

## The ICOM IC-7300 and the BM800 Type Microphone

I was looking for a desk or boom microphone for my ICOM IC-7300. I was unwilling to pay the \$200 plus dollars Canadian that the ICOM distributors wanted for their desk microphone. Just didn't think it was worth the money.

There was a lot of talk on the internet about the BM800 type microphones for use with ham rigs. The consensus was that they sounded good and the price is quite reasonable. There are a number of companies selling these types of microphones. Not sure if they all come out of the same factory in China. I heard they were successfully used with the IC-7300 but I had a few questions and there appeared to be some conflicting information, things like did they have a balanced output or unbalanced output? Also the ICOM mic impedance is 600  $\Omega$  and the BM800 is 1500  $\Omega$ . Also was there enough mic voltage from the ICOM to power the BM800 microphone?

Both the ICOM and the BM800 microphones are Electret Condenser microphones and they need voltage to run them. Sometimes called phantom power and my understanding it is typically about 48 Volts DC. The ICOM microphones don't need this much voltage. The ICOM radios produce about 8 Volts DC so is it enough for the BM800? It turns out it is plenty. Just to clarify about this power, you just can't stick a power supply or a battery where the power goes to the microphone. The power need to be supply by the radio mic circuit or phantom power or it won't work and might even do damage. This is because the power needs to be fed through a load resistor where the audio voltage is developed across. There is a load resistor for this in the IC-7300.

Despite still having questions about the microphone, I went and ordered one. Other people got it to work so I should be able to also. The one I ordered was a Newer NW-800 off of Amazon. It also came with an adjustable suspension scissor arm and a few other items. It came with a 3.5mm stereo plug on the cable so that needs to be removed and a proper ICOM mic connector installed. There might be an adaptor cable available for this so you wouldn't have to remove the 3.5mm plug. Pin 1 is mic input and pin 7 is mic ground on the connector. The 8 VDC on pin 2 is for something else.

The NW-800 does not have a PTT switch so I ordered a general purpose foot switch from Amazon or EBay, don't remember which. It was about \$15.00 and works fine. The foot switch is connected to the back of the radio through the 13 pin DIN ACC socket. You can also connect it through the radio mic connector but that seems messy. It can be a bit of a challenge wiring the 13 pin DIN connector as the contacts are spaced very close together. The pins used are 2 and 3, 2 being ground. The radio needs a switched ground for keying. ICOM supplies a 13 pin DIN connector with the radio with pig tails attached that might make wiring easier but maybe not as neat. The output of the NW-800 is unbalance which is fine for the ICOM. Not sure if all these types of microphone are unbalanced.

The microphone has plenty of output to drive the radio. Running the mic gain at 15% on SSB will give plenty of ALC action. You can tailor the frequency response of the transmit audio by using the

adjustments in the radio. I have received good audio reports and it sounds quite good when using the tx monitor feature in the radio.

I also tried using an Astatic 897HL dynamic microphone with a low impedance output with the IC-7300. I installed a 1  $\mu$ F capacitor in the microphone to block the DC voltage produced by the radio. The microphone worked but there wasn't quite enough mic audio to make operating comfortable.

**DISCLAIMER:** The information above should be correct but I do not guarantee the accuracy. Use this information at your own risk.

December 6, 2019

### **Update December 20, 2019**

I recently found out that all BM-800 type microphones don't take power directly from the radio mic circuit. Instead there is a separate pin used on the microphone's XLR connector for this. I assume you can take power from pin 2 of the radio mic connector for this but don't know for sure. This tends to complicate things a bit. The Newer NW-800 I am using does not have this requirement.

### **Update January 23, 2021**

There is a YouTube video describing the operation of a Heil PR781 dynamic microphone with an IC-7300. It caught my interest as I previously tried an Astatic dynamic microphone as mentioned above on my IC-



7300 with not quite satisfactory results. [Here](#) is the link to the video. According to the specifications, the Heil microphone has higher output than the Astatic but his results and mine appear almost identical. The picture to the left shows both the Astatic dynamic microphone and the NW-800 Electret microphone that I have.

Basically with the Heil PR781 and my Astatic dynamic microphone the audio levels on the IC-7300 transmitter had to be turned up very high and the VOX did not operate correctly. The Astatic microphone is still usable though.

As an aside, I would prefer to use the Astatic desk mic over the boom mic. I am not a big fan of boom mics but the boom mic makes operating more comfortable.