

Commercially Available Digital Readouts:

Gilfer Associates sells the GAR-7 readout which is AC powered and gives a 4-digit display to the nearest 0.1 kHz. It can be used only with receivers with a Wadley loop circuit (those with a separate megahertz tuning dial), and you read the megahertz setting from the radio's dial. You connect it up to the receiver yourself. Tom Adams (a former GAR-7 owner) says "Installation was simple and accomplished in a matter of minutes. Two wires must be soldered to points located in the interior of the receiver. These points were easily located using pictures furnished by Gilfer with the unit. Once installed, operation is also very easy--just turn it on. The unit was birdie free to my knowledge. I never noticed interference using a loop because I never used a loop with it. The accuracy of the GAR-7 is excellent and it truly compliments the FRG-7 to form an excellent combination." If you use a GAR-7 with a FRG-7 that has the Radio West selectivity (and amplifier) modification, the unit may bobble (the readout numbers jump around) on extra strong signals, though the problem is easily solved by attenuating the signal.

Radio West has been adding KRS digital readouts to receivers for some time now; they prefer that you send your receiver in for modification (their prices include installation), but do offer do-it-yourself kits. Readouts are powered either from 12 volts DC from the receiver or (optionally) with an AC operated external power source. Readouts are available for the DX150/160, Wadley loop receivers like the FRG-7, Drakes, Hammarlunds and others.

The KRS DD-2: I added this display to my set-up (an HRO and a DX150A) a few months ago. The device is in a small flat box, approximately 6" x 6" x 2", with a 5-digit readout of .3" high LEDs. It gives me accurate readout to one kilohertz, previously possible only by referring to interpolation charts and tables. This accuracy has been very useful in logging the new 9 kHz plan TPs, as I know at a glance what frequency I'm on. The only inconvenience I found is that the display shows a steady digit in the last column only if I'm tuned right on frequency. In other words, if I was a hundred hertz detuned above say 1017 kHz, the display flickers between 1017 and 1018. Although disconcerting at first, I seem to have gotten used to this, and by zero-beating the carrier from my 455 kHz BFO, I'm getting an effective accuracy of less than 1 kHz, and a steady digit.

There is a slight problem with some interference generated by the display. With the BFO on, a very faint gurgling sound like RTTY gone mad is noted on a few frequencies below 1000 kHz if I'm using my loop. This is not noticeable with a longwire or with the loop at a distance. It is apparently due to radiation from the LED faces. No noise comes in along the line from the display to the receiver. This sound can hardly be mistaken for a BCB carrier, so has not been problematical for me. The display can easily be switched off if there is any interference with a desired signal. Overall, the display has made my DXing easier and more accurate. I can also use it with other 455 kHz IF receivers. With its 12 volt DC power input, it is good for mobile use.

Incidentally, if you need accurate readout on the highest shortwave band of receivers like the DX150/160 series, you will need the DD-2S readout. --NHP

The KRS DD-1-4D (by Gerry Thomas): There are two KRS readouts for the FRG-7. One is the DD-1, a 3 digit display which reads to the nearest kilohertz (you read MHz off the MHz tuning drum on the receiver), while the other the DD-1-4D, is a four digit display with .1 kHz accuracy. I obtained the four-digit display along with the Radio West 455 kHz BFO, and got a kit rather than send the receiver away for modification. Installation was easy and the instructions fairly clear. The four-digit display can also give readout to 1 kHz accuracy at the flick of a switch. One thing that is a little confusing with my 4-digit model is the 3-position toggle switch--the "up" position which is labelled "ON" is really the 4 digit mode; the center position which is unlabelled is really "OFF"; and the "down" position which is labelled "OFF" is really the 3-digit mode--only confusing the first time you use it though. The counter "rounds down" so that, for example, 974.9 kHz in the 4 digit mode reads 974 kHz in the 3-digit mode instead of 975. The last digit in the the 4 digit mode tends to bobble, but stays still when you're tuned right on frequency. No problem in the 3-digit mode.

With the 455 kHz crystal BFO, 100 Hz resolution is a touchy proposition, but easily attainable with a little care and practice in tuning. One of the questions I had before ordering the digital readout was whether or not I really needed the crystal BFO in order to realize the 100 Hz resolution of the unit. It seemed possible that with my fairly narrow IF filters (especially the peaked passband ceramic) I could center the carrier pretty accurately. Also, it seemed conceivable that I could use the USB or LSB BFO's and then simply add or subtract the amount that the BFO's were displaced from 455 kHz from the displayed frequency. Well, the closest I've been able to get using the IF filter method of centering is ± 200 Hz. The USB and LSB BFO idea was unuseable because these BFO's were inaccurately set--a fact you wouldn't know without having a method of precisely centering the carrier. In short, the 455 kHz BFO is almost mandatory for 100 Hz resolution and is very helpful in detecting carriers in a straightforward manner.

Digital display build-it-yourself kits are also available from a couple of companies. These are not just frequency counters, but have the offset IC's necessary for making a counter into a receiver's "electronic dial".

Torrestronics has the "Universal Digital Frequency Readout" which is a 4-digit display accurate to 0.1 kHz (megahertz is read off the receiver dial). It runs off AC and can count between 100 kHz and 50 MHz; programming switches inside the case allow you to preset for any IF frequency. Mating instructions are provided for a number of receivers. This device is available as a kit (TK-1), partial kit (PTK-1) or fully wired and tested (the WTK-1). More information from Torrestronics.

Mattis Electronics offers 5-digit display kits accurate to 1 kHz; one of these was described in detail in the February 1977 Popular Electronics. The SW-5 is AC powered, is programmable for any IF frequency, and is available fully assembled or in kit form. The SW-160 is intended for 455 kHz IF receivers, AC powered and available as a kit or fully assembled. The SW-4 is a partial SW-160 kit minus the AC supply and case. Mattis asks that if a readout is to be used for other than the DX160, that you send your receiver schematic with your order.