

# Rayport AET-430

## *Installation Guide*

### Contents

1. Installer Notes .....	P2
2. Loading Calculations .....	P3
3. Installation .....	P4-10
a. Parts List .....	P4
b. Tool List .....	P5
c. Assembly .....	P6-10
4. Warranty Information .....	P11



## 1. Installer Notes

Thank you for purchasing Applied Energy's Rayport AET-430 racking system. Designed for quick and easy installation, the AET-430 allows for bottom-to-top assembly of the entire PV unit. In other words, the installer is able to work in steps from the roof up to the panel without having to perform any off-line sub assemblies.



## 2. Array Layout

$W_A$  = Array Width (east/west)  
 $W_M$  = Module Width (east/west dimension)  
 $C$  = Number of Columns  
 $G$  = Gap Between Modules (normally ¼")

$$W_A = (W_M \times C) + (G \times (C - 1))$$

Assuming a 58.3" wide module for the example below:

$$W_A = (58.3 \times 7) + (0.25 \times (7 - 1))$$

$$W_A = 409.6" \text{ or } 34.1 \text{ feet}$$

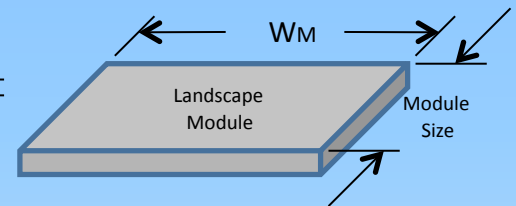
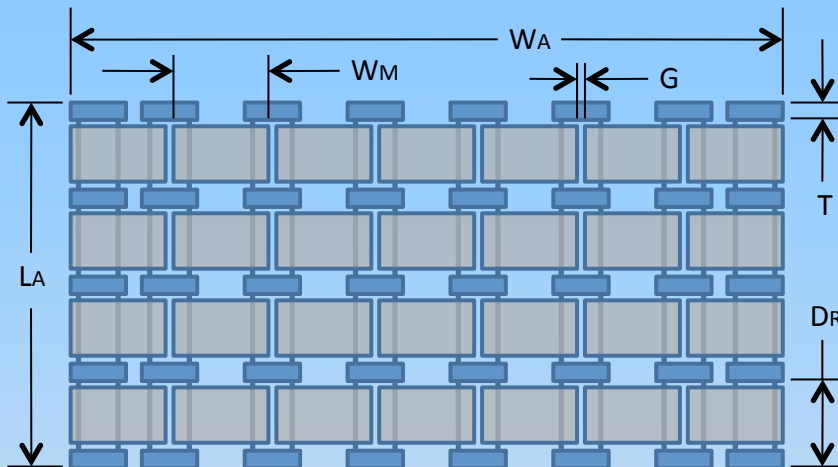
$L_A$  = Array Length (north/south)  
 $D_R$  = Repeating Rack Dimension  
 $R$  = Number of Rows  
 $T$  = Tray Dimension

$$L_A = (D_R \times R) + T$$

Assuming a 39" wide module for the example below:

$$L_A = (58.65 \times 4) + 10.6$$

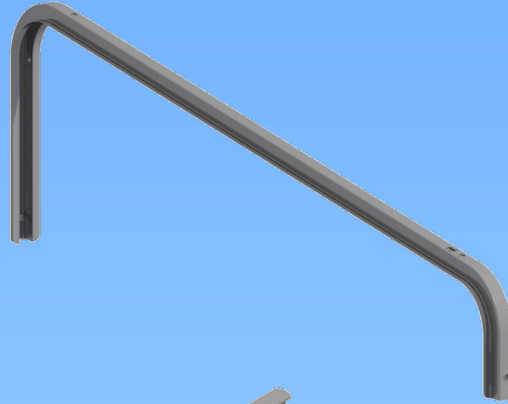
$$L_A = 245.2" \text{ or } 20.4 \text{ feet}$$



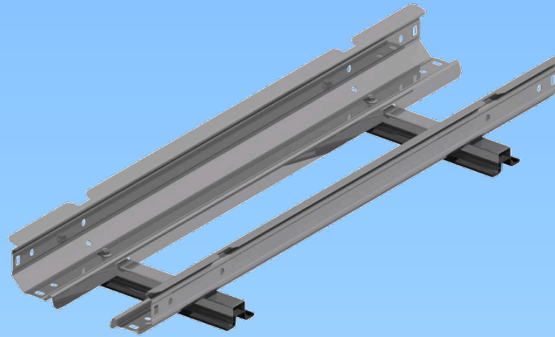
Module Size – North/South Dimension	
	953 – 994 mm (37.5 – 39.1")
	769 – 810 mm (30.3 – 31.9")
$D_R$	58.65 inches
$T$	10.6 inches

### 3a. Installation - Parts List

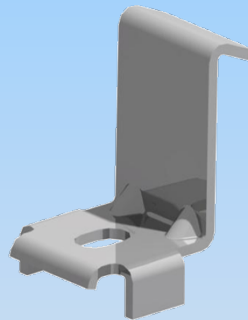
(2) Support Rails,  
(3) per End Panel



(1) Ballast Tray  
Assembly



(4) Z-Brackets,  
(6) per End Module



(8) Bolts,  
(10) per End Panel



### 3b. Installation - Tool List

3/8" Socket w/ Ratchet or Driver

Tape Measure

Mason String or Chalk Line

Industrial Adhesive (as needed)

Ballast / Support Rail Spacer Bar

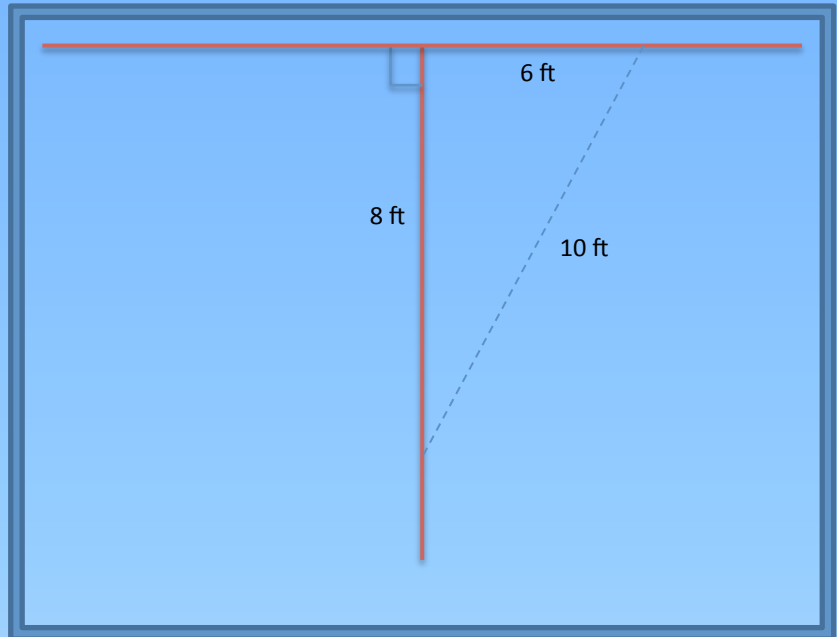
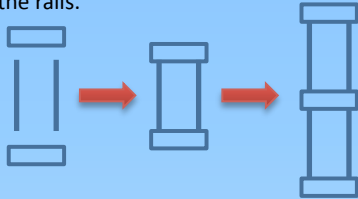
### 3c. Installation - Assembly

#### 1) Establish lines for array alignment.

Using string or a chalk line, create a straight east/west line. Typically, this would be the front or rear of the PV array. Next, establish a north/south line perpendicular to the first line in the center of the array.

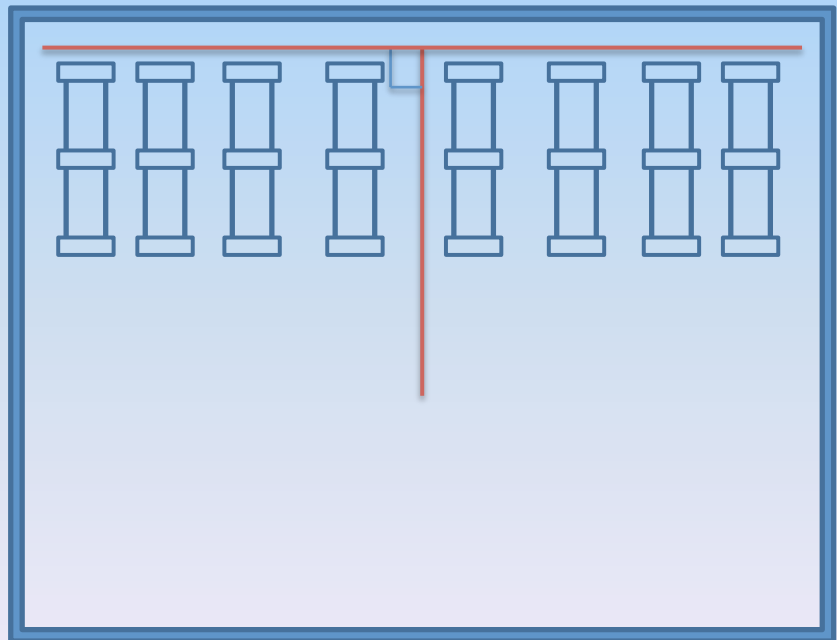
#### 2) Assemble racking units.

Assemble (2) support rails to (2) ballast trays using ¼-20 bolts. Each connection between the support rail and ballast tray requires (1) bolt. Assemble (2) more support rails to the rear of the ballast tray and one additional tray to rear of the rails.



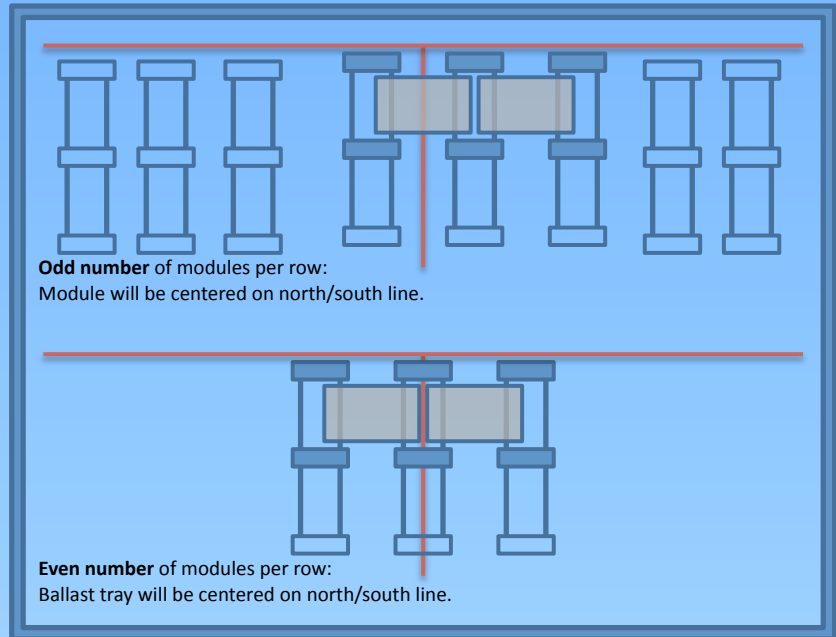
#### 3) Layout first two rows of racking.

Repeat step two for the number of racking units required for an entire row of modules. The number of rack assemblies required is one more than the number of modules in a row. For example, 7 modules in a row requires 8 columns of rack assemblies. Roughly space the racking units apart.

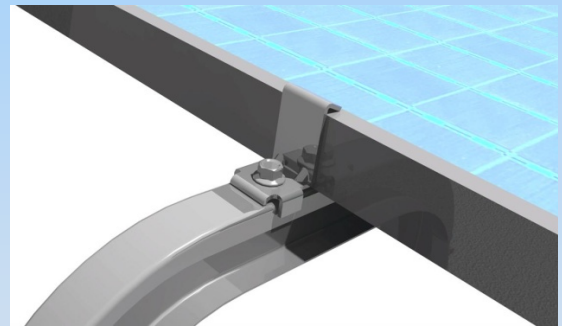


### 3c. Installation - Assembly

4) Begin to install first row of modules  
Align the ballast trays to the east/west and north south lines. Using the spacer bar as shown below, space the rack assemblies to the correct distance and load the trays with the specified number of ballast bricks for the module being installed. Ballast should be added to the trays in front and behind the module prior to installing the module. Once the four corners around the module have been secured with ballast, the module can be installed using the provided ¼-20 bolts and Z-brackets.



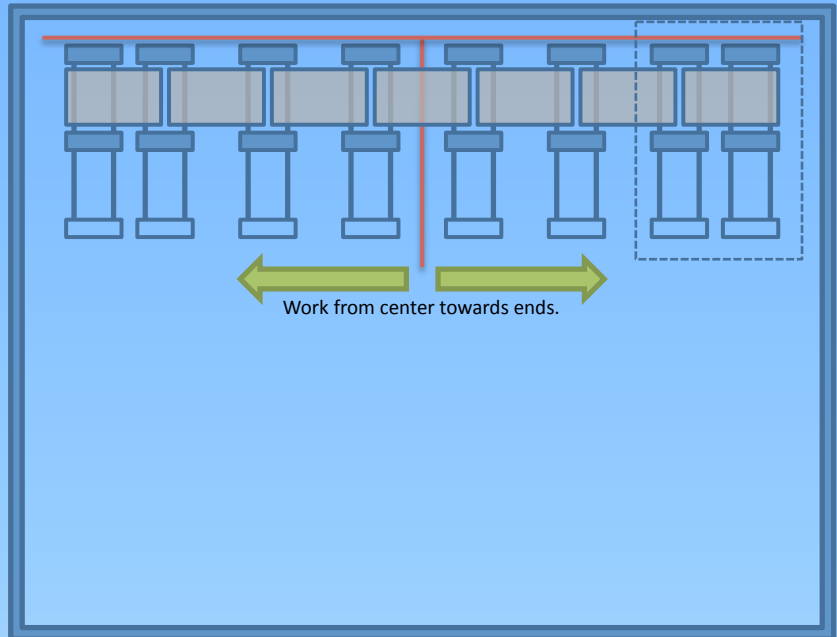
Set the spacer bar to the correct module size (above)  
Use the spacer bar to set the correct distance between ballast trays (right)



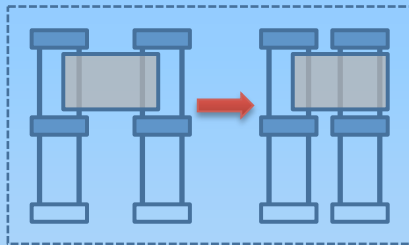
Module Z-Bracket installed with ¼-20 bolt.

### 3c. Installation - Assembly

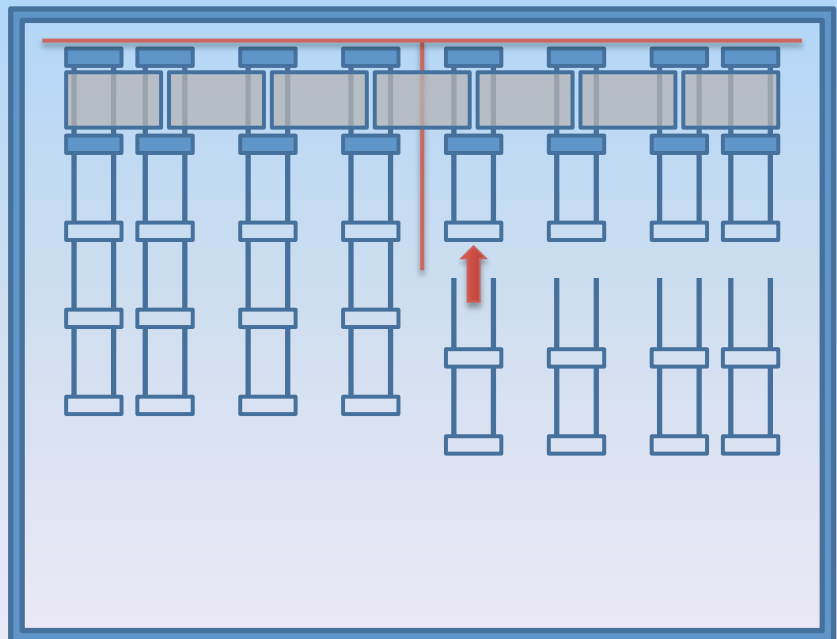
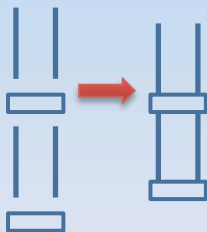
5A) Finish installing modules in 1st row. Working from the center out towards the sides, continue spacing the rack assemblies with the spacer bar and installing ballast in the trays. Follow with the installation of the modules prior to moving on to the next row. There should be a  $\frac{3}{16}$ " to  $\frac{1}{4}$ " between modules. Module leads may be installed together prior to moving on to the next row.



5B) The last rack assembly at the ends of each row is entirely located under the last module such that the trays are even with the module. This will cause three support rails to be located under the end modules in every row.



6) Build additional rows of racking. Two more additional rows of racking can now be assembled to the first set of racking. This must be done prior to installing ballast bricks in the third row of trays in order to have access for the connecting hardware.

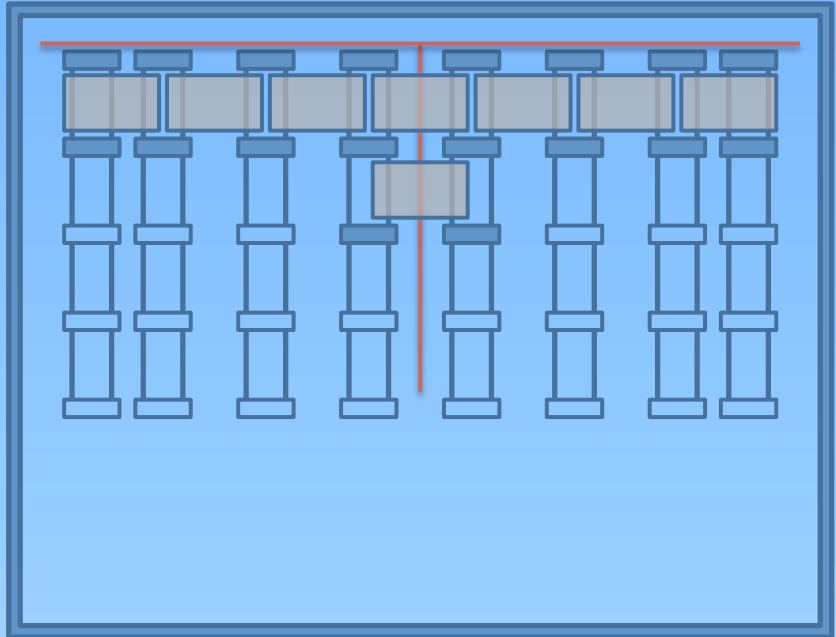




### 3c. Installation - Assembly

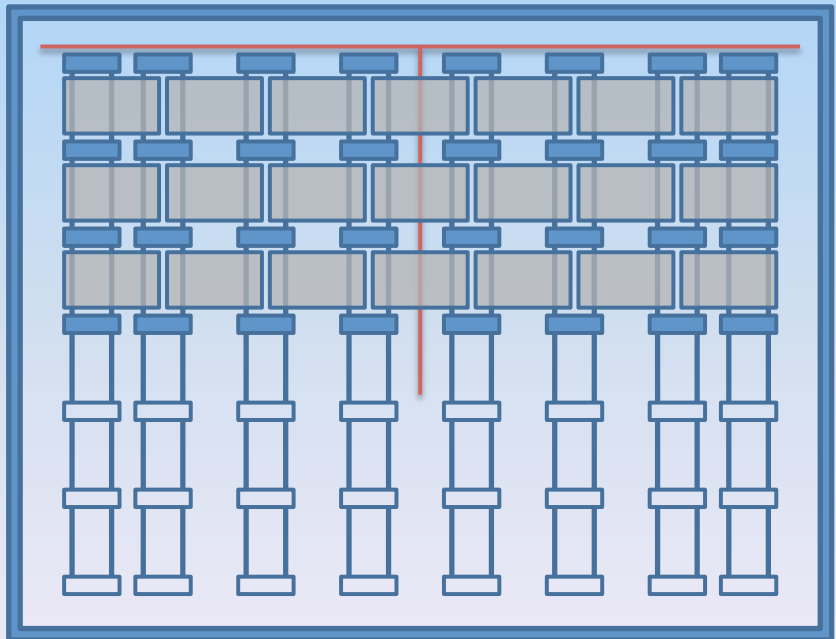
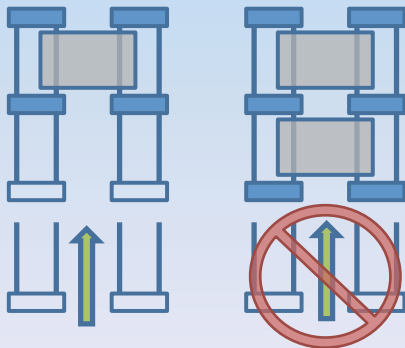
#### 7) Install second row of modules.

Now that the third and fourth rows of racking are installed, the second row of modules can be installed. Again, starting from the center, space the trays using the spacer bar and load ballast in the trays. Once the four corners around the module to be installed are secured, install the module. Continue from the center out to the sides of the array.



#### 8) Adding more rows of racking.

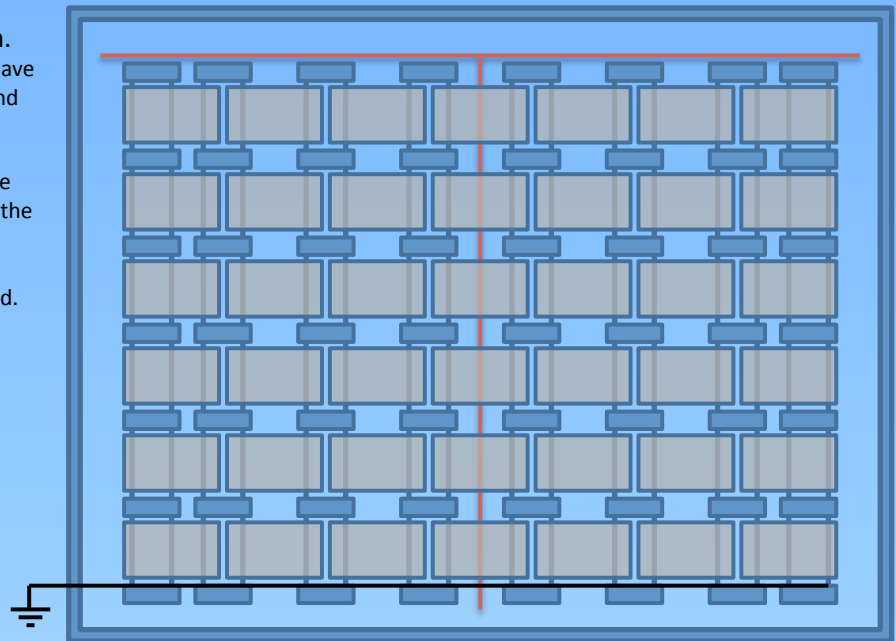
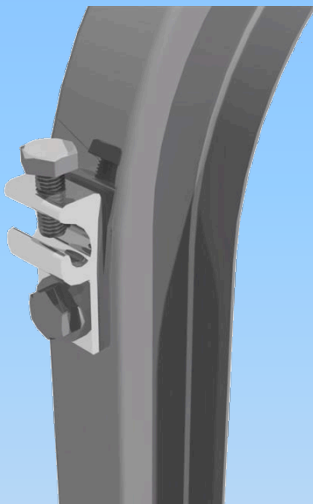
Prior to installing ballast in the last row of trays, additional rows of racking should be installed to allow for access to the attachment hardware.



### 3c. Installation - Assembly

9) Complete the module installation.  
Once the last rows of modules and ballast have been installed, the modules can be wired and the rack can be grounded.

Holes for grounding lugs are provided on the back of every support rail. However, due to the design of the racking, grounding wire only needs to be installed every 20 rows. Additionally, only one lug per tray is required.



## 4. Warranty

AET provides a limited warranty on all part for structural integrity and corrosion.

Structure - 25 years, to remain intact, assuming system is assembled correctly.

Corrosion - 10 years free of corrosion.

Warranty does not apply to any damages occurring during installation, storage, or shipment. Corrosion due to cleaners or other foreign substances also does not apply.