TECHNICAL DATA

Section 3

**TECHNICAL DATA & CIRCUIT DESCRIPTION**

**GENERAL SPECIFICATION**

**Application**

General-purpose solid-state VHF receiver with versatile frequency control suitable for point- to-point communications, search endsurvell!- ance, monitoring and laboratory use.

**Reception Modes**

AM - FM - CW - PULSE **Frequency Coverage**

Models 1990R/1-X& 1990R/1-S::25-235MHz

in fi ve ranges.

) Models 1990R/2-X & 1990R/2-S::25-500MHz

. in seven ranges. Models 1990R/3-X & 1990R/3-S:: Identical to

1990R/2 butwith the following additional out- put facilities. (a) 5MHz Synchronizer Stan- dard (b) FM Audio.

Suffix identity 'X' : crystal facility (ten chan- nels) IS' : integral synchronizer.

Intermediate Frequency

21.4MHz.

FiIter Comple ment

Standard bandwidths : 250kHz + 30kHz. Options: 'A' 250kHz + 30kHz + 15kHz

IB' 250kHz + 30kHz + 7.5kHz

'C' 250kHz + 15kHz + 7.5kHz

'01 250kHz + 15kHz

'E' 250kHz + 7.5kHz

Specify 30kHz filter b/w for 50kHz chann- elling. 15kHz 25kHz

7.5kHz 12.5kHz

NB: Use of crystal facility or synchronizer is recommended when using 7. 5kHz bandwidth.

**Aerial Inputs**

50/75Q unbalanced. Additional input avai- lable direct to bal. mixer for Wideband app- lications.

Output Facilities

Separate 'wide' and 'narrow' IF outputs, pos- itive video, negative video, external loud- speaker, headset and 6000 lines (bal. or un- bal. ).

Environmental

-10 o to +50 0 (-20 0 to +70 0 storage). Calibration Accuracy

C C C C

Within .5% up to 235MHz and within 1% from 235-500MHz without use of built-in cal- ibrator (Cursor Adjuster at mid-position).

Calibrator provides 1MHz and 1OMHz markers for precise frequency setting.

Power Supplies

AC : : 1OO/130V or 200/260V (40-60Hz).

DC : : ·12V with negative earth.

Consumption (AC/12V) : RECEIVER - 15W/ lOW RECEIVERC OMPLETEWITH SYNCHRO- N IZER -35W/30W.

Dimensions and Weight (with Synchronizer) Rack-mounti n9, style:

Panel: 483mm x 133mm (19in. x 5.25in).

Rack intrusion: 411mm (16. 1875in). Weight: 18.4kg (40.5Ib).

Bench-mounting style: Width: 502mm (l9. 75in).

Height: (including feed) : 164mm (6.5in.). Dept: 457mm (l8in.).

Weight: 21.3kg. (47Ib.)

Page 19

TECHNICAL DATA

RANGE

1

2

3

4

5

6

7

PERFORMANCE SUMMARY

FREQUENCY COVERAGE

FREQUENCY .

25MHz - 39MHz

39MHz- 60MHz

60MHz -95MHz

87MHz .. 140MHz

140MHz .. 235MHz

23SMHz .. 365MHz

360MHz .. SOOMHz:

I F Rejection

Typical data: not to be interpreted as a test specification.

Sensitivity (1OdBS+N/N with standard *o/p)*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| MODE | BW | 25-140 | 140-235 | 235-500 |
|  |  | MHz | MHz | MH~ |

Greater than 60dB above 35MHz.

Stability

Free running oscillotor ; 1 part in la5\_~C. Crystal oscillator : 1 part in *liP I!.e.*

Synchronizer : *O.S* part in 107~C. \*

\*AM

\*\*FM

CW

30kHz

2S0kHz

30kHz

l~V

s..V

~V

(\*) -10°C to +50oC.

(\*) 30% mod at 1kHz. (\*\*) 22.SkHzdeviation.

Noise Factor

Typically 4dB and of the order 8dB at any frequency: better than 10dB direct to Mixer.

Image Rejection

AFC Hold

At least 1% of signal frequency (0p"rative in free-run mode only).

Selectivity

Dependent on fil"r complement (see page 19) WDE : 25OkHzat ..3dB *(ve* filter)

NARROW: PASSBAND STOPBAND

Greater than SOdBto 200MHz

40dB 23SISOOMHz.

30kHz (+ 15kHz)

15kHz (+ 7. 5kHz)

7.SkHz (t3.75kHz)

+501cHz

+25kHz

+12.SkHz

Page 20

Dynamic Range

Video Response

TECHNICAL DATA

40dB (with AGe disabled) • Taken for 5%

total distortion with 60% modulation at

1kHz.

AGC Characteristics

less than 10dB change in output for 80dB

increase in input from *3..N.*

FM Deviation

li near acceptance to 75kH z ,

Audio Output

) Ext. loudspeaker (30) *1.fNI* at 10%

distortion.

line (6000 with CT) 20mW at 5%

distorti on. Headset low/medium-Z. Response Within 3dB,

200Hz-8kHz.

Video Outputs

Separate +ve and -ve outputs of lV p-p into

500.

level within +3dB from 20Hz to 250kHz.

RF Oscillator Output

50-150mV into 5OQ.

5MHz Std. Output

(3S version only) 350mV into 500.

FM Audio Output

(3S version only) approx 900mV into 10kQ.

IF Outputs (quoted for lOI-'V signal) Separate wide and narrow-band outputs

matched to 5OQ.

low-level wideband output: 151-'V Narrow-band output \* : 50mV

(1) B/W set by receiver IF selectivity.

Muting

Threshold adjustable to 31-'Vcarrier.

Two MUTING options are available depen- dent on Module fitted:-

|  |  |  |
| --- | --- | --- |
| OPTION A:: | 23kHz NOMINAL:: | lP3396 |
| OPTION B:: | 15kHz NOMINAL:: | lP3396/1 |

Page 20A