ZOMEWORKS CORPORATION

Passive Energy Products

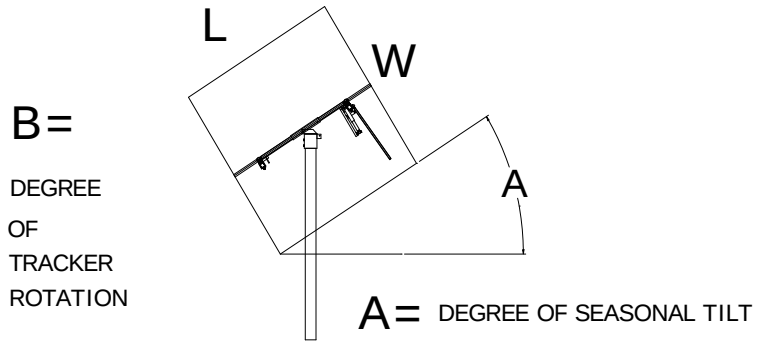
Environmentally and Financially Sustainable: Do not rely on Hydrocarbons or Tax Credits

POLE HEIGHT FOR TRACKERS

One needs a tall pole because the low corner of the array tilts and turns far below the gimbal.

TWO ANGLES

The seasonal adjustment angle **A** and the daily rotation angle **B** along with the length and width of the array determine how low the corner goes.



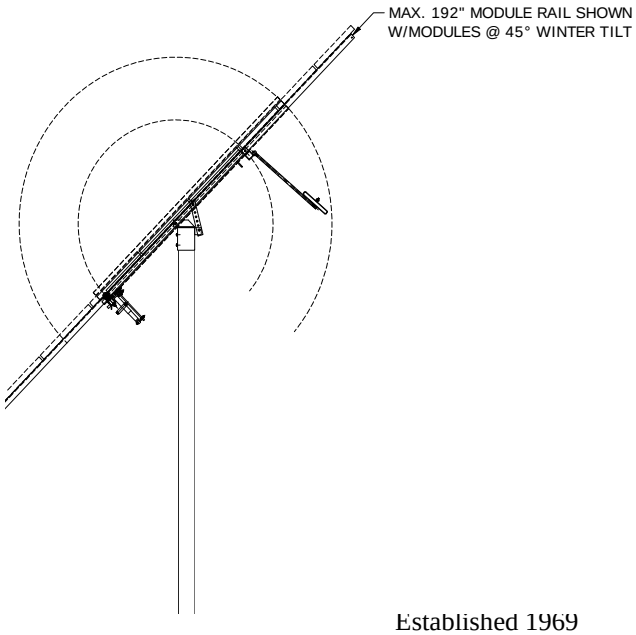
The Seasonal Tilt

The seasonal tilt lowers the centerline ½ the Length times the Sin of angle **A** below the pole top.

Seasonal Tilt = L/2 SIN A

The Daily Rotation

F-168 TRACKER



The maximum allowable rotation of the Tracker from center is 45º. The daily rotation turns the corner of the array lower yet by ½ the Width times the Cosine of angle **A** times the Sine of angle **B** where the angle **B** is the angle the Tracker has turned about the axle from noon (usually 45º).

Daily Rotation = W/2 (COS A) SIN B

Example 1:

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Established 1969

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A F-Series-168 Track Rack™ with a maximum rack dimension of L= 192" (North, South dimension) and W= 169"
(East, West dimension) is set permanently with a seasonal tilt of 30 degrees.
How tall should the pole be if the corner can reach to within 12" of the ground?
The seasonal tilt of 30º turns the array down:

192"/2 x Sin 30 degrees
= (96) x .5
= 48"

A daily rotation of 45º turns the array corner down:

169"/2 (Cos 30 Sin 45)
= 84.5 (.6124)
= 51-3/4"

For the corner to always be held at least 12" above the ground, the pole would be 111-3/4" long.

Seasonal Tilt + Daily Rotation + Ground Clearance
= 48" + 51-3/4" + 12"
= 111-3/4"

Example 2:
The same Track Rack™ is tilted 45º during the winter. How long a pole would it need then?

Seasonal tilt –
(96") Sin 45º = 67.88"

Daily rotation –
(84.5") Cos 45º Sin 45º = 42.25

Grand Total = 110.13"

Add 12" for the ground clearance and the pole height would need to be 110.13 + 12" = 122.13" tall.

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