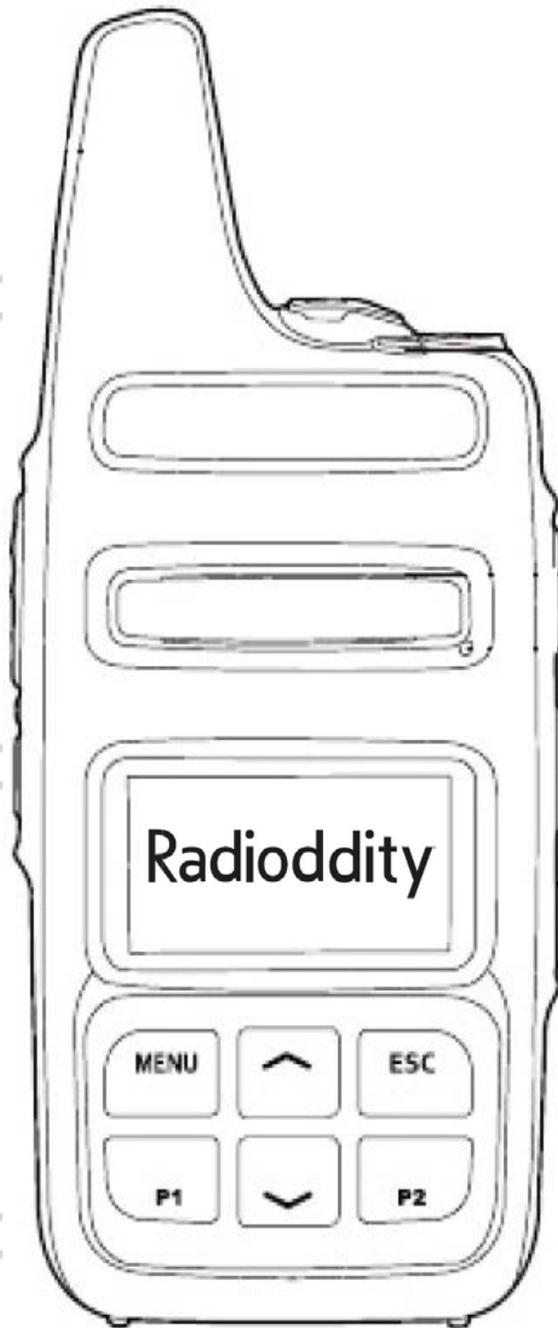


Radiodity GD-73
Extended
User manual
v1.01





Overview of Radioddity

“You, our friend and customer, are our focus”

Nothing is more important than your time and money. When you buy radios online, you face a dilemma: buy from a reputable website at a high price, or try to save money by choosing a dealer who may or may not offer quality goods, service and advice. At Radioddity.com, you do not have to choose between low prices and a secure shopping experience. Whether you are buying from us for the first time or a seasoned amateur radio operator, we always hope that with our products, prices, content and sources, you will find exactly what you need.

In recent years, Radioddity has better met the needs of wireless device buyers by creating a secure shopping experience. We do this by offering the highest quality products at an affordable price and providing you with first-class service. You deserve no less.

Our promise: to give you the best shopping experience

Strong partnerships enable us to offer you the latest technology and outstanding value for money under the Radioddity brandname. Our thoughtful and responsive customer service teams help us deliver on our promise to you and meet your every day needs even better.

Whether providing you with the latest and greatest DMR and analog radios, accessories and related products, providing outstanding technical support, or by working with the leaders of the amateur radio industry to develop helpful content to assist you with your purchase: Your concerns are our concerns.

We want to connect you with high quality radios at low prices. If, in your opinion, we do not honor this promise in any way, please let us know by e-mail:

support@radioddity.com

Documentation	Description	Applies for
v1.00	Initial version	FW1.00, CPS 1.00
v1.01	Wording according to changes in the software package v1.01added	FW1.01, CPS 1.01



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Product safety and RF exposure for portable radios



Before using the radio, please read this manual carefully. It contains important instructions for the safe and proper use of the radio and operating instructions for compliance with the limits of RF energy exposure in accordance with applicable national and international standards.

Notes on the use of the radio

Please read the following quick start guide, as failure to comply with these rules can be dangerous or in violation of the law.

1. Observe local regulations before using this radio, as improper use may violate the law.
2. Turn off the radio before approaching flammable or potentially explosive atmospheres.
3. Do not charge or replace the battery in flammable or potentially explosive atmospheres.
4. Turn the radio off before you come near any areas with explosives.
5. Do not use a radio whose antenna is damaged, as touching the damaged antenna may result in injury.
6. Do not try to disassemble the radio; any maintenance work should be carried out by qualified technicians.
7. To prevent electromagnetic interference issues, turn the radio off in locations that have signs displaying similar instructions to “Do not use wireless devices” or “Turn cell / mobile phones off” such as inside hospitals and healthcare facilities.
8. Do not place the radio in the area of airbag deployment in vehicles so equipped.
9. Do not store the radio in direct sunlight or hot areas
10. When transmitting with the radio, keep the antenna at least 5cm away from your body or face.
11. If the radio emits any smoke or burning smells, switch the radio off immediately and remove it's battery and contact your dealer.
12. Do not transmit for long periods as this may damage the radio or cause it to be come hot enough to cause injury



What is in the box?

Thank you for choosing a Radioddity radio. We recommend that you first check the delivery contents listed in the following table before you dispose of the packaging. If something is missing, please contact your dealer immediately.

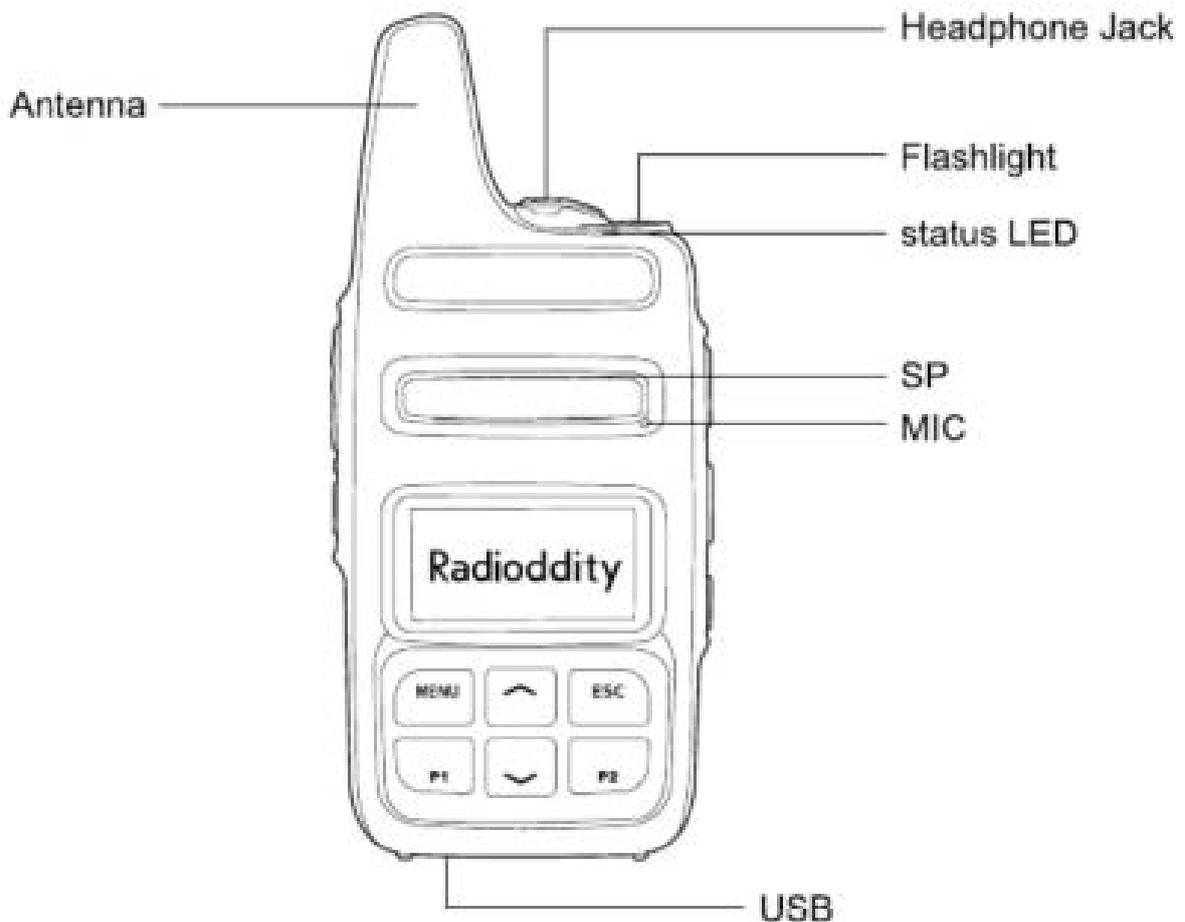
As part of the Box you should also find the following items for use with your GD-73:

- Belt clip (with 2 screws)
- micro-USB cable (Charges and programs the GD-73)
- Power supply with USB socket
- User manual

Note:

Further accessories for your radio are available at: <https://www.radioddity.com/>

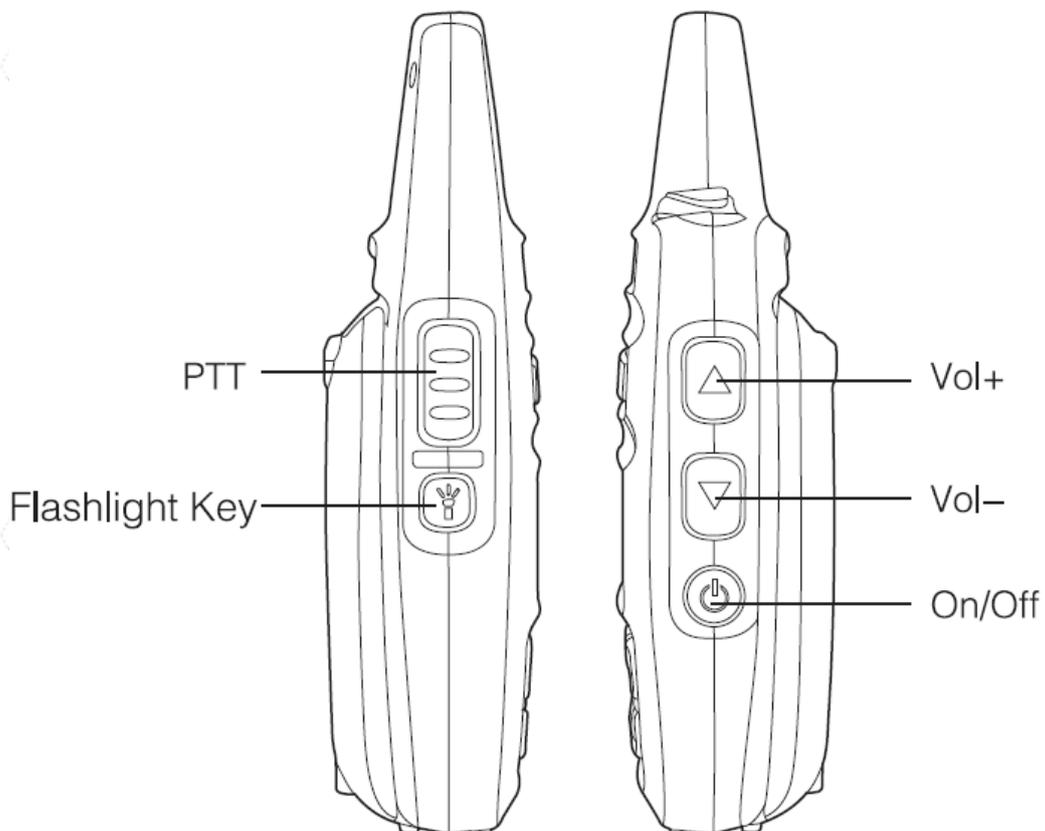
Radio controls





Short and long presses of P1 and P2 can be assigned these functions in CPS:

1. No function
2. Radio Enable
3. Radio Check
4. Radio Disable
5. Power Level (not applicable to PMR & FRS versions of the radio)
6. Monitor
7. Emergency on
8. Emergency off
9. Zone select
10. Scan on/off
11. VOX on/off
12. One Touch Access 1
13. One Touch Access 2
14. One Touch Access 3
15. One Touch Access 4
16. One Touch Access 5
17. BER display
18. Repeater/Talk Around
19. Lone Worker
20. 1750Hz tone burst transmit
21. CallSwell





General

Turning on the radio

The power on/off switch is located on the right side of the radio. Press and hold it for about 3 seconds to turn on the radio. The Radioddity logo appears on the display, the status LED lights up red briefly and an ascending 4-tone sequence sounds.

Turning off the radio

Press and hold the power on/off button for about 3 seconds to turn the radio off. The display goes off.

Adjust the volume

Above the power on/off button are the volume up (▲) and volume down (▼) buttons, use these to adjust the volume of the built in speaker or any attached external earphone.

Note:

Later on in this manual the symbols ▲ and ▼ will refer to the front panel up/down selector of the GD-73, underneath the LCD display.



Using the battery

Please only use battery packs from Radioddity. Other batteries could explode.

Note:

1. Do not short circuit a battery or throw it into a fire. Do not disassemble the battery.
2. Charge the battery at temperatures between 0°C und 45°C. Outside this temperature range, the battery can not be charged fully.
3. Turn off the radio before charging.
4. Disconnect the radio from the external power supply as soon as charging is complete.
5. Over time the battery will degrade and not give the same operating time. You should replace the battery at this point.
6. Do not attempt recharging if either the radio or battery is wet. To avoid any danger, dry it with a cloth before charging.

Warning:

If conductive metals, such as jewelry, keys, or chains, touch the external charging contacts, damage or injury may occur.

Inserting / removing the battery

1. Align the two tabs on the battery and the holes on the bottom edge of the back of the radio to ensure complete contact. Then clip the battery to the top of the body
2. To remove the battery, please make sure that the radio is switched off, press the two upper battery locks at the same time (for example, with your index and middle finger) in the direction of the battery. The battery is unlocked and can be removed.

Charging the battery

1. As soon as the micro-USB socket of the radio unit is connected to a PC or the supplied power supply unit via a USB cable, a large battery symbol appears on the display if the radio is switched off.
2. If, on the other hand, the radio is switched on, a small battery symbol appears in the upper right corner of the LCD display.
3. After a few seconds, the battery icon fills up from left to right with several bars to indicate the charging process has commenced.
4. As soon as the three bars are constantly filled, the battery is fully charged. Now disconnect the radio from the external power supply.



Antenna

The antenna is optimally tuned for the frequency range of the GD-73 and permanently installed in the device. Therefore, it can not be changed.

Connection of an external headset

Carefully open (do not remove) the cover over the headphone jack and then insert the headset plug into the jack socket firmly.



Basic functions

Selecting a Zone

A zone is a collection of radio channels grouped together. Your radio can store up to 64 such zones, each with up to 16 channels.

1. Press the **MENU** button to enter the menu.
2. Using the buttons **▲** and **▼** navigate in the menu and confirm your selection by pressing the **MENU** button again.
3. Select 'settings' in the menu
4. Then select 'zone' in the sub-menu
5. Using the buttons **▲** and **▼** navigate to the desired zone and confirm selection of your chosen zone with the **MENU** button.
6. The display now shows the selected zone in the middle.
7. The line below shows the currently selected channel in the zone.

Selection of a channel

Navigate with the buttons **▲** and **▼** to select the desired channel. Confirmation with the **MENU** key is not required here.

Receive and answer a group call

In order to receive a group call, a group (talkgroup or TG) must first be selected on the radio. Each channel can be assigned exactly one group by means of the PC software.

Note:

It is helpful, but not essential, to have the channel name indicate what talkgroup is assigned to the channel.

Receiving group calls

First, a channel must be selected on the radio to which a group (talkgroup or TG) is assigned. Only then can a group call be received.

1. The status LED lights up green
2. If the channel is not active, then the display shows:
 - in the middle line of the name of the zone
 - the name of the selected group is displayed in the bottom line.
3. If the channel becomes active, then the display shows:
 - in the top row 'Group'
 - in the middle line, the DMR ID of the caller
 - in the bottom line 'Calling' is displayed, followed by 'end call' if the channel was not previously active.



Answering a group call

1. Hold the radio vertically, about 2.5 to 5cm from your mouth
2. Now press the PTT key to answer the call. The status LED lights up red. You can talk now.
3. Once finished speaking, release the PTT key to return to receive
4. If a response is not heard within a predetermined time, the call is terminated.

Receiving and answering a private call

A private call (also known as a single call) is an individual call to a specific remote station. The remote station waits for the call and the calling party initiates it.

Receiving a private call

1. The status LED lights up green
2. The display shows:
 - in the middle line "single call"
 - in the bottom line the DMR-ID of the caller as well as the symbol for an incoming call (digital mode only) is displayed.

Answering a private call

1. Hold the radio vertically, about 2.5 to 5cm from your mouth
2. If the Channel Free Indication Tone feature is enabled, you will hear a short beep as soon as the radio channel is free in order to answer the call.
3. Now press the PTT key to answer the call. The status LED lights up red. You can talk now.
4. Once finished speaking, release the PTT key to return to receive

All call feature

All calls are used to send important information to everyone on the channel, regardless of the group they may have selected.

Receiving an all call

1. The status LED lights up green
2. The display shows:
 - on the first line 'All Call'
 - on the middle line, the ID of the caller is seen
 - on the bottom line, 'All Call' is displayed only for analogue mode calls
3. When the All Call has finished, the display returns to the previous display.
4. If the Channel Free Indication Tone feature is enabled, you will hear a short beep as soon as the transmission has finished.
5. Answering an All Call is not possible.

Note

If the channel is changed during reception of an All Call, reception of the All Call is aborted. During an All Call, the programmed keys have no function.



Initiating a call

You can select the channel, the DMR ID or the desired group (Talk Group, TG) with the following options:

- Channel selection keys
- Preprogrammed keys
- Contacts
- Manual entry (only for a private call)

Group call

All radios that you wish to communicate with must be on the same group.

1. Select the desired channel using the ▲ and ▼ buttons. Programming channel names with a name that associates with the Talk Group is useful to facilitate this.
2. Hold the radio vertically, about 2.5 to 5cm from your mouth
3. Now press the PTT key to transmit. The status LED lights up red. The group name appears on the display
4. Once finished speaking, release the PTT button to return to receive. If a response is not heard within a predetermined time, the call is terminated.
5. When the call is answered, you will see the status LED light up green.
6. On the display you will see:
 - in the top line "Group"
 - in the middle line the DMR-ID of the caller
 - in the bottom line 'Calling' is displayed, followed by 'end call' if the channel was not previously active.
7. If the Channel Free Indication Tone feature is enabled, you will hear a short beep as soon as the transmission has finished.
8. When the group call is over, the display changes back to the previous display.
9. A group call can also be initiated from the contacts.

Private call

1. Using the ▲ and ▼ to select your desired channel.
2. Hold the radio vertically, about 2.5 to 5cm from your mouth
3. Now press the PTT key to transmit. The status LED lights up red.
4. The display will show:
 - in the top line 'Single Call'
 - in the middle line the name of the contact you are calling
 - in the bottom line the DMR ID of the radio you are calling
5. Once finished speaking, release the PTT button to return to receive. If a response is not heard within a predetermined time, the call is terminated. If the call is answered, the status LED will light up green.
6. If the Channel Free Indication Tone feature is enabled, you will hear a short beep as soon as the radio channel is free in order to make further responses.
7. The end of a private call is signalled by an audible short tone.



The two function keys can be programmed as shortcut keys.

All Call

Your radio has the ability to call all radios on the channel regardless of what group they have selected with the All Call facility. Your radio must first be programmed with the All Call feature.

1. Using buttons  and  select the desired channel that has been programmed with All Call, or you can select a contact programmed as All Call.
2. Hold the radio vertically, about 2.5 to 5cm from your mouth
3. Now press the PTT key to transmit. The status LED lights up red.
4. The display will show:
 - in the top line 'All Call'
 - in the middle line the name programmed for All Call
 - in the bottom line the All Call ID and the outgoing call sign (in digital mode only)

Note

Recipients of an All Call cannot answer these types of calls.

Using a speed dial key to send a call

The speed dial feature allows you to make a group or individual call to a predefined ID or name. This function can be assigned to a key with short or long operation. Only one ID or one name can be programmed to a key. However, several shortcut keys can be programmed.

1. Start a call to a group or person by pressing the speed dial key.
2. Hold the radio vertically, about 2.5 to 5cm from your mouth
3. Now press the PTT key to transmit. The status LED lights up red.
4. The display will show the group, name or ID, and outgoing call sign (in digital mode only)
5. Once finished speaking, release the PTT button to return to receive. If a response is not heard within a predetermined time, the call is terminated. If the call is answered, the status LED will light up green.
6. If the Channel Free Indication Tone feature is enabled, you will hear a short beep as soon as the radio channel is free in order to make further transmissions.

Emergency calls

Emergency mode

An emergency alarm should only be activated in case of a genuine emergency. This can be done anytime, anywhere and is possible even when the channel is busy

Note

The emergency mode is only available in digital radio systems and assigned to a special group call.

The radio supports three emergency alarms:



- Emergency alarm
- Emergency alarm followed by call
- Emergency alarm with automatic activation of microphone

Receiving emergency alarms

1. When receiving an emergency alarm, the number of emergency alarms received so far as well as the ID of the caller and "Alarm" will be shown on the display. In addition, the emergency alarm and the name / ID of the caller are displayed alternately.
2. A beep will sound and the status LED will turn red.
3. If enabled, the radio automatically receives an emergency alarm. If the radio receives an emergency alarm, the display will show an alarm icon. This will be displayed until the alarm has been confirmed. As long as the alarm symbol is displayed, reception of other stations is not possible.

Note

A short press of the **ESC** key, followed by pressing the programmed emergency mode power off key clears the emergency alarm, thereby ending the emergency mode.

Answering an emergency alarm

After receiving an emergency alarm:

1. Press any key to acknowledge the audible alarm tone.
2. Hold the radio vertically, about 2.5 to 5cm from your mouth
3. If the Channel Free Indication Tone feature is enabled, you will hear a short beep as soon as the radio channel is free
4. Then press the PTT button to respond to the emergency alarm. The status LED is now red and the radio is in emergency mode. You can talk now.
5. Release the PTT button to return to receive mode. The status LED lights up green if the emergency call is answered. The display shows "Group Call", the group ID and the ID of the caller.
6. A short press of the **ESC** key, followed by pressing the programmed button to turn off the emergency alarm clears the emergency alarm and also terminates the emergency mode.
7. The radio will exit emergency mode and return to normal display.

Send an emergency alarm

This feature allows the sending of an emergency alarm. This is not a voice transmission but any receiving radio will see the alarm being transmitted and will need to confirm the alarm for further action. An emergency alarm can only be sent by an emergency alarm contact in the appropriate emergency group.

1. Press the function key that has been programmed for 'emergency alarm' function to send an emergency alarm (function key 1, 2 or 3).
2. The display will alternately show your own ID and "emergency call". The status LED lights red and the emergency mode is activated.



3. When an emergency alarm is received, the emergency sound is heard. The received emergency alarm is shown on the display. If there is no response from other radios after several retries, a beep sounds and the emergency mode is ended.
4. The radio will exit emergency mode and return to normal display. If the radio is completely disabled for the playback of beeps, voice or text will not be output in emergency mode.

Emergency alarm followed by voice call

This feature allows you to send an emergency alarm to another radio. After confirming the call, both radios can communicate with a voice call via the previously defined radio channel

1. Press the function key that has been programmed for 'emergency call' function to send an emergency alarm (function key 1, 2 or 3).
2. The display will alternately show your own ID and "emergency call". The status LED lights red and the emergency mode is activated.
3. When an emergency alarm is received, the emergency sound is heard. The received emergency alarm is shown on the display. If there is no response from other radios after several retries, a beep sounds and the emergency mode is ended.
4. Hold the radio vertically, about 2.5 to 5cm from your mouth
5. Now press the PTT button to make the voice call. The status LED lights up red. The radio is in emergency mode. You can talk now. The display shows the group call icon.
6. Release the PTT button to return to receive mode. The status LED lights up green if the emergency call is answered.
7. If the Channel Free Indication Tone feature is enabled, you will hear a short beep as soon as the radio channel is free in order to make further transmissions.
8. If necessary, press the PTT button again to acknowledge the emergency alarm call. The status LED lights up red or press the corresponding function key to switch off the emergency mode.
9. The radio will exit emergency mode and return to normal display. If the radio is completely disabled in the playback of beeps, voice or text will not be output in emergency mode until you press PTT to initiate a call. If the radio has been programmed for "call permit", no beeps or special displays will be shown on the display of the person called. A special display only appears on the display when the PTT button is used to trigger or answer a call.



Sending an emergency alarm then automatically activate the microphone

This feature allows you to send an emergency alarm to another radio. After the emergency alarm has been triggered, your radio automatically switches to transmit mode without you having to press the PTT button. This is also referred to as an "emergency microphone".

Note: However, if you now press the PTT key, the message will continue to be sent until you release the PTT key.

1. Press the function key that has been programmed for 'emergency microphone' function to send an emergency alarm (function key 1, 2 or 3).
2. "Alarm" appears on the display. The status LED lights red and the emergency mode is activated.
3. Hold the radio vertically, about 2.5 to 5cm from your mouth, if possible, in the circumstances.
4. As soon as "Alarm" appears on the display, you can speak into the microphone of the radio without first having to press the PTT button.
5. This automatic transmission ends automatically after a specified period of time.
6. You can press the PTT button to initiate another voice call if needed. The status LED lights red again. The radio is in emergency mode. You can talk now.
7. If the radio is completely disabled for the playback of beeps, in emergency mode, neither voice nor text outputs until you press the PTT button to trigger a call.
8. If the radio has been programmed for "call permit", no beeps or special indications will be shown on the display of the person called until the specified time has elapsed. These outputs are only made again if the PTT key was previously pressed once. This happens in the following two cases:
 - The emergency mode is ended as soon as the radio channel is changed. Triggering an emergency alarm on the new radio channel returns the radio to emergency mode.
 - If the radio is in emergency mode and the pre-programmed emergency transmission button is pressed, the previous emergency alarm will stop and a new emergency alarm will be triggered.

Ending emergency mode

Emergency mode is ended if one of the following occurs:

- If there is no response when an emergency alarm is triggered even after several repetitions by the remote station, a beep sounds and the emergency mode is ended
- Pressing the programmed emergency power off button clears the emergency alarm, thereby ending the emergency mode
- Turning off the radio stops the emergency mode. However, turning the radio back on does not restart emergency mode.

Note

Pressing the PTT button does not end the emergency mode.



Menu operation

1. Press the **MENU** button to get to the function menu. You can then scroll through the sub-menus using the ▲ (up) and ▼ (down) keys.
2. Press the **MENU** button again to select the sub-menu item.
3. Press the **ESC** key to return to the higher-level menu. As soon as you are in the top menu, you can return to the normal display output (frequency, channel) by pressing the **ESC** key again.

Contacts

The contacts stored in the radio make up the address book of your radio. Each individual contact corresponds to a name or an ID to which a targeted call can be established. Each entry is assigned an additional property such as "Group Call", "Individual Call" or "General Call". Each contact consists of the following three elements:

1. *Name* Name of your contact
2. *ID* DMR ID number of your contact
3. *Type* Type of contact; group, private or all call

Note

You can only edit the contacts with the CPS software on PC. Editing directly on the GD-73 is not possible because it does not have the necessary buttons.

Group call contacts

1. Press the **MENU** key to enter the function menu, then use the ▲ or ▼ buttons to select the "contacts" sub-menu
2. Use the ▲ and ▼ buttons to select the desired group contact
3. Confirm your selection by pressing the **MENU** button again
4. Use the ▲ and ▼ buttons to select the sub-menu 'select'.
5. The display of your GD-73 will then show "selected!"
6. Hold the radio vertically, about 2.5 to 5cm from your mouth
7. Now press the PTT button to start the call. The status LED lights up red. The display shows the group name or group ID and the outgoing group call icon
8. Release the PTT button to return to receive.
9. When the call is answered, the status LED lights up green.
10. The display will show:
 - a. in the first line "Group Call",
 - b. in the middle row the name of the call group (Call Group Alias) and
 - c. in the bottom line the ID of the answering person as well as the icon for an incoming call (only in digital mode)
11. If the Channel Free Indication Tone feature is enabled, you will hear a short beep as soon as the radio channel is free in order to make further transmissions.
12. If a response is not heard within a predetermined time, the call is terminated
13. When the group call is over, the display changes back to the previous display.



Private call contacts

1. Press the **MENU** key to enter the function menu, then use the ▲ or ▼ buttons to select the "contacts" sub-menu
2. Use the ▲ and ▼ buttons to select the desired private / individual contact
3. Confirm your selection by pressing the **MENU** button again
4. Use the ▲ and ▼ buttons to select the sub-menu 'select'.
5. The display of your GD-73 will then show "selected!"
6. Hold the radio vertically, about 2.5 to 5cm from your mouth
7. Now press the PTT button to start the call. The status LED lights up red. The display shows the private / individual name or ID and the outgoing private call icon
8. Release the PTT button to return to receive.
9. When the call is answered, the status LED lights up green.
10. The display will show:
 - a. in the first line "Single Call"
 - b. in the middle row the name of contact
 - c. in the bottom line the ID of the called contact as well as the icon for an outgoing call (only in digital mode)
11. If the Channel Free Indication Tone feature is enabled, you will hear a short beep as soon as the radio channel is free in order to make further transmissions.
12. If a response is not heard within a predetermined time, the call is terminated.
13. After completing a private call, the display changes back to the previous display.

Call lists

The radio records all last dialled, received and not accepted calls since the radio was last switched on in the call list log.

Checking IDs of new calls

Received (ReceCall), Missed (MissCall) and calls initiated (CallNumb) are logged.

1. Press the **MENU** key to enter the function menu, then use the ▲ or ▼ buttons to select the "Call Log" sub-menu
2. Confirm your selection by pressing the **MENU** button again
3. Use the ▲ and ▼ buttons to select the desired list and confirm the selection with the **MENU** button.
4. The last entry is now displayed in the top line of the display.
5. Use the ▲ and ▼ buttons to scroll through the list of up to 32 entries.

View name or ID of missed calls

Whenever you have missed an incoming call, this is signalled by a message on the display of the radio. In such a case, you can display the ID of the missed call immediately ("view") or later ("view later").

1. Press the **MENU** key to enter the function menu, then use the ▲ or ▼ buttons to select the "Call Log" sub-menu
2. Confirm your selection by pressing the **MENU** button again



3. Use the ▲ and ▼ buttons to select the desired list and confirm the selection with the MENU button.
4. The display now shows the oldest entry in the first place.
5. Use the ▲ and ▼ buttons to select an entry from the list.
6. Pressing the MENU button will display the details for this entry (ID, Type, time and date heard)
7. Alternatively, after selecting an entry, you can also press PTT to initiate a call to the selected contact or group.

Note

If you press the PTT button while viewing a missed call, the missed calls menu will be exited and an outgoing single call will be triggered.

The menu can also be used to edit the call list for answered, outgoing and missed calls. There are options for viewing, adding a contact to the address book, deleting individual and deleting all entries.

Delete a call list

To delete one of the call lists:

1. Press the MENU key to enter the function menu, then use the ▲ or ▼ buttons to select the “Call Log” sub-menu and confirm your selection by pressing the MENU button.
2. Use the ▲ and ▼ buttons to select the sub-menu “DelLogs” and confirm selection by pressing the MENU button again.
3. Use the ▲ and ▼ buttons to select the list to be deleted and confirm this selection by pressing MENU.
4. The selected list will be deleted and confirmed by “deleted!” being shown on the display

Short messaging functions

Your radio can also send and receive short text messages with a maximum length of 144 characters each. Complete messages are no longer than 50 lines.

Sending a prepared short message

Navigate in the menu:

1. Press the MENU key to enter the function menu, then use the ▲ or ▼ buttons to select the “Msg” sub-menu and confirm your selection by pressing the MENU button.
2. Use the ▲ and ▼ buttons to select the sub-menu “CommMsg” and confirm selection by pressing the MENU button again.
3. Now select one of the messages previously defined and programmed with the CPS
4. Select the intended recipient of the message from your list of contacts and confirm the selection with MENU.
5. The message is now transmitted via the set digital channel to the other radio.
6. The display of the GD-73 will then show “sent OK “.



Reading a received short message

Navigate in the menu:

1. Press the **MENU** key to enter the function menu, then use the **▲** or **▼** buttons to select the "Msg" sub-menu and confirm your selection by pressing the **MENU** button.
2. Use the **▲** and **▼** buttons to select the sub-menu "Inbox" and confirm selection by pressing the **MENU** button again.
3. Use the **▲** and **▼** keys to select one of the received short messages. Already read short messages are displayed with an open envelope icon, while unread short messages have a closed envelope icon in front of the DMR ID of the sender. Confirm the selection with the **MENU** key.
4. The display of your GD-73 now displays the received short message.

Note

When the GD-73 receives a new short message the upper line of the display will show an envelope icon to show that you have an unread message.

Reading a short message already sent

Navigate in the menu:

1. Press the **MENU** key to enter the function menu, then use the **▲** or **▼** buttons to select the "Msg" sub-menu and confirm your selection by pressing the **MENU** button.
2. Use the **▲** and **▼** buttons to select the sub-menu "Outbox" and confirm selection by pressing the **MENU** button again.
3. Use the **▲** and **▼** keys to select one of the previously sent short messages. Confirm the selection with the **MENU** key.
4. The display of your GD-73 now displays the sent short message.

Deleting short messages

Navigate in the menu:

1. Press the **MENU** key to enter the function menu, then use the **▲** or **▼** buttons to select the "Msg" sub-menu and confirm your selection by pressing the **MENU** button.
2. Use the **▲** and **▼** buttons to select the sub-menu "DelMsg" and confirm selection by pressing the **MENU** button again.
3. Use the **▲** and **▼** to select either the message memory for incoming messages, "Inbox" or for messages sent, "Outbox". Confirm the selection as usual with the **MENU** key.
4. The display will show "Deleted!"

Note

Editing messages is only possible using the CPS software on PC

Sending a short message with just one touch

1. Press the corresponding programmed key to send a prepared short message to a specific user.
2. The message "Msg Sending ..." appears on the display.



3. As soon as the short message has been sent, the display again shows the recipient specified by the programmed key.
4. If the transmission was successful, a short tone will sound and the text "Message sent successfully" appears on the display. On the other hand, if the transmission was unsuccessful, the message "Message Send Fail" appears on the display and the message will need to be manually resent.

Management of short messages

After your short message has been sent, this short message is stored in the Outbox. The last sent short message is always at the top of the list. The last 16 short messages will be kept. Older short messages are deleted automatically.

The same applies to received messages.

Encryption

Enabling encryption ensures that other users who are on the channel cannot hear the transmission. This is made possible by a special software encryption of the digital signal to ensure secrecy of communications.

Basic encryption

Two (or more) radios that need to communicate in secret must all have encryption enabled and be using the same encryption key as programmed by CPS software.

Note

Please check to see if encrypted radio transmissions are permitted in your country. As a general rule, encryption is not permitted to be used on the amateur 'ham' radio bands.

DTMF

The DTMF feature (Dual Tone Multi Frequency) enables the operation of radios despite interference on a radio channel. You can optionally add DTMF signalling using the CPS.

Initiating a DTMF call

As usual, a call is initiated by pressing the PTT key. Now, however, a pre-determined DTMF tone sequence is first sent to other radios before it outputs the received signal on the speaker of the device. Any transmissions without a matching DTMF sequence will be ignored, which can be useful to overcome interference on an analogue channel.

Security

It is possible to activate and deactivate individual radios. This makes it possible, for example, to lock a stolen radio from further use and unlock it when you get it back. This feature needs to be pre-programmed in the radio by CPS software.



Disable a radio

All radios in your fleet must be pre-configured for this feature using the CPS. Then you can use a programmed function key to send out a signal to disable the other radio.

Activate a radio

All radios in your fleet must be pre-configured for this feature using the CPS. Then you can use a programmed function key to send out a signal to re-enable the other radio.

Scan Lists

A scan list can contain various channels as well as talk groups. Your radio can support up to 16 scan lists and up to 30 members per list. Each scan list supports a mix of analogue and digital channels. You can add / delete channels or prioritize channels by editing the scan list. Create a scan list with the CPS and assign it to a single channel / talk group.

Scan types

When the scan starts, your radio will check for any voice activity by flipping through the pre-programmed scan list. There are two methods of commencing a scan:

- **Manual Scan**
Start or stop a scan by pressing a key that has been pre-programmed with the CPS with the function "scan on/off"
- **Automatic Scan**
If automatic scan is set for a particular channel in CPS, when the user selects that channel on the GD-73, it will automatically commence scanning of the scan list attached to that channel.

Start/Stop the scan function

With the CPS, one of the two function keys can be assigned to switch the scan function on and off ("Scan On / Off"). There are two ways to commence the scan:

1. Use the  or  keys to select a channel which has been programmed for automatic scan.
2. Press the "Scan On / Off" button pre-programmed with the CPS to start or stop the scan.

When scanning is enabled, the frequency / channel name of the currently received channel and its channel properties (analogue, digital and output power) are displayed.

Responding to transmissions found during scanning

If the radio detects an active channel / talk group while scanning, the radio remains on the channel / talk group for the duration set by the CPS, so you then have the opportunity to reply to the transmission if necessary.

Procedure



1. Hold the radio vertically, about 2.5 to 5cm from your mouth. If the Channel Free Indication Tone feature is enabled, you will hear a short beep as soon as the radio channel is free to prompt you that you can commence transmission.
2. Press the PTT button before the time set by the CPS has expired. The status LED lights up red.
3. Release the PTT key so that the other station can answer.
4. If you do not respond within the pre-set time, scanning automatically resumes.

Settings

The "Settings" function allows you to specify a wide variety of parameters. Some of the settings are global, while others refer to the radio channel selected and are retained even after the radio is turned off.

Local (Information about the radio)

You can use the "Local" function menu to read out the ID of the radio as well as detailed information about the hardware and software of the radio. Navigate to the menu:

1. Press the **MENU** key to enter the function menu, then use the **▲** or **▼** buttons to select the "Settings" sub-menu and confirm your selection by pressing the **MENU** button.
2. Use the **▲** and **▼** buttons to select the sub-menu "Local" and confirm selection by pressing the **MENU** button again.
3. The display of your GD-73 now displays the following information about your radio:
 - *ID DMR* ID of the radio (can only be set with the CPS)
 - *Model* GD-73
 - *Versions* Firmware version
4. Then press the **ESC** key to return to the main display or wait about 10 seconds.

Note

In digital mode, the radio is identified by its ID. Please note that unlawful use of an ID (such as an amateur radio DMR ID) may result in criminal sanctions.

Channel (all the channel specific settings)

Analog and digital channels have a send and receive frequency and channel name. For digital channels, there are also colour code and timeslot details.

TalkAround

With the talkaround function it is possible to communicate with other radio stations outside the reception area of a repeater via a direct radio connection. Your radio transmits on the "output frequency" of the repeater and receives accordingly on the "input frequency" of the repeater. In the function menu:

1. Press the **MENU** key to enter the function menu, then use the **▲** or **▼** buttons to select the "Settings" sub-menu and confirm your selection by pressing the **MENU** button.



2. Use the ▲ and ▼ buttons to select the sub-menu "Channel" and confirm selection by pressing the MENU button again.
3. Use the ▲ and ▼ buttons to select the option "TalkAround" and confirm selection by pressing the MENU button again.
4. Now use the ▲ and ▼ buttons to select one of the two options "OFF" or "ON" and confirm this with the MENU button.
5. Finally press ESC button several times to return to the main display, or wait about 10 seconds.

With the CPS, turning on / off the talkaround function can be assigned to one of the two available function keys.

Note

The radio retains the selected setting even after it has been turned off.

TOT

With TOT (Time out Timer) enabled, you can set a time limit between 30 seconds and 500 seconds for the length of any one transmission. The setting is made in 10 second increments. This feature protects the battery since you cannot carry out excessively long transmissions, or in the event of a jammed talk button disturbance to other users is minimised. In the function menu:

1. Press the MENU key to enter the function menu, then use the ▲ or ▼ buttons to select the "Settings" sub-menu and confirm your selection by pressing the MENU button.
2. Use the ▲ and ▼ buttons to select the sub-menu "Channel" and confirm selection by pressing the MENU button again.
3. Use the ▲ and ▼ buttons to select the option "TOT" and confirm selection by pressing the MENU button again.
4. Now use the ▲ and ▼ buttons to select between the options "OFF" or the desired time out timer desired period (in 10 second increments) and confirm this with the MENU button.
5. "OK!" Appears briefly on the display.
6. Finally press ESC button several times to return to the main display, or wait about 10 seconds.

Note

Selecting "off" disables the TOT function.

Setting transmit output power (Power)

The output power can be switched between "High" with 2 W and "Low" with 500mW for each channel. For nearby radio stations, the setting "Low" should be selected. On the other hand, stations that are further away may be better reached by the "High" setting. The function key specified by the PC software can be used to switch between "High" and "Low".

In the function menu:

1. Press the MENU key to enter the function menu, then use the ▲ or ▼ buttons to select the "Settings" sub-menu and confirm your selection by pressing the MENU button.



2. Use the **▲** and **▼** buttons to select the sub-menu "Channel" and confirm selection by pressing the **MENU** button again.
3. Use the **▲** and **▼** buttons to select the option "Power" and confirm selection by pressing the **MENU** button again.
4. Use the **▲** and **▼** keys to select one of the two options "Low power" or "High power" and confirm this selection by pressing **MENU** key
5. Finally press **ESC** button several times to return to the main display, or wait about 10 seconds.

Note

The PMR version of the GD-73 does not have this option, and is fixed with a maximum output power of 500mW.

Slot

In digital mode it is possible to transmit two radio conversations simultaneously and independently of each other on one channel. The timeslot serves to differentiate the two radio conversations.

In the function menu:

1. Press the **MENU** key to enter the function menu, then use the **▲** or **▼** buttons to select the "Settings" sub-menu and confirm your selection by pressing the **MENU** button.
2. Use the **▲** and **▼** buttons to select the sub-menu "Channel" and confirm selection by pressing the **MENU** button again.
3. Use the **▲** and **▼** buttons to select the option "Slot" and confirm selection by pressing the **MENU** button again.
4. Use the **▲** and **▼** keys to select one of the two options "slot 1" or "slot 2" and confirm this selection by pressing **MENU** key
5. Finally press **ESC** button several times to return to the main display, or wait about 10 seconds.

CC (Colour Code)

The Colour Code (sometimes called system code) is used to differentiate between DMR repeaters whose coverage areas may overlap. Values from 0 to 15 are allowed. The default value is 1.

In the function menu:

1. Press the **MENU** key to enter the function menu, then use the **▲** or **▼** buttons to select the "Settings" sub-menu and confirm your selection by pressing the **MENU** button.
2. Use the **▲** and **▼** buttons to select the sub-menu "Channel" and confirm selection by pressing the **MENU** button again.
3. Use the **▲** and **▼** buttons to select the option "CC" and confirm selection by pressing the **MENU** button again.
4. Using the **▲** and **▼** keys to select a value between 0 and 15 and confirm the selection as usual with the **MENU** key.
5. Finally press **ESC** button several times to return to the main display, or wait about 10 seconds.



GroupList

Each digital channel can receive one or many talk groups. The actual talk groups that are able to be heard are defined in a GroupList, and that GroupList is then attached to the channel. GroupLists are programmed by using the CPS.

In the function menu:

1. Press the **MENU** key to enter the function menu, then use the **▲** or **▼** buttons to select the "Settings" sub-menu and confirm your selection by pressing the **MENU** button.
2. Use the **▲** and **▼** buttons to select the sub-menu "Channel" and confirm selection by pressing the **MENU** button again.
3. Use the **▲** and **▼** buttons to select the option "GroupList" and confirm selection by pressing the **MENU** button again.
4. Then use the **▲** and **▼** keys to select between "None", "Not Match" and one of the groups previously defined by the CPS and confirm the selection as usual with the **MENU** key.
5. Finally press **ESC** button several times to return to the main display, or wait about 10 seconds.

Note

Selecting "Not Match" means a transmission can be received without it's talk group being programmed in to a GroupList.

SQ

The squelch level is used to filter out weak analogue signals or analogue channels with strong background noise. This setting, with values from 0 to 9, determines the signal strength at which the received signal is heard through the speaker. Weaker signals can be heard at lower settings, while higher settings require progressively stronger signals in order to be heard. The default setting for squelch is 3. The lowest setting of "0" disables the squelch completely. As a result, regardless of the selected analogue channel, you would hear noise from the speaker even when there are no transmissions on the channel. In contrast, "9" is the highest level and only very strong nearby transmissions will be heard.

In the function menu:

1. Press the **MENU** key to enter the function menu, then use the **▲** or **▼** buttons to select the "Settings" sub-menu and confirm your selection by pressing the **MENU** button.
2. Use the **▲** and **▼** buttons to select the sub-menu "Channel" and confirm selection by pressing the **MENU** button again.
3. Use the **▲** and **▼** buttons to select the option "SQ" and confirm selection by pressing the **MENU** button again.
4. Then use the **▲** and **▼** keys to select squelch values between "0" and "9" and confirm the selection as usual with the **MENU** key.
5. "OK!" Appears briefly on the display before returning automatically to the main display.

Note

Squelch setting is only applicable to analogue channels



SubCode

CTCSS / DCS is a type of signalling using very low frequency tones (called sub audible tones). When CTCSS / DCS is set, you will only hear signals that are being transmitted with the same CTCSS / DCS setting. This prevents you from hearing unwanted signals on the same frequency. If CTCSS / DCS is switched off, however, you will receive all signals of the selected reception frequency within the reception range.

CTCSS (Continuous Tone-Coded Squelch System) and DCS (Digital-Coded Squelch) are two slightly different methods, but both achieve the same result.

Note

The transmission of CTCSS or DCS is only possible with analogue channels.

CTCSS

The CTCSS feature is often used to enable access to a repeater. The GD-73 supports 51 standard CTCSS subdited tones.

CTCSS									
62,5	67,0	69,3	71,9	74,4	77,0	79,7	82,5	85,4	88,5
91,5	94,8	97,4	100,0	103,5	107,2	110,9	114,8	118,8	123,0
127,3	131,8	136,5	141,3	146,2	151,4	156,7	159,8	162,2	165,5
167,9	171,3	173,8	177,3	179,9	183,5	186,2	189,9	192,8	196,6
199,5	203,5	206,5	210,7	218,1	225,7	229,1	233,6	241,8	250,3
254,1									

All frequencies given in Hz

DCS

DCS on the GD-73 has 214 (2*107) different codes, which can be set by both the PC software and on the radio itself. DCS also distinguishes between normal DCS and inverted DCS.

DCS									
17	23	25	26	31	32	36	43	47	50
51	53	54	65	71	72	73	74	114	115
116	122	125	131	132	134	143	145	152	155
156	162	165	172	174	205	212	223	225	226
243	244	245	246	251	252	255	261	263	265
266	271	274	306	311	315	325	331	332	343
346	351	356	364	365	371	411	412	413	423
431	432	445	446	452	454	455	462	464	465
466	503	506	516	523	526	532	546	565	606
612	624	627	631	632	645	654	662	664	703
712	723	731	732	734	743	754			

All frequencies given in Hz



CTCSS and DCS are added to the voice transmission in order to positively identify it as a valid transmission to a similarly equipped receiver. Without a matching CTCSS or DCS code, the receiver will remain quiet. This is useful to negate the effects of interference or other unwanted transmissions.

In the function menu:

1. Press the **MENU** key to enter the function menu, then use the **▲** or **▼** buttons to select the "Settings" sub-menu and confirm your selection by pressing the **MENU** button.
2. Use the **▲** and **▼** buttons to select the sub-menu "Channel" and confirm selection by pressing the **MENU** button again.
3. Use the **▲** and **▼** buttons to select the option "SubCode" and confirm selection by pressing the **MENU** button again.
4. Then use the **▲** and **▼** keys to select between "RX Type" (for setting sub audible code on reception) and "TX Type" (for setting sub audible code on transmission) and confirm the selection as usual with the **MENU** key.
5. Alternatively, select one of the remaining two options "RX Code" and "TX Code" to select the corresponding sub audible code for the reception or transmission.

Note

CTCSS and DCS are functions that prevent the squelch from opening if the transmitter and receiver CTCSS / DCS settings do not match. These must be the same in the radios that wish to inter-communicate. If these are not set in your radio, you will hear all other transmissions on the frequency, including those that have set these functions. CTCSS and DCS do not give users any degree of secrecy or privacy of communications.

Zone

A zone is a collection or group of channels. They may be grouped any way you wish, for example a zone for each geographic area, or a zone with different talk groups for one repeater, or any other way you find useful or convenient.

In the function menu:

1. Press the **MENU** key to enter the function menu, then use the **▲** or **▼** buttons to select the "Settings" sub-menu and confirm your selection by pressing the **MENU** button.
2. Use the **▲** and **▼** buttons to select the sub-menu "Zone" and confirm selection by pressing the **MENU** button again.
3. Then use the **▲** and **▼** keys to select your desired zone and confirm the selection as usual with the **MENU** key.
4. Finally press **ESC** button several times to return to the main display, or wait about 10 seconds.

Date & Time

Xxxx



Tone

Audible tones that accompany each key or button press, as well as acknowledgement tones can be turned on or off as desired.

In the function menu:

1. Press the **MENU** key to enter the function menu, then use the **▲** or **▼** buttons to select the "Settings" sub-menu and confirm your selection by pressing the **MENU** button.
2. Use the **▲** and **▼** buttons to select the sub-menu "Tone" and confirm selection by pressing the **MENU** button again.
3. Then use the **▲** and **▼** keys to select one of the sub-menus "Profiles", "KeyPad Tone" or "PowerTone" and confirm the selection as usual with the **MENU** key.
 - In the "Profiles" sub-menu, use the **▲** and **▼** keys to choose between "General" and "Silent" options, and confirm your selection with the **MENU** button.
 - In the "KeyPad Tone" sub-menu, use the **▲** and **▼** keys to choose between "KeyToneON" or "KeyToneOFF" to turn the tones that accompany key presses on or off respectively, and confirm your selection by pressing **MENU** key.
 - In the "PowerTone" sub-menu, use the **▲** and **▼** keys to select options "PowerToneON" or "PowerToneOFF" to enable or disable the start-up tones when the radio is first turned on; press **MENU** to confirm.
 - Finally press **ESC** button several times to return to the main display, or wait about 10 seconds.

Others

In addition to the channel-related settings, there are also various settings that apply across channels. These are described below.

In the menu "Others" further options for locking of the keypad, beeps, display options and the backlighting of the LCD can be found.

LockKey (for Keypad lock)

To prevent accidental keystrokes, it is possible to turn on a keypad lock. This will be active about 10 seconds after the last key press. To deactivate it, simply press the function key "P1" until the message "Unlocked!" appears on the display.

In the function menu:

1. Press the **MENU** key to enter the function menu, then use the **▲** or **▼** buttons to select the "Settings" sub-menu and confirm your selection by pressing the **MENU** button.
2. Use the **▲** and **▼** buttons to select the sub-menu "Others" and confirm selection by pressing the **MENU** button again.
3. Use the **▲** and **▼** buttons to select the option "LockKey" and confirm selection by pressing the **MENU** button again.
4. Now use the **▲** and **▼** buttons to select the one of the options "Keylock ON" or "Keylock OFF" and confirm the selection by pressing the **MENU** button again.
5. Finally press **ESC** button several times to return to the main display, or wait about 10 seconds.



Backlight

The backlighting for the LCD can be turned on or off as you desire.

In the function menu:

1. Press the **MENU** key to enter the function menu, then use the **▲** or **▼** buttons to select the "Settings" sub-menu and confirm your selection by pressing the **MENU** button.
2. Use the **▲** and **▼** buttons to select the sub-menu "Others" and confirm selection by pressing the **MENU** button again.
3. Use the **▲** and **▼** buttons to select the option "BackLight" and confirm selection by pressing the **MENU** button again.
4. Now use the **▲** and **▼** buttons to select the one of the "Long Open" options to keep the backlight on for one of the values of 5, 10, 15, 30 or 60 seconds of backlight operation after the last keypress was registered; confirm your selection by pressing the **MENU** button again.
5. Finally press **ESC** button several times to return to the main display, or wait about 10 seconds.

PWR ON (Startup Display)

After turning on the radio, a graphically animated image is displayed. This image can be replaced / supplemented with the CPS by a static, two-line customisable text banner.

In the function menu:

1. Press the **MENU** key to enter the function menu, then use the **▲** or **▼** buttons to select the "Settings" sub-menu and confirm your selection by pressing the **MENU** button.
2. Use the **▲** and **▼** buttons to select the sub-menu "Others" and confirm selection by pressing the **MENU** button again.
3. Use the **▲** and **▼** buttons to select the option "PWR ON" and confirm selection by pressing the **MENU** button again.
4. Now use the **▲** and **▼** keys to select from the options "None", "Word", "Picture" or "All" and confirm this selection with **MENU**.
 - a. If "None" is selected, neither the picture nor the two-line text is displayed when the radio is turned on.
 - b. The selection of "Word" ensures that only the two-line text is displayed when the radio is switched on.
 - c. "Picture" specifies that only the picture is displayed when the radio is switched on.
 - d. If you want to display the image first and then the two-line text when the radio is switched on, select the option "All".
5. Finally press **ESC** button several times to return to the main display, or wait about 10 seconds.

Volume key

The volume keys at the side of the radio can be disabled if required.

In the function menu:

1. Press the **MENU** key to enter the function menu, then use the **▲** or **▼** buttons to select the "Settings" sub-menu and confirm your selection by pressing the **MENU** button.



2. Use the ▲ and ▼ buttons to select the sub-menu “Others” and confirm selection by pressing the MENU button again.
3. Use the ▲ and ▼ buttons to select the option “Volume Key” and confirm selection by pressing the MENU button again.
4. Now use the ▲ and ▼ buttons to select either “VolumeKeyOff” to inhibit the side volume buttons or “VolumeKeyON” to enable them; confirm your selection by pressing the MENU button again.
5. Finally press ESC button several times to return to the main display, or wait about 10 seconds.

Display

Depending on the situation, it may be useful to display the channel name or the reception frequency stored for the selected channel.

In the function menu:

1. Press the MENU key to enter the function menu, then use the ▲ or ▼ buttons to select the “Settings” sub-menu and confirm your selection by pressing the MENU button.
2. Use the ▲ and ▼ buttons to select the sub-menu “Others” and confirm selection by pressing the MENU button again.
3. Use the ▲ and ▼ buttons to select the option Display” and confirm selection by pressing the MENU button again.
4. Now use the ▲ and ▼ buttons to select either “Name” to show the channel by its name or “Frequency” to display the channel frequency and confirm your selection by pressing the MENU button again.
5. Finally press ESC button several times to return to the main display, or wait about 10 seconds.

HotKeys (Function keys)

The GD-73 has two function keys labelled "P1" and "P2" on the front of the unit, to the left and right of the ▼ key. Each function key can be assigned a total of two functions, one for a short key press and one for a long key press, giving a total of four functions possible with the two keys.

The following functions are available to be assigned:

None	EmergencyOff	PushToTalk4
Activate	Zone	PushToTalk5
Check	Scan	Error Rate
Kill	VOX	Repeater
POWER	PushToTalk1	WorkAlone
Monitor	PushToTalk2	1750Tone
EmergencON	PushToTalk3	CallSwell

In the function menu:

1. Press the MENU key to enter the function menu, then use the ▲ or ▼ buttons to select the “Settings” sub-menu and confirm your selection by pressing the MENU button.
2. Use the ▲ and ▼ buttons to select the sub-menu “Hotkeys” and confirm selection by pressing the MENU button again.



3. Now use the  and  buttons to select corresponding key “P1” or “P2” and long (LP) or short (SP) key press and confirm the selection by pressing the **MENU** button again.
 - SP_P1 indicates a short key press of the P1 key
 - SP_P2 indicates a short key press of the P2 key
 - LP_P1 indicates a long key press of the P1 key
 - LP_P2 indicates a long key press of the P2 key
4. Use the  and  keys to select the required function from the above list to assign it, and press **MENU** to confirm the selection.
5. Finally press **ESC** button several times to return to the main display, or wait about 10 seconds.

Default (Reset to factory settings)

If you ever need to reset the radio back to factory settings, follow this procedure.

In the function menu:

1. Press the **MENU** key to enter the function menu, then use the  or  buttons to select the “Settings” sub-menu and confirm your selection by pressing the **MENU** button.
2. Use the  and  buttons to select the sub-menu “Default” and confirm selection by pressing the **MENU** button again.
3. If you confirm the “Factory Reset?” prompt now displayed with a press of the **MENU** button, the GD-73 will reset and all memories and settings will be lost.
4. If you instead press the **ESC** key, the radio will not reset to factory default settings.

Programming the GD-73

Introduction

The GD-73 is a UHF radio with digital DMR (true tier I and II) as well as analogue FM. It offers a total of 1024 channels (analogue and digital), arranged in up to 64 zones. Each zone can accommodate a maximum of 16 channels each. In addition, up to 1024 contacts with the CPS can be stored on the radio.

The following pages are designed to help you understand all aspects of radio programming and setup to get the most out of your device.

The file created by the Computer Programming Software (CPS) contains the frequencies and other operating parameters and is referred to as a "code plug". Creating a code plug is a bottom-up process where you first have to create the lowest common elements, and then combine those elements to form a code plug that will be transferred to the radio. With the GD-73's CPS, you can create the code plug yourself to suit your exact requirements, or you can use another person's code plug if you wish. Don't forget to save your code plug so you can easily make changes to your radio configuration at some time in the future.



Let's go

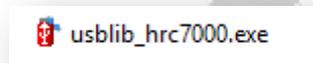
The programming cable for the GD-73 is an included accessory. The USB programming cable has a Type A USB connector for connection to USB port of a PC and a micro USB connector on the other side for connection to the GD-73. This is a standard USB cable, the same as many smartphone USB cables. The cable does not contain any special electronics. For the PC to identify the GD-73, it must be connected to the PC by this cable and the GD-73 turned on.

Note

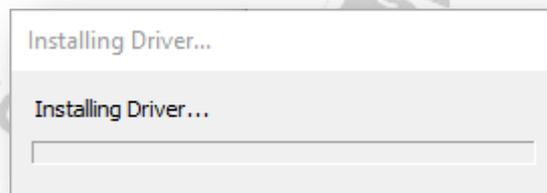
There is no chip or electronics in the cable so the radio's internal communications port can only be identified when the radio is switched on.

Installation of the USB driver

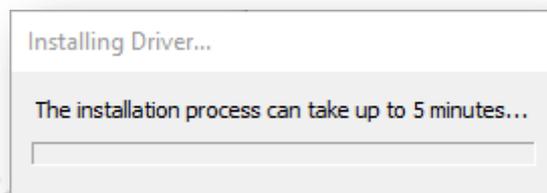
1. Locate the file "usblib_hrc7000.exe" in the software package.



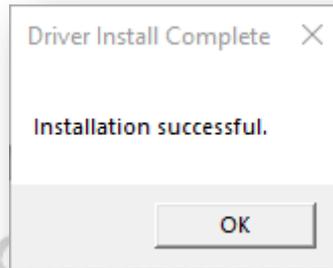
2. Run this program as an Administrator
3. If possible, do not save the generated .inf driver on the desktop, but place a different directory of your boot drive.
4. The driver is then automatically installed



5. Wait until the installation is complete



6. Once driver installation is complete you will see a message indicating success



In case of an error, stop the installation process and then repeat the process one more time by saving the file "walkie-talkie-C7000.inf" and the other files in a different location. Use Windows Device Manager to verify that the computer has loaded the appropriate driver for the device. Additional configuration of the driver is not required.



If the driver does not load automatically, you can download the correct 32-bit and 64-bit drivers at <https://www.radioddity.com>

CPS and firmware updates provided by Radioddity

The computer programming software (CPS) for the GD-73 is updated by Radioddity as new features are added, detected bugs are fixed or other improvements made. For updates, visit the Radioddity website at <https://www.radioddity.com>

Note

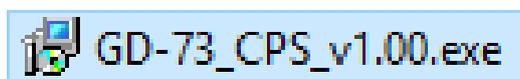
The software version should always match the firmware version i.e. software version 1.00 should always be used with the firmware version 1.00, etc.

This firmware is specific to this model only. Loading a firmware from another model radio will not add extra functionality to the GD-73, but will most likely render it inoperable.

Installation of the CPS

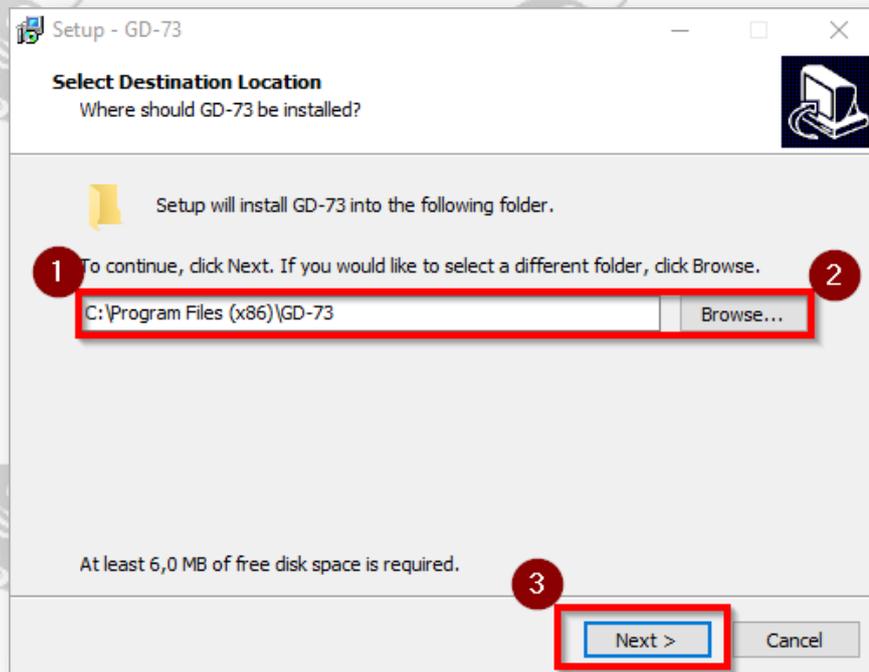
Before you may start programming your codeplug using the Radioddity CPS you need to install the CPS.

1. Locate the installer for your CPS, named e.g. "GD-73_CPS_v1.00.exe " in the software package.

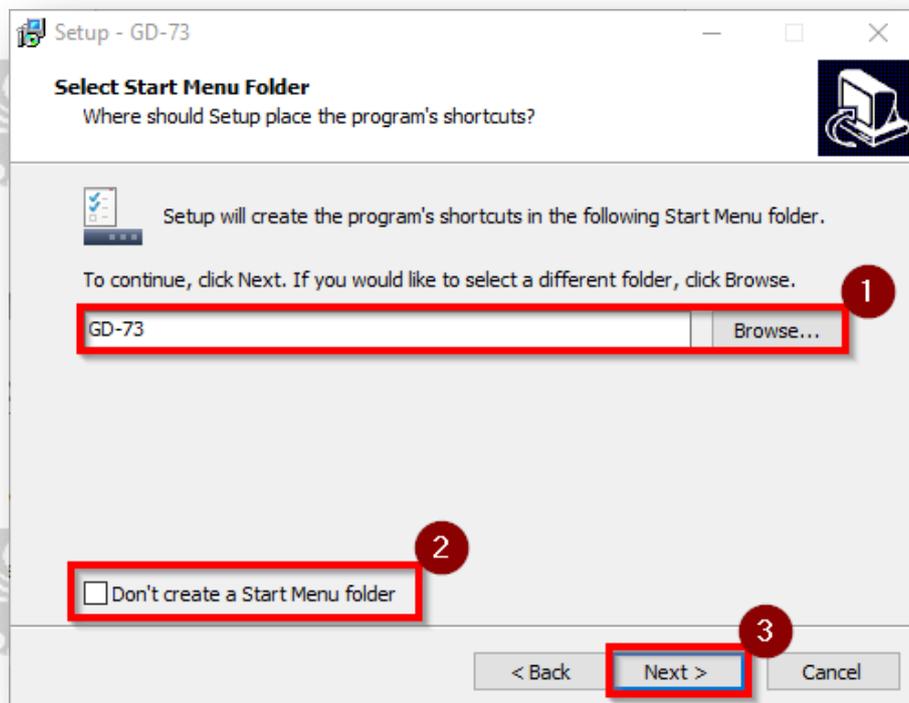




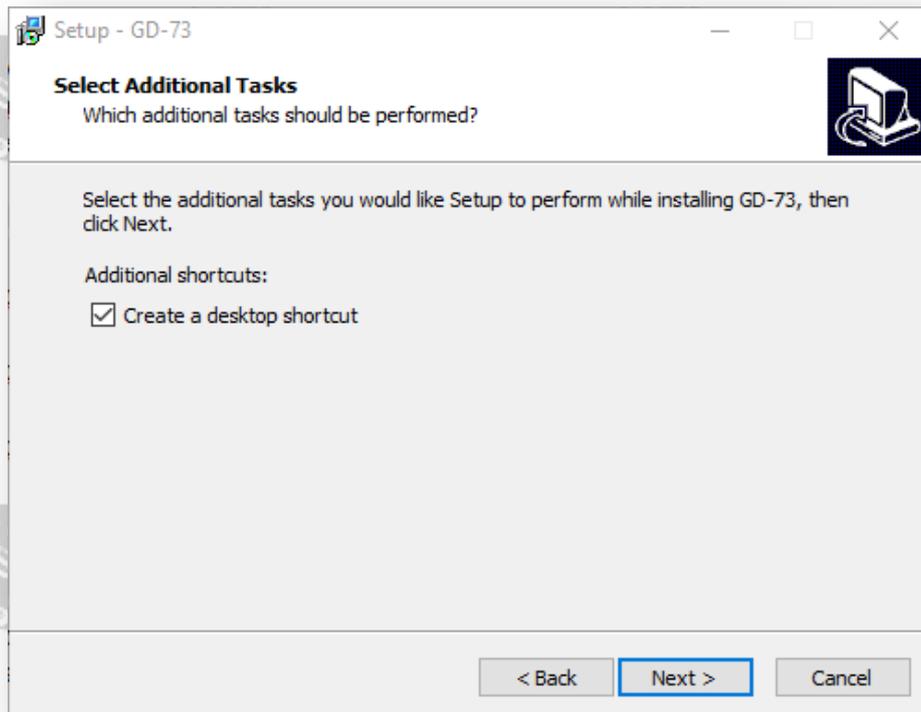
2. Run this program as an Administrator



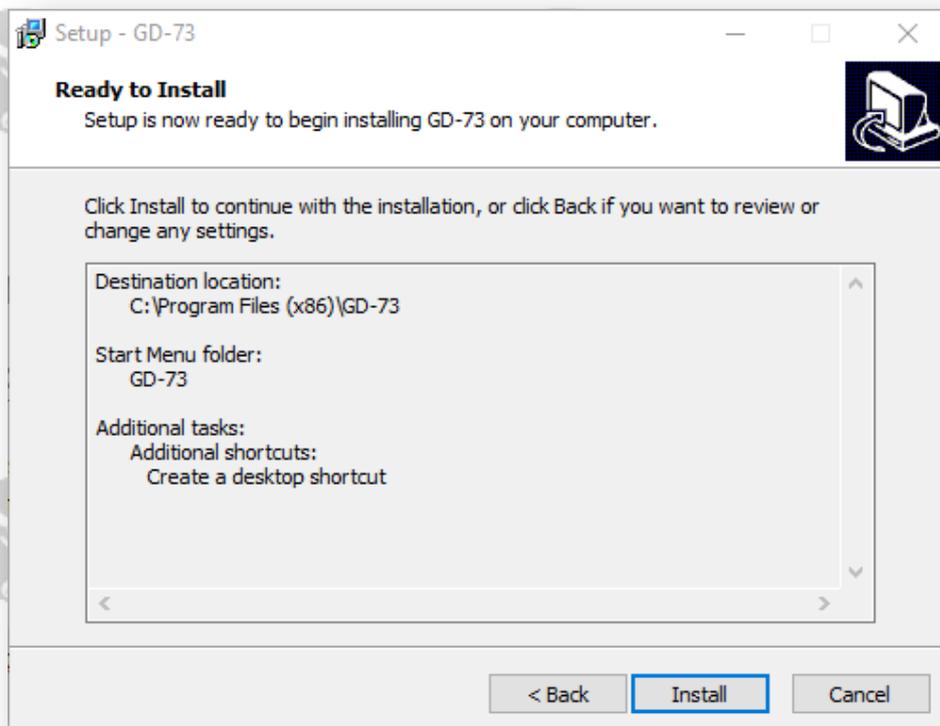
3. The path (1) you want the CPS to be installed may be changed (2) before hitting the next-button (3) to continue installation of the CPS:



4. If you want to change the folder name (1) or don't want the installer to create a startmenu folder (2), feel free to change those options before hitting the Next-key (3).

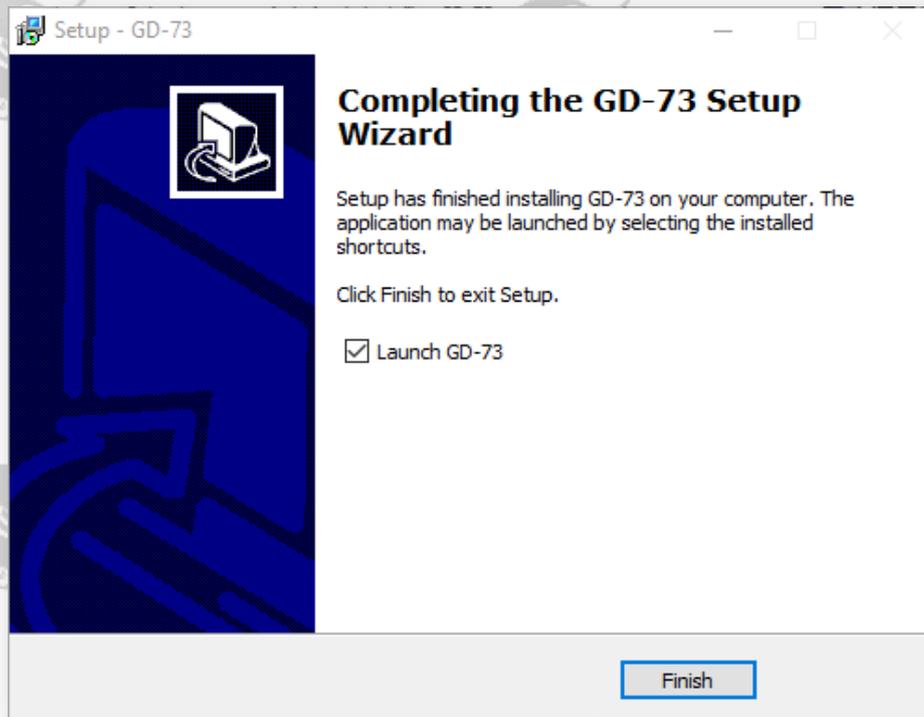


5. It is a good idea to tick the checkbox in order to create a desktop shortcut before once more hitting the Next-key.

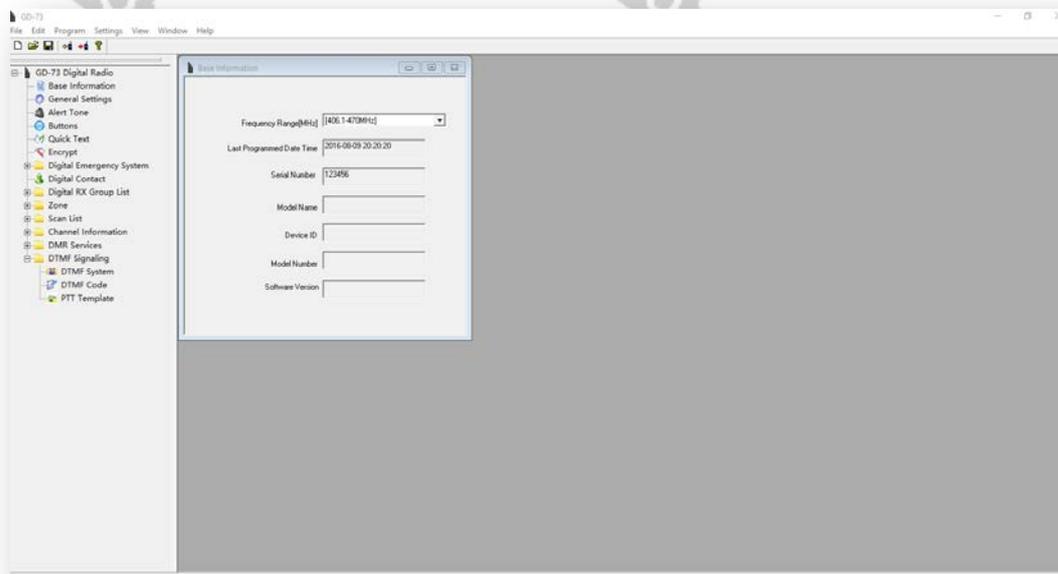




- The final click on “Install” now installs the CPS with the settings you provided.



- After just a few seconds, the installation process will be completed and a click on “Finish” will get you right to the CPS.



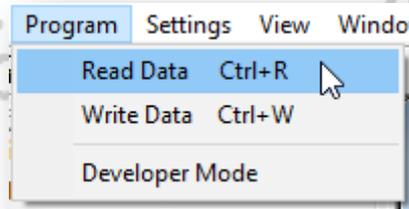
Congratulations, that's it!



Create a code plug

To begin creating a code plug for your GD-73, first read data from the radio to your PC to create a first CPS template, and at the same time save the factory data for future use.

When reading or writing data to or from the GD-73, the software offers several options:



Read Data

To read all frequency settings and other settings of your GD-73 radio, use this option.

Write Data

Whenever you have made your changes and additions to the settings of your GD-73 radio, use this option to transfer your settings to the radio.

Note

If you specify a PC programming password, you must remember this password. If you forget it, there is no way to restore it.

Function keys

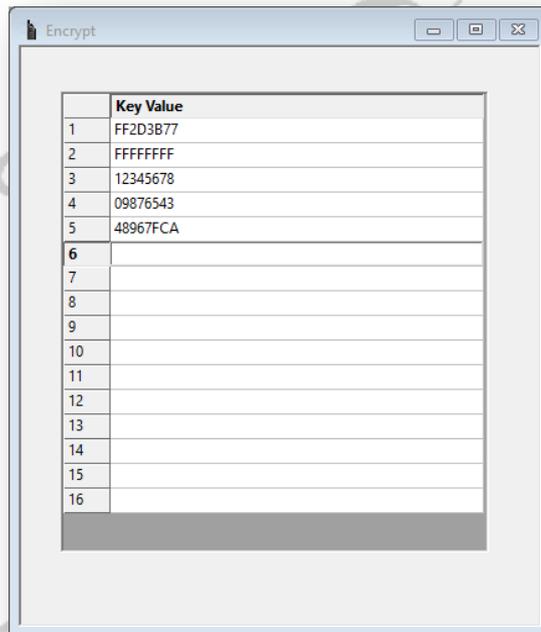
The function keys can each be assigned two different functions. One of the functions is activated by briefly pressing the corresponding button while the other requires a longer press. The Long Press Duration (ms) parameter defines the amount of time the key must be pressed to enable the long press feature. Thus, 4 functions are available via the two function keys.

You can assign the following functions to your P1 and P2 keys:

None	EmergencyOff	PushToTalk4
Activate	Zone	PushToTalk5
Check	Scan	Error Rate
Kill	VOX	Repeater
POWER	PushToTalk1	WorkAlone
Monitor	PushToTalk2	1750Tone
EmergencON	PushToTalk3	CallSwell

Encryption

Your GD-73 also supports digital encryption. You can specify the corresponding digital encryption password yourself. The person you are talking to can only hear your voice if the same encryption 'key' has been used on your radio. This prevents others from hearing your call and provides secrecy of your communications. Select "Edit"→"Encrypt" to go to the encryption key configuration page. The key value consists of 8 hexadecimal digits, and you can program up to 16 different keys.

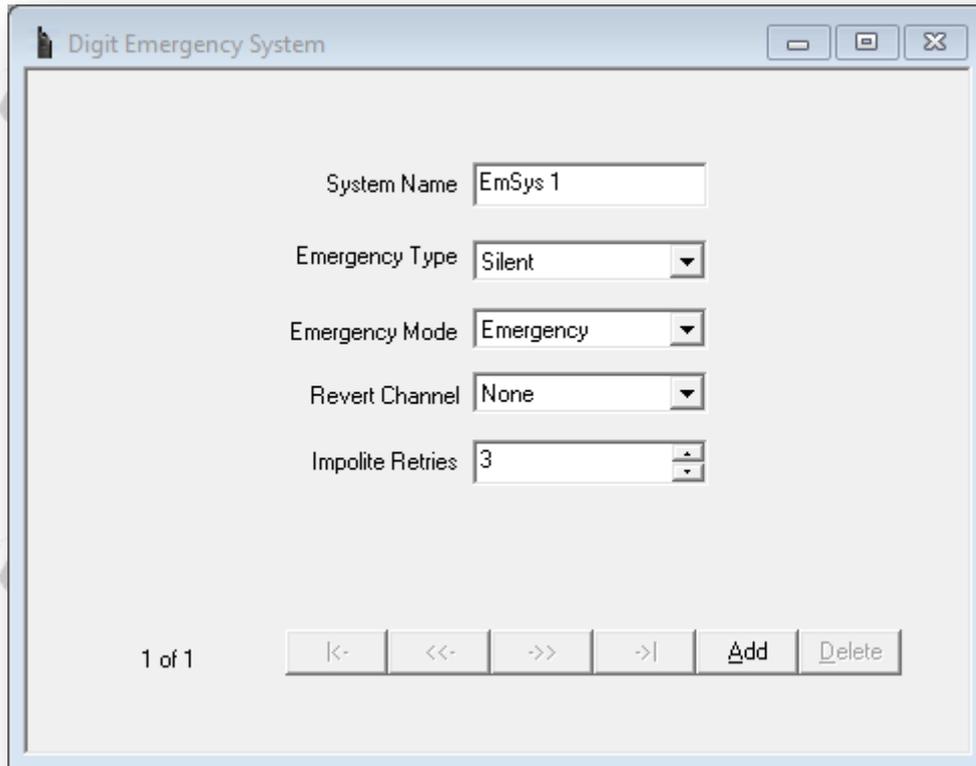


Note

Please note that encryption may not be allowed in the network you are using!

Digital emergency system

The availability of a digital emergency system depends on the digital network used. Select "Edit"→"Digital Emergency System". Then select the emergency system to be edited. Up to 8 emergency systems can be defined.



- System Name** This entry displays the name of the system. The name can be up to 8 characters long. Valid characters are letters, numbers, spaces, and special characters.
- Emergency Type** An alarm is a non-voice signal that triggers an alarm indication on another radio. This function sets the behavior of the triggering radio alarm when the emergency call button is pressed.
- Emergency Mode** Defines the behavior of the radio when the radio emergency button is pressed.
- Revert Channel** Defines the radio channel to be switched to when the emergency alarm is triggered.
- Impolite Retries** An impolite transmission is one that, if necessary, will over-transmit any others on the channel due to its urgent nature. The radio repeatedly attempts such transmissions for confirmation. This parameter sets the number of attempts to transmit an emergency alarm.

Preparation for DMR operation

Overview

- Apply for and receive your *DMR ID*
- Enter your *Digital Contacts*, consisting of Talkgroups (TG) and private ID contacts
- Set up your *Digital RX Group Lists*



- Program in your *Channels*, and attach a *Digital Contact* for TX and attach a *Digital RX Group List* for RX to each channel.
- Program your *Zones* by attaching *Channels* to each zone.
- (Optional) Set up a *Scan List*, and attach these Scan Lists to those Channels you wish to scan

Requesting a DMR radio ID

To work in a DMR network, you must register for a DMR ID number. For amateur radio this can be <https://www.radioid.net/> or <https://register.ham-digital.org/> depending on where you live. Normally, new DMR IDs will be issued within 24 hours.

Once you have your DMR-ID issued, that can now be stored with CPS in the code plug. Click on "Edit" → "General Settings"

Radio Name	Ihr Stationsname
Radio ID	12345678

Note

Never operate the radio with an ID that has not been assigned to you. In amateur radio networks this can lead to the loss of your license.

Digital contacts

Up to 1024 digital contacts can be stored. These digital contacts are used for storing talkgroups (TG) as well as individual stations DMR ID numbers. Select "Edit" → "Digital Contacts" to edit the digital contacts.

No.	Call Name	Call Type	Call ID
1	WW	Group Call	1
2	DL262	Group Call	262
3	DL263	Group Call	263
4	TG910-German	Group Call	910
5	DL-OE-HB9	Group Call	920
6	WW maritime	Group Call	9101
7	EmCom EU	Group Call	9112
8	TG91	Group Call	91
9	NRW	Group Call	2624
10	regional	Group Call	8
11	parrot	Private Call	262997



No	Entry in the list of digital contacts (up to 1024 entries)
Call Name	Display name of the contact
Call Type	You can choose between the following call types: <ul style="list-style-type: none"> • Group Call • Private Call • All Call
Call ID	ID for an individual / private digital call or a talkgroup (TG). This ID is for identification and communication with a destination radio (DMR-ID) or a group of radios (TG) depending on the call type.
Call Receive Tone	A warning tone will sound on the receiving radio before it mutes during a Group Call, Private Call, or All Call. This feature is set on a call basis.

Digital RX Group

You need a "Digital RX Group" for your channel settings. Creating digital RX group allows you to group your digital "contacts" (usually Talk Groups / TG) into logical groups so they can be targeted.

- Up to 250 individual Digital RX groups can be created and named to identify each group
- Each group can contain as few or as many contacts as you like.
- Groups should be named with something meaningful to the user
- Only contacts that are stored as group calls can be added to a group.
- Each Digital (DMR) channel must have a Digital RX Group List, with at least the transmit Talkgroup contact for the channel a member of the group you attach to the channel.
- If you do not attach a Digital RX Group List to a DMR channel, you won't be able to hear or receive anything on that channel.

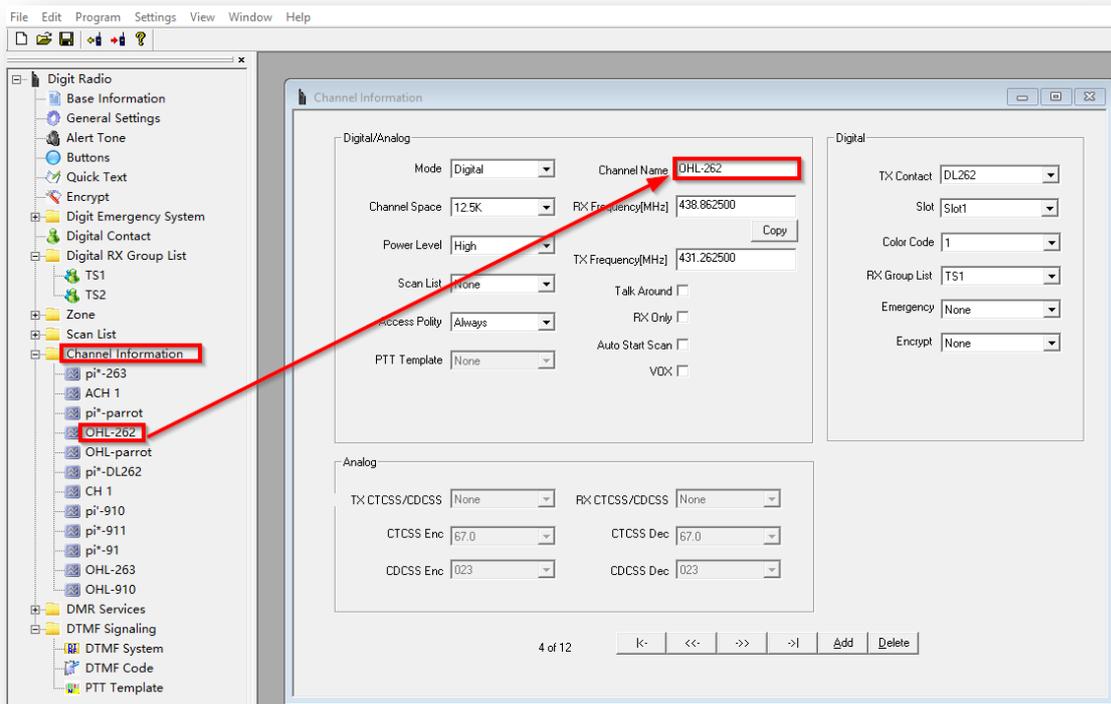
To edit these groups, use "Edit" → "Digital RX Group List". A typical group may look like:
By clicking on the "Add" button, you can now add another "Digital RX Group". A click on the "Delete" button deletes the displayed "Digital RX Group".

Channel settings

To edit the channels, click on "Edit" → "Channel Information". You can then select one of the existing channels.

Note

In "General Settings" set "Display" to "Name" to display the name of the currently selected channel on the radio or select "Frequency" to display the frequency of the currently selected channel. Having multiple channels with all of them using the same frequency but different settings for subaudio or DMR-operation it is advised to set this option to "Name" and use different names for the channels.



By clicking on the "Add" button, you can now add another channel.

Here is a brief explanation of the different fields you can customise for each channel:

Digital+Analog	
Mode	Choose between “analogue” and “digital”
Channel name	Name of the channel – this needs to be unique.
Receive Freq	The receive frequency in MHz
Transmit Freq.	The transmit frequency in MHz
Channel Space	Select the transmit / receive bandwidth here. In digital mode this is fixed at 12.5 kHz
Power	Selection of RF output power (cannot be changed for PMR)
Scan List	Select what scan list to scan when a scan is initiated on this channel.
Talk Around	Enables the ability to swap transmit and receive frequencies
Access Policy	Also known as ‘admit criteria’ this selects how a transmission is allowed to be sent
RX Only	Sets the channel to receive only, transmit is disabled.
Auto Start Scan	As soon as this channel is selected, scanning automatically starts with the scan list specified under “Scan List”
PTT Template	For an analogue channel, the PTT template to be used can be specified here.

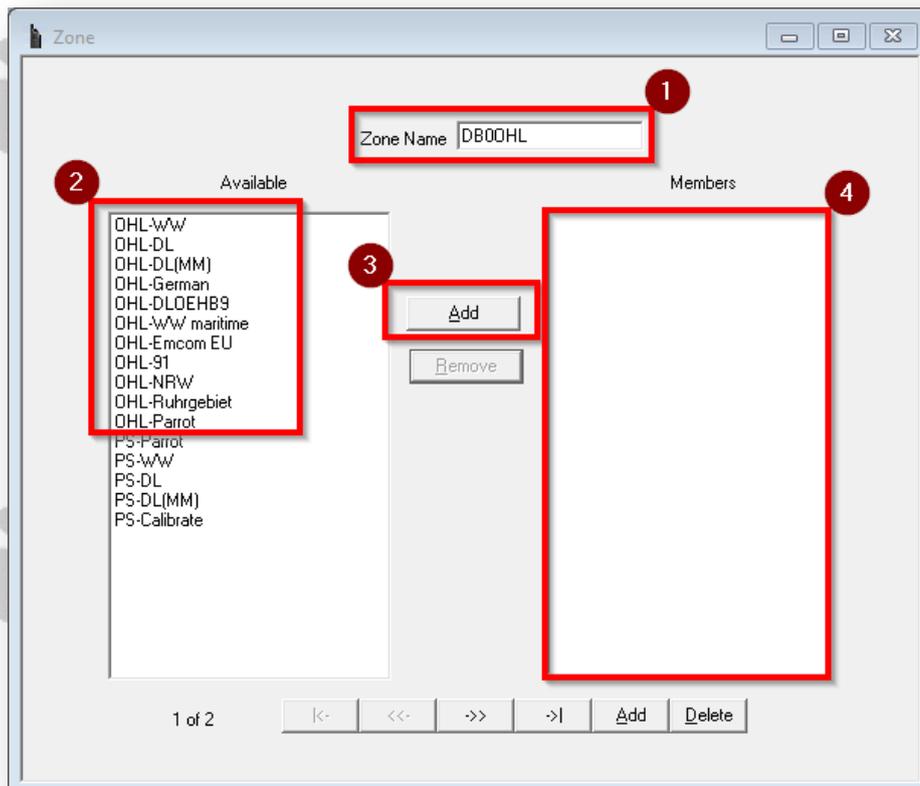


Digital	
TX Contact	The Talkgroup (TG) which is assigned to this channel
Slot	Selects which timeslot, 1 or 2, should be used. Often a particular Talkgroup is assigned to a particular timeslot.
Color Code	Select which colour code (CC) is associated with this channel.
RX Group List	This determines the RX Group List used for the channel
Emergency	Defines which emergency system is relevant for this channel
Encrypt	Sets encryption to be used for this channel
Analog	
TX CTCSS/DCS	Choice of sub audible variant for sending: "None" "CTCSS", "DCS" and "DCS Invert"
RX CTCSS/DCS	Selecting the sub audible variant for the receiving: "None" "CTCSS", "DCS" and "DCS Invert"
CTCSS Enc	If CTCSS has been selected for transmission, the corresponding sub audible frequency to be transmitted is selected here
CTCSS Dec	If CTCSS has been selected for receiving, the corresponding sub audible frequency for reception is selected here
DCS Enc	If DCS or DCS Invert signalling has been selected for transmission, the corresponding sub audible DCS signalling code to be transmitted is selected here
DCS Dec	If DCS or DCS Invert signalling has been selected for reception, the corresponding sub audible DCS signalling code to be received is selected here

When complete, click OK to save this channel.

Bundling of channels into zones

Once you have defined your channels, you are ready to bundle them into zones for later use. Up to 16 radio channels can be stored in one zone of your GD-73. A total of up to 64 zones are possible. It makes sense to bundle channels according to their use. For example, it makes sense to bundle all channels of a DMR repeater within one zone. Another zone could contain all analogue radio channels of a geographical region.

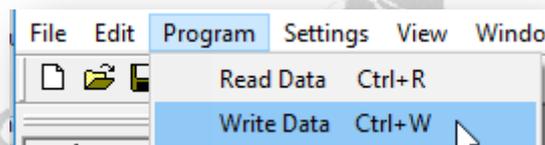


1. First give the zone a meaningful name (1), such as the identification of the repeaters whose channels you want to store in the zone.
2. Then select from the list of available radio channels (2) all those you want to bundle in that zone.
3. Click the "Add" button (3) to accept each channel.
4. The added channels will then be listed in the right window (4) under the heading "Members".

That is all what is required.

Transfer the codeplug to the radio

After completing all the above steps, you can transfer the data from your PC to the GD-73. Click on "Program" → "Write Data"





Firmware update for GD-73

1. Make sure that the radio is not initially connected to the PC via a USB cable and is turned off. Furthermore the GD-73 CPS should not be running at the same time.
2. Press and hold the PTT button. At the same time, press the on / off switch to turn on the GD-73. The red status LED lights up. Now you can release the keys
3. Only now connect your GD-73 to your PC using a conventional USB cable (USB-A to micro-USB).
4. Then start the previously installed update program as administrator



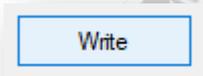
5. You should see “walkie-talkie-C7000” selected for your Com Port



6. Then select the desired firmware file



7. Click on Write to start the update process



8. Progress of the update will be shown by a green bar and percentage meter



9. When the update is complete, a successful message appears



10. Confirm by clicking on the OK button before you remove the micro-USB cable from the GD-73, and power cycle the radio by pressing the on / off button to return to normal. The update process is now complete.

Limitations of PMR446

	Depending on the particular model of GD-73, it may be that operation is subject to certain legal restrictions. For example, for the PMR version of the GD-73, operation with higher transmission power or in unauthorized frequency ranges would be illegal.
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Appendix A – RF exposure limits and product safety for portable radio equipment



Attention:

Before using this radio, read this manual. It contains important instructions for the operation, the safe use and the awareness of HF energy as well as for the control of the compliance with the valid norms and regulations.

This radio uses radio frequency (RF) electromagnetic energy to allow communication between two or more users over a distance. It uses radio frequency (RF) energy or radio waves to send and receive calls. RF energy is a form of electromagnetic energy. Other forms include sunlight and X-rays. However, RF energy should not be confused with these other forms of electromagnetic energy, which can cause biological damage if used improperly. Very high X-rays may be e.g. Damage tissue and genetic material.

Experts from science, technology, medicine, health and industry work with organizations to develop standards for the safe use of RF energy. These standards provide recommended exposure levels to both workers and the general public. These recommended RF exposure values also include significant safety buffers.

All Radioddity radios are designed, manufactured and tested to meet government-imposed RF exposure limits. In addition, manufacturers recommend special operating instructions to radio users. These instructions are important as they inform users about RF energy exposure and provide simple procedures for controlling them.

Visit the following websites for more information on how to control RF energy exposure to ensure compliance with specified limits:

<http://www.who.int/en/>

<http://www.euro.who.int/de/home>

Radio licence

Governments classify and regulate operation of radios. Most of these classified radios require a permit from local government agencies. For EU PMR 446, the Radioddity GD-73 PMR radio does not require a license.

Operating instructions

1. To send a radio transmission, hold the radio about 5cm away from your face and push the PTT (Push to Talk) button, and release it to receive. Do not transmit for more than 50% of your operating time. This not only helps to keep your RF exposure to within acceptable limits, but also prolongs battery and electronics lifespan.
2. When carrying the radio on your body, always place it in a Radioddity approved clip, holder, holster, case or harness for this product. Use of approved body-worn accessories is important



as the use of non-approved accessories may result in RF exposure levels that exceed the Occupational / Controlled Environment (IEEE) / ICNIRP limits.

3. If you do not use body-worn accessories make sure that the antenna and the radio when transmitting is at least 2.5 cm from the body. This is important as the RF exposure decreases as the distance from the antenna increases.

Protect your hearing

1. Use the lowest volume you need to carry out your work.
2. Increase the volume only when you are in a noisy environment.
3. Turn down the volume before connecting a headset or earphone.
4. Limit the amount of time you use headsets or earphones at high volume.
5. If you are using the radio without a headset or earphones, do not hold the radio's speaker directly to your ear.

Note

Loud sounds from any source over a long period of time may affect your hearing temporarily or permanently. The louder the volume of the radio, the less time it will take for your hearing to be adversely affected. Hearing damage due to loud noise is sometimes initially unrecognizable and can have a cumulative effect.



Safe operation

Cautions

1. Do not use the AC adapter outdoors or in humid environments, but only in dry environments.
2. Do not disassemble the AC adapter, otherwise there is a risk of electric shock or fire.
3. Do not operate the AC adapter if it has been broken or damaged in any way.
4. Do not place a portable radio over an airbag or in the area of the airbag deployment. In the event of a collision - which triggers the airbag - the radio can be thrown at you with great force and cause serious injury to the vehicle occupants.

Reducing risk

1. Disconnect the AC adapter from the USB port before performing any maintenance or cleaning.
2. Contact Radioddity for help with repairs and service.

Use of communication devices while driving

1. Always check the laws and regulations for the use of radios in the countries and areas in which you drive.
2. Give your full attention to driving and the road.
3. If available, use a hands-free kit or system (VOX).
4. If required by driving conditions or regulations, leave the road to park before making or receiving a call.



Appendix B – Technical data

General

Frequency range	GD-73E: PMR446 GD-73A: 406.1-470MHz
Number of channels	1024 (in 64 zones of 16 channels each)
Channel spacing	12.5kHz
Operating voltage	DC 3.6V
Battery chemistry	Li-Ion
Battery capacity	2600mAh standard Li-Ion
Working temperature range	-30°C~+60°C
Storage temperature range	-40°C~+85°C
Antenna impedance	50Ω
Audio output power	≤1W @16Ω
Dimensions (H*W*D)	115mm* 50mm * 32mm
Weight	148g

Transmitter

RF output power	GD-73E: ≤500mW GD-73A: ≤2W
Frequency stability	±1.0ppm
Adjacent channel spurious	≤60dB
Free Time Slot Power	TDMA: ≤ -57dBm
Hum and Noise	-40dB@12.5kHz
Spurious Radiation	Antenna: 9kHz - 1GHz ≤-36dBm 1GHz – 12.75GHz ≤-30dBm
FM-Modulation	12.5kHz: 11K0F3E
4FSK Digital Mode	12.5kHz (data only): 7K60FXD 12.5kHz (data + voice): 7K60FXE
Modulation Maximum Deviation	2.5kHz@12.5kHz
Nonactive Slot Power	≤ -57dBm
Digital Protocol	ETSI TS 102 361-1 -2 -3
Vocoder Type	AMBE+2TM
Audio Response	+1dB~-3dB
Modulation BER (Bit Error Rate)	≤5%



Receiver

Analog sensitivity	0.35 μ V/-116dBm (20dB SINAD)	
	0.22 μ V/-120dBm (Typical)	
Digital sensitivity	0.3 μ V/-117.4dBm (BER 1%)	
	0.22 μ V/-110dBm (BER 5%)	
Co-channel rejection	\geq -12dB	
Adjacent Channel Selectivity	TIA603C: 65dB	ETSI: 60dB
Spurious Response	TIA603C: 75dB	ETSI: 70dB
Audio output power	1W	
Audio response	1dB~-3dB	
Rated Audio Distortion	3% (Typical)	
Spurious Radiation	Antenna: 9kHz - 1GHz	\leq -57dBm
	1GHz - 12.75GHz	\leq -47dBm

Note

We expressly reserve the right to revise the specifications at any time due to technical improvements without prior notice. Thank you for your understanding.



Appendix C – CE Certificate of Compliance



EU-TYPE EXAMINATION (MODULE B) CERTIFICATE

Radio Equipment Directive (RED) 2014/53/EU

PHOENIX TESTLAB
Notified Body Number **0700**

 Bundesnetzagentur
 Recognized by

019004-05-0251-05

This is to certify that
 PHOENIX TESTLAB did undertake the relevant type examination procedures for the radio equipment identified below which was found to be in compliance with the essential requirements of Radio Equipment Directive (RED) 2014/53/EU subject to any conditions in the annex attached hereto.

Certificate No.	19-210597
Manufacturer	SAINS LLC
Address	36 Berkley Drive Newark Delaware United States 19702
Product Description	DMR Digital Transceiver; with PMR
Brand Name/ Model Name	Radioddity / GD-73, GD-73A, GD-73E, GD-61, GD-62

The radio equipment meets the following essential requirements	
Article 3.1 a): Health and Safety	Conform
Article 3.1 b): Electromagnetic Compatibility	Conform
Article 3.2: Effective and Efficient Use of Radio Spectrum	Conform
Additional Essential Requirements:	Not applicable

Date of issue	2019-04-26	Expiry date:	2024-04-25
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This certificate remains valid unless cancelled or revoked, provided the conditions in the attached annex are complied with. The conditions for the validity of this certificate are listed in the Annex.

The attached Annex forms part of this certificate. This certificate consists of 3 pages.





4/26/2019 5:04 PM
Signed by Wayne Hsu
Notified Body

Phone +49(0)6235-9500-24
 Fax +49(0)6235-9500-25
 notifiedbody@phoenix-testlab.de

PHOENIX TESTLAB GmbH
 Königswinkel 10
 D-32625 Blomberg, Germany
 www.phoenix-testlab.de



Appendix D – FCC Certificate of Compliance

TCB

**GRANT OF EQUIPMENT
AUTHORIZATION**

TCB

Certification
Issued Under the Authority of the
Federal Communications Commission
By:

PHOENIX TESTLAB GmbH
Koenigswinkel 10
32825 Blomberg,
Germany

Date of Grant: 05/24/2019
Application Dated: 05/23/2019

SAIN3 LLC
36 Berkley Drive
Newark, DE 19702

Attention: Damon Cheng , President

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE, and is VALID ONLY for the equipment identified hereon for use under the Commission's Rules and Regulations listed below.

FCC IDENTIFIER: **2AN62-GD73**
Name of Grantee: **SAIN3 LLC**
Equipment Class: **Licensed Non-Broadcast Transmitter Held to Face**
Notes: **DMR Digital Transceiver**

<u>Grant Notes</u>	<u>FCC Rule Parts</u>	<u>Frequency Range (MHZ)</u>	<u>Output Watts</u>	<u>Frequency Tolerance</u>	<u>Emission Designator</u>
EF	90	406.1 - 470.0	1.717	1.09 PM	10K2F3D
EF	90	406.1 - 470.0	1.717	1.09 PM	9K12FXE
EF	90	406.1 - 470.0	1.717	1.09 PM	9K12FXD

Power listed is ERP. Supports power levels: 1W/2W. This device must be restricted to work-related operations only in an Occupational/Controlled RF exposure environment and must operate with a duty factor not exceeding 50%. All qualified end-users of this device must have the knowledge to control their exposure conditions and/or duration to comply with Occupational /Controlled Exposure limit and requirements. A label, as described in this filing, must be displayed on the device to direct users to specific training information for meeting Occupational Exposure Requirements. Body-worn SAR compliance is limited to belt-clips, holsters or similar accessories that have no metallic component in the assembly as documented in this filing. The highest reported SAR values are: Face (2.5cm): 0.21 W/Kg, Body (belt clip): 0.46 W/Kg when operating at 50% duty cycle.

EF: This device may contain functions that are not operational in U.S Territories except as noted in the filing. This grant has extended frequencies as noted in the filing and Section 2.927(b) applies to this authorization.



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