

UHF Multi-Frequency Belt-Pack IFB Receiver

- Preset (default) frequency is manually set with hex switches
- Scan and Direct Entry modes store up to ten frequencies in addition to the default
- Multi-color LED and rotary control for programming and operation
- High sensitivity for extended operating range indoors or outdoors
- Rugged machined aluminum housing
- 8 hour battery life (alkaline 9V)
- 20 hour battery life (lithium 9V)
- Protective leather pouch included

Wireless IFB (interruptible fold back) systems are used for crew communications and talent cueing in broadcast television production, and to monitor program audio during motion picture production. The IFB R1a receiver provides simplicity, flexibility and quality audio in a package that is simple for untrained users to operate, and can be used with a wide variety of headsets, earbuds and induction loop listening devices.

The default frequency of the receiver is set by two rotary switches on the side panel. Up to five additional frequencies can be stored in memory using the Scan mode, and another five frequencies stored using the Direct Entry mode for a total of ten stored frequencies. The listener can scroll through all stored frequencies by simply pressing the volume knob.

Scan Mode

When active transmitters are present, additional frequencies can be stored in memory using a scanning process. Scanning is performed at two different sensitivity levels. The first scan is performed at a reduced sensitivity to avoid falsely locking onto IM (intermodulation) signals rather than true carriers. If no signals are found in the first scan, a single button push will set the receiver to full sensitivity and begin a second scan. Full sensitivity scanning is necessary to program the receiver at a distance away from the transmitter.

Direct Entry Mode

Frequencies can be added manually without the need for active transmitter signals. This is useful when frequency coordination has been done in advance of the production. The scan mode works with the first five of the ten memory location, but the Direct Entry mode can access all ten memory locations. Frequencies can be deleted or changed one at a time in the Direct Entry mode, and all stored frequencies can be deleted when the receiver is in the Scan mode.



Firmware Ver. 4.0

The design uses +/-20 kHz FM deviation for efficient use of the bandwidth, with compandor noise reduction circuitry to increase the signal to noise ratio. A supersonic pilot tone signal controls the audio output squelch to keep the receiver silent when no transmitter signal is received.

The receiver operates on a single 9 volt alkaline or lithium battery. Alkaline battery life is up to 8 hours. Lithium battery life is up to 20 hours. The LED indicator changes color from green, to yellow, to red as the battery voltage declines to provide plenty of warning before the battery is too low to operate the receiver.

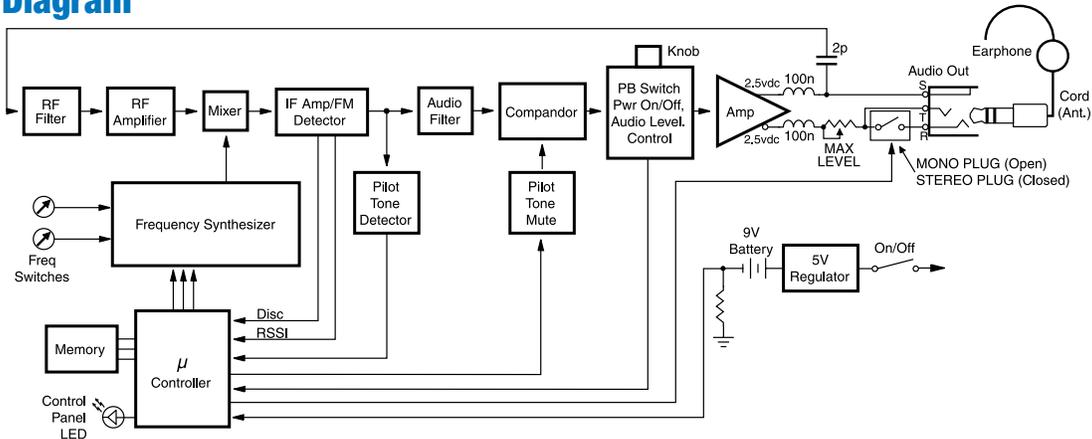
An internal relay in the receiver will automatically detect a monaural plug connected to the output jack and switch accordingly. Full output power is available with either stereo or monaural connectors, without the power losses that result from a resistive circuit design. The antenna input is provided by the shield of the cable and headset or earphone connected to the output jack.

The receiver will drive a wide variety of earbuds, headphones and induction neck loops at substantial levels, with loads from 16 Ohms to 600 Ohms.

The receiver housing is a rugged machined aluminum assembly. A spring-loaded belt clip is available as an accessory which provides a secure mounting on a wide variety of belts, pockets and fabrics.

NOTE: Advanced operations only available in firmware version 4.0 and higher. The only visible difference is rapid burst of LED blinks at power-on, indicating an updated unit with extended features available. (The old version LED simply lights up.)

R1a Block Diagram



The R1a comes with a protective leather pouch with a rotating belt clip.

The incoming RF signal is filtered and amplified, then mixed down to the IF frequency with a microprocessor controlled synthesizer. A pilot tone squelch system is used to keep the receiver silent when no carrier is present. The pilot tone signal is on a different frequency than Lectrosonics UHF wireless microphone systems to avoid interference when the systems are used in the same location. The audio signal processing includes compandor noise reduction for low noise and excellent intelligibility.

An attached rotating door makes battery installation easy.



The unit features an integral rotating battery door that remains attached to the housing when opened. All nomenclature is laser engraved into the housing to withstand physical abrasion and heavy use. A condensed instruction set is also laser etched into the side panel of the housing.

Specifications

Operating frequencies:

| | | | |
|------------------|---|------------------|-------------------|
| Block 470 | 470.100 - 495.600 | Block 24 | 614.400 - 639.900 |
| Block 19 | 486.400 - 511.900 | Block 25 | 640.000 - 665.500 |
| Block 20 | 512.000 - 537.500 | Block 26 | 665.600 - 691.100 |
| Block 21 | 537.600 - 563.100 | Block 944 | 944.100 - 951.900 |
| Block 22 | 563.200 - 588.700 | | |
| Block 23 | 588.800 - 607.900 and 614.100 - 614.300 | | |

Number of frequencies:

256 per block (79 in block 944)

Channel spacing:

100 kHz

Frequency control:

Crystal Controlled Phase Locked Loop

Sensitivity:

1 μ v (20 dB SINAD)

Signal/Noise ratio:

95 dB A-weighted

Squelch quieting:

90 dB

AM rejection:

50 dB, 10 μ v to 100 mv

Modulation acceptance:

\pm 20 kHz

Spurious rejection:

Greater than 70 dB

Third order intercept:

0 dBm

Frequency response:

100 Hz to 10 kHz, (\pm 1 db)

Pilot tone:

29.997 kHz, 4.5 kHz deviation (fixed crystal controlled)

Audio output, headphone:

1 Volt RMS into 50 ohms minimum

Antenna:

Headphone cable

Min. headphone impedance:

25.6 Ohms

Programmable memory:

Switches set default frequency; up to 10 additional frequencies can be stored in memory

Front panel controls:

Single knob controls Audio Output Level, Power on, programming and Scan Frequency Selection

Indicators:

1 tricolor LED Indicator for power on, blinks to indicate channel number, blinks fast during scan, and turns yellow or red for low battery.

Battery Requirement:

9V alkaline battery lasts about 8 hours
9V lithium battery lasts about 20 hours

Power consumption:

60 mA

Allen wrench for knob:

0.035" (Lectro part number: 35854)

Weight:

7.3 oz with battery

Size:

3.6 x 2.4 x 0.8 inches

Specifications subject to change without notice.



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