

AUTOPULSE® 542R AGENT RELEASING CONTROL UNIT

Data/Specifications



DESCRIPTION

The AUTOPULSE® 542R is a six zone FACP for single and dual hazard agent releasing applications. The AUTOPULSE 542R provides reliable fire detection, signaling and protection for commercial, industrial and institutional buildings requiring agent-based releasing. The AUTOPULSE 542R is compatible with System Sensor's i3 detectors which are conventional smoke detectors that can transmit a maintenance trouble signal to the FACP indicating the need for cleaning and a supervisory 'freeze' signal when the ambient temperature falls below the detector rating of approximately 45 °F (7.22 °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 542R 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 FACP, activate the FACP alarm relay and operate an optional module used to notify a remote station or initiate an auxiliary control function.

The AUTOPULSE 542R(E) releasing panel offers the same features as the AUTOPULSE 542R 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 agent releasing standards NFPA 12, 12A, 12B and 2001
- Disable/Enable control per input zone and output zone
- Extensive transient protection
- Dual hazard operation
- Adjustable pre-discharge, discharge and waterflow delay timers
- Cross-zone (double-interlock) capability
- Six programmable Style B (Class B) IDCs (Initiating Device Circuit)
- System Sensor i3 series detector compatible
- Four programmable Style Y (Class B) output circuits – (special application power)
- Strobe synchronization
 - System Sensor
 - Wheelock
 - Gentex
 - Faraday
 - Amseco
- Three programmable Form-C relays
- 7.0 amps total 24 VDC output current
- Resettable and non-resettable output power
- Built-in Programmer
- Short circuit RAC supervision



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- ANN-BUS for connection to optional (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 operation
- Low AC voltage sense
- Outputs programmable for:
 - Releasing Circuits
- 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
- Automatic battery charger with charger supervision
- Optional Dress Panel DP-51050 (red)
- Optional Trim Ring TR-CE (red) for semi-flush mounting the cabinet
- Optional CAC-5X Class A Converter Module for Outputs and IDCs
- Optional 4XTM Municipal Box Transmitter Module
- Optional Digital Alarm Communicators (411, 411UD, 411UDAC)

FEATURES (Continued)

PROGRAMMING AND SOFTWARE:

- Custom English labels (per point) may be manually entered or selected from an internal library file
- Programmable Abort operation
- Three programmable Form-C relay outputs
- Pre-programmed and custom application templates
- Continuous fire protection during online programming at the front panel
- Program Check automatically catches common errors not linked to any zone or input point

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)
- DISCHARGED (red)
- PRE-DISCHARGE (red indicator)
- ABORT (yellow indicator)

CONTROL BUTTONS

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

AC Power – TB1

- **AUTOPULSE 542R:** 120 VAC, 50/60 Hz, 2.3 amps
- **AUTOPULSE 542R(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 FACP 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
- **End-of-Line Resistor:** 4.7K Ohms, 1/2 watt (Part No. 71252)
- **Standby Current:** 4 mA

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 (Part No. 71252)
- **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)
 - 2 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 1)
- Power-limited circuitry

Note 1: Total current for resettable power, nonresettable power and output circuits must not exceed 7.0 amps.

Special Application Resettable or Nonresettable Power – TB9

- **Operating Voltage:** Nominal 24 VDC
- **Maximum Available Current:** 500 mA (see Note 1)
- Power-limited circuitry
- Jumper selectable by JP31 for resettable or nonresettable power

PRODUCT LINE INFORMATION

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

AUTOPULSE 542R(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: 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 FACP LCD display. Recommended wire type is un-shielded.
- ▶ **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.
- ▶ **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-flushing mounting of the cabinet.

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

BB-55: Battery box, houses two 55 Amp Hour batteries.

BAT Series Batteries

SYSTEM SPECIFICATIONS

SYSTEM CAPACITY

- Annunciators: 8

ELECTRICAL SPECIFICATIONS

- **AUTOPULSE 542R (FLPS-7 Power Supply):** 120 VAC, 50/60 Hz, 2.3 amps
- **AUTOPULSE 542R(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. (48.92 cm) high x 16.82 in. (42.73 cm) wide x 0.72 in. (1.82 cm) deep

Backbox: 19.00 in. (48.26 cm) high x 16.65 in. (42.29 cm) wide x 5.25 in. (13.34 cm) deep

Trim Ring (TR- CE): 22.00 in. (55.88 cm) high x 19.65 in. (49.91 cm) wide

SHIPPING DIMENSIONS

- Height: 20.00 in. (50.80 cm)
- Width: 22.50 in. (57.15 cm)
- Depth: 8.50 in. (21.59 cm)

TEMPERATURE AND HUMIDITY RANGES

This system meets NFPA requirements for operation at 32-120 °F (0-49 °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 60-80 °F (15-27 °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 542R and AUTOPULSE 542R(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
- ▶ ■ ULC: Pending
- FM: Pending
- CSFM: Pending
- ▶ ■ MEA: Approved

ORDERING INFORMATION

Part No.	Description
▶ 433607	AUTOPULSE 542R FACP, 120 VAC
▶ 433608	AUTOPULSE 542RE FACP, 220/240 VAC

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