

## Features

### Designed specifically for protection of fire alarm circuits including:

- DC power (200 mA maximum)
- Monitor circuits
- Audio riser circuits
- Firefighter telephone riser circuits
- See [Application Reference](#) for application details
- Listed as an Isolated Loop Circuit Protector to UL 497B, *Protectors for Data Communications and Fire Alarm Circuits*
- Listed as a Surge Suppressor to ULC-S527, *Control Units for Fire Alarm Systems*
- For higher current ILCP applications (up to 5 A), refer to Model A2081-9028 on data sheet *AC2081-0008*

### Multiple stages of protection include:

- Line-to-Line protection
- Line-to-Earth protection
- Rugged epoxy encapsulated package

## Description

**Electrical transients** caused by lightning or by disturbances on high voltage power lines are conditions that require low voltage wiring circuits to be adequately protected. This protection is most effective when placed at the location where such circuits leave or enter the building.

**Transient Protection.** The A2081-9027 Isolated Loop Circuit Protector (ILCP) is designed to protect Autocall Fire Alarm circuits from those electrical transients induced on wire runs that are routed external to the building. Because of its small package size, it can be easily mounted at the location that achieves maximum protection.

**Note 1: Overvoltage Protector Applications.** Model A2081-9027 is for use as an Isolated Loop Circuit Protector which is different from operation as an Overvoltage Protector. For Overvoltage Protector applications, refer to Overvoltage Protector model A2081-9044 which is listed to UL 864, rated for up to 200 mA, and documented on data sheet *AC2081-0016*.

**Note 2: Operation with other Circuit Types.** Performance of the A2081-9028 ILCP has been quantified for use with other circuit types for specific applications where its low resistance is desired. Contact your local Autocall product supplier for application guidance.

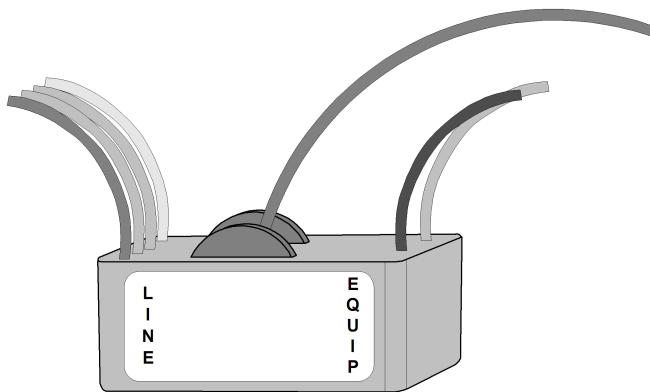


Figure 1: A2081-9027 Isolated Loop Circuit Protector

Table 1: Operating Specifications

Operating Specifications		
Line-to-Line Voltage Rating	Continuous: 38 VDC, 28 VAC RMS Clamping: 47 V typical	
Line-to-Earth Voltage Rating	Continuous: 45 VDC, 35 VAC RMS Clamping: 56 V typical	
Shield-to-Earth Voltage Rating	Continuous: 48 VDC, 33 VAC RMS Clamping: 75 V typical	
Line-to-Line Capacitance	0.006 $\mu$ F typical	
Continuous Current Rating	200 mA maximum	
Series Resistance	3 $\Omega$ /line	
Response Time	Line-to-Line	<1 Nanosecond ( $10^{-9}$ )
	Line-to-Earth	<25 Nanosecond ( $10^{-9}$ )
Maximum Current	Line-to-Line	2000 A (10 x 50 $\mu$ sec pulse)
	Line-to-Earth	2000 A (8 x 20 $\mu$ sec pulse)
	Shield-to-Earth	5000 A (10 x 50 $\mu$ sec)

Table 2: Mechanical Specifications

Mechanical Specifications	
Dimensions	2 7/16 in. W x 1 3/8 in. D x 1 1/16 in. H (62 mm x 35 mm x 27 mm)
Package	Beige epoxy encapsulated
Electrical box requirement	4 in. (102 mm) square box, 2 1/8 in. (54 mm) minimum depth
Temperature Rating	32°F to 120°F (0°C to 49°C)
Humidity Rating	10-95% RH, at 30°C
Signal Leads	Color coded, 18 AWG (0.82 mm <sup>2</sup> ), 10 in. long (254 mm)
Ground Lead	Green, 14 AWG, 10 in. long (254 mm)
Installation Instructions	574-803AC

## Application Reference

Control Panel	Circuit Type	Wiring Distance and Notes
4100ES Series	Audio Riser	3270 ft (1 km) maximum
	Firefighter Telephone Riser	
4007ES, 4010ES, 4100ES Series	Monitor Points	For 2-Wire Detectors: 50 $\Omega$ maximum For Dry Contacts: 800 $\Omega$ maximum or 3270 ft (1 km) maximum, whichever is shorter
	IDNet Monitor ZAM Zone Connections	2000 ft (610 m) maximum or 10 $\Omega$ maximum, whichever is shorter

\* This product has been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7300-2269:0567 for allowable values and/or conditions concerning material presented in this document. Additional listings may be applicable; contact your local Autocall product supplier for the latest status.

## External Wiring Requirements

Fire alarm system wiring that is run external to the building and is protected by the use of A2081-9027 ILCPs shall be installed in accordance with the individual system component's installation instructions including properly grounded, twisted and shielded pairs, and observance of the following precautions.

### Location

To ensure optimized protection, the A2081-9027 ILCPs shall be located as close as possible to the point at which the circuits leave or enter the buildings and installed in dedicated metallic electrical boxes.

### Wiring Distance

Wiring is limited to one contiguous property. The total maximum wire length is determined by the individual application's allowable limit as specified with ILCPs, but must not exceed 3270 ft (1 km).

### Underground Wiring

Wiring must be in a wiring trough that is separate from commercial power distribution wiring.

### Overhead Wiring

1. Wiring must be run on poles separate from those supporting any commercial power distribution wiring.
2. Wiring shall be run in parallel with the commercial power distribution wiring and be separated by a minimum distance of either 100 ft (30 m) or the maximum span between any two adjacent poles of either the system's circuit or the commercial power distribution circuit.

### Grounding Conductor

The grounding conductor shall be 12 AWG (3.31 mm<sup>2</sup>) with a maximum length of 28 ft (8.5 m), run in as straight a line as possible and connected to the building grounding electrode system (unified earth ground) per NFPA 70, the *National Electrical Code*.

## Typical Connection Reference (refer to Installation Instructions 574-803AC for additional information)

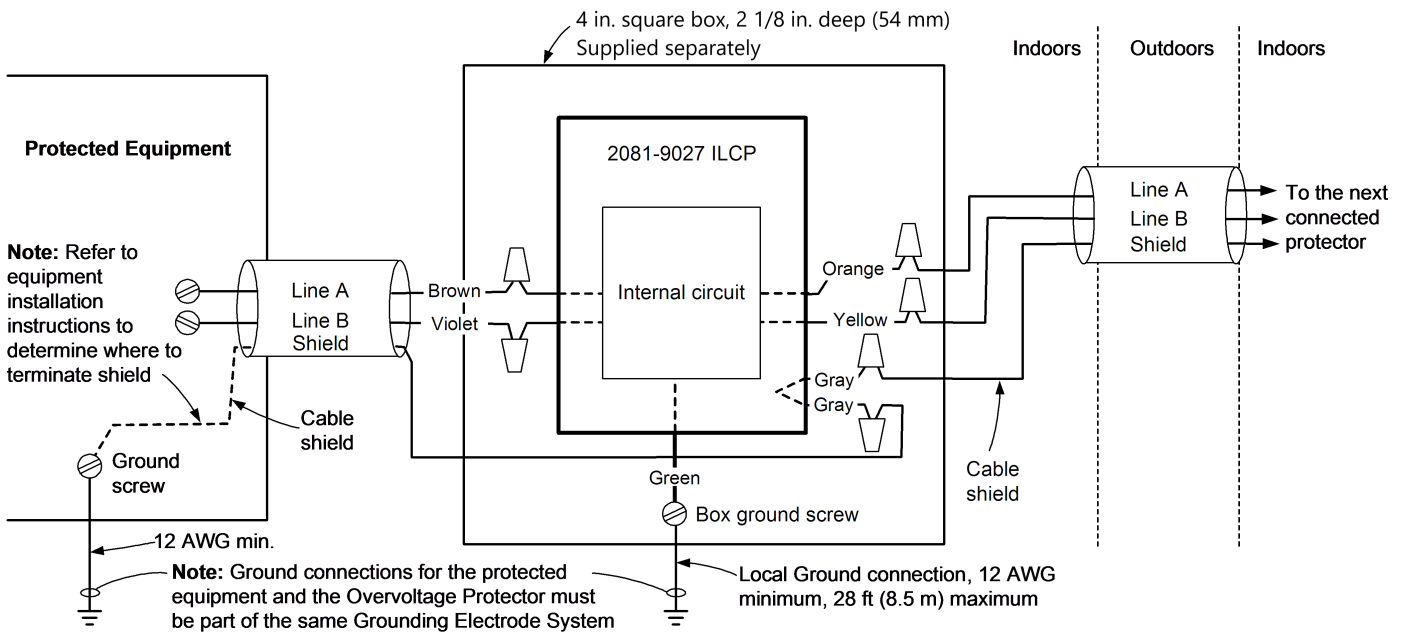


Figure 2: Typical Connection Reference