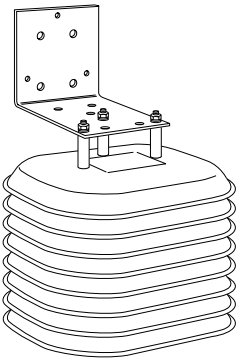


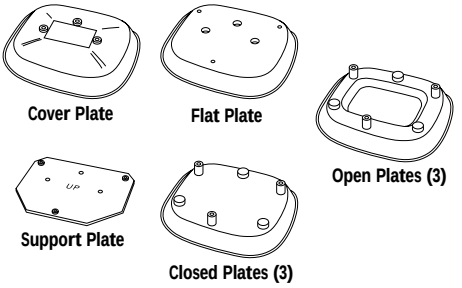
RADIATION SHIELD MANUAL

This instruction manual will take you step-by-step through the process of assembling and mounting your Radiation Shield. Please take the time to read through this manual before beginning the process.

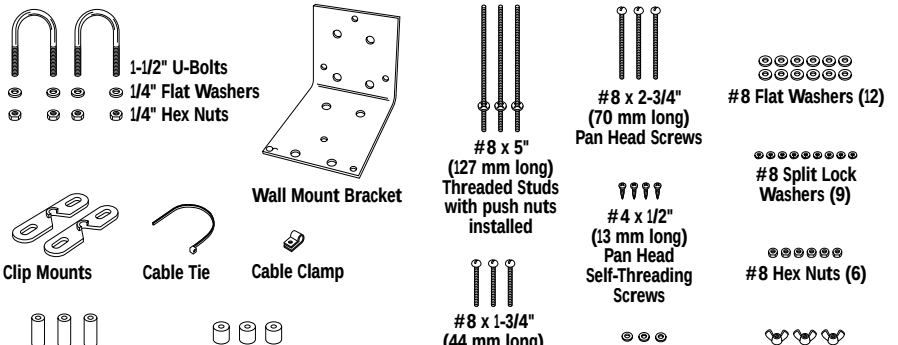
COMPONENTS

The Radiation Shield includes the following components. Please make sure you have all listed components before continuing.

- **Radiation Shield Parts**



- **Installation Hardware Kit**



TOOLS AND MATERIALS NEEDED

In addition to the components listed above, you may need some of the following tools and materials.

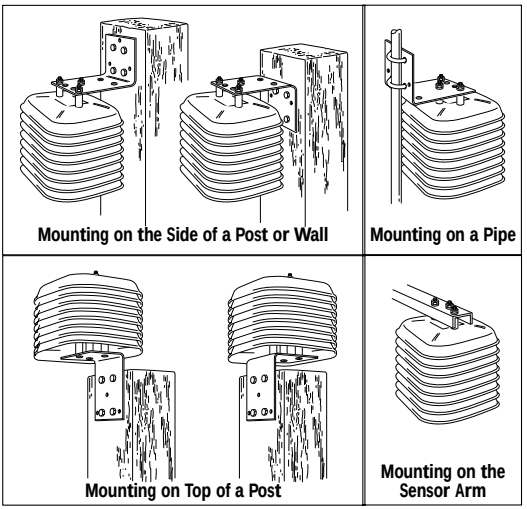
- **Small Phillips-Head Screwdriver and Medium Slotted-Head Screwdriver**
- **Wrench or Pliers**
- **Drill with 3/16" Drill Bit (4.7 mm)**
  To drill pilot holes if attaching Radiation Shield to the top of a post.
- **Adjustable Wrench or 11/32" Wrench and 7/16" Wrench**
  To tighten hex nuts (11/32" wrench) or to drive lag screws into wall or post (7/16" wrench).
- **Four 1/4" x 1 1/2" Lag Screws (38 mm long)**
  To attach Radiation Shield to a post or wall.
- **Three #8-32 x 1" Screws (25 mm long)**
  To attach Radiation Shield over the top of a post (if #8 x 2 3/4" pan head screws (provided) create clearance problems).
- **Tape**
  To hold screws in place when assembling 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 upwards.**
- **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 four basic orientations: 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), on top of a wood post, or onto Davis' Sensor Mounting Arm. Each of these configurations is pictured below. You should determine ahead of time which orientation best suits your purpose because the installation instructions differ slightly depending on how you plan to mount the Radiation Shield.



INSTALLATION OPTIONS

ATTACHING THE SENSOR

The Radiation Shield can house the External Temperature Sensor, Stainless Steel Temperature Probe, or External Temperature / Humidity Sensor.

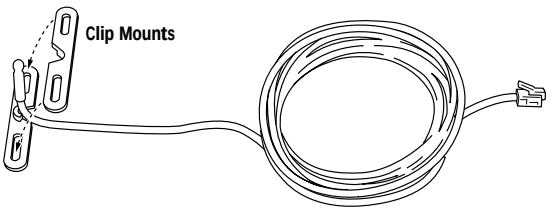
Attaching the External Temperature Sensor or the Stainless Steel Temperature Probe to the Radiation Shield

In order to attach the External Temperature Sensor or the Stainless Steel 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 sensor / probe.

Note: *The following illustrations show the installation process for the External Temperature Sensor. The directions may be used for the Stainless Steel Temperature Probe, as well.*

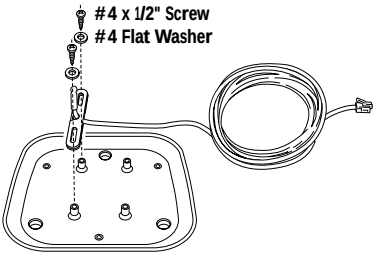
1. **Place the sensor cable into the notch on one of the clip mounts and hold it in place.** Make sure to hold the clip mount so the raised semi-circle at the top of the notch faces up.

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.



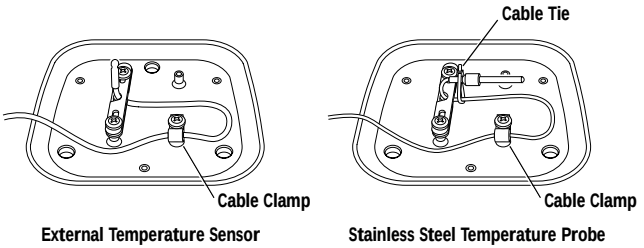
PLACING CABLE INTO CLIP MOUNTS

3. **Position the clip mounts over two of the mounting posts on the closed plate.**
   Make sure you orient the clip mounts as show in the figure 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.**



ATTACHING CLIP MOUNTS TO RADIATION SHIELD

5. **Once secured, adjust the position of the sensor so the sensor and approximately 1/4" (6 mm) of cable protrude from the clip mounts.**
6. **Place the cable clamp around the sensor cable approximately 8" (20 cm) from the sensor.**
7. **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 mount 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 the Stainless Steel Temperature Probe, wrap a cable tie around the sensor and cable as shown below to hold the probe in place.

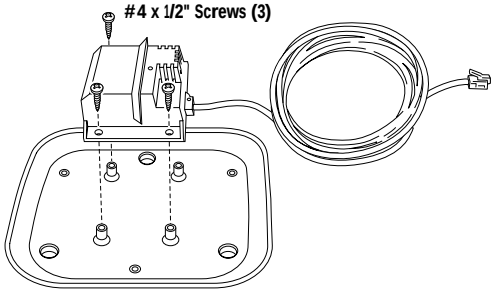


SECURING CABLE WITH CABLE CLAMP

Attaching the Temperature/Humidity Sensor to the Radiation Shield

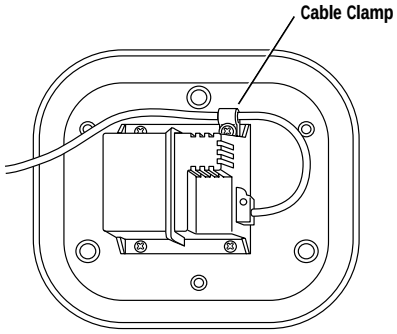
In order to attach the External Temperature / Humidity Sensor (T / H Sensor) to the Radiation Shield, you will need a closed plate, four #4 x 1 / 2" pan head self-threading screws, one # 4 flat washer, and the T / H Sensor.

1. **Position the T/H Sensor over the four mounting posts on the closed plate, lining up the holes in the mounting posts with the holes in the T/H Sensor's casing.**
   Make sure you orient the T / H Sensor as shown in the figure below (with the long side of the sensor parallel to the long side of the plate).
2. **Using three #4 x 1/2" pan head self-threading screws, attach THREE CORNERS of the T/H Sensor to the closed plate.**
   Do not attach the final corner yet.



ORIENTING AND ATTACHING TEMP/HUM SENSOR

3. **Place the cable clamp around the sensor cable approximately 4" (10 cm) from the T/H Sensor.**
4. **Attach the cable clamp to the remaining corner of the T/H Sensor and to the closed plate (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 mount 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.

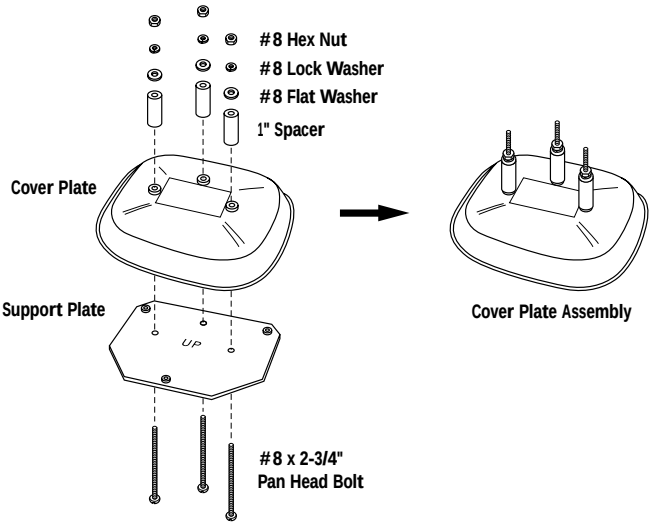


SECURING CABLE WITH CABLE CLAMP

Attaching 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.



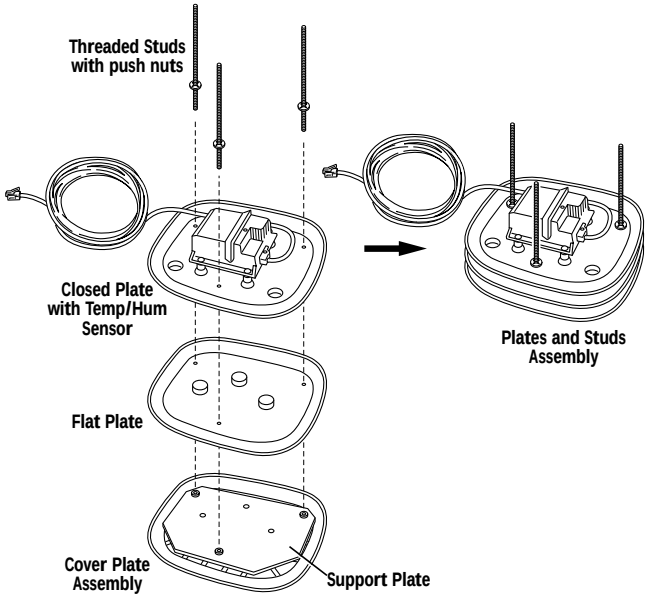
COVER PLATE ASSEMBLY

Assembling the Plates and Studs

To assemble the plates and studs you will need the cover plate assembly as well as the flat plate and closed 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 plastic retainers.

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 that 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.



PLATES AND STUDS ASSEMBLY

2. **Place the Plates and Studs Assembly aside and proceed to the appropriate instructions for your installation.**

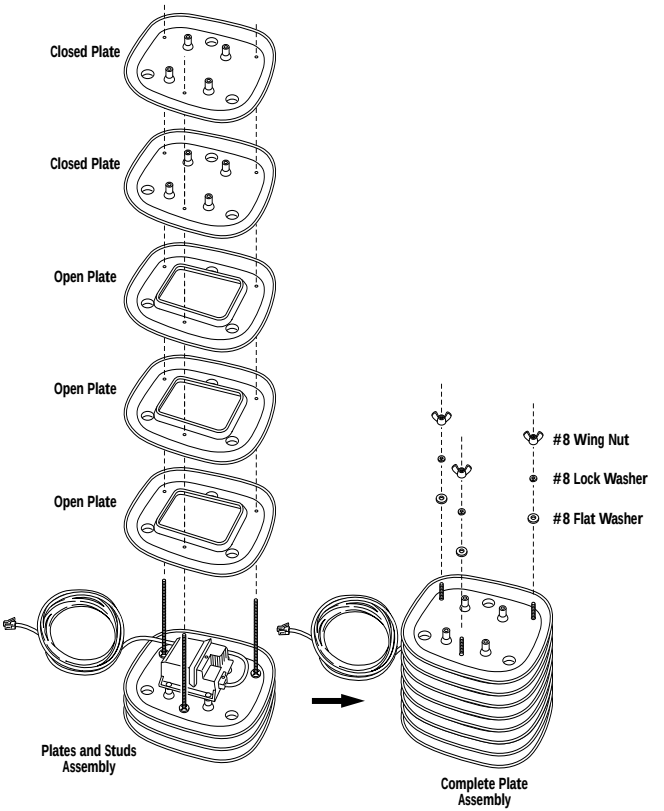
   If you are attaching the shield to the *side* of a post, to a pipe or to the Davis Sensor Mounting Arm, continue with the instructions on page 8.

   If you are attaching the shield to the *top* of a post, continue with the instructions on page 9.

ASSEMBLING THE RADIATION SHIELD TO ATTACH TO THE SIDE OF A POST, TO A PIPE, OR ON THE SENSOR MOUNTING ARM

The following instructions explain how to assemble the Radiation Shield for installation on the side of a post, on a pipe, or on Davis' Sensor Mounting Arm. Please note, however, that if you plan to mount the Radiation Shield on top of a post, you should follow the instructions in "Assembling the Radiation Shield to Attach to the Top of a Post" on page 9.

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.**



ASSEMBLING THE RADIATION SHIELD PLATES

2. **Place 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 with "Mounting the Radiation Shield" on page 12.**

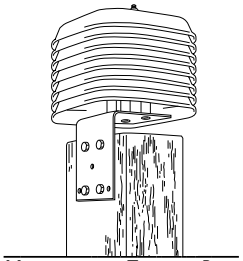
ASSEMBLING THE RADIATION SHIELD TO ATTACH TO THE TOP OF A POST

The instructions for assembling the Radiation Shield differ slightly if you plan to mount the Radiation 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.

Attaching Mounting Bracket

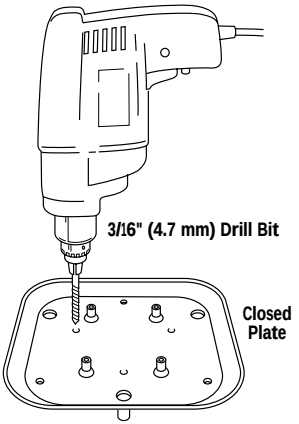
To attach the mounting bracket you will need a closed plate, the mounting bracket, three 1/2" spacers, three #8 x 2 3/4" pan head screws, six #8 flat washers, three #8 split lock washers, and three #8 hex nuts. You will also need a drill with a 3/16" (4.7 mm) drill bit.

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.*



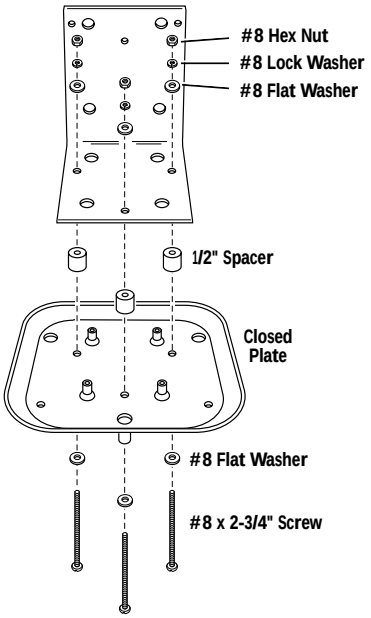
MOUNTING ON TOP OF A POST

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 the small dimples on the bottom of the plate.** Do not use the closed plate to which you attached the sensor.



DRILLING HOLES IN CLOSED PLATE

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.

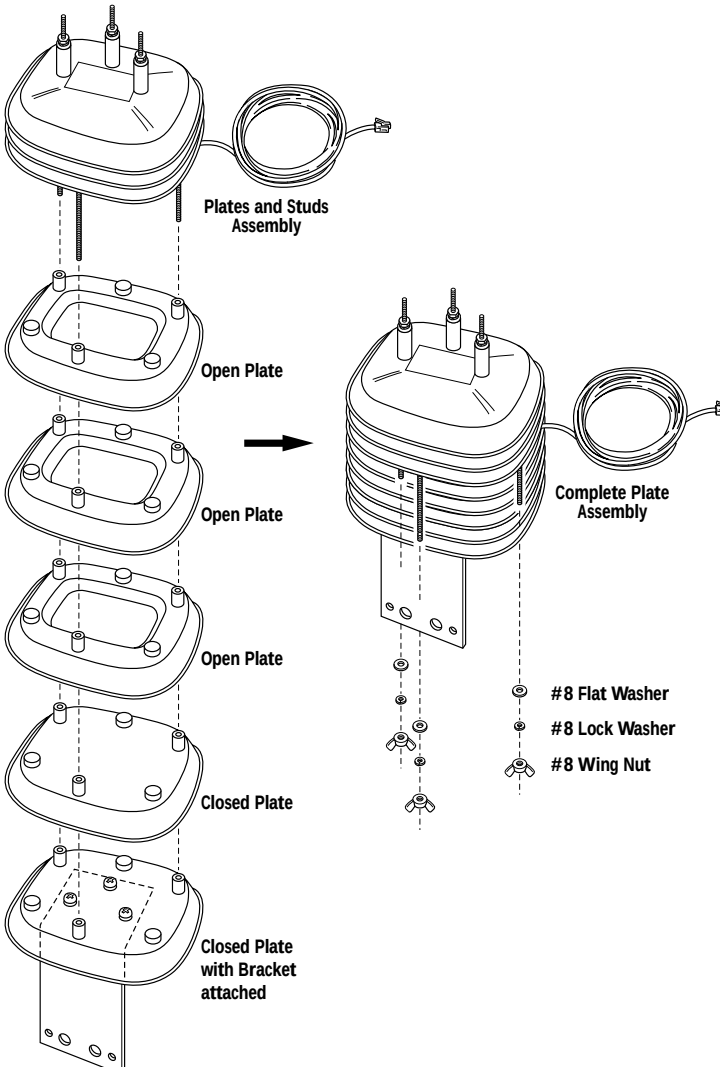


ATTACHING MOUNTING BRACKET

Assembling 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.**

Continue with "Mounting the Radiation Shield" on page 12.

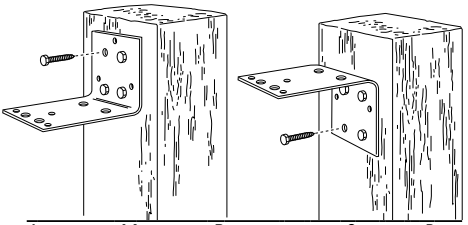
MOUNTING THE RADIATION SHIELD

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

Mounting On the Side of a Post or Wall

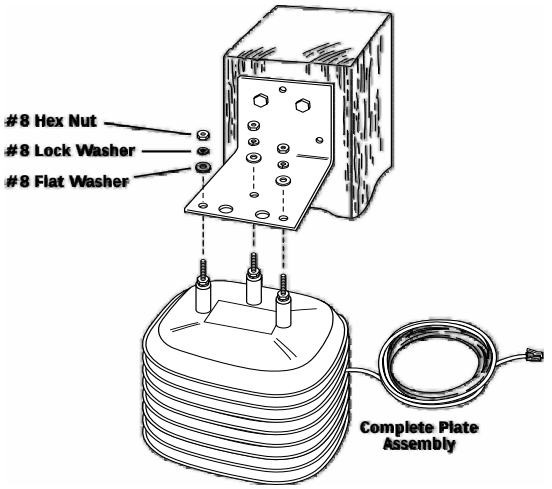
In order to mount the Radiation Shield onto the side of a post or wall, you will need the Radiation Shield assembly, three #8 split lock washers, three #8 flat washers, and three #8 hex nuts. You will also need to supply four 1/4" x 1 1/2" lag screws.

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.**



ATTACHING MOUNTING BRACKET TO THE SIDE OF A POST

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 one each of the stud ends.**
   Tighten until the mounting bracket is firmly attached to the Radiation Shield

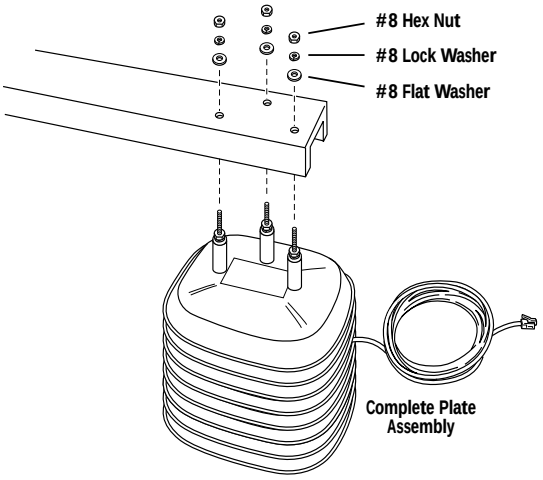


ATTACHING RADIATION SHIELD TO MOUNTING BRACKET

Mounting on the Sensor Mounting Arm

In order to mount the Radiation Shield onto the Sensor Mounting Arm, you will need the Radiation Shield assembly, three #8 split lock washers, three #8 flat washers, and three #8 hex nuts, and the Sensor Mounting Arm.

1. **Slide the stud ends protruding from the top of the Radiation Shield assembly into the holes on the Sensor Mounting Arm.**
2. **Secure the Radiation Shield to the Sensor Mounting Arm using a #8 flat washer, #8 split lock washer and #8 hex nut one each of the stud ends.**
   Tighten until the Radiation Shield is firmly attached to the Sensor Mounting Arm.



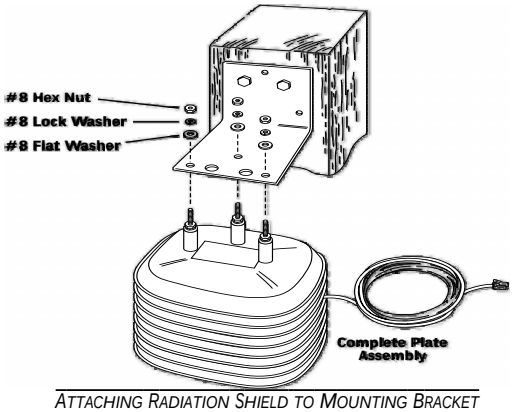
ATTACHING RADIATION SHIELD TO SENSOR MOUNTING ARM

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.

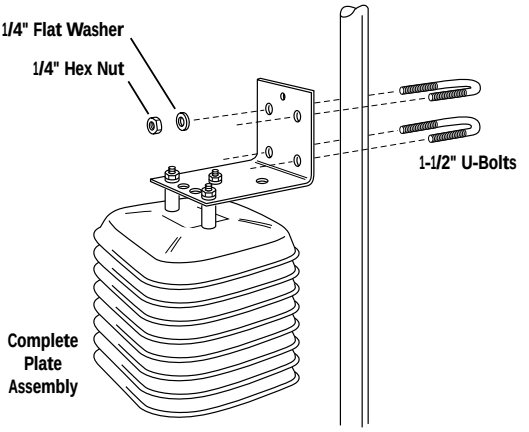
1. **Slide the stud ends protruding from the top of the Radiation Shield assembly into the holes on the mounting bracket.**

2. **Secure the mounting bracket to the Radiation Shield using a #8 flat washer, #8 split lock washer and #8 hex nut one each of the screw ends.**
   Tighten until the mounting bracket is firmly attached to the Radiation Shield.



ATTACHING RADIATION SHIELD TO MOUNTING BRACKET

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.**
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 1/2" U-bolts.**
   Tighten until the mounting bracket is firmly attached to the pipe.

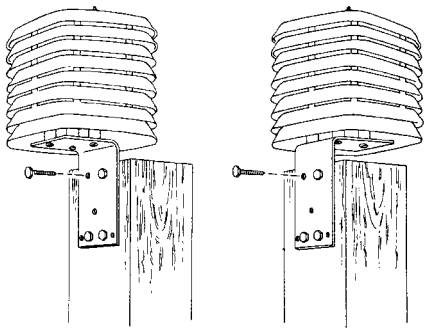


ATTACHING MOUNTING BRACKET TO A PIPE

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" lag screws.

To mount the Radiation Shield, simply use the four 1/4" x 1 1/2" lag screws (not included), to attach the mounting bracket to the mounting surface in the desired location.



ATTACHING MOUNTING BRACKET TO THE TOP OF A POST

MAINTENANCE INSTRUCTIONS

- **The effectiveness of the Radiation Shield will be reduced if the surfaces of the shield become dirty.**
  Wipe the surfaces of the shield using a damp cloth to remove dirt etc.
- **Keep areas between 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 insect killer of any kind into the radiation shield because this may damage the sensors and the Radiation Shield.

Product Number: 7714

Davis Instruments Part Number: 7395-093
Radiation Shield
Rev. C Manual (8/9/99)
Controlled online: DI:Weather:Accessories:Radiation Shield:Redesigned Rad Shield

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