

## OPTIONAL ACCESSORIES

### SM-220 Station Monitor



Based on a wide-frequency-range oscilloscope (up to 10 MHz), the SM-220 station monitor features, in combination with a built-in two-tone generator, a wide variety of waveform-observing capabilities. An optional feature is a unique pan-display capability. The SM-220 provides efficient station operation as it monitors transmitted waveforms, and it also serves as a high-sensitivity, wide-frequency range oscilloscope for various adjustments and experiments.

#### SPECIFICATIONS

(Transmit Signal Monitor Terminal) • Frequency Range: 1.8–150 MHz • Maximum Power: 1 kW (1.8–54 MHz), 50W (150 MHz) • SWR: 1.2:1 or less • Deflection Sensitivity: More than 1 div. at 2W input • Attenuator: 6 steps (Trapezoid Waveform Observation) • Frequency Range: 1.8–30 MHz • Maximum Power at DRIVE TERMINAL: 2–100W • SWR: 1.2:1 or less (Two-Tone Generator) • Oscillator Frequency: 1,000 Hz and 1,575 Hz • Output Voltage: 10 mV/50 k $\Omega$  (at TWO TONE) (Pan Display Unit) • Input Center Frequency: 3,395 MHz (BS-5), 8,830 MHz (BS-8) • IF Frequency: 455 kHz • IF Bandwidth: More than 1 kHz (–6 dB) • Input Sensitivity: More than 10  $\mu$ V/div. • Scan Width:  $\pm 20$  kHz,  $\pm 100$  kHz, switchable gain (Horizontal Amplifier) • Deflection Sensitivity: More than 300 mV/div. • Frequency Response: DC 250 kHz or over (EXT GAIN at MAX) DC 40 kHz (EXT GAIN at 1/2) • Input Resistance/Capacitance: 1 M $\Omega$  ( $\pm 20\%$ )/35 pF or less (SYNC switch at INT) • Attenuator: Fully Variable to 0 • Max. Input Voltage: 100 Vp-p (Sweep Circuit) • Sweep Frequency: 10 Hz–100 kHz (4 ranges, with fine adjustment) • Sweep Linearity: More than 5% • Sync System: Synchronized sweep, internal negative sync and external sync • Sync Amplitude: Internal: More than 1 div. on CRT External: More than 2 Vp-p (Vertical Amplifier) • Deflection Sensitivity: More than 20 mV/div. • Frequency Response: 2 Hz–10 MHz (–3 dB) • Input Resistance/Capacitance: 1 M $\Omega$ /40 pF • Overshoot: Less than 5% • Attenuator: 1, 1/10, 1/100 and GND/MONITOR (Error between steps: 5% max.) • Max. Input Voltage: 300V (DC+AC peak) or 600 Vp-p • Power Supply: 120/220/240V AC  $\pm 10\%$ , 50/60 Hz 20W • Dimensions: 215 (8.6)W x 153 (6.1)H x 335 (13.4)D mm (inch) • Weight: 5 kg (11 lbs)

#### OPTIONAL ACCESSORIES

• BS-8 ..... Pan Display for TS-830S/TS-530S/TS-180S/TS-820 series • BS-5 ..... Pan Display for TS-520S/TS-520SE

### KB-1 Deluxe VFO Knob

Matches: TS-530S, TS-830S,  
TS-820S, R-820,  
VFO-230, VFO-240



### HS-5 (8 $\Omega$ ) Deluxe Headphones



### HS-4 (8 $\Omega$ ) Headphones



### PC-1 Phone Patch



### MC-30S (500 $\Omega$ ) MC-35S (50 k $\Omega$ ) Noise-Cancelling Hand Microphone



### MC-50 (50 k $\Omega$ /500 $\Omega$ ) Desk Top Microphone



### YG-455C 500 Hz CW filter YG-455CN 250 Hz CW filter YK-88C 500 Hz CW filter YK-88CN 270 Hz CW filter



### HC-10 Digital World Clock

This clock incorporating a precise quartz and digital display system as well as a built-in microcomputer can also recall and display the starting time of QSO for logging purpose.

Power requirements:  
120V AC, 50/60 Hz  
Dimensions 217 (8.7)W x  
94 (3.8)H x 117 (4.7)D  
mm (inch)  
Weight: Approx. 900g  
(2.0 lbs.)



## TS-830S SPECIFICATIONS

#### [GENERAL]

Frequency Range: 160m Band 1.8 ~ 2.0 MHz  
80m Band 3.5 ~ 4.0 MHz  
40m Band 7.0 ~ 7.3 MHz  
\*30m Band 10.1 ~ 10.15 MHz  
(10.0 MHz WWV)  
20m Band 14.0 ~ 14.35 MHz  
\*17m Band 18.068 ~ 18.168 MHz  
15m Band 21.0 ~ 21.45 MHz  
\*12m Band 24.89 ~ 24.99 MHz  
10m Band 28.0 ~ 29.7 MHz

Mode: SSB/CW

Frequency Stability: Within 100 Hz during any 30 minute period after warmup.  
Within 1 kHz during the first hour after 1 minute of warmup.

RF Output Impedance: 50 $\Omega$  ~ 75 $\Omega$

Power Requirement: 120V AC (220V modifiable), 50/60 Hz

Power Consumption: Transmit: 295 W  
Receive: 32 W (with heater off)

Dimensions: 333(13.3) x 133(5.3) x 333(13.3) mm (inch)

Weight: 13.5 kg (29.8 lbs)

#### [TRANSMITTER]

\* Final Power Input: 220W PEP for SSB operation  
180W DC for CW operation

Carrier Suppression: Better than 40 dB

Unwanted Sideband Suppression: Better than 60 dB

Spurious Radiation: Better than 60 dB

Audio Input Impedance: 500 $\Omega$  ~ 50 k $\Omega$

Audio Freq. Response: 400 to 2,600 Hz, within –60 dB

#### [RECEIVER]

Sensitivity: 0.25  $\mu$ V at 10 dB S+N/N

Selectivity:

SSB/CW WIDE: 2.4 kHz (–6 dB), 3.6 kHz (–60 dB)  
with YK-88C (option)  
500 Hz (–6 dB), 1.5 kHz (–60 dB)  
with YK-88CN (option)  
270 Hz (–6 dB), 1.1 kHz (–60 dB)  
with YG-455C (option)  
500 Hz (–6 dB), 820 Hz (–60 dB)  
with YG-455CN (option)  
250 Hz (–6 dB), 500 Hz (–60 dB)

Variable Bandwidth

SSB with 2.7 kHz filter: 500 Hz ~ 2.4 kHz (–6 dB) continuously variable

CW with optional 150 Hz ~ 500 Hz (–60 dB) continuously variable

YK-88C and YG-455C 500 Hz filters:

Notch-filter Attenuation: Better than 40 dB

Image Ratio: Better than 60 dB

IF rejection: Better than 80 dB

Audio Output Impedance: 8 ~ 16 $\Omega$

Audio Output: 1.5W (8 $\Omega$ )

\* Will transmit on the new 30, 17, and 12 meter bands. Diodes have been installed to prevent accidental transmission. They may be removed easily when government authorization has been granted for amateur operation.

Note: Circuit and ratings may change without notice due to developments in technology.