

CHECKFIRE 210 Detection and Actuation System

Features

- Supervised power, detection, release, and communication circuits
- Display module with LED system status indicators
- Adjustable mounting bracket (display module)
- 85 dB internal sounder
- Compact size
- Automatic and/or manual actuation
- Electric DELAY/Reset/Silence button
- PUSH To Activate / Alarm When Lit electric manual activation button
- Interface control module for all color-coded Plug and Play cable connections
- Cables provide quick installation and easy replacement
- Internal power source with optional external power
- Auxiliary power output when external power is connected
- Manual programming at interface control module
- Computer programming available through mini USB port
- Two programmable release time delays
- Two analog detection circuits
- Detection circuits are programmable for multiple detection methods
- Detection circuit #2 may be programmed for pressure switch feedback
- Two internal programmable SPDT Form C relays (5 A @ 30 VDC nominal automotive)
- Downloadable 4000+ event history log with real-time stamp
- System isolate feature
- Dust and water tight (IP67 rated)
- Designed for harsh environments



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Application

The CHECKFIRE 210 Detection and Actuation System is typically used with an ANSUL® A-101 or LVS Vehicle Fire Suppression System for 24-hour protection of equipment. The system is designed for vehicles and equipment in extreme environmental and physical conditions.

Industries where vehicles use CHECKFIRE 210 Systems:

- | | |
|-------------------------|------------------|
| ■ Forestry | ■ Land fills |
| ■ Agriculture | ■ Waste disposal |
| ■ Construction | ■ Mining |
| ■ Public transportation | |
| ■ Public utilities | |

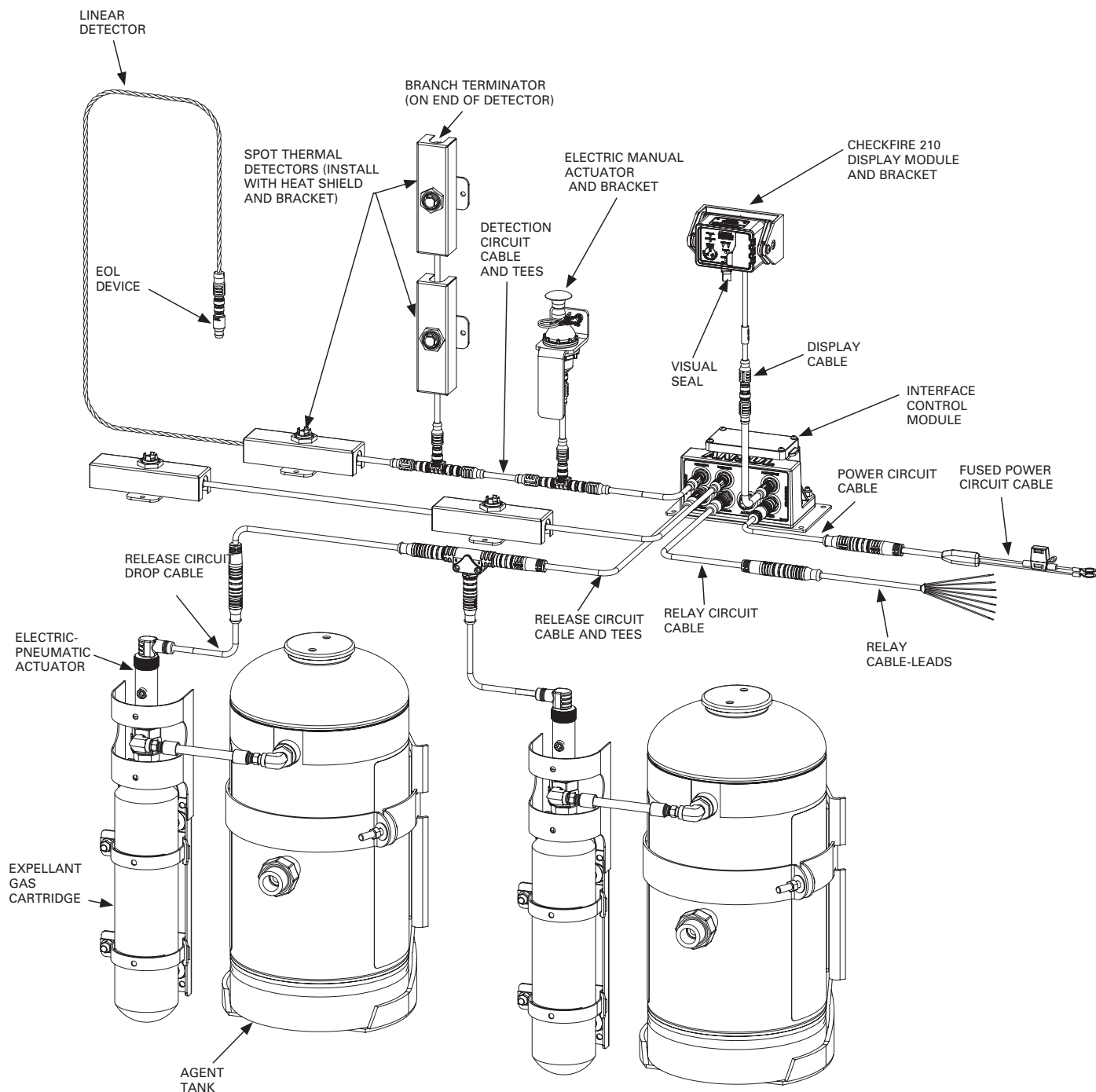
Description

The CHECKFIRE 210 Automatic Detection and Actuation System provides supervised input/output circuits to activate an ANSUL fire suppression system. Upon detecting a fire condition, the interface control module activates the release circuit, resulting in the discharge of an expellant gas cartridge, initiating fire suppression system operation.

Green, amber, and/or red pulsing LEDs, and the internal sounder notify operator of system status. The sounder only activates for faults, isolate mode, and system release.

Operating components include the display module, interface control module, spot thermal detectors, linear detectors, electric manual actuators, protruding actuation devices (PAD), electric-pneumatic actuators, and cables for power, detection, and release circuits. The entire system is electronics based for supervision, communication, and control of system components.

CHECKFIRE 210 System – Sample Connections



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Typical System Connections

The CHECKFIRE 210 Display Module communicates with the CHECKFIRE 210 Interface Control Module (ICM) through the display cable using threaded circular connectors. Color-coded receptacles in the ICM are the central connection point for all system cables.

System Cabling: Enables communication and control of components.

- IP67 connectors
- Color-coded, anti-vibration connections
- Integral connectors on each end of cable
- Multiple lengths for versatility
- Temperature rating: 302 °F (150 °C)

Detection Circuits #1 and #2: Permits multiple-detection options using detection circuit cable and tees for the main detection trunk and branch lines.

- Electric manual actuators
- Linear detectors
- Spot thermal detectors
- Pressure switch (detection circuit #2 only)

Release Circuit: Connects to a maximum of 10 electric-pneumatic actuators installed on agent tank expellant gas cartridges using release circuit cable(s), tee(s), and release circuit drop cable(s).

External Power Circuit: Provides a direct connection to the vehicle power source using power circuit cable(s) and a single fused power circuit cable, when external power is required.

Auxiliary Output Circuit: Connects to external notification devices.

Display Circuit: Connects display module with ICM.

Relay Circuit: Provides connection for two independent internal relay contacts for connection by others.

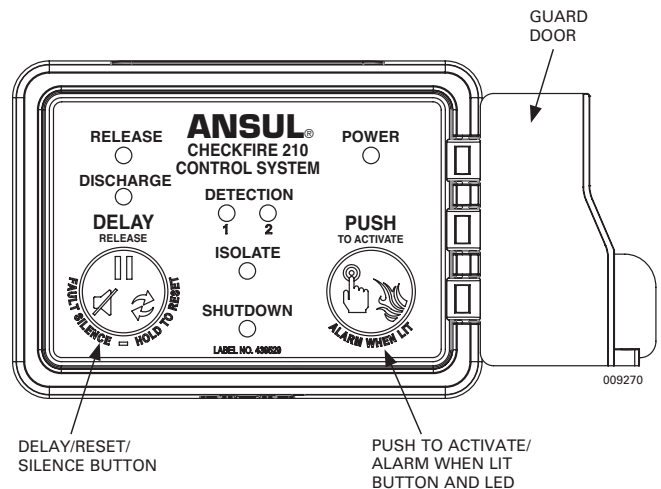
Detection

A Linear Detector with an activation temperature rating of 356 °F (180 °C) provides fire detection in the protected area. Two twisted spring steel conductors separated by a heat-sensitive insulator are limited to a minimum bend radius of 2 1/2 in. (64 mm). For easy installation, red color-coded connectors match the red connectors of the entire detection circuit.

Spot Thermal Detectors have the temperature rating stamped on the detector and are color-coded blue for 250 °F (121 °C) and red for 350 °F (177 °C) operating temperatures. The included retaining nut securely holds the detector in the required bracket and heat shield.

Display Module

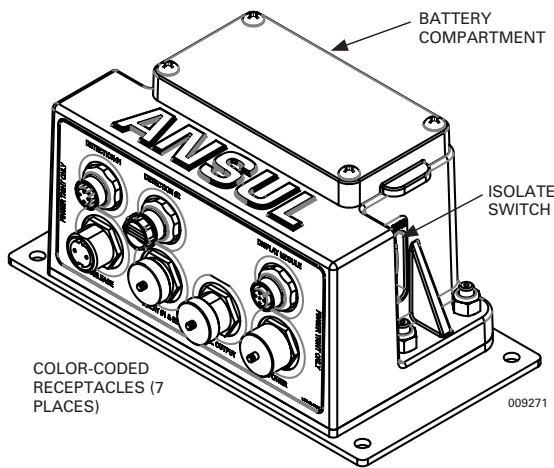
The CHECKFIRE 210 Display Module communicates with the Interface Control Module (ICM) to indicate system status. Installation within reach of the operator provides easy access to operator controls.



- Dust and water tight (IP67 rated)
- Durable high-strength glass-filled nylon material
- Surface or bracket mounted
- Two index pins on back for secure mounting
- Ambient temperature range: -40 °F to 185 °F (-40 °C to 85 °C)
- LED indicators provide notification of system status (internal sounder matches LED pulse rate)
- PUSH To Activate / Alarm When Lit manual-activation button and LED
 - Provides manual actuation (immediate release)
 - Indicates alarm condition
- Guard door with visual seal to protect manual-activation button
- DELAY/Reset/Silence Button
 - Restarts Time Delay #1 (TD1) before TD1 sequence expires
 - Resets system (during non-alarm status)
 - Silences internal sounder during fault conditions and isolate mode

Interface Control Module (ICM)

The CHECKFIRE 210 Interface Control Module (ICM) is the central connection point for input/output circuits. Through communication with the display module, operators receive continuous system status updates, and operator input commands go directly to the ICM. Color-coded receptacles match with color-coded cable connectors providing quick visual confirmation of proper circuit connections.



The protective battery compartment cover is held in place with 4 captive screws. Besides the internal power supply, the battery compartment includes the battery cable, a mini USB connection port, and the programming interface (button and LEDs). The system programming may be accomplished with the manual programming button and indicator LEDs or by using a computer with the ANSUL CHECKFIRE 210 Programmer software communicating through the mini USB port.

An isolate switch on the side of the ICM provides ease of access to temporarily disable the automatic system release function. While disabled, manual system release is still available. An amber isolate LED on the display module continues to pulse until the switch is returned to normal.

- Dust and water tight (IP67 rated)
- Durable high-strength glass-filled nylon
- UL94 Flame rating
- Ambient temperature range: -40 °F to 185 °F (-40 °C to 85 °C)
- Internal battery compartment with IP67 cover
- System isolate switch
- Steel mounting plate



Battery Module

A supervised 3.6 VDC lithium CHECKFIRE 210 Battery Module provides internal power for the CHECKFIRE 210 System. A connector pigtail extending from the top of the battery connects to the ICM battery cable.

Electric-Pneumatic Actuator

With a focus on ease of installation and safety, the Electric-Pneumatic Actuator reduces system complexity. The Protracting Actuation Device (PAD) directly actuates the electric-pneumatic actuator pin eliminating the need for pneumatic actuation.

The re-designed PAD with plug-in spade connectors is easy to install and replace without tools. After plugging the PAD into the release circuit drop cable, the cable is hand-tightened to the top of the electric-pneumatic actuator.



For installer safety during assembly of the Electric-Pneumatic Actuator to an expellant gas cartridge, the actuator includes a new preventor. The integral preventor reduces the possibility of attaching the actuator with the pin not completely retracted. It also provides a metal to metal seat with the expellant gas cartridge eliminating the spacing washer.

If required, optional pneumatic actuation is available.

Electric Manual Actuator

The newly designed Electric Manual Actuator (EMA) provides electrical activation of the fire suppression system. Pulling the pin and striking the red button sends a signal to the interface control module for immediate actuation of the electric-pneumatic actuator. Upon actuation, the expellant gas cartridge initiates fire suppression system operation.



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EMAs are typically accessible from ground level and/or in a path of egress. An index nub ensures the EMA remains at the proper angle for access to the pull pin.



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System Specifications

Interface Control	
Module Power:	Internal power source and/or: 12/24 VDC nominal external power (24 hour operation)
Operating Temperature Range:	-40 °F to 185 °F (-40 °C to 85 °C)
Shock:	In accordance with UL1254
Vibration:	In accordance with UL1254
Moisture and Dust:	IP67 per IEC 60529
Electromagnetic Compatibility:	Heavy Industrial EMC Directive Compliant (2004/108/EC)

Approvals

FM Approved and CE Marked

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

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Ordering Information

Part No.	Description
System Components	
439560	Display Module, CHECKFIRE 210
439564	Mounting Bracket, CHECKFIRE 110/210
439561	Interface Control Module, CHECKFIRE 210
439569	Electric-Pneumatic Actuator (normally supplied with agent tanks)
439400	Electric Manual Actuator (EMA)
440537	Electric Manual Actuator Bracket
Detection Circuit Cables and Fittings	
439384	Cable, Detection Circuit, 2 ft (0.61 m)
439386	Cable, Detection Circuit, 5 ft (1.53 m)
439388	Cable, Detection Circuit, 10 ft (3.05 m)
439390	Cable, Detection Circuit, 20 ft (6.10 m)
440759	Cable, Detection Circuit, 30 ft (9.15 m)
440762	Cable, Detection Circuit, 50 ft (15.24 m)
439394	Connector, Tee, Detection Circuit (MxFxF)
439396	Connector, EOL Device, Detection Circuit
439398	Connector, Branch Terminator, Detection Circuit
439404	Connector, Bulkhead, Detection Circuit
Linear Detectors	
439406	Linear Detector, 2 ft (0.61 m)
439478	Linear Detector, 5 ft (1.53 m)
439480	Linear Detector, 10 ft (3.05 m)
439408	Linear Detector, 20 ft (6.10 m)
439410	Linear Detector, 30 ft (9.15 m)
440765	Linear Detector, 50 ft (15.24 m)
Release Circuit Cables and Fittings	
439418	Cable, Release Circuit, 2 ft (0.61 m)
439420	Cable, Release Circuit, 5 ft (1.53 m)
439422	Cable, Release Circuit, 10 ft (3.05 m)
439424	Cable, Release Circuit, 20 ft (6.10 m)
439426	Cable, Release Circuit, 30 ft (9.15 m)
439428	Cable, Release Circuit, 50 ft (15.24 m)
439430	Cable, Release Circuit Drop, 30 in. (0.77 m)
439432	Cable, Release Circuit Drop, 38 in. (0.97 m)
439434	Connector, Tee, Release Circuit (MxFxF)
439436	Connector, Release Circuit Terminator
439405	Connector, Bulkhead, Release and Power Circuits
439448	Protracting Actuation Device (PAD), w/Spade Connectors

Part No.	Description
Display Cables	
439452	Cable, Display, 2 ft (0.61 m)
439454	Cable, Display, 5 ft (1.53 m)
439456	Cable, Display, 10 ft (3.05 m)
439458	Cable, Display, 20 ft (6.10 m)
439460	Cable, Display, 30 ft (9.15 m)
439462	Cable, Display, 50 ft (15.24 m)
439449	Connector, Bulkhead, Display Cable
Relay #1 & #2 Circuit Cable	
439466	Cable, Relay Cable-Leads, 3 ft (0.91 m)
440410	Cable, Backup Power/Relay Circuit, 2 ft (0.61 m)
440413	Cable, Backup Power/Relay Circuit, 5 ft (1.53 m)
439482	Cable, Backup Power/Relay Circuit, 10 ft (3.05 m)
440416	Cable, Backup Power/Relay Circuit, 20 ft (6.10 m)
Auxiliary Output Circuit Cable	
439450	Cable, Auxiliary Power Output Circuit, 3 ft (0.91 m)
Power Circuit Cables and Fittings	
439438	Cable, Power Circuit, 2 ft (0.61 m)
439440	Cable, Power Circuit, 5 ft (1.53 m)
439442	Cable, Power Circuit, 10 ft (3.05 m)
439444	Cable, Power Circuit, 20 ft (6.10 m)
439446	Cable, Power Circuit, 30 ft (9.15 m)
440187	Cable, Power Circuit, 50 ft (15.24 m)
439405	Connector, Bulkhead, Release and Power Circuits
439492	Cable, Fused Power Circuit, (w/Inline Fuse Holder), 3 ft (0.91 m)
Accessory Equipment	
440352	ICM Battery Module, CHECKFIRE 210
438280	Spot Thermal Detector, 250 °F (121 °C)
438281	Spot Thermal Detector, 350 °F (177 °C)
440905	Spot Thermal Detector Bracket and Heat Shield
440389	Pressure Switch
440737	Double-Loop Cable Ties (Pkg. of 50)
56692	Rubber Sleeve (Pkg. of 20)
440798	Label Package
440097	Detection Circuit Tester (DCT)
441021	Release Circuit Tester (RCT)
440912	Release Circuit Test Plug (Pkg. of 3)