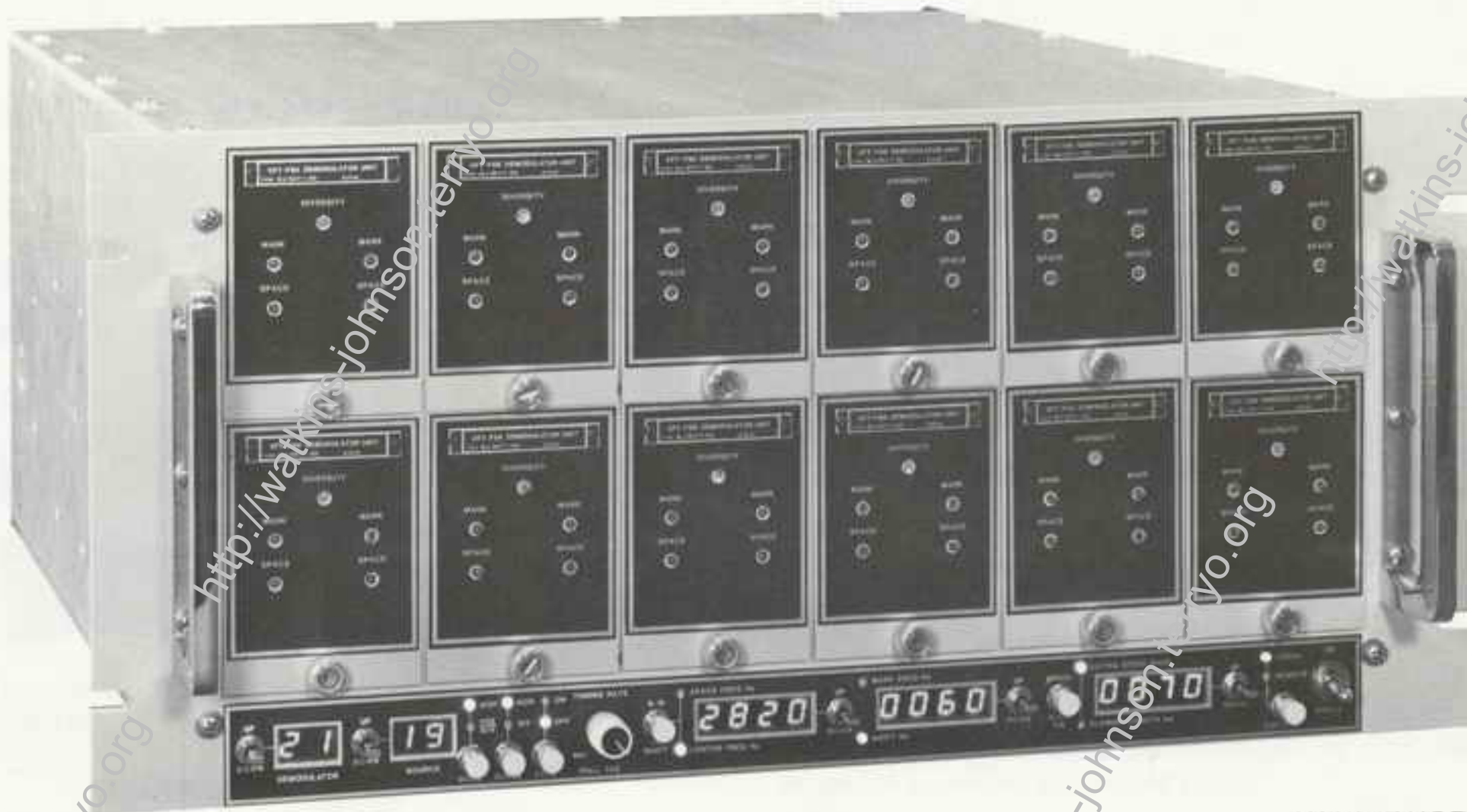


951.00

WJ-9471 "VFT" FSK DEMODULATOR SYSTEM



WJ-9471/CRF24

FEATURES

- 12 or 24 demodulation channels
- 12 or 24 signal inputs with internal matrix switcher
- Center frequency from 200 Hz to 9.999 kHz in 1-Hz resolution
- Frequency shifts of 20 Hz to 2500 Hz
- Baud rates from 10 to 2500 baud
- Front panel control of either selection or combination diversity
- Microprocessor control for operational flexibility
- Modular construction for easy maintainability
- IEEE-488 or EIA RS-232 Remote Control Options
- Data and Raw Data Monitor Switcher Option
- RFI/EMI Shield

DESCRIPTION

The WJ-9471 "VFT" FSK Demodulator System is designed to provide high performance "VFT" (Voice Frequency Telegraph) FSK demodulation for up to 12 or 24 independent data channels. The system contains either a 12 or 24 channel control rack frame and several plug-in demodulator modules. The WJ-9471/CRF12 Control Rack Frame will provide power and control for up to six WJ-9471/DU Demodulator Unit plug-in modules. Each WJ-9471/DU plug-in will independently demodulate two FSK channels. A WJ-9471/CRF12 with six WJ-9471/DU plug-ins will demodulate 12 independent FSK channels from up to 12 independent signal sources. The WJ-9471/CRF24 will accept 12 WJ-9471/DU plug-ins. This allows independent demodulation of 24 FSK channels from any of 24 signal inputs.

APPLICATIONS

The WJ-9471 is optimized for low modulation index FSK, i.e., for signals that have data rates in baud approximately equal to or greater than the frequency shift in Hertz. Typical low modulation index signals are 75 baud, 60 Hz shift, 24 channel VFT and 1200 baud, 600 Hz shift, Minimum Shift Keying (MSK).

The WJ-9471 "VFT" Demodulator System can be used as 12 or 24 stand-alone FSK demodulators, each with its own signal source, center frequency, shift and keying speed. This allows it to be configured as a highly flexible VFT multi-channel demodulator. This is especially useful when the desired signals have varying traffic densities and mixed formats.

The PRESET tuning mode can be used with standard CCITT or CCIR VFT systems. In this mode, the desired system is selected, then the tone channel may be directly specified by entering its CCITT or CCIR tone channel number.

For diversity operation, up to 12 channel pairs can be used by the WJ-9471 in either selection or combination diversity modes. This allows fade resistant utilization of either frequency or antenna space diversity signals.

Because the demodulator channels operate independently of each other under internal microprocessor control, they can replace 12 or 24 single channel demodulators at a significant cost and physical size savings.



WJ-9471/CRF12

SPECIFICATIONS

WJ-9471/CRF12, WJ-9471/CRF24

Number of Inputs	12
WJ-9471/CRF12	24
WJ-9471/CRF24	200 Hz to 9.999 kHz
Input Frequency Range	600Ω single-ended or balanced. Other inputs available*
Input Impedance	-40 dBm to +10 dBm in 600Ω
Input Level	+24 dBm without damage
Front Panel Controls	Demodulator 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

EIA RS-232 or IEEE-488 interfaces optional

Low level keyed dc. Positive and negative voltage levels can be set from 0 to $\pm 10V$ independently. 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

Monitor Switcher

Option for WJ-9471/CRF12 or WJ-9471/CRF24. Selects the demodulated raw data and digital data output for external monitoring. Two BNC connectors are provided on the rear panel as the Switcher output

Line Voltage Requirements

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

Power Consumption

60 Watts

WJ-9471/CRF12

120 Watts

WJ-9471/CRF24

Dimensions

5.22 inches high \times 19 inches wide \times 18 inches deep

WJ-9471/CRF12

132.6 mm \times 482.6 mm \times 457.2 mm

WJ-9471/CRF24

8.72 inches high \times 19 inches wide \times 20 inches deep

221.5 mm \times 482.6 mm \times 508 mm

WJ-9471/CRF12-1, WJ-9471/CRF24-1

Control Rack Frame provides 10 k Ω input impedance. Otherwise is identical to WJ-9471/CRF12, WJ-9471/CRF24

Input Impedance

10 k Ω single-ended or balanced

Input Level

50 millivolts to 5 volts

WJ-9471/CRF12-2

Twelve (12) raw data outputs are provided on the equipment's rear panel and terminated in BNC connectors. Otherwise is identical to WJ-9471/CRF12

Raw Data Output

1 volt peak-to-peak minimum into 1 k Ω ; less than 1.5 volt peak-to-peak with open load

WJ-9471/DU

Number of Channels

2

Inputs

2, as supplied by the WJ-9471/CRF

Input Frequency Range

200 Hz to 9.999 kHz

Tuning Mode

Channel Selection by specifying either mark and space frequencies or center frequency and shift or channel number in preset mode

Tuning Resolution

1 Hz

Shift Range

20 to 2500 Hz

Baud Rate

10 to 2500 Baud selected by specifying Baud Rate or Element Length

* Various input impedances are available for specific applications.

Mean frequency (Hz)	420	540	660	780	900	1020	1140	1260	1380	1500	1620	1740	1860	1980	2100	2220	2340	2460	2580	2700	2820	2940	3060	3180
Channel No.	001 101	002 102	003 103	004 104	005 105	006 106	007 107	008 108	009 109	010 110	011 111	012 112	013 113	014 114	015 115	016 116	017 117	018 118	019 119	020 120	021 121	022 122	023 123	024 124
Mean frequency (Hz)	480	720	960	1200	1440	1680	1920	2160	2400	2640	2880	3120												
Channel No.	201	202	203	204	205	206	207	208	209	210	211	212												
Mean frequency (Hz)	540	900	1260	1620	1980	2340	2700	3060																
Channel No.	301	302	303	304	305	306	307	308																
Mean frequency (Hz)	600	1080	1560	2040	2520	3000																		
Channel No.	401	402	403	404	405	406																		

Channel Numbering Derived From
CCITT Recommendation R.70 bis

Format and channel number i.e., 401 = preset format 4,
channel 1; 211 = preset format 2, channel 11

Central Frequencies of Voice-Frequency Frequency-Shift Telegraph Channels with a Channel Separation of 170 Hz

Frequency deviation: ± 42.5 Hz

Channel position	Central frequency (Hz)	Channel position	Central frequency (Hz)
1	425	9	1785
2	595	10	1955
3	765	11	2125
4	935	12	2295
5	1105	13	2465
6	1275	14	2635
7	1445	15	2805
8	1615	16	2975

PRESET 5

CCIR