allows for effective and efficient operation of the decentralized intrusion detection systems.

2. System Components

Each installation has a unique set of coverage requirements. Designers may select from the following components to develop a system that meets the requirements of the project and the District. Projects may have unique requirements that need components not included in this design standard. Ascertain system requirements during the Programming Phase, and review proposed design no later than midway through Design Development with the District's Security Systems Coordinator.

- a. Enclosures
 - 1) Bosch D8103 grey steel enclosure 16 in. x 16 in. x 3.5 in.
 - 2) Bosch D101 lock and key set
- b. Control Panels
 - 1) Bosch B9512G control panel for large commercial applications.
 - Supports up to 599 points using a combination of hardwired or wireless points for installation flexibility, and up to 32 areas and 32 doors for up to 2,000 users
 - On-board Ethernet port for Conettix IP alarm communication and remote programming, compatible with modern IP networks including IPv6/IPv4, AutoIP, and Universal Plug and Play

- Installer-friendly features including on-board USB for easy on-site RPS programming, plus plug-in PSTN and Cellular communication modules for simple installation and future proof upgrades
 - Email and text notifications as well as remote control of system using Android or iOS mobile devices
- c. Accessories
- 1) Bosch B600 Retrofit (ZONEX) Module
 - 3-hole mounting footprint and compact size allows for easy installation
 - Provides legacy ZONEX input/output support
 - Compact size
 - Includes two ZONEX busses allowing for continued ZONEX support on a compatible control panel
- d. Expanders
- 1) Bosch D8128D OctoPOPIT Eight-Point Expander
 - Provides point identification for initiating devices
 - Expands the number of points in the system
 - DIP switch programmable
- e. Keypads
- 1) Bosch D1255 with an off-white case, wall-mounted with illuminated 16-character vacuum fluorescent display and sounder
- f. Power Supplies
- 1) AlarmSaf PS5-M003-UL
 - 12 VDC, 5 amp uninterruptible power supply in vented locking 11”H x 15”W x 4”D cabinet
 - with multi-regulator and battery charger
- g. Motion Detectors
- 1) Bosch ISC-BPR2 Blue Line Gen2 PIR Motion Detector
 - Wall to Wall coverage provides superior catch performance within 40 ft. x 40 ft. coverage area
 - Pet-friendly Selectable model available to optimize installation for pet (45 lb.) and non-pet applications (ESUHSD installations do not require the Pet-friendly Selectable model)
 - Dynamic Temperature Compensation provides superior catch performance in any environment
 - Flexible Mounting Height, No Adjustments provides reduced installation time and false alarms, improves catch performance
 - Self-locking Enclosure with Integrated Bubble Level reduces installation time
 - 2) Bosch B335-3 Swiveling low-profile gimbal mount EOL
- h. Glass Break Detectors
- 1) Bosch DS1103i Flush-mount Glassbreak detector
 - Microprocessor-based sound analysis technology (SAT)
 - Automatic environmental test circuitry
 - Sound check
 - Flush mounting

- i. Beam Detectors
 - 1) Takex PB-IN-HF series of infrared photoelectric beams
 - a) Takex PB-IN-50HF: outdoor protection distance maximum 165 ft., indoor maximum 330 ft.
 - b) Takex PB-IN-100HF: outdoor protection distance maximum 330 ft., indoor maximum 660 ft.
 - 4 Synchronized High-Power Beams
 - Selectable 4-Channel Beam Frequencies
 - Double Modulated Beam for unsurpassed Light Immunity
 - Monitor Jack for alignment with Multi-Meter
 - Audible Alignment Tone
 - Environmental (anti-fog) Monitoring Circuit
 - Dynamic A.G.C. Circuit
 - Frost Resistant Cover
- j. Exterior Bell
 - 1) Amesco ABB-1014 Outdoor Slimline Steel Bell Box
 - Microprocessor-based sound analysis technology (SAT)
 - Automatic environmental test circuitry
 - Sound check
 - 18 gauge cold rolled steel
 - UL Listed motor driven low current bell (100mA at 12V DC)
 - Dual-wired, UL Listed reed tamper switches
 - Salt spray and rust resistance
 - 12V DC operating voltage
 - Durable, weather-resistant powder coat paint
 - Suitable for use with most control panels
 - Evenly spaced louvers for a higher sound output
 - Overall size 14" x 14" x 4"
 - Exterior color is almond
- k. Cable, Barrier Strips and Connectors
 - 1) West Penn 25241
 - #22/4 stranded bare copper conductors, unshielded with an overall jacket
 - 2) West Penn 25244
 - #18/4 stranded bare copper conductors, unshielded with an overall jacket
 - 3) Ideal 89-610
 - Barrier strip for consolidation of power wires at the panel
 - UL recognized for 30A, 600V
 - CSA certified for 20A, 400V
 - Torque Rating of 4.4 in-lbs
 - Recessed screws and tubular contacts
 - UL Listed and CSA certified
 - Connect stripped un-terminated solid or stranded wire
 - Modular 12 circuits can be cut into smaller sections
 - Plastic housing is UL flame rated to 94V-2
 - Rated temperature to 105 degrees C
 - 4) Berk-Tek 11074739
 - LANmark-1000
 - Category 6
 - Plenum rated

- Unshielded Twisted Pair Data Cable
 - 23 AWG
 - 4 pair
 - solid bare copper conductors
 - FEP insulation
 - Flame-retardant PVC jacket
 - Gray
- 5) Leviton 61110-RG6 eXtreme CAT 6 QuickPort Connector, Grey
- l. Labels
- 1) Provide tags, straps, and adhesive labels must be of high quality that will endure heat, water, and time.
 - meet the legibility, defacement, exposure, and adhesion requirements of UL 969
 - pre-printed using a mechanical means of printing. Ideal 89-610
 - 2) Where used for cable marking, provide vinyl substrate with a white printing area and a clear “tail” that self laminates the printed area when wrapped around the cable. The cable marking should be immediately visible and be within two inches from the termination point.
 - 3) Where insert type labels are used, provide clear plastic cover over label.
 - 4) Labeling P-touch font size 4MM bold, black on White, 3/8” labeling tape on all patch cords, cables ends, panels and devices.
 - 5) Labels shall be numbered consecutively and separate for each type of use.

3. Layout Requirements

Each installation has a unique layout requirement. Designers may gain guidance from the following information. Coordinate review of proposed layout design no later than midway through Design Development with the District’s Security Systems Coordinator.

- a. Enclosures with Control Panels preferred location is in MDF/IDF.
- b. Keypads should be placed indoors, near doors that will be used as entries. Ensure adequate keypads throughout the project for ease and intuition of operation.
- c. Specify expanders as needed to support homerun cables to each device.
- d. Motion detectors
 - 1) Suspended Ceilings: mount 4” below ceiling plan
 - 2) Ceiling heights over 10’: mount between 10’-0” to 14’-0”
 - 3) Ensure the detector will not be obstructed, including by Group 2 FF&E
 - 4) Specify 2 motion detectors per classroom for optimum coverage
 - 5) Provide motion detection coverage on exterior doors and hallways
- e. Glassbreak detectors
 - 1) Provide glassbreak coverage to exterior windows
 - 2) Maximum detector range is 26’ from the farthest corner for glass sizes 12” x 12” and larger
 - 3) Detectors may be ceiling mounted if a nearby wall is not within range
- f. Beam detectors
 - 1) Use these devices to provide intrusion detection at swimming pools and other outdoor areas where motion detectors would result in false readings
- g. Exterior bells
 - 1) Install outside the exterior door closest to the building’s IDF/MDF.
- h. Cabling
 - 1) Specify 2 cables from the Intrusion Control Panel to the IDF rack, and terminate each end onto Leviton RG6 jacks.

- 2) At the IDF rack, secure each jack on ports 47 and 48 of the designated patch panel.
- 3) At the Intrusion Control Panel, secure the jacks onto a 2-port Leviton side mounting bracket.

4. Intrusion Device Descriptors

- a. Standardization of intrusion device descriptors facilitates operator training and allows consistent, and therefore efficient, identification of device locations by operating personnel. Most importantly, it facilitates faster response time in the event of emergencies. The intrusion detection system design professional shall ensure that these descriptor requirements are incorporated into construction drawings and/or specifications, so that installing programmers have precise direction on how to label each device in the software.
- b. East Side's standard camera descriptors are comprised of *coming soon!*

Approved Manufacturer(s):

- Bosch
- AlarmSaf (for power supplies)
- Takex (for beam detectors)
- Amesco (for exterior bells)

Substitutes Allowed?

- Intrusion Device Descriptor Protocol: No substitute to this descriptor protocol is allowed.
- Intrusion Detection Components:
 - No substitute to Bosch is allowed. Pursuant to Section 3400 of the Public Contract Code: the selected intrusion detection system is now in use on the particular public improvement described as East Side Union High School District. At each instance in these specifications that a designated material, product, thing or service is designated by the brand name "Bosch", "Bosch" is designated to match the existing systems that are in place at each campus and the District Administration Building. The Contractor will furnish and install Bosch intrusion detection system(s) as required, and no substitutions shall be deemed to be "or equal" or allowed.
 - No substitute to AlarmSaf is allowed. Pursuant to Section 3400 of the Public Contract Code: the selected intrusion detection system is now in use on the particular public improvement described as East Side Union High School District. At each instance in these specifications that a designated material, product, thing or service is designated by the brand name "AlarmSaf", "AlarmSaf" is designated to match the existing systems that are in place at each campus and the District Administration Building. The Contractor will furnish and install AlarmSaf power supplies as required, and no substitutions shall be deemed to be "or equal" or allowed.
 - No substitute to Takex is allowed. Pursuant to Section 3400 of the Public Contract Code: the selected intrusion detection system is now in use on the particular public improvement described as East Side Union High School District. At each instance in these specifications that a designated material, product, thing or service is designated by the brand name "Takex", "Takex" is designated to match the existing systems that are in place at each campus and the District Administration Building. The Contractor will furnish and install

Takex beam detectors as required, and no substitutions shall be deemed to be “or equal” or allowed.

- No substitute to Amesco is allowed. Pursuant to Section 3400 of the Public Contract Code: the selected intrusion detection system is now in use on the particular public improvement described as East Side Union High School District. At each instance in these specifications that a designated material, product, thing or service is designated by the brand name “Amesco”, “Amesco” is designated to match the existing systems that are in place at each campus and the District Administration Building. The Contractor will furnish and install Amesco exterior bell(s) as required, and no substitutions shall be deemed to be “or equal” or allowed.

Associated Design Standards and Construction Specifications

- Division 27 Communications Design Standards
- Division 28 Electronic Safety and Security Design Standards

End of Document