



## Transmission Ancillaries

(FOR HF COMMUNICATION AERIALS SEE PAGE 587)

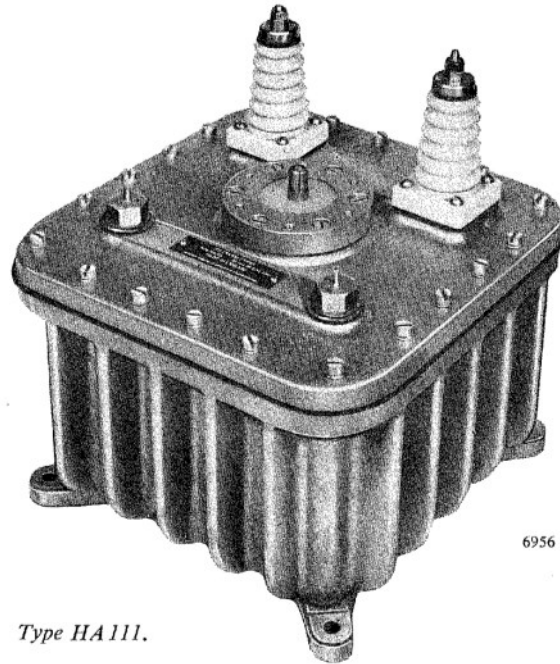
### High-Power Matching Transformers

*Types HA 111 & HA 112*

THE advantages of a compact and economical aerial transformer, as commonly used in receiving systems for matching open-wire feeders to screened feeders, have hitherto been denied to the designer of transmitting equipment and aerial feeder systems.

With the introduction of non-metallic core materials of high permeability and resistivity, this disability has been removed, and a range of wide-band, high-efficiency transformers, capable of handling considerable powers, can now be designed.

The Types HA 111 and HA 112 high-frequency power transformers consist essentially of a suitable winding on a magnetic ceramic core of small dimensions. In the Type HA 111, the core is carried on the underside of a square top plate bolted to a cast aluminium case of approximately

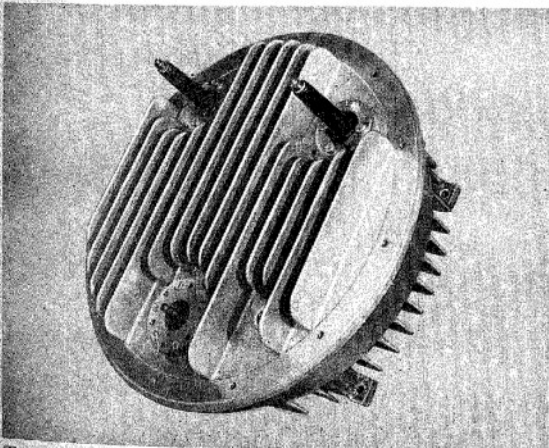


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*Type HA 111.*

10 in. cube and filled with transformer oil. In the Type HA 112, the core is carried on the underside of a circular top plate bolted to a cylindrical cast aluminium case approximately 6 in. deep. Both the plate and the case have large cooling fins and the transformer is not oil filled. In both types, the upper side of the top plate carries two ceramic insulators on which the open-wire feeder is terminated, and a coaxial connection socket. Several adaptors are made, so that the transformers may be connected to any of the usual types of coaxial feeder.

The assemblies may be mounted in a convenient position near the aerial array, and, being completely weatherproof, are suitable for use in both tropical and cold climates, subject to the conditions quoted in the data summary.



*Type HA 112*

7665

## DATA SUMMARY

	<i>Type HA 111</i>	<i>Type HA 112</i>
<b>Radio frequency range:</b>	3–30 Mc/s.	5 kW editions: 2–27.5 Mc/s. 7 kW editions: 5–27.5 Mc/s.
<b>Power rating:</b>	1 kW.	5–7 kW according to edition.
<b>Transformation ratio:</b>	75/600 $\Omega$ unbalanced to balanced.	75/600 $\Omega$ and 50/600 $\Omega$ according to edition, unbalanced to balanced.
<b>Insertion loss:</b>	0.2 dB.	0.2 dB.
<b>Standing wave ratio:</b>	Not greater than 1.3 for a matched termination.	
<b>Limits of operating temperature:</b>	–40°C to +70°C.	–40°C to +60°C.
<b>Limits of humidity:</b>	In accordance with BS 2011 Category H1.	
<b>Overall dimensions:</b>	Height 10 in. (25.4 cm) Width 8½ in. (21.5 cm) Depth 8½ in. (21.5 cm) Weight 28 lb (12.8 kg)	Diameter 19 in. (48.5 cm) Height 12 in. (30 cm) Weight 50 lb (22.7 kg)

### Coaxial Feeder Switch *Type HA 150*

FOR applications where it is desired to feed a number of transmitters to selected outputs, the 2-inch coaxial feeder switch, Type HA 150, has been developed. The basic switch unit consists of a cast aluminium box, measuring approximately 6 in. square by 3 in. deep, on the back of which four 2-inch coaxial feeders or feeder links may be terminated. The front of the box provides a bearing for the switch rotor shaft and the operating handle. Auxiliary electrical contacts are provided, operated when the switch is moved, which may be connected into interlock or switch position indicating circuits.

Any number of identical switch units may be linked together by the special feeder links to build up a feeder exchange. In this way a matrix may be formed, so that each horizontal row can, for example, be connected to the output feeder of a separate transmitter, and each vertical row to an individual outlet. To prevent the possibility of the same transmitter being connected to more than one outlet, or one outlet to more than one transmitter, a mechanical interlock system is used. No switch can be moved until two keys have been

inserted and turned in the barrel locks at the front of the switch. Once the switch has been operated the keys are trapped and cannot be used to free any other switch.

The switches are normally supplied in economical blocks of five mounted on a frame for building up into an exchange, but blocks of other numbers can be supplied as required.

## DATA SUMMARY

**Power handling capacity:**

20 kW continuous rating.

30 kW p.e.p.

**Frequency range:** Up to 30 Mc/s.

**Nominal impedance:** 50  $\Omega$ .

**Matching:** Reflection coefficient better than 1%.

**Cross insertion loss:** Not less than 75 dB.

**Dimensions:**

Height	Width	Depth
6 in.	6 in.	4½ in.
(15 cm)	(15 cm)	(11.5 cm)

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