FIRE DETECTION SYSTEM
SPECIFICATION FOR MODEL XR200

1.0 General

1.1 Manufacturer

Manufacturer of the Fire Alarm Control Panel (FACP) equipment shall be:

Digital Monitoring Products, Incorporated
2500 N. Partnership Boulevard
Springfield, MO 65803
Telephone (417) 831-9362
FAX (417) 831-1325

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)
- Notification Appliance Circuits (NAC)
- Annunciator/keypad bus
- 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. The contractor shall furnish and install a complete electrically supervised DMP Model XR200 Command Processor™ Panel, as detailed in this specification. The system shall be inclusive of all necessary function, 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 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.

1.5 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.

1.6 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 thirty (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 include, but not be limited to, equipment and materials, including manufacturer descriptive and technical literature, performance charts and curves, catalog cuts, and installation instructions for all items proposed to meet this specification. All equipment and materials on the shop drawings to be furnished under this contract shall be clearly marked on the specification sheets.

2.3 Spare Parts Data

After approval of the shop drawings, and not later than thirty (30) 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, as specified in the spare parts list, 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) 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 thirty (30) 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, materials, installation, and workmanship for a minimum of three (3) years, unless otherwise specified.

3.0 System Description

3.1 Control Panel

The Fire Alarm Control Panel (FACP) shall be the DMP XR200 Command Processor™ Panel. The FACP 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 FACP 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 FACP 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 FACP 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 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 area 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 FACP and all keypads 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. If at any time a keypad does not detect polling, the alphanumeric display shall indicate "SYSTEM TROUBLE". If at any time a keypad detects polling but not its particular address, the alphanumeric display shall indicate "NON POLLED ADDR".

D. The system shall support keypads with a programmable alphanumeric display.

E. The system shall display all system troubles at selected keypads with distinct alphanumeric messages and shall provide the programmed name of any zones in alarm or trouble.

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.

G. 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.

H. The system shall include a menu selected "SENSOR RESET" option. This option, with use of any PIN code, shall reset smoke detectors after they have been tripped, without disarming and re-arming the system.

3.5 Fire Annunciators

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

3.6 Remote Annunciators

A. The system shall support a maximum of eight (8) supervised remote annunciators. Operation of the remote annunciators shall be limited to authorized users by the use of a code or key.

B. If at any time a remote annunciator does not detect polling from the FACP, the remote annunciator shall indicate "SYSTEM TROUBLE" on its alphanumeric LCD display within 200 seconds. If at any time the remote annunciator detects polling, but not for its particular address, the alphanumeric display shall indicate "NON-POLLED ADDR" to signify an addressing conflict.

C. The remote annunciators shall be capable of operating at a maximum wiring distance of 15,000 feet from the FACP on unshielded, non-twisted cable.

3.7 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 date 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 the receiver at speeds of at least 9600 baud through a POTS line.

3.8 Network Communication

A. The FACP 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 FACP 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 FACP and the receiver shall be in a proprietary communication format.

C. The FACP shall be capable of supporting Dynamic Host Communication Protocol (DHCP) Internet Protocol (IP) addressing.

D. Network communication by the FACP shall be listed by Underwriters Laboratory (UL) for Grade AA High-Line Security and for Commercial Fire.

E. The FACP shall be capable of two-way network communication using a standard Ethernet 10BaseT in a LAN, WAN, or Internet configuration.

3.9 Pager Communication

The FACP 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.

3.10 Initiating Zone Configuration

A. The system shall be capable of monitoring a maximum of 242 individual initiating zones. 234 of these zones shall be capable of Class B operation for support of compatible two wire smoke detectors.

B. The system shall have a minimum of two (2) Class B initiating zones available from the FACP for support of compatible two wire smoke detectors.

C. The system shall have a minimum of eight (8) zones available from the FACP 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.

D. A minimum of four (4) Class B addressable reporting initiating zones shall be available for each address on the digital annunciator bus.

E. The system shall have the capacity of 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, 18 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.

F. The Digital SLC loop shall be capable of operating at a maximum wiring distance of 15,000 feet from the FACP on unshielded, non-twisted cable.

3.11 Outputs

A. The FACP shall have, as an integral part of the assembly:

- Two (2) SPDT Form C relay sockets on the FACP.
- The capacity for 200 auxiliary Form C relays rated at 1.0 Amp at 30 VDC on the digital SLC.
- Eight (8) 12 VDC annunciator outputs rated at 50mA each on the FACP.
- The capacity for 242 open collector annunciator outputs rated for at least 50mA available on the digital SLC.

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.

3.12 NAC Circuit Configuration

A. Notification Appliance Circuit (NAC) supervision shall be provided by two (2) Class B Style W NAC outputs that monitor for short circuits, open circuits, and ground faults. The NAC circuits shall include a dry output relay for external NAC trouble condition and a manual bell silence switch.

B. 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.

C. 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 a manual bell silence switch.

3.13 Serial Interface

A. The FACP shall be capable of a serial interface to output information to a standard serial printer.

B. The FACP 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 FACP.

3.14 Power Supply

A. Power Supplies for the FACP shall operate from 120 VAC supplied at the respective protected areas. Power supplies shall be all Solid State.

B. 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.

C. The system shall be capable of connecting multiple Model 504-24LX or 505-12LX Addressable Power Boosters that are controlled and supervised by the digital SLC loop. Each Power Booster shall also have two (2) independent, Class B Style W Notification Appliance Circuits (NAC) that are controlled and supervised by the digital SLC loop.

D. The FACP shall be capable of operating for twenty-four (24) hours on battery standby or sixty (60) hours on standby battery. If twenty-four (24) hour standby is used, the FACP shall be capable of providing five (5) minutes of alarm signaling at the end of this twenty-four (24) hour period (as required by NFPA 72 Central Station Signaling requirements). If sixty (60) hour standby battery is used, the FACP shall be capable of providing five (5) minutes of alarm signaling at the end of this sixty (60) hour period (as required by NFPA 72 Remote Station Signaling requirements).

3.15 Test Modes

A. Each keypad shall include self-test diagnostics enabling the installer to test all keypad functions: display test, key test, zone test, LED test, relay test, tone test, and address test.

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 FACP 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 bell circuit, AC power, battery voltage level, charging voltage, panel box tamper, phone trouble line 1, phone trouble line 2, 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.

F. The system shall be capable of initiating a Fire Drill that allows manual testing of the NAC circuits. The Fire Drill shall initiate from any alphanumeric keypad.

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 pins, 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 (3) point latching device with lock; or alternatively with two (2) locks, one (1) 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 electronic components of the system shall be of the solid-state type, mounted on printed circuit boards.

4.3 Relays

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

4.4 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.

4.5 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.

4.6 Control Unit

A. The FACP shall be equipped with an anti-reverse circuit breaker to prevent damage due to accidental reversal of battery leads.

B. The FACP shall include a UL-compliant circuitry to protect against transient electrical current.

4.7 Lightning Suppression

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

4.8 General

A. Operation of any fire alarm detector, manual station, or water flow device shall sound all audible alarms. The FACP shall remain in an alarm condition until manually reset.

B. Operation of tamper devices or a failure to supervise fire alarm shall sound a trouble alarm. Receipt of an alarm from an initiating device shall have priority and shall not be inhibited in the trouble mode.

5.0 Installation

5.1 Installation of System Components

C. When used in NFPA 72 compliant installations, the FACP shall be on a dedicated branch of the electrical circuit in accordance with the National Electrical Code (NEC) and the local authority having jurisdiction (AHJ). This circuit shall be available only to authorized personnel and shall be clearly labeled "FIRE ALARM CIRCUIT CONTROL".

D. 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 Installer's 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 FACP and associated components must be installed and serviced by a dealer in good standing that is factory-trained by Digital Monitoring Products.

Digital Monitoring Products
800-641-4282
www.dmp.com
Made in the USA
INTRUSION • FIRE • ACCESS • NETWORKS
2500 N. Partnership Boulevard
Springfield, Missouri 65803-8877