
English



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1 GENERAL INFORMATION ON HM06 RADIOS

This User's manual describes the standard features of vehicle transceivers series HM06, which are available in several models with several frequency bands. HM06 is a robust "BASIC" radio for vehicles with advanced features that uses a "Flash EEPROM" technology to simplify operations and guarantee maximum flexibility. The specifications of the transceiver implemented in model HM06 are compliant with standards ETS 300-086 and ETS 300-113. Its advanced design and physical characteristics are compliant with standards IEC529 level IP54 and MIL STD 810 C, D, E and F.

- 📖 *CTE International may change the specifications of its products without prior notice as a result of the continuous improvement of its products.*
- 📖 *The actual user features vary according to the programmed settings.*
- 👉 ***The use of this transceiver has to be authorized by the competent local bodies.***

2 SAFETY....ABOVE ALL

2.1 Conventions and symbols used in the manual

- 📖 *This symbol identifies a "note". Notes contain important practical recommendations that, if followed, simplify the use of the unit and guarantee optimum performance.*
- 👉 ***This symbol identifies a "precaution". Precautions contain instructions that have to be followed to avoid serious physical injuries, damage to the equipment and potential dangers to the user and other people. Precautions also draw the attention on important warnings that, if not followed, could jeopardize the correct operation of the unit and radio link.***
 - Names of buttons and keys are always highlighted in **bold**.
 - Messages and options are always displayed with `this font` (courier new).
 - Important phrases and words are highlighted in *italics*.

2.2 Warnings

- 👉 *Despite the measures taken to ensure that the information contained in this manual is complete, accurate and updated, CTE International shall not be responsible for damages for which it is not directly responsible. The manufacturer does not guarantee that alterations carried out by unauthorized personnel or originating from an improper installation will not affect the validity of the information contained in this manual.*

☞ *The information included in this manual may contain mistakes and omissions and applies only to the software version available at the time the document was printed.*

☞ *The transceiver must be used in accordance with all applicable regulations and common sense. In doubt, always contact the distributor or an authorized CTE International center before performing a specific operation.*

2.3 Safety

☞ *The ALAN HM06 transceiver has been designed with utmost attention to guarantee a safe and reliable operation in the long term. However, it is essential to carefully follow the general precautions listed below to prevent injuries and damage to yourself, other people and your radio.*

2.3.a General precautions

- Carefully read and follow all the instructions and warnings printed on the labels applied to the equipment and its accessories.
- Do not attempt to disassemble the radio or repair it directly, except to the extent necessary to perform the maintenance operations described in this manual. Failure to follow this instruction could invalidate the warranty and cause damage that requires extensive repairs. Always contact the local dealer for assistance.
- The performance of HM06 may be influenced by several factors, that include defects or failures, environmental conditions and im-

proper management and use of the unit.

- Do not spill liquids on the radio. If the transceiver gets wet, dry it immediately with a soft and clean cloth. If you suspect that liquid may have penetrated in its interior, have the radio immediately inspected by an authorized support center.
- Use original spare parts only. The use of non original spare parts could seriously damage the transceiver.
- **Always switch the radio off before cleaning it.** Carefully follow the instructions provided in Chapter 10.
- Verify that environmental conditions match those given in the specifications. The radio is designed to be used in extreme environmental conditions. However, it is essential to avoid exposing it to excessively high or low temperatures (that is to temperatures outside the range specified in Chapter 12).

2.3.b Operating conditions

- Do not use the radio when driving. The highway code explicitly forbids the use of transceivers when driving a vehicle.
- Do not use the radio next to unshielded detonators or in potentially explosive environments. Do not use the transceiver in potentially explosive areas (for example near petrol stations), because a single spark is sufficient to cause an explosion.
- Maintain a safety distance from the transceiver aerial during transmission. For optimum performance keep the microphone at 5-10 cm from your mouth (as required) and install the aerial in a vertical and free area in the center of the roof.

2.3.c Installation

- The radio must be installed and removed by qualified technicians only. The information provided in this manual is intended to assist installers who shall however be fully responsible for damages resulting from an improper installation.
- This transceiver generates and irradiates RF electromagnetic energy and must therefore be installed and used in accordance with the instructions provided in this manual and provided for in current laws. Failure to do may cause injuries to people and/or serious damage to the unit.
- Always verify that the installation fully complies with the requirements concerning the exposure to radiofrequency. Unauthorized changes or alterations may invalidate the compliance with standards. All changes and variations shall have to be approved in writing by the manufacturer.
- Always verify that the power supply meets the specifications given in this manual. In doubt, always contact the dealer for assistance.

This product is compliant with the requirements of Directive 89/336/EEC and 73/23/EEC of the European Council concerning the acknowledgement of laws related to electromagnetic compatibility and low voltage in Member Countries, and with the Automotive Directive 72-245-EEC, as amended by Directive 2004-104-EEC.

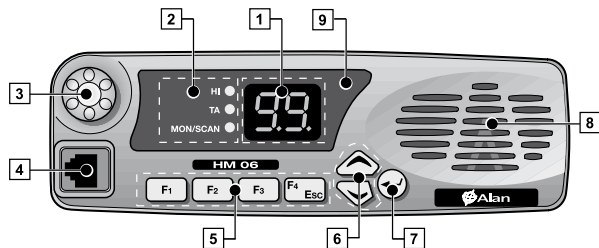
2.4 Technical Support

Please write the serial number of your transceiver in the space provided below. This number is printed on the identification label of the transceiver and must be provided for technical support and/or in the event of loss and/or theft of the unit.

Serial number _____

3 COMPONENTS AND FEATURES OF THE RADIO

3.1 Front side



- [1] **Display** (two-digit LED display with seven segments) – Displays the information described below, depending on the operating mode:
- *In standby mode* – Continuously displays the operating channel.
 - *In other operating modes* (for example during the adjustment of squelch) – Displays different information depending on the selected mode (for example the current squelch level).
- [2] **Signaling LEDs** – These three LEDs respectively signal (from top to bottom):
- **HI** (red) – Indicates that a high power transmission is enabled on the currently selected channel. For additional information, see paragraph 6.7.c.
 - **TA** (green) – Indicates that the Talk-Around feature is enabled. For additional information, see paragraph 9.3.

- **MON/SCAN** – If this LED is permanently on, it indicates that the Monitoring feature has been enabled. For additional information, see paragraph 6.6. If the LED is flashing, it indicates that the channel scan is in progress. For additional information, see paragraph 9.1.

[3] **On/Off Volume Knob**

[4] **Microphone jack**

[5] **Programmable function keys: F1, F2, F3 and F4/ESC**

- Key **F4/ESC** can also be used to quit the squelch adjustment feature without saving the new setting. For additional information, see paragraph 6.5.

- [6] **▲ (Up) / ▼ (Down) keys** – These keys can be used for several tasks:
- *In standby mode* – To select the operating channel.
 - *During the adjustment of squelch* – To adjust the trigger level (see paragraph 6.5).
 - *While a scan is in progress* – To move to the next channel and resume the channel scan (see paragraph 9.1).

[7] **Key ↵ (Enter):**

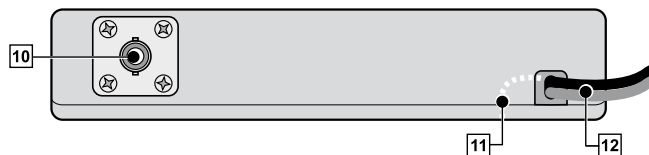
- *In standby mode* – Enables the feature linked to the key during the programming phase (see paragraph 7.1).
- *During the adjustment of squelch* – Confirms the currently displayed level (see paragraph 6.5).

[8] **Speaker –**

[9] **Status LED:**

- Red – Transmission
- Green – Reception of signals (busy channel)
- Orange – Receipt of signals with a correct CTCSS/DCS tone/code

3.2 Rear side



[10] Aerial jack – BCN jack for the connection of a vehicle-mounted aerial. For assistance in the selection of the correct model, refer to the Catalogue or visit www.alanprofessional.it.


[11] External speaker output – This cable, which is fitted with a 3.5 mm adjustable jack is used to connect an external speaker. For additional information, see paragraph 5.3.d.


[12] Power cable – This red/black cable must be connected to a suitable 13.8 VDC power supply (**the red wire must be connected to the positive pole and the black one to the negative one**); for example to the battery of a vehicle.


3.2.a Content of the package

- (a) Transceiver
 - (b) Palm-sized standard MK06/35 microphone with built-in transmission key (PTT)
 - (c) Power cable
 - (d) Vehicle rod with fixing screws and fittings
 - (e) Support for microphone with screws
 - (f) User's Manual (this document)
- *Some components may already be fitted/connected to the unit, depending on the model. Immediately contact the distributor if the package contains missing/damaged components.*
 - *The MK06/35 supports the use of the Monitoring feature only if it has been removed from the support (hang-up). For additional information, see paragraph 5.1.b.*

4 INSTALLATION INSTRUCTIONS

 **ATTENTION!** *The unit must be installed by qualified technical personnel and with appropriate instrumentation only. The instructions provided below are provided to assist installers, who shall however be fully responsible for damages originating from an improper installation, which may seriously damage the transceiver or cause injuries or damage to other people/property. Always follow the instructions provided in this section and in Chapter 2.*

 *The unit must be installed in accordance with the instructions of the manufacturer of the vehicle. For assistance (for example on the holes that have to be drilled, power connections and cable threading), contact the Technical Support of the vehicle manufacturer.*

 *The unit guarantees excellent performance, like any other electric equipment, only if it is regularly tested by an authorized laboratory. For additional information, contact your radio link provider or the Technical Department of CTE International.*

4.1 Location and fixing of the radio components

4.1.a Transceiver

Choose a location that is easily accessible to operators and that meets the safety requirements specified in Chapter 2. Use the rod and screws supplied with the radio to fix it in place.


4.1.b Palm-sized microphone support

The support supplied with the radio (mod. R14053) is intended to hold the microphone when the radio is not in use.

It is also possible to configure the radio so that the Monitoring feature (hang-up) is automatically enabled when the microphone is removed from the support. For additional information on the Monitoring feature, see paragraph 6.6.

Installing the support:

- 1) Place the support next to the front side of the radio, in a location that is easily accessible to the operator.
- 2) To enable the Monitoring feature when the microphone is removed from the support (hang-up), connect the latter to a negative pole (earth of the vehicle).


 **Fix the support so that the microphone cable is not stretched and the oscillation of the microphone does not cause impacts with the vehicle components or other parts, which could cause damage. The presence of adjacent objects may result in the microphone transmission key (PPT) being pressed and in the consequent enabling of transmission.**

4.2 Installing the vehicle aerial

Install the aerial outside the vehicle in a vertical and free location in the center of the roof. Always verify that the installation procedure must be performed in compliance with general and local safety standards, and in accordance with the instructions provided in Chapter 2.

For assistance in selecting the right type of aerial, contact your local Alan Professional dealer. The aerial must be able to irradiate at least the rated power of the unit. After installation and calibration, the standing wave ratio (SWR) value of the aerial should be equivalent to the lowest possible value or to a value below 1:1.5. The SWR ratio must be measured with a suitable instrument, with the aerial installed in its final location and sufficient free space.

4.3 Connections

 ***An improper connection or the connection of the unit to non certified devices may seriously damage the radio and cause injuries/damage to people and property. For more detailed information, refer to the Maintenance Manual and contact the Technical Support of CTE International.***

4.3.a Aerial

Verify the efficiency of the external aerial, then connect it to the jack labelled **Aerial [10]** on the radio using a suitable connector.

4.3.b Power supply


Connect the red/black power cable **[12]** to a 13.8 Vdc (+/- 10%) power supply. Verify that the red terminal is connected to the positive wire and the black one to the earth. It is essential to verify that the supply line is able to tolerate a minimum continuous current of 10 A.


4.3.c Connecting/disconnecting the microphone

To connect the microphone, insert the jack labelled RK into the socket labelled **[4] Microphone** on the front side of the radio. To disconnect the microphone press the RJ jack release button and delicately remove the microphone.

4.3.d External speaker (optional)

The optional external speaker (if available) must be connected to the adjustable 3.5 mm jack of the **external speaker output cable [11]** situated on the rear of the radio, following the instructions provided with the speaker. The external speaker must have a rating of 8 Ohm and be able to tolerate a minimum power of 12 W.

 ***The output of the external speaker is raised as compared to the earth. Be careful not to create short circuits with the vehicle bodywork.***

 ***The transceiver can be programmed so that the internal speaker is disabled and it is possible to use the external one only. For more detailed information, see paragraph 7.2.c.***

5 BASIC FEATURES

IMPORTANT! One more of the following features may be disabled, depending on the programming configured by the radio link provider. Therefore, some of the features described may not be accessible or may differ from the description provided.

More specifically, one or more features may have been linked to function keys F1, F2, F3, F4/ESC or to key \leftarrow . In doubt, always contact the radio link provider/manager.

5.1 Switching the radio on and off


To switch the radio on, turn the **Volume On/Off** knob clockwise until you hear a click.

All the LEDs and display segments switch on. The radio runs a self-diagnostic test and issues a single-tone beep to confirm that it has been switched on. To switch the radio off, turn the **Volume On/Off** knob counterclockwise until you hear a click.

5.2 Adjusting the volume


To increase the volume, turn the **Volume On/Off** clockwise.

To lower it, turn it counterclockwise.

 *The volume just be adjusted while listening to a transmission or when you hear a background noise.*

5.3 Selecting a channel


The transceiver can be programmed with one or more radio channels. To select a channel, press key \blacktriangledown (Up) several times in order to scroll the list in ascending order or \blacktriangleup (Down) to view the channels in descending order.

 *To quickly scroll the list of channels, you can even keep one of the two keys pressed.*

For additional information on programmed channels and on their use, contact the radio link provider.

5.4 Reception


There are two reception modes available:


- **Open traffic** – This mode enables you to listen to all communication transmitted through the currently selected channel. When you receive a signal in Open traffic mode, the status LED **[9]** turns green.
 - **CTCSS/DCS tones/codes**, when programmed, enable you to listen only to the communications of other users connected to the same network, that is who use the same CTCSS/DCS tone/code. For more detailed information, see Chapter 8.
-  *CTCSS and DCS tones/codes enable to share the same frequency among several radio links.*

5.5 Adjusting the squelch (suppressing background noise)

The radio is equipped with a feature that suppresses background noise when no signals are present. If the radio link provider has linked one of the **F** keys (or key \leftarrow) to this feature, you can customize the enabling threshold.

- 1) Press the **F** key (or \leftarrow) linked to the squelch adjustment feature. The decimal point lights on the display showing the currently set squelch value: from **0.0** (squelch disabled) to **3.1** (maximum squelch triggering threshold).
- 2) If no signals are present, press and hold key \blacktriangledown down until the background noise becomes stable.
- 3) Press key \blacktriangle several times to gradually increase the threshold by one step at a time and release it as soon as the background noise is no longer audible.
- 4) Wait a few seconds to make sure that the the background noise has been permanently removed.
- 5) Save the setting by pressing \leftarrow (or press F4/ESC to exit without saving). The decimal point switches off and the display shows once more the operating channel.

 **Always verify that the squelch setting is not too high, to prevent it from affecting the strength of the received signals.**

 *If you fail to press a key within 10 seconds from the start of the procedure, the radio returns to the standby mode without saving the value you have set.*

 *The squelch adjustment feature will be disabled if it has not been*

programmed by the radio link provider. For more detailed information, see Chapter 7.

5.6 Monitoring

The Monitoring feature is essentially used for two purposes:


- To receive very weak signals
- To temporarily disable the CTCSS/DCS codes/tones in order to be able to listen to all the communications on the selected channels, including those of users of other networks.

5.6.a Enabling the feature

Press the **F** key (or \leftarrow) linked to the feature. The green LED **MON/SCAN** switches on indicating that the feature has been enabled.

To disable the Monitoring feature, perform the same operations described above.

The green LED **MON/SCAN** switches off.

 *The Monitoring feature will be disabled if it has not been programmed by the radio link provider. For more detailed information, see Chapter 7.*

5.6.b Using the Monitoring feature with the microphone

If the Monitoring feature has been programmed for the use with a microphone (hang-up), it will be enabled every time the microphone is removed from its support.

5.7 Transmission

- 1) Remove the microphone from the support.
 - 2) Verify that the channel is free (to prevent potential interference) and check that the status LED **[9]** on the right of the display is off.
 - 3) Press and hold down the palm-sized microphone transmission key (**PTT**). The status LED turns red.
 - 4) Speak normally at a distance of 5-10 cm from the microphone.
 - 5) Release the **PTT** key at the end of the call making sure that the status LED switches off.
 - 6) At the end of the conversation, place the microphone back onto its support.
- 📄 *Start talking only after pressing the **PPT** key and release it only after the conversation has ended, otherwise the transmission of the message may be incomplete.*
 - 📄 *Do not shout! Shouting does not increase the transmission distance but affects the quality of the signal received.*
 - 📄 *Transceivers cannot generally be used to listen and talk simultaneously. For this reason, you will not be able to talk when others are talking. It is therefore advisable to time your messages so that they are not too long.*
 - 📄 *For information on how to transmit correctly, see the following paragraphs.*

5.7.a Maximum Time Out Timer (TOT)

The radio has a programmed Time Out Timer that automatically

enables the reception mode if the speaker's message exceeds a specific time limit. The setting of this timer can be configured during the programming phase. If this occurs, release the transmission key and wait a few seconds to allow the radio transmission feature to be automatically reset. For additional information, contact the radio link provider or your local dealer.

📄 *This setting cannot be changed by the user. For more information, contact the radio link provider.*

5.7.b Blocking transmission when the channel is busy (BCLO)

If enabled, this feature prevents the transmission of outgoing signals if the channel is busy. In this case the use of the **PTT** key has no effect.

Depending on programming, the BCLO feature can be enabled for all signals and for signals with a specific CTCSS/DCS code/tone.

📄 *This setting cannot be changed by the user. For additional information, contact the radio link provider.*

5.7.c Selecting the transmission strength

The transceiver can transmit with the transmission strengths configured during the programming phase for each channel. The red LED **HI** indicates that the following strength has been selected:

- On - High strength
- Off - Low strength

To change the strength of a specific channel, select it and press the **F** key (or **←**) linked to this feature. The red **HI** LED confirms that the

setting has been saved, as described above.

- 📖 *The transmission strength adjustment feature will be disabled if it has not been programmed by the radio link provider. For additional information, see Chapter 7.*

6 CUSTOMIZATION

HM06 has 5 programmable keys (**F1**, **F2**, **F3**, **F4/ESC** and **↵**). Each key can be programmed so that it is possible to select a specific feature when the radio is in standby mode.

- 📖 *To avoid misunderstandings, it is worth underlining that each of these keys can be used both to select a specific feature in standby mode and to perform a specific task during the squelch adjustment (see paragraph 6.5):*
 - Key **↵** enables to save the current value.
 - Key **F4/ESC** enables to exit from the setting mode without saving the value.

6.1 Programmable features

The following table summarizes the features that can be linked and selected when the function keys (**F1, F2, F3, F4/ESC** and **←**) **are pressed in standby mode**:

FEATURES TABLE		
Feature	Short description	Par. ref.
Squelch adjustment	Enables to set the desired squelch enabling threshold	5.5
Monitoring	Enables to temporarily disable the squelch feature (reception in open traffic mode) or the CTCSS/DCS tones/codes	5.6
Transmission strength selection	Enables to set the output transmission strength (high or low)	5.7.c
Talk Around	Enables to communicate through the repeater output using isofrequency bands (in the event of a temporary failure of the repeater)	8.3
Channel scan start/stop	Enables to start the channel scan and search for the signals available on programmed channels	8.1.a
Temporary channel scan stop	Enables to temporarily stop the channel scan on a channel if it is receiving interesting communications	8.1.b
Exclusion of channels from channel scan	Enables to temporarily exclude one or more channels from the scan (if the received communications are irrelevant)	8.1.c
Priority channel selection	Enables to quickly select the most relevant channel (preset by the radio link provider)	8.2

6.2 Other programmable features

The following features cannot be linked to function keys (**F1, F2, F3 and F4/ESC**) and/or key **↵** and cannot therefore be changed by the user. However, it is advisable to take note of them so that you know which keys can be enabled/customized by the radio link provider. For more detailed information, contact the radio link provider.


6.2.a Microphone sensitivity

The sensitivity of the microphone is set so that the operator can talk at a few centimeters from the microphone. However, if the environment or vehicle is particularly noisy, the radio link provider may have reduced the sensitivity to prevent the listener from hearing the noise of the environment. In this case you will have to talk closer to the microphone and/or with a higher tone to allow the listener to receive your communication clearly.

6.2.b Adjusting the backlighting of keys


The backlighting of the keys on the front panel may have been adjusted as follows:

- **Auto** - Automatic backlighting. In this case the backlighting switches on when you select a command and disables after approximately 20 seconds.
- **off** - Backlighting off
- **on** - Backlighting always on

 *This setting does not affect the LED display backlighting that is independent from this setting.*

6.2.c Disabling the internal speaker

If the transceiver is fitted with an optional external speaker (connected to port **[11]**), you may be able to use this speaker only, but not the internal one **[8]**.

 ***Do not disconnect the external speaker when the internal one is disabled, as this could damage the radio.***

7 USING THE RADIO WITH CTCSS/DCS TONES/CODES

7.1 Reception

In this operating mode the audio is enabled only when you receive a radio signal with an appropriate CTCSS/DCS tone/code, as programmed by the radio link provider.

If the CTCSS/DCS code/tone of the signal is correct, the status LED turns permanently orange and stays on for the whole length of the signal. If the received signal does not contain the correct code/tone, the audio remains disabled and the status LED turns green.

📌 *Depending on the programming, you may temporarily disable the CTCSS/DCS tone/code in reception mode to monitor the radio traffic (Monitoring feature). For more detailed information, see paragraph 6.6.*

7.2 Transmission

7.2.a Transmission of CTCSS/DCS tones/codes

If the transceiver has been programmed to transmit a CTCSS tone or DCS tone, no specific action is required. The CTCSS tone or DCS code is sent automatically every time a transmission is started (without any signal).

8 ADVANCED FEATURES

8.1 Channel scan



The scanning feature enables to automatically search for programmed channels and is particularly useful if several channels have been programmed. The feature enables to monitor radio traffic and to reply to calls on different channels, which are "explored" cyclically in sequence.

When the radio receives a valid signal during scanning it stops and outputs the communication through the speaker. The channel scan is automatically resumed as soon as the signal ceases.

If the radio has been programmed to receive CTCSS/DCS tones/codes (see paragraph 8.1), it is possible to configure the radio so that it stops only when the received signals contain a specific tone/code. For additional information, contact the radio link provider.

8.1.a Enabling the channel scan feature

To enable the channel scan feature, press the **function** key linked to this feature. The green LED **MON/SCAN** starts flashing to indicate that the feature has been enabled and the display shows in sequence the channels that have been included in the scanning list by the radio link provider.

📌 *If the scanning features stops when it detects an uninteresting signal, press one of the  /  keys to move to the next channel and resume the channel scan.*

📌 *If you press the PPT transmission key during the channel scan,*

the radio will stop in correspondence with the channel selected during the programming phase (the priority or default channel) and automatically enable the transmission mode. Scanning is automatically resumed as soon as you release the PTT key.

To end the channel scan, repeat the operations described above. The green **MON/SCAN** LED switches off.

8.1.b Temporarily stopping the scanning


If the channel scan stops in correspondence with an interesting signal, press the **F key** (or ←) linked to the temporary stop feature. The scanning feature stops in correspondence with the channel, which is permanently displayed on the screen.

To resume the channel scan, perform the operations described above.

8.1.c Temporary exclusion of channels from the channel scan

If the channel scan feature tends to frequently stop in correspondence with one or more channels that you are not interested in, you can temporarily exclude them from the scan list bypassing the **F key** (or ←) linked to the exclusion feature.

The channel is temporarily removed from the scan list and the scanning operation is continued on the remaining channels.

 *The channels excluded from the scan will remain in this status until the radio is switched off and will be reinserted into the list when the radio is switched on again.*

8.2 Quick selection of the main channel


If the radio link provider has linked one of the **F keys** (or ←) to this feature, you can press this key to quickly select the channel you use more frequently and configure it as main channel.

8.3 Talk Around

If you are using a repeater and a fault occurs, you can use the Talk Around feature to continue communicating with neighbouring stations, thus bypassing the repeater (i.e. by communicating in isofrequency through the repeater output). To enable this feature:

- 1) Select a semiduplex channel (the Talk Around feature can be enabled only for semi-duplex channels).
- 2) Press the **F key** (or key ←) linked to this setting. The green TA LED switches on to indicate that the Talk Around feature has been enabled.


To disable the Talk Around feature, repeat the operations described above. The green TA LED switches off.

 ***Always remember to disable the Talk Around feature after talking, otherwise you will not be able to use the repeater after it resumes operation.***

9 CLEANING AND MAINTENANCE


9.1 Servicing the radio

The radio doesn't require specific maintenance operations in addition to ordinary cleaning and the inspection of the efficiency of connections.

 **The radio is able to guarantee the stated performances only if it is regularly inspected by an authorized laboratory, like al electric devices. For more information, contact the radio link provider or the Technical Department of CTE International.**


9.1.a Cleaning the radio

Carefully clean the radio with a soft, clean and lint-free cloth to remove all traces of dirt. If the radio is very dirty, dampen a cloth in a solution containing water and detergent (10%).

 **Do not use liquid, spray, alcohol, solvent or abrasive detergents.**

9.1.b Connectors

Be careful not to damage, wet or scratch the connectors during cleaning.

 **Connect approved accessories only to the radio connectors. For more detailed information, contact an authorized dealer.**

10 OPTIONAL ACCESSORIES

Optional accessories, which are regularly being developed, can be used to expand the features of the transceiver. The currently available optional accessories are:

- **Microphone with stand** – Microphone with base for desktop mounting
- **Stabilized 220VAC/13.8 VDC power supply** – It enables to use the transceiver as base station (if connected to an external aerial)

It is generally advisable to use original Alan spare parts only.

For information on how to select the most suitable accessory, see the Accessories section of Alan Professional's catalogue available on the Web site www.alanprofessional.com

11 TECHNICAL SPECIFICATIONS

11.1 Test methods

- ETS 300-086 / ETS 300-113 (optional "modem board")
- IEC 529 IP54 and MIL STD 810 C/D/E

11.2 Table of characteristics

General specifications			
Function	Unit	Measured value/measuring conditions	
Frequency range (HM106)	MHz	From 135 to 174	
Operating range	MHz	38	
Number of programmable channels	-	99	
Channel spacing	KHz	12.5 / 20 / 25	
Frequency increments	KHz	5 / 6.25	
Rated power supply	Vdc	13.8	
Consumption	A	Standby	0.4 (or less)
		Reception	0.6 at max. sound power
		Transmission	5 (at 25 W) / 3.5 (at 10 W) / 2.4 (at 4 W)
Aerial impedance	Ohm	50	
Speaker impedance	Ohm	8	
Frequency stability	ppm	±5	
Operating temperature range	°C	From -25 to +55	
Relative humidity	%	90, non condensing	

Transmitter			
Output power (±1 dB)	W	10 / 25, depending on model	
Spurious emissions	μW	From 9 KHz to 1 GHz	< -36 dBm
		From 1 to 4 GHz	< -30 dBm
Modulation system	-	FM (F3E) / PM (G3E)	
Maximum deviation	KHz	± 2.5 (at 12.5 KHz) / ±5 (at 25 KHz)	
Power attenuation on adjacent channel	dB	< -60 (at 12.5 KHz) / -70 (at 20-25 KHz)	
Receiver			
Configuration		Dual conversion	
Sensitivity (at 12 dB SINAD)	μV	< 0.3	
Squelch sensitivity (SINAD)	μV	0.25 with 3 dB hysteresis	
Selectivity (adjacent channels)	dB	At least -60 (at 12.5 KHz) / -70 (at 25 KHz)	
Spurious signals rejection	dB	> 70	
Intermodulation	dB	> 65	
Audio output (1 KHz at 5% T.H.D.)	W	4 (internal speaker) / 10 (external audio output)	
Mechanical specifications			
Casing		Metal housing	
Dimensions	mm	180x57x180	
Weight	Kg	1.4	
Microphone connector		RJ	
Speaker output connector	-	3.5 mm adjustable jack connector	
Resistance to impacts		Compliant with standard MIL STD 810 F	
Resistance to dust and humidity	-	Compliant with standards IEC529 and IP54	