

 **KENWOOD**

**2 METER
ALL-MODE
TRANSCEIVER**

TR-9130



The TR-9130 is a powerful, yet compact, 25 watt FM/USB/LSB/CW transceiver providing increased versatility of operation on the 2 meter band.

In addition to the high 25 watt RF output power, the TR-9130 offers improved operating features usable in all modes, such as six memory channels with memory scan, battery memory back-up (battery not supplied), automatic band scan of one MHz band segments, dual digital VFO, all-mode squelch circuit, and CW semi break-in circuit. Micro-processor technology is used throughout.

25 WATTS RF OUTPUT POWER ON FM/SSB/CW

A newly developed high power linear module provides a clean 25 watts RF output power on FM/SSB/CW modes, for more reliable FM operation and increased DX on SSB or CW, mobile or fixed station operation.

FM, USB, LSB, CW ALL MODE OPERATION

The latest technology is incorporated for maximum efficiency and convenience in all modes of operation, including LSB for certain OSCAR mode operations. The 5 position mode switch (FM1, FM2, USB, CW, LSB) in combination with the digital step (DS) switch determines the size (in kHz or Hz) of the tuning step, and the number of digits displayed.

SIX MEMORIES

In the FM1, or FM2 modes of operation, memories 1 through 5 may be operated simplex or ± 600 kHz offset through use of the OFFSET switch, permitting access to most repeaters. Memory 6 may be programmed to store the receive and transmit frequencies independently, allowing operation on repeaters with non-standard split frequencies. All six memories may be operated simplex, any mode.

INTERNAL BATTERY MEMORY BACK-UP (BATTERY NOT SUPPLIED)

Frequency data stored in the memories will be retained as long as the transceiver remains connected to an un-switched 13.8 V DC source. In the TR-9130, provision is made for the addition of an internal 9 volt type Ni-Cd battery (Not KENWOOD supplied).

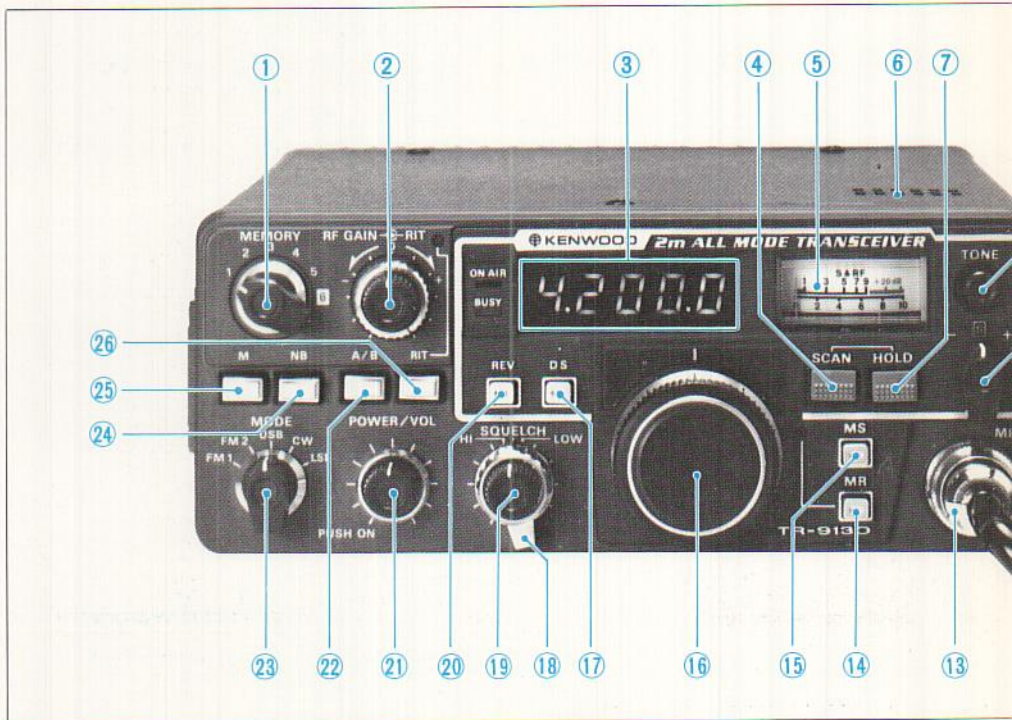
With the battery installed (and charged) the transceiver may be disconnected from one power source for relocation to another without loss of memory. The charge on the Ni-Cd battery is automatically maintained as long as the transceiver is connected to a 13.8 V DC source. A fully charged battery will provide effective memory back-up approximately 24 hours, adequate for the typical move from the base location to the mobile.

Provision is made on the rear panel for connection of a separate external memory back-up power source, such as the optional BC-1 AC adaptor or BO-9A system base.

MEMORY SCAN

Depressing the MS switch initiates the scanning of only those memory channels in which data has been stored. Scanning stops and locks on busy channels, resumes when the signal disappears, or when the SCAN switch is depressed. Scanning may also be stopped by pressing the HOLD switch. Releasing the MS switch cancels the scan function.

AUTOMATIC BAND SCAN (1 MHz SEGMENTS)



Scans selected 1 MHz segment (144.000 — 144.999 MHz, 145.000 — 145.999 MHz). Automatically locks on busy channel, resumes scanning when signal disappears, or when SCAN switch is pressed. Depressing HOLD button, or UP or DOWN buttons on microphone stops scanning action. When transceiver is in either BAND scan or MEMORY scan, the decimal point will flash on and off, even when scan has stopped on a busy channel.

In each mode the scan step size is determined by the position of the mode switch and the Digital Step switch. When operating in the CW or SSB modes, with the Digital Step switch OFF (out), a 1 kHz scan step is provided for scanning efficiency.

Fine tuning, using the tuning knob or the UP/DOWN buttons on the microphone can then be easily accomplished following scan hold.

HAND MICROPHONE WITH UP/DOWN SWITCH

Full control is available using the UP/DOWN switch on the microphone, the frequency steps corresponding with the appropriate mode. A piezo generator sounds at each step to confirm correct operation.

A continuously pressed switch allows a gradual frequency change, and at the same time, the piezo generator sounds continuously to show the continuing frequency shift.

SQUELCH CIRCUIT ON ALL MODES (FM/SSB/CW)

The squelch circuit is effective on SSB and CW,

as well as on FM. Useful when watching club or net frequencies.

REPEATER REVERSE SWITCH

Depressing the REV switch causes the transmit and receive frequencies to be transposed. Useful for checking signals on the repeater input for quality and to determine if the station is within simplex range.

Can also be used to re-establish contact with the other station in the event of repeater failure or time out, or for determining if a repeater is upside down.

TONE SWITCH

The TONE switch activates the accurate 1,750 Hz repeater access tone oscillator.

FREQUENCY STEPS AND DISPLAY

MODE switch	D. STEP switch	Tuning steps	Display digits	FM bar
FM1	OFF	25 kHz	4 digits	FM
	ON	25 kHz	4 digits	Mo
FM2	OFF	12.5 kHz	5 digits	Mo
	ON	1 kHz	4 digits	Fre
USB CW LSB	OFF	100 Hz	5 digits	SSB
	ON	5 kHz	5 digits	Fas

NOTE: When in "Memory Recall" mode, 5 digits are displayed.

TUNING TRANSMIT FREQUENCY FOR OSCAR OPERATIONS

OSCAR operations in the SSB or CW mode are facilitated by use of the tuning knob or UP/DOWN buttons on the microphone to adjust the transmit frequency in 100 Hz increments.

other.

HIGH PERFORMANCE RECEIVE - TRANSMIT CHARACTERISTICS

The use of a low-noise dual-gate MOS-FET plus two monolithic crystal filters in the receiver front-end results in excellent two signal

that would fall outside the band, a "beep" will sound, and the transceiver will automatically switch to simplex operation.

HIGH PERFORMANCE NOISE BLANKER

The built-in high quality noise blanker is effective in suppressing pulse-type noise (such as automotive ignition noise) in the SSB and CW modes.

RF GAIN CONTROL

RF gain may be controlled in all modes of operation. The use of a threshold type control in the design of the transceiver enables accurate "S" meter readings on SSB and CW modes.

RIT CIRCUIT

An RIT (Receiver Incremental Tuning) control allows the receiver to be tuned slightly off frequency in the SSB or CW modes.

AGC TIME CONSTANT AUTOMATICALLY SELECTED

The amplified-type AGC circuit enhances SSB and CW reception. The AGC time constant is automatically selected with the mode switch.

HI/LOW POWER SWITCH

In the FM and CW modes, the operator may select either 25 watts, or 5 watts (approximately) RF output, using the front panel HI/LOW power switch.

ACCESSORY TERMINAL (REAR PANEL)

A four pin accessory terminal (ALC, ST-BY, 9V Transmit, Ground) is provided on the rear panel for convenience in connecting the TR-9130 for use with a linear amplifier, or other accessories.

PIEZOELECTRIC BEEPER

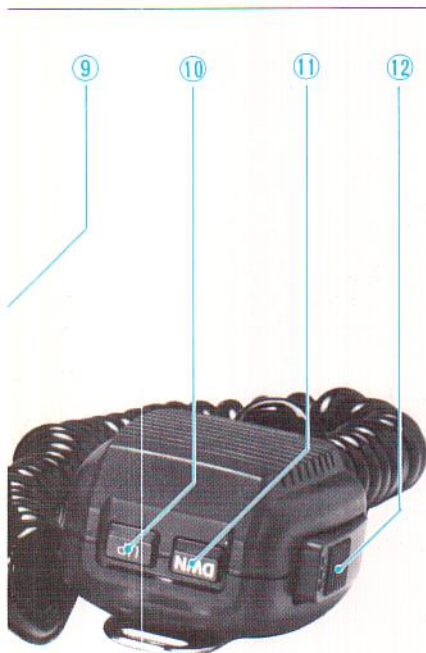
A built-in piezoelectric signalling device "beeps" to announce activation of the memory programming button, selection of an OFFSET frequency outside the band, or activation of the microphone UP/DOWN buttons.

VISUAL INDICATORS

Front Panel LED function indicators are provided to show when channel is busy, when transmitting, and when RIT or Memory Recall buttons are depressed.

QUICK RELEASE MOUNTING BRACKET

A quick release mounting bracket is provided to facilitate removal of the unit from its mobile installation, and to allow easy adjustment of the mounting angle in vehicular installations.



- ⑨ **MEMORY SELECTOR SWITCH**
M1 - M5...for simplex or ± 600 kHz repeater offset; M6 for non-standard offset (memorizes transmit and receive frequencies independently).
- ⑩ **RF GAIN AND RIT CONTROLS**
Outside knob is RF gain, and inside knob is RIT.
- ⑪ **DIGITAL DISPLAY**
Number of digits is determined by the positions of the MODE and DS switches.
- ⑫ **SCAN SWITCH**
Allows automatic busy stop scanning.
- ⑬ **S & RF METER**
"S" meter on receive and RF power output meter on transmit.
- ⑭ **"BEEPER"**
Beeps when memory store switch or microphone UP/DOWN buttons are pressed. Also beeps if out-of-band offset frequency is selected.
- ⑮ **HOLD SWITCH**
Stops scanning function.
- ⑯ **PTT SWITCH**
Push to talk.
- ⑰ **MICROPHONE INPUT**
- ⑱ **MEMORY RECALL SWITCH**
Activates memory recall of selected channels.
- ⑲ **MEMORY SCAN SWITCH**
Initiates scan of memory channels in which data is stored.
- ⑳ **MAIN DIAL**
Shifts digital VFO in frequency steps (100 Hz, 12.5 kHz, 25 kHz) determined by the position of the MODE and DS switches.
- ㉑ **DIGITAL STEP SWITCH**
Selects the frequency step of the digital VFO and the number of digits in the display.
- ㉒ **HI/LOW POWER SWITCH**
Choice of 25 or 5 watts RF output on FM or CW.
- ㉓ **SQUELCH CONTROL**
- ㉔ **REVERSE SWITCH**
Permits TX/RX frequency reversal.
- ㉕ **VOLUME, ON/OFF SWITCH**
Power switch and volume control.
- ㉖ **A/B SWITCH**
Selects dual digital VFO's A or B, allowing rapid frequency change to preselected frequency.
- ㉗ **MODE SWITCH**
- ㉘ **NOISE BLANKER SWITCH**
Activates noise blanker circuit.
- ㉙ **MEMORY STORE SWITCH**
- ㉚ **RIT SWITCH**
Activates RIT circuit.

BUILT-IN CW SEMI BREAK-IN WITH SIDE TONE

For convenience in CW operations, the TR-9130 features a built-in CW semi break-in circuit. A side tone circuit is also incorporated.

DIGITAL DISPLAY WITH GREEN LED'S

Up to 5 digits may be displayed, depending on the position of the mode switch and the digital step switch.

The larger the tuning step size, the fewer the digits displayed. Use of green LED's reduces eye fatigue and improves readability.

DUAL DIGITAL VFO'S

The TR-9130 incorporates two built-in digital VFO's which may be selected through use of the A/B switch, and individually tuned, permitting speedy changes from one end of the band to the

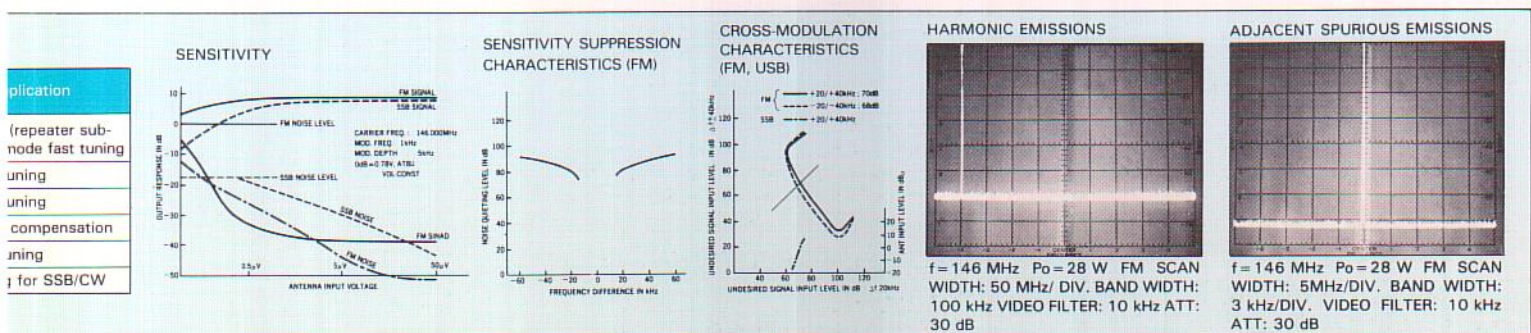
characteristics. Extra care in transmitter design assures especially clean signals in all modes of operation.

COMPACT DESIGN AND LIGHT WEIGHT

A masterpiece of state-of-the-art engineering, the TR-9130 incorporates the most wanted features in a 2 meter, all mode transceiver with 25 watts RF output, yet at no sacrifice in compactness or weight.

TRANSMIT OFFSET SWITCH

A conveniently located front panel switch permits easy offset of the transmit frequency ± 600 kHz for FM operation on standard repeater split frequencies. Non-standard split frequencies may be accommodated through programming on Memory 6. Should the operator inadvertently select an offset frequency



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OPTIONAL ACCESSORIES



BO-9A SYSTEM BASE

The BO-9A provides a power supply for the memory back-up in the TR-9130 transceiver, manual stand-by switch for CW operation, headphone jack and AC outlet.



BC-1

AC ADAPTOR FOR MEMORY BACK-UP

This AC adaptor is used as a memory back-up power supply when the main power supply is off for extended periods.



SP-120 EXTERNAL SPEAKER

The SP-120 is a good looking compact speaker matching the TR-9130 styling and is designed for fixed station use. A low distortion speaker unit provides clear reproduction.



MC-60 (S6) 50kΩ/500Ω DELUXE DESK-TOP MICROPHONE

The MC-60 microphone is designed expressly for use with your amateur communication system. The zinc die-cast base offers high stability, and is complete with a feather-touch PTT switch and rocker UP/DOWN switch.



PS-30 DC POWER SUPPLY

Supplies regulated 13.8 V DC at 20A intermittent load with complete ease and safety due to the use of large heat sinks and an automatic reset electronic overload trip.



SP-40 COMPACT MOBILE SPEAKER

Very small, high-quality mobile speaker, which can be mounted virtually anywhere. A ferrite magnet built into the mounting bracket holds the speaker to any ferrous metal surface, or to the adhesive-backed steel plate supplied.



MC-40S UP/DOWN SPARE MICROPHONE

The MC-40S is a spare microphone for the TR-9130.

SPECIFICATIONS

•Power requirements: 220/240 V AC •Power consumption: 470 W (approx.)
•Output voltage: 13.8 V DC •Output current: 20A (intermittent load, 50% duty cycle), 15A (continuous load current) •Output voltage fluctuation: within ± 700 mV (at 20A load current), within 400 mV (at 2~20A load current) •Ripple voltage: less than 20 mV at 13.8 V, DC 20A •Dimensions: 180(7.2)W x 133(5.3)H x 287(11.5)D mm (inch) •Weight: 8.9 kg (19.6 lbs.) approx.

TR-9130 SPECIFICATIONS

[GENERAL]

Frequency Range: 144,000.0 – 145,999.9 MHz
Mode: F3(FM), A3J(SSB), A1(CW)
Frequency Stability: Within ± 500 Hz during the first hour after 1 minute of warmup.
Within ± 50 Hz any 30 minutes.
13.8 V DC $\pm 15\%$
Power Requirement: Negative
Grounding: $-20^{\circ}\text{C} \sim +60^{\circ}\text{C}$
Operating Temperature: 0.7 A in receive mode with no input signal
Current Drain: 5.5 A in HI transmit mode
2.7 A in LOW transmit mode
Less than 3.0 mA for memory back-up
RF Output Impedance: 50 Ω
Dimensions: 170(6.8)W x 68(2.7)H x 241(9.6)D mm(inch)
Weight: 2.4 kg (5.3 lbs.) approx.
[TRANSMITTER]
RF Output Power: HI (FM, SSB, CW) = 25 W
LOW (FM, CW) = 5 W approx.
Modulation: FM = Reactance Direct Shift
SSB = Balanced Modulation
Frequency Tolerance: FM = Less than $\pm 20 \times 10^{-6}$
SSB = Less than $\pm 10 \times 10^{-6}$
Spurious Radiation: HI = Less than -60 dB
LOW = Less than -53 dB
Carrier Suppression: Better than 40 dB

Unwanted Side Band Suppression: Better than 40 dB
Maximum Frequency Deviation (FM): ± 5 kHz
Microphone: UP/DOWN Dynamic Microphone with PTT switch, 500 Ω
[RECEIVER]
Circuitry: FM = Double Conversion Superheterodyne
SSB, CW = Single Conversion Superheterodyne
Intermediate Frequency: 1st IF = 10,695 MHz (FM, SSB, CW)
2nd IF = 455 kHz (FM)
Sensitivity: FM = Better than 0.25 μV for 12 dB SINAD
Better than 1 μV for 35 dB S/N
SSB, CW = Better than 0.25 μV for 10 dB S/N
Selectivity: FM = More than 12 kHz (-6 dB)
Less than 24 kHz (-60 dB)
SSB, CW = More than 2.2 kHz (-6 dB)
Less than 4.8 kHz (-60 dB)
Spurious Radiation: Better than 70 dB
Squelch Sensitivity (FM, SSB, CW): Less than 0.16 μV (threshold)
Auto Scan Stop Level: Less than 0.2 μV
Audio Output Power: More than 2.0 W (10% distortion, 8 Ω loading)

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