



1.5 kW HF Telegraph/Telephone Transmitter *Type HS 101*

THIS VERSATILE self-contained equipment is intended mainly for fixed point-to-point telegraph and telephone links carrying public traffic, and for aeronautical, police or other security services. The Type HS 101 Transmitter has, however, a very wide field of application, as it is available in a number of editions, offering a wide selection of facilities and its performance is well within the requirements of the international regulations.

FACILITIES

Editions are available giving various combinations of the following types of transmission:

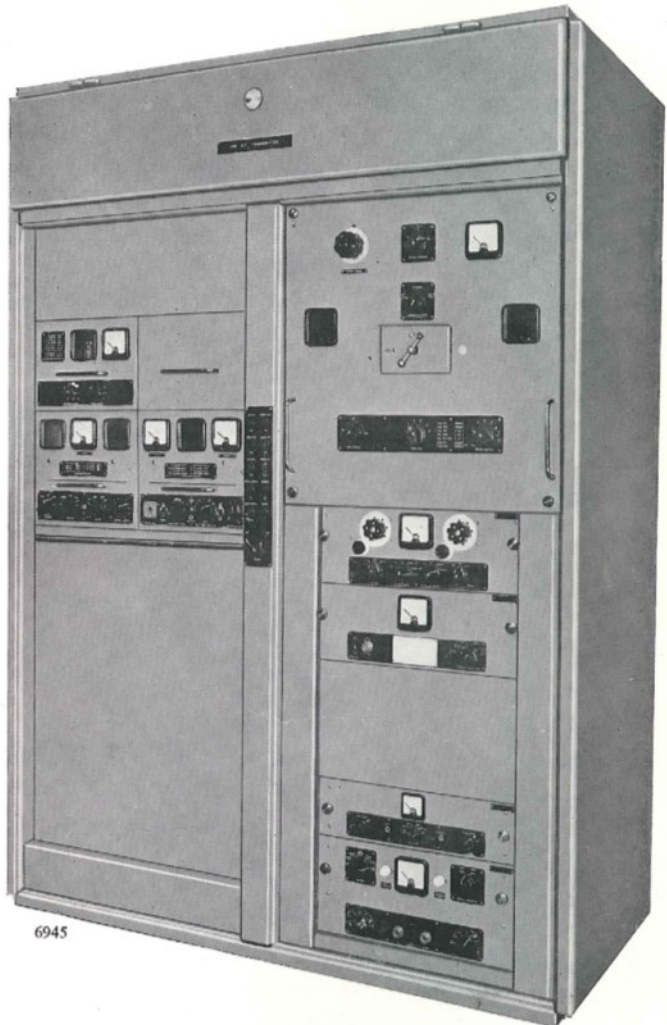
- Continuous wave telegraphy.
- Phase- or frequency-modulated CW telegraphy.
- Frequency-shift keyed telegraphy.
- Frequency-modulated frequency-shift telegraphy.
- Telephony.

All editions have crystal control and an auxiliary variable-frequency oscillator (VFO) can be incorporated.

A two-wire remote control system and a multi-wire extended control system are available. All editions can be equipped either for single-phase or three-phase power supplies.

GENERAL

The transmitter is housed in a twin-bay cabinet. The left-hand bay contains, in the lower part, the power supply components and, on the appropriate editions, the modulation transformer. In the upper portion of the bay are mounted the local control panel, absorber unit, relay and bias supply units and, when fitted, the modulator unit.



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The final RF stage is assembled in a single withdrawable unit mounted in the upper section of the right-hand bay. In the lower half of the bay is housed the selection of runner-mounted auxiliary units appropriate to the transmitter

edition. The range of auxiliary units includes FSK and mixer units, telegraph monitor, modulator and variable-frequency oscillator. A blower is mounted behind the auxiliary units.

Electronic keying with partial absorption and signal curbing is a standard feature which serves to reduce spurious emissions, while low harmonic radiation is ensured by completely screening the final RF amplifier.

External auxiliary units are available for extended or remote control of the transmitter. The facilities offered by these units are:

- (a) Stand-by/On/Off switching.
- (b) Speech.
- (c) Telegraph keying.

On speech the carrier is switched by means of the telephone pressel switch.

If required all services can be operated directly at the transmitter itself, from the local control panel.

CIRCUIT

On those editions of the transmitter which include CW and phase-modulated CW service the crystal oscillator or VFO is followed by a harmonic generator chain whose output is fed to the final RF stage. This stage employs two air-cooled tetrodes connected in push-pull. The keying signal from the auxiliary units is applied to one of the harmonic generator stages *via* the absorber.

On those editions of the transmitter which include FSK service the output of the crystal oscillator (or VFO) is taken, together with the output of the keying unit to a mixer stage. After amplification the signal from the mixer is applied to the push-pull tetrode final RF amplifier.

High-level modulation is employed on all editions that offer telephony service. The final RF amplifier is modulated by the output of an AF amplifier chain that includes a volume limiter.

The main HT DC rectifier employs xenon-filled rectifier valves.

DATA SUMMARY

Nominal power output (to aerial feeder): CW On/Off and FSK 1.25–1.5 kW; Telephony (carrier) 850 W.

Frequency range: 2.5–20 Mc/s. Six crystal-controlled frequencies within this range. A variable-frequency oscillator is also available.

Frequency tolerance: 15 parts in 10^6 .

Output impedance: 600 Ω balanced. Maximum standing wave ratio 2 : 1 (a transformer is available for matching into coaxial feeders).

Harmonic radiation: Less than 150 mW complying with Atlantic City standards.

Telegraph keying: Single or double current, at speeds up to 100 bauds.

Modulation: Up to 100%.

AF input level: –20 dBm for full modulation.

AF response: ± 2 dB from 300 to 3400 c/s.

AF distortion: Less than 5% at 80% modulation.

Hum level: –40 dB relative to 100% modulation.

Power supply: Either 200–250 V single-phase or 360–440 V three-phase four-wire AC mains, 50–60 c/s. Permissible variation, voltage $\pm 6\%$ frequency $\pm 2\frac{1}{2}\%$.

Power consumption: 5 kW max. at 0.9 PF.

Dimensions (overall):

Height	Width	Depth	Weight
7 ft 3 in.	5 ft	2 ft. 6 in.	2500 lb (approx.)
(220 cm)	(152 cm)	(76 cm)	(1130 kg)

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