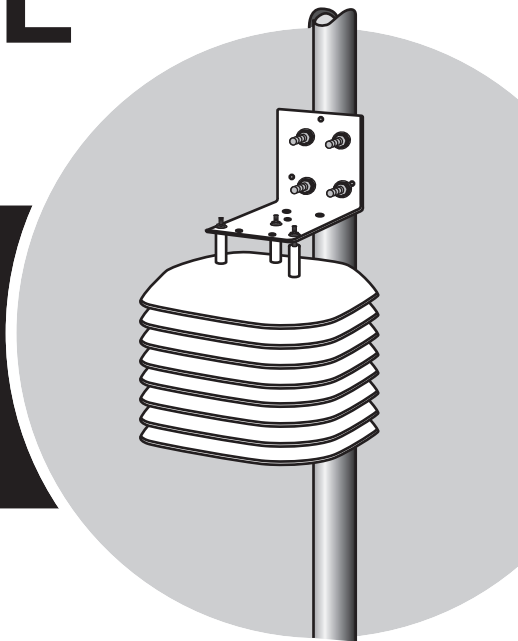


# USER MANUAL

## Radiation Shield



Product number 7714

**DAVIS** ®

Davis Instruments, 3465 Diablo Avenue, Hayward, CA 94545-2778 U.S.A. • 510-732-9229 • [www.davisnet.com](http://www.davisnet.com)

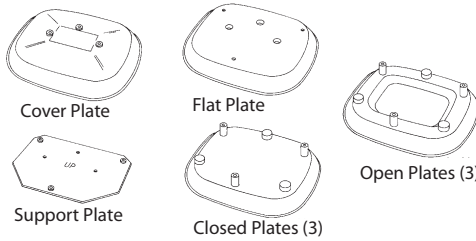


# Radiation Shield (7714)

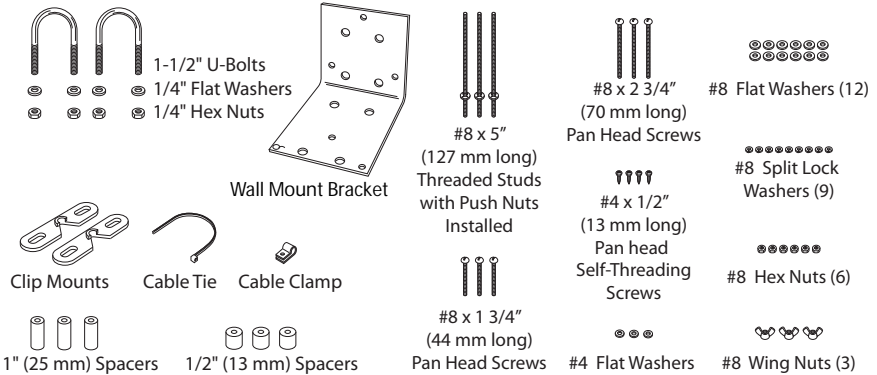
The radiation shield allows the temperature sensor to accurately measure air temperature without the effects of direct radiation from sunlight.

## Contents of Package

### Radiation Shield Parts



### Installation Hardware Kit



## Tools and Materials Needed

- **Small Phillips-head screwdriver and medium slotted-head screwdriver**
- **Wrench or pliers**
- **Drill with 3/16" (4.7 mm) drill bit**  
To drill pilot holes if attaching radiation shield to the top of a post.
- **Adjustable wrench or 11/32" (8.6 mm) wrench and 7/16" (10.9 mm) wrench**  
To tighten hex nuts (11/32" wrench) or to drive lag screws into wall or post (7/16" wrench).

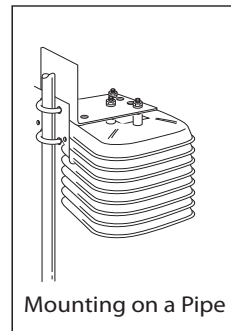
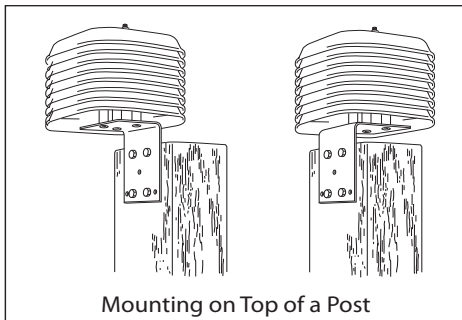
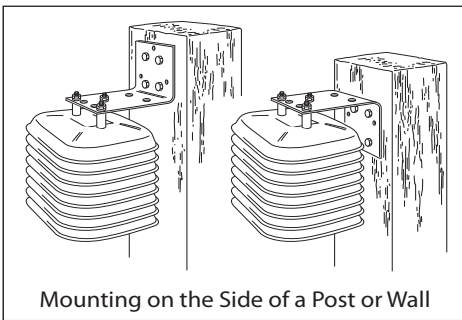
- **Four 1/4" x 1 1/2" (38 mm long) lag screws**  
To attach radiation shield to a post or wall.
- **Three #8-32 x 1" (25 mm long) screws**  
To attach radiation shield over the top of a post (if the provided #8 x 2 3/4" pan head screws create clearance problems).
- **Tape**  
To hold screws in place when assembling the radiation shield.

## Location Tips

- The radiation shield works best when in a location with a steady breeze. Mount away from fences, buildings, trees, or other obstructions.
- Install over plants or soil if possible.
- Do not install over or near sprinklers. The radiation shield is not designed to protect the sensor from water sprayed upward.
- If attaching to a building, the preferred location would be on the north side in the Northern Hemisphere and on the south side in the Southern Hemisphere.

## Installation Options

The radiation shield may be mounted in three basic configurations: on the side of a wooden post or a wall; on a metal pipe with outside diameter between 1" and 1 1/4" (25 mm and 31 mm); or on top of a wood post. Each of these configurations is illustrated below. Each orientation requires slightly different installation.



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## Attach the Sensor

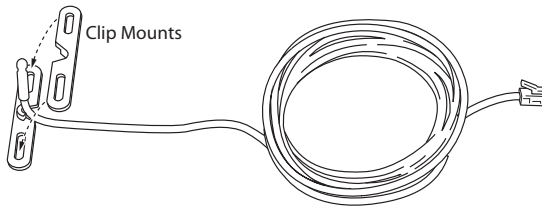
Use the radiation shield to house an external temperature sensor (Temperature Probes with RJ Connector, p/n 7817 or 6477; or Stainless Steel Temperature Probes: with RJ connector, p/n 6475 or with Two-Wire Termination, p/n 6470). In order to attach the temperature probe to the radiation shield, you will need a closed plate, both clip mounts, the cable clamp, three #4 x 1/2" pan head, self-threading screws, three #4 flat washers, and the temperature probe.

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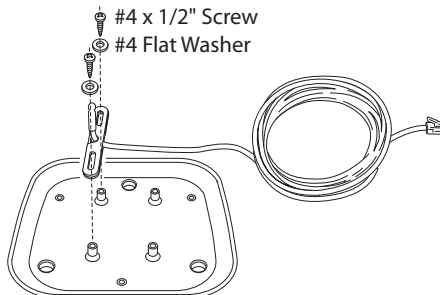
Note: Illustrations show a Temperature Probe with RJ Connector.

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1. Place the sensor cable into the notch on one of the clip mounts and hold it in place. Make sure to hold the clip mount so the raised semi-circle at the top of the notch faces up.
2. Position the second clip mount over the first, with the notch facing in the opposite direction, securing the sensor cable between the two notches. When positioning the second clip mount, make sure the raised semi-circle faces down.

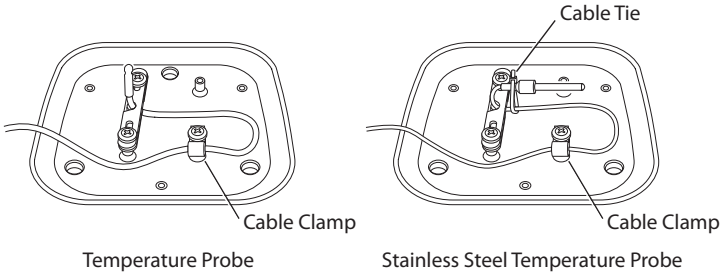


3. Position the clip mounts over two of the mounting posts on the closed plate. Make sure you orient the clip mounts as shown in the illustration below.
4. Attach the clip mounts to the mounting posts using two of the #4 x 1/2" pan head self-threading screws and two of the #4 flat washers.



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- Once secured, adjust the position of the sensor so the probe and approximately 1/4" (6 mm) of cable protrude from the clip mounts.
  - Place the cable clamp around the sensor cable approximately 8" (20 cm) from the probe.
  - Secure the cable clamp to one of the remaining mounting posts (using a #4 x 1/2" pan head self-threading screw and a #4 flat washer) so that a loop of cable is formed.

Make sure to tighten the clamp with the flat side up and the bulge side down. Tighten the screw completely so that the cable cannot move within the cable clamp. If using a stainless steel temperature probe, wrap a cable tie around the sensor and cable as shown below to hold the probe in place.

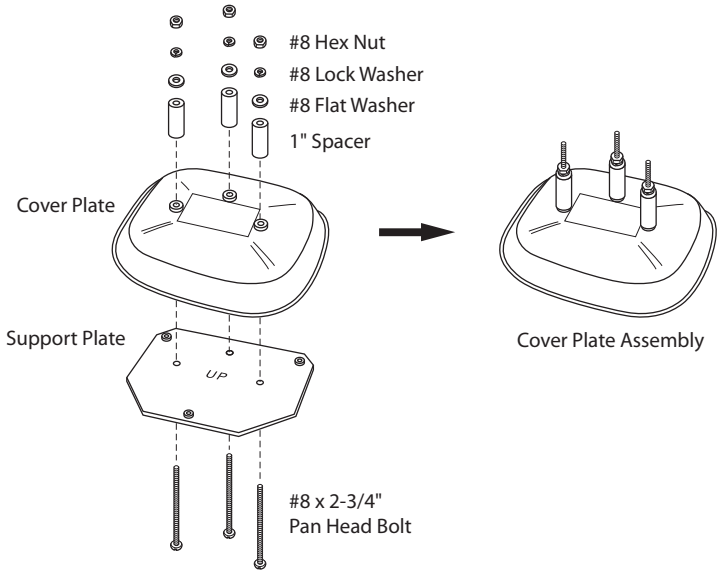


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## Attach the Support Plate to the Cover Plate

To attach the support plate, you will need the cover plate, the support plate, three #8 x 2 3/4" pan head screws, three 1" spacers, three #8 flat washers, three #8 split lock washers, and three #8 hex nuts.

1. Slide the three #8 x 2 3/4" pan head screws up through the non-threaded holes in the shield support plate.  
Make sure the side of the support plate marked "UP" is in fact on top as you slide the screws in from the bottom.
2. Place the cover plate over the screw ends protruding from the support plate.
3. Place a 1" spacer over each of the screw ends.
4. Secure the support plate and spacers to the cover plate using a #8 flat washer, #8 split lock washer, and #8 hex nut on each of the screw ends.  
Tighten until the support plate is firmly attached to the cover plate.



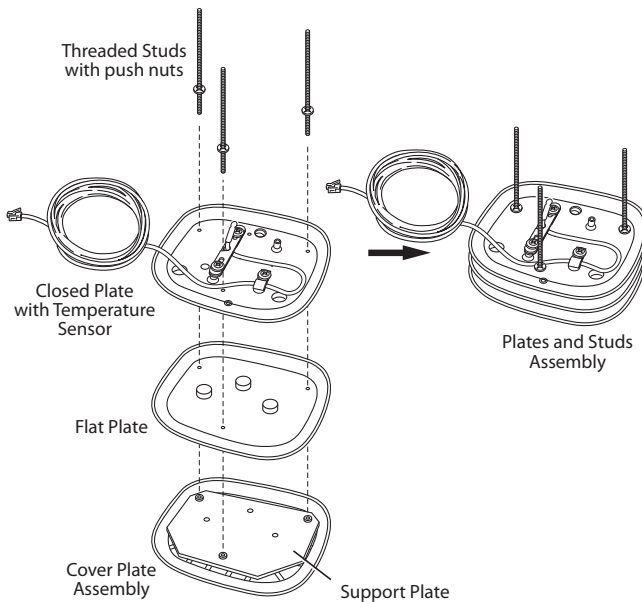
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## Assemble the Plates and Studs

To assemble the plates and studs, you will need the cover plate assembly as well as the flat plate and close plate with sensor, three #8 x 5" threaded studs with attached #8 push nuts, three #8 flat washers, three #8 split lock washers, and three wing nuts.

1. Slide each of the three #8 x 5" (127 mm) threaded studs, with push nuts installed, through each of the three holes in the closed plate, flat plate, support plate, and cover plate.

When inserting the threaded studs, make sure the short end (when measured from the push nut) goes through the plates. Screw the short end of the threaded stud in until the cupped side of the push nut bottoms inside the recess of the closed sensor plate. Tighten as much as you can by hand.



2. Place the plates and studs assembly aside and proceed to the appropriate instruction for your installation.

**If you are attaching your radiation shield to the SIDE of a post or a wall, continue to "If you are attaching the radiation shield to the side of a post or to a wall or a pipe:" (page 7).**

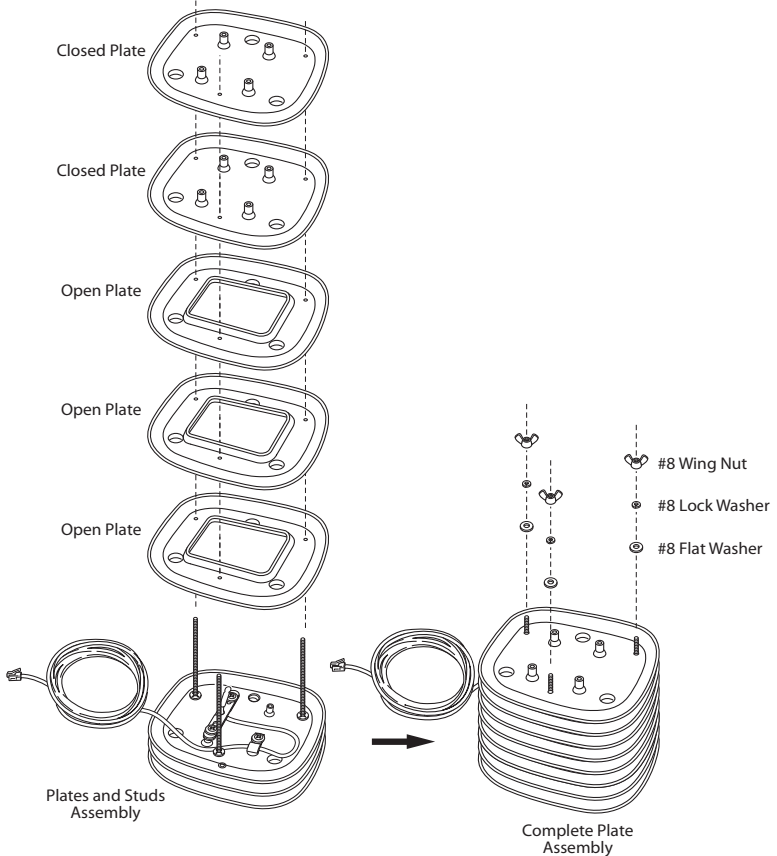
**If you are attaching your radiation shield to the TOP of a post, continue to "If you are attaching the radiation shield to the top of a post:" (page 8).**



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**If you are attaching the radiation shield to the side of a post or to a wall or a pipe:**

1. Slide the three open plates and the two remaining closed plates over the threaded stud ends protruding from the top of the plate and studs assembly.



2. Place the flat washers, lock washers and plastic wing nuts over the protruding stud ends.
3. Rest the partially assembled radiation shield on a flat surface and proceed to mount the shield. See “Mount the Radiation Shield” on page 11.

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***If you are attaching the radiation shield to the top of a post:***

The instructions for assembling the radiation shield differ slightly if you are mounting the shield on top of a wooden post. Follow the instructions below if (and only if) you plan to ultimately mount the radiation shield on top of a wooden post.

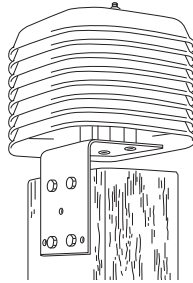
**Attach the mounting bracket**

To attach the mounting bracket you will need a closed plate, the mounting bracket, three 1/2" spacers, three #8 x 2 3/4" pan head screws, six #8 flat washers, three #8 split lock washers, and three #8 hex nuts. You will also need a drill with a 3/16" (4.7 mm) drill bit.

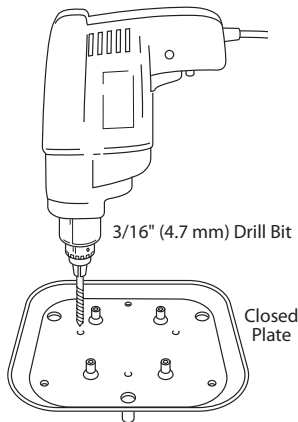
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**Note:** You will need to supply three #8 x 1" screws if you plan to mount the radiation shield over the top of the post (not preferred), instead of suspending it over the side edge.

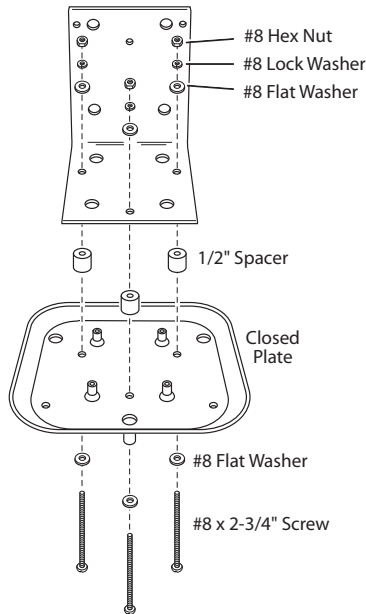
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1. Using the power drill with 3/16" (4.7 mm) drill bit, drill three holes through one of the closed plates in the locations marked by small dimples on the bottom of the plate.  
Do not use the closed plate to which you attached the sensor.



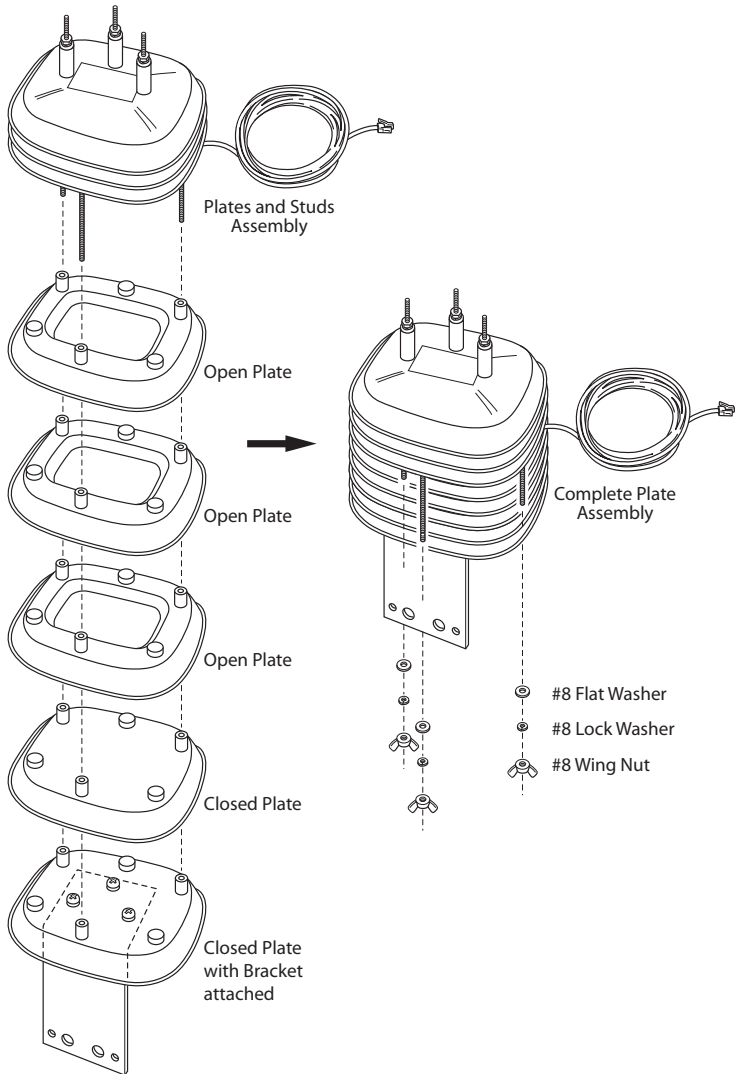
2. Place a #8 flat washer over the end of each of the #8 x 2 3/4" pan head screws. As long as the extra length of screw end protruding from the bottom of the radiation shield doesn't create clearance problems when mounting the radiation shield, you can use the #8 x 2 3/4" pan head screws. If a clearance problem exists, you will need to use #8 x 1" screws instead (not included).
3. Slide the three #8 x 2 3/4" pan head screws (with washers) up through the holes you just drilled.
4. At this point, you may want to place a small piece of tape over each of the screw heads to keep the screws in place as you continue.
5. Place a 1/2" spacer over each of the screw ends protruding from the closed plate.
6. Slide the mounting bracket over the screw ends protruding from the closed plate.
7. Secure the mounting bracket to the closed plate using a #8 flat washer, a #8 split lock washer, and a #8 hex nut on each of the screw ends. Tighten until the mounting bracket is firmly attached to the closed plate.



## Assemble the Radiation Shield

To assemble the radiation shield plates you will need the plates and studs assembly, as well as the rest of the plates, three #8 flat washers, three #8 split lock washers, and three plastic wing nuts.

1. Slide the three open plates and the two remaining closed plates over the threaded stud ends protruding from the top of the plate and studs assembly.



2. Place flat washers, lock washers, and plastic wing nuts over the protruding stud ends. Proceed to mount the shield. See "Mounting on Top of a Post:" on page 13.

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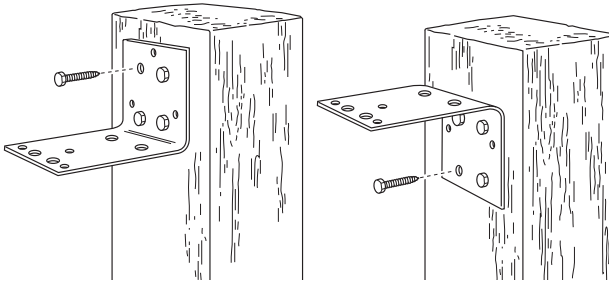
# Mount the Radiation Shield

Follow the instructions below to mount the radiation shield. There are separate sections for each of the mounting options. You should modify the instructions as necessary to fit your needs.

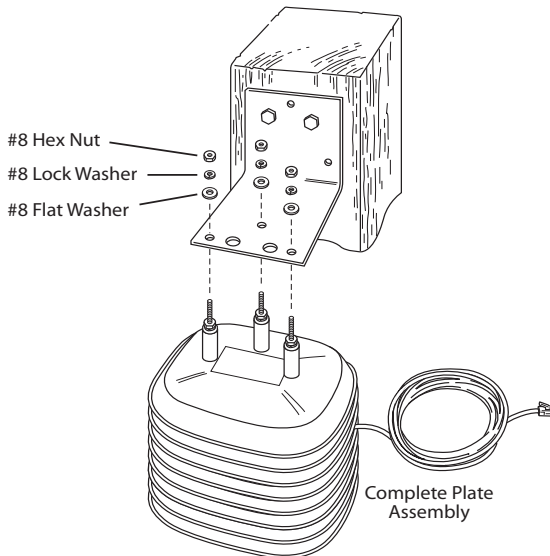
## Mounting on the Side of a Post or Wall:

In order to mount the radiation shield onto the side of a post or wall, you will need the radiation shield assembly, three #8 split lock washers, three #8 flat washers, and three #8 hex nuts. You will also need to supply four 1/4" x 1 1/2" (6.35 mm x 38.1 mm) lag screws.

1. Using four 1/4" x 1 1/2" lag screws (not included), attach the mounting bracket to the mounting surface in the desired location.



2. Slide the stud ends protruding from the top of the radiation shield assembly into the holes on the mounting bracket.
3. Secure the mounting bracket to the radiation shield using a #8 flat washer, #8 split lock washer, and #8 hex nut on each of the stud ends.  
Tighten until the mounting bracket is firmly attached to the radiation shield.

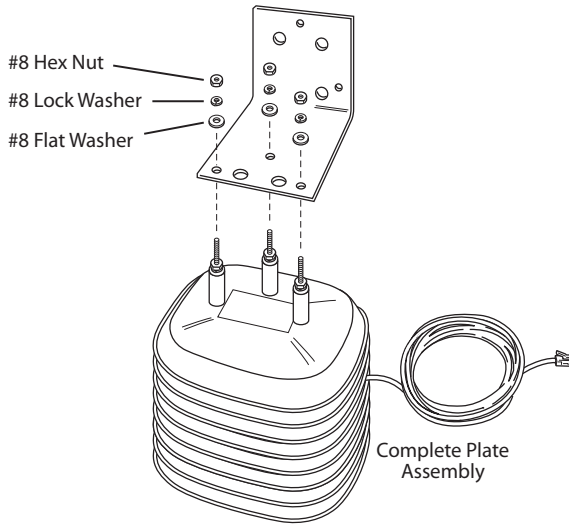


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## Mounting on a Pipe:

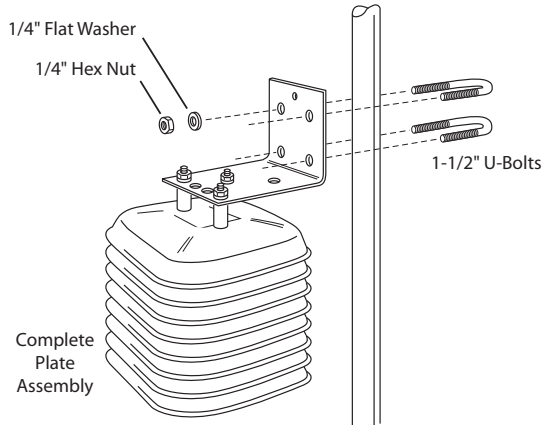
In order to mount the radiation shield onto a metal pipe with outside diameter between 1" and 1 1/4" (25 mm and 31 mm), you will need the radiation shield assembly, three #8 split lock washers, three #8 flat washers, three #8 hex nuts, two 1 1/2" U-bolts, four 1/4" flat washers, and four 1/4" hex nuts.

1. Slide the stud ends protruding from the top of the radiation shield assembly into the holes on the mounting bracket.
2. Secure the mounting bracket to the radiation shield using a #8 flat washer, #8 split lock washer, and #8 hex nut on each of the screw ends.



3. Hold the mounting bracket against the pipe and slide the ends of the two 1 1/2" U-bolts through the holes in the back of the mounting bracket so that the U-bolts wrap around the pipe.

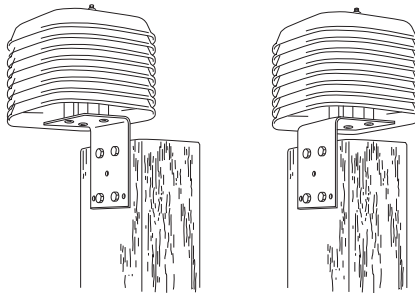
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4. Secure the mounting bracket to the pipe using a 1/4" flat washer and a 1/4" hex nut on each end of the 1/2" U-bolts.  
Tighten until the mounting bracket is firmly attached to the pipe.



### Mounting on Top of a Post:

In order to mount the radiation shield onto the top of a post, you will need the radiation shield assembly (with mounting bracket already attached). You will need to supply four 1/4" x 1 1/2" (6.4 mm x 38.1 mm) lag screws.

Mount the radiation shield by using the lag screws (not included) to attach the mounting bracket to the mounting surface in the desired location.



# Maintenance

- **The effectiveness of the radiation shield will be reduced if the surfaces of the shield are dirty.**

Wipe the surfaces of the shield with a damp cloth to remove dirt and dust.

- **Keep the areas between the radiation shield plates free of debris that may obstruct air flow, e.g. leaves, twigs, webs, nests.**

DO NOT remove nesting insects or animals by spraying insecticide or any kind into the radiation shield. This may damage the sensor and the radiation shield.

## Contacting Davis Technical Support

For questions about installing or operating your radiation shield, please contact Davis Technical Support. We'll be glad to help.

**Online**            [www.davisinstruments.com](http://www.davisinstruments.com)

See the Weather Support section for copies of user manuals, product specifications, application notes, software updates, and more.

**E-mail**            [support@davisinstruments.com](mailto:support@davisinstruments.com)

**Telephone**        (510) 732-7814  
Monday - Friday, 7:00 a.m. - 5:30 p.m. Pacific Time.

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### Radiation Shield

Product Number 7714

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