FIRE DETECTION DEVICES LTD.
Durable . Reliable . Trusted . Canadian

Double Circuit
N/C and N/O Contacts – Sealed
CR/CF Aluminum Series

Features
- Cast aluminum housing
- Multiple circuit unit with one set of contacts Normally Open (N/O), and the other set Normally Closed (N/C)
- Additional protection against corrosive or moisture-laden environments

Dimensions:
Diameter 5.25 in (13.4 cm)
Height 2 in (5.08 cm)

Weight:
0.41 lbs (0.19 kg)

Shipping Weight:
0.6 lb (0.5 kg)

Overview
This is the standard THERMOFLEX™ double circuit detector, in which one set of contacts is Normally Open (N/O), and the other set of contacts is Normally Closed (N/C). The connectivity is **m**odified with **p**igtail leads that extend through a seal plate.This provides for enhanced protection against corrosive or moisture-laden environments.

Contact Configuration
The model number suffix "-2CO", indicates that the detectoir is a double circuit with one set of Normally Open (N/O) contacts, and one set of Normally Closed (N/C) contacts. The N/O contacts are provided with a pair of black leads connected to one side of the contacts and a pair of white leads connected to the other side. The N/C contacts have a blue lead to each side.

Application
This detector is suitable for use in areas where condensation or corrosion couldn have harmful effects on circuit wiring connected to standard terminals. Its seal plate (with extended pigtail leads) will mount onto a typical cast exterior back box or standard 4-inch octogon box.The detector is connected to a fire alarm system's input circuit as an initiating device.The internal contacts will operate when the detector is sbjected to either a rate of temperature increase, or if the releasing temperature is reached. With its non-metallic diaphragm, the detector can operate normally at low temperatures, making it suitable for non-heated or chilled environments including garages and carports.
The set of N/C contacts are used to activate a local ancillary function that includes elevator recall, release of magnetically-held doors, local signal operation, local annunciation, etc. In many cases this set of contacts will be connected to a controlling relay that is used to switch heavier voltages.

90 NOLAN COURT, UNIT 34 MARKHAM, ONTARIO, L3R 4L9
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Combination Rate-of-Rise & Fixed Temperature

The Model Number prefix "CR" indicates that the detector is a combination Rate-of-Rise and Fixed Temperature, (often referred to as "Dual-action"), unit. The Rate-of-Rise function allows the detector *to close one set* of its contacts and *open* the other set when the temperature at the ceiling increases at a rate of 8.4 Celsius degrees (15 Fahrenheit degrees) per minute. In most cases, the closing of one set of contacts initiates the Fire Alarm sequence. The second set of contacts (N/C), is commonly used to initiate an ancillary function. The Fixed Temperature portion consists of a spring-loaded plunger held in place by a eutectic solder that will fuse at the specific temperature (in Fahrenheit degrees) as indicated by the Model Number i.e. 135, 165, 200 degrees.

Fixed Temperature Only

The Model Number prefix "CF" indicates that the detector is Fixed Temperature Only, and will therefore *not* respond to a rate of temperature increase but will operate when the detector fuses at the prescribed (Fahrenheit) temperature as indicated by the model number, i.e. 135, 165, 200 and 285 degrees. This detector is referred to as "Fixed Temperature Only, non-restorable".

Engineering Specifications:

- Models CR 135-2CO MP, CR 165-2CO MP and CR 200-2CO MP detectors are *dual-action* type, that will respond to a rate of temperature increase at the ceiling of 15 Fahrenheit degrees per minute (8.4 Celsius degrees per minute). These detectors will also respond when the fixed temperature (non-restorable) threshold is exceeded. Dual-action detectors are installed in areas where rapid fluctuations in ceiling temperature are *not* expected.
- In areas where sudden increases in ceiling temperature are normal, specify *Fixed Temperature Only* units i.e. CF 135-2CO MP, CF 165-2CO MP, CF 200-2CO MP or CF 285-2CO MP.
- Detectors shall be installed in areas where environmental conditions including dust, vapours, insects, low temperatures, etc., would cause an ionization or photoelectric type detector to initiate a false alarm.
- Detector shall have a proven operating temperature range of -20°F/+250°F (-30°C/+120°C), exclusive of releasing temperature.
- The fusible link mechanism, when operated, shall be held firmly in place such that the contacts are prohibited from changing state, i.e. reverting back to the normal position.

Fire Detection Devices Ltd. heat detectors for fire alarm systems comply with UL 521 *Heat Detectors for Fire Protective Signaling Systems,* and ULC S531 *Standard for Heat Actuated Fire Detectors for Fire Alarm Systems.* The UL/ULC control number is 41H9, file number S2406. CSFM listing # 7270-1110:0100. Detectors featuring wire (pigtail) leads are included in these documents.

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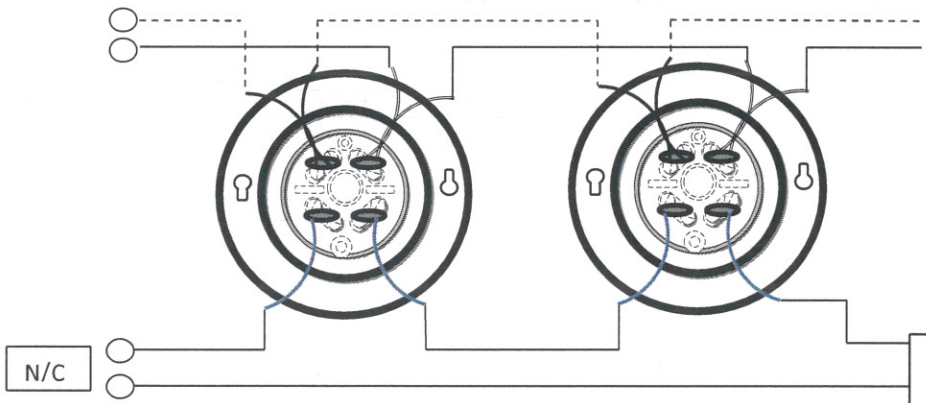
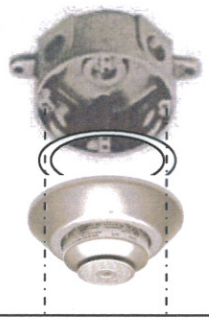
Temperature and Spacing Chart

	Function Type	Release Temp.	Temp. Rating	Max. Installation Temp	Color dot on fin	Inter-detector Spacing*
CR 135-2CO MP	Dual-action	135°F / 57°C	Ordinary	100°F / 37.8°C	None	70ft / 21m
CR 165-2CO MP	Dual-action	165°F / 71°C	Ordinary	140°F / 60°C	Grey	70ft / 21m
CR 200-2CO MP	Dual-action	200°F / 93°C	Intermediate	160°F / 71°C	White	70ft / 21m
CF 135-2CO MP	Fixed Temp. Only	135°F / 57°C	Ordinary	100°F / 37.8°C	Black	40ft / 12m
CF 165-2CO MP	Fixed Temp. Only	165°F / 71°C	Ordinary	140°F / 60°C	Black and Grey	25ft / 7.5m
CF 200-2CO MP	Fixed Temp, Only	200°F / 93°C	Intermediate	160°F / 71°C	Black and White	25ft / 7.5m
CF 285-2CO MP	Fixed Temp. Only	285°F / 140°C	High	225°F / 107.2°C	Black and Blue	25ft / 7.5m

* assumes a flat, uninterrupted ceiling at a height not exceeding 10ft / 3m.

Installation:
Normally Open contacts are typically used to short a fire alarm conventional initiating circuit, or to cause an addressable module to send a fire alarm message to the control unit. The second set of contacts (N/C) can be used to operate low power relays that in turn operate ancillary-type functions.





Detector mounts on a standard 4-inch octagon box or 4-inch exterior cast metal back box and gasket) as shown here.

Contact Electrical Rating:
3A @ 125 VAC, 1A @ 28 VDC, 0.3A @ 125 VDC, 0.1 A @ 250 VDC

CAUTION: All wiring must be installed in compliance with the local electrical code using approved cable, AWG 18 minimum. Begin electrical connections by stripping approximately 1 in (2.5 cm) from the end of each wire. Insert the stripped end into the wire retaining hole in the terminal bar, wrap clockwise around the terminal screw, and tighten. Circuit wiring must be broken at each terminal to ensure proper supervision.

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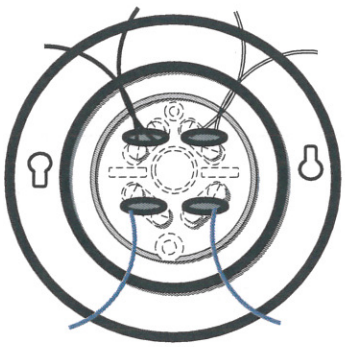
Testing:

- **Testing the "CR" series detector**
  Testing the Rate-of-Rise portion, is accomplished by applying heat from a controlled heat source, such as a hair blow dryer, held 8-12 inches away and aimed at the detector. The detector will respond within 6-10 seconds. Providing that the fusible link has not released, the detector will restore as it cools.
  NOTE: A heat gun or butane-type device should not be used as the heat output can easily fuse the detector.
- Portable test units designed specifically for this purpose are acceptable, and must bear a UL listing mark.
- Care must be taken to not allow the heat source to reach the device's fusing temperature. If the detector's fusing temperature is reached and the plunger is released, the detector will be in permanent Open Circuit and must be replaced.
- Open flame or butane-type devices are prohibited from testing heat detectors.

- **Testing the "CF" series detector**
  The Fixed Temperature Only detector ***cannot*** *be tested by warming the unit* as permanent contact closure may result, requiring replacement of the detector. Disconnecting from the circuit connected to the control panel input, will simulate the operation of the detector.



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