FEATURES

- **Adds DF Capability to Most Receivers**

- **Real-Time Remote Operation w/Software**

- **Optional Built-In HuntMaster Dongle**

- **Ethernet Control of DFP, Receiver & GPS**

- **Simultaneous DF & Receiver Listen-Through**

- **Ultra-Fast Pulse Response Capability**

- **6/15/30/200 kHz IF Bandwidths**

DESCRIPTION

The RDF Products Model DFP-1010D is a single-channel software defined Watson-Watt DF bearing processor unit that, in conjunction with an appropriate RDF Products DF antenna economically adds DF capability to almost any receiver. The DFP-1010D is a professional-quality unit that is compact, rugged, and easy to operate.

DF receivers traditionally have been very expensive as a result of low-volume production. With the "add-on" DF bearing processor concept as embodied in the DFP-1010D, however, DF capability can be achieved far more economically by using either an existing receiver or one of the many highly capable wide frequency coverage low-cost consumer-market receivers.

The DFP-1010D easily interfaces to most receivers via its standard 10.7 MHz IF input. Since this IF is software defined, the DFP-1010D can be programmed to accept any IF input from 3.5-52.0 MHz. With this extreme flexibility, the DFP-1010D can interface with almost any receiver with excellent results.

Unlike most competing add-on DF bearing processors, the bearing accuracy of the DFP-1010D is nearly impervious to host receiver anomalies associated with group delay variations and AGC characteristics. As a result, there is no need to implement expensive and time-consuming modifications to the host receiver in order to make it "DF-ready".

The DFP-1010D is designed exclusively for computer-controlled operation and has no operational manual controls, displays, or indicators. It is ideal for fixed-site DF applications, unmanned remote DF applications, and any DF application in general where computer-controlled rather than manual operation is necessary or preferred.

Full remote capability is provided via a single Ethernet port. With the software provided, all features can be controlled and outputs displayed at the host computer. Additional serial ports are provided for connection with a host receiver, GPS receiver, and optional digital compass. All of these peripheral system components can be managed at the host computer via the single Ethernet connection without the need for cumbersome external data multiplexers or hubs. The "open" TCP/IP control protocol is published in detail for the benefit of users who wish to write custom software.

The DFP-1010D software controls the host receiver frequency, demodulation mode and IF bandwidth allowing for simultaneous DF operation and listen-through capability. RF attenuator, squelch, volume and FFT display controls are also included for easy operation. Other features include four selectable IF bandwidths, bearing display track & hold, and eight selectable bearing integration times with pulse response down to 35 ms.

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DF Technique:	Single-channel Watson-Watt	DF Processing:	Software defined (FPGA+DSP)
Frequency Coverage:	Limited only by host receiver and DF antenna	Ethernet Interface (to host computer):	100 Mbps (UDP I/Q,TCP for ctrl) IP embedded gateway for receiver, GPS, & compass
Bearing Accuracy:	0.5° RMS (using 200 milli-second bearing integration)	Power Requirements:	11-16 VDC @ 0.4 ampere (negative ground)
Bearing Resolution:	0.1°	Over- And Reverse-Voltage Protection:	18 volt shunt power Zener diode with resettable fuse
Receiver Signal Interface Format:	10.7 MHz IF (standard) 3.5-52.0 MHz (programmable)	Operating Temp.:	0 to +50 degrees C
IF Signal Input Requirements:	-20 to -130 dBm into 50 ohms (16-bit direct sample @123 MHz)	Storage Temp.:	-40 to +70 degrees C
IF Bandwidths:	6/15/30/200 kHz	Humidity:	0-95% (no condensation)
Bearing Integration:	35/50/80/100/160/200/275/400 ms	Dimensions:	2.5"x7.0"x6.7" (HxWxD)
Track & Hold:	3 sec nominal holding time	Weight:	3.4 lbs

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APPLICATIONS INFORMATION

The concept of a DF bearing processor that can work with an external low-cost non-DF host receiver is not new. Most attempts at implementing this concept, however, have yielded DF bearing processors with serious shortcomings. In some instances, they can work only with special receivers built by the same manufacturer. In other cases, intrusive and extensive modifications to the host receiver are required. In general, significant performance degradation must be accepted. Typical performance anomalies include bearing shifts with receiver tuning, IF bandwidth changes, signal strength, and even as a result of volume control setting changes. In most cases, the resulting DF system is of sub-professional-quality.

The RDF Products Model DFP-1010D has been specifically designed to work in conjunction with the many low-cost wide frequency coverage receivers that have appeared on the consumer market in recent years. By virtue of careful implementation of a particularly suitable DF technique (i.e., the Adcock/Watson-Watt DF technique), the DFP-1010D easily interfaces with almost any receiver to economically provide a professional quality DF system free of the afore-mentioned performance anomalies. New frequency requirements can be easily and economically accommodated simply by purchasing an appropriate DF antenna.

The DFP-1010D replaces the earlier DFP-1010/DFP-1010A/DFP-1010B, employing an all-new modernized design with enhanced features, performance, and versatility unmatched by any single-channel DF processor at any price.