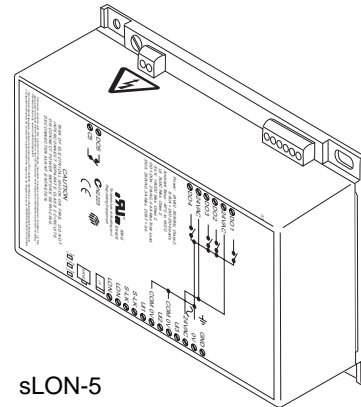


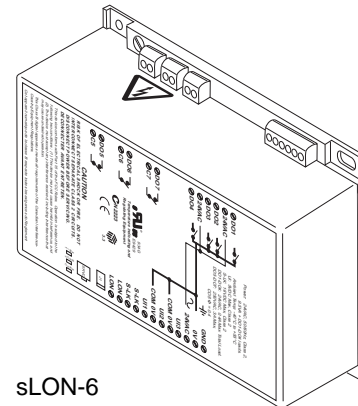
Application

The sLON-5 and sLON-6 Controllers are interoperable controllers designed in accordance with LONMARK® guidelines. When programmed using WPT Software Tool, these controllers provide control for fan coil and unit ventilator applications. These controllers feature: screw terminal blocks; three universal inputs, software-configured to respond to one of five input types; one (sLON-5) or three (sLON-6) high-voltage relay output(s); four 24 Vac Triac (digital) outputs; and an S-Link interface for connection to an optional sLON-WTSx digital sensor.

The sLON-5 and sLON-6 controllers conform to the LONMARK Fan Coil Unit functional profile (8020) providing open communication and interoperability with third party LONMARK devices and greater freedom in system design. These controllers can function in standalone mode or as part of a LONWORKS® TP/FT-10 Free Topology network.



sLON-5



sLON-6

Model Chart

Model	Description	Inputs / Outputs
sLON-5	Fan Coil Controller with One High Voltage Relay	<ul style="list-style-type: none"> • 3 Universal Inputs (software-configured) • 4 DO Triacs, capable of switching a total load of 0.5 A @ 24 Vac. • 1 DO Relay Output, 250 Vac, 3 A. • S-Link Support.
sLON-6	Fan Coil Controller with Three High Voltage Relays	<ul style="list-style-type: none"> • 3 Universal Inputs (software-configured) • 4 DO Triacs, capable of switching a total load of 0.5 A @ 24 Vac. • 3 DO Relay Outputs, 250 Vac, 3 A. • S-Link Support.

INSTALLATION

Inspection

Inspect carton for damage. If damaged, notify carrier immediately. Inspect controllers for damage upon receipt.

Requirements

- Installer must be an experienced technician.
- Tools:
 - Drill and bits
 - Digital Volt-ohm meter (DVM)
 - Static protection wrist strap
- Class 2 power transformer supplying a nominal 24 Vac (20.4 to 30 Vac), 50/60 Hz. For transformer specifications, see the “Power Supply Wiring” section, on page 14.
- Suitable grounded metal enclosure (to prevent the possibility of accidental contact with the high-voltage terminals)
- Four #6 self-starting screws or 35 mm DIN rail for mounting
- Terminators (if a LONWORKS network is used):
 - One sLON-T1 terminator required for each free topology segment
 - Two sLON-T2 terminators required for each bus topology segment
- Accessories (as required):
 - sLON-WTSx (S-Link) Sensors
 - 470k ohm 1/4 watt resistor (if shielded wire is used for S-Link wiring)
 - Approved Category 4 or 5, twisted-pair (two conductors) cable (optional LONWORKS Network connection)
 - 0.205 mm² (#24 AWG) or larger twisted pair, voice grade telephone wire (for UI, AO, and DI wiring)
 - 10K ohm Thermistor Sensor with 11K ohm Shunt Resistor
 - Platinum Sensor
 - Balco Sensor
 - 1K Balco or platinum element resistive sensor
 - 0 to 5 Vdc analog voltage transmitter
 - 4 to 20 mAdc analog current transmitter
 - Digital dry switched contact (switched contact resistance must be less than 300 ohms for closed contact and greater than 1.5K ohms for open contact)

Precautions



General

Warning: The sLON-5 and sLON-6 controllers are not suitable for exposed mounting on a wall or panel, or in any other easily accessible place due to the possibility of personal contact with the high-voltage terminals. They must be mounted inside a suitable grounded metal enclosure (Figure-2).

Warning: Electrical shock hazard! Disconnect power from the controller and any digital outputs before installing or removing the cover.

- Follow Static Precautions when installing this equipment.
- Use copper conductors that are suitable for 75 °C (167 °F).
- Make all connections according to electrical wiring diagram, national and local electrical codes.

Static Precautions

Static charges damage electronic components. The microprocessor and associated circuitry are extremely sensitive to static discharge. Use the following precautions when installing, servicing, or operating the system.

- Work in a static-free area.
- Discharge static electricity by touching a known, securely grounded object.
- Use a wrist strap connected to earth ground when handling the controller's printed circuit board.

Federal Communications Commission (FCC)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. This equipment generates, uses, and can radiate radio frequency energy and may cause harmful interference if not installed and used in accordance with the instructions. Even when instructions are followed, there is no guarantee that interference will not occur in a particular installation. If this equipment causes harmful interference to radio or television reception — which can be determined by turning the equipment off and on — the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Canadian Department of Communications (DOC)

Note: This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Community Directives

This equipment meets all requirements of European Community Directives for Low Voltage (72/23/EEC), General Safety (92/59/EEC), and Electromagnetic Compatibility (89/336/EEC).

Caution:

- This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.
 - The LON and S-LK cables must be installed within grounded metallic conduit or conductive cable trays to fully comply with the EMC requirements of EN61326.
-

Location



The sLON-5 and sLON-6 controllers are suitable for indoor use only (IP 20). See Figure-1 for mounting dimensions. When selecting a mounting location, make certain the following conditions are met:

Warning: The sLON-5 and sLON-6 controllers are not suitable for exposed mounting on a wall or panel, or in any other easily accessible place due to the possibility of personal contact with the high-voltage terminals. They must be mounted inside a suitable grounded metal enclosure (Figure-2).

Caution:

- Do not install where excessive moisture, corrosive fumes, vibration, or explosive vapors are present.
 - Do not install near large contactors, electrical machinery, or welding equipment.
 - Allow 150 mm (6 in.) clearance from contactors, switches, and associated cabling.
 - Locate where ambient temperatures do not exceed 55 °C (131 °F) or fall below -40 °C (-40 °F) and relative humidity does not exceed 95%, non-condensing.
-

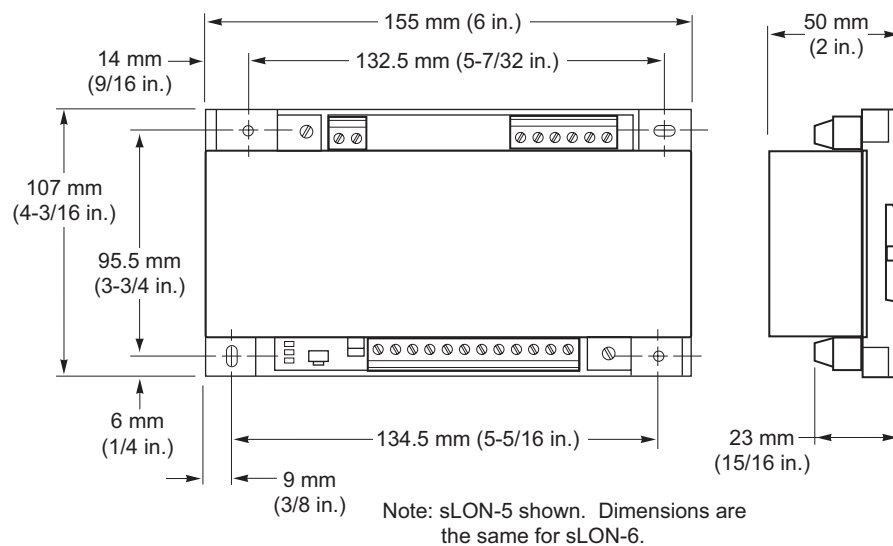


Figure-1 Mounting Dimensions.

Mounting

Panel or DIN Rail Mounting

1. Select a mounting location. Allow a minimum of 50 mm (2 in.) clearance around the controller.

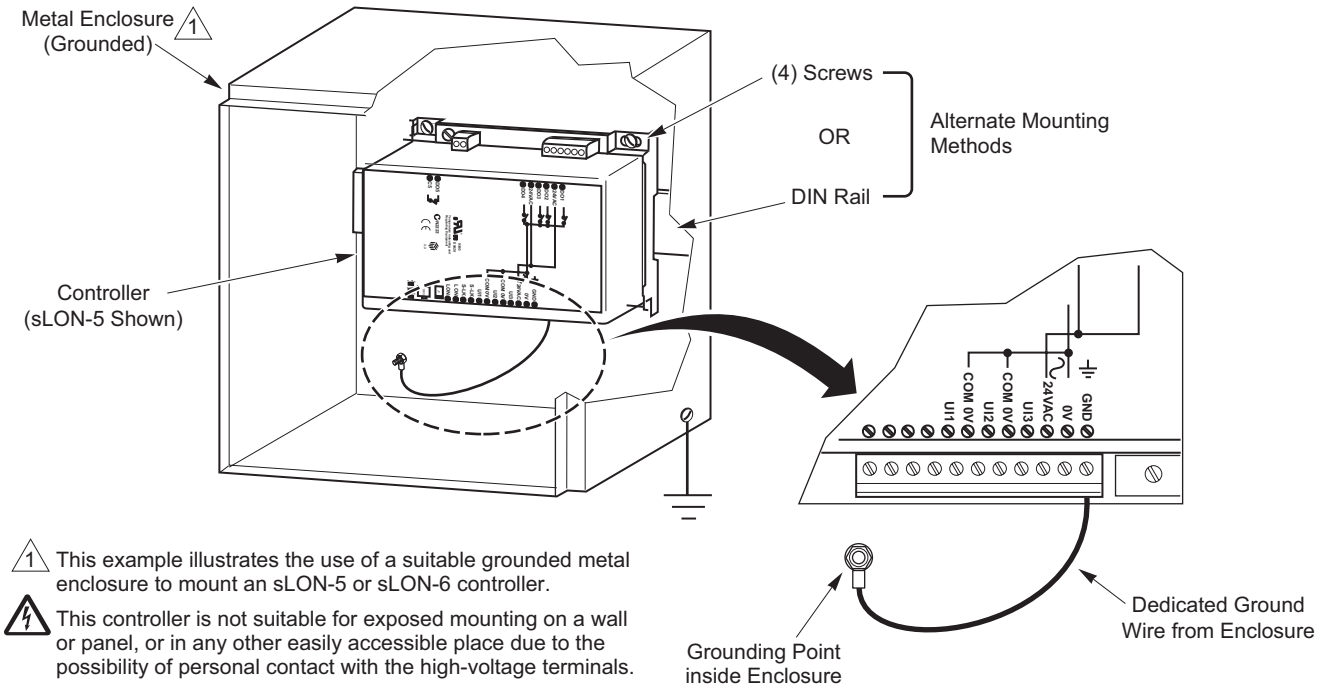


Figure-2 Mounting in Enclosure.

2. Do the following to mount the controller onto a panel (Figure-3):
 - a. Place the controller on a panel and mark the location of one top mounting hole.
 - b. Drill the marked hole, using a drill bit sized for a #6 screw.
 - c. Fasten the controller to the panel with one #6 self-starting screw.

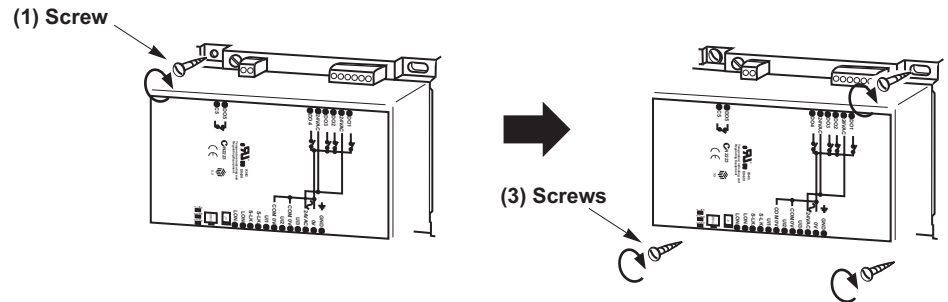


Figure-3 Panel Mounting Method.

- d. Level the controller, then mark the locations of the remaining mounting holes.
 - e. Drill the marked holes, then fasten the controller, using the three remaining screws.
3. Do the following to mount the controller onto a 35 mm DIN mounting rail (Figure-4):
 - a. Hook the mounting tabs, on the back of the controller, onto the top edge of the DIN rail.
 - b. Gently press the bottom of the controller onto the DIN rail so that it snaps into place.

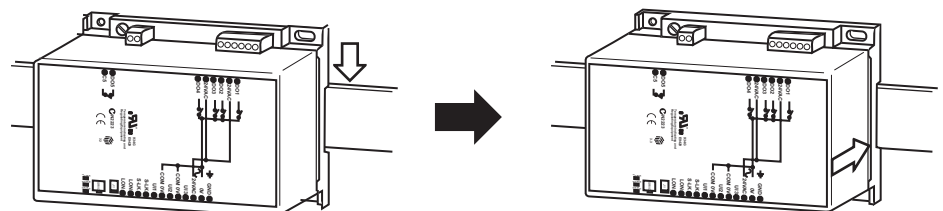


Figure-4 DIN Rail Mounting Method.

Wiring

The following electrical connections can be made to sLON-5 and sLON-6 controllers:

- Communications wiring, including:
 - S-LK wiring between an sLON-5 and sLON-6 controller and an sLON-WTSx Sensor.
 - LONWORKS network (LON) connection, including connections to other sLON-type controllers.
- I/O connections, including:
 - Three Universal Inputs (UIs)
 - One (sLON-5) or three (sLON-6) high-voltage relay output(s)
 - Four Triac digital outputs
 - LONWORKS Network Jack
- 24 Vac nominal class 2 (EN 60742) power source and earth ground power connection

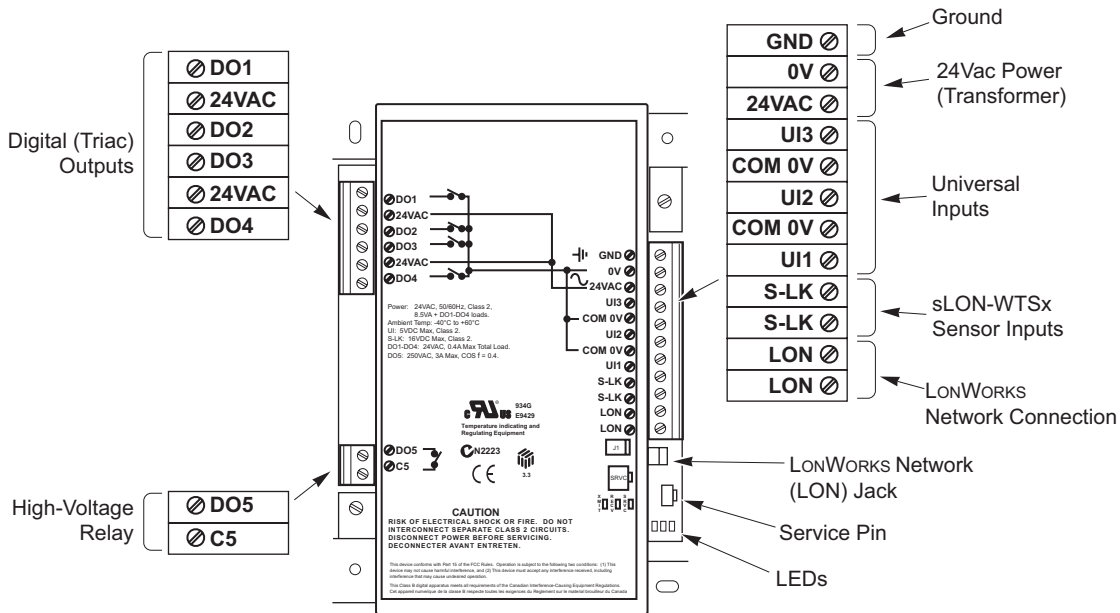


Figure-5 sLON-5 Terminal Connections.

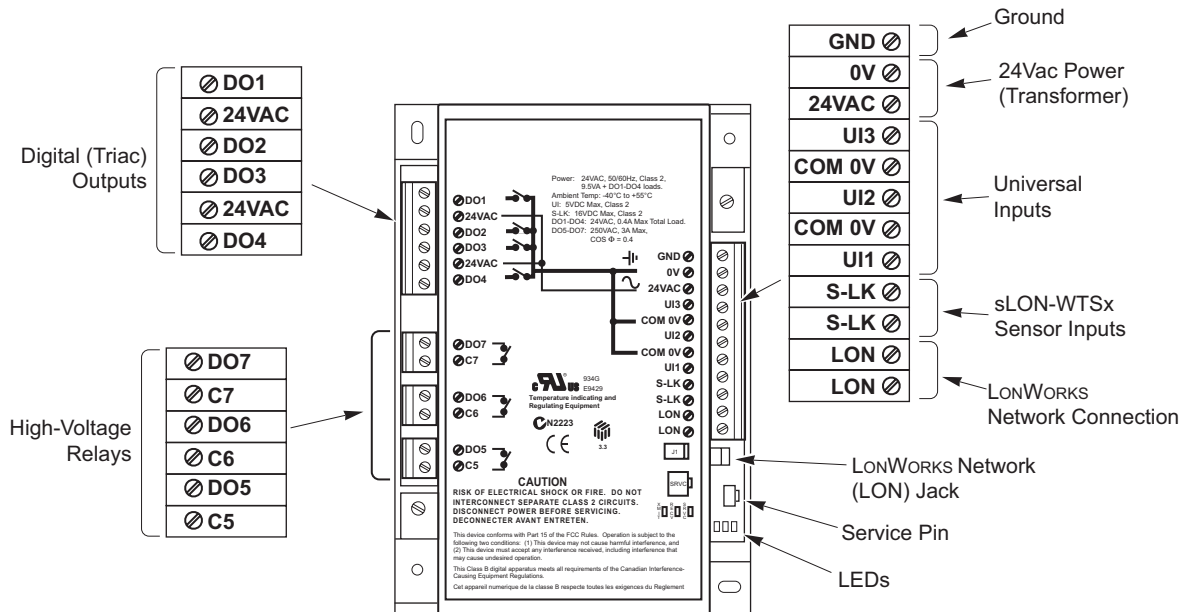


Figure-6 sLON-6 Terminal Connections.

Communications Wiring

Communications wiring includes wiring between the sLON-5 or sLON-6 controller and one sLON-WTSx Sensor, as well as wiring between the sLON-5 or sLON-6 controller and a LONWORKS Network (LON).

S-Link and LON Wiring Precautions

Caution:

- Communication wire pairs must be dedicated to S-Link and LON communications. They cannot be part of an active, bundled telephone trunk.
- The LON and S-LK cables must be installed within grounded metallic conduit or conductive cable trays to fully comply with the EMC requirements of EN61326.
- Shielded cable is not required for S-Link or LON communications wiring. If shielded wire is used, the shield must be connected to earth ground at only one end, using a 470k ohm 1/4 watt resistor, and the shield must be continuous from one end of the trunk to the other.
- Conduit between a Sensor and a controller can be shared by S-LK wiring and LON wiring, provided that this conduit does not also contain wiring for power, UI, AO, DI, or DO. However, the S-Link and LON wiring must be separate cables.

Sensor Link (S-Link) Wiring

Using S-LK wiring, an sLON-5 or sLON-6 controller may be connected to one sLON-WTSx sensor. S-Link wiring powers and enables the sensor. The S-Link requires at least 0.205 mm² (#24 AWG), twisted pair, voice-grade telephone wire. The capacitance between conductors cannot be more than 32 pF per 0.3 m (1 ft). If shielded cable is used, the capacitance between any one conductor and the others, connected to the shield, cannot be more than 60 pF per 0.3 m (1 ft). The maximum wire length is 61 m (200 ft).

Note:

- The sLON-5 or sLON-6 controller can support one sLON-WTSx Sensor.
- S-Link wiring is not polarity-sensitive.

Connect the one sLON-5 or sLON-6 controller to an sLON-WTSx Sensor as follows:

1. Strip 6 mm (1/4 in.) of insulation from one end of the S-LK wires.
2. Connect the stripped wires to the S-LK terminals of the controller (Figure-5 or Figure-6). The S-LK connection is not polarity-sensitive.
3. Strip 6 mm (1/4 in.) of insulation from the other end of the S-LK wires.

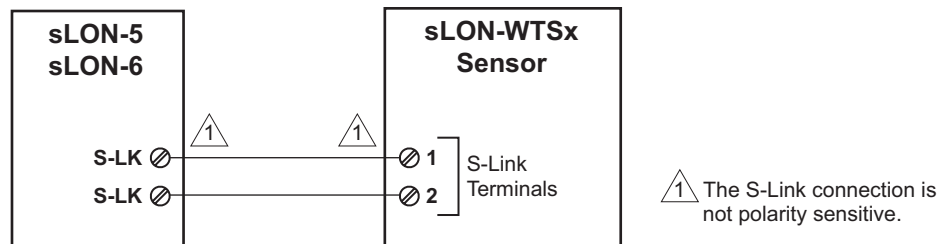


Figure-7 sLON-5 and sLON-6 S-Link Terminal Connections.

4. Connect the other end of the S-LK wires to the sensor.

LONWORKS Network (LON) Wiring

Approved Category 4 or 5, twisted-pair (two conductors) cable may be used for the LONWORKS Network connection between the sLON-5 or sLON-6 controller and a LONWORKS Network, or for the optional LONWORKS Network connection between the controller and an sLON-WTSx Sensor.

Caution:

- See the section, “S-Link and LON Wiring Precautions,” on page 7.
 - Do not mix LON network wiring with power, UI, AO, DI, or DO types of wiring.
 - Conduit between an sLON-WTSx Sensor and a controller can be shared by LON wiring and S-LK wiring, provided that this conduit does not also contain wiring for power, UI, AO, DI, or DO. However, the S-Link and LON wiring must be separate cables.
-

Connect the sLON-5 or sLON-6 controller to a LONWORKS Network or an sLON-WTSx Sensor as follows:

1. Strip 6 mm (1/4 in.) of insulation from one end of the LON wires.
2. Connect the stripped wires to the LON terminals of the controller (Figure-8). The LON connection is not polarity-sensitive.
3. Strip 6 mm (1/4 in.) of insulation from the other end of the LON wires.

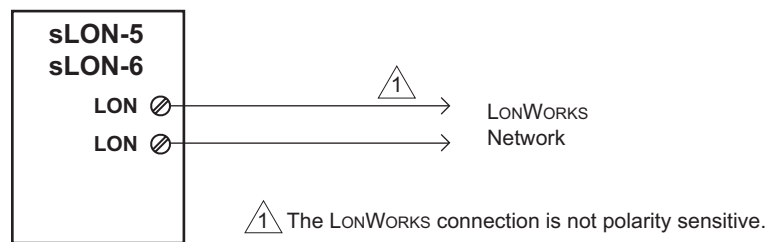


Figure-8 sLON-5 and sLON-6 LONWORKS Network Terminal Connections.

4. If the sLON-5 or sLON-6 controller is to be connected to a LONWORKS network, determine the topology chosen for the TP/FT-10 segment, then connect to additional controllers. To allow the sLON-5 or sLON-6 to share data with other LONWORKS devices, the controller must be addressed and the desired network bindings must be made. Refer to the section, “Installation on a LONWORKS Network,” to accomplish this.

Note:

- The sLON-5 and sLON-6 controllers use the LONWORKS Free Topology Transceiver (FT 3150[®]). It may be connected to other controllers freely, using multiple wiring tees and stars (Free Topology) or using a daisy-chain topology. If a daisy-chain topology is chosen, the controllers must be connected only in a device-to-device fashion (Bus Topology). A maximum of 62 nodes can be connected per wiring segment.
-

Note:

- Use of the LON terminals to connect to the sLON-WTSx sensor permits use of the sensor’s built-in LONWORKS Network Jack.
 - To preserve the integrity of the network, the LONWORKS Network wiring connecting an sLON controller to an sLON-WTSx sensor must be run to the sensor and back, in daisy-chain fashion. A wire “spur” must not be used to connect the sensor to the controller.
 - While the sLON-WTSx sensor is not counted as a “node” in the LONWORKS Network (LON), all LONWORKS Network wiring to the sensor must be counted when determining the length of the TP/FT-10 wiring segment.
-

5. Install terminators as required.

I/O Wiring



I/O connections include three software-configured universal inputs (UIs), one (sLON-5) or three (sLON-6) high-voltage relay output(s) (DOs), and four Triac outputs. The Triac outputs are for switching 24 Vac pilot-duty loads. See Figure-5 and Figure-6 for wire terminal information.

Warning: Electrical shock hazard. Remove all power from both the controller and digital outputs before making terminations.

UI, AO, and DI wiring require at least 0.205 mm² (#24 AWG), twisted pair, voice grade telephone wire. The capacitance between conductors cannot be more than 32 pF per 0.3 m (1 ft). If shielded cable is used, the capacitance between any one conductor and the others, connected to the shield, cannot be more than 60 pF per 0.3 m (1 ft). Refer to Table-1 for wiring specifications.

Table-1 UI, AO, and DI Wiring Specifications.

Connection	Gage mm ² (AWG)	Maximum Distance m (ft)
UI, AO, and DI	0.823 (18)	91 (300)
	0.518 (20)	61 (200)
	0.326 (22)	38 (125)
	0.205 (24)	23 (75)

Universal Inputs (UI)

The Universal Inputs' characteristics are software-configured to respond to one of the following input types:

1. 10K ohm Thermistor with 11K ohm Shunt Resistor (refer to Figure-9).
2. 10K ohm Resistive.
3. 1K ohm Balco (refer to Figure-10).
4. 1K ohm Platinum (refer to Figure-10).
5. 1K ohm Resistive.
6. Analog Voltage (refer to Figure-11).
7. Analog Current (refer to Figure-12).
8. Digital Dry Switched Contact (refer to Figure-13).

Caution:

- If shielded cable is used for universal inputs (UI), connect only one end of the shield to a single COM 0V terminal (not to GND).
 - If shielded cable is used for other I/O, connect only one end of the shield to a single earth ground point, at the controller's ground (GND) terminal.
 - Input and output devices cannot share common wiring. Each connected device requires a separate signal and return conductor.
 - UI, S-Link, and LON wiring cannot share a conduit with either power wiring or high-voltage relay wiring.
-

Note: UI and S-Link wiring can share a single conduit.

10K Thermistor with 11K Shunt Resistor

Any of the sLON-5 or sLON-6 controller's UI inputs can be configured for Thermistor input. When configured in this way, a 10K ohm Thermistor with 11K ohm shunt resistor may be connected to the sLON-5 or sLON-6 controller to sense the space temperature. See Table-2 for temperature versus resistance data for this thermistor.

Table-2 Temperature Versus Resistance.

Temperature °C (°F)	Resistance ohms	Temperature °C (°F)	Resistance ohms
4 (40)	7596	30 (86)	4696

Table-2 Temperature Versus Resistance.

Temperature °C (°F)	Resistance ohms	Temperature °C (°F)	Resistance ohms
10 (50)	6938	40 (104)	3707
20 (68)	5798	50 (122)	2875
25 (77)	5238	60 (140)	2206

Make the Thermistor connections according to the diagram in Figure-9.

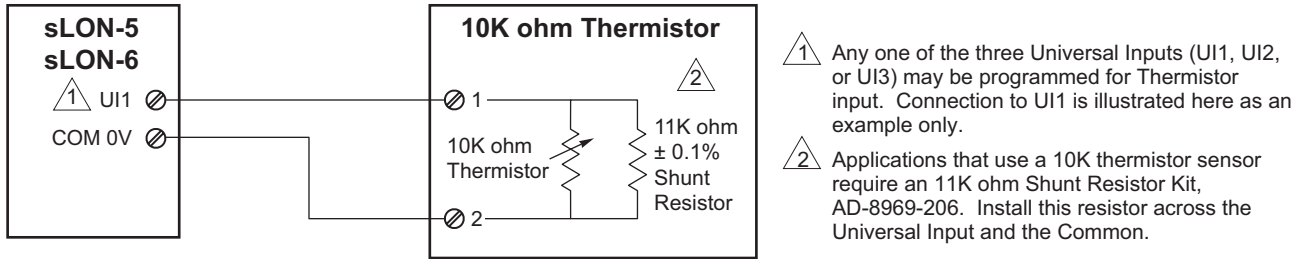


Figure-9 Typical Wiring for 10K Thermistor with 11K Shunt Resistor.

Resistive — 1K Balco or 1K Platinum Input

Any of the sLON-5 or sLON-6 controller's UI inputs can be configured for the 1K Balco or Platinum Element Resistive Sensor. Make the connections according to the diagram in Figure-10.

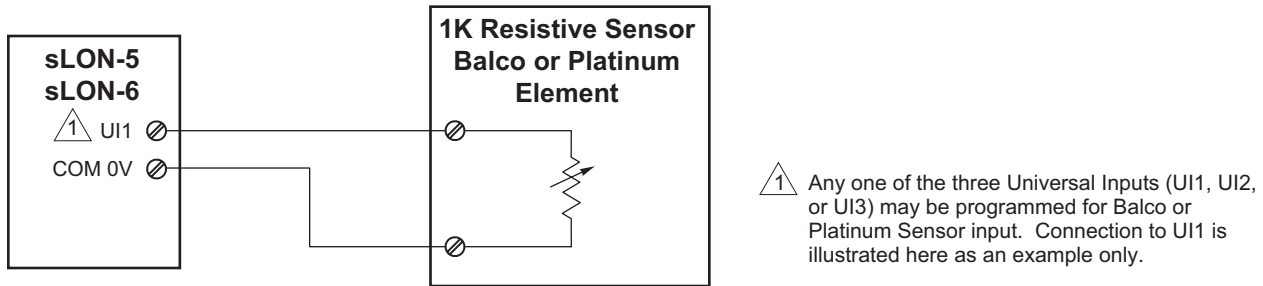


Figure-10 Typical Wiring for 1K Balco or 1K Platinum Sensor Input.

Analog Voltage Input

Any of the sLON-5 or sLON-6 controller's UI inputs can be configured for the 0 to 5 Vdc Analog Voltage Transmitter input. Make the connections according to the diagram in Figure-11.

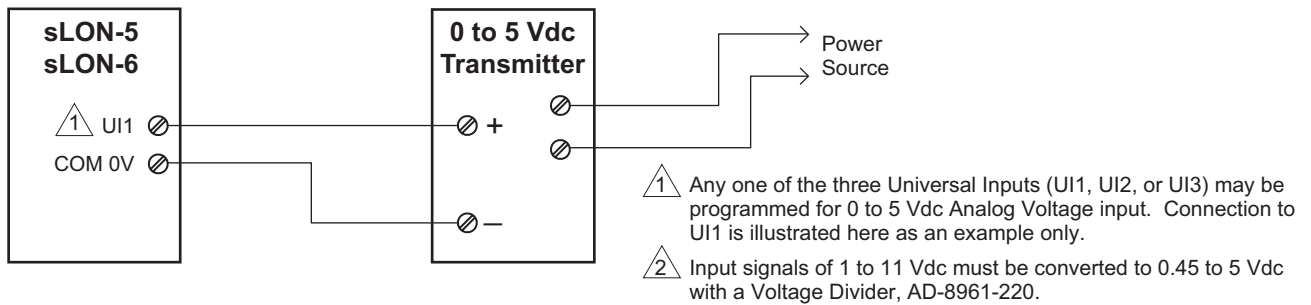


Figure-11 Typical Wiring for 0 to 5 Vdc Analog Voltage Input.

Analog Current Input

Any of the sLON-5 or sLON-6 controller's UI inputs can be configured for the 4 to 20 mAdc Analog Current Transmitter input. Make the connections according to the diagram in Figure-12.

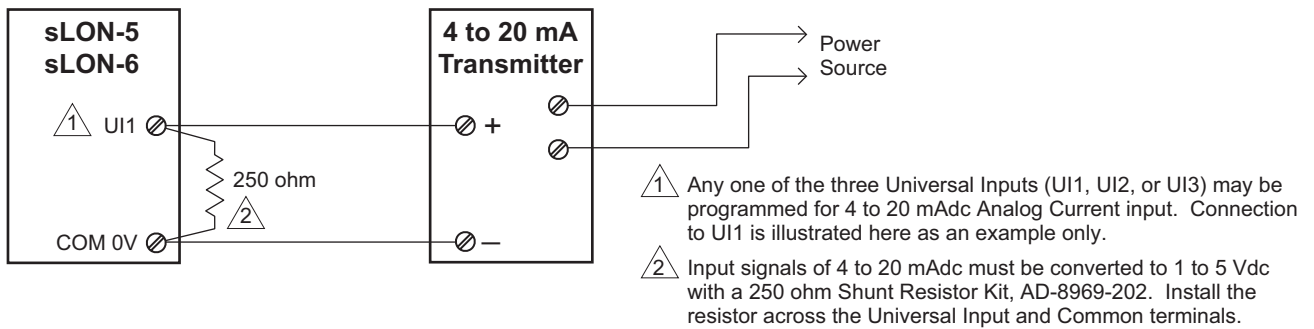


Figure-12 Typical Wiring for 4 to 20 mA Analog Current Input.

Digital Dry Switched Contact Input

Any of the sLON-5 or sLON-6 controller's UI inputs can be configured for the Digital Dry Switched Contact input. Make the connections according to the diagram in Figure-13.

Note: If the maximum closed switch voltage is not more than 1.0 V and the minimum open switch voltage is at least 4.5 V, then solid state switches may be used for a UI when configured as a DI.

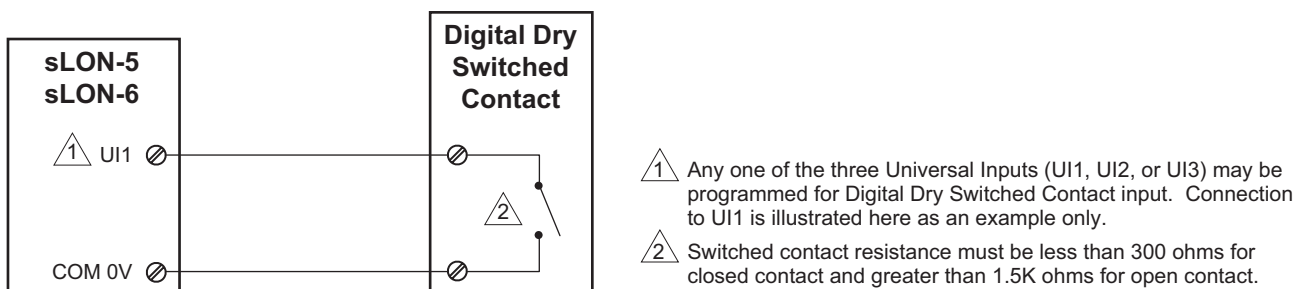


Figure-13 Typical Wiring for Digital Dry Switched Contact Input.

Digital Triac Outputs (DOs)

The sLON-5 and sLON-6 controllers contain four 24 Vac (digital) Triac outputs. Before wiring these outputs, refer to Table-3 for their electrical specifications.

Table-3 Triac Output Electrical Specifications.

Characteristic	Specification
Maximum Triac Switched Output Voltage	24 Vac terminal voltage ^a
Minimum Triac Switched Output Voltage	24 Vac terminal voltage ^a - 2.0 Vac
Rating	12 VA (0.5 A) @ 24 Vac at each output. Total of 12 VA @ 24 Vac for all outputs that are ON at any one time.
Motor Requirements	NA
Default Output State	OFF (inactive)
Output Short Circuit Protection	Internal current limiting
Maximum Off-State Leakage Current	2.0 mA
Minimum Permissible Load	50 mA

^a Switched output voltage is equivalent to the value of the input voltage.

Caution:

- Do not mix DO wiring with power, high-voltage relay, DI, UI, S-Link, LON, or AO wiring.
- The total output load for DO1 through DO4 is 12 VA. This limit applies whether one, two, three, or all four DOs are ON at the same time. Exceeding this limit may result in the loss of controller power until the external fault is removed and the internal PTC (Positive Temperature Coefficient) device cools sufficiently. The PTC is a current-limiting thermal safety device.
- Triac output terminals accept one 0.823 mm² (#18 AWG) or smaller wire. The selected wire gage must be consistent with the load current rating.

Note:

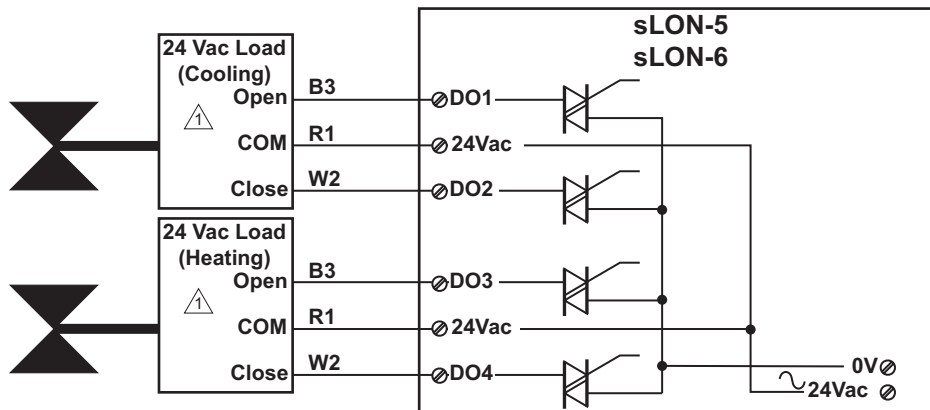
- DO1 through DO4 are Triac outputs for switching 24 Vac loads only, such as pilot-duty relays and floating control actuators.
- Triac outputs switch the load circuit to ground and are supplied through the 24VAC terminals.

Connect the sLON-5 or sLON-6 controller's Triac output terminals (DO1, DO2, DO3, and DO4) as follows:

1. Connect one side of a 24 Vac load to one of the 24VAC terminals.

Caution: Whenever the sLON-5 or sLON-6 is connected to share I/O with other controllers, care must be exercised to connect the power for the inputs in a consistent manner. Refer to the wiring diagram on the cover.

2. Connect the other side of the load to a Triac output terminal (DO1, DO2, DO3, or DO4). See Figure-14.



 The example shown here is for controlling two 24 Vac floating valve actuators.

Figure-14 24 Vac Loads Switched by Triac Outputs.

High-Voltage Relay Output

The sLON-5 controller contains one high-voltage relay output and the sLON-6 controller contains three such outputs. Before wiring a high-voltage output, refer to Table-4 for its electrical specifications.

Table-4 High-Voltage Relay Output Load Specifications.

Specification	Value
Maximum Relay Contact Switched Output Voltage	250 Vac
Maximum Output Load (COS $\phi = 0.4$)	3.0 A
Minimum Controllable Load @ 5 Vdc	10.0 mA
Maximum Off-State Leakage Current	100 μ A
Minimum Cycles at Rated Load @ 0.4 Power Factor	100,000 cycles

Caution:

- Do not mix high-voltage relay wiring with any other controller wiring.
- High-voltage relay terminals accept one 2.08 mm² (#14 AWG) or smaller wire. The selected wire gage must be consistent with the load current rating.

Connect the sLON-5 or sLON-6 controller's high-voltage relay terminal(s) (DO5 and C5 for the sLON-5; DO5, C5, DO6, C6, DO7, and C7 for sLON-6) to 230 Vac power and the switched 230 Vac motor(s) as shown in Figure-15 and Figure-16.

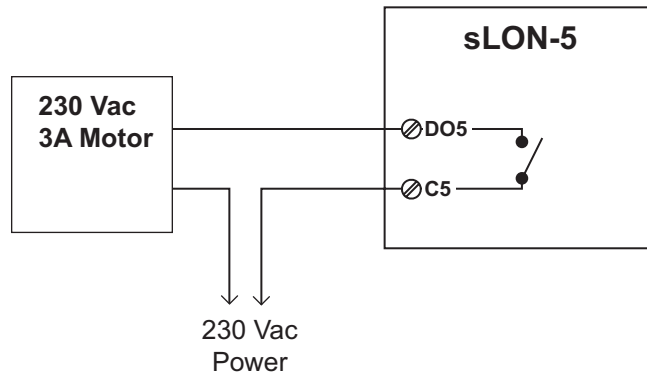


Figure-15 sLON-5 Connection to 230 Vac High-Voltage Relay.

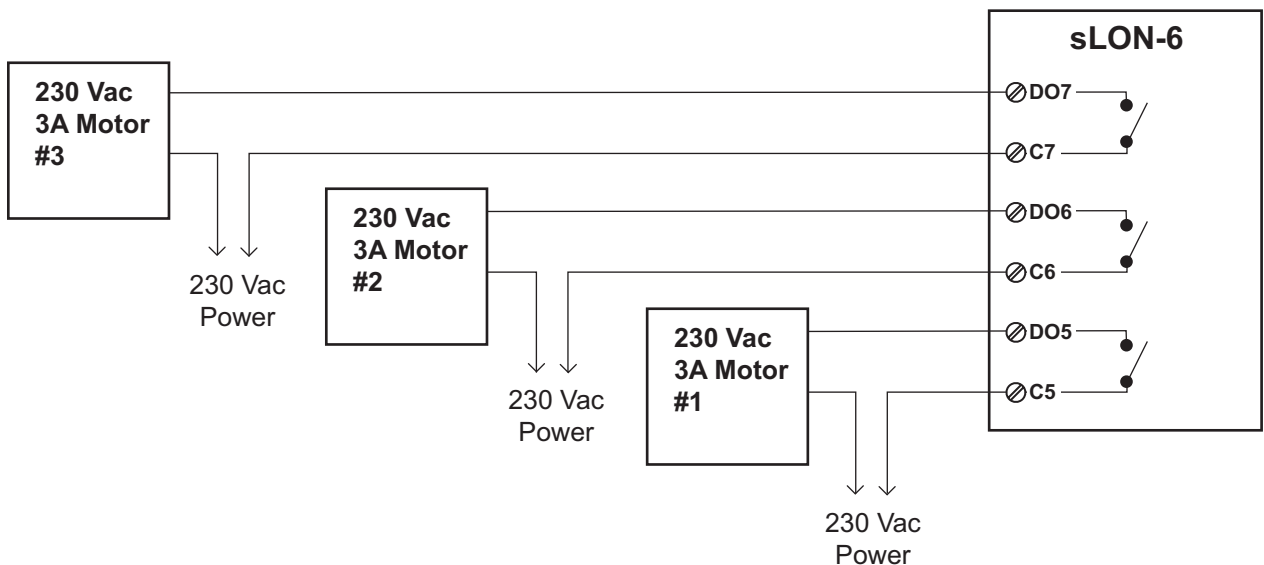


Figure-16 sLON-6 Connections to 230 Vac High-Voltage Relays.

Caution:

- The sLON-5 and sLON-6 controllers contain a non-isolated half-wave rectifier power supply and must not be powered by transformers used to power other devices containing non-isolated full-wave rectifier power supplies.
- Do not mix power wiring or high-voltage relay wiring with any other controller wiring.
- Use a Class 2 power transformer supplying a nominal 24 Vac (20.4 to 30 Vac), 50/60 Hz. It must have a minimum rating of 9.5 VA plus the DO1 through DO4 total output load of 12 VA maximum, up to a total of 21.5 VA per controller. In the European Community, a safety-isolating SELV (Safety Extra Low-Voltage), limited energy source (<100 VA) transformer that conforms to EN 60742 must be used.
- The transformer frame must be grounded, and the supply to the transformer must have a circuit breaker or disconnect.

Note:

- 24 Vac power wiring can be intermixed with DO wiring.
- Twisted or untwisted cable can be used for power wiring.
- To preserve the integrity of the network, the LONWORKS Network wiring connecting an sLON controller to an sLON-WTSx sensor must be run to the sensor and back, in daisy-chain fashion. A wire “spur” must not be used to connect the sensor to the controller.

Power Wiring

Refer to Figure-17 and Figure-18 for acceptable wiring configurations.

1. Connect the power ground wire to the Ground terminal (GND).
2. Connect the 24 Vac power wiring to the power terminals (24 VAC and 0V).

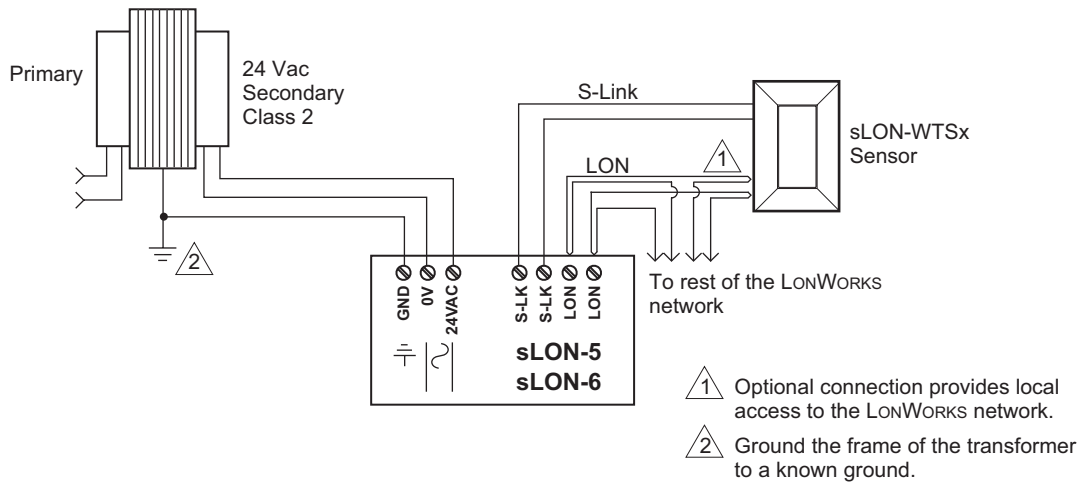


Figure-17 Power Supply Connection — Single Controller Powered from a Separate Class 2 Power Source.

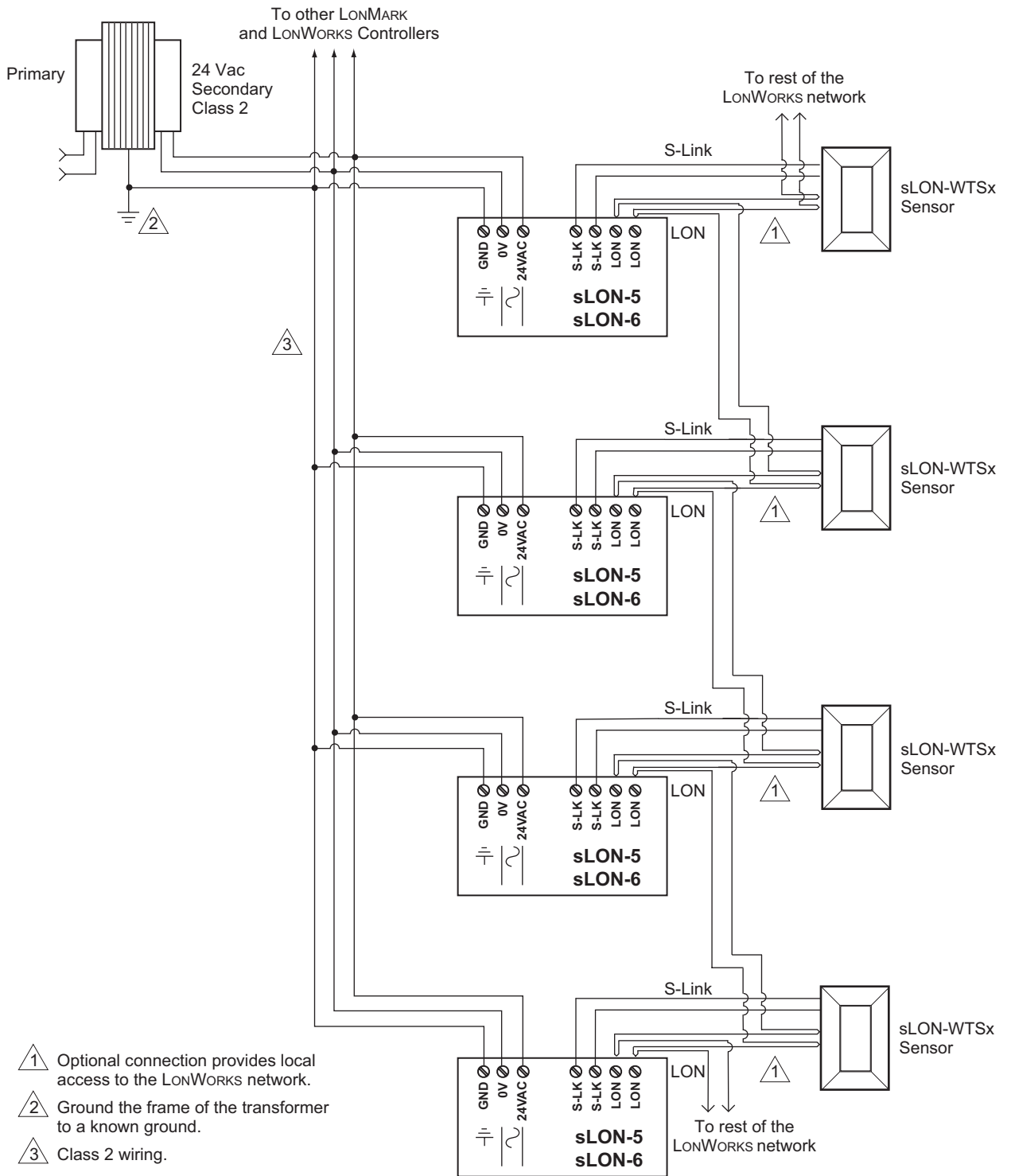


Figure-18 Power Supply Connection — Multiple Controllers Powered from a Separate Class 2 Power Source and Sharing Communications in a Free Topology Segment.

Installation on a LONWORKS Network

In addition to functioning in standalone mode, the sLON-5 or sLON-6 controller may be connected to a LONWORKS network for data sharing with other LONWORKS devices. This is made possible by addressing the controller on the network and performing the desired network bindings.

LONWORKS Network Addressing

Address the controller on the LONWORKS network, as follows:

1. Verify that the controller is powered and connected to the network.
2. Perform the necessary steps to configure the controller, using the WPT Software Tool. This involves the creation and downloading of control logic to the controller.

Note: The WPT Software Tool *must be Version 4.0 or greater* when it is used to configure the sLON-5 and sLON-6 controllers on a LONWORKS network.

3. Using an appropriate network management tool, proceed to address the controller on the LONWORKS network, up to the point at which the tool asks for the controller's unique Neuron[®] ID. This address will consist of a domain, subnet, and node.
4. Obtain the controller's Neuron ID, using either of the following methods:

Service Pin Button

- a. Make the network tool "listen" for the service pin message.
- b. *Press and release* the controller's service pin button. This sends a broadcast message containing the controller's Neuron ID (the controller's LONWORKS serial number). Service pin messages can be sent from a controller, whether addressed or not, as many times as necessary.

Caution: Do not hold the service pin button in the pressed position. Holding the service pin button for 6 seconds or longer will completely unconfigure the controller.

Note: If an sLON-WTS2, sLON-WTS3, sLON-WTS4, or sLON-WTS5 sensor is connected to the controller, the sensor's override button can also be used to generate a service pin message from the controller by holding the button for 5 seconds.

Manual Method

- a. Indicate to the network tool that you will enter the Neuron ID manually.
 - b. Locate the controller's Neuron ID. The sLON-5 or sLON-6 controller's Neuron ID is printed on a pair of barcode labels attached to the controller at the factory. One of the labels remains on the controller permanently, while the other label can be detached and placed on a job site's node list plan.
 - c. Manually enter the Neuron ID into the tool, or scan the barcode.
5. Proceed to finish commissioning the controller on the LONWORKS network.

Network Bindings

Using an appropriate network management tool, perform the desired network bindings to enable the sharing of data over the LONWORKS network.

Checkout

Mechanical Hardware Checkout

1. If an sLON-WTSx Sensor is connected to the controller, verify that the wiring between the sensor and the controller is installed according to the job wiring diagram and national and local wiring codes.

Note: Wiring of the S-Link and LONWORKS network between the sensor and the controller is not polarity sensitive.

- 2.If the controller is part of a LONWORKS network, verify that the TP/FT-10 LONWORKS network wiring between the controller and other devices is installed according to the job wiring diagram and the national and local electrical codes.
- 3.Verify that 24 Vac power is provided from a Class 2 power transformer, and that wiring is installed according to the job wiring diagrams and the national and local electrical codes.
- 4.If multiple devices are powered from the same transformer (Figure-18), verify that wiring polarity has been maintained between all connected devices, and that all other issues associated with powering multiple devices from a common transformer have been addressed.
- 5.Verify that the digital outputs and the high-voltage relay(s) are wired according to the job wiring diagram and the national and local electrical codes.
- 6.Make certain that the current requirements of the controlled device do not exceed the rating of the controller's digital outputs.

Communications Hardware Checkout

In addition to functioning in standalone mode, the sLON-5 or sLON-6 controller may be connected to a LONWORKS network for data sharing with other LONWORKS devices. If so, check the status of its network communications according to the following procedure:

1. Verify that all controlled equipment is in a manually controlled, safe state.
- 2.Place the controller's power circuit breaker in the ON position. See the job wiring diagrams for the location of this breaker.
- 3.Observe the green Data Transmission LED (Figure-19) and do the following:
 - a. If the green Data Transmission LED is steady ON or blinking, go to step 4.
 - b. If the green Data Transmission LED is OFF, check the power to the controller.
- 4.Observe the red Service LED (Figure-19) and do the following:
 - a. If the red Service LED is off or flashing, proceed with downloading an application using WPT Software Tool and configuring the controller with a third party network management tool.
 - b. If the red Service LED is steady ON, turn OFF the power to the controller, wait five seconds, then turn the power ON. If the red Service LED is still steady ON, turn the power OFF and replace the controller.
5. If necessary, perform additional checks and take the appropriate corrective action, according to Table-5.

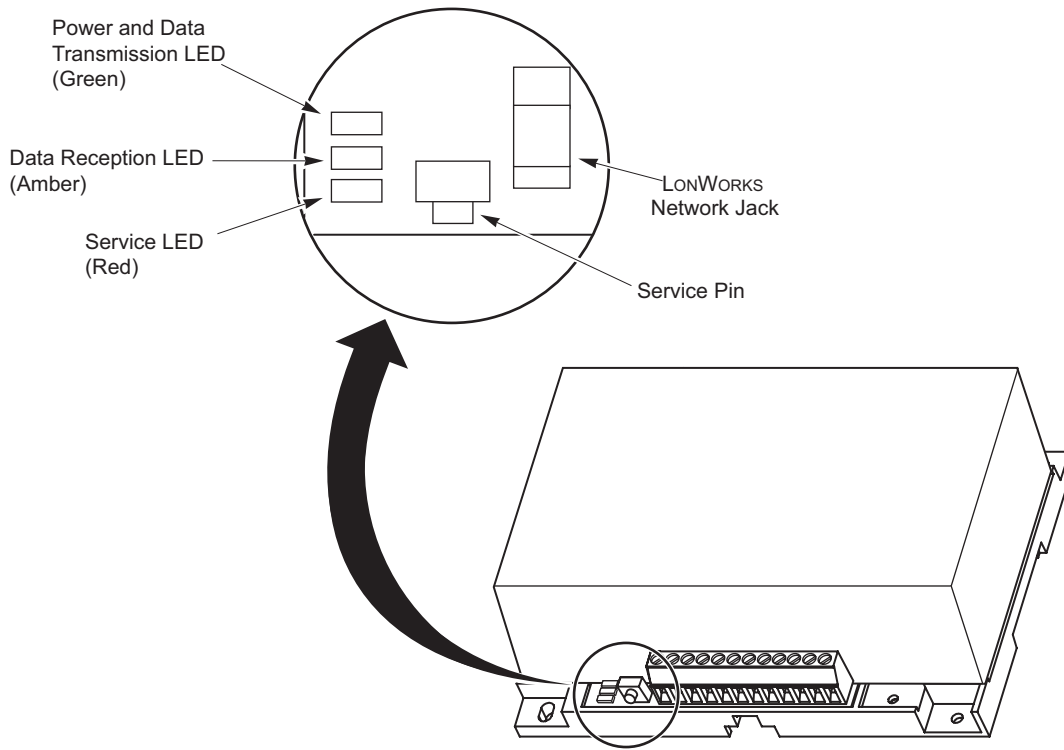


Figure-19 Location of Controller LEDs.

Table-5 LED Indication.

Indicator	Context	Status	Corrective Action
Data Reception LED – amber	Anytime	Blinks when the controller receives data from the LONWORKS Network.	None required.
		On indicates a possible network connection problem, or a large amount of network traffic is present.	Remove the LONWORKS Network connections from the controller and determine if the LED goes off. If the LED does not go off, replace the controller. If the LED does go off, check the network topology (connections to each node, routers, terminators, etc.) and the amount of traffic on the network.
		Off indicates that data reception is not taking place.	
Data Transmission LED – Green	Anytime	Blinks when the controller transmits data to the LONWORKS Network.	None Required
		On indicates that the controller is not transmitting data. On also indicates that power is being applied to the controller.	
		Off indicates no power to controller.	Check power
Service LED – Red	Power-up	The LED blinks once to indicate successful power-up.	None Required
	Wink mode	Blinks (3 seconds on, 1 second off) three times to indicate physical location of the controller. If a sensor (sLON-WTSx) is connected, its red occupancy LED will flash (1/sec) during the wink period.	
	Anytime	On indicates that the neuron application is not running. Neuron applications are not field replaceable.	Replace the controller.
	Anytime	Blinks (1/sec) to indicate that the neuron application is loaded, but the neuron's communication parameters are not loaded, are being reloaded, or have been corrupted. Neuron is considered unconfigured. Communication parameters cannot be configured by field personnel.	Use a third party network management tool to commission the controller, or use the change state tool in WPT Software Tool (version 4.0 or greater) to set the Neuron [®] to the configured/on-line state. While the controller is unconfigured, WPT Software Tool can be used to download an application, but at the completion of the download, WPT Software Tool versions 4.0 and higher will restore the Neuron to the unconfigured state.
	Anytime	Off may indicate that the neuron application is loaded but the device is off-line. In this state, a pre-loaded HVAC application will not run.	Use a third party network management tool to commission the controller, or use the change state tool in WPT Software Tool (version 4.0 or greater) to set the Neuron to the configured/on-line state. While the controller is off-line, WPT Software Tool can be used to download an application, but at the completion of the download, WPT Software Tool versions 4.0 and higher will restore the Neuron to the off-line state.
	Anytime	Off usually indicates a normal state. In this state, the controller operates normally, and you can download and/or run HVAC applications.	If the controller is able to accept and/or run a downloaded HVAC application, no action is required.

Service

Components within the sLON-5 and sLON-6 controllers cannot be field repaired. If there is a problem with the controller, follow the steps outlined in the "Checkout" section. If the problem persists, record the following hardware setup information before contacting Solidyne Technical Support:

- Version number of the application software.
- The controller's firmware version number.
- Information regarding the network management tool being used.
- A complete description of the difficulties encountered.

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