

AUTOPULSE 542D/E Pre-Action and Deluge Control Panel

Description

The AUTOPULSE 542D is a six-zone Pre-Action and Deluge Control Panel for single and dual hazard deluge and preaction applications. The AUTOPULSE 542D provides reliable fire detection, signaling and protection for commercial, industrial and institutional buildings requiring water-based releasing. The AUTOPULSE 542D is compatible with System Sensor's i³ detectors which are conventional smoke detectors that can transmit a maintenance trouble signal to the panel indicating the need for cleaning and a supervisory 'freeze' signal when the ambient temperature falls below the detector rating of approximately 45 °F (7 °C). In addition, the control panel is compatible with conventional input devices such as two-wire smoke detectors, four-wire smoke detectors, pull stations, waterflow devices, tamper switches and other normally-open contact devices. Refer to Device Compatibility Document for a complete listing of compatible devices.

Four outputs are programmable as NACs (Notification Appliance Circuits) or releasing circuits. Three programmable Form-C relays (factory programmed for Alarm, Trouble and Supervisory) and 24 VDC special application resettable and non-resettable power outputs are also included on the main circuit board. The AUTOPULSE 542D supervises all wiring, AC voltage, battery charger and battery level.

Activation of a compatible smoke detector or any normally-open fire alarm initiating device will activate audible and visual signaling devices, illuminate an indicator, display alarm information on the panel's LCD, sound the piezo sounder at the panel, activate the panel alarm relay and operate an optional module used to notify a remote station or initiate an auxiliary control function.

The AUTOPULSE 542D(E) offers the same features as the AUTOPULSE 542D but allows connection to 220/240 VAC. Unless otherwise specified, the information in this data sheet applies to both the 110/120 VAC and 220/240 VAC versions of the panels.

Features

- Designed for sprinkler standards NFPA 13, 15 and 16
- Dual hazard operation
- Manual release/Abort combination zone
- Adjustable waterflow discharge timer and two soak timers
- Cross-zone (double-interlock) capability
- Six programmable Style B (Class B) IDCs (Initiating Device Circuit)
- System Sensor i³ series detectors compatible
- Four programmable Style Y (Class B) output circuits – (special application power)



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- Strobe Synchronization:
 - System Sensor
 - Wheelock
 - Gentex
 - Faraday
 - Amseco
- Three programmable Form-C relays
- Latching option for relays
- Pre-discharge relay option
- 7.0 amps total 24 VDC output current
- Resettable and non-resettable output power
- Built-in Programmer
- Short circuit RAC supervision
- ANN-BUS for connection to optional devices (up to eight total of any of the following):
 - ANN-80 Remote LCD Annunciator
 - ANN-I/O LED Driver
 - ANN-S/PG Printer Module
 - ANN-RLY Relay Module
 - ANN-LED Annunciator Module
- 80-character LCD display (backlit)
- Real-time clock/calendar with daylight savings time control
- History log with 256 event storage
- Piezo sounder for alarm, trouble and supervisory
- 24 volt DC operation
- Low AC voltage sense
- Outputs programmable for:
 - Releasing circuits

Features (Continued)

- NACs programmable for:
 - Silence Inhibit
 - Auto-Silence
 - Strobe Synchronization
 - Selective Silence (horn-strobe mute)
 - Temporal or Steady Signal
 - Silenceable or Non-silenceable
 - Release Stage Sounder
 - Stage Silenceable Option
 - Cross Zone Pre-discharge
 - Cross Zone Discharge
- Disable/Enable control per input zone and output zone
- Extensive transient protection
- Automatic battery charger with charger supervision
- Optional Dress Panel DP-51050 (red)
- Optional Trim Ring TR-CE (red) for semi-flush cabinet mounting
- Optional CAC-5X Class A Converter Module for Outputs and IDCs
- Optional 4XTM-F Municipal Box Transmitter Module
- Optional Digital Alarm Communicators (411, 411UD, 411UDAC)

PROGRAMMING AND SOFTWARE:

- Custom English labels (per point) may be manually entered or selected from an internal library file
- Three programmable Form-C relay outputs
- Eleven pre-programmed templates and one user-defined template
- Continuous fire protection during online programming at the front panel
- Program Check automatically catches common errors not linked to any zone or input point
- Selectable timer options for Discharge 1 and 2, and Pre-discharge 1 and 2

USER INTERFACE:

- Integral 80-character LCD display with backlighting
- Real-time clock/calendar with automatic daylight savings adjustments
- ANN-Bus for connection to remote annunciators
- Audible or silent walk test capabilities
- Piezo sounder for alarm, trouble, and supervisory

Controls and Indicators

LED INDICATORS

- FIRE ALARM (red)
- SUPERVISORY (yellow)
- TROUBLE (yellow)
- AC POWER (green)
- ALARM SILENCED (yellow)
- DISCHARGE (red)

CONTROL BUTTONS

- ACKNOWLEDGE
- ALARM SILENCE
- SYSTEM RESET (lamp test)
- DRILL

AC Power – TB1

- **AUTOPULSE 542D:** 120 VAC, 50/60 Hz, 2.3 amps
- **AUTOPULSE 542D(E):** 240 VAC, 50 Hz, 1.15 amps
- **Wire size:** minimum #14 AWG (2.0 mm²) with 600V insulation
- Supervised, nonpower-limited

Battery (sealed lead acid only) – J12:

- **Maximum Charging Circuit - Normal Flat Charge:** 27.6 VDC @ 1.4 amp Supervised, nonpower-limited
- **Maximum Charger Capacity:** 26 Amp Hour battery (two 18 Amp Hour batteries can be housed in the panel cabinet. Larger batteries require separate battery box such as the BB-26 or BB-55).
- **Minimum Battery Size:** 7 Amp Hour

Initiating Device Circuits – TB4 and TB6

- Alarm Zones 1 – 5 on TB4
- Alarm Zone 6 on TB6
- Supervised and power-limited circuitry
- Style B (Class B) or Style Z (Class A) with optional converter module
- **Normal Operating Voltage:** Nominal 20 VDC
- **Alarm Current:** 15 mA minimum
- **Short Circuit Current:** 40 mA maximum
- **Maximum Loop Resistance:** 100 ohms (700 ohms for linear heat detection)
- **End-of-Line Resistor:** 4.7K ohms, 1/2 watt
- **Standby Current:** 4 mA

Controls and Indicators (Continued)

Notification Appliance and Releasing Circuit(s) – TB5 and TB7

- Four Output Circuits
- Style Y (Class B) or Style Z (Class A) with optional converter module
- Special Application power
- Supervised and power-limited circuitry
- **Normal Operating Voltage:** Nominal 24 VDC
- **Maximum Signaling Current:** 7.0 amps (3.0 amps maximum per NAC)
- **End-of-Line Resistor:** 4.7K ohms, 1/2 watt
- **Maximum Wiring Voltage Drop:** 2 VDC

Refer to the Device Compatibility Document for compatible listed devices.

Form-C Relays – Programmable – TB8

- Relay 1 (factory default programmed as Alarm Relay)
- Relay 2 (factory default programmed as fail-safe Trouble Relay)
- Relay 3 (factory default programmed as Supervisory Relay)
- Relay Contact Ratings:
 - 2 amps @ 30 VDC (resistive)
 - 0.5 amps @ 30 VAC (resistive)

Auxiliary Trouble Input – J6

The Auxiliary Trouble Input is an open collector circuit which can be used to monitor external devices for trouble conditions. It can be connected to the trouble bus of a peripheral, such as a power supply, which is compatible with open collector circuits.

Special Application Resettable Power – TB9

- **Operating Voltage:** Nominal 24 VDC
- **Maximum Available Current:** 500 mA – appropriate for powering 4-wire smoke detectors (see Note)
- Power-limited circuitry

Special Application Resettable or Nonresettable Power – TB9

- **Operating Voltage:** Nominal 24 VDC
- **Maximum Available Current:** 500 mA (see Note)
- Power-limited Circuitry
- Jumper selectable by JP31 for resettable or nonresettable power

Note: Total current for resettable power, nonresettable power and Output Circuits must not exceed 7.0 amps.

Product Line Information

AUTOPULSE 542D: Six zone, 24 volt Deluge-Preaction Control Panel (includes backbox, power supply, technical manual, and a frame and post operating instruction sheet) for single and dual hazard deluge and preaction applications.

AUTOPULSE 542D(E): Same as above but allows connection to 220/240 VAC.

CAC-5X: Class A Converter Module can be used to convert the Style B (Class B) Initiating Device Circuits to Style D (Class A) and Style Y (Class B) Output Circuits to Style Z (Class A).

Note: Two Class A Converter modules are required to convert all four Output Circuits and six Initiating Device Circuits.

4XTM-F: Transmitter Module provides a supervised output for local energy municipal box transmitter and alarm and trouble reverse polarity. It includes a disable switch and disable trouble LED.

ANN-80: LCD Annunciator is a remote LCD annunciator that mimics the information displayed on the panel LCD display. Recommended wire type is unshielded.

ANN-LED: Annunciator Module mounts in the DP-51050LED Dress Panel and provides three LEDs for each zone: Alarm, Trouble and Supervisory.

ANN-RLY: Relay Module, which can be mounted inside the cabinet, provides 10 programmable Form-C relays.

ANN-S/PG: Serial/Parallel Printer Gateway module provides a connection for a serial or parallel printer.

PRN-6: Printer.

ANN-I/O: LED Driver Module provides connections to a user-supplied graphic annunciator.

DP-51050: Dress panel (red) is available as an option. The dress panel restricts access to the system wiring while allowing access to the membrane switch panel.

DP-51050LED: Dress panel is available as an option. The dress panel restricts access to the system wiring while allowing access to the membrane switch panel. It also allows the installation of an optional ANN-LED annunciator module.

TR-CE: Trim-ring (red) is available as an option. The trim-ring allows semi-flush mounting of the cabinet.

BB-26: Battery box, holds up to two 26 Amp Hour batteries and CHG-75.

BAT Series Batteries

System Specifications

SYSTEM CAPACITY

- Annunciators: 8

ELECTRICAL SPECIFICATIONS

- **AUTOPULSE 542D (FLPS-7 Power Supply):** 120 VAC, 50/60 Hz, 2.3 amps
- **AUTOPULSE 542D(E) (FLPS-7 Power Supply):** 240 VAC, 50 HZ, 1.15 amps
- **Wire size:** minimum 14 AWG (2.0 mm²) with 600 V insulation, supervised, nonpower-limited

CABINET SPECIFICATIONS

Door: 19.26 in. (489 mm) high x 16.82 in. (427 mm) wide x 0.72 in. (18 mm) deep

Backbox: 19.00 in. (483 mm) high x 16.65 in. (423 mm) wide x 5.25 in. (133 mm) deep

Trim Ring (TR- CE): 22.00 in. (559 mm) high x 19.65 in. (499 mm) wide

SHIPPING DIMENSIONS

- Height: 20.00 in. (508 mm)
- Width: 22.50 in. (572 mm)
- Depth: 8.50 in. (216 mm)

System Specifications (Continued)

TEMPERATURE AND HUMIDITY RANGES

This system meets NFPA requirements for operation at 32 to 120 °F (0 to 49 °C) and at a relative humidity 93% ± 2% RH (non-condensing) at 90 °F ± 3 °F (32 °C ± 2 °C). However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and its peripherals be installed in an environment with a normal room temperature of 60 to 80 °F (15 to 27 °C).

NFPA STANDARDS

- NFPA 12 CO₂ Extinguishing Systems (High Pressure Only)
- NFPA 12A Halon 1301 Extinguishing Systems
- NFPA 72 National Fire Alarm Code for Local Fire Alarm Systems and Remote Station Fire Alarm Systems (requires an optional Remote Station Output Module)
- NFPA 2001 Clean Agent Fire Extinguishing Systems

Listings and Approvals

The listings and approvals below apply to the basic AUTOPULSE 542D and AUTOPULSE 542D(E) control panels. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- UL: S4935
- FM: Approved
- CSFM: 7165-0595:118
- MEA: 333-07-E

Ordering Information

<u>Part No.</u>	<u>Description</u>
433605	AUTOPULSE 542D Pre-Action and Deluge Control Panel, 120 VAC
433606	AUTOPULSE 542D(E) Pre-Action and Deluge Control Panel, 220/240 VAC

Note: The converted metric values in this document are provided for dimensional reference only and do not reflect an actual measurement.

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