

Manual

SAA Surge Protection Device



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Table of Contents

Table of Contents	iii
1. Introduction	1
2. Installing SAASPD	1

1. Introduction

Measurand's SAASPD is a surge protection device designed specifically to protect SAA and SAAPZ from electrical surges caused by proximal lightning strikes. As with any equipment, there is no protection possible if lightning strikes the cable or SAA directly. To be effective the SAASPD is to be inserted as an interruption in the SAA cable near the SAA or SAAPZ and connected to a grounding rod or plate using #8AWG (8.37mm²) copper wire. In the event that a surge destroys the SPD you will need to be able to locate it so that it can be accessed and replaced. The SAASPD works in conjunction with the SAA232 to provide protection for the SAA and the cable. When the SAA is installed within 15 m (50') of an earth station containing an SAA232 or SAA232-5, the SAASPD may not be required.



Figure 1.1 SAASPD board and housing.

2. Installing SAASPD



NOTE: SAASPD is designed to be used with a ground plate or a ground rod.

To assemble and mount the SAASPD follow the steps outlined below. Terminology used in this manual is shown in Figure 2.1.

1. Insert the cable attached to the SAA into the gland farthest the copper lug. Make sure that the gland is loose around the cable.
2. Strip approximately 25mm of the blue insulation off the cable.
3. Carefully cut away the white fabric, followed by the clear plastic and blue foil on the twisted blue and white pair and shield, revealing the separate wires inside (Figure 2.2).

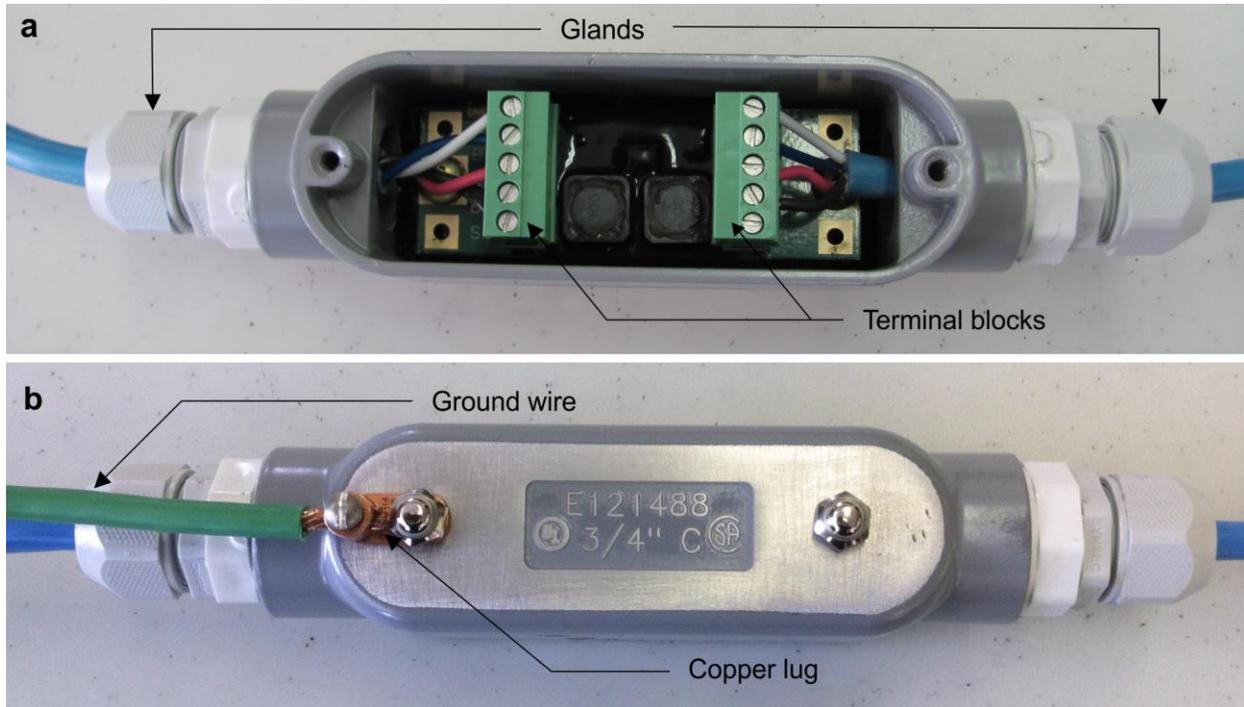


Figure 2.1 SAASPD terms used in this manual. Views shown are for the front (a) and back (b) of the SAASPD.

4. Sand the cable behind the wires with the included sandpaper to allow the epoxy to properly adhere to the cable insulation. The sanded section should measure approximately 25mm.
5. Strip the insulation off each of the wires approximately 6mm. Note in Figure 2.2, the red wire was not striped back far enough. This can cause a bad connection at the terminal block.
6. Attach the wires to the 5 pin terminal block in the following order: White, Blue, Red, Black, Shield. See terminal labels on the circuit board. (Figure 2.3a)

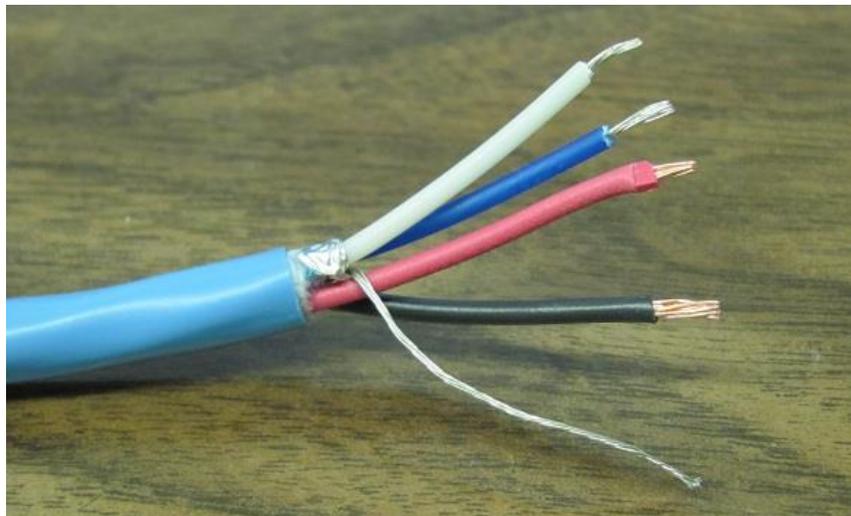


Figure 2.2 SAA cable with blue insulation removed and wires stripped. Note that the red wire was not striped back enough which will cause issues in the terminal block connection.



NOTE: Make sure to match wire colors as shown on each end of the circuit board.

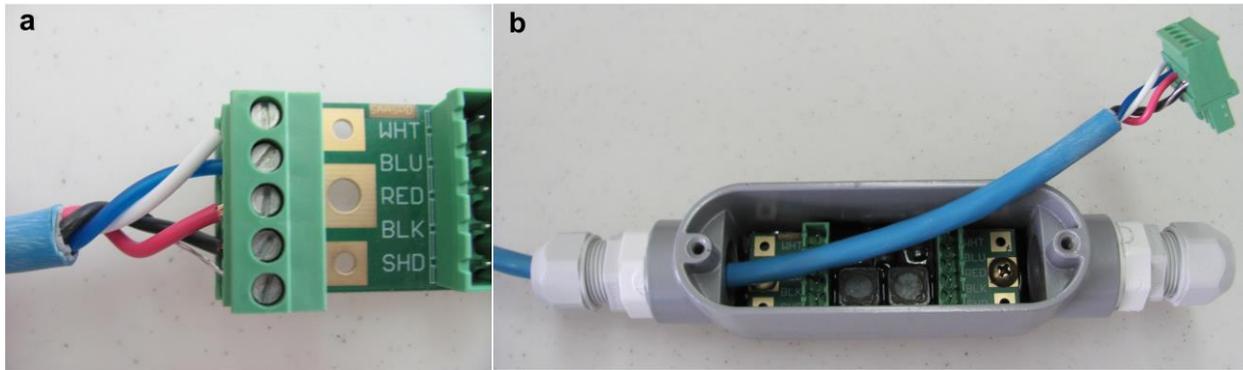


Figure 2.3 Terminal block wiring. a) Close-up of wiring details. b) Global view showing the wire fed through the gland and connected to the 5-pin terminal block.

7. Twist the set of wires to provide strain relief and connect the terminal block to the board. (Figure 2.3a).
8. Pull the cable back and place the terminal pin block into the receptacle.
9. Tighten the gland. Make sure that the blue insulation is tight inside the gland to avoid water intrusion and epoxy leaking. The black rubber gland will bulge approximately 1 mm when tightened. (Figure 2.4)

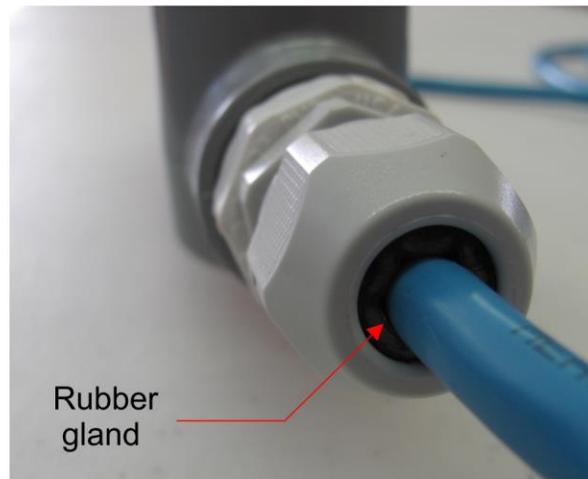


Figure 2.4 Gland tightened onto cable.

10. Repeat the same steps with the cable which runs to the earth station. (Figure 2.5a)
11. **Test the SAA before potting the unit.**
12. Pot the unit with the supplied 3M 2131 potting compound following the directions on the package and using the supplied gloves. In colder weather make sure to warm up the potting compound before mixing, following the recommendations on the package. (Figure 2.6)

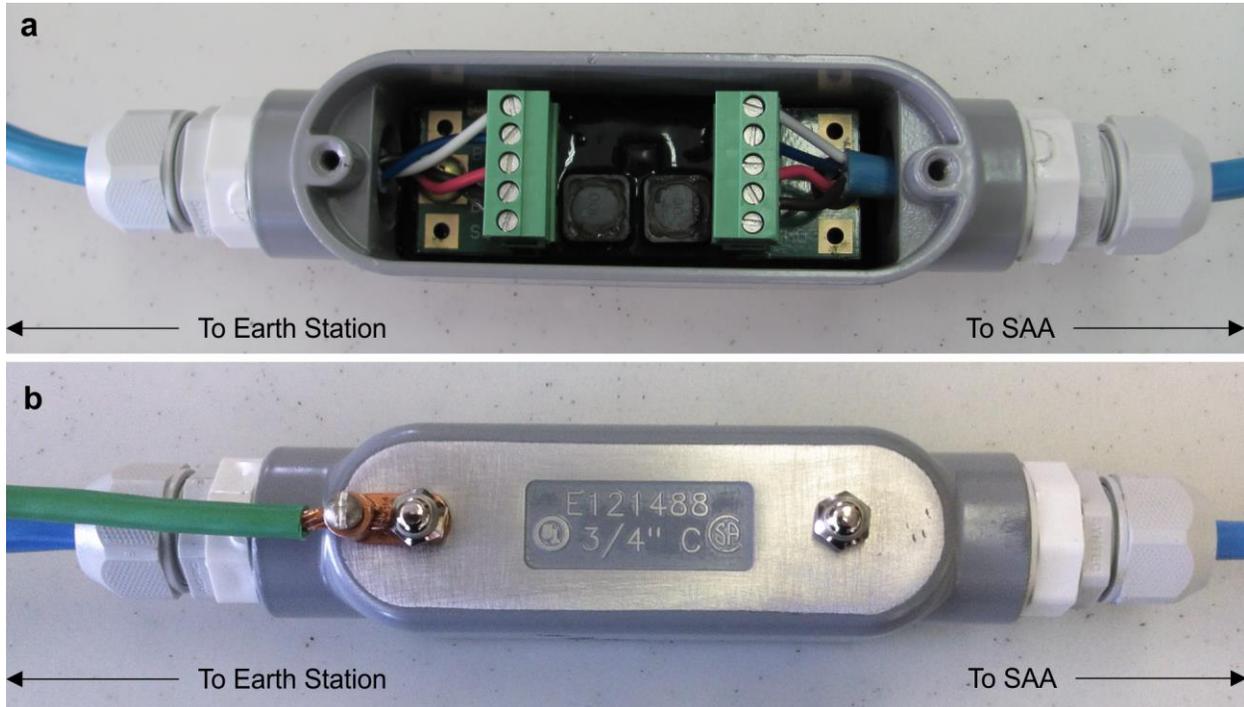


Figure 2.5 Fully wired SAASPD. a) Potting has not yet been done. b) Potting is done and ground wire is attached.

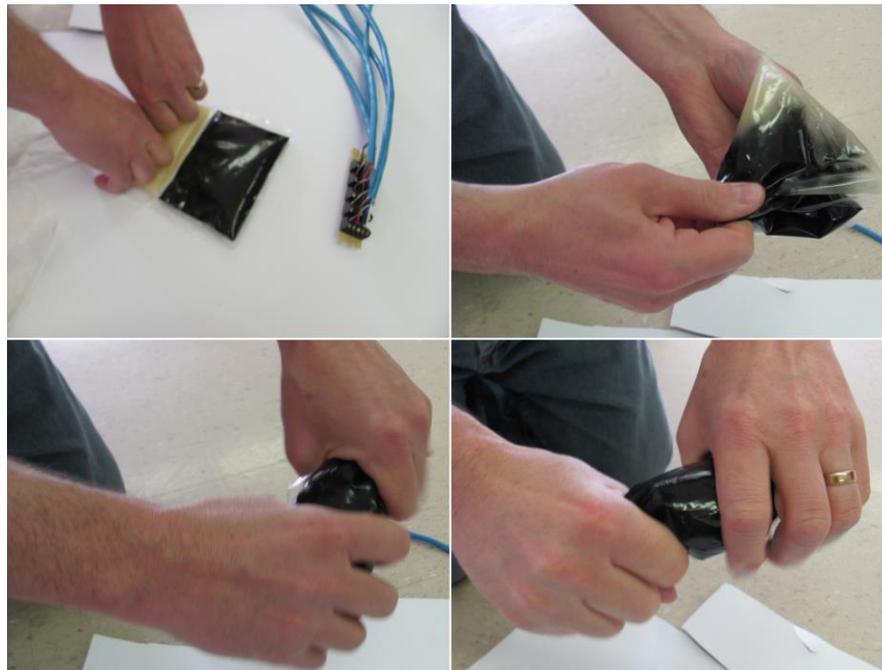


Figure 2.6 Mixing potting compound. Note, thoroughly mix the potting compound for 1 minute before using.

12. Attach the cover to the SAASPD.
13. Attach the ground wire to the copper lug on the back of the SAASPD. (Figure 2.5b)
14. Mount the SAASPD in its final location using zip ties or other suitable means.



Figure 2.7 Completed SAASPD installation.