



# NEW PRODUCT INFORMATION

DUAL BAND TRANSCEIVERS

## IC-2820H (USA) IC-E2820 (Europe)



The above photo shows the IC-2820H. The IC-E2820 differs slightly from this photo.

*Icom proudly announces the debut of the new dual band mobile transceiver, IC-2820H/E2820. It is the advanced successor of the popular IC-2720H/2725E, having the inherited features from the IC-2720H series such as V/V, U/U simultaneous receive capability, wideband receiver, independent tuning knobs and separate controller. The diversity receive capability, full dot-matrix display and ample 50W output power in both VHF and UHF bands have been added to the IC-2820H/E2820.*

*Further more, with the optional UT-123, D-STAR DV mode with GPS functionality is possible. D-STAR DV mode operation and exchanging position information or plotting it to mapping software on a PC expands mobile operation into a new realm.*

### SELLING POINTS

- *V/V, U/U simultaneous receive capability*
- *New diversity receive capability (Two antennas are required)*
- *New large full dot-matrix display*
- *50W output power (VHF/UHF bands)*
- *New DV mode + GPS receiver (with optional UT-123)*
- *522 memory channels*
- *Built-in wide band receiver*
- *Separated controller from main unit*
- *HM-133, remote control microphone*
- *9600bps data terminal*

## FEATURES

### V/V, U/U simultaneous receive capability

The IC-2820H/E2820 is a true dual band transceiver. VHF/VHF, UHF/UHF as well as VHF/UHF simultaneous receive is possible. A simple push of a button allows you to change between the main (transmit) band and sub-band.

### Diversity receive capability

The diversity receive\* mode is useful for mobile operation where the received signal strength changes continuously. It compares the signal strength and chooses the antenna with the better signal to maintain good sound and receive quality.

\* Two antennas are required. 127, 136, 146, 375, 440, 500MHz band in FM/FM-N/DV mode only.  
The diversity reception is not available while using the dualwatch.



Two antenna icons on the top left side indicate diversity reception.

### Large full dot-matrix display

The IC-2820H/E2820 has a 93x28 mm large full dot-matrix display offering excellent viewing angle suitable for mobile operation. The dot-matrix display provides graphical user friendly operation. For example, when you push the "Function" button, you can call up the function menu of the assigned functions above each button. The background color of the display is selectable from green, orange to amber color in 21 steps.



### Independent tuning knob for each band

The IC-2820H/E2820 provides easy to use user-friendly operation. The independent tuning knob provides simple and quick tuning. Volume, squelch and other function switches are symmetrically laid out for each band. In addition, there are two speaker jacks for each band on the main unit.

### 50W output power in both VHF and UHF bands

A MOS-FET power amplifier provides a powerful 50W both in the 144MHz and the 430 (440) MHz bands, making this compact rig capable of long distance communication! Output power is selectable in 3 steps.

### DV mode + GPS available (with optional UT-123)

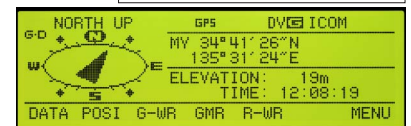
The optional UT-123 provides DV mode operation plus GPS receiver capability. When installed, the IC-2820H/E2820 is compatible with the JARL D-STAR format. Your position data can be sent simultaneously with the digital voice transmission.



UT-123 (GPS antenna is included)

#### Position information exchange

When connecting the GPS antenna supplied with the UT-123 to the GPS jack, your own position information can be sent to other stations. The IC-2820H/E2820 sends the position data either by holding the PTT switch, or at a preset interval (5 seconds–30 minutes), depending on the setting.



GPS information example  
Distance and elevation units are selectable from "m" or "ft/mi".

#### Plotting position information on a mapping software

When connected to a PC\* via the optional RS-232C cable, OPC-1529R, the position information can be plotted on mapping software\* on a PC.

\* Serial port and position mapping software (NMEA 0183 format) are required.

#### GPS alarm

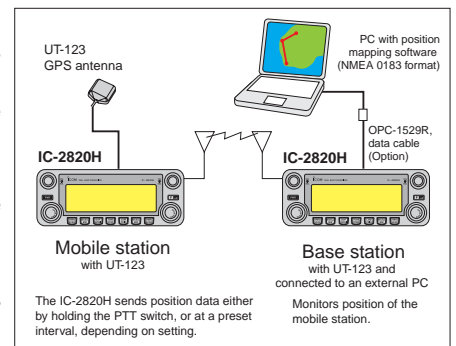
The GPS alarm sounds when your own position is close to the specified point or area.

#### One touch reply function

The IC-2820H/E2820 has a one-touch reply function. It uses the received callsign (including repeater callsign) and allows you to call back to the calling station without hassle. In addition, up to 20 received callsigns are stored as the received call record.

#### Callsign function

Stores My (own), Your (other stations) and repeater 1/2 callsigns in the memory. "Your" and "repeater 1/2" callsign memory stores 60 callsigns with 8-character channel comment for each. Own callsign and up to a 20-character message can be sent at the beginning of each call. The received callsign and message are decoded on the display.



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## FEATURES

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### ***Built-in digital voice memory recorder and auto reply***

The UT-123 has a built-in voice memory recorder\*. It records an incoming call for up to 30 seconds (approx.), or can be partitioned into 3 tracks (10 seconds each). The 10-second transmit memory allows you to record your callsign, CQ message, etc, and automatically answers when you receive a message. (\* Available in DV mode only).

### ***DX communication over the D-STAR system***

The 144, 440MHz D-STAR repeater is now available. It allows you cross band (144 /440/1200MHz) operation and long distance communication over the D-STAR system.

### ***950bps data communication in DV mode***

When connected to a PC\* via the optional RS-232C cable, OPC-1529R, the data communication is available.

\* Serial port and serial communication software are required.

## **522 memory channels**

The IC-2820H/IC-E2820 has a total of 522 memory channels, 500 regular channels, 2 call channels and 20 scan edges. Each memory channel stores tone frequency, skip information and so on. Our Dynamic Memory Scan (DMS) system divides these memories into 26 groups, A to Z, and provides easy channel selection. Of course, bank scanning is also possible.

## **Built-in wide band receiver**

In addition to the V/V, U/U dual band capabilities, the IC-2820H/E2820 has a wideband receiver as a standard feature. As it covers 118–549.995 and 810–999.990MHz\*, you will be able to listen to aviation, marine, weather channels and other utility communications in your vehicle or shack. The IC-2820H/E2820 has a Max. 45 channel/sec. high speed scan capability (in program scanning mode). This scanning power allows the utmost efficiency when searching a wide frequency range.

\* Receiver range depending on versions. See specification page.

## **Separate controller from main unit**

The controller is separated from the main unit for flexible installation. The controller has magnets on the rear panel, it allows the controller to attach to the main unit or other metal objects. Clean and neat installation can be made easier. A 3.4m separation cable, OPC-1663, and short cable (10cm), OPC-1712, are supplied.

## **HM-133, remote control microphone**

The supplied HM-133, remote control microphone extends the utility of the IC-2820H/IC-E2820. The 10-key pad allows you to enter the frequency directly. The F1/F2 buttons memorize the transceiver's full settings. As if switching between two separate radios, all operating frequencies, tone settings as well as the display color, fan speed, and set mode settings are memorized.

## **External DTMF remote function (USA version only)**

The external DTMF remote function allows you to remotely control the operating frequency of the the IC-2820H main band from another radio using DTMF signals on the sub band. To operate the external DTMF remote, a 144MHz or 440MHz transceiver with a DTMF encoder is required.

## **104×2 DTCS/50 CTCSS tone squelch operation is standard**

CTCSS and DTCS tone signaling systems provide quiet stand-by and useful functions such as pocket beep and tone scan. The pocket beep alerts the operators with a beep sound, when the transceiver receives a signal containing a preset tone. Tone scan detects the tone frequency used for opening a repeater or for tone squelch operation.

## **Other outstanding features**

- ±2.5ppm high frequency stability with TCXO unit
- 9600bps data terminal, a mini DIN (6-pin) connector on the front panel of the main unit
- Weather channel with weather alert function (USA version only)
- Adjustable microphone sensitivity
- Long or short squelch delay
- FM narrow capability
- 16 DTMF memory channels (24 digits)
- Auto power off
- ALC (Automatic microphone Level control)
- Automatic attenuator
- Sub-band auto mute function
- DTMF pager/code squelch function
- Auto repeater function (USA/Korea versions only)

## SPECIFICATIONS

Specifications described below are target values. They may be subject to change.

### ■ GENERAL

- Frequency coverage : (Unit: MHz)

Version	Transmit	Receive
Euro-1	144-146, 430-440	(L) 118-549.995 , (R) 118-173.995, 375-549.995, 810-999.990*1
Euro-2	144-146, 430-440	144-146, 430-440
U.S.A	144-148, 430-450*2	(L) 118-549.995 (R) 118-173.995, 375-549.995, 810-999.990*2
Australia	144-148, 430-440	(L) 118-549.995 (R) 118-173.995, 375-549.995, 810-999.990*3
Korea	144-146, 430-440	144-146, 430-440
Taiwan	144-146, 430-432	144-146, 430-432
Export	136-173.995, 400-469.995*3	(L) 118-549.995 (R) 118-173.995, 375-549.995, 810-999.990*3

\*1 Receiver guaranteed 144-146, 430-440MHz only.

\*2 Cellular blocked. Tx/Rx guaranteed range 144-148, 440-450MHz only.

\*3 Tx/Rx guaranteed range 144-148, 430-440MHz only.

(L) means left side band, (R) means right side band.

- Mode : FM, AM (receive only), DV (With UT-123)
- No. of memory Ch. : 522 channels (incl. 20 scan edges and 2 call)
- Frequency resolution : 5, 6.25, 10, 12.5, 15, 20, 25, 30 and 50kHz
- Operating temperature range : -10°C to +60°C; +14°F to +140°F
- Frequency stability : ±2.5ppm (-10°C to +60°C on the basis of 25°C)
- Power supply requirement : 13.8V DC ±15 %
- Current drain (at 13.8V DC):
  - Transmit Max. power 13.0A
  - Receive Stand-by 1.2A
  - Max. audio 1.8A
- Antenna impedance : 50Ω (SO-239)
- Dimensions (projections are not included):
  - Controller 150(W)×58(H)×31.5(D) mm
  - Main unit 150(W)×40(H)×187.7(D) mm
- Weight (approx.) :
  - Controller 210g (With OPC-1712)
  - Main unit 1500g

### ■ TRANSMITTER

- Modulation system :
  - FM Variable reactance
  - DV GMSK
- Output power : High\* 50W  
Mid approx. 15W  
Low approx. 5W  
\*25W for for Taiwan version
- Max. deviation : ±5.0kHz/±2.5kHz (W/N)
- Spurious emissions : Less than -60dB
- Microphone impedance : 600Ω (8-pin modular)

### ■ RECEIVER

- Intermediate frequency :
  - Left side band 38.85MHz/450kHz (1st/2nd)
  - Right side band 46.35MHz/450kHz (1st/2nd)
- Sensitivity (Ham bands only) :
  - FM (12dB SINAD) Less than 0.18μV
  - DV (BER 1%) Less than 0.35μV (with UT-123)
- Squelch sensitivity : Less than 0.13μV at threshold
- Selectivity :
  - FM Wide More than 10kHz/6dB  
Less than 30kHz/60dB
  - FM Narrow More than 6kHz/6dB  
Less than 20kHz/60dB
  - DV More than 50dB (with UT-123)
- Spurious and image rejection ratio:
  - Left side VHF/UHF More than 60/55dB
  - Right side VHF/UHF More than 60/60dB
- Audio output power : More than 2.4W (at 13.8 V DC) at 10% distortion with an 8Ω load
- Ext. SP connector : 2-conductor 3.5 (d) mm (1/8")/8Ω
- Rx bands sensitivity (Not guaranteed, for your reference only)

Frequency range	Left side band (FM/AM)	Right side band (FM/AM)
118-159.995MHz	0.32/1.0μV	0.32/1.0μV
160-173.995MHz	0.56μV (FM only)	0.56μV (FM only)
174-179.995MHz	0.56μV (FM only)	N/A
180-219.995MHz	5.6μV (FM only)	N/A
220-224.995MHz	0.56/1.8μV	N/A
225-349.995MHz	5.6/18μV	N/A
350-359.995MHz	0.56/1.8μV	N/A
360-374.995MHz	5.6/18μV	N/A
375-399.995MHz	0.56/1.8μV	0.56/1.8μV
400-499.995MHz	0.32μV (FM only)	0.32μV (FM only)
500-549.995MHz	0.56μV (FM only)	0.56μV (FM only)
810-879.990MHz	N/A	0.79μV*1 (FM only)
880-999.990MHz	N/A	1.8μV*2 (FM only)

\*1 1.4μV for USA version. \*2 3.2μV for USA version.

## OPTIONS

### ■ DIGITAL/GPS UNIT

UT-123 : Provides D-STAR digital and GPS capabilities. The GPS antenna is supplied with UT-123. (New item)

### ■ CLONING SOFTWARE AND CABLES

CS-2820 : Cloning software. Allows quick and simple setting from a PC. (New item)  
(Microsoft® Windows® 98SE, Windows® Me, Windows® 2000, Windows® XP).

+ OPC-1529R: Data communication cable (RS-232C type) Allows you data communication in DV mode or high speed PC cloning with CS-2820.

or OPC-478 : PC connection cable (RS-232C type)

or OPC-478UC : PC connection cable (USB type)

### ■ HAND MICROPHONES

HM-154 : Hand microphone.

HM-133 : Remote control microphone. Same as supplied.

### ■ DC POWER SUPPLY CABLES

OPC-1132 : 3m DC power supply cable. Same as supplied.

OPC-347 : 7m DC power supply cable.

### ■ SEPARATION CABLE

OPC-1712 : Short type (10cm) separation cable. Same as supplied. (New item)

OPC-1663 : 3.4m separation cable. Same as supplied. (New item)

### ■ EXTERNAL SPEAKER

SP-10 : Mid sized external speaker

### ■ EXTENSION CABLES

OPC-440 : 5m microphone extension cable.

OPC-589 : Microphone adapter cable. Connection for 8-pin microphone.

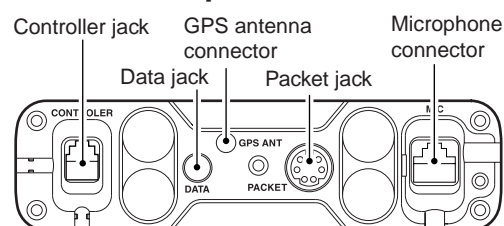
OPC-441 : 5m speaker extension cable.

## Supplied Accessories

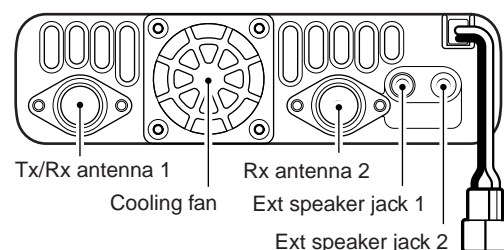


- ① DC power cable (3 m)
  - ② Controller cable, OPC-1712 (10 cm; 3.9 in)
  - ③ Separation cable, OPC-1663 (3.4 m; 11.2 ft)
  - ④ Microphone (HM-133)
  - ⑤ Mobile mounting bracket kit
  - ⑥ Microphone connector plate
  - ⑦ Remote controller bracket
- Microphone hanger, Fuse (20 A)

### RF unit front panel view



### RF unit rear panel view



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