EXTenna Switch Installation Manual
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QRmounts.com

Purpose

The EXTenna Switch allows any handheld aviation radio to quickly access an existing external comm antenna to ensure good range and readability when this radio is needed to continue ATC communications.

For example, an electrical failure in the aircraft will render the existing radio(s) useless. Any handheld radio can then be used with an existing comm antenna by plugging the supplied RF cable from the radio into the panel mounted EXTenna Switch. This action disconnects the comm radio from the antenna and gives the handheld radio access to the same antenna.

The EXTenna Switch goes in series between an existing comm radio and its antenna. A short BNC jumper connects the radio's antenna connector to the Extenna Switch. Then the comm antenna's BNC is plugged into the the EXTenna Switch. Note: An extension cable may be needed to attach the comm antenna to the EXTenna Switch depending upon where it is mounted. The EXTenna Switch is completely passive and requires no power.

There are two models of the EXTenna Switch. The **EXTSW-1** model is mounted to the existing instrument panel using two supplied 6-32 screws. The 3.5mm jack on the Extenna Switch extends through the panel, allowing the supplied cable to be plugged in when needed. A CNC machined drill template with the exact outline of the EXTSW-1 is used to accurately drill the three required holes. This template is included with the EXTSW-1 along with an adhesive label that identifies the purpose of the EXTenna Switch.

The other model is called the **EXTSW-2**. This model includes an adapter plate that allows the switch to be mounted in an existing 2.25' instrument cutout or a 3.125" cutout using a standard adapter plate. No new holes need to be drilled when using this model and the plate with its label comes already attached to the switch; no assembly is required.

What is needed for the installation

1. An EXTSW-1 or EXTSW-2
2. A BNC jumper cable between the com radio's antenna jack and the switch
3. An extension cable for the comm antenna cable may be needed to reach the switch
4. The EXTSW-1 model requires three drill bits: a 1/8" pilot hole drill, a 5/32" drill for the two 6-32 screws, and a 9/32" drill for the 3.5mm jack

How to Install the model EXTSW-1

The body of the EXTSW-1 EXTenna Switch is mounted in an appropriate location on the instrument panel. The switch should be easily accessible to the pilot for connecting the cable between the handheld radio's antenna jack and the switch using the supplied 48" cable.

Three holes are needed in the panel, two holes made with a 5/32" drill, and one 9/32" hole for the jack. These holes must be drilled very precisely. An CNC machined steel drill template is

supplied with the EXTSW-1 to simplify the drilling of these holes. This template is the exact size of the EXTenna switch's body. Be sure that there is clearance behind the selected location for the switch and the two BNC terminated cables that will be connected to the switch.

After locating a spot for the switch, tape the template to the panel, ensuring that it is level. The single hole should be up and the two holes should be down. Use the 1/8" drill to make three pilot holes. Remove the template and using the 5/32" drill, make the two #6 hole clearance holes. Then use an intermediate size drill to enlarge the top hole prior to using the 9/32" drill to make the final hole for the jack. Note: if the panel is so thick that the 3.5mm connector's collar does not extend through the panel, the 9/32" hole needs to enlarged to 3/8" so the plug will fully mate with the jack.

Take the body of the switch, and from behind the panel push the collar of the jack through the larger hole. Rotate the body of the switch until the two #6 spacers on the body line up with the two #6 through holes in the panel. Attach one 6-32 screw and then the other. Before tightening these two screws, ensure that the jack's collar is centered on the 5/32" hole by slightly rotating the body. This will allow the label to be aligned properly in the next step.

Carefully remove the label from its backing, keeping in mind that that the adhesive is very sticky. Check that all three holes are open. When removing the three round blanks, do not allow them to flip over and stick to the adhesive. Next, carefully line up the two lower holes in the label over the screw heads and gently press the label down against the panel through the two screw heads as you press the upper portion over the jack. Smooth out any irregularities that may have been formed.

You may have wondered why there is no front cover on the switch body. The original design did have one, but the two PEM nuts used in the cover plate to secure the entire body to the panel could be over stressed by the two cables on the back side. So we decided to use two long stainless steel #6 spacers attached to the rear of the body to gain additional strength. And the existing aircraft panel provides a perfectly suitable cover once the switch is mounted.

Next connect a BNC jumper from the **TX** connector on the EXTenna Switch to the comm radio's antenna jack. The **TX** jack is the one on the **right** when facing the front of the panel. It is essential that the proper jacks on the switch go to the proper cable.

Then the BNC connector at the end of the antenna cable is attached to the jack labelled **ANT**. This is the one on the **left** side when viewing the panel from the front. You may need an extension cable if the original antenna cable cannot reach the switch. This can be easily made by using a male to male BNC jumper cable and a female to female BNC barrel connector.

How to Install the model EXTSW-2

This version of the EXTenna Switch comes with a pre-attached adapter plate compatible with a standard 2.25" instrument cutout. This allows the installation of the switch without making any new holes in the panel. If only a 3.125" cutout is available, a standard 3.125" to 2.25" adapter plate can be used to mount the EXTSW-2.

Once this model has been attached to the panel, proceed as follow to connect it to the radio and antenna:

Connect a BNC jumper from the **TX** connector on the EXTenna Switch to the comm radio's antenna jack. The **TX** jack is the one on the **right** when facing the front of the panel.

It is essential that the proper jacks on the switch go to the proper cable.

Then the BNC connector at the end of the antenna cable is attached to the jack labelled **ANT**. This is the one on the **left** side when viewing the panel from the front. You may need an extension cable if the original antenna cable cannot reach the switch. This extension cable can be easily made by using a male to male BNC jumper cable and a female to female BNC barrel connector.

See the Testing paragraph below to verify the installation.

Testing the Installation

Verify that the ship's antenna is connected to the radio by listening to a local Unicom or tower frequency. Or transmit using a handheld radio and verify that the audio can be heard on the aircraft radio.

Plug the 3.5mm end of the supplied cable into the 3.5mm jack on the switch. This will disconnect the aircraft comm antenna from the radio. If the squelch is fully open and the volume turned up, you should hear a reduction in noise when the cable in plugged in. In addition, you could also verify that the receiver is essentially deaf to any local radio traffic.

Of course, you can also plug the BNC end of the cable to any handheld radio and verify that it can communicate with ground control or on the local Unicom frequency.

Minor Alteration

The EXTenna Switch is a passive switch that goes in series with the cable between a comm radio and its antenna. It passes through the center wire of the coax antenna cable between the antenna and the radio. Only when there is a need to use a handheld radio with an existing comm antenna does the EXTenna Switch interrupt the normal RF signal.

The EXTenna Switch weighs only 2 oz and therefore does not have a measurable effect upon weight and balance.

A minor alteration logbook entry should suffice to document the installation of the EXTenna Switch. There are no continued airworthiness requirements.

Customer Support

For customer support, email Steve@QRPworks.com