

## WJ-9040 PHF101, PHF102, AND PHF 103 HF PRESELECTORS



### FEATURES

- 5 kHz Through 30 MHz Coverage
- Up to Three Separate Preselectors In a Quarter-Rack Module
- Low Insertion Loss
- Antenna Input Protection
- 5 Pole, Chebyshev Filter Response Improves Inter-modulation Distortion of HF Receivers
- Automatic Digital Control
- WJ-9040 System Compatible

### DESCRIPTION

The WJ-9040 PHF101, PHF102, and PHF103 series of HF Preselectors consists of one quarter-rack module containing up to three independent HF Preselectors. Each preselector covers the 5 kHz through 30 MHz frequency range in ten switched suboctave bands. The unit is specifically designed to be used with the WJ-8626A-1 HF Handoff Receiver. One PHF103 would allow for the dedicated preselection of up to three WJ-8626A-1 Handoff Receivers in one standard 19-inch WJ-9040 EFR100 Equipment Frame. Each preselector would be individually cabled to one of three WJ-8626A-1 Handoff Receivers. Connections to the receivers would include a filtered RF input and digital lines for preselector band switching. The automatic band switching is accomplished with four TTL lines using a BCD format, and is transparent to the user.

## FUNCTIONAL DESCRIPTION

RF signals enter one of the three independent RF input connectors on the rear panel of the PHF10X. Each preselector's RF input is protected and will withstand the effects of RF power to +27 dBm and static buildup. The protection circuit is automatically resetting. Suboctave filter selection is determined by encoded frequency data from the digital interface board of the appropriate WJ-8626A-1 Receiver. This data is sent via a cable to the digital control board of the designated preselector. Digital control circuitry provides the logic to interpret the 4-bit preselector code input and activate the applicable suboctave filter. Five filter assembly boards, each containing two bandpass

filters, in conjunction with a digital logic board, comprise one independent preselector assembly. The switched output of the appropriate filter appears at the RF output on the rear panel of the PHF10X and is then routed to the RF input of the designated HF Handoff Receiver.

Each switched band, with the exception of the 5 kHz to 799 kHz band, consists of a 5-pole Chebyshev suboctave bandpass filter which improves both the second and third order intermodulation distortion characteristics of the WJ-8626A-1 Receiver. The 5 kHz to 799 kHz band consists of an AC coupled 5-pole low pass filter.

## SPECIFICATIONS

Frequency Coverage .....  
 Insertion Loss .....  
 Frequency Bands (3 each).....

5 kHz to 30 MHz  
 2.0 dB maximum

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|----|------------------------|
| 1  | 5 kHz to 749 kHz       |
| 2  | 750 kHz to 1.09 MHz    |
| 3  | 1.10 MHz to 1.69 MHz   |
| 4  | 1.70 MHz to 2.59 MHz   |
| 5  | 2.60 MHz to 3.89 MHz   |
| 6  | 3.90 MHz to 5.99 MHz   |
| 7  | 6.00 MHz to 8.99 MHz   |
| 8  | 9.00 MHz to 12.99 MHz  |
| 9  | 13.00 MHz to 19.99 MHz |
| 10 | 20.00 MHz to 30.00 MHz |

Filter Type .....  
 Third Order Input Intercept Point .....  
 Input/Output Impedance .....  
 Input/Output VSWR .....  
 Antenna Input Protection .....  
 Digital Control .....  
 Power Requirements .....  
 Power Consumption .....  
 Size .....  
 Weight .....

5-pole Chebyshev bandpass except for band 1 which is a 5-pole low pass  
 +23 dBm minimum  
 50 ohms nominal  
 2:1 maximum  
 Will withstand the effects of RF power up to +27 dBm and static buildup. Resets automatically  
 12 TTL lines (4 to each preselector using BCD format)  
 +18.3 Vdc, +8.2 Vdc (Supplied by WJ-9040 EFR100)  
 4 watts, approximately  
 5.2 inches (132 mm) high, 4.0 inches (102 mm) wide, 14.38 inches (365 mm) deep  
 Approximately 8 lbs. (3.6 kg)

## WJ-9040 PHF10X HF Preselector Connections

Three Antenna Inputs .....  
 Three Filtered RF Outputs .....  
 Three Digital Control Inputs .....  
 Power Input .....

SMA female connectors  
 SMA female connectors  
 7 Pin female SRE connectors  
 25 Pin D series male connector to interface with WJ-9040 EFR100 Equipment Frame