

# SuperHALO™

2G-3G-4G Wireless  
Adjustable Cellular Booster Kit



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CA-VAT-10-R  
User Guide

Congratulations on purchasing the SuperHalo, the finest cellular booster available!

The SuperHalo adjustable cellular boosters and kits remove the frustration over dropped calls, limited range, and slow data rates by amplifying incoming and outgoing cellular signals in watercraft of all sizes. The SuperHalo is designed with leading-edge technology to detect and amplify weak incoming signals your cellular device would otherwise miss and to broadcast a significantly stronger signal back to the cell tower.

This guide contains all the information you need to get your SuperHalo booster system up and running.

**BEFORE USE, you MUST REGISTER THIS DEVICE with your wireless provider and have your provider's consent. Most wireless providers consent to the use of signal boosters. Some providers may not sp. consent to the use of this device on their network. If you are unsure, contact your provider.**

## Theory of Operation

The SuperHalo is a high-quality bi-directional booster that boosts cellular signals for areas prone to weak cellular coverage.

The SuperHalo is a tri-band cell booster, increasing signal for 2G-3G voice and 4G data.

The SuperHalo works with two antennas:

- An inside antenna that communicates with your cell phone.
- An outside antenna that communicates with the cell tower.

Signals sent from a cell tower are received by the outside antenna, amplified by the booster and then sent to your phone via the inside antenna.

When your phone transmits, the signal is sent to the inside antenna and then sent to the cell tower via the outside antenna.

Some cell signal is required for the SuperHalo to enhance cellular signal coverage. The weakest cell signal for the SuperHalo to work is low -100dBm to high -90dBm. dBm is an abbreviation for the power ratio in decibels of the radio power per one milliwatt.

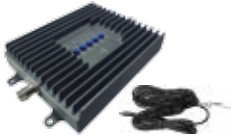
To measure your existing cell signal on an Apple iPhone, dial \*3001#12345#\*and press Call. In the top-left corner, a number appears instead of bars.

For Android devices, you can download several apps to measure exact signal strength. In your phone's App Store, search for "check real signal strength" to find a cell signal measurement app.

# INTRODUCTION

## SuperHalo Package

Unpack all package contents, compare them against the package contents list, and check for damage. For missing or damaged items, contact your retailer. Keep the carton and packing material to store the product or if you need to return it.



booster



outside antenna with mount



inside antenna with bracket



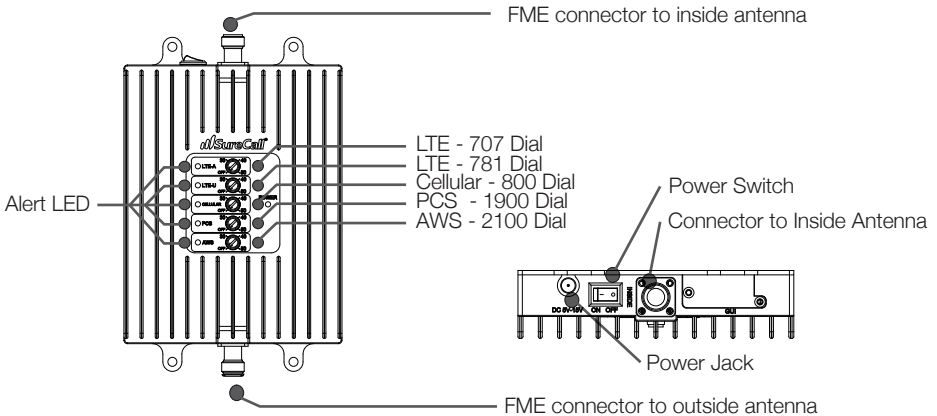
cable - 20' & 40'

Package	Package Contents
SuperHalo Booster Kit *	50dB adjustable marine booster
	20-ft CM240-M marine cable
	40-ft CM240-M marine cable
	Galaxy 5239 outside omni marine antenna
	248 W-M inside panel antenna
	110W -M 10-ft inside patch antenna
	12V 18-ft DC power cord

**\*Screws not supplied. Please purchase separately.**

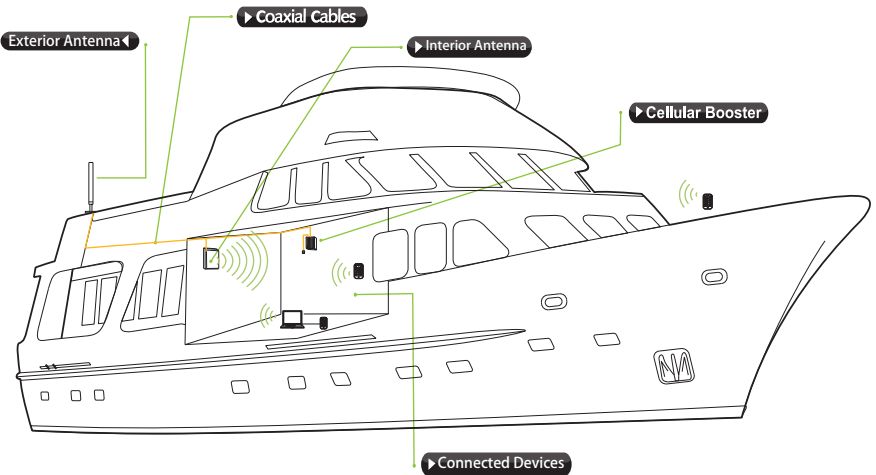
## SuperHalo Booster Hardware

The following image shows the key hardware components on the cellular booster. Refer to this image as you install your SuperHalo kit components.



## Quick Install Guide

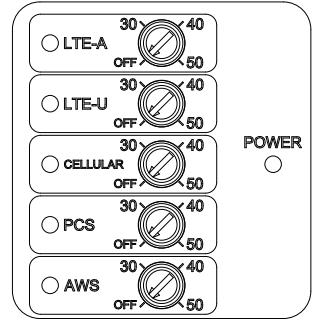
- 1 Mount outside antenna in an elevated area with a 12" radius clear of obstructions
- 2 Install CM240 Low coax cable from outside antenna to cellular booster
- 3 Using provided cable, connect booster to inside antenna
- 4 Install inside antenna in location where increased cell reception desired most
- 5 Using power cord, plug booster into power source
- 6 Turn on booster for clear and consistent cellular coverage
- 7 Adjust power dials as needed. If red lights illuminate, it may take a few seconds for the lights to go out after adjusting.



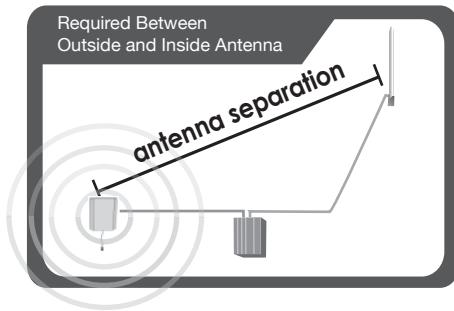
# INSTALLATION

## Configuring Gain Settings

1. Facing the front of your booster, find the following dials starting from the top:
  - A. LTE-A (AT&T 4G)
  - B. LTE-U (Verizon 4G)
  - C. Cellular-800 (All Carriers 2G/3G)
  - D. PCS-1900 (All Carriers 2G/3G)
  - E. AWS (T-Mobile 4G)
2. Set these dials according to the coverage area and the distance between the inside and outside antennas.
3. Inside panel antenna provides up to 1,500 square feet of coverage, or a 25 ft. wide by 100 ft. deep marine craft.



Adjust dB Gain according to table below if you cannot achieve maximum separation.



- 50dB      8-10 ft. separation
- 47dB      5-7 ft. separation
- 44dB      3-4 ft. separation
- 40dB      1-2 ft. separation

Note: As you can see from the table above, acquiring the recommended inside and outside antenna separation optimizes coverage significantly. Panel antenna can be vertically installed 6 ft. under outside antenna with the booster at full dB gain.

Inside panel antenna should face away from outside antenna. If panel antenna faces outside antenna, the booster will oscillate and go into Auto Shutdown.

## Installation Steps

The SuperHalo booster kit is specially designed for installation on watercraft. Can be used in other applications with appropriate mounting hardware.

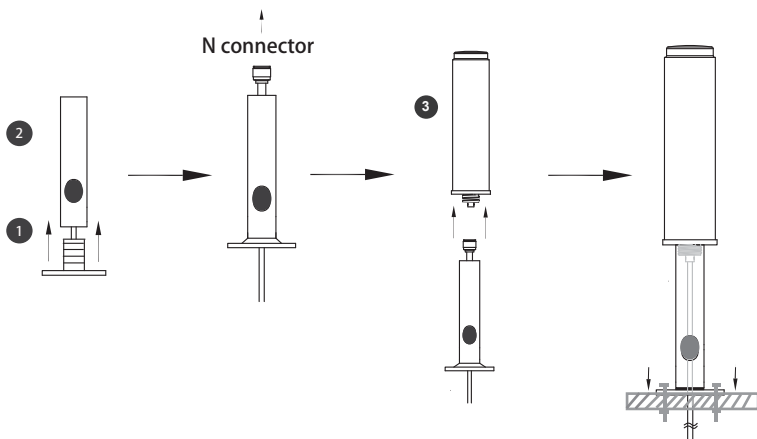
### Step 1. Connect the Outside Antenna -Galaxy 5239

The **Galaxy 5239** is a full-band antenna, built specifically for marine use, it is weather resistant.

#### Antenna **Galaxy 5239** - Installation Instruction

##### OPTION 1 ( Recommended )

1. Choose a mounting location that is as high as feasible, as free as possible from obstructions, and as far as possible from other antennas and strong sources of RF signal.
2. Before mounting base, drill a hole in the middle of the mounting location wide enough in diameter to allow CM240-M cable with FME connector to go through.
3. Hand tighten the antenna base to the ferrule.
4. Feed cable, N connector end first, through bottom of base and through hollow ferrule.
5. Hand tighten N connector to outside antenna and antenna to ferrule.
6. Feed cable, FME end first through the drilled hole.
7. Mount base (screws not provided) and hand tighten ferrule to mount base.

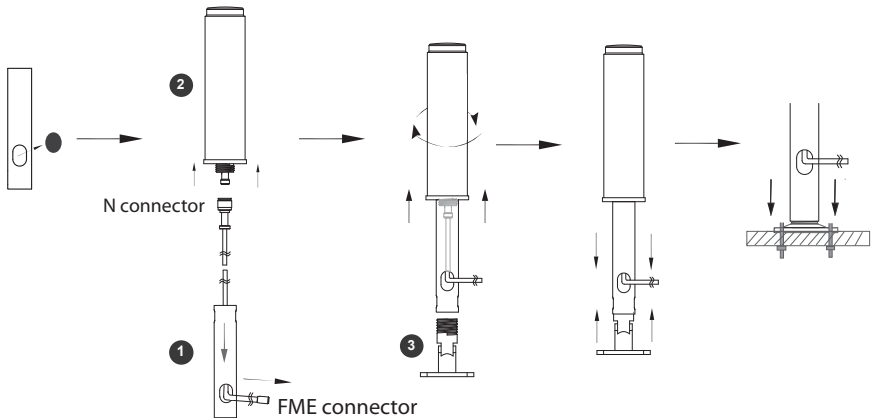


# INSTALLATION

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## OPTION 2

1. When location of outside antenna has been determined, remove cap from ferrule side hole.
2. Feed FME connector (small end) and cable through side hole on the ferrule as shown in figure below.
3. Feed remainder of cable through ferrule hole until approx. 1" of cable remains.
4. Connect N connector to antenna.
5. Screw antenna onto ferrule, bend cable to prevent cable from twisting.
6. Screw base onto other end of ferrule.
7. Mount base onto location.



### Step 2. Using the CM240-M cable

Use the CM240-M cable FME connector to connect the outside antenna to the booster connector marked OUTSIDE (see page 2).

Make sure to not coil additional coax cable that might be left over from installation.

Hand tighten the connection.

## Step 3. Connect the interior Antenna

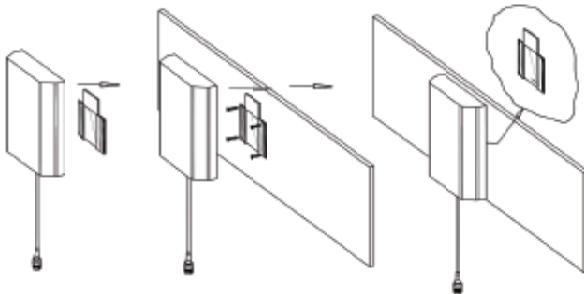
### A : Standard Wireless Usage - ( Recommended ) - CM248W-M

This CM248W full band panel antenna is a compact directional antenna designed to cover 2G/3G/4G and WLAN systems for Cellular, PCS, AWS and LTE frequencies. It's a high gain indoor antenna suited for places where the signal needs to be broadcast over a wide area. This interior antenna transmits and receives signal to cell phones.

#### Antenna CM248W-M - Installation Instruction

1. Choose location for mounting antenna on vertical surface. Ideal height from the cabin deck or floor should be the approximate height of cellphone use.
2. Using plate, mark position of desired placement with pencil or marker.
3. Screw ( not supplied) mounting plate into place with the slide panel protruding towards you. Provided plastic anchors are only to be used in sheetrock installation.
4. Slide antenna securely onto mounting plate.
5. Use the other CM240-M cable to connect CM248W-M to "inside" of the booster.

Note: Be sure to provide enough separation from outside antenna. Panel antenna should not face outside antenna.

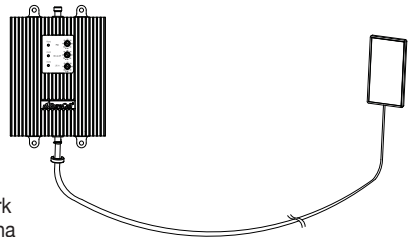


### B : Low Profile Usage - (Optional) - CM110W-M

1. The patch antenna is intended for indoor use only. Do not mount on a surface within 4" of metal.

2. Screw the patch antenna cable to the connector marked "inside."

Note: Laboratory tests show that patch antenna can work as close as 2 ft. from outside antenna if the patch antenna is facing away from outside antenna. If booster shows oscillation, turn it down by 3 dBs on the dial of oscillating band.





# INSTALLATION

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## Step 4. Booster Mount

If mounting booster, mount on vertical location using booster screw fittings.

## Step 5. Connect to DC Power

1. The positive red and negative black wired end will connect to watercraft's power supply-either battery, ignition or fusebox – whichever is located most conveniently.
2. Connect the DC power cord to the booster.

Turn on switch on power cord.

The Power LED goes ON to show that the booster is ready for use.

The Alert LEDs flash up to 15 seconds on each band to show the band is place parallel with text above.

If the Power light does not go ON, be sure the power supply is working.

If the Alert LEDs flash after the initial activation period, lower the dial above the blinking LED by 3dB (for example, from 50 to 47) and monitor the bars on your cell phone to see whether reception has improved. This process can take a few moments. Monitor the LEDs to make sure they go off.

If the Alert LEDs continue to flash, the booster will shut down automatically to prevent oscillation, then restarts after 60 seconds. Turn down the Cellular-800 or PCS-1900 or LTE(AWS) dial to prevent the booster from shutting down again. Fail to do so, booster will completely power off after 15 minutes. Manual power reset requires powering off booster and powering back on. Failure to do so will cause the booster to power off.

Note: While the watercraft is in port, the alert light may light up red. This means that the signal coming into the booster is too strong and it may cause the booster to shut down. As you move out to sea this will no longer be a problem.

Record the model and serial number for your products:

Serial #: \_\_\_\_\_

Purchase Date: \_\_\_\_\_

## Avoiding Interference

If the booster interferes with your radio or other electronic receivers, move the booster further away from those devices.

## Frequently Asked Questions

For a list of Frequently Asked Questions and a comprehensive, up-to-date Troubleshooting Guide, please visit our website at: [www.surecall.com](http://www.surecall.com).

## Obtaining Technical Support

You can also consult a SureCall technical specialist directly by emailing us at [support@surecall.com](mailto:support@surecall.com), or call 1-888-365-6283 and ask for tech support.

## Antenna Kitting Info

Component      Product Number (Description)      Product Number (Description)

outdoor Antenna*	Galaxy 5239	3dBi at 700-800/1900 -2700Mhz	Sold in Shakespeare® SuperHalo marine kit
CM240 Cable*	CM004-40FN 40Feet	-3.9dB at 800MHz - 6.0dB at 1900MHz	
Indoor Panel Antenna*	CM248W-M	7dB at 700-800MHz 10dB at 1900-2700Mhz	
CM240 Cable*	CM004-20FN 20Feet	-1.95dB at 800MHz - 3.0dB at 1900MHz	
Indoor Patch*	CM110W	1.1dB at 800MHz 3dB at 1900MHz	

\*All equivalent antennas and cables are suitable for use with the Aura booster

Note: For the signal booster to work, the following items are required:

- Outside antenna
- Cable for connecting the outside antenna to the booster
- Signal booster
- Inside antenna
- Cable for connecting the inside antenna to the booster
- Power supply

Warning: Unauthorized antennas, cables, and/or coupling devices are prohibited by current FCC regulations. Please contact FCC for details: 1-888-CALL-FCC.

Changes or modifications not expressly approved by SureCall could void the user's authority to operate the equipment.

# TROUBLESHOOTING

<p>Booster has no power</p>	<ol style="list-style-type: none"> <li>1. Verify that the rocker switch on the power supply is turned on and red LED is ON.</li> <li>2. Connect the power supply to an alternate power source.</li> <li>3. Be sure the power source is not controlled by a switch that can remove power from the outlet.</li> <li>4. Check the green POWER LED on the booster. If it is OFF, return the power supply to SureCall. Contact tech support at 1-888-365-6283 to receive a Return Merchandise Authorization (RMA), email <a href="mailto:support@surecall.com">support@surecall.com</a>, or go to <a href="http://surecall.com">surecall.com</a> and log on via online support</li> </ol>
<p>After installing the booster system, you have no signal or reception where your boat is berthed, moored or anchored</p>	<ol style="list-style-type: none"> <li>1. Check the outside signal closest as you can to the outside antenna. To measure your existing cell signal: Apple iPhoneD: dial *3001#12345# and press Call. In the top-left corner, a number replaces the bars. Android devices: download apps to measure exact signal strength, such as Network Signal Info in Google Play store. Search "check real signal strength" to find other cell signal measurement apps.</li> <li>2. Double-check cable connections to both antennas and booster.</li> <li>3. Be sure your booster's dB gain is turned up to 50dB on each dial.</li> </ol>
<p>One of the red lights next to the dials on your booster is flashing.</p>	<ol style="list-style-type: none"> <li>1. Turn down the dB gain on the dial until the light goes OFF or turns yellow.</li> <li>2. Be sure the inside panel antenna is facing away from the outside antenna.</li> <li>3. Use the recommended antenna separation: <ul style="list-style-type: none"> <li>• 50dB            8-10 ft. separation</li> <li>• 47dB            5-7 ft. separation</li> <li>• 44dB            3-4 ft. separation</li> <li>• 40dB            1-2 ft. separation</li> </ul> </li> </ol>
<p>Your booster restarted and shut down for 15 minutes, and is now shut down permanently.</p>	<p>Each SureCall booster is equipped with Auto Shutdown if there's danger of cell tower interference. Your dock or berth may be close to a cell tower. Once offshore, use the power supply switch to restart the booster manually.</p>

## Three-Year Product Warranty

SureCall warrants its products for three years from the date of purchase against defects in workmanship and/or materials. Specifications are subject to change. The three-year warranty only applies to products meeting the latest FCC Certification Guidelines stated on 2/20/2013 and going into effect April 30, 2014. A two-year warranty applies to any products manufactured before May 1, 2014.

Products returned by customers must be in their original, un-modified condition, shipped in the original or protective packaging with proof-of-purchase documentation enclosed, and a Return Merchandise Authorization (RMA) number printed clearly on the outside of the shipping container.

Buyers may obtain an RMA number for warranty returns by calling the SureCall Return Department toll-free at 1-888-365-6283. Any returns received by SureCall without an RMA number clearly printed on the outside of the shipping container will be returned to sender. In order to receive full credit for signal boosters, all accessories originally included in the signal booster box must be returned with the signal booster. (The Buyer does not need to include accessories sold in addition to the signal booster, such as antennas or cables.)

This warranty does not apply to any product determined by SureCall to have been subjected to misuse, abuse, neglect, or mishandling that alters or damages the product's physical or electronic properties.

SureCall warrants to the Buyer that each of its products, when shipped, will be free from defects in material and workmanship, and will perform in full accordance with applicable specifications. The limit of liability under this warranty is, at SureCall's option, to repair or replace any product or part thereof which was purchased up to THREE YEARS after May 1, 2014 or TWO YEARS for products purchased before May 1, 2014, as determined by examination by SureCall, prove defective in material and/or workmanship. Warranty returns must first be authorized in writing by SureCall. Disassembly of any SureCall product by anyone other than an authorized representative of SureCall voids this warranty in its entirety. SureCall reserves the right to make changes in any of its products without incurring any obligation to make the same changes on previously delivered products.

As a condition to the warranties provided for herein, the Buyer will prepay the shipping charges for all products returned to SureCall for repair, and SureCall will pay the return shipping with the exception of products returned from outside the United States, in which case the Buyer will pay the shipping charges.

The Buyer will pay the cost of inspecting and testing any goods returned under the warranty or otherwise, which are found to meet the applicable specifications or which are not defective or not covered by this warranty.

Products sold by SureCall shall not be considered defective or non-conforming to the Buyer's order if they satisfactorily fulfill the performance requirements that were published in the product specification literature, or in accordance with samples provided by SureCall. This warranty shall not apply to any products or parts thereof which have been subject to accident, negligence, alteration, abuse, or misuse.

SureCall makes no warranty whatsoever in respect to accessories or parts not supplied by it. SureCall is not responsible for any fees associated with the removal or servicing of the product.

## Booster Technical Specs

Model No.	<b>CA-VAT-10-R</b>	
Frequency	Uplink: 698-716, Downlink: 728-746 Uplink: 776-787, Downlink: 746-757 Uplink: 824-849, Downlink: 869-894	Uplink: 1850-1915, Downlink: 1930-1995 Uplink: 1710-1755, Downlink: 2110-2155
Input / Output Impedance	50ohm	
Maximum Gain	50dB	
VSWR	≤ 2.0	
Standard Supported	CDMA, WCDMA, GSM, EDGE, HSPA+, EVDO, LTE and all cellular standards	
Throughput	100+ Mbps	
Noise Figure	5dB	
Connectors	FME Male (both ends)	
Power Supply / Consumption	5-15VDC, 2.1A Max. @ 12 VDC	
Dimensions	7-7/8 in x 5 in x 1-3/16 in (20cm x 12.7cm x 8.09cm)	
Weight	2lbs 3oz (1.04kg)	
RoHS Compliant	Yes	

## FCC Information [ FCC ID: RSNMOBILE5 ]

This is a **CONSUMER** device.

**BEFORE USE**, you **MUST REGISTER THIS DEVICE** with your wireless provider and have your provider's consent. Most wireless providers consent to the use of signal boosters. Some providers may not consent to the use of this device on their network. If you are unsure, contact your provider.

You **MUST** operate this device with approved antennas and cables as specified by the manufacturer. Antennas **MUST** be installed at least 20 cm (8 Inches) from any person.

You **MUST** cease operating this device immediately if requested by the FCC or a licensed wireless service provider.

**WARNING.** E911 location information may not be provided or may be inaccurate for calls served by using this device.