

**SERIES 28-3 TOP-OF-POLE MOUNT  
INSTALLATION INSTRUCTIONS**

Designed to hold up to 28 Sq. Ft. of solar modules  
and to mount on a 3" SCH 40 Pole



SERIES 28-3 Rack

### First a word on our product:

The Series 28-3 does not denote the specific number of modules to be mounted but rather the overall size of the array. The Series 28-3 is designed to hold up 28 square feet of modules and the rack mounts on a 3" Schedule 40 steel pole. The drawing on the front page depicts a two-module version of this structure design, each module with dimensions of 31"x62". However, like any Series that we manufacture, there are several Models within each Series. For example, the TPM6-SM55 holds six Shell SM55 modules on the Series 28-3 structure design and are configured as shown in the drawing.

### Components:

- 1ea. Strongback with Support-Bar
- 1ea. Mounting Sleeve with Pivot Bolt
- 2ea. Module Rails
- 1 lot rack assembly hardware
  - 4 - 3/8" x 1" Bolts
  - 4 - 3/8" Lock Washers
  - 8 - 3/8" Flat Washers
  - 4 - 3/8" Nuts
- 1 lot 1/4" module mounting hardware
  - 4 Bolts, Lock Washers, and Nuts per solar module
  - 8 Flat Washers per solar module

## INSTALLATION INSTRUCTIONS

1. This rack is made to mount on an installer-supplied pole made from a piece of 3" SCH40 steel pipe (3-1/2" OD). This piece of pipe should be 8-9 feet long. Dig a hole 12"-18" in diameter and 40"-48" deep. Put the pole into the hole and pour concrete around it, filling the hole to the top. Brace the pole so that it is straight and let the concrete set up. If you live in an area with deep snow build-up you may want a taller pole. For every extra foot above ground you need to have about 8" more in the ground in concrete.
2. Place the **Strongback/Mounting Sleeve** Assembly on the mounting pole, aim it south and lock it in place by tightening the two set screws on the sleeve.
3. This rack has six elevation angle set points. They are: 15, 25, 35, 45, 55 and 65 degrees. For assembly and module mounting it is probably easiest to lock the rack in the flattest (15 degree) position.
4. Bolt the **Module Rails** to the **Strongback** as shown in the drawing using the 3/8"x1" hex bolts, 3/8" flat washers, lock washers and nuts.
5. Attach your photovoltaic modules to the **Module Rails** using the 1/4" stainless steel hardware provided. Leave the bolts finger tight until all of the modules are mounted.
6. Make sure all rack and module bolts are tight.
7. When changing the elevation setting, loosen the pivot bolt before adjusting the rack. After changing the position of the **Support Bar** and tightening the two 3/8" bolts be sure to re-tighten the pivot bolt.

POWER-FAB PV HARDWARE  
Direct Power and Water Corp.  
4000-B Vassar Drive NE  
Albuquerque, NM 87107  
800-260-3792 fax 505-889-3548  
info@power-fab.com

**MOUNTING POLE GUIDE FOR  
TOP-OF-POLE MOUNTS**

The following table provides “rule-of-thumb” guidelines for an average installation. Soil type varies widely from one region to another. The actual depth and diameter of the hole and the amount of concrete used is very dependent on soil type. Installations in loose, sandy soil will require a larger, deeper hole with more concrete than an installation in hard, rocky soil. The amount of pole sticking out of the ground and the wind speeds in your area also play an important role in determining the depth and diameter of the hole. If in doubt, we recommend that you consult a civil engineer in your area that is familiar with local soil conditions.

MODULE AREA	POLE SIZE (STEEL PIPE)	LENGTH IN GROUND	HEIGHT * ABOVE GROUND	HOLE DIAMETER
15 SQ. FT.	2" SCH40 (2-3/8" OD)	30"-36"	48"-72"	8"-12"
20 SQ. FT.	2.5" SCH40 (2-7/8" OD)	34"-40"	48"-72"	10"-14"
28 SQ. FT.	3" SCH40 (3-1/2" OD)	36"-42"	48"-72"	12"-16"
35 SQ. FT.	3" SCH40 (3-1/2" OD)	38"-44"	60"-72"	12"-16"
60 SQ. FT.	4" SCH40 (4-1/2" OD)	42"-48"	60"-72"	16"-24"
90 SQ. FT.	6" SCH40 (6-5/8" OD)	48"-60"	60"-84"	24"-30"
120 SQ. FT.	6" SCH40 (6-5/8" OD)	48"-72"	72"-84"	24"-30"
160 SQ. FT.	8" SCH40 (8-5/8" OD)	60"-78"	84"-102"	30"-36"
180 SQ. FT.	8" SCH40 (8-5/8" OD)	60"-78"	84"-102"	30"-36"
225 SQ. FT.	8" SCH80 (8-5/8" OD)	72"-84"	96"-120"	36"
260 SQ. FT.	8" SCH80 (8-5/8" OD)	72"-84"	96"-120"	36"

\* If you need a taller pole for snow clearance or to clear nearby obstructions you will need to have more pole in the ground. For each extra foot that you add above ground you will need approximately 6" in the ground in concrete.

If you have to go more than 2ft-3ft higher than what is shown in the table you may need a larger diameter pole. Please consult the factory.

**General Procedure:** When your hole is ready place the piece of pipe in it so that it is resting on the bottom of the hole - it is a good idea to fill the bottom 2"-4" of the hole with rocks. Brace the pole plumb and pour concrete around it. Fill the hole to ground level, add a little extra concrete and use a trowel to form a mound around the pole so that the concrete slopes down away from the pole. Allow the concrete to set up for at least 24 hours before installing your rack.

**DIRECT POWER AND WATER CORPORATION**

4000-B Vassar Drive NE

Albuquerque, NM 87107

Ph: 800-260-3792 Fax: 505-889-3548

**POWER-FAB PV HARDWARE**  
**DIRECT POWER AND WATER CORPORATION LIMITED WARRANTY**

Direct Power & Water Corporation (DP&WC) warrants to the original customer that its products shall be free from defects in materials and workmanship for a period of five (5) years.

At its option, DP&WC will repair or replace at no charge any DP&WC product that proves to be defective within such warranty period. This warranty shall not apply if the DP&WC product has been damaged by unreasonable use, accident, negligence, service or modification by anyone other than Direct Power & Water Corporation, or by any other causes unrelated to materials and workmanship.

The original consumer purchaser must retain original purchase receipt for proof of purchase as a condition precedent to warranty coverage. To receive in-warranty service, the defective product must be received no later than one (1) week after the end of the warranty period. The product must be accompanied by proof of purchase and Return Authorization (RA) number issued by DP&WC. For an RA number contact Direct Power & Water Corporation, 4000-B Vassar Dr NE, Albuquerque, New Mexico 87107 (505) 889-3585. Purchasers must prepay all delivery costs or shipping charges to return any defective DP&WC product under this warranty policy.

Except for the warranty that the products are made in accordance with the specifications therefore supplied or agreed to by customer, DP&WC MAKES NO WARRANTY EXPRESSED OR IMPLIED, AND ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEEDS THE FOREGOING WARRANTY IS HEREBY DISCLAIMED BY DP&WC AND EXCLUDED FROM ANY AGREEMENT MADE BY ACCEPTANCE OF ANY ORDER PURSUANT TO THIS QUOTATION. DP&WC WILL NOT BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES, LOSS OR EXPENSE ARISING IN CONNECTION WITH THE USE OF OR THE INABILITY TO USE ITS GOODS FOR ANY PURPOSE WHATSOEVER. DP&WC'S MAXIMUM LIABILITY SHALL NOT IN ANY CASE EXCEED THE CONTRACT PRICE FOR THE GOODS CLAIMED TO BE DEFECTIVE OR UNSUITABLE.

Products will be considered accepted by customer unless written notice to the contrary is given to DP&WC within ten (10) days of such delivery to customer. DP&WC shall not in any case be liable for any event occurring or defect discovered with regard to said product unless written notice thereof is given to DP&WC within ninety (90) days of such product delivery to customer.

DP&WC is not responsible for loss or damage to products owned by customer and located on DP&WC's premises caused by fire or other casualties beyond DP&WC's control. This warranty is in lieu of all other warranties expressed or implied.

**POWER-FAB PV HARDWARE**  
**DIRECT POWER AND WATER CORPORATION**  
**4000-B Vassar Drive NE, Albuquerque, NM 87107**  
**Ph: 505-889-3585                      Fax: 505-889-3548**  
**Email: [info@power-fab.com](mailto:info@power-fab.com)**