High Frequency Radio System
Honeywell’s HF-1050 high frequency radio advances the performance and capability of our HF systems to meet the emerging needs of the HF market place, while still providing the best value. Digital Signal Processing provides for clearer transmissions and reception. The syllabic squelch provides superior performance. Users say it sounds as good as a VHF.

Radio Features
- HF-1050 system is hard mounted; no shock mounts required eliminating 1.5-inches installation height and up to 5-inches in sway space restriction
- Stored coupler tuning in non-volatile memory once tuned always tuned
- High fidelity audio data input and output for interface to external modems
- 246 International Telecommunications Union (ITU) maritime radiotelephone network channels stored in permanent, non-volatile memory
- 280,000 discrete operating frequencies covering the 2.0000 to 29.9999 MHz frequency range.
- SELCAL® compatible audio output to an external SELCAL decoder alerting the pilot of an incoming voice call
- The power amplifier and antenna coupler are separate units, the coupler can be mounted next to antenna and tailored to specific aircraft/antenna configurations, maximizing the effective radiated HF power
- RS 232 serial link maintenance ports to PC for test and monitoring control, BIT, and software update on the bench
- ARINC429 tuning

Key Performance Characteristics :
- The HF-1050 provides advanced squelch features that make the system easier to use. Four pilot-selectable squelch types are available with the PS-440 and MCDU controllers.
  - Syllabic squelch high – used for high strength signals
  - Syllabic squelch low – used for low strength signals
  - Signal strength
  - Signal to noise ratio
- Syllabic squelch helps eliminate background noise, yet allows voice signals through
- Superior receiver selectivity through triple conversion intermediate frequency (IF) amplification and into digital signal processing
- Improved “weak signal” reception and less noise through improved receiver sensitivity: SSB operation –123 dBm > 10 dB SINAD (typ) (-113 dBm min).
- Lower “receive audio” distortion (SSB) less than 5%
- Robust performance: Low distortion 200 Watt peak envelope power (PEP) transmitter output
- Quicker tuning: Coupler will match the antenna impedance with a first acquisition tune time <10 seconds (nominal), and return to stored tune condition in less than 20 milliseconds. This stored tune is placed in a non-volatile memory so that re-tuning will not be necessary for that channel and frequency in that installation as long as the coupler is not removed and antenna impedance does not change
- Rapid transition from receive to transmit
- Lower transmit and receive VSWR increases coupler (antenna) effective radiated power and antenna receive signal: Tune to less than 1.5:1 VSWR typical
- Built-in-test capability for (BIT) diagnostic testing
- Use of digital signal processing (DSP) and state of the art surface mount technology enables better reliability and overall performance
- Unit operation up to 55,000 feet outside the pressure vessel of the aircraft. Unit certified to RTCA DO-160D and DO-178B Level C
KPA 1052 Power Amplifier

The KPA 1052 power amplifier is all solid-state. The PA typically mounts in a horizontal orientation, and can be mounted up to 50 feet away from the antenna coupler. It can be mounted outside the aircraft pressure vessel for operation at any altitude up to 55,000 feet. Shock mounts are not required. The KPA 1052 amplifies the signal from the KRX 1053 receiver/exciter into a 200 watt peak envelope power (PEP) transmitted signal in single sideband operation or 50 watts of carrier power in AM operation. After filtering, the amplified signal is fed to the KAC 1052 antenna coupler. In the receive mode, the signal is passed through the KPA 1052 to the KRX 1053 receiver.

KAC 1052 Antenna Coupler

The KAC 1052 antenna coupler is mounted near the HF antenna to maximize transmission efficiency. The KAC 1052 can be mounted in either the vertical or horizontal position, outside the aircraft pressure vessel for operation at any altitude up to 55,000 feet. Shock mounts are not required. The antenna coupler matches the impedance of the antenna to the 50 ohm output of the transmitter. A microprocessor in the KAC 1052 controls the antenna coupling function and exchanges information with the controller via the KRX 1053. A bridging amplifier is included in the design of the KAC 1052 allowing elimination of external bridging amplifier for dual HF installations. The KAC 1052 also keeps data in on-board non-volatile memory of all previously successful tuning solutions and uses this tuning data on subsequent tunes within the same frequency range.

KRX 1053 Receiver/Exciter

The KRX 1053 remote unit contains the receiver and the exciter for the HF-1050 system. It can be mounted outside the aircraft pressure vessel for operation at any altitude up to 55,000 feet. The exciter generates a low power transmit signal, which is fed to the power amplifier in the KPA 1052. Superior receive performance is achieved by a triple conversion receiver which employs digital signal processing, providing higher fidelity demodulation and a variety of squelch types.

The KRX 1053 supports external SELCAL (SELective CALling) option. A standard SELCAL decoder (not furnished with the HF-1050 System) is required for operation. In a SELCAL equipped aircraft, the pilot can have the audio volume turned down completely or squelched to relieve background noise during flight. In order to contact the aircraft, a coded audio signal is sent, which is decoded by the SELCAL decoder on board the aircraft, which causes a visual or audio signal to be generated notifying the crew of the call.
HF-1050 System Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Part Number</th>
<th>Description</th>
<th>Length (in)</th>
<th>Width (in)</th>
<th>Height (in)</th>
<th>Weight (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KRX 1053</td>
<td>064-01073-0101</td>
<td>Receiver/Exciter</td>
<td>10.8</td>
<td>3.1</td>
<td>5</td>
<td>5.6</td>
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<tr>
<td>KPA 1052</td>
<td>064-01072-0101</td>
<td>Power Amplifier</td>
<td>12.7</td>
<td>7.2</td>
<td>1.8</td>
<td>7.8</td>
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<tr>
<td>KAC 1052</td>
<td>064-01074-0101</td>
<td>Antenna Coupler</td>
<td>13.5</td>
<td>4.7</td>
<td>7.2</td>
<td>15.7</td>
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<table>
<thead>
<tr>
<th>Model</th>
<th>Temperature Range Operating</th>
<th>Temperature Range Storage</th>
<th>Altitude</th>
<th>Power</th>
<th>TSO</th>
</tr>
</thead>
<tbody>
<tr>
<td>KAC 1052 Antenna Coupler</td>
<td>-55°C to +70°C</td>
<td>-55°C to +85°C</td>
<td>55,000 ft.</td>
<td>+27.5 Vdc at 3 A</td>
<td>Compliant to DO-163, DO-178B Level C, E/TSO-C31d and E/TSO-C32d.</td>
</tr>
<tr>
<td>KPA 1052 Power Amplifier</td>
<td>-55°C to +70°C</td>
<td>-55°C to +85°C</td>
<td>55,000 ft.</td>
<td>27.5 Vdc at 22 A RMS (30 A peak)</td>
<td>Compliant to DO-163, E/TSO-C31d and E/TSO-C32d.</td>
</tr>
<tr>
<td>KRX 1053 Receiver</td>
<td>-55°C to +70°C</td>
<td>-55°C to +85°C</td>
<td>55,000 ft.</td>
<td>27.5 VDC at 1 Amp</td>
<td>Compliant to DO-163,DO-178B Level C,E/TSO-C31d and E/TSO-C32d.</td>
</tr>
</tbody>
</table>

Global Customer Support

Honeywell's avionics are based on proven technology providing exceptionally high reliability and simplified maintenance. To help ensure optimal operation conditions, Honeywell provides comprehensive installation consultation and support tailored to the unique needs of each operator. Additionally, our product support services include regularly scheduled maintenance and pilot training courses and support documentation.

When service is needed, our customer engineers and service centers are strategically located around the world to provide efficient, responsive support. Honeywell remains unsurpassed in the scope and variety of services, which range from SPEX exchange of line replaceable units to personalized service contract designed to fit the resources and circumstances of every operation regardless of size or business nature.

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