

RDF PRODUCTS

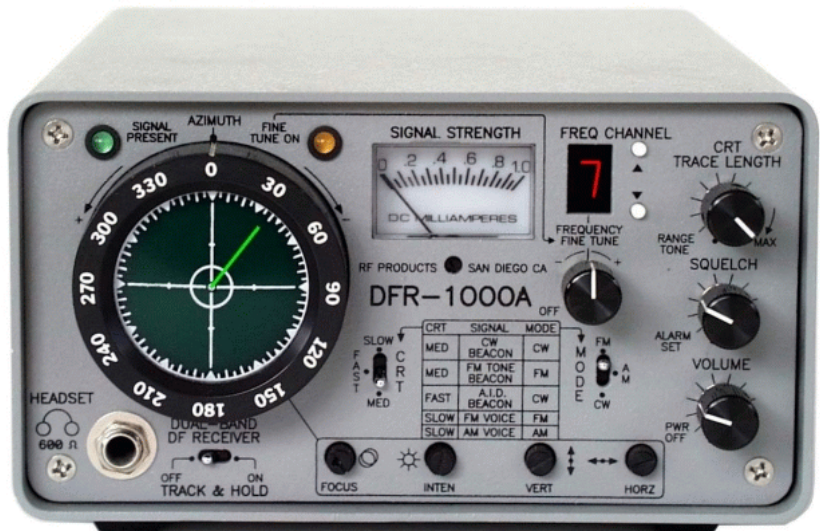
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Product Data Sheet; Model DFR-1000A Dual-Band VHF/UHF
Radio Direction Finding Receiver & Bearing Processor/Display

FEATURES

- 2-Band Coverage From 118-520 MHz
- 5 Crystal Channels or Ext. Synthesizer
- Real-Time Polar CRT Bearing Display
- AM/FM/CW/SSB Demodulation Capability
- Simultaneous DF & Listen-Through
- High Signal Handling Capability
- Fast Pulse Response Capability
- Two Selectable IF Bandwidths
- Optional RS-232 Interface Module



DESCRIPTION

The RDF Products Model DFR-1000A is a compact, self-contained two-band VHF/UHF DF receiver and bearing processor designed for both mobile and fixed-site DF applications. Frequency control is accomplished either with up to five user-installable crystals or via the optional DFS-1000 Frequency Synthesizer. Standard frequency coverage is 118-174 MHz plus any 70 MHz wide band from 174-520 MHz. Custom frequency coverage is also available. RDF Products also offers a wide variety of compatible mobile and fixed-site DF antennas.

The DFR-1000A can also be user-configured to function as an add-on DF bearing processor/display unit working in conjunction with an external host receiver where wider frequency coverage is required. In this configuration, the internal receiver is bypassed and the unit functions in a manner very similar to that of the Model DFP-1000A.

The DFR-1000A employs a 360° degree real-time polar CRT bearing display that is unsurpassed in dynamic DF environments where either the signal source or the DF station is in motion. This highly intuitive display format is essential for discriminating valid bearings from noise, reflections, and interference. For fixed-site or other applications where higher bearing accuracy and resolution is required, the optional external RS-232

module allows the DFR-1000A to be directly connected to the serial port of any Windows 95/98/NT4 host computer. With the provided Windows interface software, high resolution numeric bearings are displayed along with a real-time emulation of the polar CRT bearing display. Users may also write customized software.

The DFR-1000A features excellent listen-through capability. With most signal formats, undistorted signal audio output is obtainable simultaneously with DF operation. Demodulators are included for AM, FM, CW, and SSB with built-in speaker or external headset audio output, along with two selectable IF bandwidths for optimum reception. With its high signal handling capability, the DFR-1000A is well suited for operation in the dense signal environments found in urban areas.

Three selectable bearing integration times are available for optimum DF performance for a wide variety of signal formats. With pulse response capability down to 80 milliseconds, the DFR-1000A can respond to very short duration signals (including A.I.D. beacons). Other features include bearing display track & hold and a vehicle beacon motion sensor alarm.

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SPECIFICATIONS (subject to change without notice)

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DF Technique:	Single-channel Watson-Watt	Maximum Undistorted	>3 watts into 4 ohms
Frequency Coverage:	118-174 MHz plus any 70 MHz band from 174-520 MHz or custom frequency bands	Audio Output:	(external speaker impedance must be 4 ohms or greater)
Frequency Control:	5 crystal channelized w/fine tune, or external synthesizer	Audio Frequency Response:	250-3300 Hz nom. @ -3 dB (measured at headset jack)
Frequency Stability:	<10 ppm (0-50° C)	Bearing Display:	Real-time 360° polar CRT
DF Sensitivity:	Established by DF antenna	Bearing Accuracy:	0.5° RMS (using computer output and CRT SLOW)
RF Input Impedance:	50 ohms nominal	Bearing Resolution:	0.1° (using computer output)
2nd-Order Intercept:	See DF antenna specification	Bearing Integration:	80/150/375 ms selectable
3rd-Order Intercept:	+5 dBm typical	Track & Hold:	2.5 seconds nominal holding time (when enabled)
Image Rejection:	>60 dB (with preselector filter in DF antenna)	Motion Sensor Alarm Thresholds:	1.5/3.0 seconds nominal (selectable)
IF Rejection:	>80 dB (with preselector filter in DF antenna)	Power Requirements:	11-16 VDC @ 2 amperes (negative ground)
Half-IF Rejection:	>80 dB	Over- And Reverse-Voltage Protection:	18 volt shunt power zener blows fuse
IF Bandwidths:	6/15 kHz; selectable for AM and CW, 15 kHz for FM (30 kHz IF filter also available)	Operating Temp.:	0 to +50 degrees C
Adjacent Channel Rejection:	70 dB typical (using National Institute of Justice procedure)	Storage Temp.:	-40 to +70 degrees C
AGC Figure-of-Merit:	65 dB typical (for 6 dB output reduction)	Humidity:	0-95% (no condensation)
On-Channel DF Dynamic Range:	130 dB typical (using National Institute of Justice Procedure)	Dimensions:	4.1"x7.1"x10.2" (HxWxD)
		Weight:	6 lbs

APPLICATIONS INFORMATION

The RDF Products Model DFR-1000A has been specifically designed as a high-performance DF receiver focused on two primary application requirements. First, it is intended to be used in applications where a compact, self-contained, easy-to-operate DF receiver capable of accepting a wide variety of signal formats is required (it is particularly well suited for mobile DF missions). Second, it is also intended for DF applications where high signal handling capability and ability to respond to short-duration signals are important (pulsed beacon tracking and mobile or fixed-site DF missions in dense-signal urban environments, for example).

In general, the DFR-1000A is recommended for most VHF/UHF DF applications that are consistent with the dual-band frequency coverage capabilities of the unit. It is particularly effective in mobile and airborne DF applications due to its compactness and ease-of-installation, and is one of the very few units capable of DF operation in motion on a wide variety of signal formats.

For DF applications where wider frequency coverage is required, the Model DFP-1000A operating in conjunction with a suitable wide frequency coverage host receiver is recommended. The DFP-1000A is nearly identical to the

DFR-1000A, but lacks the internal receiver. The DFP-1000A thus achieves wider frequency coverage by virtue of the frequency coverage capabilities of the host receiver.

The DFP-1000A/external receiver approach has some potential disadvantages that the prospective user should carefully consider. First, the overall DF system is far less compact and not as easy to install and operate than the DFR-1000A. This can be an issue in automobile installations where space is very confined (in semi-permanent van or aircraft installations, however, this is usually not a problem). Second, most inexpensive consumer-market host receivers lack the signal handling capability of the DFR-1000A, and thus may not perform as well in the high signal density environments typically encountered in urban areas. Finally, some host receivers may have AGC characteristics that limit the ability of the system to respond to short-duration signals.

The DFR-1000A can be configured as a DFP-1000A simply by appropriately setting a rear-panel selector switch. This disables the internal receiver and allows the unit to interface to the external host receiver.