# ISOLATED SWITCHES

## INTRINSICALLY SAFE SINGLE & MULTIPLE CHANNEL INPUTS

Hazardous locations are classified by the National Electrical Code according to the level of hazard that may exist in the area. A hazardous location is designated by its class, group and division.

Class and group specify the type of hazardous substance that may exist in the classified location. The division indicates the conditions under which the hazardous substance may be present.

| | | | |
|---|---|---|---|
|  | **CLASS I**<br>Locations in which flammable gases or vapors may be present in the air in quantities sufficient to produce explosive or ignitable mixtures. |  | **CLASS II**<br>Locations which are hazardous because of the presence of combustible dust. |
|  | **GROUP A**<br>Atmospheres containing acetylene. |  | **GROUP E**<br>Atmospheres containing metal dust including aluminum, magnesium and their commercial alloys and other metals of similarly hazardous characteristics. |
|  | **GROUP B**<br>Atmospheres containing hydrogen, gases or vapors of equivalent hazard, such as manufactured gas. |  | **GROUP F**<br>Atmospheres containing carbon black, coal or coke dust. |
|  | **GROUP C**<br>Atmospheres containing ethyl-ether vapors, ethylene or cyclopropane. |  | **GROUP G**<br>Atmospheres containing flour, starch or grain dusts. |
|  | **GROUP D**<br>Atmospheres containing gasoline, hexane, naphtha, benzine, butane, propane, alcohol, acetone, benzol, lacquer solvent vapors or natural gas. |  | **CLASS III**<br>Locations which are hazardous because of the presence of easily ignitable fibers or flyings, but in which such fibers or flyings are not likely to be in suspension in air in quantities sufficient to product ignitable mixtures. |
|  | **DIVISION I**<br>Locations in which hazardous concentrations in the air exist continuously, intermittently or periodically under normal operating conditions. |  | **DIVISION II**<br>Locations in which hazardous concentrations are handled, processed or used but are normally confined within closed containers or closed systems from which they can escape only in case of accidental rupture or breakdown. |

7M26
UL913

The ATC Diversified Electronics series of Isolated Switches have been tested and approved for listing under Underwriters Laboratories (UL) UL913 Intrinsically Safe Apparatus and Associated Apparatus. The input(s) to these switches have been approved for use in all classes, groups and divisions of hazardous locations.

Style A

Style N

UL 7M26 UL913

# Single Channel Isolated Switch

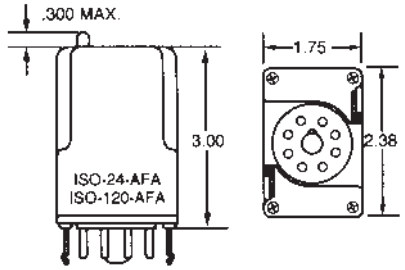
## OPERATION

The ISO Series **single channel** devices are used to provide a safe and reliable means of controlling loads from hazardous locations without releasing sufficient energy, under normal or abnormal conditions, to cause ignition of a flammable or combustible atmospheric mixture while in its most easily ignited concentration. An isolated output turns on when the control switch input from the hazardous location is closed. When the control switch input opens, the isolated output turns off. The Style A single channel plug-in devices come equipped with integral spring mating clips which secure the device to the base make this unit the only **UL913** Intrinsically Safe plug-in associated apparatus available on the market today. The Style N, surface mounted enclosure is sealed with a high quality epoxy resin material and has five (5) #8-32 screw terminals.

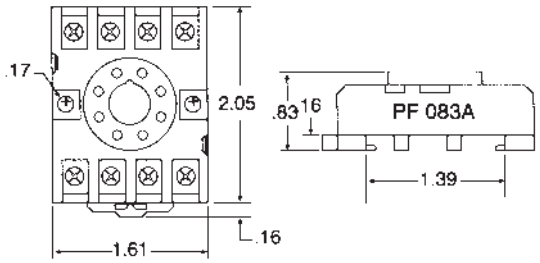
## SPECIFICATIONS

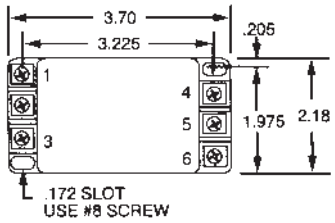
| | | |
|---|---|---|
| CONTROL VOLTAGE | 24 or 120 VAC, ±10%, 50/60 Hz | |
| CONTROL SWITCH | Open Circuit Voltage | 16 VDC |
| | Short Circuit Current | 200 µAmps |
| RESPONSE TIMES | Operate | 6 mSEC (Approx.) |
| | Release | 2.5 mSEC (Approx.) |
| POWER REQUIRED | 1.5 VA | |
| DUTY CYCLE | Continuous | |
| CONTACT RATING | SPST-N.O., 10 amps @ 24 or 120 VAC, Resistive; 278 VA, Inductive | |
| ISOLATION | 2500 Volts, Input to Output | |
| LIFE EXPECTANCY | Mechanical | 20 Million Operations |
| | Electrical | 50,000 Operations @ Rated Load |
| INDICATORS | On When Output is On | |
| TEMPERATURE RATING | Operate | -4° to 131°F (-20° to +55°C) |
| | Storage | -40° to 185°F (-40° to +85°C) |
| ENCLOSURE | Style "E" Lexan® Surface Mounted | |
| TERMINATIONS | (12) #8-32 Screw Terminals | |
| WEIGHT | 20 oz. | |

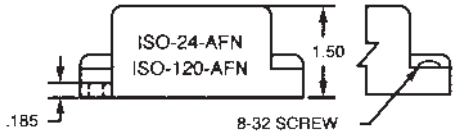
## DIMENSIONS (INCHES)




STYLE A



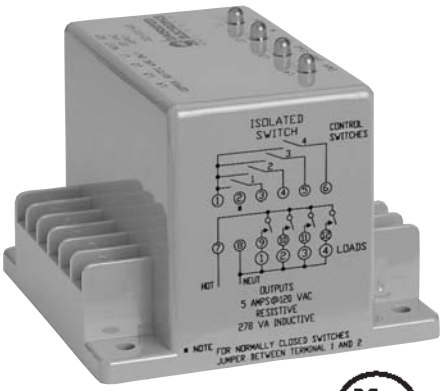

STYLE N

## ORDERING INFORMATION

| MODEL NUMBER | CONTROL VOLTAGE | ENCLOSURE STYLE |
|---|---|---|
| **ISO-24-AFA** | 24 VAC | A |
| **ISO-120-AFA** | 120 VAC | A |
| **ISO-24-AFN** | 24 VAC | N |
| **ISO-120-AFN** | 120 VAC | N |

## OPERATION

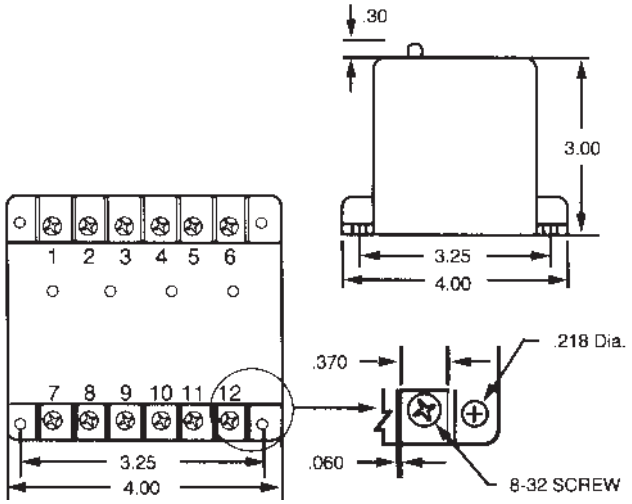
The ISO/ISL Series **multiple channel** devices are used to provide a safe and reliable means of controlling loads from hazardous locations without releasing sufficient energy under normal or abnormal conditions to cause ignition of a flammable or combustible atmospheric mixture while in its most easily ignited concentration. An isolated output turns on when the corresponding control switch input from the hazardous location is activated. When using normally closed control switch inputs, a jumper should be installed between terminals 1 and 2. Normally open control switch inputs do not require the optional jumper. When the **non-latching ISO** Series control switch input is activated, its corresponding output turns on. When the control switch input is deactivated, its output turns off. When the **latching ISL** Series control switch input 2, 3 or 4 is activated, its corresponding output turns on. When control switch 2, 3 or 4 is deactivated, its corresponding output remains latched on as long as control switch input 1 is activated; otherwise it turns off immediately. Control switch input 1 also controls output 1 just as in the non-latching ISO Series.




7M26
UL913

Multiple Channel Isolated Switch

## DIMENSIONS (INCHES)



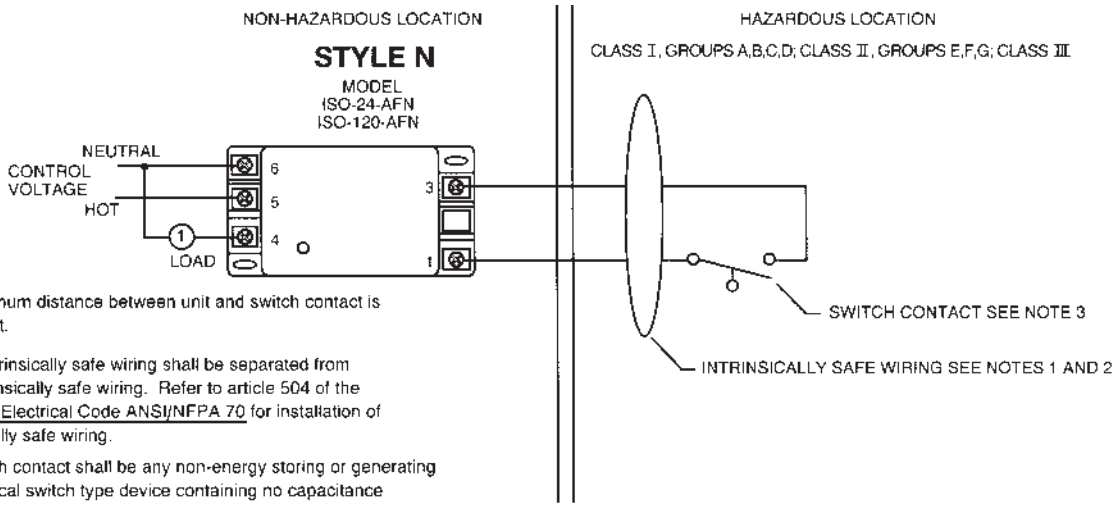

## SPECIFICATIONS

| | | |
|---|---|---|
| CONTROL VOLTAGE | 24 or 120 VAC, ±10%, 50/60 Hz | |
| CONTROL SWITCH | Open Circuit Voltage | 6.2 VDC |
| | Short Circuit Current | 10 µAmps |
| RESPONSE TIMES | Operate | 6 mSEC (Approx.) |
| | Release | 2.5 mSEC (Approx.) |
| POWER REQUIRED | 2.5 VA | |
| DUTY CYCLE | Continuous | |
| CONTACT RATING | SPST-N.O., 5 amps per channel @ 24 or 120 VAC, Resistive; 278 VA, Inductive | |
| ISOLATION | 2500 Volts, Input to Output | |
| LIFE EXPECTANCY | Mechanical | 20 Million Operations |
| | Electrical | 50,000 Operations @ Rated Load |
| INDICATORS | On When Corresponding Output is On | |
| TEMPERATURE RATING | Operate | -4° to 131°F (-20° to +55°C) |
| | Storage | -40° to 185°F (-40° to +85°C) |
| ENCLOSURE | Style "E" Lexan® Surface Mounted | |
| TERMINATIONS | (12) #8-32 Screw Terminals | |
| WEIGHT | 8 oz. | |

## ORDERING INFORMATION

| MODEL NUMBER | CONTROL VOLTAGE | CHANNELS |
|---|---|---|
| **ISL-24-AAE** | 24 VAC | 2 |
| **ISL-24-ABE** | 24 VAC | 3 |
| **ISL-24-ACE** | 24 VAC | 4 |
| **ISL-120-AAE** | 120 VAC | 2 |
| **ISL-120-ABE** | 120 VAC | 3 |
| **ISL-120-ACE** | 120 VAC | 4 |
| **ISO-24-AAE** | 24 VAC | 2 |
| **ISO-24-ABE** | 24 VAC | 3 |
| **ISO-24-ACE** | 24 VAC | 4 |
| **ISO-120-AAE** | 120 VAC | 2 |
| **ISO-120-ABE** | 120 VAC | 3 |
| **ISO-120-ACE** | 120 VAC | 4 |

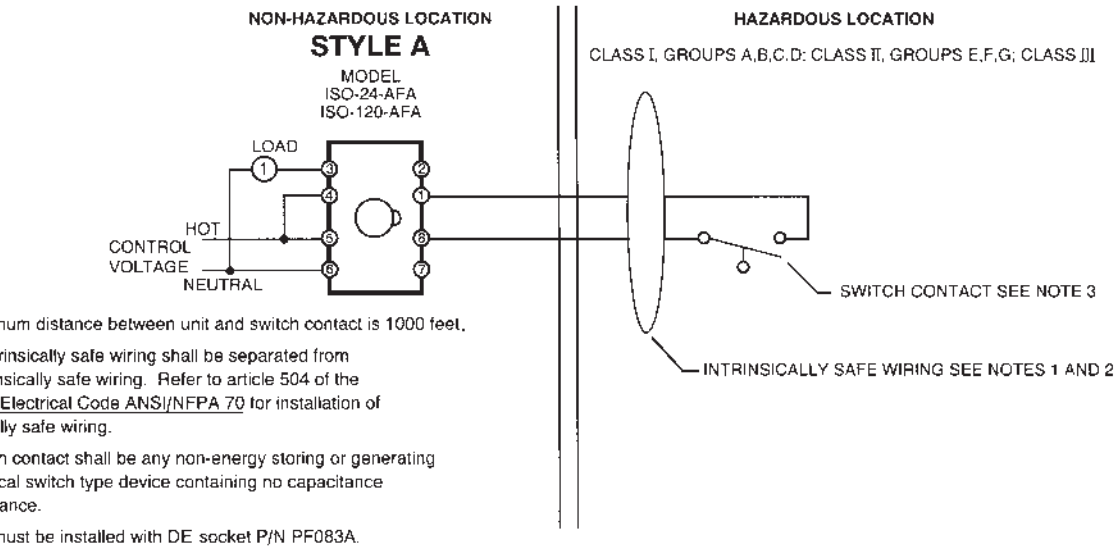
## WIRING




NOTES:

1. Maximum distance between unit and switch contact is 1000 feet.
2. All intrinsically safe wiring shall be separated from non-intrinsically safe wiring. Refer to article 504 of the National Electrical Code ANSI/NFPA 70 for installation of intrinsically safe wiring.
3. Switch contact shall be any non-energy storing or generating mechanical switch type device containing no capacitance or inductance.

CONTROL DRAWING 192

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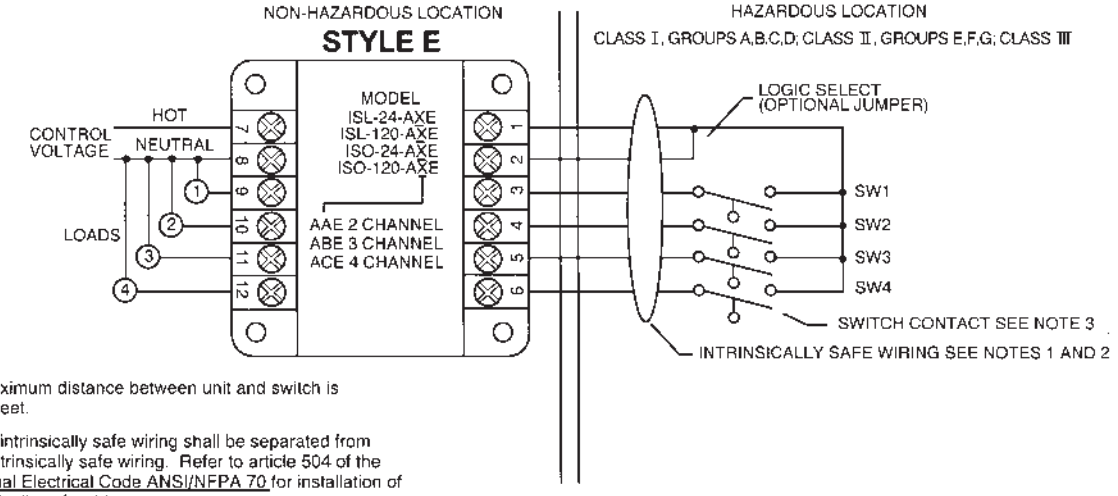
3. Switch contact shall be any non-energy storing or generating mechanical switch type device containing no capacitance or inductance.
4. Unit must be installed with DE socket P/N PF083A.

CONTROL DRAWING 193




NOTES:

1. Maximum distance between unit and switch is 1000 feet.
2. All intrinsically safe wiring shall be separated from non-intrinsically safe wiring. Refer to article 504 of the National Electrical Code ANSI/NFPA 70 for installation of intrinsically safe wiring.
3. Switch contact shall be any non-energy storing or generating mechanical switch type device containing no capacitance or inductance.
4. Wiring to terminals 5,6,11 and 12 is omitted for models with the suffix AAE.
5. Wiring to terminals 6 and 12 is omitted for models with the suffix ABE.