# INRAD M628 and M629 Desk Microphones

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INRAD is perhaps best known for its high-quality crystal band-pass filters. That product line has been expanding and now includes a series of desk microphones and accessories. There are currently five distinct microphone versions, each with subtle differences in audio response and features. For this review, we selected one of the top-of-the-line models, the M629, which provides a rising frequency response from 500 to 4,000 Hz for improved articulation and voice clarity, along with the least-expensive M628, which has a flat response from 50 to 15,000 Hz.

Both microphones are similar in dimensions and appearance. Each appears to be well made, with a solid-feeling heft resulting from the metal barrel. Both include an impossible-to-lose, inside-the-grill blast screen. Both can be used as handheld mics, but can also easily slip into the clip provided with their optional M605 desk stand, or the INRAD DMS-1 push-to-talk desk stand (see the sidebar, "INRAD DMS-1 Desk Stand for Home Station Microphones"). Both offer a cardioid pattern with a useful null to the rear that can attenuate fan noise, loudspeaker pick-up, and other unwanted sounds from that direction.

## Hooking Them Up

Both microphones include a three-connection male XLR connector at the rear. This is the standard used in professional audio systems, delivering a nominal 600 Ω balanced connection, along with a ground lead. Each microphone comes with a

### Bottom Line

These microphones from INRAD can provide an excellent audio signal from a reasonably priced, high-quality microphone. The subtle differences between models are particularly important for those without equalization available in their transceivers, with the M629 having the edge for my voice on SSB.

## INRAD DMS-1 Desk Stand for Home Station Microphones

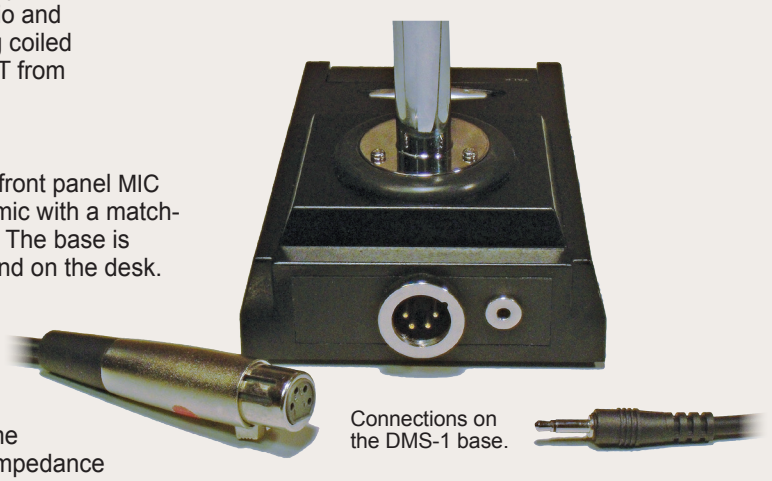
As we were wrapping up this review, INRAD announced the availability of a new push-to-talk (PTT) desk stand, the DMS-1, available either packaged with one of the M600 series microphones (DMS-6XX) or as a separate item for those who already have a microphone. While the DMS-1 is designed to work with the INRAD microphones and includes a clip that fits them (as well as other microphones of similar size), removing the clip yields the standard ⅝ inch by 27 threads that will fit a large number of microphones.

The INRAD M629 on the DMS-1 base.

### Controls and Connections

The stand has a PTT bar at the front to initiate transmission. Just a bit behind is a slide switch that can be actuated while the PTT is engaged to lock down the PTT for longer transmissions. Sliding to the right disengages it and returns the transceiver to receive mode.

A nice feature of this stand is that it brings the mic and PTT wiring together in the base so that only a single cable is needed from the base to the radio. There is a ⅛-inch mono phone jack for the mic input, and a short cable with a ⅛-inch plug on one end and a three-pin XLR connector for M600 series microphones is provided. A four-pin male XLR panel jack is used for audio and PTT connections to the transceiver. A matching coiled cable is provided to interconnect audio and PTT from the stand with the radio you specify.



Connections on the DMS-1 base.

### How It Plays

I connected the DMS-1 to my K3 transceiver's front panel MIC jack, using both an INRAD M629 and another mic with a matching three-pin XLR connector. Both worked fine. The base is quite heavy, so the mic won't easily move around on the desk. Using the stand with a microphone without the three-pin XLR connector would just require terminating the mic's audio cable with a ⅛-inch phone plug and screwing the mic onto the standard base threads. This is a great solution for those old mics that didn't come with PTT stands. Just note that tube-era high-impedance crystal mics, for example, don't play well with modern radios. Matching transformers and other solutions are available. This will be on my Christmas list! — *Joel R. Hallas, W1ZR*

cable (ours was almost 8 feet long) with a ⅛-inch mono phone plug on the far end. If your transceiver has a matching MIC connector, as does my Elecraft K3, you can plug it in and are good to go. INRAD also offers adapters for popular transceivers from six manufacturers.

While each microphone barrel has a switch, it's an ON/OFF switch, not a push-to-talk (PTT) switch. Without a PTT switch, the mic can be used for voice-operated transmit (VOX) operation. The ON/OFF switch is handy during VOX operation to avoid unintended transmission from sounds in the room. I had a slight preference for the feel of the switch on the M629.

If you'd rather not use VOX, the transmit-receive function can be initiated via the DMS-1 PTT desk stand or an external switch. Each adapter cable also has a pigtail with a ¼-inch phone jack for use with a foot- or hand-operated transmit-receive switch. INRAD offers reasonably priced switches in both categories. One note from my testing: if the mic seems dead, before you tear anything apart, make sure the switch is not in the OFF position.

## How They Play

I tested both microphones using my K3 transceiver, first using the built-in MONITOR function and then in on-the-air comparisons. For comparison purposes, I also used a microphone

with a flat response, as well as my normal station mic with articulation characteristics described as similar to the response of the M629. The mic with flat response is a much higher-priced, professional-quality unit intended for remote podcast recording. For each test, I adjusted my spacing to the mic and MIC GAIN control to provide the same average ALC level on the transceiver. For over-the-air testing, I identified the mics as A and B, rather than by model, to avoid any prejudgment.

For monitor testing, I started with the transmit equalizer set for no compensation (flat response) with the transmit bandwidth set to ESSB. I really couldn't tell much difference between the flat-response mics, which speaks well for the much-less-expensive M628. The recording mic seemed to have a bit more low-end response — not necessarily good for on-the-air amateur work, but perhaps better for recording or broadcast use. With the articulated mics, the M629 sounded crisper and clearer, while the comparison mic sounded more articulated. I liked the sound of the M629 better.

I next set up the K3 transmit equalizer the way I normally would if using a flat-response microphone — no base boost, a gradual increase to about 600 Hz, and then a more rapid increase in the higher registers to +10 dB at the high end. With more low-end response, I sounded much more natural, but emphasizing the low-end uses a lot of transmitter power without adding much to the information content. I made it more efficient for communication by reducing the response below 300 Hz significantly.

I think the K3 equalizer really made the differences among mics much less significant, and I would have been happy to use any of them on the air. I would, however, take the time to adjust the equalizer to make my voice sound best with a particular mic.

To finalize the comparisons, I called upon a friend, Bruce, N1ZU, who knows my voice well. We picked 12 meters to avoid interference. There was little noise, so we could clearly hear the audio response.

First, we compared the flat-response mics with no equalization and no compression, to get a feel for the mics themselves. Bruce reported that both the INRAD M628 and my professional mic sounded very much like me. He found the pro mic somewhat fuller sounding, likely because of the additional low-end response. As noted, that isn't so beneficial for most on-air amateur use.

Next, we compared the mics with the articulation-focused response. It was clear that my normal mic has a more rapidly rising response than the INRAD M629, although Bruce described both as very intelligible. He found that the M629 sounded more natural, but deemed both good performers and said both sounded like me.

I then tried the flat-response mics with equalization settings that raised the higher registers and cut the low, to simulate the mics with built-in articulation. Bruce found the response similar to the articulated mics without equalization, as expected. Just for fun, I then tried the articulated mics with the same equalization settings. While Bruce found that the M629 still sounded very good, he thought my normal mic sounded terrible with too much high-frequency response. This confirmed the thought that my mic, made before equalization was generally available in transceivers, had much more high-end boost than the M629.

My conclusion is that any mic, including these, will do best with the equalization, if you have it carefully adjusted. In fact, I have found that the equalization and compression settings are more important than the exact mic selected. Both of these INRAD mics can do a good job with proper settings. Depending on your voice, if you don't have an equalizer or don't want to bother with equalization settings, you will likely be happier with the M629. You may even like it best with some added equalization. If you do use equalization, you could be happy with either of these mics, and can likely make them sound just the way you want.

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## Documentation

The INRAD microphones all come with an instruction sheet covering the interconnections of the microphones to the radio and a description of the available adapter cables. My Elecraft K3 isn't mentioned, but it operates with the adapter for Kenwood radios, because the connections are similar. The Vibroplex website provides additional details, including performance specifications for each of the five microphone models with frequency response plots of each from both the front and rear.

*Manufacturer:* INRAD division of Vibroplex, 1001 North Broadway St., Knoxville, TN 37917; **www.vibroplex.com**. Price: M628, $59; M629, $79. Radio-specific adapter cable, $15; M605 desk stand with clip, $12; M-FS foot switch, $15; M-HS hand switch, $6; DMS-1 PTT stand, $79.