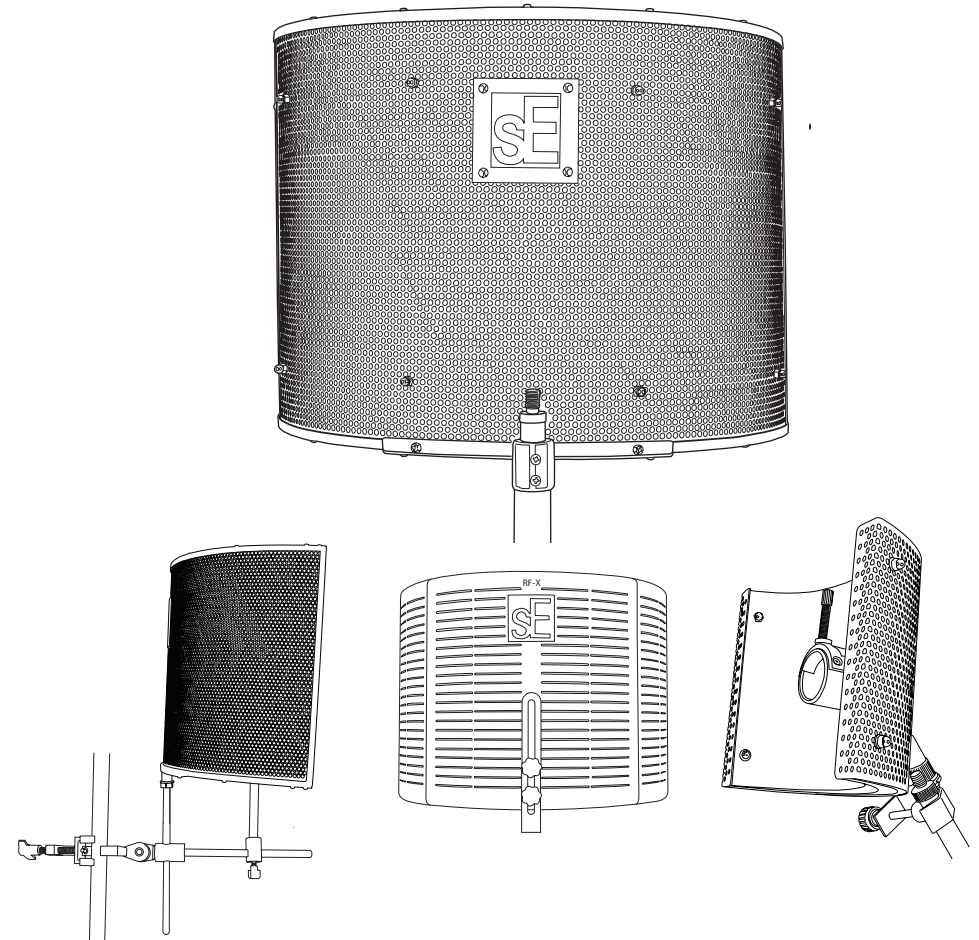


# The Reflexion Filter™

## Manual

Multi-layer patented technology by sE

U.S Patent 8,191,678 B2



**sE** Electronics

[www.seelectronics.com](http://www.seelectronics.com)

**sE** Electronics

Thank you for purchasing the Reflexion Filter 'portable vocal booth'.

The main idea behind this product is to facilitate 'dry' vocal recordings, in other words to achieve a vocal recording which has greatly reduced room ambience. Of course, the same Reflexion Filter can be used to achieve similar results whilst recording various live instruments, for isolating vocals in rehearsal studios and probably a host of things we haven't thought of yet too! We'd be very interested to hear about novel applications from you, so please do contact us with your ideas, we are always glad to listen as it helps us improve and develop the product, and the information we can supply to other sE users.

Your Reflexion Filter carries a 2 year manufacturing warranty, with free replacement of parts in case of mechanical failure due to faulty components. This warranty does not cover failures deemed to be as a result of misuse or abuse of the Reflexion Filter. If properly used and looked after, it should last a lifetime of recording use.

You can extend your free 2 year warranty to three years by registering your product at [www.seelectronics.com](http://www.seelectronics.com), so please visit the site and leave your details. You can also subscribe to the sE newsletter which we email out once every few months (don't worry, we won't pass your details on to anyone else, and we won't bombard you with SPAM!)

One last thing... please read this assembly manual to get the best results from your Reflexion Filter... mic positioning, and the stand clamp assembly are critical to getting best results.

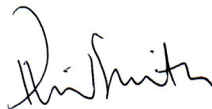
Thank you again, and we look forward to hearing from you,



**Siwei Zou**  
CEO  
sE Electronics International



**James Young**  
sE Electronics International



**Phil Smith**  
sE Electronics International

## The Perfect Position

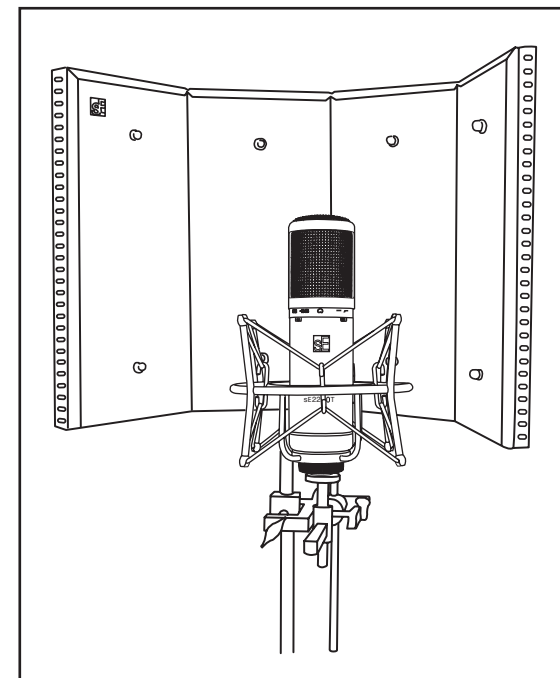
The 'perfect position' to achieve a 'dry' recording is to place the microphone so that the mic capsule sits centrally (both vertically and horizontally) in relation to the face of the Reflexion Filter (the face is the convex side with coloured panels). It is also important to have the mic capsule of the correct distance from the face of the Reflexion Filter. The mic capsule should sit roughly level with the front edges of the filter where the curved wall ends.

Having said all that, you CAN use the Reflexion Filter to achieve different effects by experimenting with positioning. Moving the mic into the face of the Reflexion Filter will give a 'darker' and more 'dead' sounding recording, but it will also affect the polar pattern response of the mic, so the mic will perform slightly differently. Again, in most cases this would be undesirable, but this method of use can create some cool results... try micing an electric guitar cab this way, it can sound great!

Moving the mic further away will mean there is more room ambience recorded with the dry source. Again, this is not usually desirable but can be used to get a specific 'room sound' without the room taking over completely!

The Reflexion Filter can be used not only for recording vocals and acoustic guitars etc, but as outlined above, you can experiment to find new applications like the guitar cab mic'ing we suggested above. We'd love to hear from you with your own novel applications, so please contact us via the main web site, [www.seelectronics.com](http://www.seelectronics.com), to let us know what you think of the product, and how you are using it.

Thanks again, and we hope you enjoy the results of your new Reflexion Filter!





## What is the Reflexion Filter?

Our Reflexion Filters are basically portable devices for recording live sound sources with reduced room ambience. All three models use an advanced, multi-layer wall which is positioned behind any microphone by means of a variable position stand clamp assembly (fixed-position in the case of the IRF 2) which ships with the product. The main function is to help obtain a 'dry' vocal or instrument recording. This is especially useful in studios without proper acoustic treatment, but can also be used to help record takes in control rooms, where the performer also has to operate the recording device, or in rehearsal studios to reduce ambient noise.

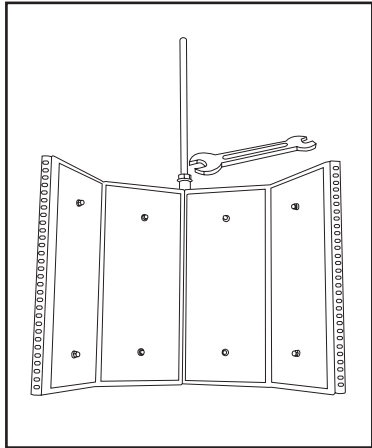
## The Technical Bit:

**Reflexion Filter Pro (RF Pro):** The Reflexion Filter Pro has 6 main layers. The first of these is a strong layer of punched aluminium, which diffuses the sound waves as they pass through it. The next is a section of absorptive wool, and then a layer of aluminium foil to dissipate energy and break up the lower-frequency waveforms. From this the sound travels through an air gap, which acts as an acoustic barrier, through a further layer of wool and lastly an outer, punched polymer wall, which provides additional absorption and diffusion of the remaining acoustic energy.

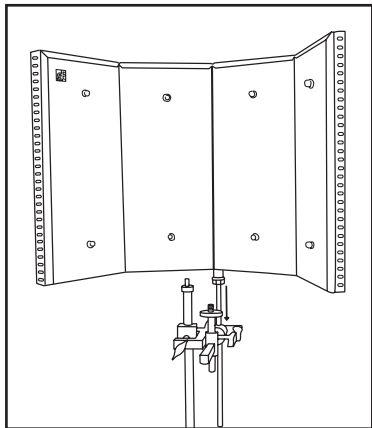
**The Reflexion Filter Pro** is also equipped with a main absorber, which comprises of four state-of-the-art specialist acoustic absorption panels. These are fitted to the diffuser face of the Reflexion Filter Pro by means of extended separation rods, and serve to provide further acoustic dampening and diffusion to the sound waves before they pass to the main filter.

**Project Studio Reflexion Filter (PSRF):** This model utilises some of the design features of the Reflexion Filter Pro, while being more suited toward lower-budget project studios. The PSRF uses an outer boundary of punched aluminium, followed by a thick layer of the same high-performance absorptive acoustic fibreboard that's employed by the Reflexion Filter Pro. Finally, the inner surface is lined with high-density acoustic "crystal" foam with a curved, undulating surface for maximum diffusion. All of the above Reflexion Filters are supplied with an adjustable, heavy-duty clamp for attaching to your microphone stand. Each clamp will accommodate any shock-mount with a standard fitting, and support the Reflexion Filter itself.

**Instrument Reflexion Filter 2 (IRF2):** The IRF2 operates on the same principles as the other Reflexion Filters, but is designed specifically with instruments and "end-fire" microphones in mind. It consists of an outer layer of punched aluminium – much like the other Reflexion Filters – but then has three discrete layers of high-performance absorptive acoustic fibreboard, each separated by an air gap. Together, these form a highly protective acoustic "shield", offering a degree of isolation to the microphone from other nearby sources. It is especially useful in drum mic'ing. The microphone is fitted and adjusted by means of a central, rubber-coated clamp, and the entire assembly attaches to your microphone stand by means of a simple clamping bracket.



3. Fix the support rod to the Reflexion Filter by screwing it into the socket on the bottom edge. Tighten the nut using the spanner supplied in the box.

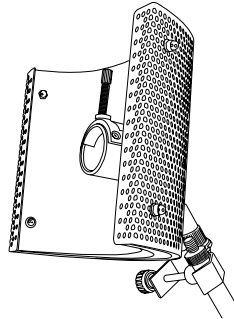


4. Fix the support rod, with the attached Reflexion Filter, by pushing the support rod down into the socket on the stand clamp and tighten it in place with the turning key on the block.
5. You can now play with the positioning of the mic (both vertically and horizontally), and the height of the Reflexion Filter to get the optimum position for recording.

## Clamp Assemblies

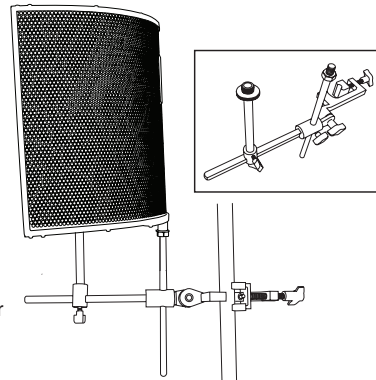
### IRF2 - Specific Brief Fitting Instructions

1. Remove your IRF2 from its packaging. We recommend keeping the packaging, in order to transport the IRF2 in the future without risking damage.
2. Remove the protective foam bung from the central microphone clamp, in the face of the IRF2.
3. Fit your microphone. To do this, insert your microphone to the required position, and tighten or loosen the adjustment screw until the microphone is secure.
4. Fit the entire assembly to your microphone stand. Adjust the bracket at the rear of the IRF2 until it is at the desired angle (using the turning key on the adjustment hinge), then position the microphone's boom arm in the large clamp and tighten until it's secure.
5. The bung can be inserted if a side-fire microphone is being used.



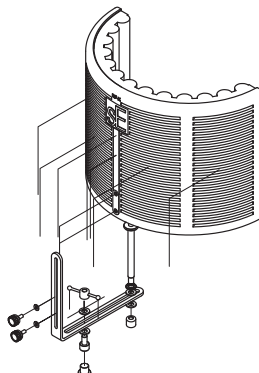
### PSRF Clamp Assembly

The Project Studio Reflexion Filter (PSRF) clamp operates much like the Reflexion Filter Pro (RF Pro) clamp, but is simpler as the PSRF is a lighter product. The stand assembly for the RF Pro comprises a microphone stand clamp fitting, which attaches by means of an adjustable vertical rod to the horizontal bar assembly. The Reflexion Filter itself, and any standard fitting shock-mount, can be fitted to this. The microphone (in its shock-mount) can then be moved both back-and-forth (PSRF and RF Pro) and vertically (RF Pro only) along the bar, and the Reflexion Filter itself can be moved vertically to obtain the optimal working position.



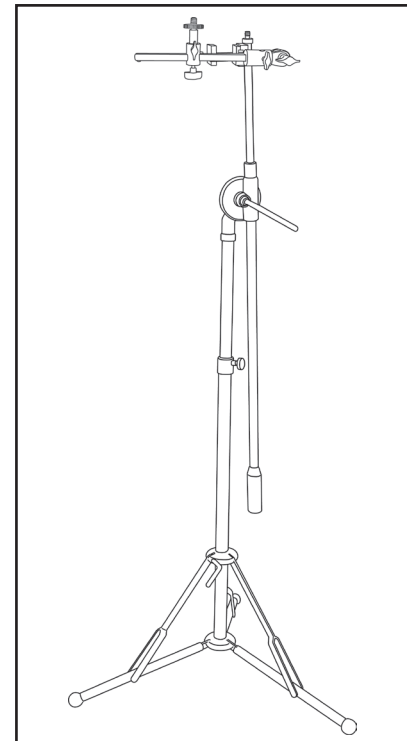
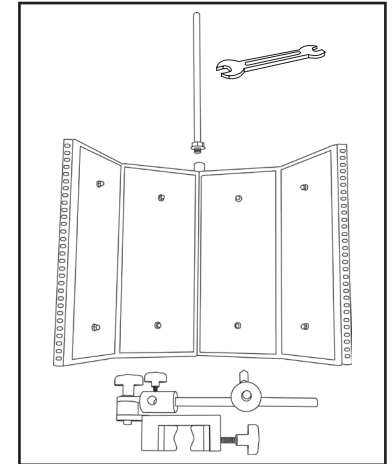
### RF-X Clamp Assembly

The RF-X clamp is very simple to assemble. The clamp is fitted with a small threaded piece that attaches the clamp to your microphone stand. It is recommended that you attach the clamp to your stand first. The filter is then fixed to the vertical section using the two bolts supplied. These can be loosened at any time to adjust the height of the filter. Finally, attach your microphone clip or shock mount to the remaining vertical bar. This can also be adjusted at any time to vary the position of your microphone within the filter.



1. Remove the Reflexion Filter and stand assembly unit from the packaging. Please keep the packaging safe to store the Reflexion Filter when not in use, or for transportation. It is robust, but parts may get damaged or lost in transit if not packaged properly.

You should have the following parts – Reflexion Filter (curved wall), stand assembly, support rod and spanner to fit support rod.



2. Fix the stand clamp assembly in place on the neck of your microphone stand a few inches below the point where the shock mount is usually fixed, or on the main vertical support strut of the stand.  
You will see the assembly has two black blocks with one large screw, on this is a turning key, turn this until the clamp is securely fixed to the mic stand.

The clamp also has a large barrelled hinge (with a turning key) which allows the mechanism to turn back on itself so that the centre of gravity is kept over the mic stand rather than in front of it. This should be hinged fully back so the whole assembly is in balance, and the RF is then positioned as close to the centre of vertical on the mic stand as possible.