



**ONE SYSTEMS®**  
DIRECT WEATHER LOUDSPEAKERS

## **CROSS FIELD ARRAY-2 (CFA-2)**

Long Throw/High Intelligibility  
All-Weather Loudspeaker System

V100/2015

The One Systems Cross Field Array-2™ (CFA-2) was designed to provide very high intelligibility and acoustic output where long throw requirements are specified. The CFA-2 is a nominal 55 degree horizontal by 30 degree array that features a fully rotatable high frequency horn/waveguide. This allows the CFA-2 to be used in either a vertical or horizontal orientation and still allows the desired coverage patterns. The high frequency configuration consists of two large format close-spaced compression drivers coupled to a 2" (50.8mm) constant directivity horn. The low frequency configuration consists of 4 bandwidth optimized 10" (254mm) diameter woofers in a 2 x 2 array. The CFA-2 is ideal for both outdoor/direct weather long throw applications and indoor applications in high ambient noise environments. Typical applications are football and soccer fields, baseball fields and large theme park environments. Indoor environments such as basketball arenas and natatorium installations are well suited due to the ultra-high system intelligibility.

In order to achieve maximum system performance the CFA-2 should be high pass filtered using a 4<sup>th</sup> order (24dB/octave) high pass filter set to 80Hz. This filter frequency can be set using the One Systems SF-4 High Pass Filter system or by using any high quality DSP based loudspeaker processor. High pass filter frequencies as low as 60Hz may be used but maximum system dynamics and headroom are achieved by using the recommended 80Hz filter corner frequency.

The CFA-2 is a direct weather design that features a three layer stainless steel grill assembly. The enclosure design is a laminated fiberglass construction with high safety factory structural rigging points molded in the enclosure shell. There are 9 M10 rigging points and the system is supplied with a stainless steel "U" bracket for simple suspension. The "U" bracket also includes a stainless steel strap kit that allows the desired tilt angle to be set and maintained regardless of wind loading.

The system is also compatible with the One Systems Pole Mount System EX-3 if vertical tilt requirements are specified in a pole mount application. The One Systems PT-76 is also compatible with the CFA-2 when pan and tilt are required.

The CFA-2 has an internal 600 watt autoformer and an internal jumper system that allows the enclosure to be used in either a "Lo Z" (4 ohm) or "Hi Z" configuration. The autoformer taps are 600 watts, 300 watts, and 150 watts. The input will allow for either 70.7Vrms operation or 100Vrms operation. The autoformer is a very low insertion loss (<0.4dB) impedance converter that exhibits very wide bandwidth.

**NOTE:** The CFA-2 is factory configured for 4 ohm operation. Internal jumpers are supplied and must be re-configured for "Hi Z" operation.

System input is a five position barrier strip. The input section features an aluminum weather cover with an integral IP68 rated gland nut. The gland nut will accommodate cable outside diameters of 7mm to 12mm (0.236" to 0.472"). The maximum diameter will accept most 2 conductor AWG12 cable assemblies.

#### **FEATURES AND BENEFITS:**

Very High Intelligibility

Long Throw/High Acoustic Output

Fully Rotatable High Frequency Waveguide

IP 56 Direct Weather Rated

Double Large Format High Frequency Drivers

Lo Z and Hi Z User Switchable Operation

2 X 2 10" (254mm) Low Frequency Long Throw Array

Multiple Fly Points and Rigging Accessories

## SPECIFICATIONS:

Frequency Response: 60Hz – 16kHz

Coverage Pattern: 55 x 30 Fully Rotatable

Passive Crossover Frequency: 1500 Hz

Inputs: 5-position barrier strip

System Sensitivity:  
(1 watt-1 meter) 104dB

Maximum Calculated Output (Continuous)  
(Peak Power/Peak Pressure) 134.8dB@ 1 meter\*  
140.8dB@ 1 meter\*

\*(Based on RMS sound pressure levels) 137.8dB@ 1 meter  
+3dB may be added for peak sound pressure levels) 143.8dB@ 1 meter

Power Handling: 1200 watts Continuous  
2400 watts Program  
4800 watts Peak\*

\* **NOTE:** all system power handling rating are amplifier headroom dependent

Nominal Impedance 4 ohms or Hi Z\*

(70.7Vrms or 100Vrms)

\* User Configured via internal jumpers

System Components:

Low Frequency: 4 each 10" (254mm)  
High Frequency: 2 each Large Format Titanium Compression Drivers

EASE 4.0 data  
[www.ONESYSTEMS.com](http://www.ONESYSTEMS.com)

Suspension/Mounting points: 9 each M10

Weather Performance: IEC 529 IP 56  
Mil Spec 810

Dimensions (H x W x D) mm: 876.5 x 572.6 x 446.3\*  
Inches: 34.5 x 22.5 x 17.6

\* Height is for enclosure only (Height does not include U bracket)

Net Weight: 60.6 kg (133.6 lbs)  
63.6kg (140.2lbs) with External "U" bracket

Included Accessories Stainless Steel "U" Bracket and strap kit

Optional Accessories/Products Pole Mount System EX-3 (new 2012)  
PT-76 (new 2012)  
M10 Forged Shoulder Eye Bolt Kit  
SF-4 High Pass Filter (new 2012)

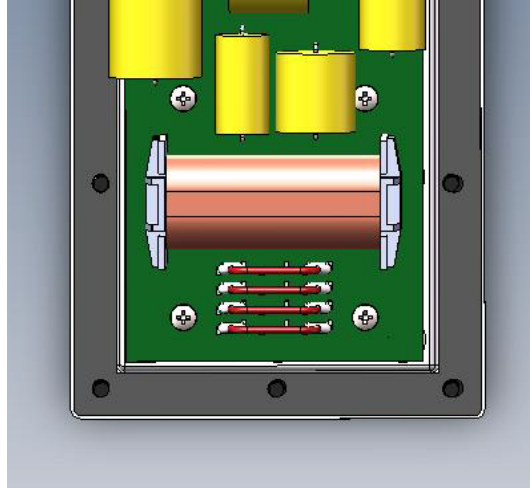
## **CONFIGURING THE CFA-2**

**NOTE:** The One Systems CFA-2 has a factory installed 600 watt autoformer. The CFA-2 may be configured to present either a "Low Impedance" (4 ohm) or "High Impedance" load to the amplifier. The CFA-2 is wired at the factory for 4 ohm operation. If a "High Impedance" configuration is required, the crossover input cup must be removed and the configuration jumpers must be moved as shown below.

For Low Impedance (4 ohms) all jumpers must be in POSITION 2.

For High Impedance (either 70.7Vrms or 100Vrms) all jumpers must be in POSITION 1.

***THE INPUT WEATHER COVER MUST BE USED FOR ALL CFA-2 INSTALLATIONS, REGARDLESS OF SYSTEM INPUT IMPEDANCE!***

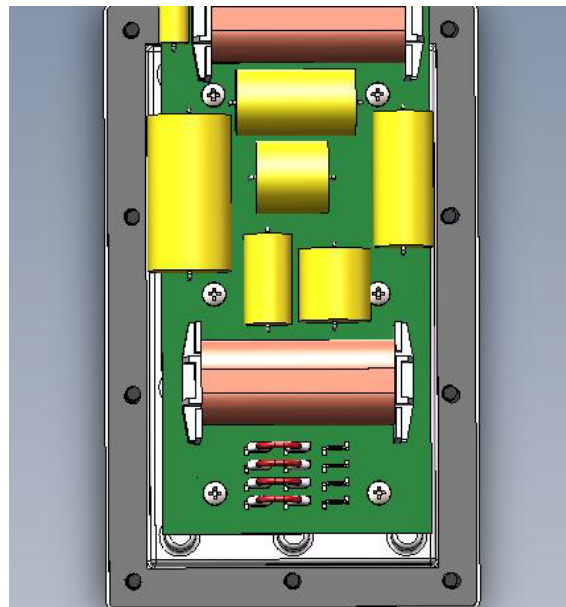


Jumpers shown in “Low Z (4 ohm)” position 2

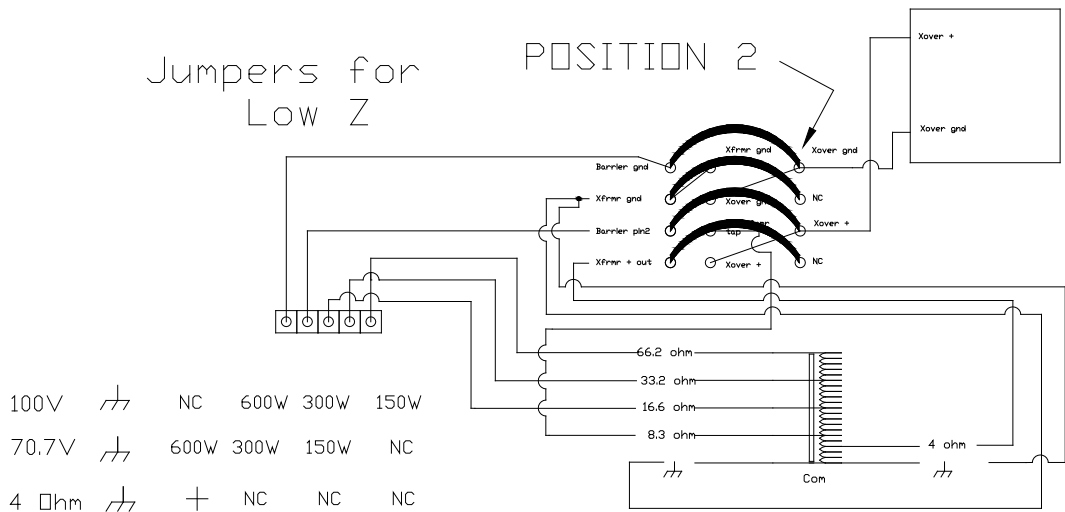
The input routing jumpers are configured from the factory in the position shown above (Low Z). They must be moved by the user if “High Z” (70.7Vrms or 100Vrms) operation is required.

**NOTE:**

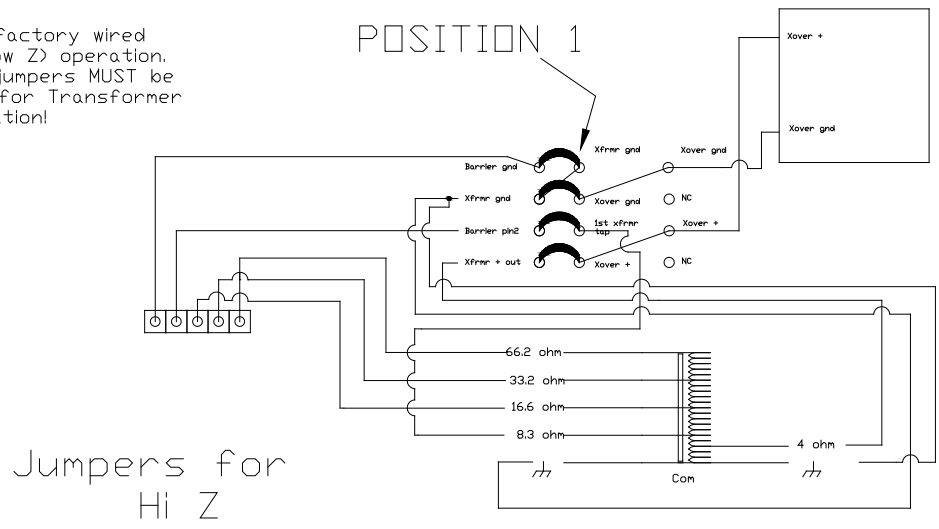
For high-impedance connections the internal jumpers must be moved from position 2 to position 1.



Jumpers shown in “High Z” position 1



NOTE: Unit is factory wired for 4 Ω (Low Z) operation. The internal jumpers MUST be reconfigured for Transformer (High Z) operation!



## CONNECTING THE CFA-2

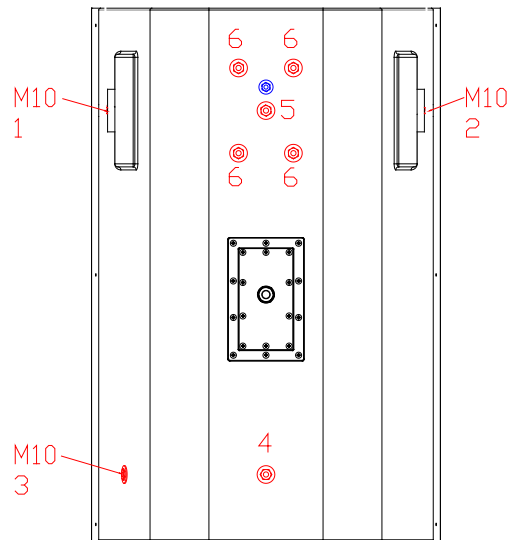
The input barrier strip wiring is shown below. NOTE the “No Connection” (NC) positions for each wiring configuration. Please note that when wiring for 100Vrms or 70.7Vrms operation there are various connections that are not used (NC) based on whether the desired operating voltage is 70.7Vrms or 100Vrms.

|       |  |      |      |      |      |
|-------|--|------|------|------|------|
| 100V  |  | NC   | 600W | 300W | 150W |
| 70.7V |  | 600W | 300W | 150W | NC   |
| 4 Ω   |  | +    | NC   | NC   | NC   |

## SUSPENDING THE CFA-2

The CFA-2 may be suspended using either the stainless steel “U” bracket (supplied) or by using either the Pole Mount System EX-3 for pole applications or the PT-76 for either wall or pole mounting. The CFA-2 may be suspended horizontally using points 1 and 3 shown below via M10 eyebolts.

The CFA-2 rigging points (M10 - 9 points) and mounting point for the “U” bracket hardware kit (M8 - 1 point (**NOT A SUSPENSION POINT**)) are shown below.



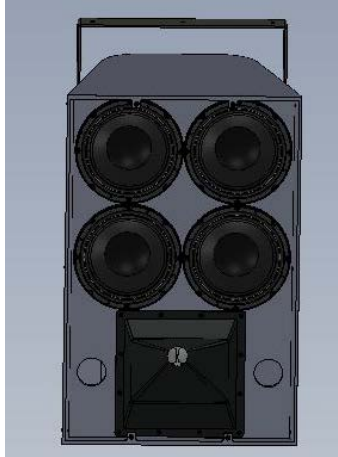
The points shown in red are all M10. The single blue colored point is M8. The points are numbered in this image to illustrate intended usage as follows:

Points 1 and 2.....”U” Bracket mount (the blue point, M8, is also used for the “U” bracket strap kit. The blue M8 point is NOT a structural point and is used for the “U” bracket strap ONLY!)

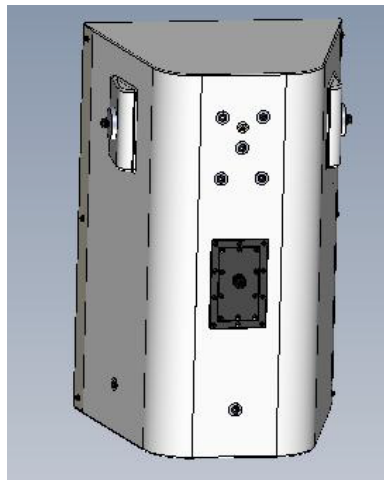
Points 1 and 3, 4 and 5.....Horizontal enclosure mount. **NOTE: All 4 points, (Points 1, 3, 4, and 5) must be used for horizontal mount configurations. Point 4 and 5 are for pull up and safety!**

Point 6.....Four points used for either the PT-76 or the Pole Mount System EX-3 (**NOTE: Point 4 is used for the “link” portion of the PT-76 or the Pole Mount System EX-3 mounts**)

The supplied “U” bracket requires the enclosure be suspended “upside down” with the high frequency section positioned near the bottom of the front baffle. The “U” bracket will allow adjustment in the vertical axis (tilt) only. See the image below. **NOTE: THE CENTER HOLE IN THE U BRACKET IS FOR THE PULL BACK STRAP ONLY! THIS HOLE MUST NOT BE USED FOR MOUNTING OR SUSPENSION!**



CFA-2 orientation for external “U” bracket (supplied)

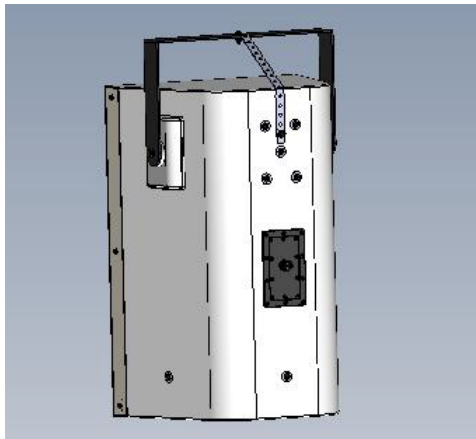


The CFA-2 is supplied with the external “U” bracket and a hardware kit to allow the enclosure to be tilted back and locked into position. This kit prevents wind loading and “gravity sag” from altering the required down tilt angle of the enclosure



The kit consists of:

- 1ea. Band-it AE4779 All Purpose Band 316SS (Black Coated) 475mm long
- 2ea. M8 304 grade stainless steel bolts
- 1ea. M8 304 grade stainless steel nylon insert nut
- 3 ea. 304 flat washers
- 1 ea. Lock washer



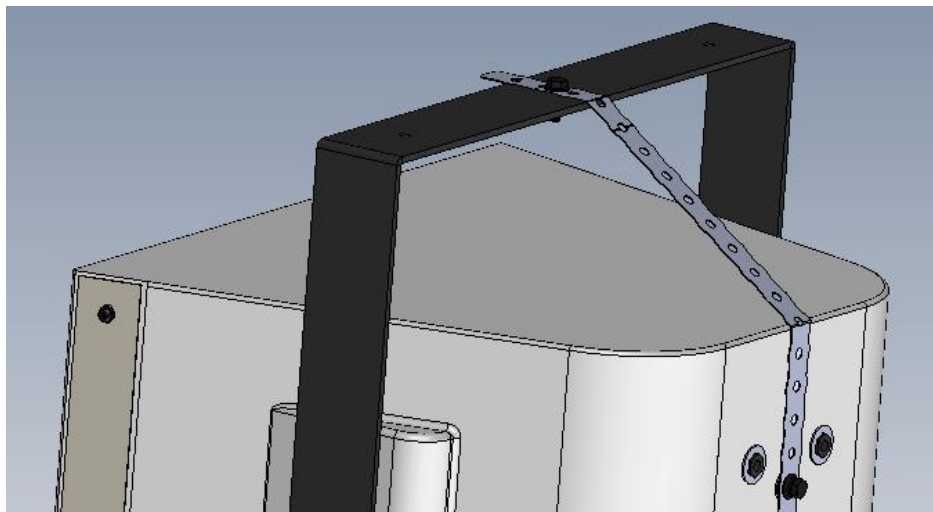
The M8 fitting is located between the M10 points.

**NOTE: The M8 point should NOT be used for rigging.**

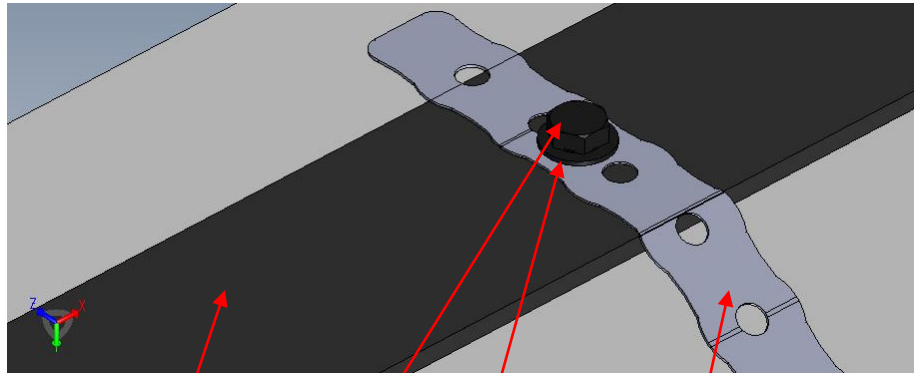
The M8 point is to be used to mount the hardware kit **ONLY!**

**THE CENTER HOLE IN THE U BRACKET IS FOR CONNECTING THE STRAP  
ONLY! DO NOT USE THE CENTER M8 HOLE IN THE U BRACKET FOR  
MOUNTING OR SUSPENDING THE ENCLOSURE!!!**

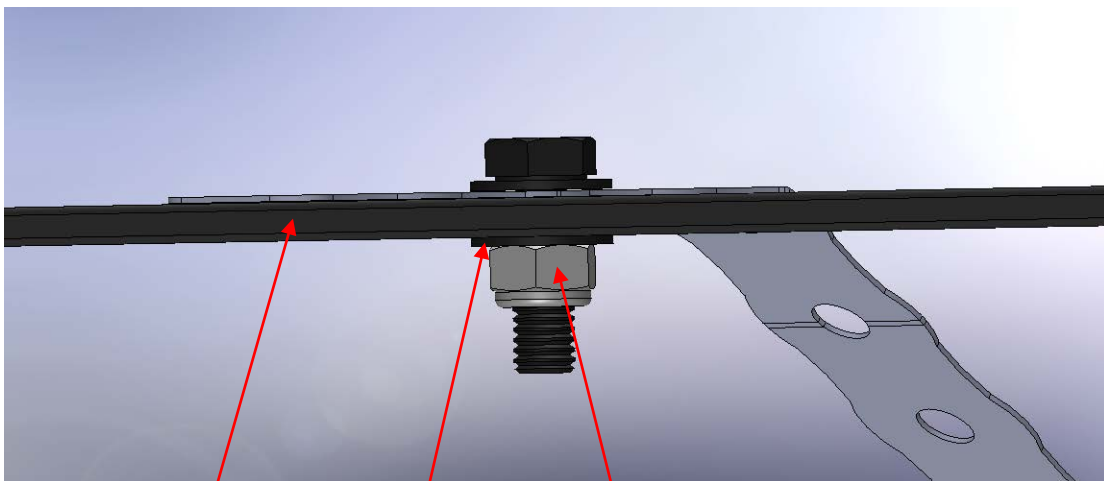
The “U” bracket kit is shown installed above and a close up below.



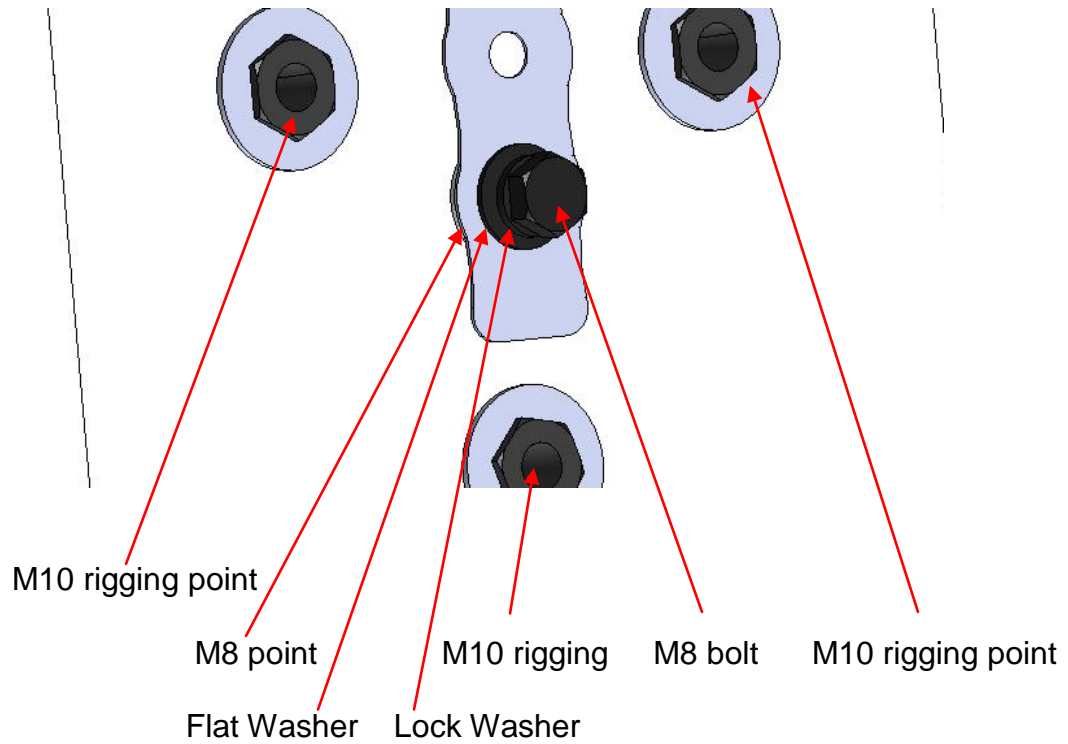
The stainless steel band is connected to the “U” bracket by using one M8 bolt and flat washer on the top as shown in the close up below. A second flat washer and the nylon insert nut are used below the “U” bracket to secure the stainless steel band to the top of the “U” bracket.



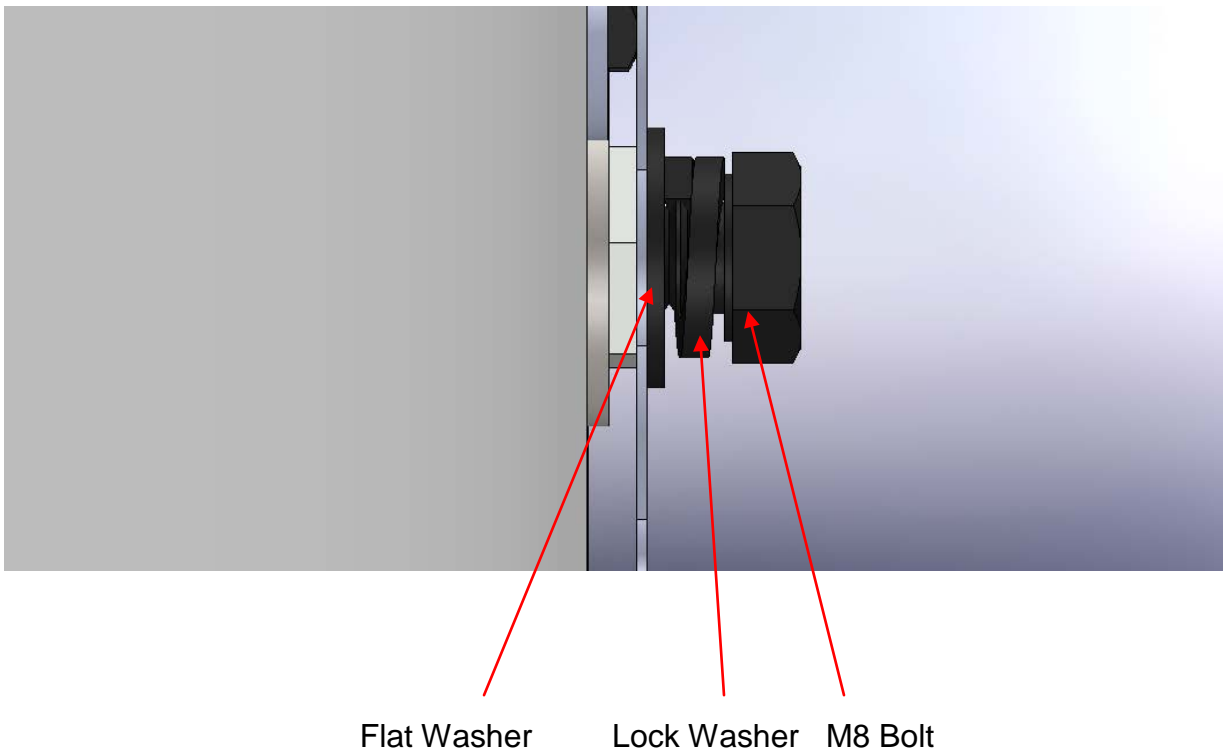
“U” bracket    M8 bolt    Flat Washer    Stainless Steel Band



“U” Bracket    Flat Washer    M8 Nylon Insert Nut

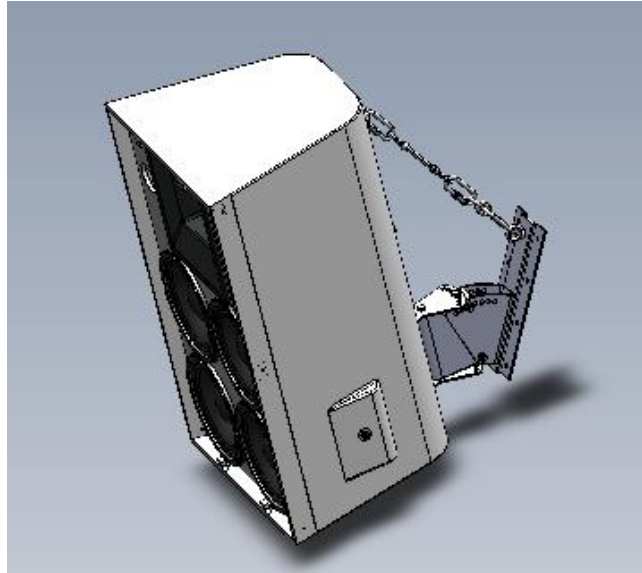


The band is secured on the back of the enclosure using the M8 point, a flat washer, a lock washer and the second M8 bolt as shown above.

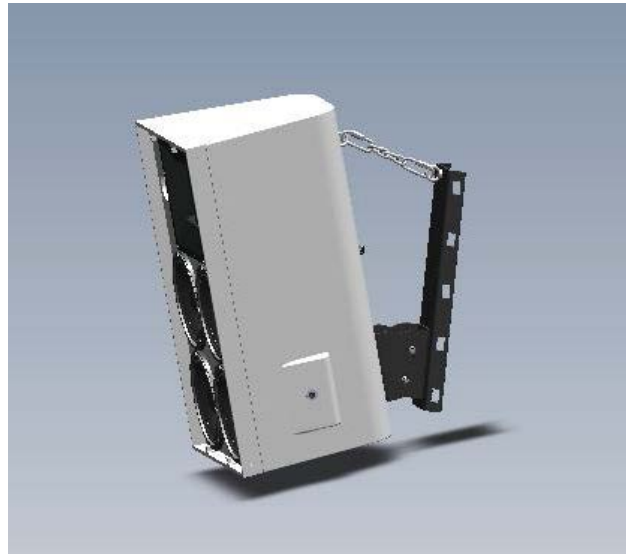


The above image shows the back of the CFA-2 and the strap kit mounting.

The CFA-2 is shown below with both the PT-76 and the Pole Mount System EX-3. When the CFA-2 is suspended using either the Pole Mount System EX-3 or the PT-76 the enclosure must be oriented with the woofers near the bottom of the mount.

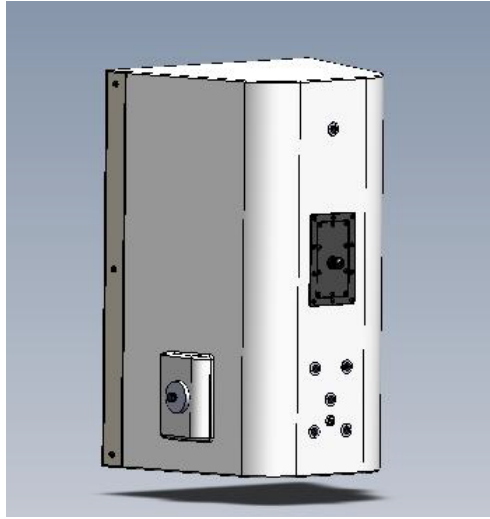


CFA-2 with PT-76



CFA-2 with Pole Mount System EX-3

**NOTE:** When the CFA-2 is used with either the PT-76 or the Pole Mount System EX-3 the enclosure is rotated 180 degrees as shown above and below. The high frequency horn is located near the top for use with the PT-76 or the Pole Mount System EX-3.



Enclosure orientation for PT-76 and Pole Mount System EX-3

Installation instructions for both the Pole Mount EX-3 and the PT-76 may be found in the “Documentation” section of the One Systems web site.  
([www.onesystems.com](http://www.onesystems.com))