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| **Section Cover Page** |
| **Section 28 16 00**  **2014-02-06 Intrusion Detection** |

Use this Section to describe an Intrusion Detection system.

This Master Specification Section contains:

.1 This Cover Sheet

.2 Data Sheet - Sample Schedule

.3 Specification Section Text:

1. General
   1. Summary
   2. References
   3. Submittals
   4. Delivery, Storage and Handling
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**2 Products**

1. Manufacturers
2. System
3. Components

**3 Execution**

* 1. Manufacturer’s Instructions
  2. Installation
  3. Field Quality Control
  4. Verification
  5. Cleaning
  6. Training
  7. Testing
  8. [System Start Up]
  9. Protection
  10. Maintenance
  11. Intrusion Alarm Zone Schedule

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| **Data Sheet - Sample Schedule** |
| **Section 28 16 00**  **2014-02-06 Intrusion Detection** |

Following is a sample schedule indicating the format and typical content of the "Intrusion Alarm Zone Schedule" to be included at the end of this Section:

3.X EXAMPLE Intrusion Alarm zone SCHEDULE

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| **Examples:** | | | | | | |
| Intelligent System Controller (ISC) | | | EDM-B0192Sx-004-00423-E001-ISC001 | | | |
| Input Interface Module (IIM) | | | EDM-B0192Sx-004-00423-E005-IIM001 | | | |
| Output Interface Module (OIM) | | | EDM-B0192Sx-004-00423-E005-OIM001 | | | |
| Reader (RDR) | | | EDM-B0192Sx-004-INT-Sx-DATA RM 423xxxxxxxxx-RDR0001 | | | |
| Intrusion Keypad (IKP) | | | EDM-B0192Sx-004-Sx-ZONE 1xxxxxxxxxxxxxx-IKP0001 | | | |
| Intrusion Alarm Input (IAI) | | | EDM-B0192Sx-004-00423-SE WINDOW GLASS BRxx-IAI0001 | | | |

**ISC, IIM, OIM**

[3 CHAR CITY ABBREVIATION][7 CHAR BUILDING CODE]-[3 DIGIT FLOOR#]-[5 DIGIT ROOM#]-[4 DIGIT ENCLOSURE#]-[3 CHAR DEVICE ABBREVIATION][3 DIGIT LOGICAL#]

**RDR**

[3 CHAR CITY ABBREVIATION][7 CHAR BUILDING CODE]-[3 DIGIT FLOOR#]-[2 CHAR DIRECTION CODE]-[3 CHAR INT/EXT]-[20 CHAR LOC DESCRIPTOR]-[3 CHAR DEVICE ABBREVIATION][4 DIGIT LOGICAL#]

**IKP**

[3 CHAR CITY ABBREVIATION][7 CHAR BUILDING CODE]-[3 DIGIT FLOOR#]-[2 CHAR DIRECTION CODE]- [20 CHAR LOC DESCRIPTOR]-[3 CHAR DEVICE ABBREVIATION][3 DIGIT LOGICAL#]

**IAI**

[3 CHAR CITY ABBREVIATION][7 CHAR BUILDING CODE]-[3 DIGIT FLOOR#]-[5 DIGIT ROOM#]-[20 CHAR LOC DESCRIPTOR]-[3 CHAR DEVICE ABBREVIATION][3 DIGIT LOGICAL#]

**END OF DATA SHEET**

# General

## SUMMARY

### Section Includes:

#### Control Panel

#### Enclosures

#### Detection Devices

#### Wiring infrastructure

#### Communications

#### Battery backup surge protected power supplies for control panel.

#### Environmental Monitoring

#### Programming

### Intrusion detection system using [ULC/UL Listed] [non listed] products.

### Intrusion detection system using [ULC/UL Listed Alarm Service Company], company [specializing in intrusion detection systems].

### Intrusion detection system as a [ULC/UL Certified Alarm System], [non certified alarm system].

### System a modular access control, alarm monitoring system expandable, and easily modified for inputs, outputs and remote control stations.

#### Design components in accordance with CAN/ULC‑S306 and be capable of:

##### Annunciating undesirable, abnormal or dangerous condition.

##### Prioritizing alarms by alarm type; i.e. panic/duress, intrusion and tamper.

##### Determining zone where alarm occurred.

##### Annunciating power failure and power restoration.

##### Annunciating low battery condition.

##### Operate continuously for minimum period of [4] hours in the event of a power failure

### Equip control panels with continuous tamper detection on door and wall.

#### Tamper detection to trigger [alarm] [trouble light].

### Design system with:

#### Alarm masking.

#### Remote maintenance or diagnostics [with password activation [and call back modem]].

#### Unique identifier for each authorized person.

#### Arming and disarming capabilities: manual and automatic by time of day, day of week, or by operator command.

#### Support both manual and automatic responses to alarms entering system.

#### ***SPEC NOTE: Intrusion* *Detection shall be integrated into Access Control System when Access system is present.***

#### Each alarm capable of initiating different functions of camera, homing, and activation of remote devices, audio switching, door control and card or pin validation.

#### Zone or alarm location annunciated at monitoring station.

### Communications link - security level of [I] [II] [III] [IV] [V] [VII] [\_\_\_] as described in CAN/ULC‑S304.

### Signal link - Security level of [I] [II] [III] [\_\_\_] as described in CAN/ULC‑S304.

### Alarm condition - Design system to provide maximum time for an alarm to be communicated of [60] [75] [90] [105] [120] seconds from alarm initiation to annunciation at remote monitoring location.

### Junction boxes - tamper proof [with continuous tamper‑detection capability].

### System power supplies rated to provide cumulative load of all systems components plus safety factor of [50] % or greater.

### Connection of work supplied and installed under other sections

#### Connect via replays or otherwise, the following auxiliary equipment supplied and installed under other Sections:

##### Door position alarms Section 08 71 00

##### Fire Alarm Section 28 31 00

### Related Requirements

#### Electrical General Requirements Section 26 00 10.

#### Electrical Operation and Maintenance Data Section 01 78 23.

#### Spare Parts and Maintenance Materials Section 01 78 43.

#### Wire and Cable Section 26 05 13.

#### Electrical Identification Section 26 05 53.

#### Commissioning of Demonstration and Training Section 01 79 00.

#### Access Control Section 28 13 00.

#### Door Hardware Section 08 70 00.

## REFERENCES

### Abbreviations and Acronyms

#### Door Position Switch DPS

#### Passive Infrared Detector PIR

#### Liquid Crystal Display LCD

#### Light Emitting Diode LED

#### Domain Name System DNS

#### Internet Protocol IP

### Definitions

### References Documents

#### National Fire Protection Association (NFPA)

##### NFPA 70, Article 517, National Electric Code.

##### NFPA 101, Life Safety Code

#### Electronic Industries Association (EIA)

##### REC 12749, Power Supplies.

##### RS 16051, Sound Systems

#### ANSI/BICSI

##### 005-2013 - Electronic Safety and Security Systems Design and Implementation Best Practices

### Reference Standards

#### Underwriters Laboratories of Canada (ULC) (Latest Editions)

##### CAN/ULC‑S302‑[1991], Installation and Classification of Burglar Alarm Systems for Financial and Commercial Premises, Safes and Vaults.

##### CAN/ULC‑S303‑[1991], Local Burglar Alarm Units and Systems.

##### CAN/ULC‑S304‑[1989], Signal, Receiving, center & Premise burglar alarm.

##### CAN/ULC‑S306‑[1989], Intrusion Detection Units.

##### ULC‑S318‑[1996], Power Supplies for Burglar Alarm Systems.

##### ORD‑C634‑[1985], Connectors and Switches for Use with Burglar Alarm Systems

#### Underwriters' Laboratories (UL)

##### UL 603‑[1998], Standard for Power Supplies For Use with Burglar‑Alarm Systems.

##### UL 639‑[1997], The Standard for Intrusion‑Detection Units.

## SUBMITTALS

### Provide submittals in accordance with [Section 01 33 00 – Submittal Procedures].

### As-built Records and Drawings:

#### Confirm format with the Minister prior to preparation of submittals.

#### Provide electronic drawings in [AutoCAD 2009] format depicting all as built conditions.

#### Provide two [2] sets of as-built records to the Minister.

##### Include a floor plan showing the location of all equipment.

## DELIVERY, STORAGE, AND HANDLING

### Waste Management and Disposal: separate waste materials for reuse and recycling in accordance with Section [01 74 19 - Waste Management and Disposal].

### Stored and handle materials to ensure that their performance requirements are not affected by abrasions, dust or extreme temperatures.

### Follow manufacturer recommendations for handling and storage to ensure that their performance requirements are not affected by abrasions, dust or extreme temperatures.

### Do not bring equipment to site until required for use and a suitable storage space has been identified.

## [WARRANTY]

### [Manufacturer Warranty]

# Products

### ***SPEC NOTE: Acceptable manufacturers to have service available in the region of the project.***

## MANUFACTURERS

### ***SPEC NOTE: List acceptable manufacturers where applicable.***

## SYSTEM

### Remote programming capabilities by either DNS or IP communications. High speed, secure, (encrypted). Facilities remote servicing by system technicians.

## COMPONENTS

### Control Panel - [recessed] [surface] mounted with [\_\_\_] supervised zone capacity, modular design. “Power on” light, key switch, “acknowledge button”, common “trouble light, buzzer and silencing switch”. Separating alarm lamp, trouble lamp and deactivating key switch for each zone and necessary modules, and relays as required for operation as indicated. Power supply from [\_\_\_] V ac [emergency power] circuit with rectifier to supply 24 V dc to operate complete system. Standby power of [nickel cadmium] [gel cell] batteries sized to provide supervisory and trouble signal current for [\_\_\_] hours. Capable of differentiating between open line condition and alarm. Panel to display “trouble” conditions when fault occurs in wiring.

### Control Panel - ULC approved, expandable [and designed for multiplexed expansion].

#### Zones (protection inputs): [\_\_\_].

#### Fixed Zones: [8] [16] [\_\_\_].

#### Expandable: [8 ‑ 32] [16 ‑ 128] [\_\_\_] zones.

#### Number of user codes required: [\_\_\_].

#### Number of Areas/Partitions required: [\_\_\_].

#### Keypads: [LED] [LCD] [fixed icon].

#### Alarm: [Local] [Monitored].

#### System: [Wired] [Wireless] [Hybrid, wired and wireless].

#### Integrated with sub systems [access control] [intercom] [building entry] [\_\_\_].

#### Number of programmable outputs required: [\_\_\_].

#### System supervision: [telephone line] [siren] [battery] [AC power].

#### Siren output.

#### Number of devices per zone: [1] [\_\_\_] device per zone.

### Detection Accessories:

#### Passive Infrared Detectors (PIR's) - ULC approved, [analog] [digital].

##### Coverage pattern: [\_\_\_].

##### Temperature requirement: [\_\_\_].

##### Tamper switch.

##### Mounting: [wall] [ceiling] [\_\_\_].

#### Glassbreak Detector - ULC approved, complete with tamperproof switch and be designed to meet temperature and mounting requirements of project.

##### Coverage pattern: [\_\_\_].

#### Dual PIR and Microwave - ULC approved, complete with tamperproof switch, and be designed to meet temperature and mounting requirements of project.

##### Coverage pattern: [\_\_\_].

#### Contacts - ULC approved.

##### Mounting: [surface] [concealed].

##### Mounting locations: [door] [window] [overhead door] [\_\_\_].

##### Operating gap: [9.5] [12.7] [25.4] [\_\_\_] mm.

##### Security level: [high security] [Biased] [\_\_\_].

##### Type: magnetic [biased] [balanced].

#### Vibration or Shock Sensors: [\_\_\_].

#### Photo Electric Beams: [\_\_\_].

#### Notification Devices:

##### Siren: [15] [20] [30] watt.

##### Speaker complete with driver [voice annunciator].

### Communications - Analog [telephone line [Digital Dialer]] [Cellular] [DVAC] [Cellemetry] [Control Channel]] [Mobitex].

### Environmental Monitoring - Design system for detection of [Smoke/Heat] [Temperature] [Humidity] [Flood].

### Connectors and switches: to ORD‑C634.

### Power supplies: to ULC‑S318 or UL 603

# Execution

## MANUFACTURER’S INSTRUCTIONS

### Compliance - Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions, and datasheet.

## INSTALLATION

### Install panels, intrusion detection system and components in accordance with manufacturer's written installation instructions to locations, heights and surfaces shown on reviewed shop drawings.

### Install panels, intrusion detection system and components secure to walls, ceilings or other substrates.

### Install required boxes in inconspicuous accessible locations.

### Conceal conduit and wiring.

## FIELD QUALITY CONTROL

### Manufacturer's Services:

#### Have manufacturer of products, supplied under this section, review work involved in the handling, installation/application, protection and cleaning, of its product[s] and submit written reports, in acceptable format, to verify compliance of work with contract.

#### Manufacturer's Field Services - Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

#### Schedule site visits, to review work, at stages listed:

##### After delivery and storage of products, and when preparatory work, or other work, on which the work of this section depends, is complete, but before installation begins.

##### [Twice] during progress of work at [25%] and [60%] complete.

##### Upon completion of the work, after cleaning is carried out

#### Obtain reports, within [3] days of review, and submit, immediately, to Consultant

## VERIFICATION

### Perform verification inspections and test in the presence of [Engineer] [Consultant].

#### Provide all necessary tools, ladders and equipment.

#### Ensure appropriate subcontractors [, and] manufacturer's representatives [and security specialists] are present for verification.

### Visual verification - Objective is to assess quality of installation and assembly and overall appearance to ensure compliance with contract documents. visual inspection to include:

#### Sturdiness of equipment fastening.

#### Non‑existence of installation related damages.

#### Compliance of device locations with reviewed shop drawings.

#### Compatibility of equipment installation with physical environment.

#### Inclusion of all accessories.

#### Device and cabling identification.

#### Application and location of ULC approval decals.

### Technical verification – Purpose is to ensure that all systems and devices are properly installed and free of defects and damage. Technical verification includes:

#### Measurements of coverage patterns

#### Connecting joints and equipment fastening

#### Compliance with manufacturer's specification, product literature and installation instructions.

### Operational verification - Purpose is to ensure that devices and systems' performance meet or exceed established functional requirements. Operational verification includes:

#### Operation of each device individually and within its environment.

#### Operation of each device in relation with programmable schedule and or/specific functions.

## CLEANING

### Remove protective coverings from control panels, detection accessories and components.

### Adjust all components for correct function.

### Clean housings and system components, free from marks, packing tape, and finger prints, in accordance with manufacturer's written cleaning recommendations.

## TRAINING

### The Contractor shall provide a competent trainer who has extensive experience on the installed systems and in delivering training to provide the instruction. As an alternative, the Contractor may propose the use of factory training personnel and coordinate the number of personnel to be trained.

## TESTING

### Test system components are presence of [Engineer] [Consultant] to ensure correct operation of system.

### Tests shall demonstrate the response time and display format of each different type of input sensor and output control device. Response time shall be measured with the system functioning at full capacity.

### The Contractor shall maintain a complete log of all inspections and tests. Upon final completion of system tests, a copy of the log records shall be submitted as part of the as-built documentation.

## [SYSTEM START UP]

## PROTECTION

### Provide physical protection for detection devices and controls from construction dust and damage to ensure complete new working systems at final acceptance.

## MAINTENANCE

### The Contractor shall offer a Support Agreement in order for Technical Support Specialists to reactively troubleshoot system problems.

## INTRUSION ALARM ZONE SCHEDULE

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| --- | --- | --- | --- |
| **Zone No.** | **Building Area** | **Type of Detection** | **Notes** |
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END OF SECTION