RAIN BIRD®

Guide to Operations
FREEDOM for Maxicom2

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FREEDOM for Maxicom2 enables users to access and control their Maxicom2 systems remotely by entering simple commands into a telephone keypad. These commands enable remote users to perform rain shutdowns, troubleshoot the irrigation system at a site, or supplement the irrigation while inspecting a site. By entering simple commands, the remote user is able to turn on and turn off individual valves, start and stop schedules, turn entire sites off, etc. These capabilities will be described below.

These instructions consist of five sections. The first section describes how to set up the FREEDOM system in Maxicom2. The second section describes step by step a typical FREEDOM access. The third section presents the various commands that can be entered into a cell phone in order to control Maxicom2 and the irrigation at a site. The fourth section describes the responses that will be heard from Maxicom2 during the remote contact. The last section consists of four simple exercises that show in detail how the FREEDOM system can be used.

1. Preliminary Setup in Maxicom2

Before accessing Maxicom2 through the FREEDOM system, you first need to specify the COM port to which the FREEDOM modem is connected. This is done from the System menu - Properties - Communications.

The FREEDOM System password and the default Site access time window should be configured. This is optional but recommended. These settings are located on the FREEDOM tab of System menu - Properties. If not changed, the default System password is "1111." Note that the password does not necessarily need to be four digits long; if you want to keep it short, you can define it to be a single digit. The System Master Password (in System - Properties - Passwords) can also be used as a FREEDOM System password, which allows access to all Sites. Using the Password for an individual Site (set in Site Properties) only allows access to that Site (and all Sites with the same Password).

The purpose of the FREEDOM access window is to prevent remote users from accessing Sites for part of each day. For example, if you want the remote users to access the system only during the hours from 8 a.m. to 4 p.m., enter those times in the "From:" and "To:" boxes. Maxicom2 will then block all remote accesses that are initiated at times that are outside of this window. If you do not enter these times, both the start and end times will default to 12:00 a.m. meaning that the window is always open. The times entered in System Properties are used only as the default times for new Sites. After each Site is created, its access window can be set differently in Site Properties - Contact tab. Also, there is a command that can open or close the access window. When this command is entered, it will override the window's start and end times that have been entered into Maxicom2. This command will be described later.

2. A Typical Site Access Through the FREEDOM System

This section will describe, step by step, a typical Site access through the FREEDOM system. This access can be performed only after the FREEDOM system has been set up in Maxicom2 as described in the preceding section. The description in this section will only include a couple of the more simple commands; for a complete description of all of the commands, see the next section. Section 5 will present four exercises that you can work through in order to see how the FREEDOM system can be used with your particular Sites. While working through those exercises, you may want to refer to the steps presented in this section. While working through this simple exercise, make sure that the access window in Maxicom2 is open and that no manual or automatic Site contacts are being made.

STEP 1. *Dial the phone number for the FREEDOM modem.*
From your telephone, dial the phone number for the line that is connected to the FREEDOM modem. When the FREEDOM modem answers, you will hear two short beeps.

STEP 2. *Enter your password.*
For example, if your password is "1111" (the default FREEDOM System password), enter ##1111 ##. If you enter a valid password, you will hear four short beeps. Four short beeps always mean "OK" When you hear four short beeps, you know that you just entered something correctly and you are ready to move on to the next step. If you entered an invalid password, you will hear one long beep. One long beep always means "error." If you hear the error beep, reenter your password so that you hear the OK beeps.

STEP 3. *Enter the Site number.*
Next, specify which Maxicom2 Site you want to contact. If you want to contact Site number 5, enter ##5##. It will take Maxicom2 several seconds to connect to Site number 5, so you will now hear the "wait beep" pattern: about 2 or 3 very short beeps every second. After Maxicom2 has signed on to the Site, you will hear the OK beeps. If you specify an invalid Site, you will hear the error beep. You can then enter a valid Site number.

STEP 4. *Enter commands from the list in the next section.*
You are now online with the Site. You can always verify whether or not you are online by entering just "##." If you are offline, you will hear one short beep. If you are online and enter ##, you will hear two short beeps.
After you have verified that you are online, you are ready to enter commands. For example, if you want to turn on channel three, station twelve, for five minutes, you would enter ##1#3#12#5##. After a command has been entered correctly, you will hear the OK beeps. If the command was entered incorrectly, you will hear the error beep. If you hear the error beep, just reenter the command.
Two rules: 1) You must enter either a complete command or a ## at least once every four minutes. If you do not, then FREEDOM will hang up. 2) Once you start a command (you enter the initial ##), you must complete the command within 60 seconds. If you do not, then you will hear the error beep and Maxicom2 will disregard the command.

STEP 5. *After you have entered all of the commands that you want, you should enter*
"#"'" *and then hang up the phone.* This completes the remote contact. Note: All FREEDOM contacts should be terminated by first entering #* and then hanging up the phone. If you hang up without entering #*, then the FREEDOM modem will stay online for up to four minutes.

3.   A Summary of the FREEDOM Commands

There are two primary sets of commands in FREEDOM for Maxicom2. The first set of commands implements most of the OMSC commands that are built into Maxicom2. These commands are used while online with a Site. These commands are the most commonly used commands and are available to all of the passwords, including individual Site Passwords. The second set of commands control features within Maxicom2. These commands are available only to the FREEDOM System Password (or the System Master Password). In order to use the set of commands that control Maxicom2, the user simply specifies Site number O. The third and fourth exercises in section 5 present examples of this type of command.

As you read through these commands, you will notice a generalization. A "1" in a command always means that you are turning something on (a Site, a schedule, a station, etc.). A "2" in a command always means that you are turning something off. If you keep this generalization in mind, remembering these commands should be fairly easy.

A. Commands Used While Online With a Site

Note: cc,ss, and tt can be 1 or 2 digits.
Note: SSSS can be 1,2,3 or 4 digits.
Note: anything in braces (⟨⟩) is optional and unlimited in length.

Command 1 – Turn on station(s)
Format: ##1#cc#ss{#ss...#ss}#tt##
This command will turn on station(s) ss on channel cc for tt minutes.
Example: ##1 #3#5#11 #15## Turn stations 5 and 11 on channel 3 on for 15 minutes.
If only one station is entered, and no time is specified, then the default time is two minutes. For example, ##1 #5#12## would turn on station 12 on channel 5 for two minutes. If more than one station is entered, then the time must be specified.

Command 2 – Turn off a channel or a Site
Format: ##2## turn off entire Site, ##2#cc## turn off channel cc
This command will turn off the specified channel or the entire Site if no channel is specified. If you turn off the entire Site, then all of the stations will be turned off, regardless of whether they were being run manually or by schedules. If you turn off a specific channel, then only the stations that are being run manually will be turned off; the stations that are being run by schedules will not be turned off.
Example: ##2#19## Turn off channel 19.

Command 3 – Turn on a block of stations (i.e. 1-10)
Format: ##3#cc#ss#ss#tt##
This command will turn on stations ss through ss on channel cc for tt minutes.
Example: ##3#5#9#21 #1 0## Turn on stations 9 through 21 on channel 5 for 10 minutes.

Command 4 – Advance a channel
Format: ##4#cc##
This command will turn off all of the stations on channel cc and will turn on the next available station.
Example: ##4#9## Turn off the stations on channel 9 that are currently on and then turn on the next available station.
This command is intended to be used in conjunction with command number 3 described above. For example, you may want to verify that each station on a particular channel is working

properly. You could use the 3 command to specify that stations 1 through 24 should be turned on for 1 minute each. Then, after a station has turned on and you have verified that it is working properly, you could advance the channel rather than waiting for the entire minute.

Command 51 - Turn on a single station
Format: ##51 #cc#ss##
This command will turn on station ss on channel cc for 5 minutes. Example:
##51#21#5## Turn on station 5 on channel 21 for five minutes.
This command is different from the "1" command in two ways: 1) This command only applies to one station. 2) The station that is started with this command can be paused, interrupted, or turned off by the other "5X" commands. 8ee the next three paragraphs for descriptions of these commands. The "5X" commands are intended to be used as diagnostic tools rather than as irrigation supplements. If you find that there is a problem with a particular head, then you can turn it on with the "51" command, interrupt it with the "55" command, work on it, and then uninterrupt it with the "56" command.

Command 52 - Turn off the station that was turned on by the 51 command.
Format: ##52##
This command will turn off the station that was just turned on by the 51 command.
Example: ##52##
Note that you do not need to specify the channel and station because Maxicom2 maintains that information for you.

Command 55 - Pause (interrupt) the station that was turned on by the 51 command.
Format: ##55##
This command will pause the station that was just turned on with the 51 command. Example:
##55##

Command 56 - Resume (uninterrupt) the station that was paused by the 55 command.
Format: ##56##
This command will resume the station that was paused with the 55 command.
Example: ##56##

Command 71 - Turn on a schedule Format:
##71 #8888##
This command will turn on schedule 8888.
Example: ##71 #1 05## Turn on schedule 105.

Command 72 - Turn off a schedule
Format: ##72#8888##
This command will turn off schedule 8888.
Example: ##72#525## Turn off schedule 525.
If 8888 is omitted, then all of the schedules that are running will be turned off. Thus, ##72## will turn off all of the schedules that are on.

Command 74 - Advance a schedule
Format: ##74#8888##
This command will advance schedule 8888.
Example: ##74#119## Advance schedule 119.
If 8888 is omitted, then all of the schedules that are running will be advanced. 80 ##74## will advance all of the schedules that are on.

Command 75 - Pause (interrupt) a schedule
Format: ##75#SSSS##
This command will pause schedule SSSS.
Example: ##75#201## Pause (interrupt) schedule 201.
If SSSS is omitted, then this command will pause all of the schedules that are running. Thus,
##75## will pause all of the schedules that are on.

Command 76 - Resume (uninterrupt) a schedule
Format: ##76#SSSS##
This command will resume schedule SSSS.
Example: ##76#15## Resume (uninterrupt) schedule 15.
If SSSS is omitted, then all of the paused schedules will be resumed. Therefore, ##76## will resume all of the schedules that were paused.

Command 8 – Disconnect the current Site without disconnecting the FREEDOM call
Format: ##8##
This command causes Maxicom2 to disconnect from the Site that is currently online. The remote user can then enter a new Site for Maxicom2 to contact. (The user does not need to reenter their password.)
Example: ##8##
There may be times when you want to contact one Site immediately after you have finished contacting a different Site. For example, Site 5 might be on one side of a road while Site 6 is on the other side of the road. Or you may want to send some commands to the Central, which is Site 0, and then, with the same phone call, send some commands to one or more of the other Sites. With just one call from your phone, you can send commands to one Site, and then instruct Maxicom2 to disconnect from that Site and immediately call another Site. For the example mentioned above, you would first contact Site 5 and send any commands that you want. You would then use the "8" command to tell Maxicom2 to disconnect from that Site. After you enter ##8## and Maxicom2 has disconnected, you will hear the OK beeps. You are then ready to select Site 6 and send commands for that Site.

Command 9 – Stay online with the current Site after the phone is hung up
Format: ##9##
This command causes Maxicom2 to stay online with the current Site even after the remote user has entered #* and hung up the phone. Maxicom2 will stay online with the Site until the remote user contacts it again or the Site Manual Contact Timeout has expired, whichever comes first.
Example: ##9##
There may be times when you contact a Site and send some commands, and then you need to move to a different location in that same Site before you send some more commands. You can instruct Maxicom2 to stay online with a particular Site even after you have hung up the phone by using the "9" command. This tells Maxicom2 to stay online with the Site even after you have entered the #* and hung up the phone. After you have hung up the phone, you have 30 minutes to re-contact the same Site. For example, suppose you get online with Site 8 and send it some commands. Then you need to drive to a different part of Site 8 before you send some more commands. Before hanging up the phone, enter ##9##. You will hear the OK beep. Then enter #* and hang up the phone. Maxicom2 will stay on line with Site number 8 for up to 30 minutes. After you have driven to the new location, call Maxicom2 and enter your password (all other Site passwords will be locked out during these 30 minutes). After you have entered your password, you will hear the OK beeps. Since you are already online with the Site, you are now ready to start entering commands. If you do not contact Maxicom2 within the 30 minutes, then Maxicom2 will hang up and you may re-contact the Site in the normal way.

If the window closes during those thirty minutes, and if you are not using the System password, then when you re-contact the Site, you will hear the busy signal. This indicates that the window is closed. During those thirty minutes, it is possible that someone at Maxicom2 may terminate your FREEDOM contact. After you have entered your password, you will probably want to determine whether or not you are still online with the Site. You may do this by simply entering ## and listening to the response (one beep means offline, two beeps mean online).

B. Commands Used While Online With the Central

Note: SSS can be 1,2 or 3 digits.
Note: anything in braces ({}) is optional and unlimited in length.

Command 1 - Set Site(s) **to Auto Contact.**
Format: ##1 {#SSS...}##
This command will set Site(s) SSS to Auto Contact.
Example: ##1 #3#5#11 #15## Set Sites 3, 5, 11 and 15 to auto-on.
If no Sites are entered (##1##), then all of the Sites are set to Auto Contact.

Command 2 - Set Site(s) **to rain shutdown**
Format: ##2{#SSS...}##
This command will set Site(s) SSS to rain shutdown.
Example: ##2#19#25## Set Sites 19 and 25 to rain shutdown.
If no Sites are entered, then all of the Sites will be set to rain shutdown. For example, ##2## will cause Maxicom2 to call all of the Sites and set them to rain shutdown.

Command 6 - Temporarily open or close the FREEDOM access Time Window
Format: ##6#1 #t##
This command will open the window for t hours. If t is not specified, the default is one hour.
Format: ##6#2#t## This command will close the window for t hours. If t is not specified, the window will stay closed until the master password reopens the window.
Example: ##6#1 #5## The FREEDOM access window will be open for the next five hours regardless of the window's closing time entered in Maxicom2. During these five hours, all of the Sites can be accessed.
Example: ##6#2## The remote access window will be closed until the System password reopens it.

4. <u>Summary of FREEDOM Responses (Beeps)</u>

As you enter commands into the phone, Maxicom2 will send responses to your entries in order to indicate whether or not there were any errors. You will hear these responses as beeps from the telephone. A summary of these responses is shown below.

one short beep - the acknowledgment that the leading ## has been received when offline

two short beeps - the acknowledgment that the leading ## has been received when online

four short beeps - OK - the command that you just entered is being executed and you are ready to enter another command

one long beep - Error - you should reenter the command

many short beeps - Wait - Maxicom2 is contacting the Site that you requested

many long beeps - Busy signal - Maxicom2 is already online with a Site, or a local user at Maxicom2 terminated your contact, or the FREEDOM access window is closed

5. <u>Simple Exercises for the FREEDOM System</u>

The purpose of this section is to let you work through some simple examples of contacting a Site and using some of the commands. These examples will show you exactly what you need to enter and the responses that you will receive from Maxicom2. Throughout these examples, it will be assumed that we are working with Site number 12. You should substitute the appropriate Site for your situation. You will also need to enter a password that you have defined in Maxicom2. The password in these examples will be 2222. After most of the steps, there will be a space provided for you to write in the actual numbers or commands that you would enter for your particular situation.

EXERCISE A: Turn Stations On and Off

Step 1. Dial the FREEDOM modem phone number. When the FREEDOM modem answers, you will hear two short beeps. If another FREEDOM user is accessing the system, then you will hear a busy signal.

Write your FREEDOM modem phone number here:

Step 2. Enter your System password. Enter ##2222##. Possible responses: OK beeps (you entered a valid password), error beep (you entered an invalid password), busy signal (the FREEDOM access window is closed).

Write your System password here:

Step 3. Enter a Site number. Enter ##12##. You will hear the wait signal while Maxicom2 contacts the Site. When the Site signs on, you will hear the OK signal.

Write your Site number here:

Step 4. Verify that you are online. Enter ##. You will then hear two short beeps meaning that you are online. If you were not online, then you would hear only one short beep.

Step 5. Enter the Station On command. Enter ##1 #3#5#1 0##. This command will turn on channel three, station 5 for 10 minutes. You will hear the OK beeps.

Write your command here:

Step 6. Enter the Channel Off command. Enter ##2#3##. This will turn off all of the stations on channel three. You will hear the OK beeps.

Write your command here:

Step 7. Terminate the contact. Enter #* and hang up the phone.

EXERCISE B: Hold a Site for Another Contact

Step 1. Dial the FREEDOM modem phone number. When the FREEDOM modem answers, you will hear two short beeps.

Write your FREEDOM modem phone number here:

Step 2. Enter your System password. Enter ##2222##. You will hear the OK beeps.

Write your System password here:

Step 3. Enter the Site number. Enter ##12##. You will hear the wait signal and eventually the OK beeps.

Write your Site number here:

Step 4. Enter some commands.

Step 5. Enter the 9 command. Enter ##9##. This tells Maxicom2 that you want it to stay online with Site number 12 even after you have hung up the phone. You will hear the OK beeps.

Step 6. Enter #* and hang up the phone.

Step 7. Dial the FREEDOM modem phone number again. You will hear two short beeps when the FREEDOM modem answers.

Step 8. Verify that Maxicom2 is still holding the line. Enter ##. If Maxicom2 is still holding the line, you will hear two short beeps indicating that you are online. If you hear only one short beep, then someone at Maxicom2 manually terminated your contact. If this is the case, you will need to get back online in the usual way.

Step 9. Enter your System password. Enter ##2222##. You will hear the OK beeps.

Step 10. Enter other commands and then enter #* and hang up the phone.

EXERCISE C: Rain Shutdown for Sites 1 Through 3

Step 1. Dial the FREEDOM modem phone number. When the FREEDOM modem answers, you will hear two short beeps.

Write your FREEDOM modem phone number here:

Step 2. Enter your System password. Enter ##2222##. You will hear the OK beep.

Write your System password here:

Step 3. Enter the Site number. The rain shutdown command is a command that is used only with the central so the Site number is O. Enter ##0##. You will hear the OK beeps.

Step 4. Enter the rain shutdown command. Enter ##2#1#2#3##. You will hear the OK beeps. If you want to shutdown all of the Sites in your system, just enter ##2##.

Step 5. Terminate the contact. Enter #* and hang up the phone.

Remember that at some point in the future, you will need to cancel this rain shutdown.

EXERCISE D: Open the Window for 2 Hours

Step 1. Dial the FREEDOM modem phone number. You will hear two short beeps when the FREEDOM modem answers.

Write your FREEDOM modem phone number here:

Step 2. Enter the System password. Enter ##2222##. You will hear the OK beeps.

Write your System password here:

Step 3. Enter the Site number. The FREEDOM access window command is a command that is used only with the Central so the Site number is O. Enter ##0##. You will hear the OK beeps.

Step 4. Enter the Open Window command. Enter ##6#1 #2##. This will open the window for two hours. You will hear the OK beeps.

Step 5. Terminate the contact. Enter #* and hang up the phone.