

INTRUSION DETECTION /ACCESS CONTROL SYSTEM SPECIFICATION FOR MODEL XR200

1.0 General

1.1 Manufacturer

Manufacturer of the control panel equipment shall be:

Digital Monitoring Products, Incorporated
2500 N. Partnership Boulevard
Springfield, MO 65803
Telephone (417) 831-9362
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1.2 Scope

This specification document provides the requirements for the installation, programming, and configuration of a complete Digital Monitoring Products (DMP) XR200 Command Processor Panel. This system shall include, but not be limited to:

- Control panel
- System cabinet
- Power supply
- Digital Signaling Line Circuits (SLC)
- Annunciator/keypad bus
- Notification Appliance Circuits (NAC)
- Batteries
- Wiring
- Conduit
- Associated peripheral devices

Other relevant components and accessories required to furnish and install a complete and operational addressable reporting Life Safety System.

1.3 General Requirements

- A. Furnish and install a complete intrusion detection and access control system with the performance criteria detailed in this specification. The system shall be inclusive of all necessary functions, monitoring, and control capability as detailed herein and on accompanying Shop drawings.
- B. The system shall be completely programmable either locally from a keypad or remotely through the communication channel.

1.4 Standards

The system shall be listed as a Power Limited Device and be listed under the following standards:

- UL 365 Police Connect Burglar
- UL 609 Local Burglar
- UL 864 Control Units for Fire Protective Signaling Systems
- UL 985 Household Fire Warning
- UL 1023 Household Burglar Alarm System Units
- UL 1076 Proprietary Burglar
- UL 1610 Central Station Burglar Alarm Units
- UL 1635 Digital Burglar Alarm Communicator System Units
- NFPA 72 Central Station
- NFPA 72 Local Protective Signaling
- NFPA 72 Remote Station Protective Signaling
- NFPA 72 Proprietary Protective Signaling
- NFPA 74 Household Fire Warning
- California State Fire Marshal
- New York City MEA
- Factory Mutual

U.S. Government Standards

- Meets DCID 6/9
- Meets DoD/NIST SCIF Standards

Each system shall be supplied with complete details on all installation criteria necessary to meet all of the above listings.

1.5 Verification of Dimensions

The Contractor shall become familiar with all details of the work, verify all dimensions in the field, and shall advise the Architect of any discrepancy before performing the work.

1.6 Americans with Disabilities Act

All indicating and notification appliances shall comply with the requirements of the Americans with Disabilities Act (ADA).

2.0 Submittals

2.1 General Requirements

The contractor shall submit three (3) complete sets of documentation within 30 calendar days after award of the contract. Indicated in the document shall be the manufacturer names, catalog number, type, size, style, rating, and catalog data sheets for all items proposed to meet these specifications.

2.2 Shop Drawings

Shop drawings shall be submitted in accordance with Section 01200, SUBMITTALS, and shall consist of a complete list of equipment and materials, including manufacturer descriptive and technical literature, performance charts and curves, catalog cuts, and installation instructions.

2.3 Spare Parts Data

After approval of the shop drawings, and not later than thirty (30) calendar days prior to the date of beneficial occupancy, a list of spare parts data for each item of specified materials and equipment shall be submitted. The data shall include a complete list of parts and supplies with current unit prices and source of supply. Spare parts shall consist of, but not be limited to, five (5) percent of all initiating and notification appliances with a minimum of one (1) each. All spare parts shall be on site prior to acceptance testing commencement. Depleted spare parts shall be replaced prior to beneficial occupancy.

2.4 As-built Drawings

The contractor shall provide a complete set of as-built drawings for the entire system upon completion of the installation. These drawings shall include, but not be limited to, the exact locations of all equipment, connections between all equipment, and wiring for all equipment as the system is installed.

2.5 Operating Instructions

The contractor shall furnish to the architect operating instructions outlining the step-by-step procedures required for system start-up, operation, and shutdown at least thirty (30) calendar days prior to acceptance test. The instructions shall include the manufacturer name, system model number, service manual, parts list, and a description of all equipment and their basic operating features.

2.6 Maintenance Instructions

The contractor shall furnish maintenance instructions listing routine maintenance procedures, possible breakdowns and repairs, and troubleshooting guides at least 30 calendar days prior to acceptance test.

2.7 Performance Test Reports

Upon completion and testing of the installed system, test reports shall be submitted in booklet form showing all field tests performed to prove compliance with specified performance criteria.

2.8 Warranty

A copy of the manufacturer warranty for all equipment and materials shall be provided. Warranty shall be for all equipment and materials for a minimum of three (3) years, unless otherwise specified.

3.0 System Description

3.1 Control Panel

The control panel shall be the DMP XR200 Command Processor™ Panel. The control panel shall be capable of operating and supervising notification appliance devices as well as addressable initiating detection devices and an integrated supervised dual line digital communicator.

- A. The control panel shall be completely programmable remotely using remote annunciators, and/or using upload/download software that communicates using Serial 3 300 baud, Multiplex DNET data network, or IP Addressed data network. On-site programming from a personal computer shall also be permitted.
- B. A battery test shall be automatically performed to test the standby battery integrity. The test shall disconnect the standby battery from the charging circuit and place a load on the battery. This test shall be performed no more than every 180 seconds.
- C. The control panel shall be equipped with an anti-reversing circuit breaker to prevent damage due to accidental reversal of battery leads.

3.2 Input/Output Capacity

- A. This system shall be capable of monitoring no less than 242 individual zone inputs, controlling no less than 202 Form C relay outputs and 242 annunciator outputs.
- B. The control panel shall also include an integral bell alarm circuit providing at least 1.5 Amps of steady, pulsed, or temporal bell output. Output type shall be programmable by zone type.

3.3 User/Authorization Level Capacity

The system shall be capable of operation by 200 unique Personal Identification Numbers (PIN) with each code or credential having its own custom authority level. This allows for the limitation of certain functions to authorized users. The operation of all keypads shall be limited to authorized users.

3.4 Area System

- A. The user of the system shall be capable of selectively arming and disarming any one or more of twenty (20) areas within the intrusion detection system based on the user PIN or credential used. Each of the 242 zones shall be able to be assigned to any of the twenty (20) available areas.
- B. The user of the system shall be capable of programming a name for each area up to sixteen (16) characters in length.
- C. The user of the system shall be capable of assigning two (2) opening and closing schedules to all areas within a partition or to each of the twenty (20) areas separately.
- D. The control panel shall be capable of assigning areas to four (4) independent partitions.
- E. The system shall have the capacity for common areas that automatically disarm when any other area in the partition disarms and that automatically arm when all other areas in the partition are armed.
- F. Each area shall be able to arm or disarm automatically by a schedule.

3.5 Keypads

- A. The system shall support a maximum of eight (8) supervised keypads with alphanumeric display. Each keypad shall be capable of arming and disarming any combination of areas within its partition, based on PIN or credential authorization. The keypad alphanumeric display shall provide complete prompt messages during all stages of operation and programming of the system, and display all relevant operating and test data.
- B. Communication between the control panel and all keypads and zone expanders shall be multiplexed over a multi-conductor cable, as recommended by the manufacturer. This cable shall also provide the power to all keypads, zone expanders, output expanders, and other power consuming detection devices.
- C. The system shall support keypads with a programmable alphanumeric display.
- D. The system shall display all system troubles at selected keypads with distinct alphanumeric messages and shall provide the programmed name of any faulted zones.
- E. The system shall display a message at selected keypads when any area of the system remains disarmed past the scheduled closing time. The message shall be displayed at one (1) minute past the scheduled closing time. A prewarn tone shall also begin sounding. If the system is not armed or a schedule extended by ten (10) minutes past the end of the permanent or temporary schedule, the system shall provide the option of sending a No Closing report to the central station.
- F. The system shall support keypads with internal proximity readers and keypads that connect directly to separate proximity readers, access keypads, and other access control devices. The keypad shall interface with a door strike relay and be capable of sending a report to the central station when activated for door access. The system shall have the capability to shunt a zone to allow a user at least 30 seconds to enter or leave a building through a protected door.
- G. The system shall include a menu selected "SENSOR RESET" option. This option, with use of any valid PIN code, shall reset smoke detectors after they have been tripped, without disarming and re-arming the burglary system.

3.6 Internet-accessible Keypad

The control panel shall support a keypad interface accessible on the World Wide Web in a browser window. The web-accessible keypad interface shall provide at least five (5) programmable hyperlinks for camera access or other use.

3.7 Sub-control Keypad

The system shall support sub-control keypads with four (4) built-in zones and capable of functioning in the following modes:

- Panel monitors all four (4) keypad zones independently with a maximum of fifty (50) keypads attached to the control panel
- Panel assigns one (1) zone to each keypad and monitors all keypad zones as a single zone with a maximum of 200 keypads attached to the control panel
- Stand-alone mode allowing keypad to operate as a self-contained security system independent of the control panel

3.8 Fire Annunciators

The system shall support remote annunciators that offer one-button alarm silence, sensor reset, system test, and fire drills. These one-button operations shall be protected with a keyswitch on the annunciator.

3.9 Communication

- A. The system shall be capable of signaling to two (2) remote monitoring station receivers, four (4) telephone numbers of up to 32 digits, each using two (2) separate POTS lines such that if two (2) unsuccessful attempts are made on the first line to the first number, the system shall make two (2) attempts on first line to the second number. If these two (2) attempts are unsuccessful, the system shall make two further attempts on the first line of the first number. After the ten (10) unsuccessful attempts, dialing shall stop and the alphanumeric keypad shall display trouble.

Should another event occur that requires a report to be transmitted, the dialing process shall be repeated. The system shall have a programmable option to dial a second set of telephone numbers after the first ten (10) attempts using the same sequence.

- B. The system shall be capable of digital dialer communication at 300 baud using Serial 3 IBM Synchronous Data Link Control (SDLC) format, Contact ID format, or Modem IIe format.
- C. The system shall be capable of supporting network data communication with digital dialer backup, existing data networks, satellite communication, fiber optic networks, local area networks, wide area networks, the Internet, cellular communication, retail POS networks.
- D. The system shall be capable of uploading and downloading files from a remote location at speeds of at least 9600 baud through a POTS line.

3.10 Network Communication

- A. The control panel shall be capable of asynchronous network communication with a retry time between three (3) and fifteen (15) seconds for a total of one (1) minute. If communication is unsuccessful the control panel shall be capable of attempting backup communication through any of the available communication methods to the same receiver or a backup receiver.
- B. Network communication between the control panel and the receiver shall be in a proprietary communication format.
- C. The control panel shall be capable of supporting Dynamic Host Communication Protocol (DHCP) Internet Protocol (IP) addressing.
- D. Network communication by the control panel shall be listed by Underwriters Laboratories (UL) for Grade AA High-Line Security.
- E. The control panel shall be capable of two-way network communication using standard Ethernet 10BaseT in a LAN, WAN, or Network configuration.

3.11 Pager Communication

The control panel shall be capable of sending messages to alphanumeric and numeric pagers to notify user of alarms, troubles, armings and disarmings. Each pager message shall contain information regarding zone number, event type, and account number of panel.

3.12 Zone Configuration

The system shall have at least 242 zones available with a minimum of:

- Eight (8) grounded burglary zones available from the control panel that allow for the connection of Model 869 Style D Initiating Modules, providing Class A Style D four-wire initiating zones for the monitoring of waterflow devices. These zones shall be capable of monitoring for open circuits, short circuits, and ground fault conditions.
- Two (2) Class B powered two-wire smoke detector zones available from the control panel.
- The capacity for 100 Class B addressable reporting initiating zones on each of two (2) digital Signaling Line Circuits (SLC). All Class B zones shall be two-wire, 22 AWG minimum, supervised by an End-of-Line (EOL) device, and shall be able to detect open, short, and ground fault conditions in excess of 200ms duration.
- 32 expansion zones on the annunciator/keypad bus.
- 200 addresses available for output expansion on the digital SLCs.
- All Class B zones shall be two-wire, 22 AWG minimum, supervised by an End-of-Line (EOL) device and shall be able to detect open and short conditions in excess of 500ms duration.
- A. The digital SLCs and the annunciator/keypad bus shall be able to operate at a maximum wiring distance of 2500 feet from the control panel on unshielded, non-twisted cable. This distance may be extended to a total of 15,000 when bus repeater modules are installed.
- B. Zones on the digital SLC shall support the CleanMe™ feature in Sentrol® Models 521LX and 521LXT smoke detectors that causes the smoke detector to send a message to the control panel when detection capability has deviated from the UL sensitivity range or has failed its internal diagnostic test.
- C. Zones on the digital SLC shall support the addressable features in Hochiki® Model XLRLX base smoke detector with Models 835 or 835H heads.
- D. The system shall have the capability to incorporate up to 200 Radionics® POPIT™ points.
- E. Each zone shall function in any of the following configurations:
 - Night
 - Day
 - Exit
 - Fire
 - Supervisory
 - Emergency
 - Panic
 - Auxiliary 1
 - Auxiliary 2
 - Fire Verification
 - Cross-Zone
 - Priority
 - Arming

3.13 Outputs

- A. The control panel shall have, as an integral part of the assembly:
 - Two (2) SPDT Form C relay sockets on the control panel.
 - The capacity for 200 auxiliary Form C relays rated for up to 1.0 Amp at 30 VDC on the digital SLCs.
 - Eight (8) 12 VDC annunciator outputs rated for up to 50mA each on the control panel.
 - The capacity for 242 open collector annunciator outputs rated for at up to 50mA available on the digital SLCs.
- B. Relays and panel voltage outputs shall be capable of being independently programmed to turn on and off for selected events and at selected times.
- C. The 242 annunciator outputs supported by the system shall follow the state of each zone for use with a graphic annunciator. Each annunciator output shall switch up to 50mA of current.

3.14 NAC Circuit Configuration

- A. The system shall be capable of additional Class B NAC circuits utilizing the Model 867 Notification Module. Each module shall be controlled and supervised via the SLC loop and monitor for short circuits, open circuits, and ground faults. The NAC circuits shall monitor for external NAC trouble conditions.
- B. The system shall be capable of providing Class A NAC circuits utilizing the Model 865 Notification Module. Each module shall monitor for short circuits, open circuits, and ground faults. The NAC circuits shall monitor for external NAC trouble conditions and have a manual bell silence switch.

3.15 Serial Interface

- A. The control panel shall be capable of a serial interface to output information to a standard serial printer.
- B. The control panel shall be capable of a serial interface to a communication port on a standard computer. The system shall include a provision to allow the selection of which reports are to be output through programming of the control panel.

3.16 Software emphasize capacity

The system shall interface with computer software with the capability to fully program the panel by connecting to the panel through:

- Direct cable connection interface card
- Receiver phone line connection
- Standard phone line connection
- Ethernet network connection
- Network connection across the Internet

The system shall interface with computer software capable of monitoring and logging all events.

The system shall interface with computer software capable of exporting reports in the following file formats:

- Excel spreadsheet (*.xls)
- Rich Text (*.rtf)
- Windows Metafile (*.wmf)
- QuickReport (*.qrp)
- Text (*.txt)
- Comma-separated (*.csv)
- HTML document (*.htm)

The system shall interface with computer software capable of printing custom, filtered reports including:

- All Events
- Zone Action
- Arming/Disarming
- Area Late to Close
- User Code changes
- Door Access Granted
- Door Access Denied
- Opening/Closing Schedule Changes
- System Monitors
- System Events

3.17 Expansion Capability

The control panel shall accept an expansion card providing:

- Expansion to a total of at least 1000 user codes.
- Sixteen (16) independent door/keypad addresses.
- Twenty (20) Holiday Dates for custom holiday scheduling by area.
- A total door access granted event buffer of at least 1000 events.
- Anti-passback access control selectable by area and user.
- Four (4) shift schedules per area.
- A total of at least 100 programmable output relay schedules.
- Two-man access code or credential requirement.
- Support programming to require the same or different access code entered within a programmed delay time of one (1) to fifteen (15) minutes after disarming before activating a silent ambush alarm.
- Support area programming that disables schedule and time-of-day changes while system is armed so that area can only be disarmed during scheduled times.

4.0 General Component Requirements

4.1 Component Enclosure

- A. Annunciator housings; power supply enclosures, terminal cabinets, control units, and other component housings, collectively referred to as "enclosures" shall be so formed and assembled as to be sturdy and rigid. If sheet steel is used in the fabrication of enclosures, it shall be not less than 18-gauge door with a 20-gauge box frame. Where exposed, the hinges shall be of the tight pin type or the ends of hinge pins shall be tack welded to prevent ready removal. Doors having a latch edge length of less than 24 inches shall be provided with a single lock.
- B. Where the latch edge of the hinged door is 24 inches or more in length, doors shall be provided with three-point latching device with lock; or alternatively with two locks, one located near each end.
- C. The system must be available with an UL-listed attack resistant enclosure with a door thickness of at least 16-gauge sheet steel.

4.2 Electronic Components

All system electronic components shall be of the solid-state type, mounted on printed circuit boards.

4.2 Relays

Light-duty relays and similar switching devices shall be solid-state type or electromechanical.

4.3 Annunciation Lamps/LEDs

Visual annunciators used on annunciator modules and elsewhere throughout the system shall be either electric lamps or light emitting diodes. Annunciators shall be so connected in the circuit that failure of the annunciator, socket or protective circuitry shall not result in an improper or indeterminate signal. Lamps of varying types, voltage, and wattage shall have bases and sockets that prevent incorrect replacement.

4.4 Control Designations

Controls shall be provided to ensure ease of operation of all specified characteristics. Where applicable, clockwise rotation of controls shall result in an increasing function. Controls, switches, visual signals and indicating devices, input and output connectors, terminals and test points shall be clearly marked or labeled on the hardware to permit quick identification of intended use and location.

4.5 Test Modes

- A. Each keypad shall include self-test diagnostics enabling the installer to test the following keypad functions: display, key, zone, LED, relay, tone, and address tests.
- B. The system shall include a provision that permits system testing from any alphanumeric keypad. The test shall include standby battery, NAC circuit, and communication to a central station or a remote station.
- C. The system shall include a provision for an automatic, daily, weekly, 30 day, or up to 60 day communication link test from the control panel installation site to the central station.
- D. The system shall include a provision for displaying the condition of the internal system power and wiring. Internal monitors shall include the AC power, battery voltage level, charging voltage, panel box tamper, phone trouble, and transmit trouble.
- E. The system shall be capable of initiating a Walk Test that allows a single technician to test all connected devices. In Walk Test mode, each alarm input shall operate the associated NAC circuit for two (2) seconds. The Walk Test shall initiate from any alphanumeric keypad.

4.6 Power Supply

- A. Power Supplies for the control panel shall operate from 120 VAC, 50 or 60 cycle AC power supplied at the respective protected areas. Power supplies shall be solid-state.
- B. The control panel shall support addressable power supplies that allow the control panel to detect a ground fault, open, or short condition.
- C. Standby batteries shall be sealed lead-acid.
- D. Standby batteries shall be supplied to power the system in the event of a utility power failure. Controls shall be designed to maintain full battery charge when alternating current power is available. The system shall be automatically transferred to battery power upon loss of alternating current (AC) power and return to alternating current (AC) power upon restoration.
- E. The wiring harness for standby batteries shall include protection against transient voltage.
- F. Intrusion alarms shall not be initiated during switchover between 120 VAC and standby battery power.
- G. The control panel shall initiate a signal upon failure of battery and/or alternating current power.
- H. Batteries shall be sized to provide 105% capacity for eight hours.
- I. The control panel shall be capable of operating for:
 - Four (4) hours on battery standby if a mercantile alarm is involved (as required by UL 611 Central Station Burglar Alarm System requirements)
 - or
 - 72 hours on battery standby if a bank vault is involved (as required by UL 611 Central Station Burglar Alarm System requirements)

4.7 Control Unit

- A. The control panel shall be equipped with an anti-reverse circuit breaker to prevent damage due to accidental battery lead reversal.
- B. The control panel shall include a UL-compliant circuitry to protect against transient electrical current.

4.8 Lightning Suppression

The system shall include an optional lightning suppresser module that intercepts and directs lightning, transient, and RF interference to ground.


5.0 Installation

5.1 Installation of System Components

Materials shall be installed in strict compliance with all local, state, county, province, district, federal and other applicable building, safety, and fire standards, laws, codes, regulations, and guidelines including, but not limited to, all appendices and amendments and the requirements of the local Authority Having Jurisdiction (AHJ).

5.2 Installers Responsibility

Materials shall be installed in strict compliance with local building codes. All work shall be performed in accordance with Digital Monitoring Products, Inc. instructions. The control panel and associated components must be installed and serviced by a dealer in good standing that is factory-trained by Digital Monitoring Products.

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