SmartLink™ 4-Device AC Controller (SL-4-AC-001 & SL-4-AC-002) Installation Manual

Version 1.0

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Revision History

Version	Drafted By	Approved By	Date	Summary
1.0	C. Weiland	R. Holloway	4-12-2022	Reviewed by engineering team

(256) 885-9768 | www.smartlinkcontrol.com

SmartLink™ Introduction

SmartLink™ controllers remotely manage devices through a secure, cloud-based management system. Every SmartLink™ can be accessed from a desktop or mobile device, enabling operations teams to manage issues before customers see them and reboot devices in seconds without making a site visit.

- **Reboot Devices from Anywhere**
- **Schedule up to 4 Devices per Controller**
- **Receive Maintenance Alerts in Real-time**
- **24/7 Proof of Performance**
- **Reduce Site Visits & Carbon Footprint**
- **15+ Management & Performance Reports**

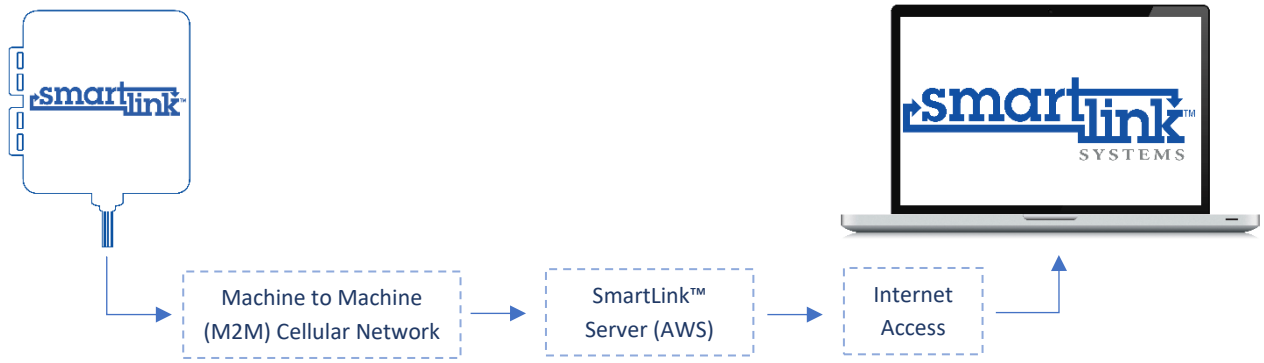


Figure 1: SmartLink™ System Overview

Outdoorlink® offers 24/7 technical support via phone or email from its Huntsville-based customer support team to ensure issues are resolved as soon as possible. Please call (256) 885-9768 or email support@outdoorlinkinc.com to reach a support representative.

Preface

Once an authorized installer completes the installation of the SmartLink™ unit, the end user is responsible for notifying all electrical contractors of the purpose of the SmartLink™. The installation will follow the appropriate schematic provided in this manual. Failure to properly install the SmartLink™ unit will result in a voided warranty.

The purpose of this step-by-step installation manual is to ensure that all users are familiar with the basics of installing the SmartLink™ unit.

If detailed inquiries are needed, please contact your Outdoorlink® support.

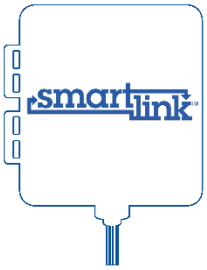
Phone: (256) 885-9768
support@outdoorlinkinc.com
3058 Leeman Ferry Rd. SW
Huntsville, AL 35801

Outdoorlink® recommends during the installation of the SmartLink™ units, that all electrical codes that apply to the wiring and troubleshooting of these units, are studied, and adhered to. Electrical code varies by area; verify local electrical code prior to installation.

SmartLink™ units operate in a high voltage environment. Outdoorlink®, Inc., assumes no liability for any injury or death incurred during the installation of the SmartLink™ unit.

SmartLink™ 4-Relay AC Controller (SL-4-AC-001, SL-4-AC-002)

Remote Asset Management for AC Powered Devices



SmartLink™ AC controllers remotely monitor, schedule, and reboot digital displays, lighting, advertising displays and related devices. Its cloud-based asset management system enables real-time proof of performance and system rebooting from any computer or mobile device. The SL-4-AC offers custom schedules per relay, enabling up to four devices to operate on different run-times from one centralized controller.

SL-4-AC-001, SL-4-AC-002 Specifications

Device Management	Control / Schedule / Reboot up to four devices: digital display, panel fixtures, lighting, other
Runtime Settings	Automatic, GPS based sunrise/sunset times and/or manual time scheduling
Enclosure	Polycarbonate, 10.5 in. x 9 in. x 3.25 in. (UL/cUL Listed File No. E337257)
Bare Board Option	6.75 in. x 4.5 in. x 0.75 in.
Input Power	30A max @ 120-240V per relay pair, 50-60Hz
Output Power	16A per relay @ 50 °C, 14A per relay @ 70 °C
Power Consumption	0.13A max @ 120V
Connectivity	Cellular LTE CAT M1, internal SIM, integrated antenna
Operating/Storage Temperature	-40°C to 70°C
Environmental	NEMA 3/IP54, 0-95% humidity, non-condensing, RoHS
Wiring Connection	3 ft. wiring harness, 10 AWG supply and 12 AWG load wires
Certifications	UL E334358, FCC, PTCRB, AT&T and Verizon

The SmartLink™ SL-4-AC-001 & SL-4-AC-002 is UL Listed and 100% made in the USA.

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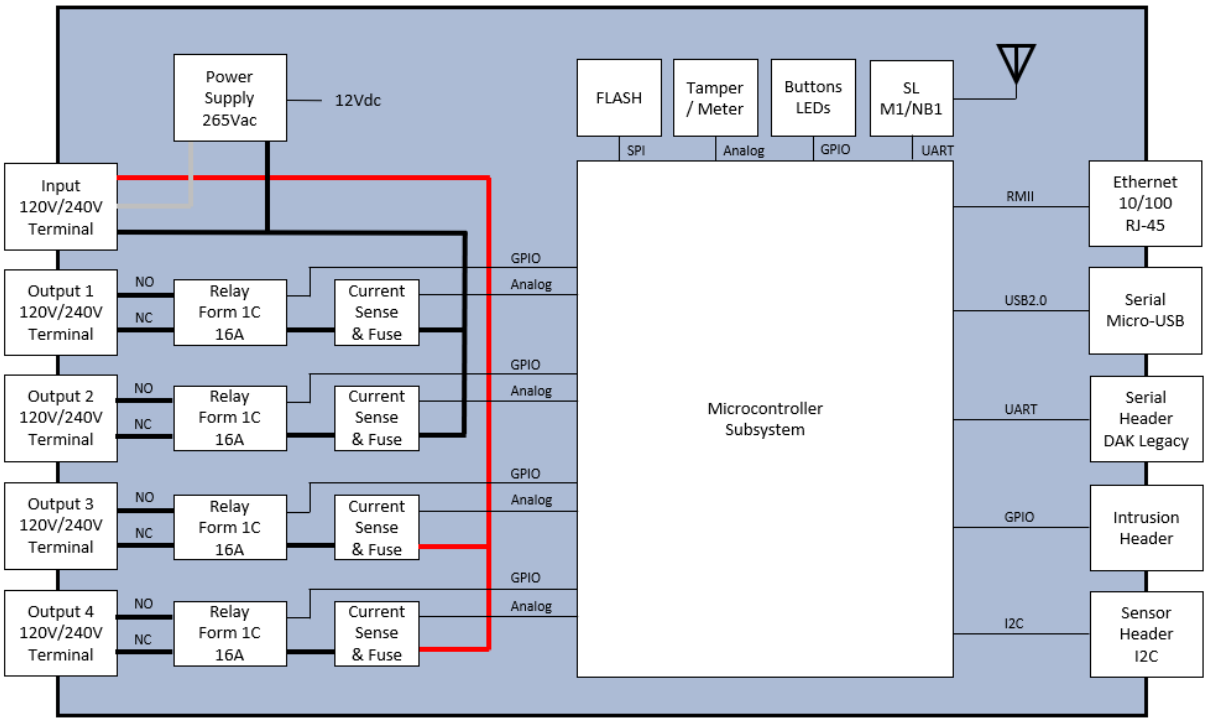
SmartLink™ SL-4-AC-001, SL-4-AC-002 Diagram & Features



Key Features

120V/240V Input

4 Independently Controlled Outputs with 16 Amp Switching @ 50 °C, 14 Amp Switching at 70 °C

Independently Fused Outputs (No unit power loss due to external short)

NO/NC Outputs Selected via Terminal Block Connection

SmartLink Compact M1/NB1 Modem (Internal or External Antenna Connection)

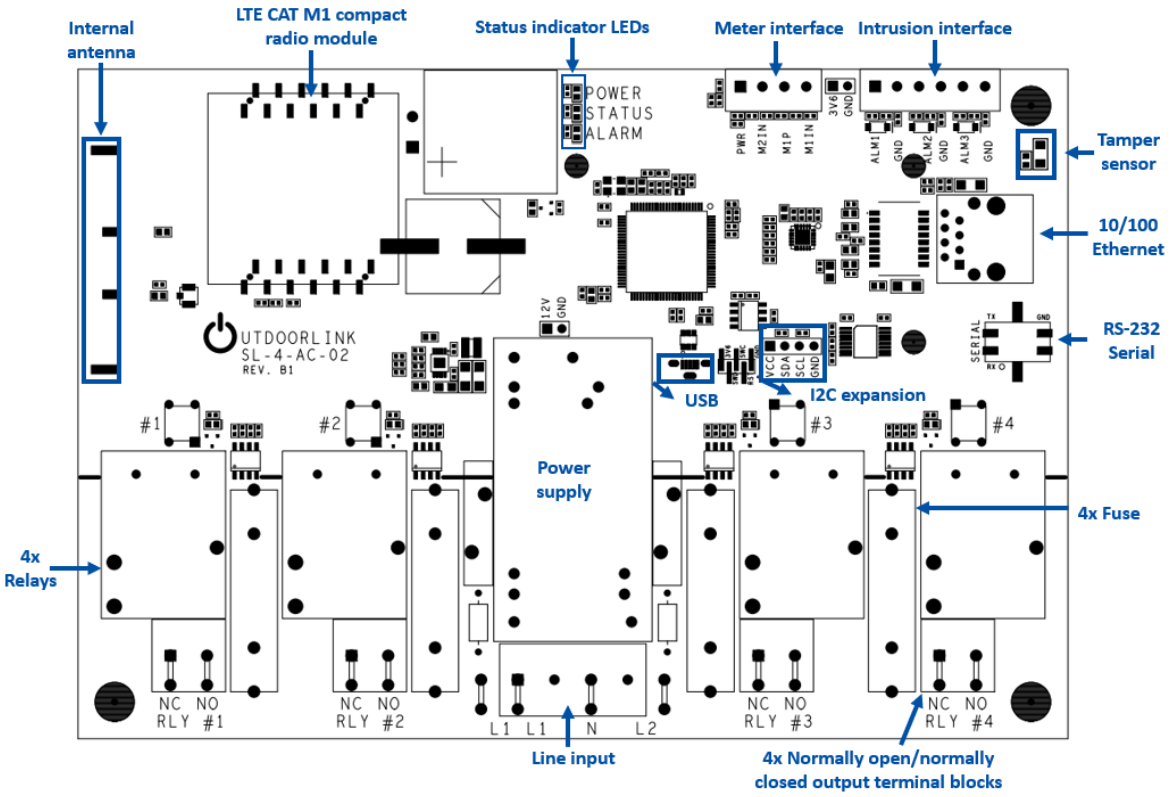
Hall Effect Current Sensing

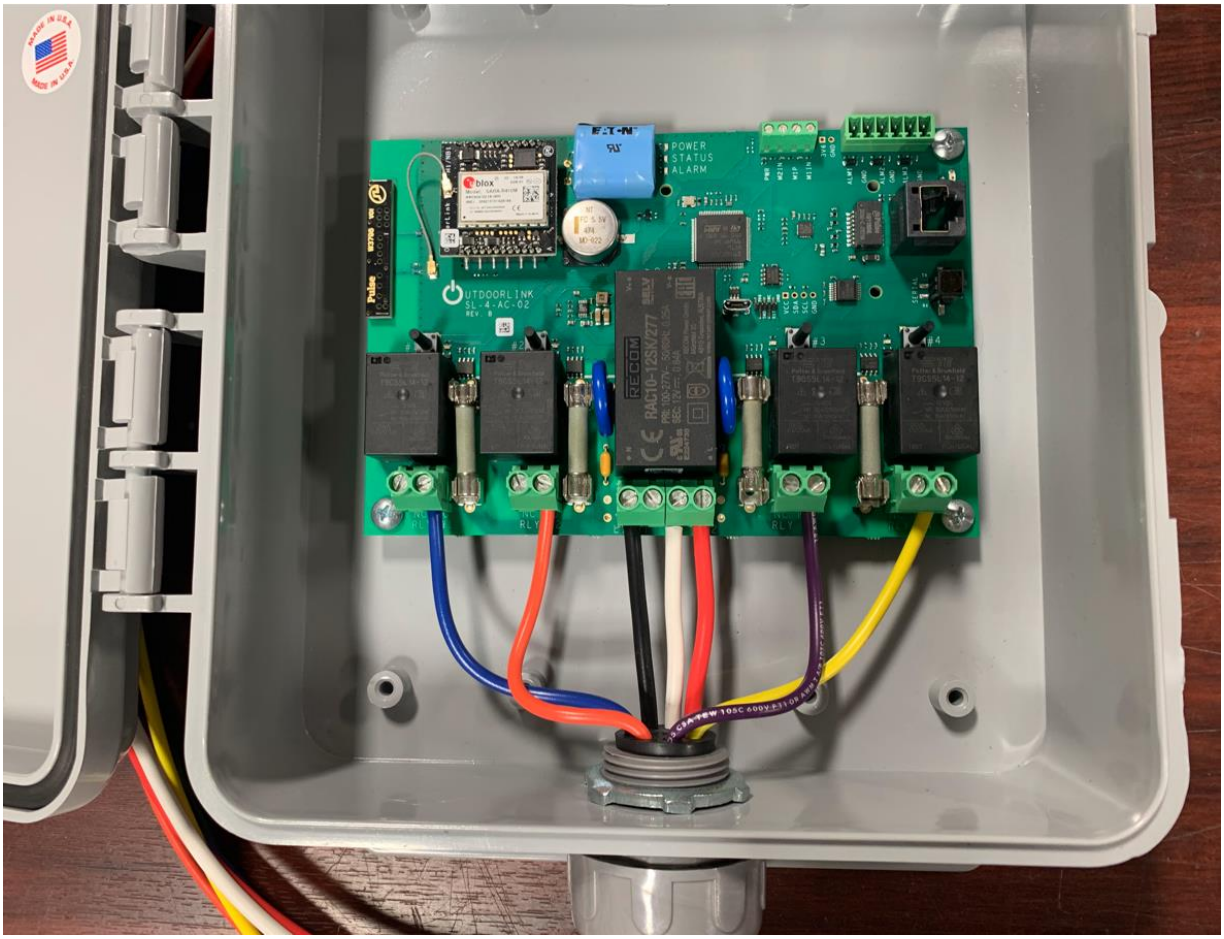
10/100 Ethernet Port (-001 model only)

USB Programming/Debug Port

Integrated Intrusion Support

Metering Support





Service and Installation Warning

The SmartLink™ SL-4-AC unit operates from 120V to 240V at 50 or 60Hz. Caution while installing or servicing the SmartLink unit must be taken. Personal Protective Equipment (PPE) must be worn as applicable.

Check to make sure that all power is turned off before working with the SmartLink™ unit!

Planning Ahead

It is important to plan the installation so that the SmartLink™ unit is setup properly and that the unit's capabilities are maximized. Keep these items in mind as you plan the install:

- Two supply lines are needed to utilize all 4 relays of the unit: one for relays 1 and 2, and the second one for relays 3 and 4.

- Individual relays are rated at 16A at 50C or 14A at 70C. Maximum load for a supply line should not exceed 24A. Maximum load may be shared between relay sets (1+2 or 3+4) as desired, such that neither specification is violated. For example, a relay 1 load of 16A and a relay 2 load of 8A for a total of 24A.

- The SmartLink™ SL-4-AC-001/002 unit is designed for single phase 120V or 240V operation and will not be able to meter power on relays 3 and 4 if multiphase power such as 208V three phase (120V line to neutral) is used.

Electrical Service

The SmartLink unit is power by the 120V feed line servicing relays 1 and 2. A neutral return is required for operation. Relays 3 and 4 are serviced by an additional feed line. Each of the relays are independently fused.

Use of a single breaker is preferable for providing power to the SmartLink unit. This provides a single cutoff point when servicing the unit.

Also, using a single breaker ensures that the power for all relays is provided by the same voltage phase from the incoming utility service.

In order to control 240V fixtures two single phase 120V feed lines most be attached to the two-unit inputs i.e., L1 and L2. Additionally, a relay from each of the two 120V feeds is required e.g., 1 and 3 or 2 and 4.

Table 1 provides a unit configuration chart as a recommendation for the install.

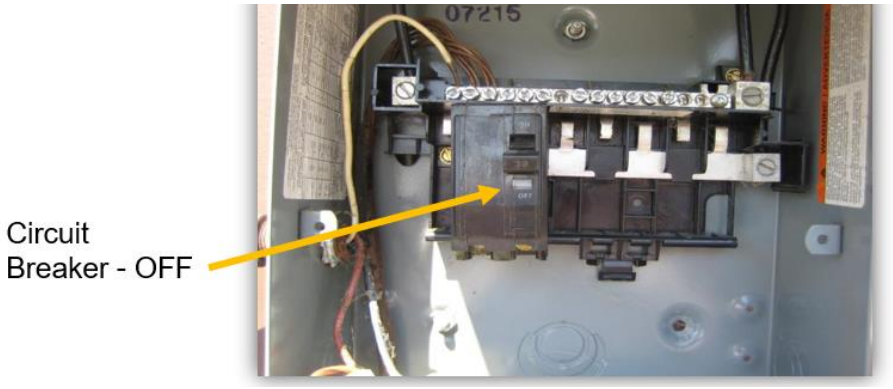
Table 1: 120V Configuration Chart

Unit Configuration	Relay Recommendation	Circuit Breaker Configuration
One 120V load less than 16A (50C) or 14A (70C)	Use Relay 1	(1) 120VAC 30A breaker
Two 120V loads, each less than 16A (50C) or 14A (70C) and a combined total of less than 24A.	Use Relays 1 and 2	(1) 120VAC 30A breaker
Two 120V loads, each less than 16A (50C) or 14A (70C) and a combined total of more than 24A.	Use Relays 1 and 3	(2) 120VAC 30A breaker or (1) 240VAC 30A breaker
Three 120V loads, each less than 16A (50C) or 14A (70C) and a combined total of more than 24A.	Use Relays 1,2 and 3	(2) 120VAC 30A breaker or (1) 240VAC 30A breaker
Four 120V loads, each less than 16A (50C) or 14A (70C) and a combined total of more than 24A.	Use Relays 1,2, 3 and 4	(2) 120VAC 30A breaker or (1) 240VAC 30A breaker

SmartLink™ Installation

Preparing for Installation

Confirm ALL circuit breakers are in the OFF position before working with the SmartLink™ unit.



1. Prior to installing the SmartLink controller, ensure that the lighting system (bulbs, ballasts, and other equipment) is working properly. Replace any failed bulbs or ballasts.

2. Remove any photocell or timer that is to be replaced with the SmartLink™ unit. Remove any wires used by the photocell or timer. Plug the existing hole (previously used by the removed photocell/timer) in the breaker box with silicone to prevent water ingress.

3. Analyze the lighting load and plan the wiring so that fixtures and advertising panels are split as evenly as possible across the relays. Reference unit specifications to confirm planned wiring configuration is within the unit's limits.

Note #1: For proper control and utility savings of a billboard with the SmartLink, all fixtures for an advertising panel should be connected to the same relay.

Note #2: The SmartLink unit is designed for both single phase 120V and 240V operation. There are two 120VAC input lines, L1 and L2, and a neutral return line. L1 provides power to relays 1 and 2 as well as the SmartLink unit. L2 provides power to relays 3 and 4. Note that the neutral is required regardless of the load configuration.

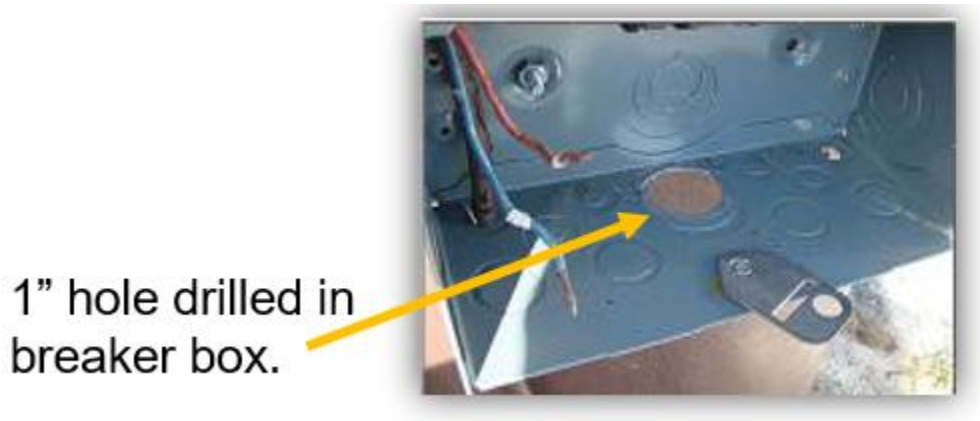
Mounting the SmartLink™ Unit

1. Place the unit enclosure on the structure pole and mark the hole locations with a marker. Ensure the unit is positioned above the breaker box and confirm enough wire length to make a quality connection inside the breaker box.

2. Drill holes based on the markings. Mount the unit to the structure pole.

Wire Bundling

1. Identify a good location for the hole punch out. Use an existing punch if available. Drill out a 1” hole in the breaker box as indicated in the image below.



2. Secure the conduit connector to the breaker box.

3. Insert the wiring bundle into the 1” flex conduit. Connect the conduit to the SmartLink™ unit.

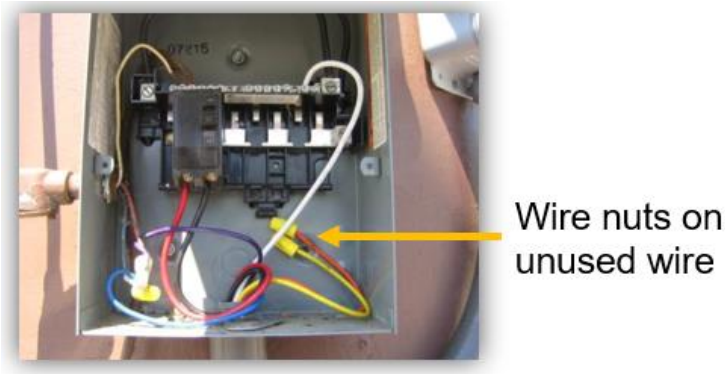
4. Connect the remaining end of the wire bundle to the breaker box.

Structure Wiring Connections

1. Reference the Wiring Diagrams section. Follow the wiring diagram that matches the number of panels, fixture voltages and service voltage. Four wiring diagrams are provided.

2. Wire each structure per the correct wiring diagram schematic.
   Note: A relay box is required if more than 30 amps are pulled from the structure.

3. Use wire nuts for each unused wire. Verify that the none of the wires are exposed.



Documentation and Testing

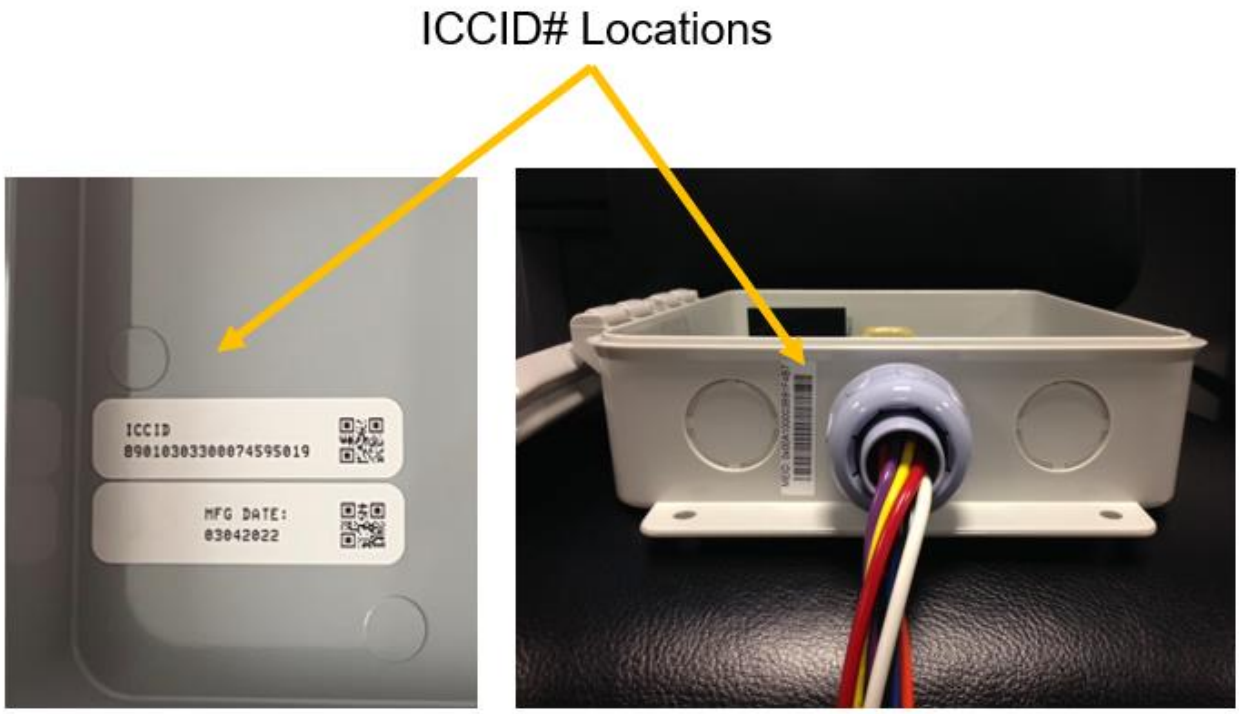
Note: The testing and documentation process is a critical step in the installation process. Clear documentation is a necessity to ensure there are no mistakes when remotely managing structures. Accuracy is a must when recording the ICCID and Relay/Panel matching. A brief overview of each is provided below.

ICCID - Pairs a SmartLink unit to a structure. This identifier allows the network to communicate to the specific unit.

Relay # - Pairs each relay to a specific panel/face. It is important to know that Relay 1 is matched to East panel, Relay 2 to the West panel, and so on.

1. Turn on the breaker to power up the SmartLink™ unit.

2. Document the SmartLink unit™ ICCID for each unit installed. The 19- or 20-digit number is located on the interior of the enclosure door and the bottom of the SmartLink unit enclosure.



3. Document the structure and panel information for each SmartLink™ unit installed.

4. Configure the panels by noting which panel is associated to which relay.

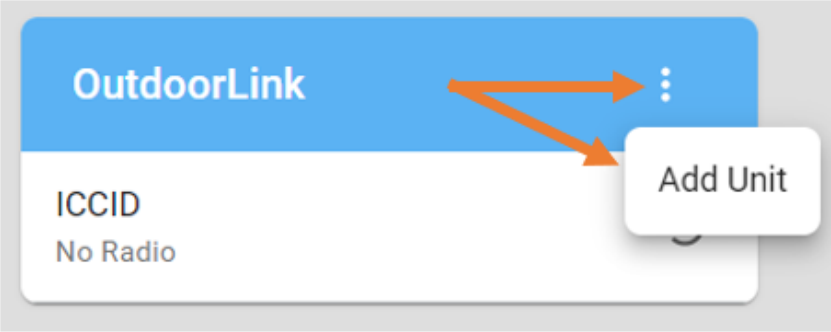
5. Close the SmartLink™ unit by applying even pressure on the top and bottom right-hand side of the unit. An audible “click” can be heard when the enclosure is properly closed. Secure the unit with the seal provided.

SmartLink Self-Activation Process

Note: The self-activation process enables for a user to activate a SmartLink device without contacting Outdoorlink support. A user must have an Outdoorlink Portal user account to access the self-activation feature.

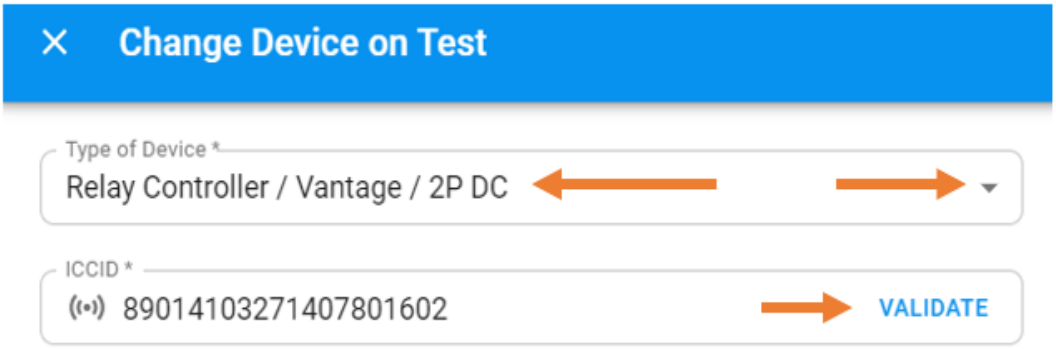
1. Log into the Outdoorlink Portal site - https://portal.outdoorlinkinc.com/login.

2. Navigate to the structure dashboard. Select the option menu under the Outdoorlink tile to add a new unit.



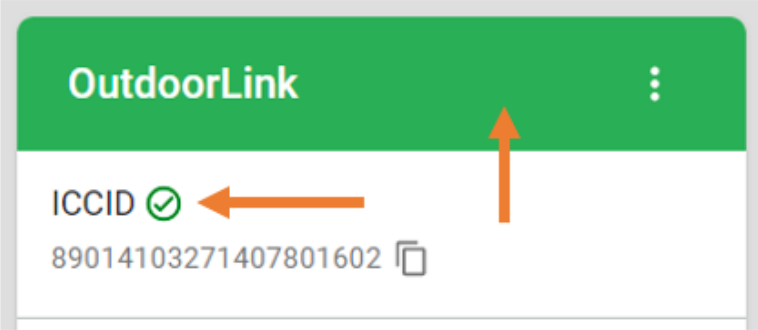
3. Select Relay Controller/ Vantage / 2P DC from the drop-down list.

4. Enter the unit's ICCID into the ICCID field and click Validate. The 19- or 20-digit number is located on the interior of the enclosure door and the bottom of the SmartLink unit enclosure.



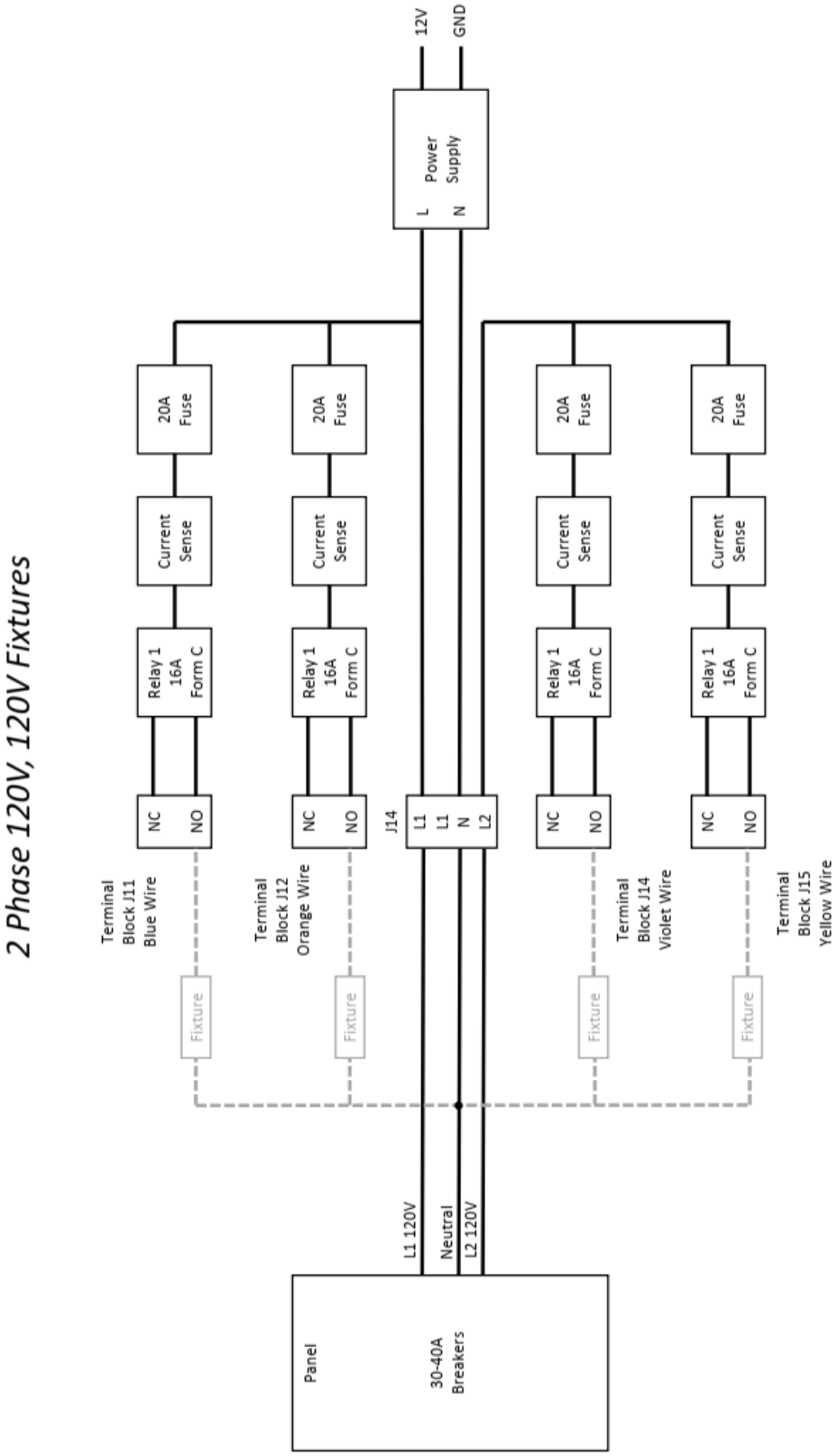
5. The system will validate that a valid ICCID was entered and activate the device. Device activation normally occurs within a few minutes.

6. Navigate back to the structure dashboard and observe the Outdoorlink tile. A green check by the ICCID confirms that the device is active. A green background behind the Outdoorlink text confirms that the device is online.

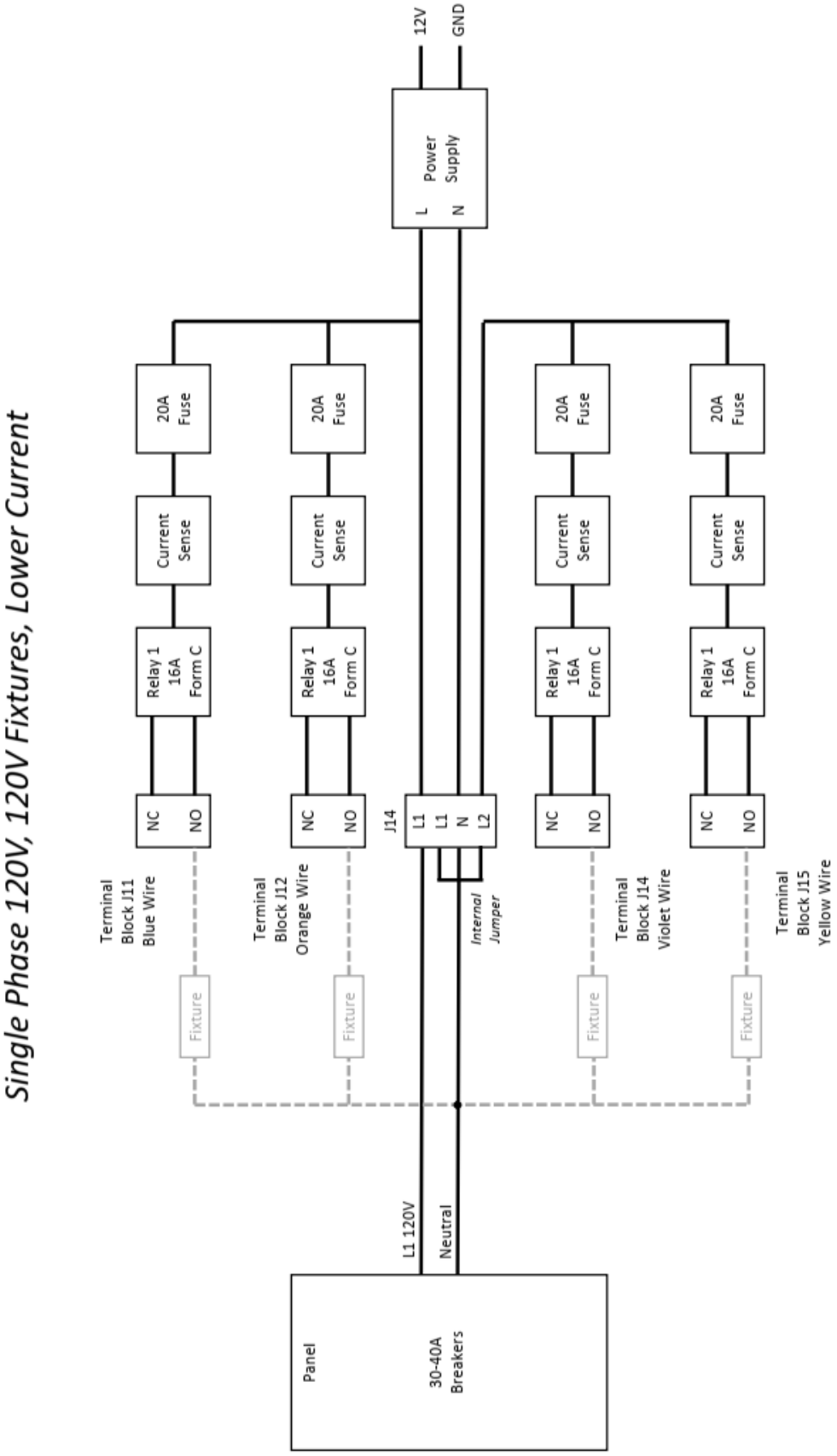


Wiring Diagrams

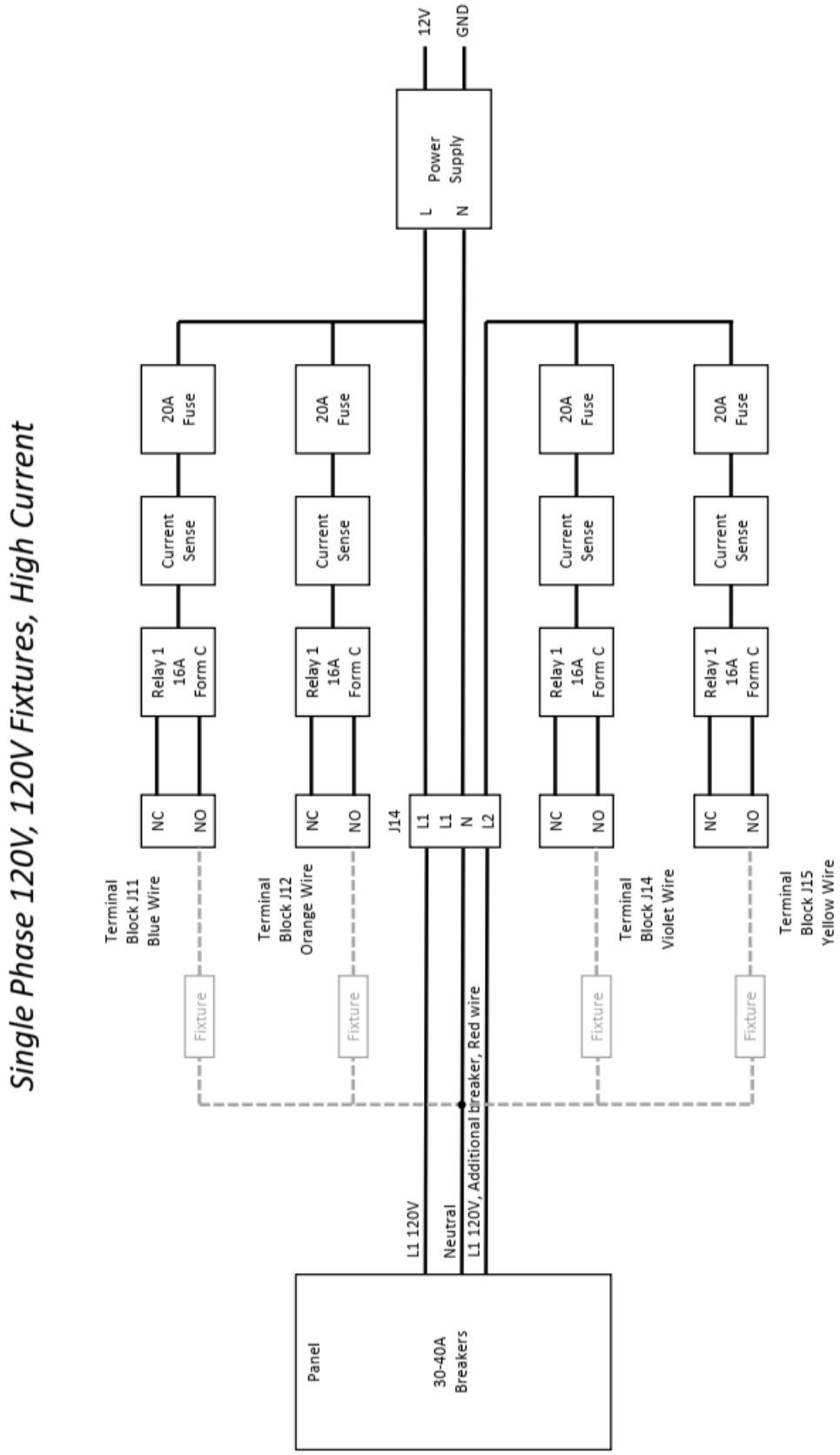
2 Phase 120V, 120V Fixtures



Single Phase 120V, 120V Fixtures, Lower Current



Single Phase 120V, 120V Fixtures, High Current



Single Phase 240V, 240V Fixtures