

**RA 3721**  
**RA 3723**

**RA 3722**  
**RA 3724**

**H F / V H F / U H F R E C E I V E R S**



**KEY FEATURES**

- 20MHz to 1000MHz frequency coverage (optional down to 10MHz with full HF performance)
- F-Signal Display facility
- High RF performance
- Fast tuning
- AM, FM and SSB/CW demodulation facilities
- Modular design
- Comprehensive scanning and sweeping facilities
- Serial or ETHERNET remote control interfaces
- BITE fully operational when antenna is connected

**OPERATIONAL ROLES**

- Monitoring systems
- Automatic Signal Acquisition systems
- Direction Finding systems
- Fixed or Transportable

**DESCRIPTION**

The RA3720 series of high performance receivers covers the frequency range 10MHz to 1GHz. They are suitable for use in many types of surveillance and monitoring systems and include built-in features which will enhance the performance of such systems.

Advanced RF, Digital Signal Processing and microprocessor technologies are combined to produce receivers with outstanding performance thereby allowing the system designer to produce a surveillance or monitoring system which is effective even when operated in crowded signal environments. The flexible design and extensive user facilities make the RA3720 series ideal for use in modern systems which must be designed so that they can be adapted to keep pace with changing operational requirements. The receivers are fitted with an operator's control panel providing a wide range of facilities. Operation is simplified by the use of single function push buttons for the basic receiver functions while a menu system is used to control the many special facilities.

Comprehensive channel and frequency scanning facilities are built into the basic receiver. These include the ability to scan multiple frequency ranges and to set up mixed frequency/channel scan routines. Specific channels or frequency ranges within a scan range may be omitted from the scan. During scan operation automatic "stop on signal" is possible using the built-in signal activity detector which is designed to provide a high probability of interception combined with a low false alarm rate. Manual control of the scan is also possible either from the front panel or by means of external inputs. The receiver may be set to resume the scan automatically after a preset time or on receipt of an external command.

**R A C A L R A D I O**

# RA3721 RA3723

# RA3722 RA3724

## HF/VHF/UHF RECEIVERS

The IF signal display provides the operator with a visual display of the signal environment. The width of the display can be adjusted by the operator up to a maximum of 9.6MHz centred on the receiver frequency. Cursors are provided to enable the operator to determine the frequency of a signal and tune off this frequency to the receiver.

The receivers include a remote control capability which allows control of all receiver functions. A choice of either Serial or Thin Wire Ethernet remote control interfaces make the receivers ideal for use in all types of remotely controlled systems. The receivers include a built-in controller facility which allows an operator to control or monitor other receivers in the system. Settings, including the contents of the channel memory, may be passed between receivers. The receivers are easily integrated into computer controlled systems and a dedicated receiver control unit is also available.

Comprehensive Built-in-Test-Equipment (BITE) will locate any faults to module level and may be controlled remotely as well as from the front panel. When the BITE is controlled remotely any faults that are found are reported to the controlling equipment so that remote fault diagnosis is possible.

### EQUIPMENT CONFIGURATION

A modular approach to the design of the equipment means that a number of different receivers may be constructed using the same basic building blocks.

The RA3721 has a basic frequency range of 20MHz to 1000MHz. This may be extended down to 10MHz by the addition of an optional module.

The RA3722 is a dual 20MHz to 1000MHz receiver. The front panel may be switched to control one receiver at a time and both receivers may be remotely controlled.

The RA3723 and RA3724 are single and dual receivers respectively. They have no operator controls, being intended specifically for remote control applications.

Other configurations can be produced for special applications.

The RA3720 series is built on a common chassis which houses the power supply unit and the front panel. The equipment is 19 inch rack mounting and occupies 5.25 inches (3U) of rack height.

### SPECIFICATION

#### Frequency range

Basic receiver 20-1000MHz in 10Hz steps. The HF option extends the range down to 10MHz

#### Channel memory

Up to 160 channels may be stored in non-volatile memory

#### Sweep rate

Frequency sweep at up to 1000 steps per second

#### Demodulation

Narrow band modes (bandwidth up to 20kHz): USB, LSB, CW, AM, NFM, SS, FSK.

IF filtering and demodulation are implemented using digital signal processing techniques. A large selection of bandwidths in the range 75Hz to 20kHz is available to the user. Maximum bandwidth with the HF option is 12kHz.

A wide band FM mode with a nominal bandwidth of 20kHz is also available

#### Sensitivity

20-1000MHz: An SSB-CW signal of -11.9dBm in a 3kHz bandwidth gives an S + 14% of 1.0dB.

HF option: An SSB-CW signal of -11.9dBm in a 0.5-30kHz: 3kHz bandwidth gives an S + 14% of 10dB with the HF amplifier on and 10dB with the HF amplifier off

#### Intermodulation

20-1000MHz: Second order intercept point +58dBm  
Third order intercept point +10dBm

HF option: Second order intercept point: +36dBm with HF amplifier on  
+42dBm with HF amplifier off  
Third order intercept point: +28dBm with HF amplifier on  
+30dBm with HF amplifier off

#### Synthesiser phase noise

20-1000MHz: -115dBc/Hz at 20kHz offset  
HF option: -115dBc/Hz at 20kHz offset

#### Outputs

- a) Audio outputs: Internal loudspeaker  
Headphones output  
600 ohm balanced line output  
External loudspeaker output
- b) IF output: Centre frequency 21.0MHz  
Bandwidth nominally 10MHz  
Level nominally 17dB above antenna level
- c) Digital output: This is available for receiver bandwidths up to 20kHz and can be programmed to provide a digital IF and AF output. It can be used in conjunction with external units which perform further digital signal processing or for recording on a digital tape recorder. Other outputs for special system applications can be provided.

#### Remote control

The receiver is fitted with a serial RS232C interface compatible with RS232C. In addition, a high speed serial link using ETHERNET complying with IEEE802.3 may be fitted

#### Power supply

The receiver is fitted with one of the following power supplies:

- a) AC supply: 100-240V, 47-44Hz
- b) DC supply: 20-32V, negative earth

#### Environmental

The equipment is suitable for operation in fixed and transportable applications.

Operating temperature: -10°C to +55°C  
Storage temperature: -40°C to +70°C  
Relative humidity: 95% at 40°C

#### Dimensions

Height: 130mm (5.25in)  
Width: 680mm (27in)  
Depth: 570mm (22.5in)  
Height: 20kg (RA3721)

Racal Elektronik System GmbH

Racal Radio Limited, P  
Telephone: R

Friedenstraße 21  
10247 English Garden

Telex: 8 22 84 82 22-6  
Telex: 8 22 84 21481

1, RG2 00F, England,  
1866014