

This file contains only the changes for firmware version 1.78 since V1.77. Replacing the corresponding pages in the V1.77 manual with these pages will result in a V1.78 manual.

**RLC-3 8 Port Communications Controller  
Software Version 1.78  
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**Keyup Delay Timer:**

The keyup delay timer is used to keep short noise bursts that open the receiver's squelch from keying up the repeater. It can also keep people from kerchunking the repeater. When enabled, it makes the controller totally ignore keyups shorter than the length of this timer (the rest of this explanation will assume ½ second). If the receiver is keyed for longer than ½ second, the first ½ second will be ignored, then it will respond normally, bringing up the transmitter, triggering the ID system, etc. To keep every keyup from being delayed, the keyup delay is automatically disabled while the repeater is being used. It is only re-enabled when the repeater is not used for a default of 60 seconds (see timers 194..201). If this timer is set to zero (the default), the keyup delay is disabled. A typical setting would be 50, which is ½ second.

Timer Number	Definition	Defaults
068	Keyup Delay Timer, RX 1	0 (disabled)
069	Keyup Delay Timer, RX 2	“
070	Keyup Delay Timer, RX 3	“
071	Keyup Delay Timer, RX 4	“
072	Keyup Delay Timer, RX 5	“
073	Keyup Delay Timer, RX 6	“
074	Keyup Delay Timer, RX 7	“
075	Keyup Delay Timer, RX 8	“

**Wind Speed Timer:**

This timer is used to help determine the wind speed indicated by an anemometer. The number of pulses counted during the length of this timer becomes the pseudo-analog value. For more information, see command 109.

Timer Number	Definition	Defaults
076	Wind Speed Timer	2.26 sec (226)

**Word Too Long Timer:**

There is no need to change this timer! It is used to ensure that even if the voice synthesizer messes up, that it will not cause the controller to leave a transmitter keyed. If a word takes longer than this timer, it will be truncated and the controller will go on to the next word.

Timer Number	Definition	Defaults
077	Word Too Long Timer	1.5 sec (150)

## ***021: Recall a Timer Value***

This command allows you to recall the value of a programmed timer.

```
<021> xxx
```

### **Parameters:**

- 021 is the default command name.
- XXX is the timer to recall (three digits, see command 020 for list of timers)

## ***022: Start a Timer***

This command makes the specified timer start running, so that it will expire later. If the timer is already running, this command will make it start over. The controller automatically starts and stops most timers, but you can override the controller's normal way of doing things with this command. You can also use this command to make the user timers start running (timers 148..163).

```
<022> xxx
```

### **Parameters:**

- 022 is the default command name.
- XXX is the timer to start (three digits, see command 020 for list of timers)

## ***023: Stop a Timer***

This command allows you to stop a timer, so that it will not expire normally. The controller automatically stops most timers as needed, so the only time you should need to use this command is when you want to change the way the controller normally works. Most timers automatically stop when they expire.

```
<023> xxx
```

### **Parameters:**

- 023 is the default command name.
- XXX is the timer to stop (three digits, see command 020 for list of timers)

## 075: Set Stop Access Conditions

When a port is configured for preaccess, it will not be allowed to execute commands until the access code has been received. Typically this access code is "\*" for a repeater port or "#" plus two digits for a link. When the access code is received, the controller executes command 074 (among other things) which sets a flag indicating that it is OK to execute commands entered from that port. The controller will continue to accept and execute commands until that flag is cleared, at which point it will require the access code to be entered again. This command controls which conditions will clear that access flag.

<075> p	Recall Current Settings
<075> p x y z i f	Set Stop Access Conditions

### Parameters:

- 075 is the default command name.
- P is the port for which to set or recall the stop access conditions (1..8)
- X is 1 to enable / 0 to disable stopping access when a command is executed
- Y is 1 to enable / 0 to disable stopping access when an invalid command is entered
- Z is 1 to enable / 0 to disable stopping access when the receiver drops after a DTMF tone has been entered
- I is 1 to enable / 0 to disable stopping access when the DTMF interdigit timer expires.
- F is 1 to enable / 0 to disable stopping access when the force-execution digit is pressed

### Notes:

- All digits following parameter P are optional.
- The preaccess timer (see Chapter 4) will always clear the access flag when it expires. It cannot be disabled with this command. It starts running when you enter the access code and is re-started whenever you release a DTMF digit. It will never expire while you are holding down a DTMF digit. When no digits have been entered for the length of the timer, it clears the access flag. These conditions provide additional ways to clear the flag.
- Parameter X: A command is executed or tries to execute and causes an error. If X is 1, you will not be able to execute the access code once, then multiple commands. You will be able to enter the access code, one command, access code, one command...
- Parameter Y: An error occurs because the digits entered are not a valid command name. If you make a mistake and this condition is enabled, you will have to enter the access code before you can try again.
- Parameter Z: DTMF digits have been entered since the access code was entered and you unkey. This condition doesn't care how many commands you enter or whether they were valid or not; if you enter anything and unkey, you will be forced to enter the access code again.
- Parameter I: The DTMF interdigit timer expired. This may occur if you enter a few digits then pause for a while without unkeying or if your voice falses the DTMF decoder.
- Parameter F: The force-execution digit (usually 'D') was entered. If the force-execution digit is part of the access code, it will not trigger this condition, otherwise it will.

## ***096: Control or Recall Extended Output Lines***

“Extended” output lines provide a way to control more external devices or signals than the number of output lines built into the controller (8 per I/O board). By connecting external shift registers such as are used on many BCD boards to three of the controller's output lines, you can control up to 64 “extended” output lines. Whenever command 096 is executed to set or recall the state of an output line, the controller shifts out 64 bits of information representing the state of each of the outputs. Extended output line 64 is shifted out first, line 1 last. The data is also shifted out when the controller is reset and the extended outputs are enabled (you should not enable the extended output lines if you are not using them, or output lines 6, 7 and 8 on I/O board 1 will get messed up every time the controller resets).

<096> 0	Disable the extended output lines (the default)
<096> 1	Enable the extended output lines
<096> xx	Recall the state of extended output line “xx”
<096> xx 1	Turn extended output line “xx” on
<096> xx 0	Turn extended output line “xx” off

### **Parameters:**

XX - the extended output line number (two digits, 01..64)

### **Details:**

Most standard shift registers should be compatible with this command. Up to eight 8-bit shift registers can be chained together, each one providing eight more extended outputs. If the shift registers have separate output registers (like the 74HC595 or 4094), the latch line can be used to keep the outputs from rippling each time new data is shifted in.

I/O Board 1 Output Line Number	Description
6	Latch - Optional, but will prevent the lines from “rippling” as data is shifted if used
7	Clock - pulses 64 times to shift data out
8	Data - goes high or low for each clock pulse.

world. Command 127 allows you to enable or disable the use of an autodial slot. This allows you to keep an autodial number from being dialed without erasing the slot and having to re-program it later.

### Limiting Call Length:

The time out timer for the autopatch port limits the total length of the call. If the timer expires, it will execute the autopatch port's time out macro (see Chapter 8) and hang the autopatch up. If you would like a message to be spoken when this happens, put the commands to speak that message in the time out macro. If you do not want the autopatch to time out, set the timer length to 9999 with Command 020. You will probably want to erase the contents of the time out clear macro for the autopatch port with Command 055.

You will be warned before the patch times out. Thirty seconds before timeout, three beeps will be sent out of the radio port and down the phone line (so both sides of the conversation know it). Two beeps are sent twenty seconds before, and one ten seconds before. *The CW characters 'S', 'I', and 'E' are used for these warning beeps.*

If you want to reset the patch time out timer during a call, use Command 022 to reset the time out timer for the autopatch port (timer 094..101 depending on which port you are using). Using port 4 as the autopatch port as an example, the command would be: 022 127 D or unkey. You could make macro 500 extend the patch timer using the code `**3` with the following command:

```
053 500 030 18 D or unkey      ; send CW 'I' as a beep-beep response
056 500 038 D or unkey        ; be silent for rest of macro
056 500 022 127 D or unkey    ; reset timer 127
010 500 **3 D or unkey        ; rename macro 500 to '**3'
```

### How the Dialing Tables Work:

The dialing tables are used to control which long distance numbers can be dialed with Command 112 and which cannot. They do not affect autodial numbers or numbers dialed with Command 113. If you attempt to dial a number with Command 112 that is not allowed you will get an error 213 (you can disable or change this error message by editing macro 213 - see Chapter 8). By default all but 7 digit numbers are blocked (see command 119). Before a number is dialed using Command 112, it must pass the following tests:

- All digits in the phone number must be decimal digits. A, B, C, and D are not allowed; if you need to dial these digits, put them in as predial digits, use an autodial slot or use Command 113.
- If the number is one, two or three digits, it will be treated as an autodial number. The autodial number will be looked up, and if it has been programmed, it will be accepted without checking to see if it is long distance or not. It is assumed that whoever programs the autodial slots will decide whether to allow long distance numbers in autodial slots or not.

## ***141: Set Band Unit for RBI-1 or RLC-ICM***

This command is not currently used. Command 142 sets the band and specific frequency at the same time.



## ***141: Control/Recall RBI-1 Output Lines***

The Doug Hall RBI-1 has eight open collector output lines that can be used to control other hardware, such as antenna switches. Those output lines can be controlled with this command. See the RBI-1 manual for more information about their current sink limits and other specifications.

<141> X	Recall State of Output 'X'
<141> X 1	Turn Output 'X' On
<141> X 0	Turn Output 'X' Off

**Note:**

- When an output line is turned on or off using this command, there will be a slight delay (about a second) before the change will actually take place. Because of the delay, this command cannot be used to quickly pulse an output line. See commands 093 and 094 which use the output lines on the I/O board if you need pulses.

**Voice Response:**

"HF on <port>, <I/K/Y><type> On/Off" where <port> is the radio port on the controller that the HF radio is connected to, <I/K/Y> signifies the brand of the radio (Icom, Kenwood or Yaesu, respectively), and <type> signifies the radio type. On/Off indicates whether the PTT will be left on while serial data is being sent (default is off).

**Icom Notes:**

- Because the Icom radios can co-exist on a common serial bus (CI-V), a radio address is needed to select what radio gets the serial data. The list below shows the addresses of some Icom radios. If you don't find your radio listed, check your radio's owner's manual.
- Some Icom radios will let you change their addresses. This should not cause any problems as long as you don't change the address of an IC-735 to anything but 04 and you don't change the address of any other radio to 04. The IC-735 uses a slightly different format to set the frequency and the controller software uses this format whenever the radio address is set to 04.

**Icom Radio Addresses**

Radio Address	Radio Type	Radio Address	Radio Type
04	IC-735	34	IC-471 A/E/H
08	IC-R7000	36	IC-1271 A/E
16	IC-275 A/E/H	38	IC-781
18	IC-375 A	40	IC-725
20	IC-475 A/E/H	42	IC-R9000
22	IC-575 A/H	44	IC-765
24	IC-1275 A/E	46	IC-970 A/E/H
26	IC-R71 A/E/D	48	IC-726
28	IC-751 A	50	IC-R72
30	IC-761	52	IC-R7100
32	IC-271 A/E/H	72	IC-706

**Example 1:**

I want to tell the controller that there is an Icom IC-725 on radio port 2.

195 2 1 16

bb = 0..15 which band. See the table below. You don't have to leave the bands as they default if you want to re-assign them some other way. If two bands overlap, the first one found that contains the current frequency will be used.

u = 0 for lower edge, 1 for upper edge. If you try to set the upper edge to a lower frequency than the lower edge, the lower edge will be set to match it. If you try to set the lower edge to a higher frequency than the upper edge, the upper edge will be set to match it.

f..f\*f.f = the new frequency. The '\*' should go between the 1MHz digit and the 100KHz digit of the frequency. Example "14\*25" for 14.25MHz. Frequencies over 2GHz have not been tested.

### Defaults:

The following table shows the defaults for both the transmit and scan edges (they can be set separately). These are the edges of the voice bands for the amateur extra class. Note that voice is not allowed on 30 meters. There is also a user defined band at the end that you can set for any other frequency range.

Band	bb	Lower Edge	Upper Edge
160 meters	00	1.8 Mhz	2.0 Mhz
80 meters	01	3.75 Mhz	4.0 Mhz
40 meters	02	7.15 Mhz	7.3 Mhz
30 meters	03	0.0 Mhz	0.0 Mhz
20 meters	04	14.15 Mhz	14.35 Mhz
17 meters	05	18.11 Mhz	18.168 Mhz
15 meters	06	21.2 Mhz	21.45 Mhz
12 meters	07	24.93 Mhz	24.99 Mhz
10 meters	08	28.3 Mhz	28.999999 Mhz
10 meters	09	29.0 Mhz	29.7 Mhz
6 meters	10	50.1 Mhz	54.0 Mhz
2 meters	11	144.1 Mhz	148 Mhz
1.25 meters	12	222.0 Mhz	225.0 Mhz
70 cm	13	420.0 Mhz	450.0 Mhz
33 cm	14	902.0 Mhz	928.0 Mhz
23 cm	15	1240.0 Mhz	1300.0 Mhz
user defined	16	0.0 Mhz	0.0 Mhz

## *186: Set up User Password*

This command allows the system manager to set-up a user's password. Once the password is set, the user must then enter the correct sequence to access commands higher than level 0.

<186> uuu	Recall a user's password information
<186> uuu e	Enable/Disable a selected user
<186> uuu e l	Enable/Disable a selected user and set the user level
<186> uuu e l t p..p	All of the above plus enter password information

### **Parameters:**

UUU - user number

E - 1 enable / 0 disable

L - user level

T - password type (0 = fixed. 1 or more is number of challenge digits)

P..P - your password (8 digits max)

### **Notes:**

- Can enable or disable a user by only entering through E.
- If choose a password type of 0 but don't enter a password, you will be able to log in by just entering the name of command 187 followed by your user number (password method #1).

- 182 - Port 7 DTMF Active 6
- 183 - Port 7 DTMF Active 7
- 184 - Port 7 DTMF Active 8
- 185 - Port 7 DTMF Active 9
- 186 - Port 7 DTMF Active A
- 187 - Port 7 DTMF Active B
- 188 - Port 7 DTMF Active C
- 189 - Port 7 DTMF Active D
- 190 - Port 7 DTMF Active \*
- 191 - Port 7 DTMF Active #
- 192 - Port 8 DTMF Active 0
- 193 - Port 8 DTMF Active 1
- 194 - Port 8 DTMF Active 2
- 195 - Port 8 DTMF Active 3
- 196 - Port 8 DTMF Active 4
- 197 - Port 8 DTMF Active 5
- 198 - Port 8 DTMF Active 6
- 199 - Port 8 DTMF Active 7
- 200 - Port 8 DTMF Active 8
- 201 - Port 8 DTMF Active 9
- 202 - Port 8 DTMF Active A
- 203 - Port 8 DTMF Active B
- 204 - Port 8 DTMF Active C
- 205 - Port 8 DTMF Active D
- 206 - Port 8 DTMF Active \*
- 207 - Port 8 DTMF Active #
- 208 - Tried to hang up patch when was  
already hung up.
- 209 - Before turn HF mode on
- 210 - After turn HF mode off
- 211 - HF Band 160m
- 212 - HF Band 80m
- 213 - HF Band 40m
- 214 - HF Band 30m
- 215 - HF Band 20m
- 216 - HF Band 17m
- 217 - HF Band 15m
- 218 - HF Band 12m
- 219 - HF Band 10m below 29MHz
- 220 - HF Band 10m above 29MHz
- 221 - HF Band 6m
- 222 - HF Band 2m
- 223 - HF Band 125cm
- 224 - HF Band 70cm
- 225 - HF Band 33cm
- 226 - HF Band 23cm
- 227 - HF Band Other
- 228 - Hang Up Command 115 Blocked
- 229 - Tail Msg 1 TX 1
- 230 - Tail Msg 2 TX 1
- 231 - Tail Msg 3 TX 1
- 232 - Tail Msg 1 TX 2
- 233 - Tail Msg 2 TX 2
- 234 - Tail Msg 3 TX 2
- 235 - Tail Msg 1 TX 3
- 236 - Tail Msg 2 TX 3
- 237 - Tail Msg 3 TX 3
- 238 - Tail Msg 1 TX 4
- 239 - Tail Msg 2 TX 4
- 240 - Tail Msg 3 TX 4
- 241 - Tail Msg 1 TX 5
- 242 - Tail Msg 2 TX 5
- 243 - Tail Msg 3 TX 5
- 244 - Tail Msg 1 TX 6
- 245 - Tail Msg 2 TX 6
- 246 - Tail Msg 3 TX 6
- 247 - Tail Msg 1 TX 7
- 248 - Tail Msg 2 TX 7
- 249 - Tail Msg 3 TX 7
- 250 - Tail Msg 1 TX 8
- 251 - Tail Msg 2 TX 8
- 252 - Tail Msg 3 TX 8
- 253 - Reverse Patch Answered

