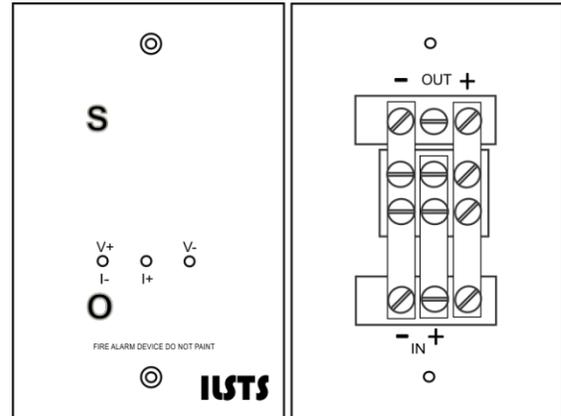


## INSTALLATION & OPERATING INSTRUCTIONS

These instructions are provided to ensure compliance with the installation requirements of NFPA-72 (National Fire Alarm Code), and CAN/ULC-S524 (Standard for Installation of Fire Alarm Systems) and the National Electrical Code. The ILSTS UEI-1 is intended for permanent installation and can be used in lieu of a standard fire alarm system end-of-line resistor plate.

The ILSTS UEI-1 is compatible with all UL/ULC Listed fire alarm systems produced or distributed in North America. When used correctly, the time to complete the required testing for End-of-Line Resistors, In-suite Sounder Isolators, and DCL (SLC) Loop Isolators is typically fifteen (15) to thirty (30) seconds.



### IMPORTANT CAUTIONS:

#### Applications:

Ensure the electrical box is properly bonded to ground. For conventional circuit End-of-Line applications, follow the testing and maintenance instructions stipulated in CAN/ULC-S536 to ensure the proper utilization of the ILSTS UEI-1. For applications involving power, audio, or notification buss risers, refer to the applicable fire alarm manufacturer's testing and maintenance procedures.

This device is required to be mounted onto an approved single gang electrical box or on a suitable single gang adapter plate and in accordance with the applicable Installation Standard, National Electrical Codes and the authority having jurisdiction.

Can be used in damp locations (if mounted on an approved box).

Maximum switching current is 3 Amps  
Maximum operating voltage is 300 V AC/DC  
Operating temperature range: -20C to 50C

### CIRCUIT END-OF-LINE TEST APPLICATION:

(Reference Figure "B" on page 6.)

The ILSTS UEI-1 is not polarity sensitive in this application.

**Note:** When terminated correctly the circuit should be clear of faults (normal).

### INSTALLATION:

**NOTE:** Use only EOL resistor provided or specified by the control panel manufacturer.

1. Mount the ILSTS UEI-1 at (or less) than 1800 mm above the floor (measured to the centre of the plate) in order to facilitate access to the testing means.
2. Connect an end-of-line resistor across the terminals marked OUT "+" and OUT "-". The UEI-1 is not polarity sensitive in this application.
3. Connect the field wiring from the control panel (or from the last device in the circuit) to the terminals marked IN "+" and IN "-". The circuit should indicate a "normal" condition. If "off normal", or "trouble" is indicated for the zone, check field wiring connections.
4. Mount plate with hardware provided.

### TESTING PROCEDURE:

1. Place a magnet on the "O" (Open) indicator on the face of the UEI-1. This will cause the control panel to display an "open circuit trouble" supervisory fault.
2. Remove the magnet. The circuit will restore to "normal".
3. Place the magnet on the "S" (Short) indicator on the face of the UEI-1. This will cause a short condition on the circuit.
4. Remove the magnet. Reset the system (as necessary).
5. Insert the test probe from your multi-meter into one of the holes on the face of the unit and ground the other end of the probe against one of the exposed screws used to secure the device to the electrical box. The fire alarm control will indicate a "trouble" condition (some fire alarm controls may indicate a "ground fault" condition).

(Continued on next page)

## Circuit End-of-Line Application Testing Continued:

6. With your meter set up for reading volts, you will be able to measure the voltage across the end-of-line resistor by inserting your test probes into the two holes marked "V+" and "V-" located on the face of the unit (required test in accordance with CAN/ULC-S537 – Standard for Verification of Fire Alarm Systems).
6. With your meter set up for reading Ohms (resistance), you will be able to confirm the value of the installed end-of-line resistor. Position a magnet on the "O" (Open) indicator on the face of the UEI-1 and insert your meter probes into the "V+" and "V-" holes on the face of the unit. The reading you see displayed is the value of the end-of-line resistor.

**Additional Testing:** To determine the current on the circuit, insert the leads from your multi-meter (set to read Amps) into the two holes marked "I-" and "I+" on the face of the UEI-1. Position a magnet over the letter "O" (Open). Your meter will display the current (in Amps) on the circuit (or circuit segment). Remove the magnet and your meter leads and the circuit will return to normal operation.

## IN-SUITE SOUNDER ISOLATOR TEST APPLICATION:

(Reference Figure "A" on page 6.)

**WARNING: Observe correct polarity when connecting system wiring.**

**Note:** When terminated correctly the circuit should be clear of faults (normal).

## INSTALLATION:

1. The *ILSTS* UEI-1 should be mounted immediately adjacent to and below the in-suite signal isolator it will be testing. A minimum of two (2) units will be required, one for each suite being monitored. The device should be mounted at (or less than) 1800 mm above the floor (measured to the centre of the plate) in order to facilitate access to the testing means.
2. Connect the alarm positive of the suite signal output from the isolator to the terminal marked IN "+".
3. Connect the alarm negative of the suite signal output from the isolator to the terminal marked IN "-".
4. Connect the alarm positive wire for the in-suite sounder(s) to the terminal marked OUT "+".
5. Connect the alarm negative wire for the in-suite sounder(s) to the terminal marked OUT "-".
6. Connect the return wires from the suite sounders to the applicable "return" terminals on the isolator.

## TESTING PROCEDURE:

1. Disable all common area signals on the floor you're testing.
2. Place a test magnet on the "O" (Open) indicator on the face of the UEI-1. This will impose a "open" on the circuit which will indicate an "open trouble" or "NAC Fault" at the common control.
3. Initiate a drill test at the common control. The buzzers in the suite under test should sound normally (as should all the suite buzzers in the same floor area). This test confirms that the isolator module you're testing supervises for "opens" and that the Class "A" circuit between the isolator and the in-suite sounders under test are wired correctly.
3. Remove the magnet. The circuit should restore to "normal".
4. Place the magnet used in Step 1 on the letter "S" (Short) on the face of the UEI-1. This will impose a "short circuit" on the suite devices under test and cause a "trouble" fault signal at the common control (some systems may actually indicate a "short fault" condition).
5. With the magnet still positioned on the "S" (Short), initiate a "Drill Test" from the control unit. The sounders associated with the suite to which the activated *ILSTS* UEI-1 is connected will not function. All other sounders in the other suites in the floor area should activate.
6. Remove the magnet. The sounders associated with the suite under test will activate.
7. Return the test magnet to the "S" (Short) indicator on the face of the UEI-1. The sounders associated with the suite under test will stop functioning. All other in-suite sounders in the floor area should continue to function.
8. Remove the magnet. The sounders associated with the suite under test will re-activate.
9. Turn "off" the "Drill Test". All circuit indications should read "normal" at the common control. Move to the next *ILSTS* UEI-1 in the floor area and repeat 1 – 9.

**Note 1:** If, in step 5, none of the sounders inside the suite you're testing activate, then the NAC is programmed incorrectly!

**Note 2:** For a Verification test (performed to CAN/ULC-S537-13), you may wish to confirm that the total current draw on the isolator under test hasn't exceeded the rated current for the device. The *ILSTS* UEI-1 makes this a simple test to perform. With your multi-meter set to measure current, insert your test leads into the two holes on the face of the unit marked "I+" and "I-". Position a magnet over the letter "O" (Open) on the face of the UEI-1 and initiate a "Drill Test". The current reading on your meter is the total current drawn by all of the in-suite signal appliances the isolator your testing is protecting.

## DCL (SLC) ISOLATOR TEST APPLICATION:

(Reference Figure "C" on page 7.)

**WARNING: Observe correct polarity when connecting system wiring.**

**Note:** When terminated correctly the circuit should be clear of faults (normal).

### INSTALLATION:

1. The *ILSTS* UEI-1 should be mounted immediately adjacent to and below the DCL (SLC) isolator it will be testing. For systems utilizing smoke detectors with isolator bases, locate the unit on an adjacent wall and wire it as the first device for the floor area circuit being protected. The device should be mounted at (or less than) 1800 mm above the floor (measured to the centre of the plate) in order to facilitate access to the testing means.
2. Connect the positive wire from the data loop to the terminal marked IN "+".
3. Connect the negative wire from the data loop the terminal marked IN "-".
4. Connect the positive wire for the floor area data loop devices being protected to the terminal marked OUT "+".
5. Connect the negative wire for the floor area data loop devices being protected to the terminal marked OUT "-".
6. The system should indicate a "normal" condition and all programmed field devices should be reporting normally. If "off normal", or "trouble" is indicated for the DCL (SLC) loop, check the field wiring connections. Mount the plate with the hardware provided.

### TESTING PROCEDURE:

1. Place a test magnet on the "O" (Open) indicator on the face of the UEI-1. This will impose an "open" on the circuit which will indicate an "open trouble" at the common control. Programmed field devices associated with the protected portion of the circuit will also indicate a communication fault ("invalid reply", or "device missing").
2. Remove the magnet. Communication with programmed field devices will resume. Some control panels may require a "reset".
3. Place the magnet on the "S" (Short) indicator on the face of the UEI-1. This will cause a short condition on the circuit and activate a visible indicator on the isolator being tested.
4. With the magnet in place, initiate the required testing for devices connected to the same loop controller outside of the floor area served by the isolator.
5. Remove the magnet. All indications for the designated loop controller at the control panel should read "normal". Some control panels may require a "reset".
6. Insert the test probe from your multi-meter into one of the holes on the face of the unit and ground the other end of the probe against one of the exposed screws used to secure the device to the electrical box. A "ground fault" condition should be indicated at the common control.
7. With the "ground fault" condition active, complete the required testing procedure for connected fire alarm devices within the floor area.
8. Remove the probe and disconnect the connection to the building ground. Circuit indications for the DCL (SLC) loop being tested should read "normal" at the common control.

(Continued on next page)

(Reference Figure "D" on Page 7.)

**WARNING: Observe correct polarity when connecting system wiring.**

**Note:** When terminated correctly the circuit should be clear of faults (normal).

**INSTALLATION:**

1. The *ILSTS* UEI-1 should be mounted immediately adjacent to and below the Buss Isolator it will be testing. The device should be mounted at (or less than) 1800 mm above the floor (measured to the centre of the plate) in order to facilitate access to the testing means.
2. Connect the positive wire from the buss isolator to the terminal marked IN "+".
3. Connect the negative wire from the buss isolator to the terminal marked IN "-".
4. Connect the positive wire for the floor area powered (or audio) devices being protected to the terminal marked OUT "+".
5. Connect the negative wire for the floor area powered (or audio) devices being protected to the terminal marked OUT "-".
6. Mount the plate with the hardware provided. The system should indicate a "normal" condition and all programmed field devices should be reporting normally. If "off normal", or "trouble" is indicated for the buss, check the field wiring connections.

**TESTING PROCEDURE:**

1. Place a test magnet on the "O" (Open) indicator on the face of the UEI-1. This will impose an "open" on the circuit which will indicate an "open trouble" at the common control for supervised devices on the circuit.
2. With the magnet in place, and your multi-meter set for reading current (Amps), insert your test probes in the two holes marked "I+" and "I-" provided on the cover. The reading displayed on your meter is the current for the circuit segment the isolator is protecting.
3. Remove the magnet and the test leads. Normal operation of the powered field devices will resume. Some control panels may require a "reset".
4. Place the magnet on the "S" (Short) indicator on the face of the UEI-1. This will cause a short condition on the circuit and activate a visible indicator on the isolator being tested.
5. With the magnet in place, initiate the required testing for devices connected to the buss outside of the floor area served by the isolator.
6. Remove the magnet. All indications for the buss at the control panel should read "normal". Some control panels may require a "reset".
7. Insert the test probe from your multi-meter into one of the holes on the face of the unit and ground the other end of the probe against one of the exposed screws used to secure the device to the electrical box. A "ground fault" condition should be indicated at the common control.
8. With the "ground fault" condition active, complete the required testing procedure for connected fire alarm devices within the floor area.
9. Remove the probe and disconnect the connection to the building ground. Circuit indications for the buss riser being tested should read "normal" at the common control. Some panels may require a "reset" before you move on to the next isolator on the buss.

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<b>Electrical Specifications:</b>		<b>Manufactured in Canada By:</b>	
Voltage:	0 – 300 VAC/VDC Operation	<b>Integrated Life Safety Testing Solutions</b>	URL: <a href="http://www.ilsts.ca">www.ilsts.ca</a>
Ripple:	3 Volts peak-to-peak		Email: <a href="mailto:info@ilsts.ca">info@ilsts.ca</a>
Supervisory Current:	100µA Maximum	Suite 343, Building 151, 10090 152 Street, Surrey, British Columbia V3R 8X8 Tel: 1.778.636.FIRE (3473) Fax: 1.604.552.7909	
Rated Operating Current:	0.1mA – 3 Amps		
Switching Current (Max):	3 Amps		
Temperature:	-20°C to 49°C (10°F to 120°F)		
Humidity:	96% max.		
Installation Requirements:	Suitable for Damp or Dry Locations (as required)		
Wire Gauge:	12 – 22 AWG		
Maximum EOLR Value:	280K Ohms 0.25 Watts		
<b>Agency Listings (Pending):</b>		North American Patent Pending	

# Typical In-Suite Sounder Connection Diagram

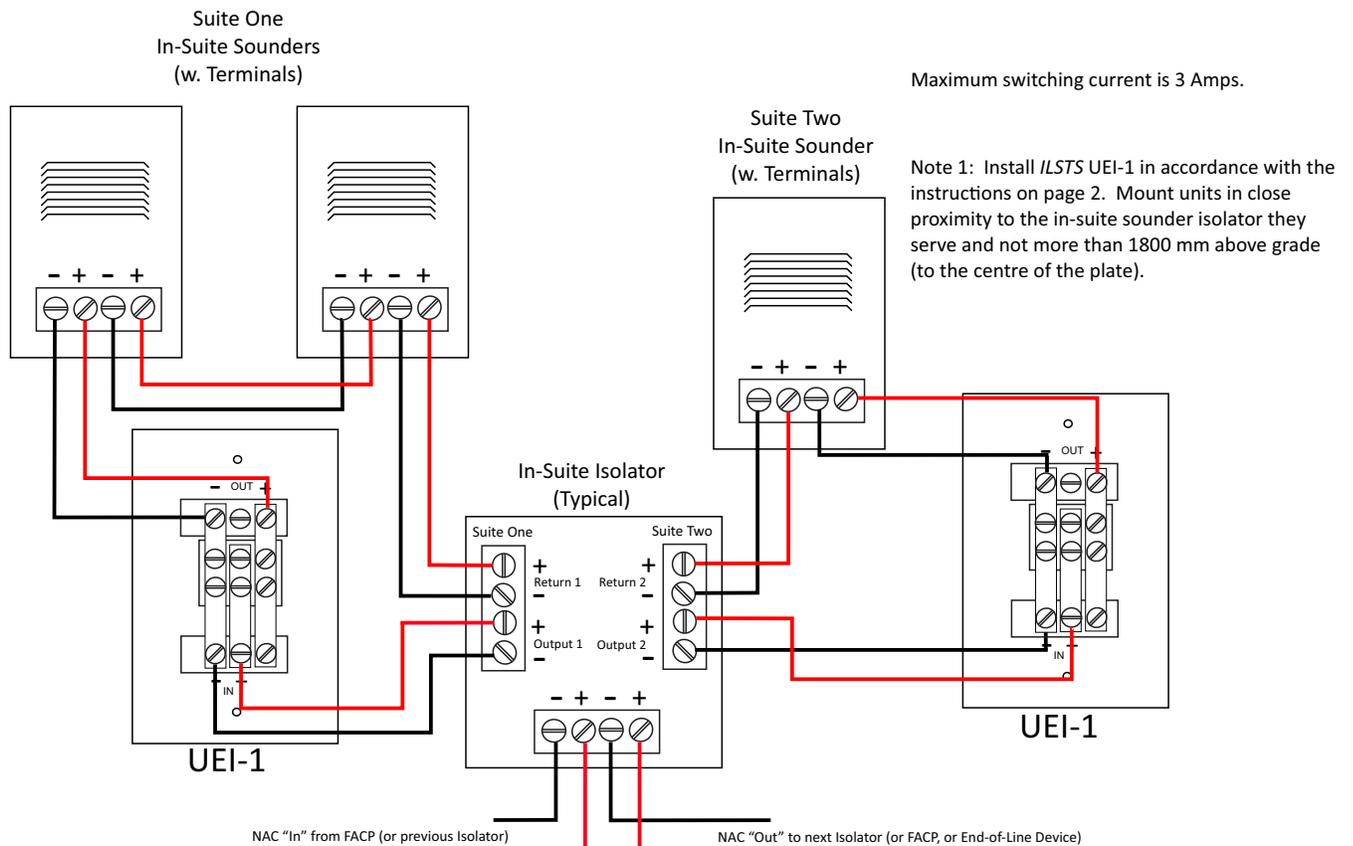


Figure "A"

# Typical Conventional Zone End-of-Line Resistor Application Connection Diagram

Maximum switching current is 3 Amps.

Note 1: Use only EOLR provided or specified by the control panel manufacturer. Install /LSTS UEI-1 in accordance with the requirements for End-of-Line Devices and the instructions on page 1.

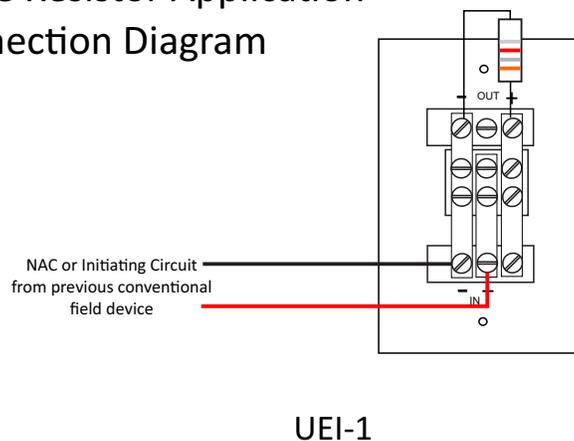


Figure "B"

Drawing #4797-1FK Revision 180417

# Typical DCL (SCL) Isolator Connection Diagram

Note 1: Install the *ILSTS* UEI-1 in close proximity to the DCL (SLC) isolator it serves and on a wall (where practical), less than 1800 mm above grade (measured to the centre of the device). Follow instructions detailed on page 3.

Note 2: One *ILSTS* UEI-1 is recommended for every DCL (SLC) isolated section in the circuit.

**CAUTION:** The maximum switching current is 3 Amps.

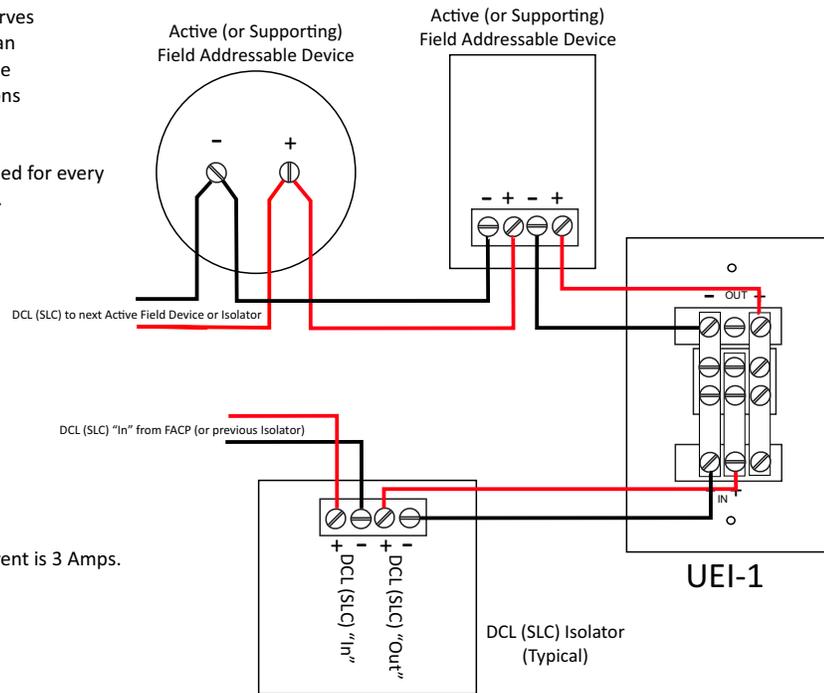


Figure "C"

# Typical DCL (SCL) / Auxiliary Power Connection Diagram (For FACP With Integral Circuit Isolation)

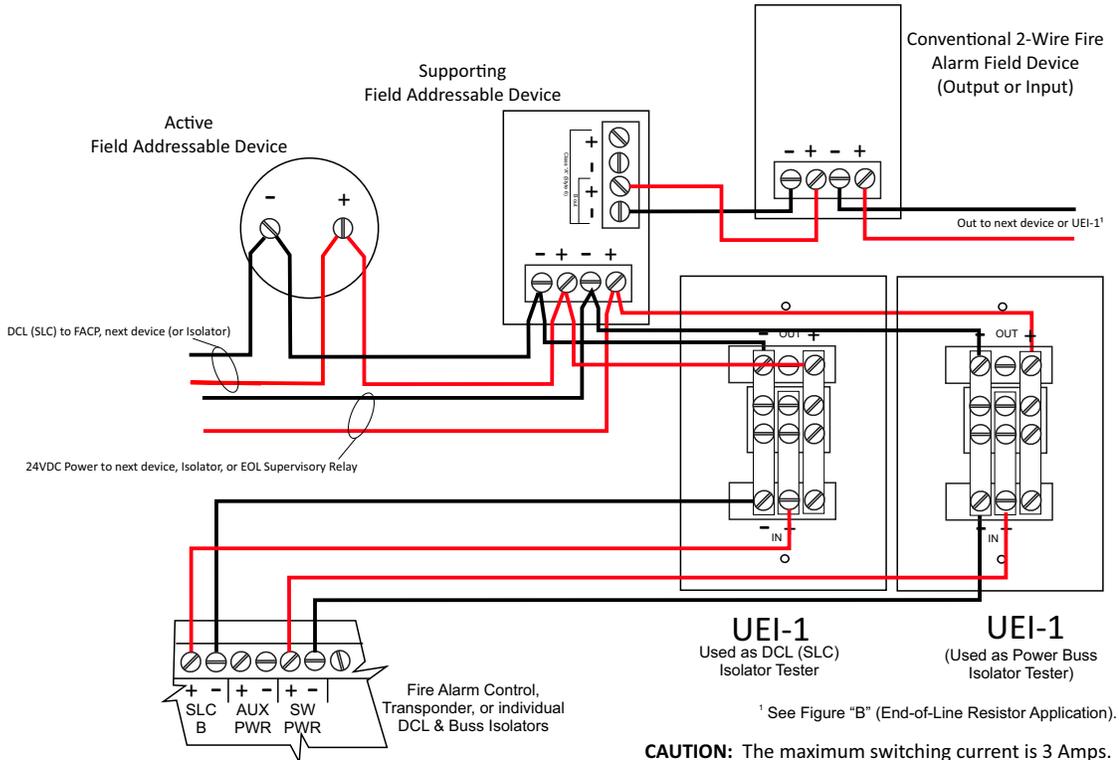


Figure "D"

Drawing #4797-2FK Revision 160922