29/50/144/430 MHz FM QUAD BAND TRANSCEIVER

# FT-8900R

## 29/50/144/430 MHz QUAD BAND


YAESU
*Choice of the World's top DX'ers℠*

## SPECIFICATIONS

### General

Frequency Range: RX: 28.000 - 29.700 MHz, 50.000 - 54.000 MHz, 108.000 - 180.000 MHz, 320.000 - 480.000 MHz, 700 - 985 MHz (Cellular Blocked)
TX: 28.000 - 29.700 MHz, 50.000 - 54.000 MHz, 144.000 - 146.000 MHz (or 144.000 - 148.000 MHz), 430.000 - 440.000 MHz (or 430.00 - 450.000 MHz)
Frequency Steps: 5/10/12.5/15/20/25/50 kHz
Operating Modes: F3, F2
Antenna Impedance: 50 Ohms, unbalanced (Antenna Duplexer built-in)
Frequency Stability: ±5 ppm @ 14° F ~ +140° F (−10 °C ~ +60 °C)
Operating Temperature Range: −4° F ~ +140° F (−20 °C ~ +60 °C)
Supply Voltage: 13.8 VDC (±15%), negative ground
Current Consumption (Approx.): RX: 0.5 A (Squelched)
TX: 8.0 A (50/430 MHz), 8.5 A (29/144 MHz)
Case Size (W x H x D): 5.5" x 1.6" x 6.6" (140 x 41.5 x 168 mm) (w/o knobs & connectors)
Weight (Approx.): 2.2 lb (1 kg)

### Transmitter

Power Output: 50/20/10/5 W (29/50/144 MHz), 35/20/10/5 W (430 MHz)
Modulation Type: Variable Reactance
Maximum Deviation: ±5 kHz
Spurious Radiation: Better than −60 dB (29 MHz: Better than −50 dB)
Modulation Distortion: Less than 3%
Microphone Impedance: 2 kΩ
DATA Jack Impedance: 10 kΩ

### Receiver

Circuit Type: Double-conversion superheterodyne
Intermediate Frequencies: 45.05 MHz/450 kHz (Left band), 47.25 MHz/450 kHz (Right band)
Sensitivity (for 12dB SINAD): Better than 0.2 µV
Squelch Sensitivity: Better than 0.16 µV
Selectivity (−6dB/−60dB): 12 kHz/30 kHz
Maximum AF Output: 2 W @ 8 Ω for 5% THD
AF Output Impedance: 4-16 Ω

Specifications are subject to change without notice, and are guaranteed within the 29, 50,144, and 430 MHz amateur bands only. Frequency ranges will vary according to transceiver version; check with your dealer.


**Available functions of Programmable Microphone Keys:**

| | |
|---|---|
| **SQL Off** | Opens squelch to allow reception of weak signals. |
| **RPTR** | Allows setting of repeater shift. |
| **PRI** | Activates Priority Channel operation. |
| **LOW** | Sets transmitter output power level. |
| **MHz** | Configures Main Dial for tuning in 1 MHz steps. |
| **REV** | Allows reversal of uplink/ downlink frequencies. |
| **HOME** | Activates Home Channel operation. |
| **BAND** | Toggles Main and Sub bands on display. |
| **VFO/MR** | Toggles operation between VFO and Memory modes. |
| **SCAN** | When the "Main" band is set to the Memory mode, press and hold in this button for 1/2 second to set up the Scan Skip List or Preferential Scan List. |

## OPTIONS

**MH-48A6J**
DTMF Microphone (supplied in U.S.A. version)

**MH-42B6JS**
Hand Microphone (supplied w/European and Asian versions)

**MLS-100**
High-Power External Speaker

**YSK-8900**
Separation Kit

**MMB-62**
Remote Front Panel Mounting Bracket

**MEK-2**
Microphone Extension Kit (for use with Yaesu 8-pin Microphones)

**CT-39A**
Packet Interface Cable

**FP-1023** (U.S.A. only)
AC Power Supply (25 A)

**FP-1030A**
AC Power Supply (30 A)

About this brochure: we have made this brochure as comprehensive and factual as possible. We reserve the right, however, to make changes at any time in equipment, optional accessories, specifications, model numbers, and availability. Precise frequency range may be different in some countries. Some accessories shown herein may not be available in some countries. Some information may have been updated since the time of printing; please check with your Authorized Yaesu Dealer for complete details.


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# Leading the Way in FM Mobile Design...From the Engineers at Yaesu!

## You'll never think about mobile radios the same way. Instead of a dual-bander, enjoy the versatility and performance of the FT-8900R Quad Bander!

**Crafting the "perfect" dual-band FM transceiver is a difficult task, requiring engineering expertise in the latest areas of high-tech design. Adding other bands is an even greater challenge, calling for a delicate touch so as not to upset the original performance of the dual-bander. The FT-8900R is the crowning achievement in our proud FM mobile design history, bringing together the best features of Yaesu electrical, ergonomic, and mechanical design know-how in a compact, versatile Quad Bander with leading-edge features like VHF/UHF full duplex, cross-band repeat, independent operation on two bands, and six "Hyper Memory" keys that store complete transceiver configuration settings. Quite simply, the FT-8900R has no peer among mobile transceivers.**

29/50/144/430 MHz FM QUAD BAND TRANSCEIVER

# FT-8900R


## HIGH PERFORMANCE

### QUAD BAND OPERATION

The FT-8900R combines the "traditional" 144/430 MHz local-communications concept with the exciting capability for Sporadic-E or F2 DX on the 29 MHz and 50 MHz bands, for nationwide or worldwide FM communications from your car! The first Amateur Radio FM mobile transceiver providing this capability, the FT-8900R will make you wonder how you got by with a two-band transceiver up to now.

29 MHz+144 MHz



29 MHz+430 MHz

50 MHz+144 MHz



50 MHz+430 MHz

144 MHz+144 MHz



144 MHz+430 MHz

430 MHz+144 MHz



430 MHz+430 MHz

### WIDE FREQUENCY COVERAGE

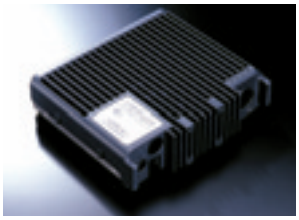
The FT-8900R provides extended receiver coverage beyond the Amateur bands, so you can keep informed of communication activities in the public safety, commercial, aircraft, and government communications ranges. Included is coverage of 28-29.7 MHz, 50-54 MHz,108-180 MHz, 320-480 MHz, and 700-985 MHz (cellular frequencies are blocked and non-restorable).

### INDEPENDENT TWO-CHANNEL, DUAL RECEIVE AND FULL DUPLEX OPERATION

Basically operating as two radios in one, the FT-8900R may be configured in a number of ways. For example, you can set up the "left" side of the rig for operation on 29, 50, 144, or 430 MHz operation, while setting the "right" side to 430 MHz. Or set up the left side on 29/50/144/430 MHz, and the right side on 144 MHz. And, if you like, you can configure your FT-8900R for 144-144 MHz or 430-430 MHz dual receive operation—so you never miss out on the action! The left and right sides have their own Volume and Squelch controls, as well as S-meters, so your operating preferences are never compromised.


### HIGH POWER OUTPUT

To get your message through when it counts, the FT-8900R puts out a full 50 Watts of power on the 29/50/144 MHz bands, and 35 Watts on 430 MHz. To ensure thermal stability during long transmissions, a thermal sensor monitors heat sink temperature, engaging the rear panel's cooling fan when needed.

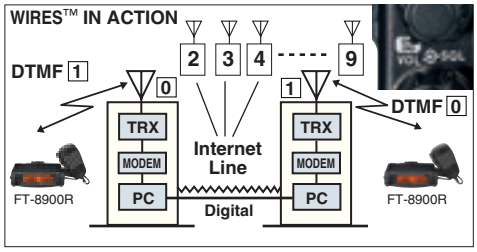


| HIGH | MID1 | MID2 | LOW |
|---|---|---|---|
| 50W/35W(430MHz) | 20W | 10W | 5W |

# VERSATILITY

## CONVENIENT ACCESS TO WIRES™ AND OTHER INTERNET-LINKING SYSTEMS

When six and ten meters are dead, you can still talk around the world with the FT-8900R! The front panel provides easy access to any WIRES™ (Wide-coverage Internet Repeater Enhancement System) repeater, automatically sending the required single DTMF access code at the beginning of each transmission. And if you're using another Internet linking system, one that requires a DTMF string to being up the link, you can easily configure the FT-8900R to store and send the required tone sequence, as well.




## OVER 800 MEMORY CHANNELS

The FT-8900R provides a wide variety of memory resources, including 799 "regular" memories, six "Home" channels for favorite frequencies, five sets of band-edge memories, and six "Hyper Memory" memories, which store complete transceiver operating status, for maximum operating efficiency and convenience. Six-character Alpha-Numeric "Tags" (labels) may be appended to memory channels, affording instant channel identification. No transceiver can compare with the memory capability of


## LARGE, EASY-TO-READ LIQUID CRYSTAL DISPLAY (LCD)

Affording easy viewing from a wide range of viewing angles, the LCD of the FT-8900R features Yaesu's renowned Omni-Glow™ display illumination, with four illumination levels available for different environments. You'll marvel at the crystal-clear frequency display and status indicators, whether you're operating night or day.

## ONE-TOUCH BAND-PATTERN "HYPER MEMORY" FEATURE

To save valuable time while operating a transceiver with the versatility of the FT-8900R, the "Hyper Memory" feature allows you to store a complete set of configuration data for the two bands on which you're operating. Besides the usual storage of frequency and tone data, Hyper Memory will store such setup parameters as Automatic Repeater Shift status, Packet parameters, Scanning mode, and VFO tracking, avoiding the need to change each of these functions manually on a regular basis.

| Hyper Memory No. | Left Band | Right Band |
|---|---|---|
| Hyper Memory 1 | 2 m | 70 cm |
| Hyper Memory 2 | 6 m | 70 cm |
| Hyper Memory 3 | 10 m | 70 cm |
| Hyper Memory 4 | 2 m | 2 m |
| Hyper Memory 5 | 6 m | 2 m |
| Hyper Memory 6 | 10 m | 2 m |

## BUILT-IN DUPLEXER

Utilizing a single antenna jack, the FT-8900R's leading-edge design includes a high-performance duplexing system, with extensive filtering to allow cross-band full duplex operation.

## CROSS-BAND REPEAT CAPABILITY

For emergency work, or to extend the range of a hand-held unit, the FT-8900R includes Cross-Band Repeat capability, similar to that pioneered on our popular FT-8100R Dual Band FM Mobile.

## VERSATILE SCANNING CAPABILITY

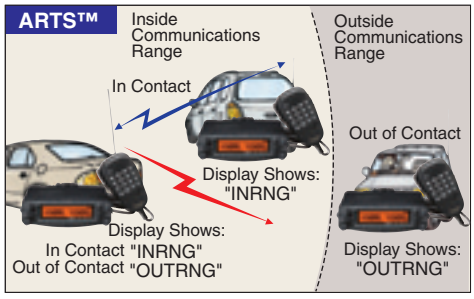
The FT-8900R lets you scan the memories, the entire operating band, or a portion of the band. The transceiver will stop on signals encountered during the scan, allowing you to talk to the station(s) on that frequency, if you like. During band scanning, you may even configure the FT-8900R to remain within the current band, or to hop to the next-highest or next-lowest band, once the band edge is reached. Dual-frequency "Priority Channel" operation is also provided. And the Programmable Memory Scan feature allows you to set up sub-band limits, so you won't waste time scanning or tuning in the SSB/CW portions of the bands, especially ten meters.

## 50-TONE CTCSS/104-TONE DCS (DIGITAL CODE SQUELCH) TONE SYSTEMS

Providing excellent performance even under difficult link conditions, Yaesu's 50-tone sub-audible CTCSS and 104-tone DCS signaling systems ensure that you have full access to repeater and remote-base inputs, and the built-in CTCSS/DCS decoders allow silent listening on busy channels. Plus you get Tone Search Scanning, which will scan for the tone being received on an incoming signal, allowing you to match tones quickly when operating on a new repeater system.

## ARTS™ (AUTO-RANGE TRANSPONDER SYSTEM)

Included in the FT-8900R is Yaesu's exclusive ARTS™ feature, which can be critically important in search-and-rescue applications. ARTS™ provides a "hand-shake" with other ARTS™-equipped transceivers, and the display indicates if an "Out of Range" conditions exists. The base station (typically a mobile unit like the FT-8900R) can then alert the field unit to move to a better location. A 6-character CW ID memory also is provided, for Morse Code identification of your station every ten minutes during ARTS™ operation.



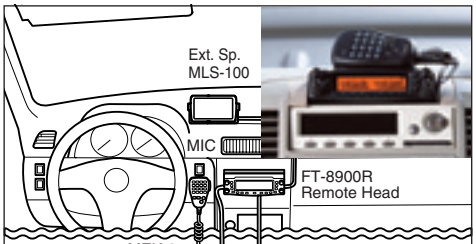

## USER-PROGRAMMABLE MICROPHONE KEYS

Four programmable keys on the microphone allow you one-touch access to your favorite command functions. The commands available from the microphone replicate the corresponding front panel key functions, and include Band Change, VFO/Memory switching, Home Channel access, 1 MHz frequency steps, Power Output selection, Repeater Reverse, and CTCSS/DCS setup. Customize your microphone for your personal operating style.

**Default settings for programmable keys:**
**ACC:** BAND Key (band selection; press and hold in for 1/2 second to enter Menu mode).
**P:** V/M Key (VFO/Memory switching).
**P1:** TONE Key (repeater access tone setup).
**P2:** LOW Key (transmitter output power selection).

## CONVENIENT REMOTE-HEAD MOUNTING CAPABILITY!

Having trouble mounting your mobile radio in your compact car? With the FT-8900R and its optional YSK-8900 Separation Kit, mounting is a breeze even in the tightest locations. The YSK-8900 includes a 20 ft (6 m) remote cable and a mounting bracket for the front panel, and the microphone jack is located on the side of the front panel, eliminating the need to run a separate cable.




*When using the MH-48A6J or MH-42B6JS microphone in conjunction with the MEK-2, in some cases, the [P1] through [P4] functions may operate erratically.

## SMART SEARCH™ AUTOMATIC MEMORY LOADING SYSTEM

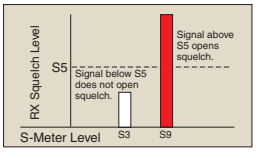
The Smart Search™ feature may be used to load-automatically with no operator intervention-a special memory bank of up to 25 memory channels (per band) on which activity is detected. Smart Search™ will sweep the band, looking for channels on which activity may be found, and it's ideal when visiting a city for the first time, where you may be unfamiliar with local repeater frequencies.

## EASY SETUP FOR FM SATELLITE OPERATION

For operating on FM satellites like UO-14, the versatile memory system of the FT-8900R allows you to store a set of uplink and downlink frequencies that account for Doppler shift over the entire horizon-to-horizon pass, allowing you to select the optimum uplink/downlink combination effortlessly.

# AND MUCH, MUCH MORE!

- 1200/9600 BPS Packet Capability: Connect your TNC using the optional CT-39A Packet Cable.
- Automatic Repeater Shift: Automatically sets the repeater shift within the designated repeater sub-bands.
- RF Squelch: Opens the squelch at a user-defined S-Meter level.




- Automatic Power-Off (APO): Turns radio off after long periods of inactivity.
- Time-Out Timer (TOT): Prevents "Stuck Microphone" from causing lengthy QRM to others.
- Battery Voltage Meter: Lets you know if your battery is getting low.
- DTMF Auto-Dial Memory: 16 Memories of up to 16 tones each.
- Lock Feature for Front Panel Keys & PTT Switch: Prevents accidental transmission or frequency change.