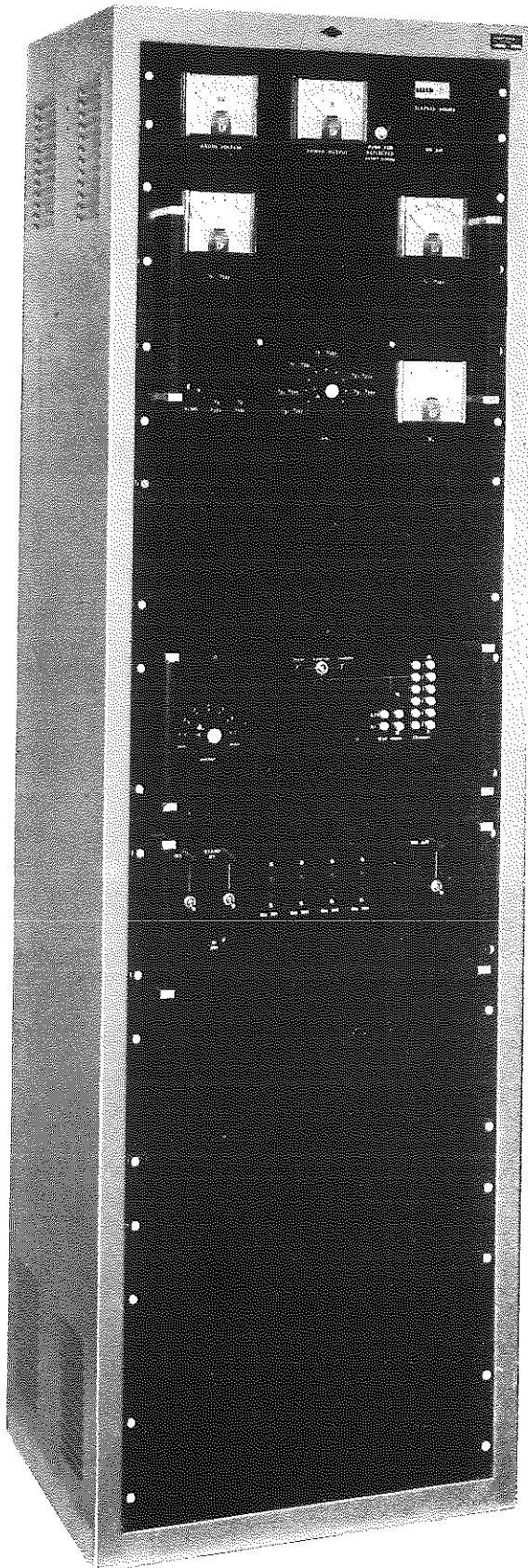




Equipment Type	8220 6 channels
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Broadband 1kW Telegraphy transmitter for coast stations

Technical specification:

Frequency range:	375–535 kHz
Number of channels:	6
Stability: short term:	± 10 Hz (1 week)
long term:	± 40 Hz (1 year)
Transm. modes:	A1, A2H
Output:	1 kW CW, 2kW PEP
Output impedance:	50 Ω, unbalanced
Nonharmonic spurious content:	> 50 Ω down
Harmonic content:	> 50 dB down
Max. permissible mismatch:	VSWR 1:2
Keying: single current (30–0 mA)	
Keying speed:	30 Bauds
Remote control for channel selection	
Transmission mode:	STAND BY/ON AIR
Operating temperature range:	0–+ 50° C
Power supply:	3 × 380 V AC

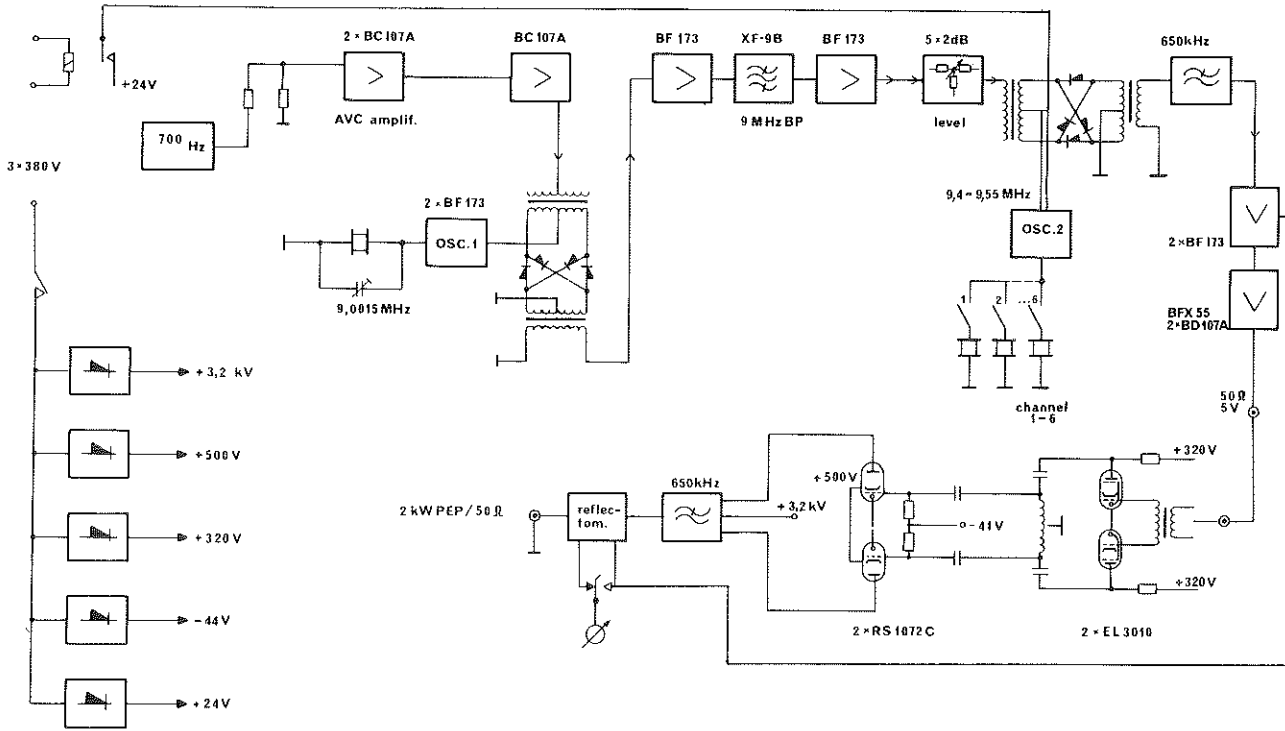
- **Broadband amplification**
- **Very low white noise content**
- **Very high key-up attenuation**
- **Instantaneous change of frequency change**
- **No tuning**
- **Selfcontained fully transistorised exciter**
- **Only 4 valves, longlife, in output stage**
- **Designed for remote control**

● ATU: See reverse side.

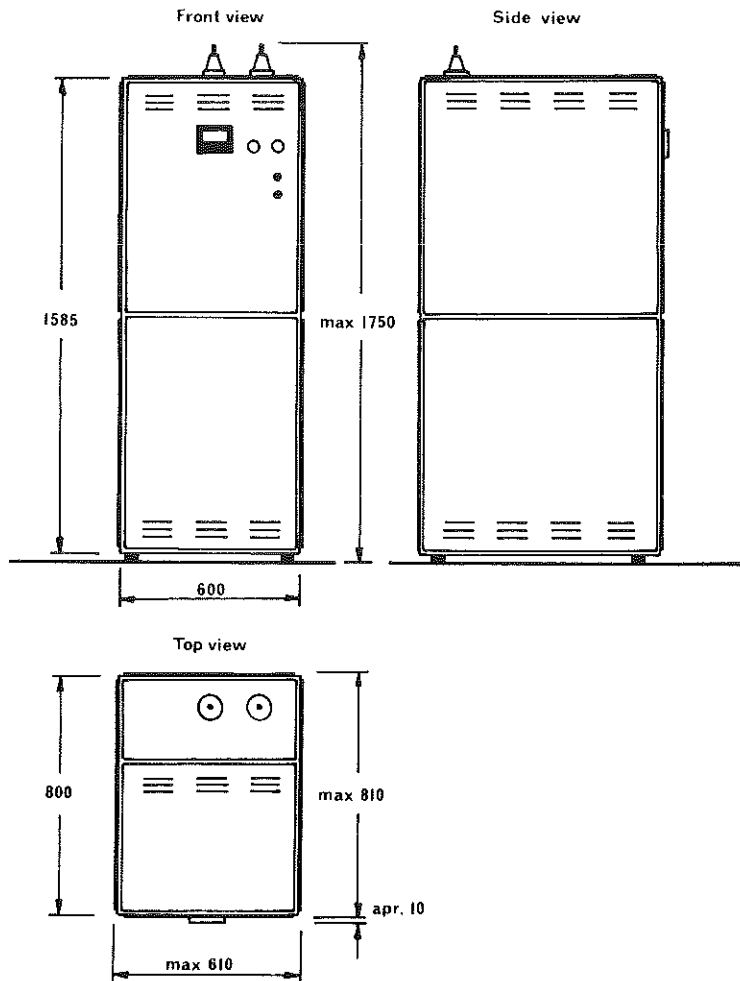
Transmitter Type TC 8220
 Dimensions: H 1870 mm, W 555 mm, D 466 mm.
All units 19 inch standard.

Equipment Type 8220 6 channels

Blockdiagram Type 8220



Antenna Tuning Unit Type 8138





AMPLIDAN A/S, 201 Herlev Hovedgade
DK-2730 Herlev, Denmark
Phone: 02-9435 11 – Cables: Amplidan
Telex: 35110

Description

Equipment Type	8220
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1 kW MF Transmitter

Purpose:

The transmitter is intended for transmission of telegraphy signals in the frequency band 400–535 kHz. 24 hours of continuous service is secured.

Frequency Range

Six spot frequencies in the range 400–535 kHz.

Signal Character

Oh 500 kHz A2H, on other frequencies A1 or A2H.

Output Power

1000 watts on A1, 1000 watts total power on A2H with 95% modulation.

Modulation Frequency with A2:

700 Hz normally, other frequencies on request.

Keying Speed:

100 bauds.

Keying Input Circuit

Single current (15–0 mA). Available from transmitter.

Frequency Tolerance

Guaranteed better than 5×10^{-6}

Harmonic-Radiation

Less than -50 dB below 1 kW as measured at transmitter output.

Transmitter Load

52 ohms unbalanced.

Primary Power Source

3-phase V AC 380 volts with neutral line, 50 Hz, voltage tolerance $\pm 10\%$.

Power Drain for Key-Down

2500 VA for A1, 2000 VA for A2H (approx).

High Voltage for PA-Stage

3.2 kV derived from full-wave, 3-phase rectifier using silicon diodes of avalanche type and fully protected against short circuits.

Remote Control

By remote control the following commands can be received:

Transmitter: STAND-BY – ON AIR

Frequency: Spot frequencies 1 to 6. A1–A2H

All commands are given by closing the appropriate point to neutral line.

Heating-Up Time

200 seconds from cold start.

Time of Changing Frequency

Approx. 5 seconds for full power radiation.

Cooling System

Forced air from centrifugal blower.

Climatic Conditions

Equipment is designed for operation under tropical environments, i.e. temperature range 0–50°, relative humidity up to 90%.

Overload Protection

Overload of PA-stage causes transmitter to cut off. The same applies to HT-supplies.

Mismatching of transmitter causes AVC-voltage to develop and thereby reducing the HF-drive to the PA-stage. At steady mismatch, after 8 secs. the transmitter will cut off.

Mechanical Dimensions

H: 1870 – W: 555 – D: 466 (mm).

Aerial Tuning Unit

General description:

This unit serves two purposes: tuning the aerial system to resonance at the operating frequency and matching the resistive part of the aerial impedance to the proper load of 52 ohms to the transmitter. The tuning is automatic when first the correct tapping point of the loading coil has been found. Fine tuning will then take place by means of a servo system that tunes for resistive impedance of the tuning unit. Six spot frequencies can be tuned to resonance.

The impedance matching is found by measurement at the initial set-up of the transmitter and is determined by proper tappings to an impedance matching air-cored transformer.

Loading Coil

The maximum inductance of the loading coil is 160 uH which means that for tuning to resonance on the lowest frequency 400 kHz an aerial capacitance of at least 1000 pF will be required. For shorter aerials extra loading coil can be supplied.

Impedance Matching Transformer

This is an air-cored transformer with a fixed primary that is broadly tuned to mid-band frequency, 460 kHz. Impedance matching is made by tapping the outer, low-impedance coil. Aerial resistance ranging from 2 to 22 ohms can be covered with tappings on the secondary coil.

Servo Tuning System

A phase detector placed at the input to the ATU compares voltage and current at this point. A DC-voltage – positive or negative with respect to neutral – will develop at the output of the phase detector. The voltage is amplified in a solid state amplifier that energises a reversible DC motor. This is mechanically coupled to a rotatable copper loop inside the loading coil and so the inductance will automatically be adjusted until the ATU shows purely resistive input impedance.

The servo DC-amplifier is powered with 24 volts DC, derived from a small built-in rectifier that is driven from 220 volts AC.

Aerial Current Meter

Aerial current is measured by means of a toroidal current transformer placed in the ground end of the aerial system. Voltage proportional to aerial current is developed, rectified and gives a deflection on the aerial current meter.

Remote measuring of aerial current can be made if the meter circuit is extended outside the ATU.

Course Tuning to Spot Frequencies

For each of the six spot frequencies a relay is provided that simultaneously selects correct tapping points on the loading coil and on the impedance matching transformer. The relays are powered from 220V AC.

Mechanical Lay-Out

The ATU is designed for indoor installation and must therefore be placed in a suitable hut close to the aerial down-lead. Very little heat is generated and no ventilation system is required.

The dimensions of the ATU are:

H: 1580 – W: 600 – D: 800 (mm).