



**SP-230**

**TS-830S**

**VFO-230**

**AT-230**

### VFO-240

Remote VFO



The VFO-240 remote analog VFO is a valuable, yet affordable station addition for split-frequency operation, temporary QSY and fast return to a net frequency, searching for a clear frequency, and other applications.

#### FEATURES

- T-F SET switch: allows operator to set transmit frequency quickly; reverses transmit and receive frequency momentarily, to prevent transmitting on wrong frequency during split-frequency operation
- Cross-operation function switch
- RIT control
- MAIN and RIT indicators.

#### SPECIFICATIONS

- Oscillating Frequency: 5.5–6.0 MHz
- Oscillator Circuit: modified clapp
- Output Voltage: 0.2 V  $\pm$  1 dB
- Frequency Stability: Within 100 Hz per 30 minutes after 3 minutes warm-up
- Solid-state Complement: FET; 2, Transistor; 2, Diode; 6
- Power Source: From TS-830S, TS-530S
- Dimensions: 180 (7.2)W x 133 (5.3)H x 288 (11.5)D mm (inch)
- Weight: 2.4 kg (5.3 lbs.)

### VFO-230

Digital Remote VFO



The VFO-230 digital VFO provides maximum efficiency and flexibility for all operating conditions, including split-frequency operation, by combining a 20 Hz step digital VFO with five memories.

#### FEATURES

- 20 Hz step digital VFO: Provides excellent stability and smooth tuning on CW and SSB
- Five Memories: Frequency can be transferred from VFO (transceiver or VFO-230) to memory or from memory to digital VFO (VFO-230)
- Built-in digital display: Shows digital VFO or memory frequencies. The display range is selected automatically to cover 900.0–599.9 or 400.0–099.9, according to the band. Backed up by analog subdial with 1 kHz divisions.
- Cross-operation flexibility: Easy to operate function switch provides: RECEIVE/TRANSMIT: Main, RMT, Memo (Main: Transceiver VFO or FIX, RMT: VFO-230 digital VFO, MEM: Memory)
- T-F SET switch: Allows operator to set transmit frequency quickly. Reverses transmit and receiver frequency momentarily, to prevent transmitting on wrong frequency during split-frequency operation
- Expanded frequency coverage: About 100 kHz above and below each 500 kHz band for MARS and other applications
- Lock switch: To prevent accidental frequency change
- MAIN, RMT, and MEMO indicators: LEDs show functions in operation
- Capability with TS-830S, TS-530S, and TS-130 Series.

#### SPECIFICATIONS

- Oscillating Frequency: 5.4–6.1 MHz
- Frequency Stability:  $1 \times 10^{-6}$  20 Hz (at normal temperature),  $3 \times 10^{-6}$  20 Hz (0–50°C)
- Output Voltage: 0.2V  $\pm$  3 dB,  $-1$  dB
- Power Requirement: 120 V AC (modifiable to 220 V AC), 50/60 Hz, 13 W
- Dimensions: 180 (7.2)W x 133 (5.3)H x 287 (11.5)D mm
- Weight: 3.1 kg (6.8 lbs.)

### AT-230

Antenna Tuner



The AT-230 antenna tuner includes the new three bands and functional features such as a through-line wattmeter, SWR meter and antenna selector switch.

The AT-230 greatly adds to the effectiveness of your station.

#### SPECIFICATIONS

- (ANTENNA COUPLER)
- Frequency Range: 9 amateur bands from 1.8 to 30.0 MHz
- Input Impedance: 50  $\Omega$
- Output Impedance: 10 to 500  $\Omega$ , unbalanced
- Through Power: 200 W max. (WATTMETER)
- Type: Through line wattmeter
- Frequency Range: 1.8 to 30.0 MHz
- Measurable RF power: Up to 20/200 W, switched
- Kinds of RF Power: Forward and reflected power, switched
- Impedance: 50  $\Omega$
- Accuracy: Better than  $\pm 10\%$  of full scale (SWR METER)
- SWR detection: Toroidal core directional coupler
- Measurable Range: 1.1 to 10
- Min. Power Required: 4 W (GENERAL)
- Connectors, INPUT: UHF type, 50  $\Omega$
- Connectors, ANT-1: UHF type; ANT-2: UHF type; ANT-3: Wire antenna only; GND
- Dimensions: 180 (7.2)W x 133 (5.3)H x 287 (11.5)D mm (inch)
- Weight: 3.4 kg (7.5 lbs.)

### SP-230

External Speaker



The SP-230 external speaker matches the TS-530S HF transceiver.

It is a low-distortion speaker with selectable frequency response for high intelligibility in any mode. The frequency response is determined by the built-in audio filters, which are effective in improving signal-to-noise ratio under certain interference conditions, or when receiving weak signals.

On the front panel is a headphone connector, for listening to audio output passed through the filters. Also on the front panel is a switch for selecting either of two audio inputs to the SP-230.

#### SPECIFICATIONS

- Maximum Input (nominal): 2W
- Impedance: 8  $\Omega$
- Frequency Response: 300 Hz to 5 kHz
- Filter Cut off Frequency: Low = 400 Hz/–3 dB, High 1 = 3 kHz/–3 dB, High 2 = 1.5 kHz/–3 dB, High 1 and High 2 = 1.0 kHz/–3 dB
- Filter Attenuation Characteristic: –6 dB/Oct.
- Dimensions: 180 (7.2)W x 133 (5.3)H x 287 (11.5)D mm (inch)
- Weight: 1.8 kg (4.0 lbs)

### TL-922A

HF Linear Amplifier



The TL-922A is an HF linear amplifier operating at maximum legal power, and employing a pair of 3-500Z high performance transmitting tubes.

#### SPECIFICATIONS

- Frequency Range: 160 meter band–1.8 to 2.0 MHz, 80 meter band–3.5 to 4.0 MHz, 40 meter band–7.0 to 7.3 MHz, 20 meter band–14.0 to 14.35 MHz, 15 meter band–21.0 to 21.45 MHz
- Mode: SSB, CW, RTTY
- Drive power: 80 W or more for full output
- RF Input Power: SSB; 2,000 W PEP, CW, RTTY; 1,000 W DC
- Circuitry: AB<sub>2</sub> Class Grounded-grid Linear Amplifier
- Input Impedance: 50  $\Omega$
- Output Impedance: 50 to 75  $\Omega$
- Tubes: EIMAC 2x3-500Z (option)
- Dimensions: 390 (15.6)W x 190 (7.6)H x 407 (16.3)D mm (inch)
- Weight: 31 kg (68 lbs.)
- Power Requirements: 120/240V AC, 50/60 Hz