

### WATERPROOF SPEAKER MICROPHONES

**HM-169 HM-174 HM-184**

### GPS SPEAKER MICROPHONES

**HM-170GP HM-171GP**

**HM-175GPS HM-189GPS**

## PRECAUTIONS

**CAUTION:** Attach the speaker-microphone's connector securely to prevent accidental dropping the transceiver, or water intrusion in the connector. (See the transceiver's instruction for installation details.)

**BE SURE** to turn OFF the transceiver's power when attaching to the transceiver or detaching from the transceiver. Otherwise a malfunction may occur, or may damage the transceiver or microphone.

**NEVER** immerse the connector in water. If the connector becomes wet, be sure to dry BEFORE attaching it to the transceiver.

**DO NOT** use or place the microphone in areas with temperatures below  $-30^{\circ}\text{C}$  or above  $+60^{\circ}\text{C}$  ( $-22^{\circ}\text{F}$  to  $+140^{\circ}\text{F}$ ).

**DO NOT** use harsh solvents such as benzine or alcohol to clean the microphone, as they will damage the microphone's surfaces.

**BE CAREFUL!** The microphone employs waterproof construction (except HM-171GP/189GPS), which corresponds to IPX7 of the international standard IEC 60529 (2001). However, once the microphone has been dropped, waterproofing cannot be guaranteed due to the fact that the microphone may be cracked, or the waterproof seal damaged, etc.

**DO NOT** modify the microphone for any reason. Repair should be done at authorized Icom service center only. Waterproofing cannot be guaranteed if you open the microphone yourself, or have it done at a non-authorized dealer/service center.

**USE** specified Icom transceivers only. Other manufacturer's transceivers have different pin assignments and may damage the transceiver or microphone if attached.

While connecting the HM-170GP, HM-171GP, HM-175GPS or HM-189GPS to the transceiver and the transceiver is set the GPS automatic transmit function, the transceiver transmits automatically at every setting interval. This is normal and does not indicate an equipment malfunction.

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Thank you for purchasing the **HM-169/HM-174/HM-184 WATERPROOF SPEAKER MICROPHONES, HM-170GP/HM-171GP/HM-175GPS/HM-189GPS GPS SPEAKER MICROPHONES**. Please read these instructions and transceiver's instruction manual carefully before installation and operation.

## FOREWORD

- The microphone has outstanding protection against dust and water that is equivalent to IP57 (1 m (3 ft)/30 min). The microphone can withstand submersion in 1 m (3 ft) depth of water for up to 30 minutes and has dust-tight construction that prevents the ingress of dust. (except HM-171GP/HM-189GPS)
- Improved speaker audio quality and loudness.
- Includes high-performance GPS receiver. (HM-170GP/HM-171GP/HM-175GPS/HM-189GPS only)

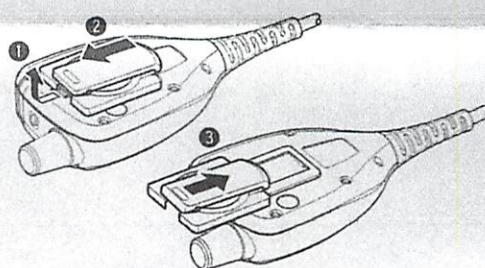
## ATTACHING/DETACHING BELT CLIP

To detach the belt clip:

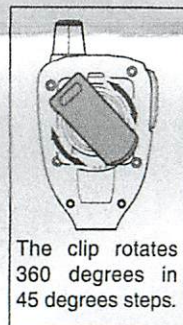
- ① Pinch the clip (1).
- ② Then slide the belt clip in the direction of the arrow (2).

To attach the belt clip:

Slide the belt clip in the direction of the arrow (3) until the belt clip is locked and makes a 'click' sound.



**HM-170GP/HM-171GP/  
HM-175GPS/HM-189GPS**



The clip rotates 360 degrees in 45 degree steps.

## SPECIFICATION

### GENERAL

- |  |   |  |  |
|--|---|--|--|
| • Power supply requirement                         | : (Supplied from transceiver)   | • Weight (cable/joint/belt clip included): (approximately) |  |
| HM-169/170GP/184                                   | 5.0 to 8.4 V  | HM-169/174   | 200 g (7.1 oz)   |
| HM-171GP/174/175GPS/189GPS                         | 5.0 V   | HM-170GP/171GP/175GPS/189GPS                               | 220 g (7.8 oz)   |
| • Current drain                                    | : (at 5 V)  | HM-184   | 210 g (7.4 oz)   |
| HM-169/174/184                                     | Less than 4 mA  | • Speaker  | : Impedance 8 $\Omega$                                   |
| HM-170GP/171GP/175GPS/189GPS                       | Less than 65 mA   |  | : Rated input 1 W at 5% distortion (max. 2 W)            |
| • Operating temp. range                            | : $-30^{\circ}\text{C}$ to $+60^{\circ}\text{C}$<br>$-22^{\circ}\text{F}$ to $+140^{\circ}\text{F}$                           |  |  |
| • Dimensions (cable/joint/belt clip not included): |   | <b>GPS RECEIVER</b>  |  |
| HM-169/174/184                                     | 62(W) $\times$ 89(H) $\times$ 40(D) mm<br>2 $\frac{7}{16}$ (W) $\times$ 3 $\frac{1}{2}$ (H) $\times$ 1 $\frac{5}{16}$ (D) in  | (HM-170GP/HM-171GP/HM-175GPS/HM-189GPS only)               |  |
| HM-170GP/171GP/175GPS/189GPS                       | 62(W) $\times$ 105(H) $\times$ 40(D) mm<br>2 $\frac{7}{16}$ (W) $\times$ 4 $\frac{1}{8}$ (H) $\times$ 1 $\frac{5}{16}$ (D) in | • TTF (Time to First Fix)                                  | : Cold start 40 sec. typical<br>Hot start 4 sec. typical |
| • Curly cable length                               | : 30 cm $\pm$ 2 cm (11 $\frac{3}{16}$ $\pm$ $\frac{25}{32}$ in)   |  |  |

All stated specifications are subject to change without notice or obligation.

## PANEL DESCRIPTION

### ① PTT SWITCH

Hold down to transmit; release to receive.

### ② TOP KEY (for HM-170GP/HM-171GP/HM-175GPS/HM-189GPS only) HM-170GP/HM-171GP:

Desired functions can be programmed by your dealer, depending on connected transceiver (see the transceiver's instruction manual).

- Only HM-171GP; Key illumination lights while the HM-171GP is connected to the transceiver, then it blinks while GPS receiver receives GPS signals.

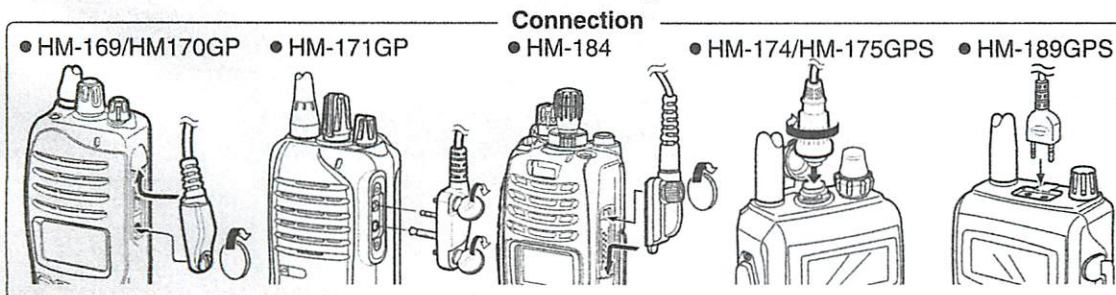
### HM-175GPS/HM-189GPS:

Push to turn the GPS receiver's power ON/OFF.

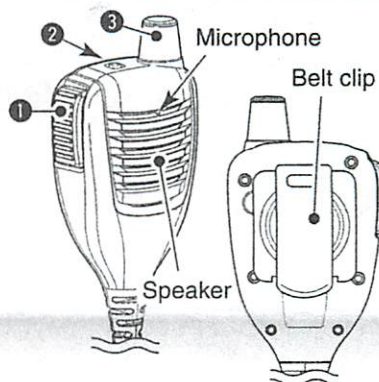
- Key illumination lights when GPS receiver is ON. Key illumination lights OFF when it's OFF.
- Key illumination blinks while GPS receiver receives GPS signals.

### ③ GPS ANTENNA

(for HM-170GP/HM-171GP/HM-175GPS/HM-189GPS only)



### HM-170GP/HM-171GP/HM-175GPS/HM-189GPS



#### Connector

- HM-169/HM170GP
- HM-171GP
- HM-174/HM-175GPS
- HM-184
- HM-189GPS

## ATTENTION FOR GPS RECEIVER (HM-170GP/HM-171GP/HM-175GPS/HM-189GPS only)

### About calculating position

The GPS receiver receives signals from GPS satellites. It calculates its position by the orbit information of the GPS satellites and needs to measure the distance between itself and three or more GPS satellites to obtain a reliable position. A receiver acquires all available satellites when it is first powered up, powered off for a long time, or powered up again at a place a long way from when it was last powered off. Normally, it takes approximately 1 minute for determining a position.

In places where the GPS signals cannot reach the GPS receiver such as in caves, underground, indoors, under overpasses, beside tall buildings, or near any other devices that cause electronic interference, the GPS receiver may show position errors (misplacement) or no position reading at all.

As the satellites are continuously moving, measurement of the position or time by the GPS receiver may take a while, and/or no position reading can be made in some instances. Even if the GPS receiver receives signals from three or more satellites, it may take a longer time to determine a position depending on the satellite locations.

Radio wave reception from the satellites is not only blocked by buildings and trees, but also by the human body in some instances. Therefore the GPS antenna should be kept as far away from the body as possible for best reception.

### About Almanac and Ephemeris Data

To reduce the time for calculating position, the GPS receiver stores the Almanac Data (the orbit course/orbital parameters of the satellites) in its internal memory. When the GPS receiver is left with the power OFF for a long time, the GPS receiver needs to acquire the Almanac Data again. In this case, the receiver starts as a "cold" start.

The GPS receiver stores Ephemeris Data of the satellite's orbital course, and refers to this data when the GPS receiver is turned OFF for a short time. This is called a "hot" start, and uses the Ephemeris Data that is valid to within less than 4 hours.

### Location precision

The GPS receiver automatically calculates its position when the GPS receiver receives GPS signals from three or more GPS satellites.

The GPS satellite's measurement error about  $\pm 10$  meters, however this can vary up to several hundred meters depending on the surrounding environment.

When the GPS receiver is powered up again at a place a long way from when it was last powered off, the first calculation of its position may be incorrect in some cases.

The GPS information and its accuracy varies depends on the GPS system being acquired, place and time.

Generally a GPS receiver cannot obtain a clear signal from the satellite when indoors. As a result, the GPS receiver may show position data several hundred meters from actual place, or may show no position reading at all.

### About NMEA sentence

The GPS receiver outputs the last memorized NMEA sentence if the current position data cannot be received due to the GPS signal being blocked by a building, car roof, etc., or it takes a long time to acquire the position data from a cold start. In this case, the NMEA sentence information may also include an "invalid" indication.

### About Condensation

If condensation appears on the outer casing of the GPS speaker microphone due to a sudden change in temperature (E.g. brought to a warm room from a cold place), it is likely condensation has also built-up on the inside of the microphone. In this case, keep the microphone with power OFF at room temperature for about 1 hour. Do not turn ON the microphone until the condensation disappears, as this will damage the microphone.