

Instruction Manual

SAA Install Kit



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1. Introduction

The SAA Install Kit includes various parts which make preparing for SAA installation more convenient, and which produce a secure installation in less time. The PVC fittings in the kit surround the PEX at the cable end of the SAA. A blunt-nose setscrew threaded into the fittings holds a vertical SAA at its set azimuth while maintaining axial compression to snug the joints, and provides a secure hold at the cable end of horizontal SAAs. The fittings help keep surface water out of the 27 mm ID PVC conduit holding the SAA, and help prevent outside forces and moments from being applied to the SAA. The kit eliminates slotting, taping, and clamping to hold the SAA.

2. Description

The SAA Install Kit includes various parts which make preparing for SAA installation easier and more convenient. Several of the parts included, such as the end cap and PVC cement and primer, are needed in the installation process described in the SAA Installation Guide (available on the Measurand website at the following address: http://measurandgeotechnical.com/Installation_Guide_2011.pdf). These parts may sometimes be difficult to find locally, so they have been included for convenience.

Two versions of kit are available: with tools for first-time users, and without tools for repeat users. The kit is for vertical or horizontal installations. The content of each kit is outlined in Table 2.1 and Table 2.2 below. Each kit contains one pre-assembled top fittings stack, shown in Figure 2.1a. This stack incorporates two threaded fittings so that the SAA can be retrieved at any time and replaced without cutting the casing. Due to the height of the stack, it is most suitable for use when stick-up above ground is not an issue. Extra fittings are also included in case the pre-assembled stack needs to be modified. For example, the short stack shown in Figure 2.1b is suitable for burial underground but the conduit will need to be cut in order to retrieve the SAA. Note that both the fittings stacks shown in Figure 2.1 include a set screw. The set screw section is used to keep compression on the top of the SAA. It replaces the saw cuts and gear clamps described in the SAA Installation Manual. A tapping tool is also included for cases where the pre-tapped fittings will not suffice.

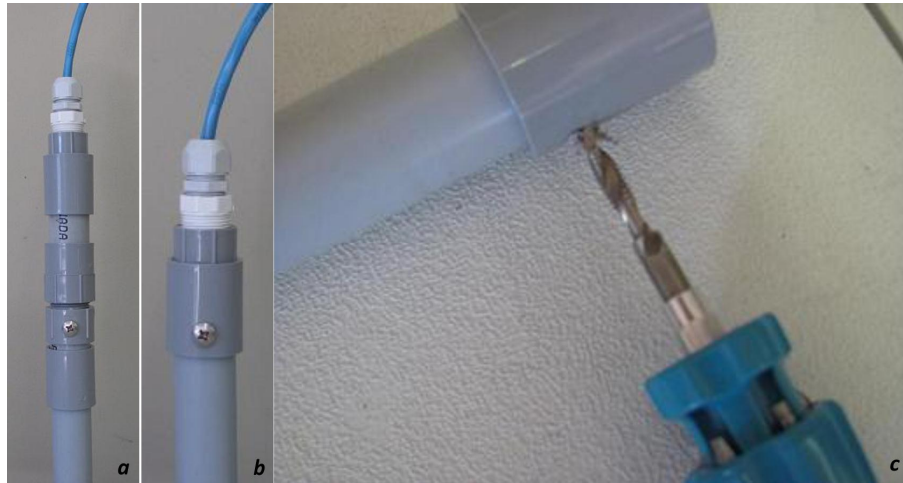


Figure 2.1 – Possible assemblies for fittings in SAA Install Kit. (a) Pre-assembled fittings stack provided in kit, suitable for cases where the SAA conduit can have some stick up. (b) Short stack of fittings, suitable when the SAA conduit must be buried underground. (c) Tapping hole for the set screw through the coupling and PVC conduit.

Table 2.1 - SAA Install Kit #1 (with tools)

Quantity	Item Description
1	Pre-assembled top fittings stack
1	3/4" NPT Liquid-Tight Male Straight Connector
20'	3/4" Liquid-Tight nonmetallic Conduit
1	Reducing Bushing, NPT 3/4" reduced to 1/2"
1	Schedule 40 PVC Male Terminal Adapter 1"
1	Schedule 40 PVC Female Adapter 1"
2	Schedule 40 PVC Coupling 1"
1	Gland 1/2" NPT
1	18-8 SS Sealing Pan Head 1/4"-20
1	1" PVC End Cap
6	large Tie Wraps
1	PVC Quick – Set Cement with MSDS
1	PVC Primer with MSDS
1	Teflon Tape
1	3/4" PEX Tubing Cutter
1	Drill / Tap Bit 1/4"-20 NC
1	Multi – Screwdriver

Table 2.2 - SAA Install Kit #2 (without tools)

Quantity	Item Description
1	Pre-assembled top fittings stack
1	3/4" NPT Liquid-Tight Male Straight Connector
20'	3/4" Liquid-Tight nonmetallic Conduit
1	Reducing Bushing, NPT 3/4" reduced to 1/2"
1	Schedule 40 PVC Male Terminal Adapter 1"
1	Schedule 40 PVC Female Adapter 1"
2	Schedule 40 PVC Coupling 1"
1	Gland 1/2" NPT
1	18-8 SS Sealing Pan Head 1/4"-20
1	1" PVC End Cap
6	large Tie Wraps

3. Sealing the top of the PVC conduit using the SAA Install Kit

Use of the pre-assembled fittings stack is shown in Figure 3.1. The fittings can be used for vertical and horizontal installations, as well as the SAA+PVC installations described in the SAA Installation Guide. In order to use the pre-assembled fittings stack, you should first separate the stack into two parts by unscrewing the threaded joint located directly above the set screw.

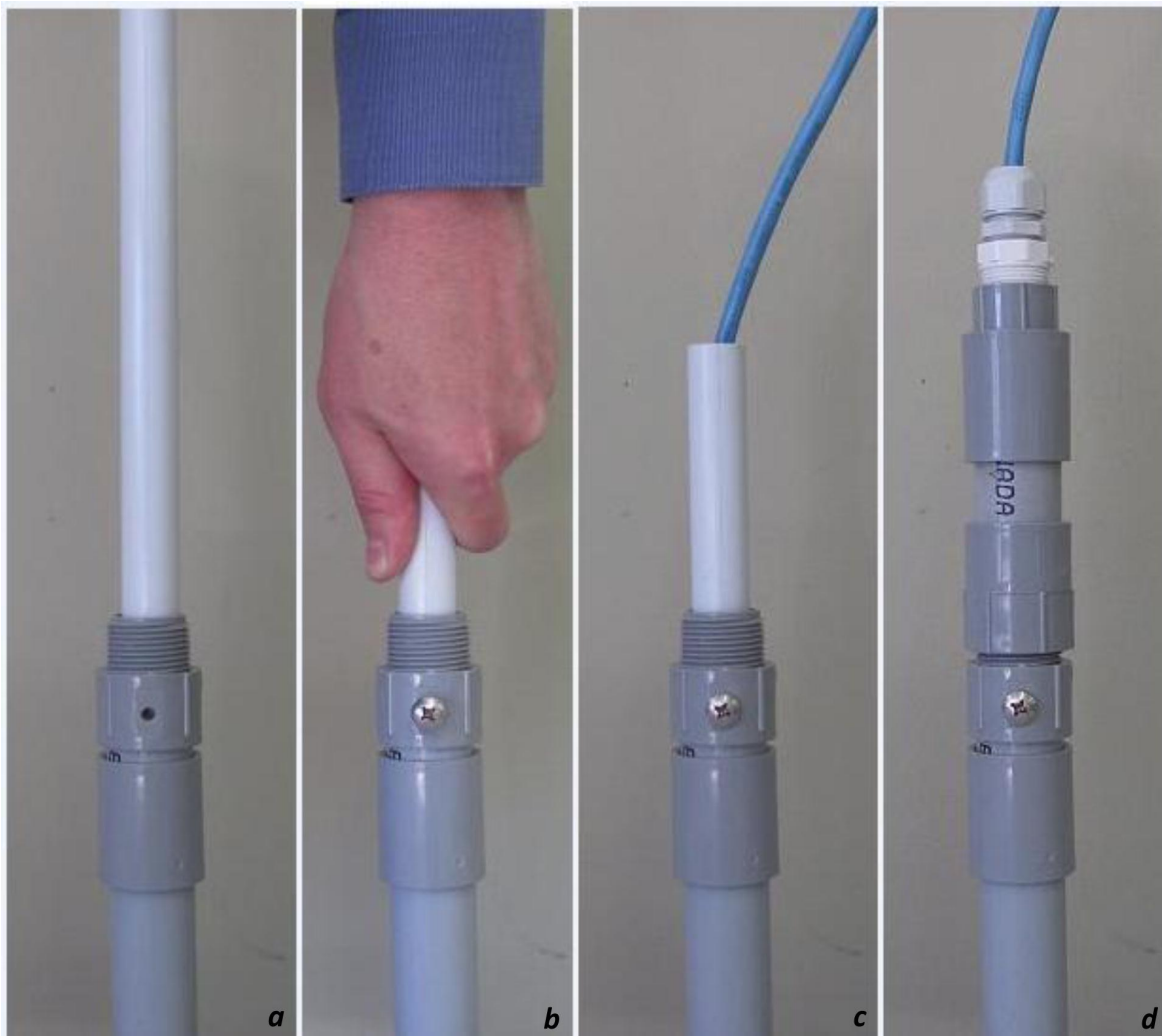


Figure 3.1 – Using the pre-assembled fittings stack during SAA installation. (a) Glue bottom portion of the pre-assembled fittings stack to the PVC conduit. (b) Apply compression to the top of the SAA and tighten set screw, see SAA Installation Guide for more information on compressing the SAA. (c) Remove excess PEX using the PEX cutter. (d) Thread the top portion of the pre-assembled stack over the cable and screw into the bottom portion. Tighten the gland at the top until the rubber seals the cable.

If you are doing an SAA+PVC installation, you should do step 1 as shown in Figure 3.1a then tighten the set screw so that the SAA will be secure during insertion of the SAA+PVC into the borehole. At that point, the set screw can be loosened and you can resume with step 2 as shown in Figure 3.1b. For horizontal installations, you will not need to compress the array but you will still need to tighten the set screw to secure the SAA.

Once the top of the PVC conduit has been sealed as shown in Figure 3.1, the next concern is protecting the cable until it reaches the data logger. It is recommended that the cable be placed inside a conduit to protect it from mechanical damage. The SAA Install Kit includes 7.6 m or 20' of $\frac{3}{4}$ " flexible conduit to protect the cable. The $\frac{3}{4}$ " conduit can be inserted directly into the Enclosure box through small knock outs located on the bottom of the box. A $\frac{3}{4}$ " NPT Liquid-Tight Male Straight Connector included in the

kit will seal the conduit at the enclosure so that insects and other small pests cannot gain access to the enclosure.

Since the PVC conduit containing the SAA has been sealed, it is not necessary for the flexible conduit to cover the entire cable. If the top of the SAA is protected using a well head covering or some other buried structure, it is possible to use zip ties provided in the kit to hold the conduit in place under the protective casing (Figure 3.2a). It is also possible to do cable splices or attach items such as the SAASPD surge protection device at this point (Figure 3.2b).



Figure 3.2 – Finishing off SAA installation under a protective well head. (a) Attaching flexible conduit to PVC conduit using zip ties. (b) Attaching SAASPD at top of borehole.