

MDS Series Wireless Speakers Programming Guide



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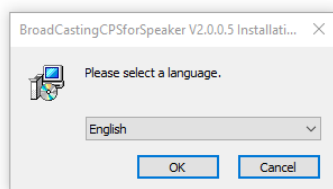
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PROGRAMMING THE MDS SPEAKER

1. Speakers should be programmed before installation.
2. Power on only the speaker you want to program and wait for its power-up chime before you start programming. Speakers are “powered on” when plugged into a power source and/or their battery back-up switch is turned on with a charged battery. Note: It may take up to 40 seconds for the speaker to boot up.
3. If programming more than one speaker, make sure that the other speakers are unplugged and their battery back-up is turned OFF so that they do not interfere during programming. Repeat this process for each speaker as you program additional speakers.
4. With the speaker on, insert the USB Bluetooth Dongle into an available USB port on the computer. (*Speakers must be turned on first to hear a unique “Connection chime”*). Use only one programming dongle & computer at a time to prevent interference when programming. Speaker and PC should be within a few feet of each other so that the Bluetooth connection can occur. Programmer does not need to be running for dongle to connect to the speaker.

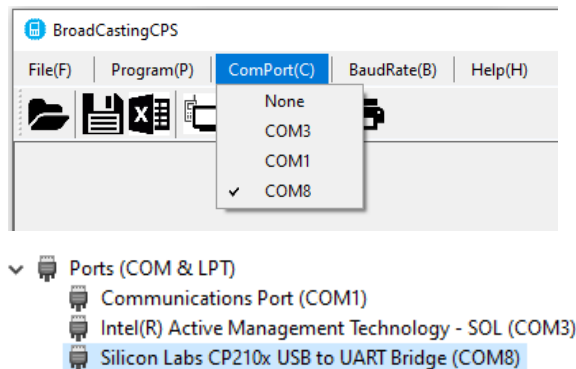
PC PROGRAMMER

1. Install CPS Radio Speaker programming software onto the PC that has the programming dongle.

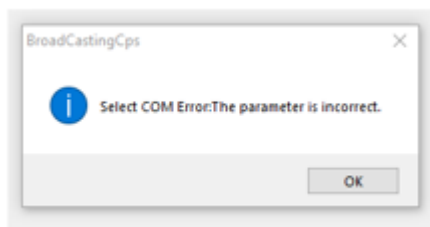


2. Run CPS program and it will open to a blank page. You will need to read the speaker or pull up a previously saved speaker file (.bin). If this is your first-time programming, “read” the target speaker first by following the next couple of instructions.
 - a. Select the COM port. If you unsure of the port number it can be found in the

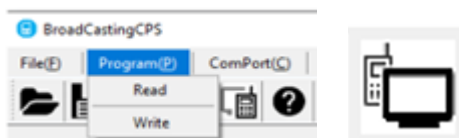
Device Manager on your computer. The driver for the dongle is made by Silicon Labs. In this instance it is COM8.



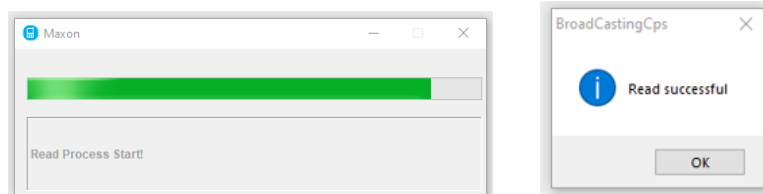
You will receive an error if the wrong COM port is selected.



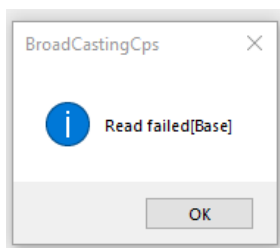
- b. **Read** the MDS-Speaker via the pull-down selection at the top under “Programming” or by selecting the Read icon.



The reading process may start slow, but should take less than a minute.



If you get a **read failed** error, restart the process and make sure your speaker is plugged in and turned on.



****If you are working with a previously saved speaker file:**



- a. Get to the main page and select “File” or the “Open” icon.
 - c. Locate the (.bin) file you previously saved to your computer, click on the file, & open it in the CPS programmer.
3. Information stored in the speaker will now be displayed. Various items are selected from the tree view on the left side of the screen. A description of each is shown below.

Speaker Information

Displays technical information about the speaker. Items on this screen cannot be edited.

The screenshot shows the BroadCastingCPS V2.0.0.9 software interface. The title bar reads "BroadCastingCPS V2.0.0.9 Read Radio : MDS-1400". The menu bar includes "File(F)", "Program(P)", "ComPort(C)", "BaudRate(B)", and "Help(H)". The toolbar contains icons for File, Program, ComPort, BaudRate, Help, and a printer. The left sidebar shows a tree view with the following structure:

- # Digital Speaker
 - Speaker Info (selected)
 - Basic Settings
 - Zone
 - Channel
 - DMRDigitCh
 - Analog Channel
 - Mixed Channel
 - DMR Settings
 - DMR Basic Settings
 - DMR Contacts
 - DMR Rx Group List

The main area displays the "Speaker Information" screen, which is divided into two sections:

Speaker Information

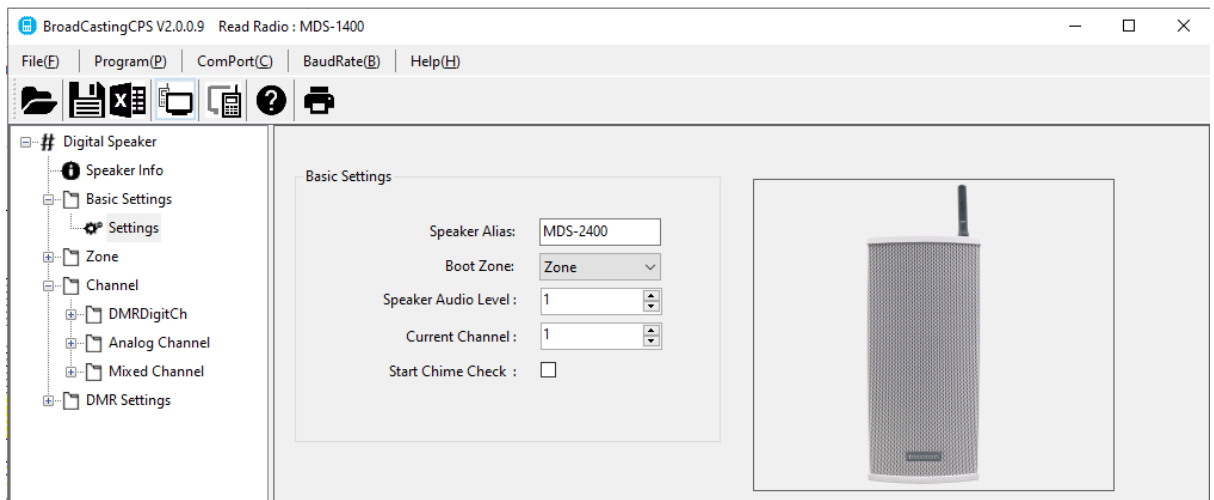
Manufacture Information

Model Name :	MDS-1400
Frequency Range[MHz]:	450MHz - 470MHz
Made Date :	2210-0000
PCB Version :	EXT40_R4
Software Ver:	V1.00.021

Baseband Chip Information

Baseband No .	0000430004892180
Base Band Ver:	V2.01.07PW

Basic Settings



- a. Speaker Alias: Alphanumeric name or number that will represent either the speaker model number or the location of the speaker. Example: Warehouse.
- b. Boot Zone: Zone has a maximum of 32 channels as Channel Members. These members correspond to the channel number. Members can be arranged by moving a channel up or down in the list.
- c. Speaker Audio Level: Volume is adjustable from 0 (mute) to 10 (loudest).
- d. Current Channel: The current channel is settable by selecting the channel index configured in the Zone.
- e. Announcement Chime: When enabled, the speaker automatically emits ascending tones at the beginning of a transmission to “introduce” the subsequent incoming audio. When the person transmitting stops, the speaker emits descending tones to signal to the listener that the transmission has ended. You would use this feature to draw attention to incoming announcements about to be broadcast through the speaker.

Zone

A zone can consist of digital, analog or mixed channels. This list of channels would consist of your most frequently used channels. The first channel member in the zone becomes the channel used for the speaker. Only one zone is available. A maximum of 32 channels can

be in the zone.

Channel/DMR Menu

DMR Digital channel

Save

OWN ID : 08200493

Max:502 Current:109

Start 1

End 109

Channel Alias

DMRDigiCh

Frequency

Freq Start 450.01250

Freq OffSet 0.01250

C/C 2

C/C Offset 1

Apply

Channel Insert

Add One Last

	CHAlias	Rx FREQ	Rx C/C	Group List	Slot
1	DMRDigiCh1	450.01250	2	None	slot_1
2	DMRDigiCh2	450.02500	3	None	slot_1
3	DMRDigiCh3	450.03750	4	None	slot_1
4	DMRDigiCh4	450.05000	5	None	slot_1
5	DMRDigiCh5	450.06250	6	None	slot_1
6	DMRDigiCh6	450.07500	7	None	slot_1
7	DMRDigiCh7	450.08750	8	None	slot_1

- a. DMRDigiCh displays the ID of the speaker along with digital channel information.
- b. This chart makes it easy to create a list of channels by automatically creating the number of channels, the channel name, color code and slot number. There is a maximum of 502 channels.
- c. In the example above, 109 channels were created. Start frequency was input with an offset of 0.0125. It starts with Color Code 2 and is incremented by 1 for each channel. When it reaches 15 for the Color Code, it is repeated 0-15 sequentially for each set of 16 channels. “Apply” must be clicked to save the changes. All of the fields can be edited if needed.

DMR Digital Channel Edit

DMR Digital Channel

Channel Alias: DMRDigiCh1

Slot: Slot 1

Rx

Rx Frequency[MHz]: 464.500000

Rx CC: 1

Rx Group List: DMRRxGroupList1

- Channel Alias is the name that shows up on the display of the radio.
- Slot 1 or Slot 2 are selectable and should match the transmitting radio.
- RX Frequency of the speaker.
- RX CC is the color code of 0-15.
- RX Group List. Must be assigned first to become selectable. It is found at DMR Settings/DMR RX Group List.

Analog Channel Menu

	CHAlias	Rx FREQ	RX SUB	RX CTCSS	RX DCS	SQ-LV	Tail	BandWidth
1	Analog Channel1	450.01250	CTCSS	67		1	120°	12.5KHz
2	Analog Channel2	450.02500	CTCSS	71.9		1	120°	12.5KHz
3	Analog Channel3	450.03750	CTCSS	77		1	120°	12.5KHz
4	Analog Channel4	450.05000	CTCSS	82.5		1	120°	12.5KHz
5	Analog Channel5	450.06250	CTCSS	88.5		1	120°	12.5KHz
6	Analog Channel6	450.07500	CTCSS	94.8		1	120°	12.5KHz
7	Analog Channel7	450.08750	CTCSS	100		1	120°	12.5KHz
8	Analog Channel8	450.10000	CTCSS	107.2		1	120°	12.5KHz
9	Analog Channel9	450.11250	CTCSS	114.8		1	120°	12.5KHz

- Analog Channel allows an easy way to create multiple channels automatically. In this example it created 9 channels with the name of each channel called "Analog ChannelX". "X" is automatically incremented from 1-9. Maximum number of channels is 402.
- Start Frequency is 450.0125 and incremented by 0.0125 for each channel created. CTCSS tones start at 67Hz and every 2nd tone is input. This is the Tone Offset.
- Squelch Level, Tail and Bandwidth are also selectable (*see below*).
- Apply and Save to write the channels to the programmer.

Analog Channel Edit

- a. Channel Alias is the name that shows up on the display of the radio.
- b. Analog Bandwidth may or may not be selectable. This depends on the software version. 12.5kHz or 25kHz
- c. Tail Degree is the frequency shift to eliminate the squelch tail.
- d. RX Frequency of the speaker.
- e. RX Squelch Type is selectable for Voice Only, CTCSS, DCS and Reverse DCS.
- f. RX CTCSS is used to select the tone frequency.
- g. RX DCS selects the DCS code or the Reverse DCS code.
- h. RX Squelch Level adjusts the squelch from open squelch (0) to tight squelch (5).

Mixed Channel Edit

A mixed channel allows the speaker to receive either a digital channel or an analog channel without changing the channel on the speaker.

- a. Channel Alias is the name that shows up on the display of the radio.
- b. Digital Channel Type can't be edited.
- c. Digital Available Channel can be any channel in the DMR Digital Channel list.
- d. Analog Available Channel can be any channel in the Analog Channel list.
- e. Mixed Channel Hang time is the number of seconds the receiver sits on the channel when reception stops. Basically, a mixed channel is doing a 2-channel scan.

DMR Basic Settings

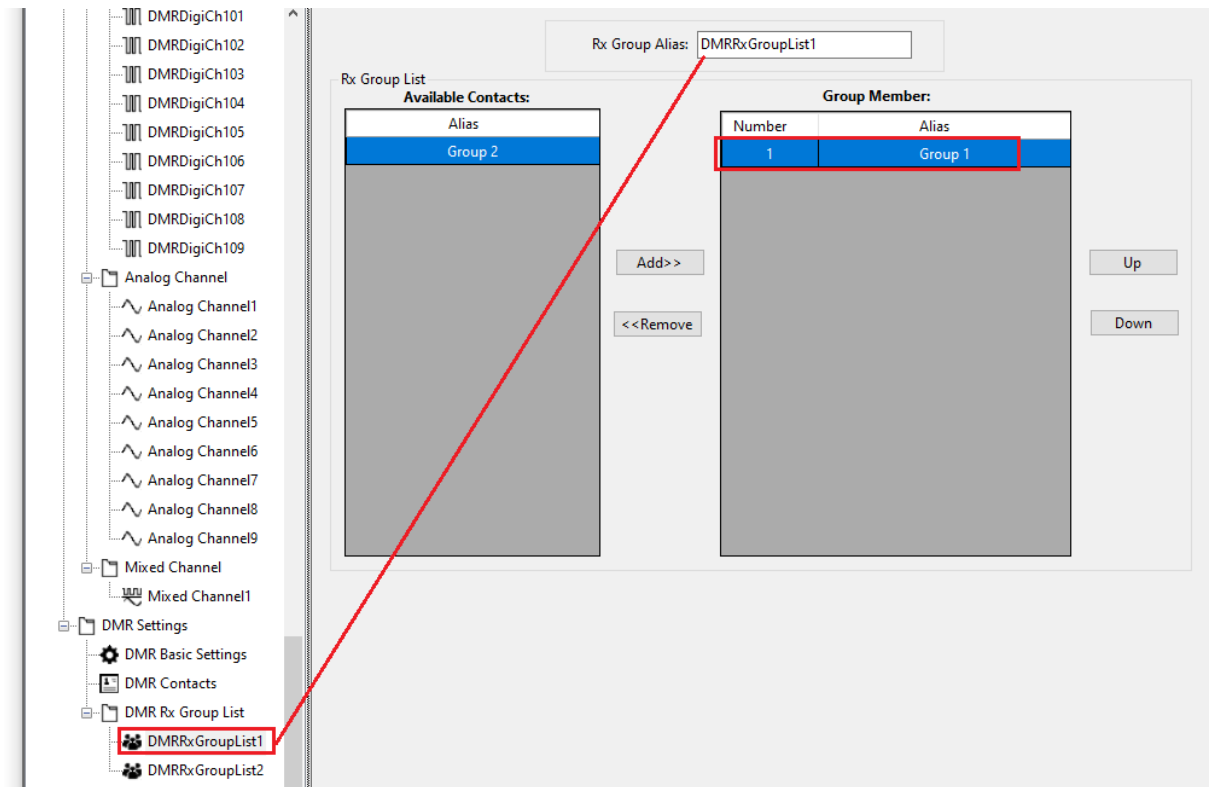
- a. Displays the speaker ID number.
- b. Call Hang Time is the number of seconds the channel stays open after the call ends.

DMR Contacts

DMR Contacts List				Call Type
Number	Call Alias	Call Type	Call Id	Group
1	Group1	Group Call	1	
2	All Call	All Call	*****	
3	Speaker 1	Individual Call	08200451	
4	Speaker 2	Individual Call	08200452	
5	Speaker 3	Individual Call	08200453	
				Add
				Insert
				Delete

- a. There are 3 types of contacts; Group Call, All Call and Individual Call.
- b. A Group Call can talk through any speaker assigned to that Group ID.
- c. All Call talks through all speakers regardless of the Group ID or the Individual Call ID.
- d. An Individual Call is used to talk through a specific speaker.

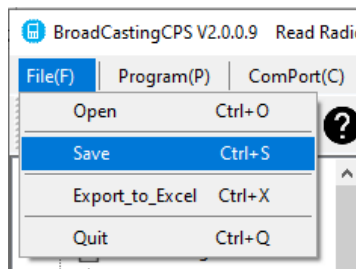
DMR RX Group List



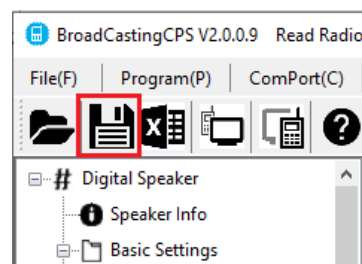
- Multiple DMR Group lists can be made. In this instance DMRRXGroupList 1 has the member Group 1.
- Only Call Types with a Group Call are displayed.

4. Save Your Work

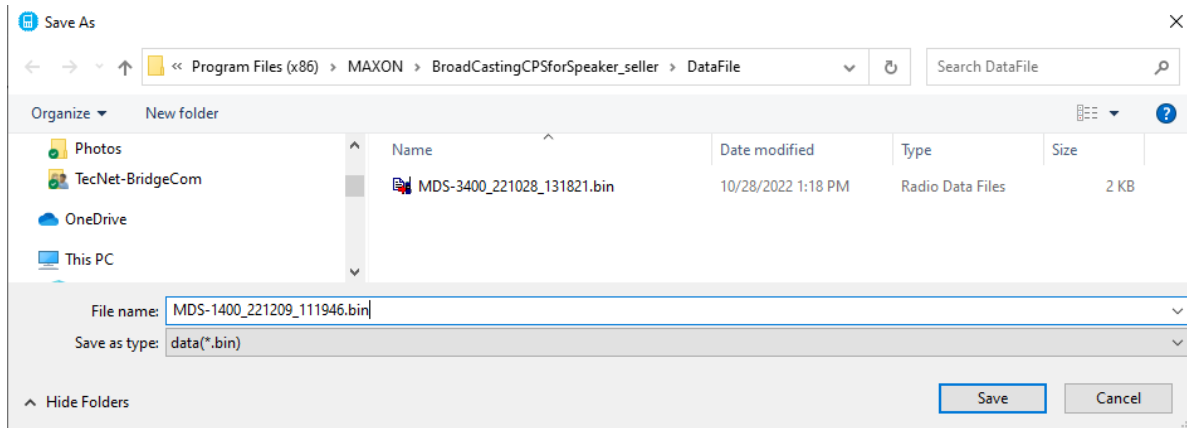
There are 2 ways to access Save as shown below.



or

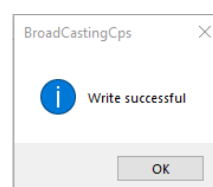
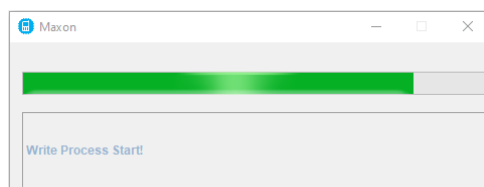
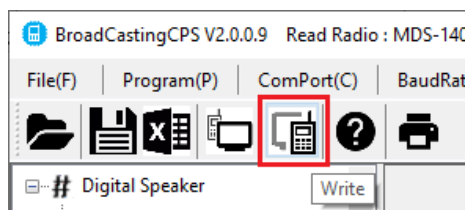


Next type in the file name then Save.



5. Write to the Speaker (Speaker Programming)

- a. With the speaker on, connect the BLE Dongle to the PC. (The speaker will make a chiming sound for “Connected”)
- b. Select the ComPort.
- c. Click on the Write icon to write the current information to the speaker.



- d. After you have successfully written to the speaker, the speaker will reboot, and within about 45 seconds you will hear the power on chime, signaling that the speaker has restarted and is ready to use.

- b. If you want to write a file that has been previously edited/saved, get to the

main page and select “File” or the “Open” icon.



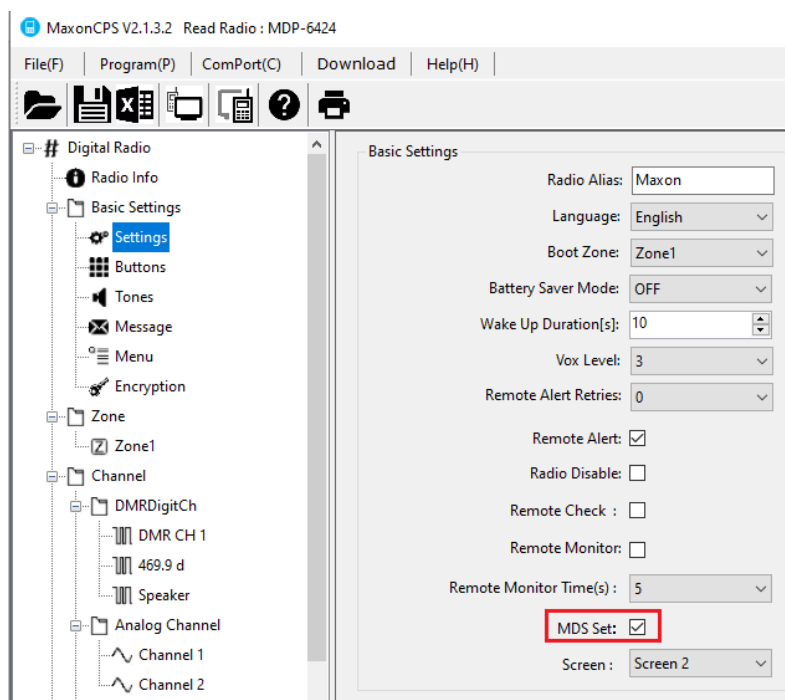
- a. Locate the (.bin) file you previously saved to your computer, click on the file, & open it in the CPS programmer.
- e. The .bin file can then be written to the speaker with the above instructions.

MDP-6424 Programming & Operation w/ MDS Speakers

Maxon's MDP-6424 is currently the only radio model available to remotely adjust the volume of a speaker without the CPS program. Any DMR UHF radio or UHF analog radio can talk through the speakers, but they cannot adjust the volume.

You will need:

- Programming cable ACC-3320E
- MDP-6424 CPS Software will need to be ACC-640 version V2.0.0.6 or higher
- MDP-6424 Radio firmware version V2.5.1.0 or higher
 - a. Using the correct version of software, read the radio. In this example we are using V2.1.3.2. *Contact Maxon if you need updated software.*
 - b. In the **Settings** menu select “**MDS Set**” as shown.




- c. Under **Buttons**, MDS Set (D) can be selected. This allows direct access to the MDS speaker adjustment. There are 4 options under this menu.
 1. MDS ID: Allows the user to manually input the ID of the speaker to be adjusted.
 2. MDS Contacts: Displays the Call Type “MDS Call” generated in the DMR Contact list.
 3. MDS Volume: Sets the volume level of the speaker.

4. MDS Set: Sends the ID and volume level information to the speaker.
- d. From the top left button on the front of the radio, "Contacts" can be selected and the MDS speaker to be adjusted. There you can view the speaker ID number and set the volume.
- e. A digital channel or analog can be used to talk through the speaker. Once these are setup make sure they appear in the zone as a Member. Special note: Only a MDP-6424 in digital mode can set the volume of a speaker.
- f. Under DMR Setting/DMR Contacts, there are 4 Call Type selections available.
 1. MDS Call: Used to add speakers to the contact list. Call ID can be found on the bottom of each speaker.
 2. Group Call: Used to call a group of speakers or a group of individuals.
 3. Individual Call: Used to call a specific individual. This is not the same as the MDS Call.
 4. All Call: A call made to all speakers and/or persons.

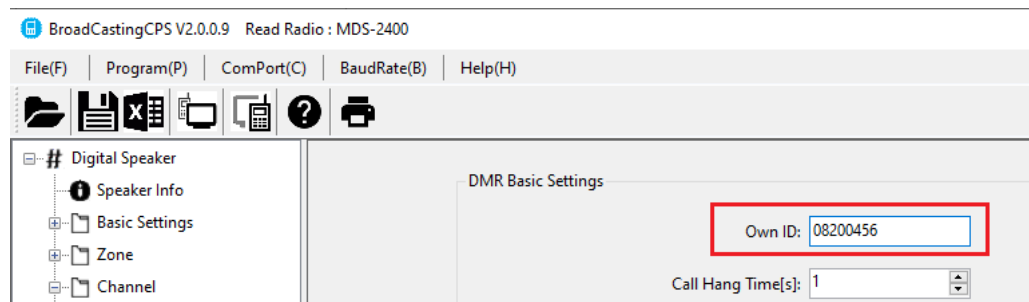
DMR Contacts List					
Number	Call Alias	Call Type	Call Id	Call Type	
1	Speaker 1	MDS Call	8200494	Group	
2	Speaker 2	MDS Call	8200495		
3	Group 1	Group Call	1	Add	
4	User1	Individual Call	1	Insert	
5	User2	Individual Call	2		
6	User3	All Call	*****	Delete	

MDP-6424 Operation



1. Turn on the radio and also the speaker you wish to adjust.
2. There are 2 ways to access the speaker volume adjustment on the radio.
 - a. One is by pressing the “menu” button and selecting “Contacts”. Scroll to find all of the contacts programmed into the radio. Contacts with this symbol,  are MDS speakers. Next press the “menu” button again and there you will find 2 options; 1. View Details and 2. MDS Set. Looking at the details will show the speaker ID of the selected speaker. “MDS Set” allows you to adjust the volume level of the speaker. When the level is selected, press the menu button again to send the information to the speaker. The radio will show “Send Message”. If the call is successful, you will hear a 4-tone chime from the speaker.
 - b. The other way is to use a predefined button press called “MDS Set (D)”. In this example we have it programmed on P1. “MDS Set (D)” has 4 settings. Each is explained below.
 1. **MDS ID:** Use the menu button to select MDS ID. There you must enter the 8 digits shown on either the bottom of the speaker itself, or the number found in the programmer as “Own ID”. The menu button moves the cursor to the next digit while the scroll key changes the number either up or down. After the 8th digit is entered, press the menu button again and this will return you to the main screen. (At this point you would skip down to

number 3, bypassing number 2 “MDS Contacts”.



2. **MDS Contacts:** This list only shows the MDS speaker contacts. Press the menu button to see the speakers. Scroll and select the speaker you wish to adjust the volume. Next move to step 3.
3. **MDS Volume:** Use the scroll button to adjust the level of the speaker volume. Press the menu button to set it.
4. **MDS Set:** This shows the speaker ID you wish to set along with the volume level. Press the menu button again to send the message. You should hear 4 tones indicating the level has been changed.



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