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MANUAL

LAC-12

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2   General

The LAC-12 is the next gen Collison avoidance system. Designed specifically for overhead cranes it has reflector less technology. Then paired with 2 120/240VAC relays, prewired pigtail it is and easy installation. With Wi-Fi built in the setting of set points is now done over Wi-Fi to get the technicians off the crane when setting the distances and making fine adjustments.

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3 Overview

The LAC-12 is a collision avoidance product using 850nm (near infrared) wavelength LEDs and a eye with a 1mm photodetector and 3 deg beam angle for some misalignment.
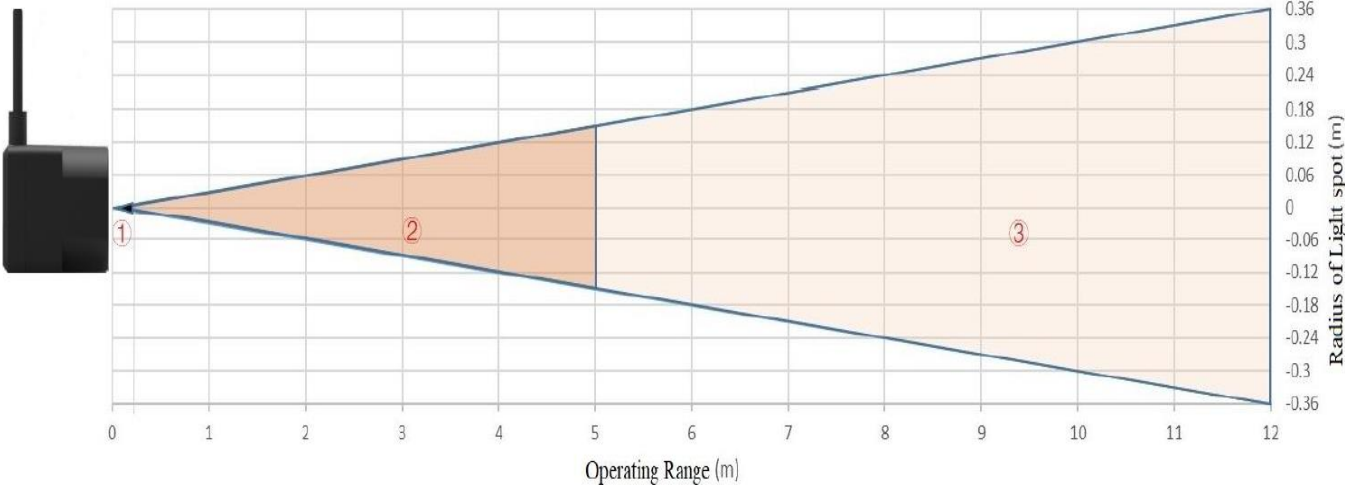
Basic:
1. Processor
2. 1 120V input
3. 2 NO/NC relay outputs
4. 90-240VAC Power supply
5. Sensor

The LAC-12 has a 12 Meter (36ft) Range with 2 relay setpoints
The relay setpoints are adjustable via the LAC-12 Webapp and real time distance is available in the webapp as well as the relay status of each relay.
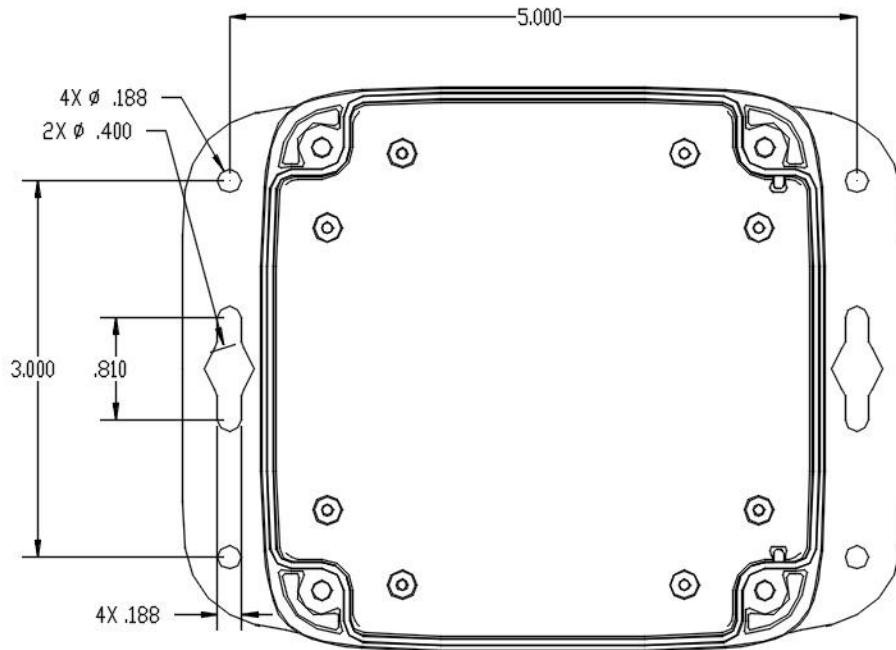
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4 Description

① Represents the detection blind zone, 0-10cm, within which the output data is unreliable.

② Represents the operating range detecting black target with 10% reflectivity, 0.1-4m.

③ Represents the operating range detecting white target with 90% reflectivity, 0.1-12m.
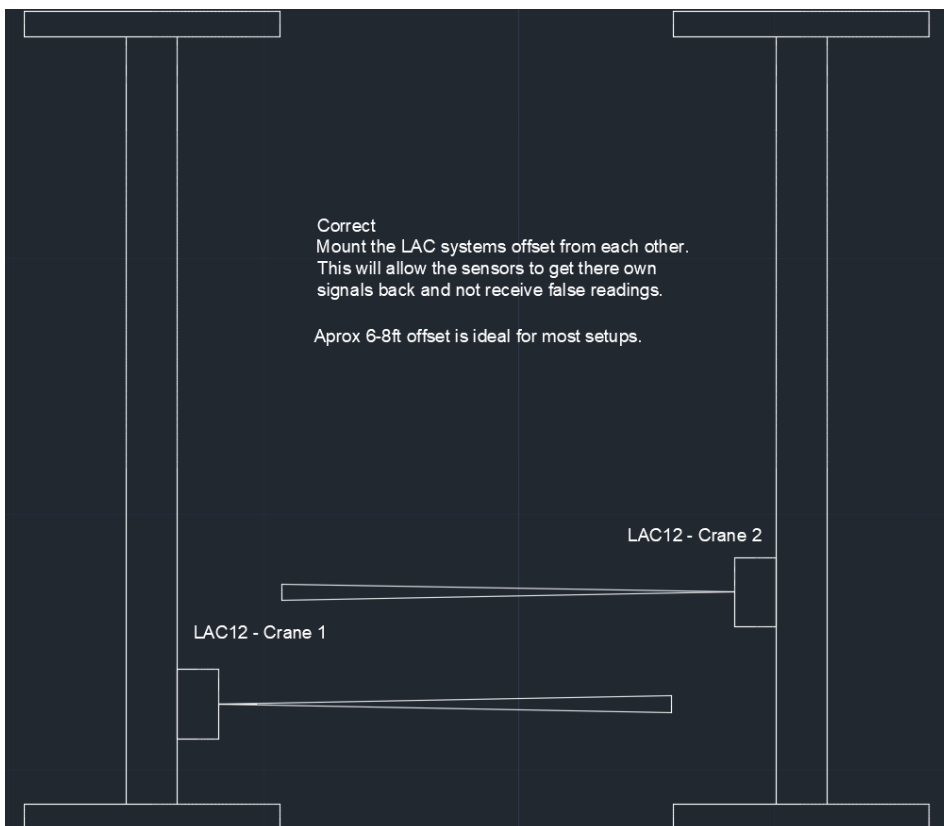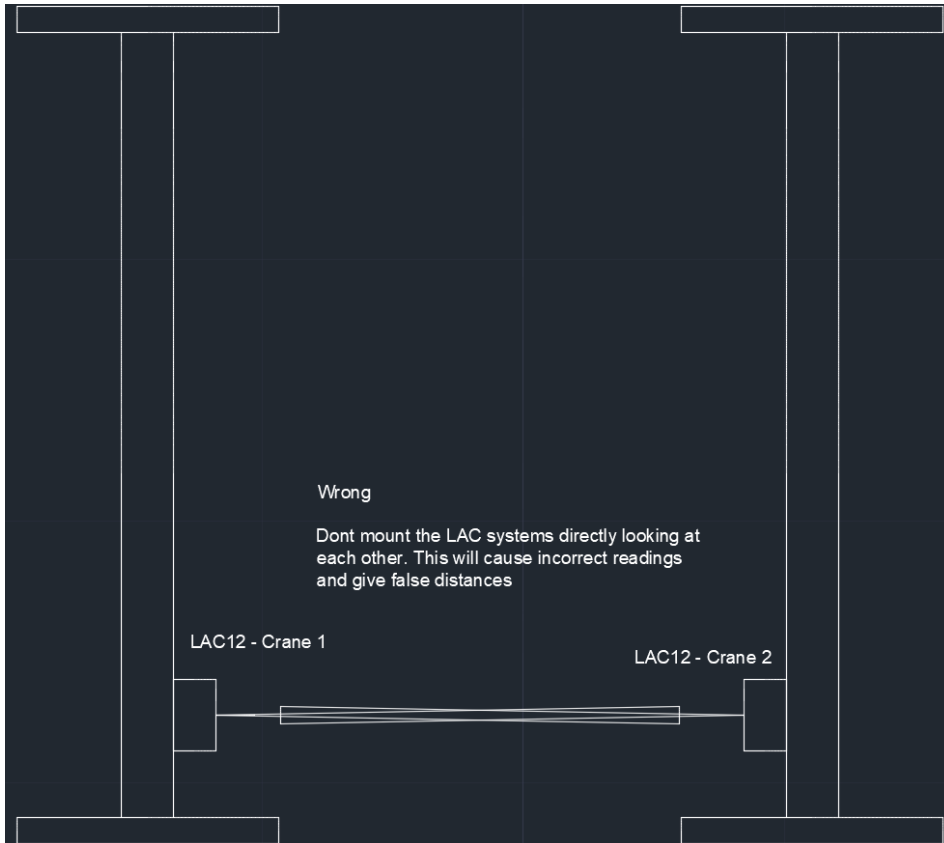
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5 Installation

Follow the instructions as described in this manual for the installation of this product.

5.1 Dimensions

The following diagram shows the mounting dimensions for the **LAC-12**

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OFFSET :

Wrong

Dont mount the LAC systems directly looking at
each other. This will cause incorrect readings
and give false distances

LAC12 - Crane 1

LAC12 - Crane 2

Correct
Mount the LAC systems offset from each other.
This will allow the sensors to get there own
signals back and not receive false readings.

Aprox 6-8ft offset is ideal for most setups.

LAC12 - Crane 2

LAC12 - Crane 1

5.2 Instructions

- Turn off the power supply.

- Locate a suitable place to install the **LAC-12**, with clear line of site to the opposite crane you are trying to stop the collision. Align the LAC-12 so the sensor is facing a clear free surface to reflect the light back without obstructions. (like the girder of the 2nd crane.)

- Connect the input power wires LAC-12 pigtail**.**

- **Wire 1 L**

- **Wire 2 N**

- Connect the relay output cables to the corresponding connections on crane function you want to slow and stop.

- Wire 3 Motion voltage Common (Stop)

- Wire 4 Motion voltage output (Stop)

- Wire 5 Motion voltage Common (Slow)

- Wire 6 Motion voltage output (Slow)

- Wire 7 Bypass 120V L (need to close the 120V circuit to activate)
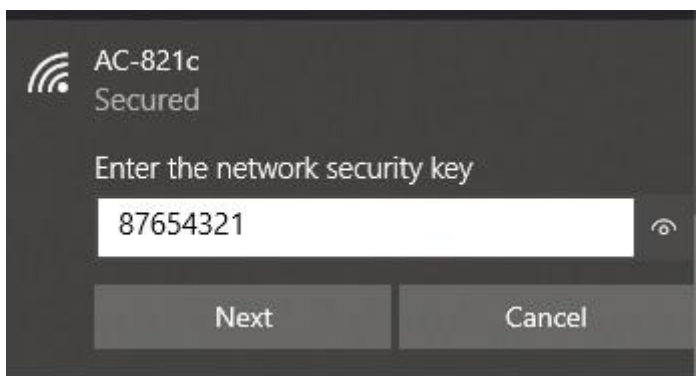
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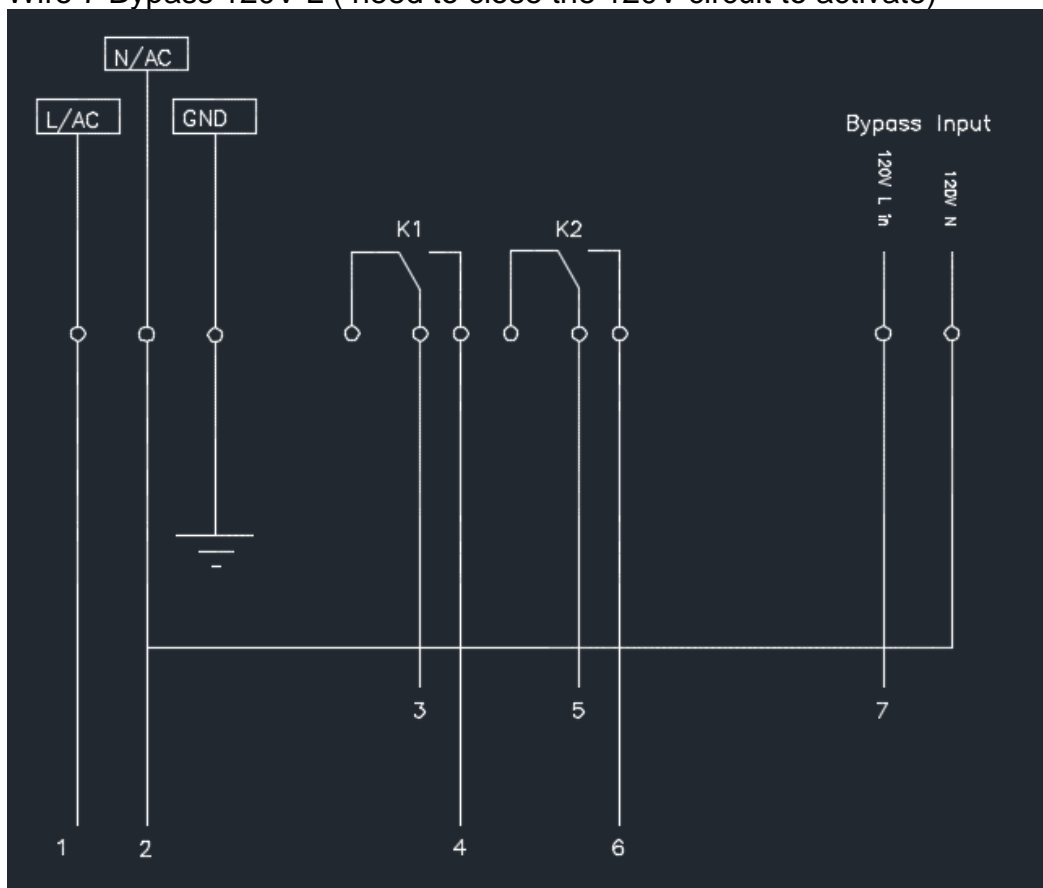
5.3 Wifi log in

Open your phone/tablet/PC and look for accessible wifi hotspots

Select AC - **** where the **** is the last 4 digits of the units mac address.
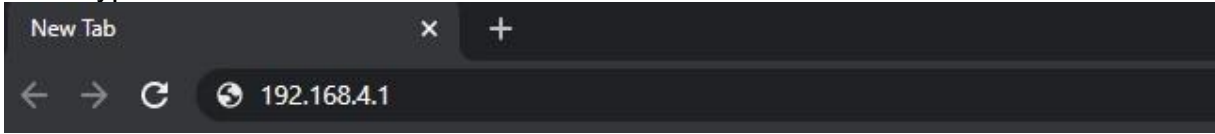
the Password is 87654321

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6 Webapp

Once you are connected to the LAC-12 hotspot you can then proceed to open your browser on your device. Chrome, Opera, Firefox …..

Then type in the IP of the unit which is 192.168.4.1

If you are connected properly the webapp should like and you should see the following.

1. Distance reading once you press start

2. Stop setting , changeable

3. Slow setting, changeable

4. Units selection, mm or FT

5. Relay 1 status ON or OFF

6. Relay 2 status ON or OFF

7. Start button to get the reading

8. Navigation menu to go to other pages

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Row 2 & 3 are the slow and stop setpoints. They will populate on the page load of the current settings.

Stop:	10	Submit
Slow:	20	Submit

To change the setting put your cursor in the box you want to change and delete the old settings. Then put in your new setting and press the submit button beside the slow / stop that you are changing.

Stop:	1	Submit
Slow:	2	Submit

The relay status will also show if the relays are on or off. Items 5 & 6

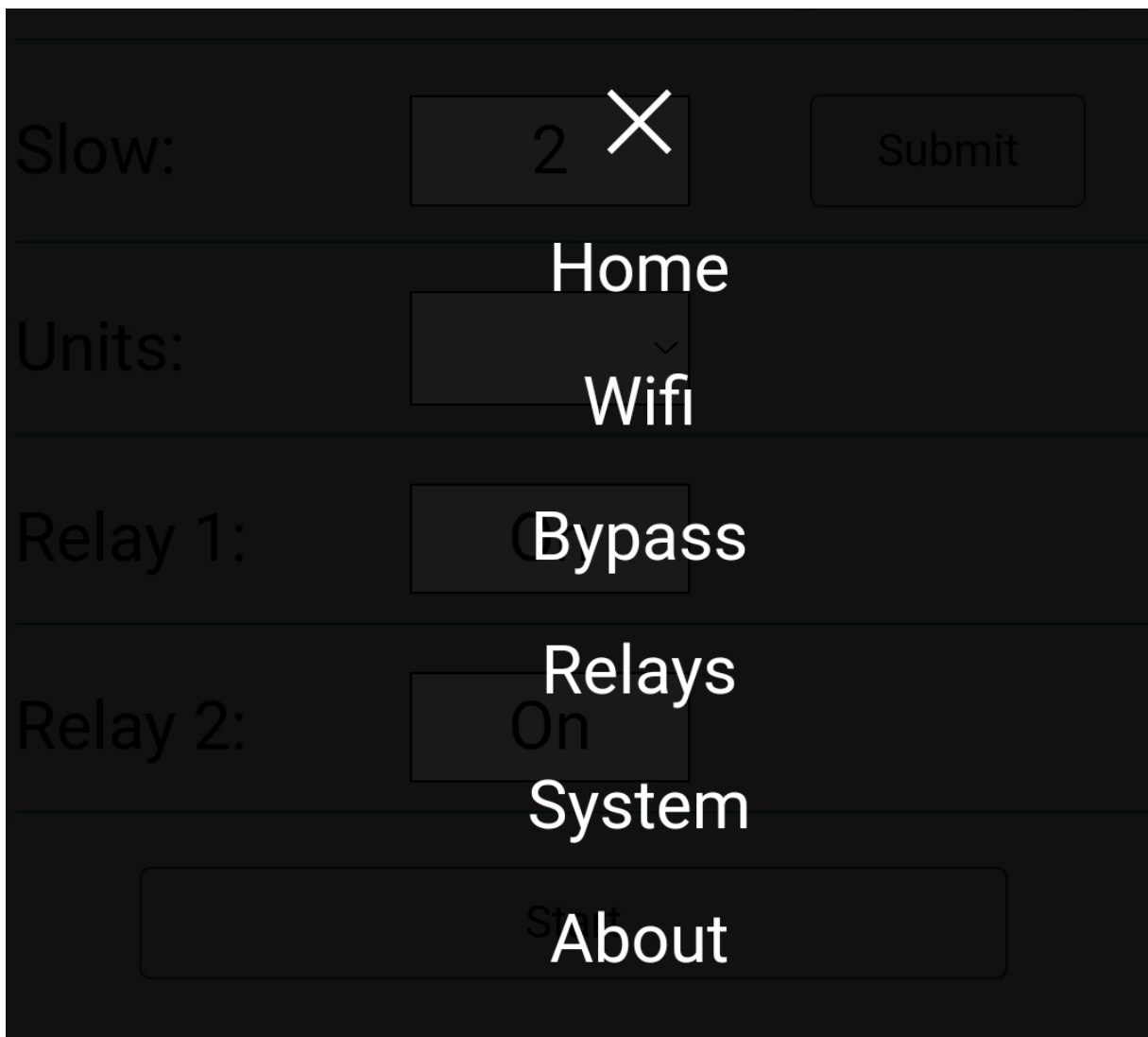| Relay 1:	off
Relay 2:	off

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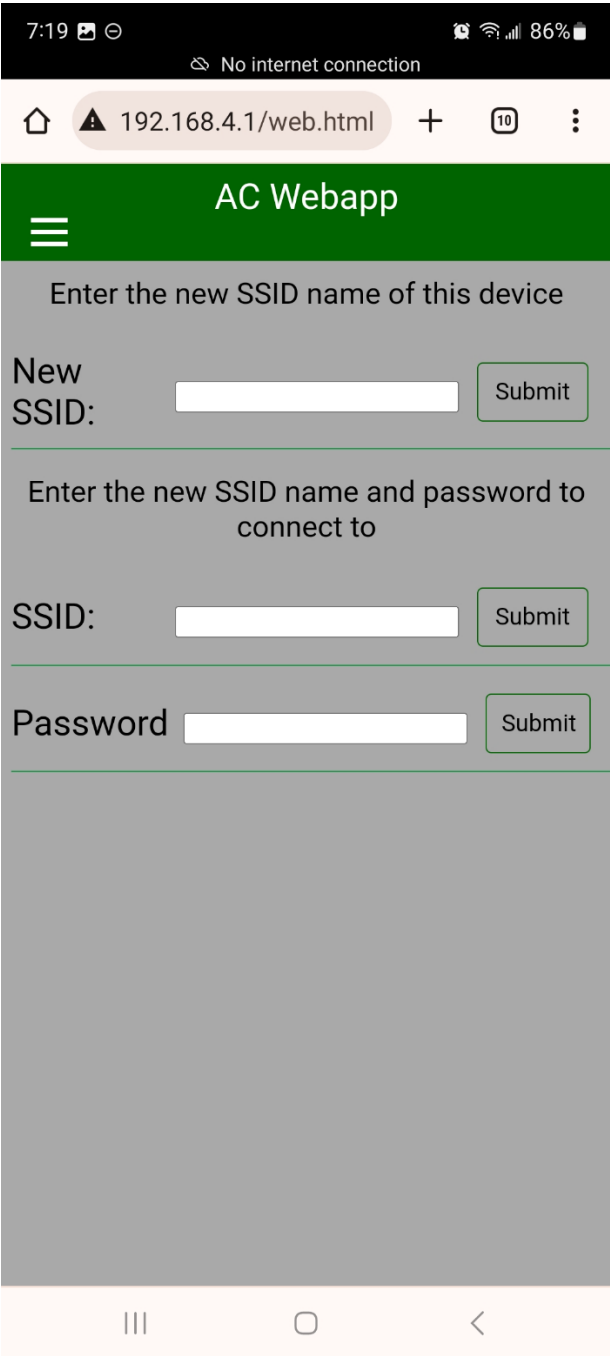To go to start the readings of the distance sensor press start.

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To move to other page settings click the navagation menu 8.

Once you press the navigation menu it will open like this.

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If you click the Wifi tab it will bring you to the wifi settings page.

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The Default SSID of the unit is AC-**** where the 4 * are the last 4 digits of the mac address. If you have multiple units in the same facility it can be hard to keep track of the SSID you are logging into.

Here you can change the name of this LAC wifi access point. To Something more recongizable onsite Like the Crane number. To do this click in the new name area change to the new name you want and press submit.

Enter the new SSID name of this device
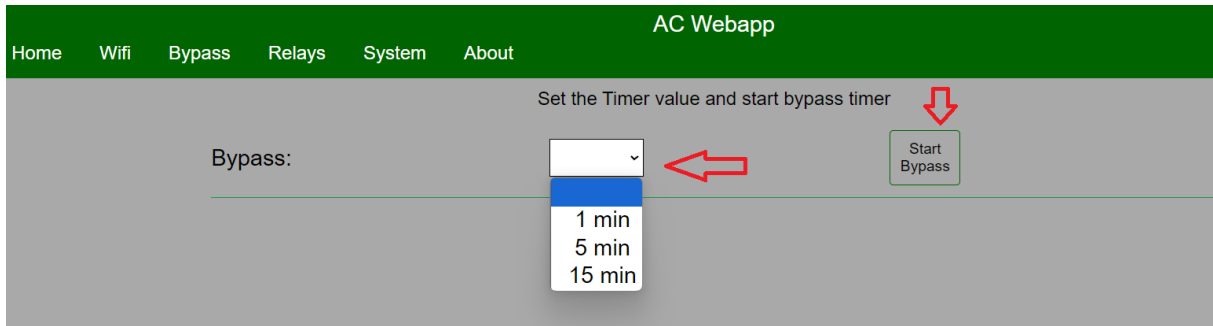
New SSID: New ssid ⟵   Submit

The LAC and can also connect to a wifi network. To do so enter the SSID and PASSWORD of the network you want to join.

Enter the new SSID name and password to connect to

SSID: [   ]   Submit

Password   [   ]   Submit

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You can choose to bypass the system by clicking the bypass button

The Bypass button is not permeant due to safety reasons. You can choose 4 settings for bypass to help move the crane if it is stuck or if you haven't finished installing the system yet and need to move the crane.

Pressing Start Byass without choosing a time will default to 30 sec
Other options are
1 min
5 min
15 min.

Once you press start bypass the relays will stay closed until the timer is up.
The LED on the unit should be White while its in bypass mode.

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Relays Page

The System is setup with the relays turning on using normally open contacts.
So these contacts will close during normal operation.

Sometimes the crane cant except this wiring and it either needs to be rewired to the
NC contacts or we have a way to switch the relay operation in the software without
rewiring the outputs.
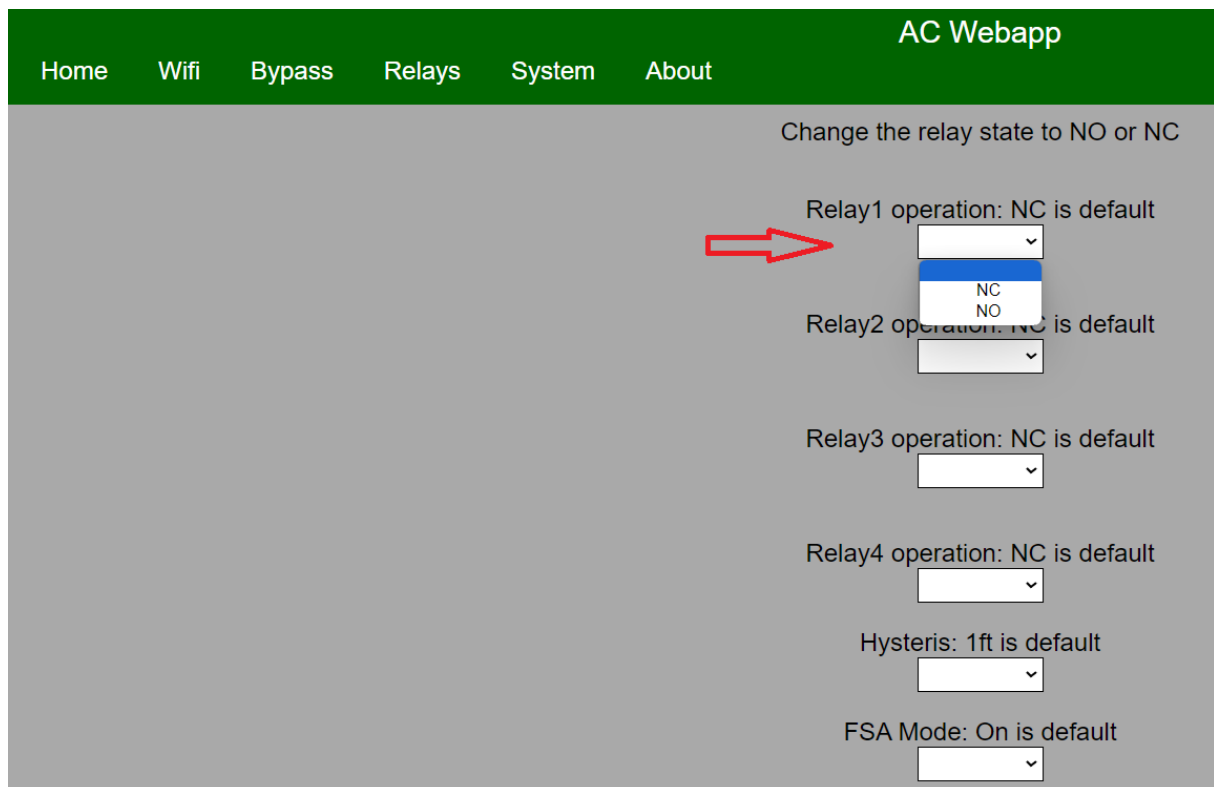
To Change the operation of the relay Pick the relay you want to swap the contact via
the drop down menu and change it from NC to NO

Now the relay will not close on startup and will turn on when the setpoint has been
reached.

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Hysteris: when the setpoint has been reached we add a hysteris so the relay will not continuously turn on / off when it is right at the edge of the setpoint. So for the relay to change state you need to be back the other way by default 1ft. if for some reason the reflection of is not stable and you have the signal bouncing more you can change this up to 5ft.
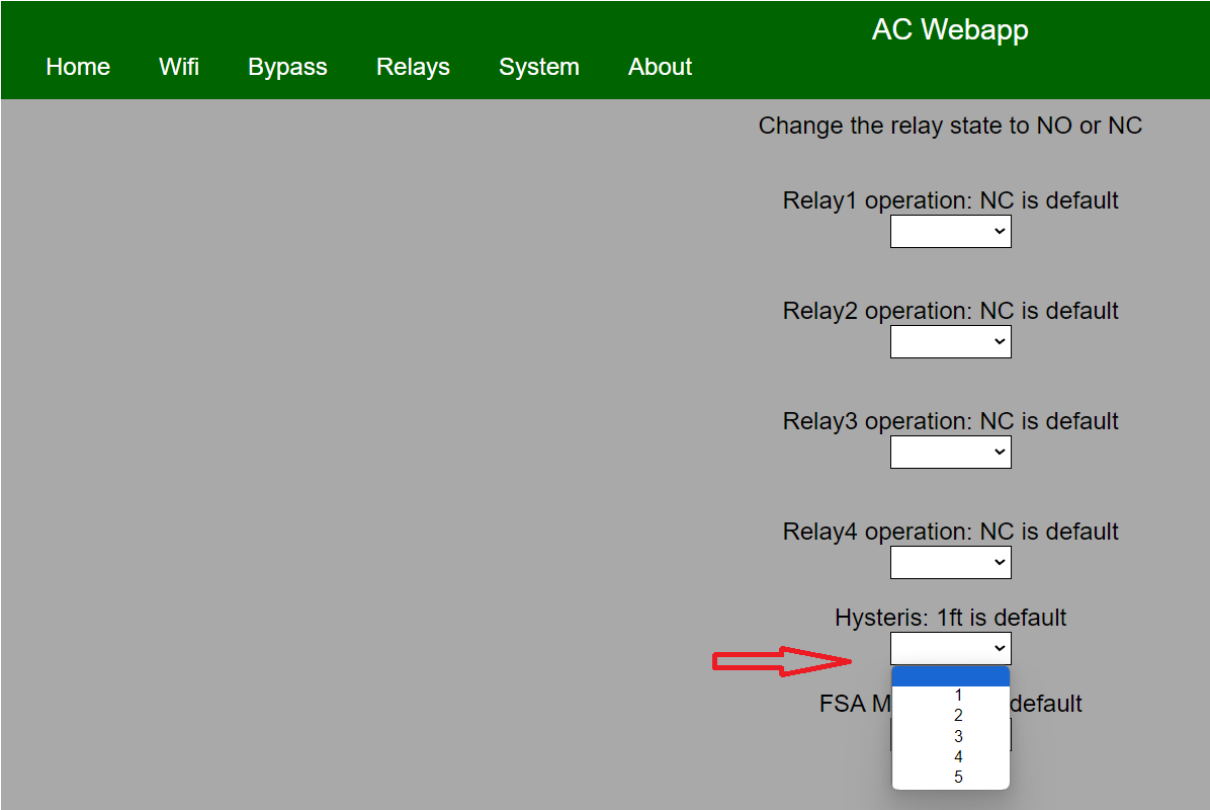
you change this setting until you find where the relay unwantedly is turning on / off to save the contacts of the LAC and the contactors / controls on the crane.

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FSA mode: Full speed away mode is a feature that allows the crane to go fast in the opposite direction once it detects it is moving away from the crane we are avoiding. The program counts the distance readings to determine if it is going towards the crane or away from the crane. Once we determine we are moving away from the crane. Then we turn the high speed relay back on so the crane can move fast in the opposite direction without clearing the full setpoint. Example if the slow was set to 20ft and the stop was set to 10ft. once you hit the stop you have to travel 10ft in slow until it clears the slow zone. But with FSA on once you hit 11ft in the opposite direction to turns the high speed relay back on. Once you travel towards the crane again it will go back into slow mode.

This feature is on in V2.6 and beyond. So if you don't want this to be on just go and turn it off. Then the system will operate within its setpoints regardless of direction.

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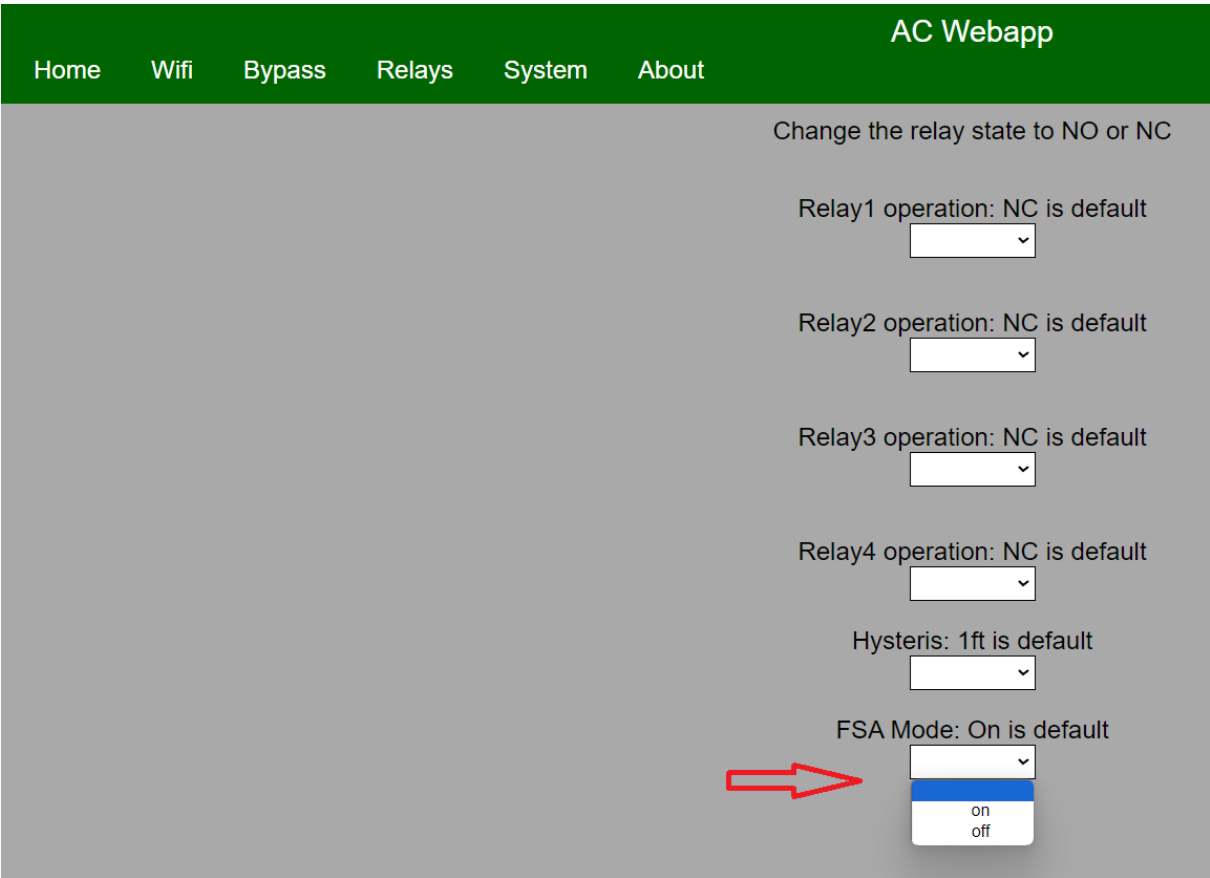
> ### DANGER
>
> ### ELECTRIC SHOCK
>
> - Be sure to remove ALL power from ALL devices before connecting or disconnecting inputs or outputs to any terminal or installing or removing any hardware.
> - Be sure to connect the grounding wire to a proper ground.
>
> **Failure to follow this instruction will result in death, serious injury, or equipment damage.**

> ### WARNING
>
> ### FAILURE OF OUTPUTS
> - If outputs should fail, outputs may remain on or off. Where personnel and or equipment hazards exist, use appropriate safety interlocks.
>
> **Failure to follow this instruction can result in death, serious injury, or equipment damage.**

7 Technical Specifications

7.1 General Data

- 0.1-12M Range

- Accuracy +- 1%

- FOV 3 deg

- LED sensor power consumption 85mW-550mW

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7.2 Electrics/electronics

Function	Description
Digital inputs	• 1 optical isolated inputs • 120VAC input
Relay outputs	• 2 change-over relays • max 250Vac - 3A
Supply	• 90-230Vac ± 10% • optional 100-240Vac
Power consumption	• max 3W

7.3 Mechanical data

Function	Description
Dimensions	• 4.50 x 4.50 x 2.44 in / 114.30 x 114.30 x 61.98 mm
Mounting	• Thur hole
Weight	• 0.6 lbs
Housing	• PC/ABS

7.4 Ambient data

Function	Description
Temperature range	• operational : -10°C to +60°C • storage : -40°C to +85°C
Relative Humidity	• 10 to 95% (without condensation)
protection	• Nema 4X IP68

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