



## 35–50 Watt VHF Telephone Transmitters *Types HX 84A, HX 85A and HX 86A (FM)*



7279

THESE TRANSMITTERS fulfil the function of headquarters transmitters working to mobile units or for point-to-point services over fixed links. Each transmitter is built on to a 19 in. panel for fitting into a bench-type cabinet or, alternatively, standard rack cabinet mounting may be employed. Their high order of frequency stability is a special feature and permits close channel operation.

For local control provision is made for a plug-in handset for use with an associated receiver, whilst full remote control may also be arranged as required. Comprehensive metering facilities are provided.

The equipments are designed for operation within an ambient temperature range of  $-10$  to  $+45^{\circ}\text{C}$  and are suitable for use in tropical climates. Provision is made for one or two channel frequency selection.

### CIRCUIT

The crystal oscillator and phase modulator are followed by an RF amplifier and harmonic generator stages to give the required frequency multiplication to the carrier frequency. Audio input from line or microphone is fed through 600  $\Omega$  amplifier and limiter stages to the phase modulator. The AF stages can be adjusted to

give either a flat or pre-emphasis response as desired.

The type of limiter incorporated limits the deviation to any desired maximum regardless of the

audio frequency or amplitude of incoming signal.

A full-wave two-valve rectifier provides power supplies and a metal rectifier provides bias for the final RF stage as well as relay supplies.

## DATA SUMMARY

### Equipment editions:

Type	Frequency range Mc/s	Power output W	Operation
HX 84A	30-50	50	One or two-channel frequency selection
HX 85A	70-100	50	
HX 86A	152-184	35-40	

**Frequency tolerance:** 30 parts in  $10^6$  without a crystal oven and 8 parts in  $10^6$  with a crystal oven, within an ambient temperature range of  $-10$  to  $+45^\circ\text{C}$ . Crystal trimming facilities are provided.

**Service:** FM telephony.

**Output impedance:**  $75\ \Omega$ .

**Spurious emissions:** Less than  $2.5\ \mu\text{W}$ .

**Maximum deviation:**  $\pm 15\ \text{kc/s}$  (adjustable).

**Frequency response:** Provision for selecting either of two frequency response characteristics:

- (a) Pre-emphasis characteristic:
- |  |   |
|--|---|
| 6 dB per octave pre-emphasis characteristic between 300 and 3000 c/s. —14 dB per octave beyond 3500 c/s. | } <i>With reference to level at 1000 c/s.</i> |
|  |   |

### (b) 'Flat' characteristic:

Between 0 and —3 dB from 600 to 3500 c/s.	} <i>With reference to level at 1000 c/s.</i>
Between 0 and —6 dB at 300 c/s.	
—14 dB per octave beyond 3500 c/s.	

**Distortion:** With modulation limiter disabled, less than 5% at 1000 c/s for  $\pm 15\ \text{kc/s}$  deviation.

### AF input:

Local, from differential carbon microphone; also  $-20\ \text{dBm}$  into  $600\ \Omega$  for  $\pm 15\ \text{kc/s}$  deviation at 1000 c/s.

**Power supplies:** 100-130 or 200-250 V, 50-60 c/s, single-phase AC.

### Power consumption:

Stand-by: 70 W.

Transmit: 230 W.

### Dimensions:

	Height	Width	Depth	Weight
<i>Chassis only</i>				(approx.)
	$8\frac{3}{4}\ \text{in.}$ (22 cm)	19 in. (48 cm)	$16\frac{1}{2}\ \text{in.}$ (41 cm)	55 lb (25 kg)
<i>In cabinet</i>				
	$11\frac{3}{4}\ \text{in.}$ (30 cm)	$20\frac{3}{4}\ \text{in.}$ (53 cm)	$16\frac{1}{2}\ \text{in.}$ (41 cm)	76 lb (35 kg)

*These transmitters have been Type Approved by the British Post Office.*

# Marconi

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