About *radiosport* Close-Talk Communications Microphones

What drives the Microphone Element Design?

Each user interchangeable Microphone Element is designed purely with communications in mind. Utmost in performance requires absolutely clear voice articulation. Proper frequency response tailored for communications is also important, however never at the expense of voice articulation. This requires extremely flat frequency response across the desired voice frequencies and at most provides a very smooth 2 dB rise in output between 2000 and 3000 Hz. Typical voice frequency response of 300 to 8000 Hz is provided by our most popular DX/Contest Microphones and an alternate Microphone element with broader frequency response extending down to 100Hz or below are available in either a Dynamic or an Electret-Condenser Microphone element and upper end transmitted response is limited by the transmit filter bandwidth and exact offset of the transmit carrier oscillator determines the actual voice bandwidth.

Using Close-Talk Microphones

Each radiosport Mic element is designed with Noise-Cancelling and requires that the Mic be placed such that the Mic Sock is almost touching the lips. We provide the RS60CF with an extra long Mic Boom so that the Mic is properly placed directly in front of your mouth so that you speak directly into the Mic, not off the side. This is critical for proper performance of noise cancelling as well as to maintain proper frequency response. The first effect of moving the Mic element away from the lips is rapid loss of low frequency response. Proper use means no background noise pick-up and even others talking in the room just a few feet away will not be heard on your transmitted signal. Naturally this also means Linear Amplifier Fan Noise and the like is also not transmitted.

Available Dynamic and Electret-Condenser Microphones

We offer two different design Microphone elements, Dynamic and Electret-Condenser. Each design has its merits and indeed some radio manufactures have designed their radios to use one or the other as standard. Many HF Desktop radios such as those manufactured by Kenwood and Yaesu were intended to use a Dynamic Mic Element, others such as those manufactured by ICOM were designed to use an Electret-Condenser Mic. Several new US manufactures have wisely designed their latest radios to be able to use either Dynamic, or Electret-Condenser Mics, even providing Mic BIAS directly on the Mic+ lead under software control using Setup menus on Elecraft's K3 or SmartSDR for Flex Radio Systems new 6000 Series.

How are these two Microphone Designs different?

The Dynamic Microphone element has either a magnet or a coil of wire attached to the Microphone Diaphragm so that as you speak into the Microphone you are moving both the Diaphragm and a magnet through a coil of wire or a coil of wire around a magnet that generates a voltage output relative to your speech.

The Electret-Condenser Microphone element Diaphragm is an Electrostatic charged Plate of a Capacitor such that the movement of the Diaphragm plate relative to a fixed plate changes capacitance that is followed by a sensitive FET (Field Effect Transistor) stage that has an extremely high input impedance that amplifies the effects of change in capacitance providing a voltage output relative to your voice.

This very low mass Diaphragm relative to the Dynamic Mic's Diaphragm with a magnet or a Coil of Wire means that it takes less voice air pressure to get the diaphragm moving and this produces very bright audio from the Electret Mic. This has made the Electret Mic quite popular even for use on some radios originally designed for Dynamic Mics.

Which radios can't easily use an Electret Mic?

Can the Electret Mic be used then on any radio designed for a Dynamic Mic? Virtually all. Radios designed with Balanced Mic Audio input both of the Mic leads (Mic+ and Mic-) float off of DC ground. For these radios an Electret Mic cannot be used since there is no return path for the Electret-Condenser's Mic BIAS that powers the FET amplifier inside the Mic element. For all other applications using an Electret-Condenser Mic is the preferred choice. Our RS60CF-10A comes with this Mic as a Fixed Installed Mic and is a superb choice for ANY radio application today.

Which Mic should I use?

From our Web Site Home Page there is a Link to Headset-To-Radio cables for popular Amateur Radio gear that includes our recommended Microphone element. These recommendations come from thousands of user's real world experience with our microphone elements in DX/Contest and general operating conditions. This is always the best place to start even if you decide later to have more than one Mic element for differing operating conditions.

Available **radiosport** *Close-Talk, Noise Cancelling, Communications Microphones*

Electret-Condenser Mics for Amateur Radio

radiosport M20 Electret-Condenser Mic (Non-interchangeable Mic) Provided on the RS60CF-10A
Our latest generation Electret Mic that provides very high output and a frequency response of 70-6000Hz, while still providing Close-Talk, Noise-Cancelling properties making it a superb choice for all modern HF radios with TX EQ capability. This Mic is used on our RS15SL & RS55SL SuperLight Travel Headsets as well as our RS60CF-10A 10th Anniversary Edition Flex Boom-Mic headset. The only Mic you ever need with support for use on any HF Desktop with our exclusive Headset-To-Radio cables as well as for VHF/UHF Mobile or Handheld radios.

radiosport M350-ADJ Electret-Condenser Mic (Military M101 Style Cartridge) Available on the RS60CF
Our most popular Electret Mic ever. The choice of Top DXers and Contesters that want a great performing Mic with bright crisp audio and excellent output level. This 2500 Ohm Electret Mic, with Close-Talk, Noise Cancelling, and a 300 to 8000 Hz frequency response. This Mic is the ideal choice for Elecraft, Flex and ICOM HF Transceivers and is the most popular Mic with DXers and Contesters even for use on radios typically designed for Dynamic Mics. All radiosport Headset-To-Radio cables manufactured since October 2014 provide support for using Electret Mics on any Desktop HF radio as well as HF/VHF/UHF mobile radios. The Close-Talk, Noise-Cancelling abilities have made it the de facto standard Mic on DXpeditions since 2013.

radiosport M360 Electret-Condenser Mic (Military M101 Fit Cartridge) Discontinued - some stock available
This unique Electret Mic offer very high output required for some radios applications. This has been a popular Mic for VHF/UHF Mobile radios and virtually all VHF/UHF Handheld radios, and PC Sound Cards. This Mic today has largely been replaced by our M20 Electret-Condenser Mic above.

Dynamic Mics for Amateur Radio

radiosport M208 Dynamic Mic (Military M101 Style Cartridge) Available on the RS60CF and RS22CR
Our newest addition to our Dynamic Mic offering, this new Mic developed specifically for our radiosport headset offers a broader frequency response, increased output to match some hard to drive radios and the ability to tailor your transmitted signal using the newest features of today's modern HF Desktop transceivers with TX EQ capability and adjustable carrier offset. The 600 Ohm impedance, with 100Hz to 6000Hz frequency response, is just what you're looking for if you want a great communications Mic with great voice articulation, noise cancelling, but warmer transmitted audio. On radios that do not provide for TX EQ settings this Mic will perform much like the M207 Mic.

radiosport M207 Dynamic Mic (Military M101 Style Cartridge) Discontinued - some stock available
This was one of our most popular Dynamic Mics for many HF Radios produced in the 1990s through about 2005. This Mic developed specifically for our radiosport headset as the choice of Top DXers and Contesters for many models of Kenwood, TenTec and Yaesu HF Desktop radios. This Dynamic Mic was developed specifically to address the needs of our early heterodyne type SSB transceivers without TX EQ capabilities. This 200 Ohm impedance, high output, Close-Talk, Noise-Cancelling Mic offered the ideal 300 to 8000 Hz frequency response, unmatched voice articulation and great output to drive many HF radios with either Unbalanced or Balanced Mic audio input during this period. This Mic has largely been replaced by our M208 Dynamic Mic for all current generation HF radios with TX EQ capabilities.

radiosport M201 Dynamic Mic (Military M101 Style Cartridge) Available RS22 Commercial Radio Headsets
This Mic is actually the mainstay of professional communications headsets for many years. It offers excellent voice articulation, however a more dramatic roll-off of low frequency response that may be just what you're looking for if you have a very deep voice and want to bring the transmitted voice envelope from the Mic into the most effective for voice communications. This 150 Ohm impedance Mic has about 6db lower output than our M207 Mic and is appropriate for a small percentage of our users.

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