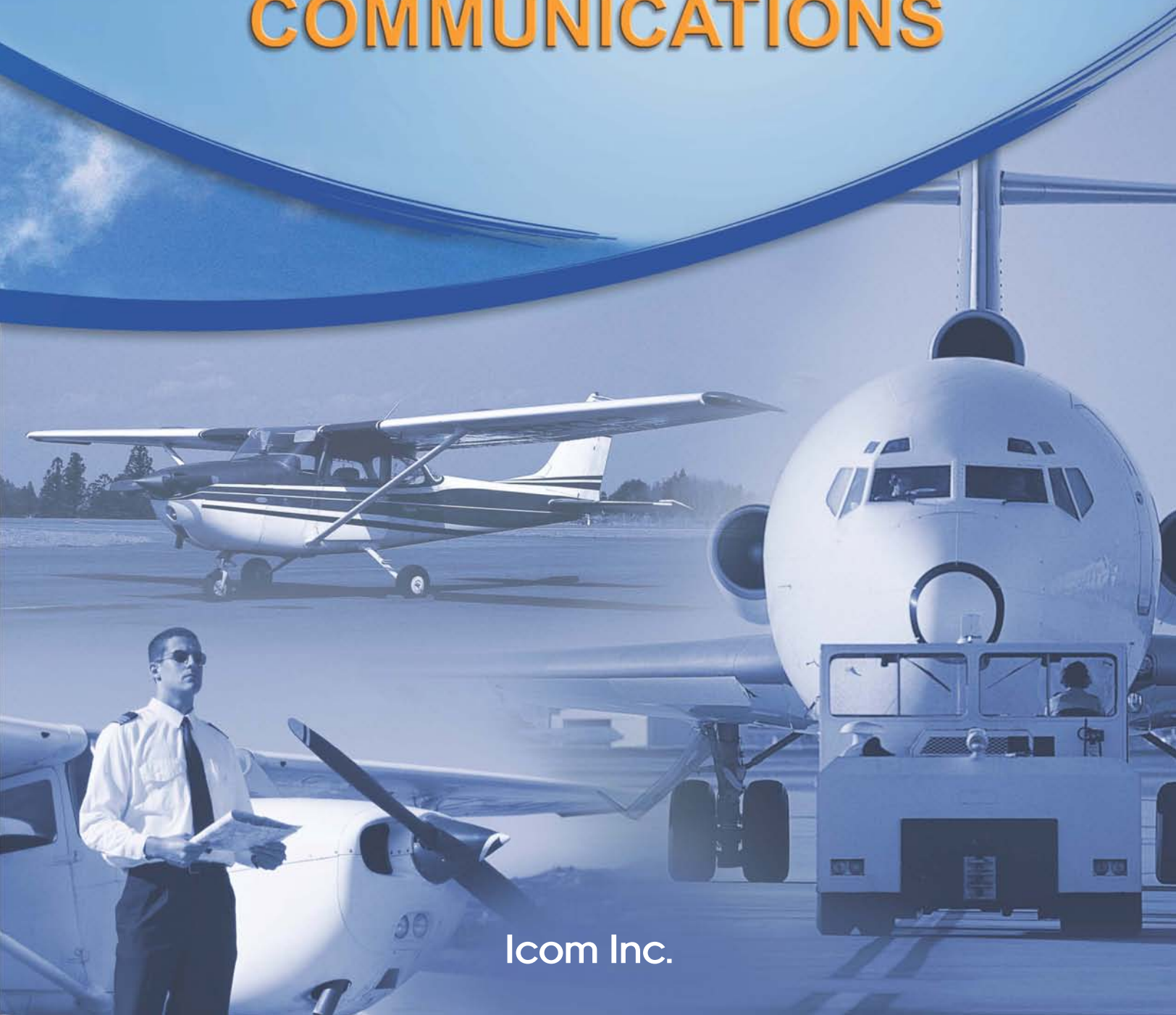


2008 Edition


icom

AVIATION COMMUNICATIONS



Icom Inc.

The world's favorite airband handheld!

Rugged
MIL-STD 810

IPX4



IC-A24

IC-A6E

VHF AIR BAND TRANSCEIVERS

IC-A24 **IC-A6**
IC-A24E **IC-A6E**


NAV & COM channels

COM channels

Easy to use

Simple one-handed operation is the most essential feature of the IC-A24/E and A6/E. The well labeled, large keypad provides user friendly operation. The large display shows both letters and numbers and is easy to see, making for fast frequency recognition. The display is backlit, and so is the keypad. The light stays on until you turn it off – a very handy feature for flying at night.

“Flip-flop” channel recall

The IC-A24/E and A6/E stores the last 10 channels used. You can easily recall those channels by pushing the “flip-flop” recall  buttons on the front panel. It is convenient for switching between several channels, such as NAV and COM channels.

VOR navigation*

The IC-A24/E has VOR navigation functions. The DVOR mode shows the radial to or from a VOR station and the CDI mode shows the course deviation to/from a VOR station. You can also input your intended radial to/from the VOR station and show the course deviation on the display. In the USA version, the duplex operation allows you to call a COM channel, while you are using VOR navigation.

(* IC-A24/E only)



External DC power jack

An external DC power jack allows for operation with the wall charger, BC-110 or the cigarette lighter cable, CP-20. When the battery pack is installed, simultaneous charging during operation is also possible. In addition, an optional battery case, BP-208N, is available.

And more...

- Water resistant construction, equivalent to IPX4
- 200 memory channels (20 Ch × 10 banks) with 6 character names
- Dedicated 121.5MHz emergency key
- Side tone function allows you to hear your own voice via an external aviation headset.
- Optional Ni-Cd and Ni-MH battery packs
- NOAA marine weather channels (IC-A24/A6 only)
- Tag scanning and memory bank scanning
- ANL (Auto Noise Limiter) for noise reduction

Easy to use, rugged and compact

with 700mW loud audio!



IC-A14

IC-A15S

VHF AIR BAND TRANSCEIVERS

IC-A14 **IC-A14S**

IC-A15 **IC-A15S**

Full keypad

Simple keypad

700mW* loud audio

Because air band radios are usually operated in high-noise environments, it is essential for the radio to provide loud and clear audio. The IC-A14/S and A15/S employ a BTL amplifier that doubles the audio output, offering loud and clear audio that'll cut through cabin or tarmac noise. (* Internal speaker only)

Full keypad type or Simple keypad type

The IC-A14/A15 full keypad type allows you to input the channel or frequency directly and both have an exclusive button for the 121.5MHz emergency channel. The IC-A14 receives NAV and WX channels. The IC-A14S/A15S simple keypad type provide simpler operation with a minimum of buttons that is suitable for ground crews.

Compact, light weight and rugged body

The IC-A14/S and A15/S are compact (only 120mm tall) and light weight (approx. 350g including antenna and BP-232N). The water resistant construction, equivalent to IPX4, provides reliable operation in wet conditions.

Large capacity Lithium-Ion battery pack

With the 2000mAh large capacity Lithium-Ion battery pack, BP-232N, the IC-A14/S and A15/S series provide stable output power and 18 hours long (approx.) operating time*. The BP-261, battery case takes 6 AA (LR6) alkaline cells for convenient battery backup.

* Typical operation, Tx:Rx: Stand-by=5:5:90.

200 channels with memory banks

A total of 200* memory channels can be named with an 8-character channel name for easy recognition. For fast and simple operation, these channels can be grouped into 10 memory banks*.

* IC-A14 and A15 only. The IC-A14S and A15S have 100 memory channels and memory banks are not available.

And more...

- 5W typ. (PEP), 1.5W typ. (CW) output power
- Side tone function allows you to hear your own voice via a third party aviation headset
- LCD backlight for night time operation
- ANL (Auto Noise Limiter) for noise reduction
- Low battery indication and beep alert
- Adjustable microphone gain setting
- BNC type antenna connector
- Optional BC-179 holder type battery charger

Innovative airband that's easier to install and see in more places



IC-A210

VHF AIR BAND TRANSCEIVERS

IC-A210 • IC-A210E

Large, bright OLED display

The IC-A210/E has an organic light emitting diode (OLED) display. The display offers many advantages in brightness, vividness, contrast, viewing angle and response time compared to a conventional display. In addition, the auto dimmer function adjusts the display for optimum brightness at day or night.

Easy channel selection with dualwatch function

It's fast and easy to select any of the memory channels in the IC-A210/E. The "flip-flop" arrow button switches between main and stand-by channels. The dualwatch function allows you to monitor two channels simultaneously. In addition, the auto stack memory (history memory) stores the last 10 channels used and allows you to recall those channels easily.

GPS memory function

When connected to an external GPS receiver* equipped with an airport frequency database, the frequency data such as nearby airports can be transferred and made available in the IC-A210/E.

* Ask your dealer for available GPS receiver details.

12V/24V DC power source

The built-in DC-DC converter accepts a 12/24V (11.5–27.5V) DC power source. The IC-A210/E is easily installed in most airplanes or vehicles.

Intercom functions

The IC-A210/E has a built-in voice activated intercom function allowing the pilot to talk with the co-pilot via the headset. The IC-A210/E has adjustable audio level and squelch control functions.

Easy installation

The IC-A210/E neatly fits inside the common mounting brackets used on most airplanes including Icom's IC-A200. Two types of rear-panel adapters are included, allowing for streamlined plug-in connectivity.

* Ask your dealer for compatible panel mount radio details.

Other features

- 8.33kHz/25kHz channel spacing (IC-A210E only)
- TSO version planned (Pending as of August 2008)
- NOAA weather channel receive (USA version only)
- One touch access to 121.5MHz emergency frequency
- Side tone function • ANL (Automatic noise limiter) function
- Remote control capability • Time-out-timer • PC programmable

Rugged and reliable for serious ground crew communications



IC-A110

VHF AIR BAND TRANSCEIVERS

IC-A110 • IC-A110EURO

Capable for use in any vehicle

The IC-A110/EURO is adaptable to vehicles working on a 12V, as well as a 24V power source.

Front mounted loud speaker

A loud speaker mounted in front of the transceiver is free of any obstacles blocking audio reproduction, and, provides loud and clear audio.

Dial selection

With a simple rotation of the dial, frequently used memory channels, or desired frequency selection can be made.

Memory channel name display

Up to 7-character memory names can be assigned for each of the 99 channels. Allows simple and quick channel recognition and selection.

Side tone function

The operator's transmitted messages and calls are audio modulated and can be heard by standard airband headsets*, even in the most demanding airport operating conditions.

* Option OPC-871 is required.

Convenient on hook scan functions

Hanging the microphone on the microphone hanger activates the auto scan function. When released, the transceiver will return to the last used, or priority channel, depending on the selection.

Usable in extreme cold










The adopted LCD is guaranteed usable in temperatures from -30°C to $+70^{\circ}\text{C}$ (-22°F to $+158^{\circ}\text{F}$). Normal performance, as well as display indications, are guaranteed even in extremely cold areas.









Other features









- Extra 8.33kHz channel spacing version available
- Various scan functions, such as VFO and priority scans
- A total of 99 memory channels are available
- 36W (PEP) of powerful output
- Ideal compact size of 150(W) \times 50(H) \times 180(D) mm* to mount in various types of vehicles

* 5²⁹/₃₂(W) \times 1³¹/₃₂(H) \times 7³/₃₂(D) in

OPTIONS FOR HANDHELD TRANSCEIVERS

	BATTERY PACKS				BATTERY CASES		WALL CHARGER	CHARGERS	
MODEL NAME	BP-209N Ni-Cd: 7.2V/1100mAh 	BP-210N Ni-MH: 7.2V/1650mAh 	BP-230N Li-Ion: 7.4V/980mAh 	BP-232N Li-Ion: 7.4V/2000mAh 	BP-208N AA (LR6)×6 cells 	BP-261 AA (LR6)×6 cells 	BC-110AR/DR 	BC-119N Rapid charger 	BC-144N Rapid charger 
IC-A24/A24E IC-A6/A6E	✓	✓			✓		✓	✓	✓
IC-A14/A14S IC-A15/A15S			✓	✓		✓		✓	

	CHARGERS			MULTI-CHARGER	AC ADAPTERS				
MODEL NAME	BC-160 Rapid charger 	BC-171 Regular charger 	BC-179 Regular charger 	BC-121N Rapid multi-charger 	BC-145 	BC-147 	BC-157 	BC-174 	
IC-A24/A24E IC-A6/A6E				✓	✓ (Use with BC-119N/BC-144N)		✓ (Use with BC-121N)		
IC-A14/A14S IC-A15/A15S	✓	✓	✓	✓	✓ (Use with BC-119N/BC-160)	✓ (Use with BC-171)	✓ (Use with BC-121N)	✓ (Use with BC-179)	






	CHARGER ADAPTERS		DC POWER CABLES		CIGARETTE LIGHTER CABLES		SPEAKER-MICROPHONE	HEADSET ADAPTER CABLE	
MODEL NAME	AD-101 	AD-106 	OPC-515L 	OPC-656 	CP-20 	CP-22 	HM-173 	OPC-499 	
IC-A24/A24E IC-A6/A6E	✓ (Use with BC-119N/BC-121N)		✓ (Use with BC-119N)	✓ (Use with BC-121N)	✓		✓	✓	
IC-A14/A14S IC-A15/A15S		✓ (Use with BC-119N/BC-121N)	✓ (Use with BC-119N)	✓ (Use with BC-121N)		✓ (Use with BC-179)	✓	✓	

	BELT CLIPS			LEATHER BELT HANGERS		CARRYING CASE	ANTENNA		
MODEL NAME	MB-86 	MB-94 	MB-103 	MB-96F 	MB-96N 	LC-159 	FA-B02AR 		
IC-A24/A24E IC-A6/A6E	✓		✓	✓ (Use with MB-103)	✓	✓	✓		
IC-A14/A14S IC-A15/A15S		✓		✓ (Use with MB-94)			✓		

* Some options may not be available in some countries, or unavailable due to no T/A. Please ask your dealer for details.

: Applicable : Not applicable

OPTIONS FOR MOBILE TRANSCEIVERS

	HAND MICROPHONES		HEADSET ADAPTER	DC POWER SUPPLY	MOUNTING BRACKET	
MODEL NAME	HM-161 	HM-176 Same as supplied with PS-80 and MB-53. 	OPC-871 	PS-80 	MB-53 	
IC-A210/A210E		✓ (Use with PS-80/MB-53)		✓ (IC-A210 only)	✓	
IC-A110/A110EURO	✓		✓			

: Applicable : Not applicable

SPECIFICATIONS

		IC-A24/IC-A6 IC-A24E/IC-A6E	IC-A14/IC-A14S IC-A15/IC-A15S	IC-A210 IC-A210E	IC-A110 IC-A110EURO
Frequency range (unit: MHz)	Tx	118.000–136.975	118.000–136.975	118.000–136.975	118.000–136.975
	Rx	108.000–136.975 (IC-A24/A24E) 118.000–136.975 (IC-A6/A6E) 161.650–163.275 (USA/GEN, IC-A24/A6)	108.000–136.975 (IC-A14) 118.000–136.975 (IC-A14S, A15/S) 161.650–163.275 (IC-A14)	118.000–136.975 161.650–163.275 (USA, IC-A210)	118.000–136.975
Number of memory channels		200ch (20ch × 10 banks)	200ch (20ch × 10 banks, IC-A14, A15) 100ch (IC-A14S, A15S)	240ch (Max. IC-A210) 230ch (Max. IC-A210E)	99ch
Channel spacing		25kHz	25kHz	25kHz (IC-A210) 25kHz/8.33kHz (IC-A210E)	25kHz/8.33kHz or 25kHz (Varies according to version)
Power supply requirements		7.4/7.2V DC (Battery pack), 11.0V DC (External DC jack)	7.4V DC	13.8V or 27.5V DC (automatic selection)	13.75V or 27.5V DC (automatic selection)
Current drain	Tx	1.5A typ.	1.5A	5.0A Max.	5.0A Max.
	Rx	Stand-by 70mA typ. Max. audio 300mA typ.	50mA typ. 500mA	500mA 4.0A	500mA 4.0A
Dimensions* (W×H×D)		54×129.3×35.5 mm; 2 ¹ / ₈ ×5 ³ / ₃₂ ×1 ¹³ / ₃₂ in	53×120×36.9 mm; 2 ³ / ₃₂ ×4 ²⁹ / ₃₂ ×1 ⁷ / ₁₆ in	160×34×271 mm; 6 ⁵ / ₁₆ ×1 ¹¹ / ₃₂ ×10 ²¹ / ₃₂ in	150×50×180 mm; 5 ²⁹ / ₃₂ ×1 ³¹ / ₃₂ ×7 ³ / ₃₂ in
Weight (approx.)		430g; 15.2oz (with BP-210N and ANT)	350g; 12.3oz (with BP-232N and ANT)	1.0kg; 2.2lb	1.5kg; 3.3lb
Operating temperature range		−10°C to +60°C (USA/GEN) −10°C to +50°C (AUS) −20°C to +55°C (EUR)	−10°C to +60°C (IC-A14/S) −20°C to +55°C (IC-A15/S)	−20°C to +55°C	−30°C to +60°C (IC-A110) −20°C to +55°C (IC-A110EURO)
Frequency stability		±5ppm	±5ppm	±5ppm (IC-A210) ±1ppm (0°C to +40°C, IC-A210E)	±5ppm (IC-A110) ±1ppm (0°C to +40°C, IC-A110EURO)
RF output power		5.0/1.5W typ. (USA/GEN, PEP/Carrier) 3.6/1.0W typ. (AUS/EUR, PEP/Carrier)	5.0/1.5W typ. (PEP/Carrier)	8.0W typ. (Carrier, IC-A210) 6.0W typ. (Carrier, IC-A210E)	36/9W typ. (PEP/Carrier, IC-A110) 9W (+2dB/−3dB, IC-A110EURO)
Microphone impedance		100kΩ	150Ω	600Ω	600Ω
Sensitivity		COM −6dBμ typ. (6dB S/N, USA) −3dBμ typ. (12dB SINAD, AUS/EUR) NAV −3dBμ typ. (6dB S/N)	COM −6dBμ typ. (6dB S/N, IC-A14/S) −3dBμ typ. (12dB SINAD, IC-A15/S) NAV −3dBμ typ. (6dB S/N, IC-A14)	2μV (6dB S/N, IC-A210) 2μV (12dB SINAD, IC-A210E)	1μV (6dB S/N, IC-A110) 1.8μV (12dB SINAD, IC-A110EURO)
Selectivity		7.5kHz/−6dB 25kHz/−60dB	7.5kHz/−6dB 25kHz/−60dB	±3kHz/−6dB (25kHz, IC-A210) ±8.5kHz/−6dB (25kHz, IC-A210E) ±2.8kHz/−6dB (8.33kHz, IC-A210E)	±8kHz/−6dB (25kHz, IC-A110) ±25kHz/−60dB (25kHz, IC-A110) ±2.778kHz/−6dB (8.33kHz, IC-A110)
Spurious response rejection		60dB (COM/NAV, IC-A24/A6) 70dB (IC-A24E/A6E)	60dB (COM/NAV, IC-A14/S) 70dB (IC-A15/S)	74dBμ (IC-A210) 70dB (IC-A210E)	74dBμ (IC-A110) 70dB (IC-A110EURO)
Audio output power (at 10% distortion)		500mW typ. with an 8Ω load	700mW with an 8Ω load (Internal SP) 500mW with an 8Ω load (External SP)	5W with a 4Ω load (External SP) 60mW with a 500Ω load (Headphone)	10W typ. with an 8Ω load (External SP) 100mW typ. with a 500Ω load (Headphone)

All stated specifications are subject to change without notice or obligation. * Projections are not included.



Applicable U.S. Military specifications

Icom makes rugged products that have been tested to and passed the following MIL-STD requirements and strict environmental standards.

Standard	Low Pressure Storage	Low Pressure Operation	High Temperature Storage	High Temperature Operation	Low Temperature Storage	Low Temperature Operation	Temperature Shock	Solar Radiation	Rain Blowing	Rain Drip	Humidity Induced	Humidity Aggravate	Salt Fog	Dust Blowing	Vibration	Shock Functional Shock	Shock Transit Drop
MIL-810 E Method. Procedure	500.3 I	500.3 II	501.3 I	501.3 II	502.3 I	502.3 II	503.3 I	505.3 I	506.3 I	506.3 II	507.3 II	507.3 III	509.3 I	510.3 I	514.4 I	516.4 I	516.4 IV
MIL-810 F Method. Procedure	500.4 I	500.4 II	501.4 I	501.4 II	502.4-3 I	502.4-3 II	503.4 I	505.4 I	506.4 I	506.4 III	507.4	509.4	510.4 I	514.5 I	516.5 I	516.5 IV	
IC-A24/A24E, IC-A6/A6E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
IC-A14/S, IC-A15/S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
IC-A110/A110EURO	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

The IC-A24/E, A6/E, A14/S and A15/S were tested to MIL-810 F requirements. The IC-A110/A110EURO was tested to MIL-810 E requirements. The tests for the IC-A210/E are still under evaluation.



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