



25-Watt VHF Telephone Transmitters Types HX 55 and HX 56 (AM)



DESIGNED FOR APPLICATIONS as headquarters main transmitters working to mobile units, or for point-to-point services over fixed links, these transmitters are self-contained equipments. Each transmitter is built on to a 19-inch panel suitable for standard rack cabinet mounting. Alternatively it may be fitted into a bench mounted cabinet which can be provided as an additional item.

A feature of the equipment is its good frequency stability, $\pm 0.002\%$, which permits close channel operation. Where even closer frequency tolerances are required as, for instance, in diversity operation, a crystal oven unit can be supplied as an extra to give a stability of $\pm 0.0008\%$.

All switching and essential tuning operations are effected by front-panel controls and full metering facilities are provided. A socket on the front panel is for connecting a handset, and is so wired that the signal from an associated receiver

may be fed to the handset earpiece. Full remote control can be arranged as required.

The equipment is designed for continuous operation under tropical conditions and within an ambient temperature range of from -10 to $+45^{\circ}\text{C}$.

CIRCUITS

The crystal oscillator uses a third overtone crystal in a special circuit employing a pentode valve. The second harmonic of the crystal frequency is selected and used to drive a doubler stage. This is followed by a second doubler stage (omitted in the HX 55 equipment) and then a beam tetrode amplifier stage driving the twin tetrode output amplifier.

The audio input is fed direct to the grid of the

first AF amplifier. Frequency selective negative feedback is applied to this stage so that a low-pass filter characteristic is obtained. A double triode phase-splitter stage follows, this feeding a push-pull class AB1 modulator which anode

modulates the RF output stage.

Power supplies are provided by a full-wave rectifier circuit. A metal rectifier provides bias for both the modulator and RF output stages as well as relay supplies.

DATA SUMMARY

Frequency ranges:

Type HX 55, 70–100 Mc/s.

Type HX 56, 156–184 Mc/s.

Frequency tolerance: 20 parts in 10^6 within the temperature range of -10 to $+45^\circ\text{C}$. 8 parts in 10^6 using a crystal oven. Crystal trimming is provided.

Service: RT.

Modulation: AM.

Power output: 25 W.

Output impedance: 75Ω .

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

Distortion: Less than 7% for 80% modulation at 1000 c/s.

Modulation depth: Up to 100%.

AF response: Within 3 dB from 300 to 3000 c/s; more than 7 dB down at 4500 c/s (relative to level at 1000 c/s).

AF input level:

Local, from differential carbon microphone; also -20 dBm into 600Ω .

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

Power consumption: 240W transmit, 70W stand-by.

Dimensions (overall):

	Height	Width	Depth	Weight
<i>Chassis only</i>				(approx.)
	$8\frac{3}{4}$ in.	19 in.	$16\frac{1}{4}$ in.	55 lb
	(22 cm)	(48 cm)	(41 cm)	(25 kg)
<i>Transmitter in case</i>				
	$11\frac{3}{4}$ in.	$20\frac{3}{4}$ in.	$16\frac{1}{4}$ in.	76 lb
	(30 cm)	(53 cm)	(41 cm)	(34.5 kg)

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

Marconi

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