

950.00

## WJ-9470 MULTI-CHANNEL FSK DEMODULATOR SYSTEM



WJ-9470/CRF6 with 6 WJ-9472/DU's

### FEATURES

- FSK or OOK Demodulation
- 1 Hz Mark and Space Frequency Control, 200 to 9999 Hz
- Multipole Baud Rate Matched Filters, 10 to 4000 Baud
- Microprocessor Control for Operational Flexibility
- 6, 12, 18, or 24 Channel Capability
- Modular Construction for Easy Maintenance
- IEEE-488 or EIA RS-232 Control with WJ-9470/488 or WJ-9470/232

### DESCRIPTION

The WJ-9470 Multi-Channel FSK Demodulator System consists of a control rack frame and plug-in demodulator units. The WJ-9470/CRF6 Control Rack Frame provides power and control for up to 6 WJ-9472/DU Demodulator Unit plug-in modules. The WJ-9470/CRF12 will accept up to 12 WJ-9472/DU plug-ins. The optional WJ-9470/ERF Expansion Rack Frame provides power and control for an additional 12 WJ-9472/DU plug-ins. This allows the WJ-9470 system to be configured for up to 6, 12, 18 or 24 demodulator channels. Each channel has fully independent control of signal source and demodulation parameters.

### APPLICATIONS

The WJ-9470 Multi-Channel FSK Demodulator System is designed to provide state-of-the-art FSK (Frequency Shift Keying) or OOK (On-Off Keying) demodulator performance. In a selective fading environment such as HF communication, the automatic adaptive decision threshold greatly improves error performance. The use of optimally narrow, high order, mark and space filters gives exceptionally good performance against interfering signals.

Because the operation of each of the channels is independent of the others, the WJ-9470 can replace up to 24 individual FSK demodulators. This can represent a considerable cost, power, and physical size savings. With either the WJ-9470/488 or WJ-9470/232 remote control options, the WJ-9470 makes an ideal "hand-off" system.

Because it uses independently tuned mark and space filters, the WJ-9470 is capable of demodulating mixed format and frequency interleaved "VFT" signals which are sometimes difficult or impossible to demodulate with simple phase-locked-loop type demodulators.





WJ-9470/CRF12  
with 12 WJ-9472/DU's



WJ-9470/ERF  
with 12 WJ-9472/DU's

## SPECIFICATIONS

### WJ-9470/CRF6, WJ-9470/CRF12

Number of Inputs:

WJ-9470/CRF6 .....  
WJ-9470/CRF12 .....

Input Frequency Range .....

Input Impedance .....

Input Level .....

Front Panel Controls:

- Channel Select
- Source Select
- Mode Select
- Normal/Inverted Sense Select
- Data On/Off
- Tuning Rate
- Space and Mark Frequency or Center Frequency and Shift Select
- Keying Speed or Element Length Select
- Local/Remote Control Select
- Power On/Off

Remote Control .....

Outputs:

Digital Data .....

Line Voltage Requirements .....

Power Consumption:

WJ-9470/CRF6 .....  
WJ-9470/CRF12 .....

Dimensions:

WJ-9470/CRF6 .....  
WJ-9470/CRF12 .....

6 (18 with WJ-9470/ERF option)

12 (24 with WJ-9470/ERF option)

200 Hz to 9.999 kHz

600  $\Omega$  unbalanced BNC input standard

other inputs available. See options list.

-40 dBm to +10 dBm in 600  $\Omega$  without performance degradation

+30 dBm without damage. Other levels available

EIA RS-232 or IEEE-488 interfaces optional

Low level keyed dc. Positive and negative voltage levels can be set from 0 to  $\pm 10$  V independently for 1K  $\Omega$  or higher load impedance. Polarity and voltage swings can be set by the user to be compatible with EIA RS-232C, MIL-STD-188C, MOS/TTL and other standards. Nominal output impedance is 50  $\Omega$ .

115/220 VAC  $\pm 10\%$  48-420 Hz

60 Watts approximately

120 Watts approximately

5.22 inches high, 19 inches wide and 18 inches deep

8.72 inches high, 19 inches wide and 20 inches deep



## WJ-9472/DU

The WJ-9472/DU Demodulator Unit plug-in module is a very high performance independent filter type FSK/OOK demodulator. Filter bandwidths and center frequencies are synthesized under microprocessor control to provide the optimum demodulation for virtually any FSK or OOK (On-Off Keying) signal.

Input .....	As supplied from the WJ-9470/CRF
Input Frequency Range .....	200 Hz to 9.999 kHz
Demodulation Modes .....	FSK and OOK
FSK Mode:	
Demodulation Method .....	Independent mark and space detection with sixth order, baud rate matched filters
Tone Frequencies .....	Mark/space frequencies from 200 Hz to 9.999 kHz in 1 Hz steps
Tuning Accuracy .....	0.1 Hertz
Tuning Mode .....	Tone selection by specifying either mark and space frequencies or center frequency and shift
Baud Rate .....	Less than 10 to greater than 4000 baud
Threshold .....	Automatic adaptive threshold selection
OOK Mode:	
Demodulation Method .....	Sixth order, baud rate matched filters
Tone Frequency .....	200 Hz to 9.999 kHz in 1 Hz steps
Baud Rate .....	Less than 10 to greater than 4000 baud
Threshold .....	Automatic adaptive threshold selection

## OPTIONS

### WJ-9470/ERF

The WJ-9470/ERF Expansion Rack Frame option can be used to expand the number of channels and signal inputs from 6 to 18 with the WJ-9470/CRF6 or from 12 to 24 with the WJ-9470/CRF12. The WJ-9470/ERF is controlled by the WJ-9470/CRF and operates as a slave unit.

Number of Inputs .....	12 (24 with WJ-9470/ERF option)
Input Frequency Range .....	200 Hz to 9.999 kHz
Input Impedance .....	600 $\Omega$ unbalanced BNC input standard other inputs available
Input Level .....	-40 dBm to +10 dBm in 600 $\Omega$ , +30 dBm without damage
Outputs:	
Digital .....	Same as WJ-9470/CRF
Power Requirements .....	115/220 VAC $\pm$ 10% 48-420 Hz
Power Consumption .....	120 Watts
Dimensions .....	8.72 inches high, 19 inches wide and 20 inches deep (rack mountable)

### WJ-9470/CRF12-1

The WJ-9470/CRF12-1 Control Rack Frame provides a standard 600  $\Omega$  balanced TRIAX input in lieu of the unbalanced BNC input. Otherwise, it is an identical unit to the WJ-9470/CRF12.

### WJ-9470/CRF6-2

The WJ-9470/CRF6-2 Control Rack Frame provides six amplitude vector output pairs at the rear panel BNC connectors. Each amplitude vector output pair consists of a Mark Detector output and a Space Detector output. The maximum output level is 1 volt peak into 1K  $\Omega$  load impedance. The output terminal open-circuit voltage is less than 1.5 volts peak. Otherwise, it is an identical unit to the WJ-9470/CRF6.



## WJ-9470/ERF-1

The WJ-9470/ERF-1 Expansion Rack Frame provides a standard 600  $\Omega$  balanced TRIAX input in lieu of the unbalanced BNC input. Otherwise, it is identical to the WJ-9470/ERF.

## WJ-9472/232 RS-232 Remote Interface Option

The WJ-9472/232 Option gives the Demodulator remote control capability. The RS-232 rear panel connector links the Demodulator with any remote RS-232 compatible terminal or modem. All Demodulator settings can be controlled and monitored by remote control.

## WJ-9472/232-1 "Daisy Chain" Option

With the WJ-9472/232-1 "Daisy Chain" option the Demodulator can be connected in a series chain allowing one remote controller to address up to 16 Demodulator systems.

## WJ-9472/488 IEEE-488 Remote Interface Option

The WJ-9472/488 Option gives the Demodulator remote control capability. The IEEE-488 connector links the Demodulator with any remote IEEE-488 compatible unit. All Demodulator settings can be controlled and monitored by remote control.