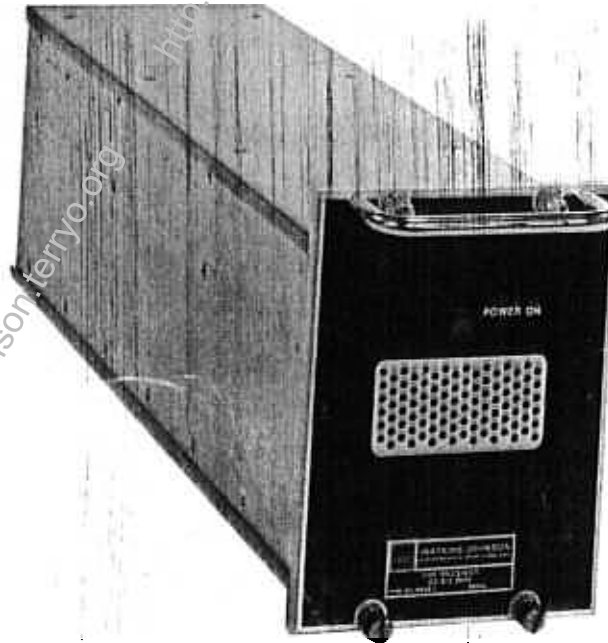


# WJ-8628-1 VHF/UHF ACQUISITION RECEIVER



## FEATURES:

- One receiver covering 20-512 MHz frequency range
- Low power consumption
- One-quarter rack, modular construction
- Low phase noise
- Fully synthesized with 100 Hz tuning resolution
- Remotely controllable
- Tunable preselection
- Wide dynamic range
- Four IF bandwidths
- AM, FM, CW and Pulse Detection (SSB optional)
- $f_1 - f_2$  and channel scan capability

## DESCRIPTION

The WJ-8628-1 VHF/UHF Acquisition Receiver is a one-quarter rack that is WJ-9040 System compatible and can be plugged into a suitably equipped EFR100 Equipment Frame. It is a fully synthesized unit that covers the 20-512 MHz frequency spectrum in steps as small as 100 Hz. Remote control may be accomplished via either IEEE-488 or RS-232C interface.

Control can also be accomplished by the WJ-8628-4 Receiver; a one-half rack unit with front panel local control or remote control.

The RF portion of the WJ-8628-1 Receiver incorporates a voltage tunable preselector with a bandwidth of 10% of the tuned frequency across the 20-512 MHz frequency range. The WJ-8628-1 Receiver thus provides excellent Image and IF rejection (80 dB), reduced LO radiation (-100 dBm), and an excellent third order input intercept point (0 dBm) while maintaining a low noise figure (10 dB).

The synthesizer portion of the WJ-8628-1 provides fast tuning speed (10 msec) while maintaining low phase noise (-95 dBc/Hz at 10 kHz offset). The synthesizer provides for a WJ-8628-1 Receiver tuning resolution of 100 Hz.

The IF portion of the WJ-8628-1 Receiver has a provision for a maximum of four (4) IF bandwidths per receiver that are customer-selected and can be changed in the field (along with the FM demodulators) for added versatility. The 3 dB bandwidths can range from 10 kHz to 4 MHz. The detection modes available include AM, FM, CW, and Pulse as standard with SSB as an option. Simultaneous AM and FM audio are available along with a selectable AM or FM video output. A signal monitor and IF output are also available.

For Further Information Please Contact:

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## CAPABILITIES

The WJ-8628-1 VHF/UHF Acquisition Receiver is suitable for use as both an intercept or handoff type receiver. In the intercept mode, the unit's small size allows for up to four receivers to perform either simultaneous channel or sector scans all within a standard 19-inch equipment frame. This results in a very high probability of intercept while utilizing minimal rack space. Signals of interest may be handed off to either another WJ-8628-1 or to any of the WJ-8627-X Series VHF/UHF Handoff Receivers. All handoff operations are controlled within the WJ-9040 System by the IOM108 I/O Module.

The unit may also act as a handoff or slave receiver to the WJ-8628-4 Half Rack VHF/UHF Acquisition Receiver. In this mode, up to 34 WJ-8628-1 Receivers can be controlled through the front panel of the WJ-8628-4.

In addition, the unit is fully compatible with the WJ-8626A-4 Half Rack Receiver. A typical configuration would consist of a WJ-8626A-4 HF Receiver, a WJ-8628-1 VHF/UHF Receiver and a SPN108 speaker panel all mounted in a single 19-inch equipment frame. The result would be full 5 kHz through 512 MHz frequency coverage with front panel control through the WJ-8626-4 and audio output through the SPN108.

## SPECIFICATIONS

Frequency Range .....	20-512 MHz
Image Rejection .....	80 dB
IF Rejection .....	80 dB
Noise Figure .....	10 dB
Detection Modes .....	AM, FM, CW, Pulse Standard SSB optional
Frequency Resolution .....	100 Hz
Synthesizer Tuning Speed .....	10 msec
Phase Noise .....	-95 dBc/Hz at 10 kHz offset frequency
Input Impedance .....	50 $\Omega$ , unbalanced
Input VSWR .....	2.5:1
Internal Spurious .....	-115 dBm
Third Order Input Intercept Point .....	0 dBm
Preselection .....	Tunable, nominal 10% BW
LO Radiation .....	-100 dBm
SM Output .....	21.4 MHz with 6 MHz nominal BW
IF Bandwidths .....	Four (4), customer selectable from 10 kHz to 4 MHz
Scan Capability .....	f1 to f2 internally, up to 99 channels through the IOM108 I/O module built into the WJ-9040 system.
IF Output .....	-20 dBm at sensitivity input level, 21.4 MHz
AM Stability with AGC .....	Video output changes 6 dB maximum from AGC threshold to a level 100 dB above (or maximum input of 0 dBm)
Manual Gain Control .....	100 dB
Video Output .....	0.35 V rms minimum into 75 $\Omega$ under sensitivity conditions
Video Response .....	DC to 1/2 IF BW for FM
Audio Response .....	200 Hz to 10 kHz, 1.25 V rms into 600 $\Omega$ at sensitivity conditions.
Squelch/COR .....	Adjustable threshold from noise level to 50 dB above noise. COR holds a nominal 4 seconds after carrier disappears.
Operating Temperature .....	0°C to 50°C
Size .....	5.2 inches (132.1 mm) high, 4.0 inches (101.6 mm) wide, 14.38 inches (365.3 mm) deep (WJ-9040 1/4 size unit)
Weight .....	12 lbs. (5.44 kg) maximum
Power Consumption .....	15 watts
Input Power Requirements .....	+29 V, +18 V, -18 V, +8 V supplied by WJ-9040 EFR100
External Reference Required .....	50 MHz sinewave at 0 dBm with phase noise less than -115 dBc/Hz at 100 Hz, -145 dBc/Hz at 10 kHz

## IF BANDWIDTH OPTIONS AND SENSITIVITY

3 dB IF Bandwidth	RF Level (dBm)
10 kHz	-105
20 kHz	-102
50 kHz	-98
100 kHz	-95
200 kHz	-92
500 kHz	-88
1 MHz	-85
2 MHz	-82
4 MHz	-79

AM - Input signal AM modulated 50% by a 1 kHz tone, will produce a minimum video output (S+N)/N ratio of 10 dB.

FM - Input signal modulated at 1 kHz rate with a peak deviation equal to 30% of selected IF BW, will produce a minimum video output (S+N)/N ratio of 17 dB. (Note: A 400 Hz rate is required for 10 kHz and 20 kHz IF Bandwidth.)

## WJ-8628-1 RECEIVER CONNECTIONS

Twenty-five (25) Pin D Series Male Connector supporting the standard WJ-9040 System digital control I/O, DC Input Voltages and System Polled I/O structure.

RF Input..... SMA Female Connector  
SM Output..... SMA Female Connector  
Selected Video Output..... SMA Female Connector  
IF Output..... SMA Female Connector  
50 MHz Reference Input..... SMA Female Connector

Auxiliary I/O Connector .... 9 PIN SRE Female Connector

### Pin Assignments:

Ground  
FM Audio Auxillary Output  
AM/CW/SSB Audio Auxillary Output  
Squelched Audio Output  
Signal Strength Output (Analog 0 to +10 V)  
Carrier Operated Relay Control (open collector, 30' mA sink to ground for switching +24 Volt maximum external voltage)  
Carrier Operated Squelch (0 or 5 Vdc)

## WJ-8628-1 OPTIONS

SSB Demodulation