

## CtrlCtr.exe V1.4 Display Screen Snapshot

## Command and ACK Counts

$$\frac{1}{v}$$

Command Line->  
Message Area->

pa 9 0 0 5 5 20 5 39 0
------------------------

00000000001111111111222222222233333333						CMD ACK	E001 =	1
0123456789012345678901234567890123456789						ADD 006 005	E002 =	2
18				18	MOVE	001	E003 =	5
17				17	PATH	001	E011 =	1
16				16	LOOP	004 004	E022 =	1
15				15	STOP		E032 =	1
14				14				
13				13	ADDR STEP HERE X Y			
12				12	3 000283NE	000283 36 11		
11			3	11	4 000329E	000329 21 10		
10		4	56	10	5 000270E	000270 34 10		
09				09	6 000315W	000315 35 10		
08				08	7 ^	^		
07				07	8 /	/		
06				06	9 Last	Last		
05				05	A Step	Here I Am		
04				04	B Direction	Position		
03				03	C			
02				02	D			
01				01	E			
00				00	F			

Error  
← Packet  
Counts

Step / Here  
 <-Packet  
 Counts

y-axis labels->

x-axis labels->

Last Outgoing Pkt->

*Last Incoming Pkt->*

```
0123456789012345678901234567890123456789      0T      0R DF=00000 SND=OFF V1.4
```

P1 P2 P3 SA DA PL TY

OUTGOING PKT: (ADD ) 03 ef af 01 02 11 01 03 03 03 49

```
INCOMING PKT: (ACK ) 03 ef af 02 01 09 0a 01 42          Delay Factor  Sound State
```

Delay Factor	Sound State
0	0
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	0
18	0
19	0
20	0
21	0
22	0
23	0
24	0
25	0
26	0
27	0
28	0
29	0
30	0
31	0
32	0
33	0
34	0
35	0
36	0
37	0
38	0
39	0
40	0
41	0
42	0
43	0
44	0
45	0
46	0
47	0
48	0
49	0
50	0
51	0
52	0
53	0
54	0
55	0
56	0
57	0
58	0
59	0
60	0
61	0
62	0
63	0
64	0
65	0
66	0
67	0
68	0
69	0
70	0
71	0
72	0
73	0
74	0
75	0
76	0
77	0
78	0
79	0
80	0
81	0
82	0
83	0
84	0
85	0
86	0
87	0
88	0
89	0
90	0
91	0
92	0
93	0
94	0
95	0
96	0
97	0
98	0
99	0
100	0
101	0
102	0
103	0
104	0
105	0
106	0
107	0
108	0
109	0
110	0
111	0
112	0
113	0
114	0
115	0
116	0
117	0
118	0
119	0
120	0
121	0
122	0
123	0
124	0
125	0
126	0
127	0
128	0
129	0
130	0
131	0
132	0
133	0
134	0
135	0
136	0
137	0
138	0
139	0
140	0
141	0
142	0
143	0
144	0
145	0
146	0
147	0
148	0
149	0
150	0
151	0
152	0
153	0
154	0
155	0
156	0
157	0
158	0
159	0
160	0
161	0
162	0
163	0
164	0
165	0
166	0
167	0
168	0
169	0
170	0
171	0
172	0
173	0
174	0
175	0
176	0
177	0
178	0
179	0
180	0

Transmit & Receive  
Rates (Bytes / sec.)

CtrlCtr.exe  
Version #

## CtrlCtr.exe Command List

COMMAND	DESCRIPTION	COMMAND PACKET TYPE
AD <i>addr x y</i>	Add a new robot whose address is <i>addr</i> at position ( <i>x</i> , <i>y</i> ).	Add robot
MV <i>addr x y</i>	Move robot <i>addr</i> to position ( <i>x</i> , <i>y</i> ).	Move robot
PA <i>addr x<sub>1</sub> y<sub>1</sub> x<sub>2</sub> y<sub>2</sub> x<sub>3</sub> y<sub>3</sub> ...</i>	Make robot <i>addr</i> follow the path from its current position to up to 10 stops at positions ( <i>x<sub>1</sub></i> , <i>y<sub>1</sub></i> ), ( <i>x<sub>2</sub></i> , <i>y<sub>2</sub></i> ), ( <i>x<sub>3</sub></i> , <i>y<sub>3</sub></i> ), ...	Follow Path
LP <i>addr x<sub>1</sub> y<sub>1</sub> x<sub>2</sub> y<sub>2</sub> x<sub>3</sub> y<sub>3</sub> ...</i>	Make robot <i>addr</i> repeatedly follow the path from its current position to up to 10 stops at positions ( <i>x<sub>1</sub></i> , <i>y<sub>1</sub></i> ), ( <i>x<sub>2</sub></i> , <i>y<sub>2</sub></i> ), ( <i>x<sub>3</sub></i> , <i>y<sub>3</sub></i> ), ... ( <i>x<sub>1</sub></i> , <i>y<sub>1</sub></i> ), ( <i>x<sub>2</sub></i> , <i>y<sub>2</sub></i> ), ( <i>x<sub>3</sub></i> , <i>y<sub>3</sub></i> ), ...( <i>x<sub>1</sub></i> , <i>y<sub>1</sub></i> ), ( <i>x<sub>2</sub></i> , <i>y<sub>2</sub></i> ), ( <i>x<sub>3</sub></i> , <i>y<sub>3</sub></i> ), ... The robot will continually trace out a looping path through the specified stop positions. Note that the loop does not include the starting position of the robot at the time the command is issued (unless the first stop <i>is</i> the initial position).	Loop
ST <i>addr</i>	Make robot <i>addr</i> stop looping.	Stop Looping
OF <i>filename</i>	Open and execute command file <i>filename.cmd</i> (Up to 20 levels of nesting).	None
FE 1 <i>n</i>	Force a preamble byte 1 error once per <i>n</i> command packets transmitted to the STM32F107.	None
FE 2 <i>n</i>	Force a preamble byte 2 error once per <i>n</i> command packets transmitted to the STM32F107.	None
FE 3 <i>n</i>	Force a preamble byte 3 error once per <i>n</i> command packets transmitted to the STM32F107.	None
FE 4 <i>n</i>	Force a checksum error once per <i>n</i> command packets transmitted to the STM32F107.	None
FE 5 <i>n</i>	Force a packet length error once per <i>n</i> command packets transmitted to the STM32F107.	None
FE 6 <i>n</i>	Force a message type error once per <i>n</i> command packets transmitted to the STM32F107.	None
FE	Stop forcing errors.	None
QU	Quit from CtrlCtr.exe.	None
DF <i>n</i>	Set the delay factor to "n." Increasing the delay factor slows the rate that Robot.exe transmits bytes on the RS232 link.	None
RE	Send a Reset packet to the microcontroller, forcing a reboot.	Reset
--	Comment prefix	None
WA	Await a key press before continuing script execution.	None
SO	Toggle sound on and off.	None

**LOG FILE:** CtrlCtr.exe records a log file called “Robots.log” giving a history of commands entered, command packets transmitted, and reply packets received. This file is erased and recreated each time CtrlCtr.exe starts up. A sample log file is shown below:

COMMAND: ad 3 3 3

OUTGOING PKT: 03 ef af 01 02 0b 01 03 03 03 49  
Add Robot 3 3 3

INCOMING PKT: 03 ef af 02 01 09 0a 01 42

COMMAND: mv 3 5 5

OUTGOING PKT: 03 ef af 01 02 0b 02 03 05 05 4a  
Move Robot 3 5 5

INCOMING PKT: 03 ef af 02 03 0d 07 01 00 00 00 02 4b  
Step Robot 3 from (3, 3) to (4, 4).

OUTGOING PKT: 03 ef af 03 00 0a 09 04 04 43

INCOMING PKT: 03 ef af 02 01 09 0a 02 41

INCOMING PKT: 03 ef af 02 03 0d 07 02 00 00 00 02 48  
Step Robot 3 from (4, 4) to (5, 5).

OUTGOING PKT: 03 ef af 03 00 0a 09 05 05 43

COMMAND: qu