
RSEND

Version 1.7

User's Guide

Software card for Technovision PC-2 Controller

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Written by Steve Dougall

Technovision Interactive Inc.
1845 Sandstone Manor, Unit #2
Pickering, ONT, L1W 3X9
phone: (905) 420-5153
fax: (905) 420-0753
www.technovision.com

Getting Started

Hardware requirements:

Technovision PC-2 Controller with RSSEND program
PC2-PRG Programming cable for downloading data file from a PC
Optional RS232 cables
Optional pushbuttons

Program Description:

RSSEND is a program for a Technovision PC-2 controller that can receive a text file downloaded from any computer, via the RS232 port, and store it away in battery backed up memory. The lines in the text file define what RS232 data is sent on the four RS232 ports on the PC-2. The text file also contains additional timing, button, and lighting commands.

Transferring text file to PC2

When the PC2 is restarted with the PC2-PRG cable attached, the STATUS 2 light on the front of the PC2 is lit indicating the controller is waiting for a file to be downloaded. At this point the program can be transferred to the PC2 using a program such as HyperTerminal in Windows. The data format is to be set at 9600-baud, no parity, 8 data bits and 1 stop bit with handshaking set as **NONE**. Setting the transfer setting can be achieved through the **File/Properties/Configure** option in HyperTerminal. Transmitting (transferring) the text file can be achieved by using the **Transfers/Send Text** file function. While the text file is being transferred to the PC2, the STATUS 1 LED on the PC2 is lit.

Starting Program

After the transfer of the text file to the PC-2, the PC2-PRG cable is replaced on the PC-2 with the RS232 cable(s). The PC-2 can then be restarted by pressing the RESET button on the back of the controller.

Programming Specifications

Text File format

- The commands must be UPPERCASE with the spaces removed.
- The first command in the file **MUST** be the RS232 initialize (**INIT=**) command
- Initialize command digits **MUST** be 4 characters (i.e. 1111, 1249 etc.).
- All lines must be terminated with a carriage return - standard for all text files.
- Wait digits **MUST** be 2 characters (i.e. 01, 09 etc.).

Command Syntax

Command	Description of Command
;	Comment
BLOCK=#	This is the BUTTON LOCK command. If # is 1, then all buttons are to be lockout out and if # is 0, buttons are enabled. Buttons F and G are always available regardless of the BLOCK setting. Example: BLOCK=1 turns on the button lock.
GOTO <u>l</u>	<u>l</u> is the label that the program will branch (GO) to. Example: GOTO m will have to program go to the line with the :m label
: <u>l</u>	<u>l</u> is the line label. Button inputs use labels 1..9 and A..K, but any ASCII characters can be used when using the GOTO command. Example: :2 is the line label for button 2. Whenever button 2 is pressed, the program will branch to this point in the program.
RELEASE	Waits for the button to be released before continuing to the next line.
INIT=####	RS232 Initialization command #### defines the baud speed for the 4 serial ports 1=1200 baud, 2=2400 baud, 4=4800 baud, and 9=9600. Data format is 8 bits, no parity and 1 stop Example: INIT=1299 sets the baud speed for serial port 1 at 1200 baud, serial port 2 at 2400 baud and serial ports 3 and 4 at 9600 baud.
RSIN#[= <u>indata</u> , <u>label</u>]	# is the serial port you will receive from (1..4). <u>indata</u> in the character first character you are waiting for and <u>label</u> is the label the program will branch to if <u>indata</u> was not received. Example: RSIN1=R,A will wait for any character to be received on serial port #1. If the character "R" was not received then the program branches to label ":A", if not, it continues to the next line.
RSWAIT#	# is the serial port (1..4) that you will wait for a RS232 character. This command will wait up to 10 seconds for a character on that serial port before continuing to the next line in the script. Example: RSWAIT4 will wait up to 10 seconds for a character to be received on serial port 4.
SERIAL#= <u>data</u>	# is the MUX value of the ports you will be transmitting to (HEX 1..F). <u>data</u> is the RS232 data to be sent. To set what RS232 serial ports you will be transmitting to, you must add the port values together. Port 1 has the value of 1, port 2 has the value of 2, port 3 has the value of 4 and port 4 has the value of 8. For example, if you wish to transmit to ports 1 and 3 the command would be SERIAL5=<u>data</u> . If non-ASCII characters are to be sent (i.e. carriage return) then they can be sent by including their hex value between square brackets. For example, to transmit a carriage return (hex value 0D) you would use the data string [0D]. Note: the hex value must be UPPERCASE. Example: SERIAL1=TEST1[0D] will transmit "TEST1" plus carriage return on serial port 1. SERIAL2=TEST2[0D] will transmit "TEST2" plus carriage return on serial port 2. SERIAL4=12345[0D] will transmit "12345" plus carriage return on serial port 3. SERIAL7=abcde[0D] will transmit "abcde" plus carriage return on serial port 1, 2 and 3. SERIALF=[0D][0D] will transmit two carriage returns on serial port 1, 2, 3 and 4.

- WAIT=mm:ss** mm:ss is wait time in minutes and seconds.
Example
WAIT=04:11 will wait 4 minutes and 11 seconds.
- LOOP=l,##** l is the label to loop back to and ## is the number of times to perform the loop.
Example:
LOOP=X,12 will loop back to label X twelve times.
- LAMP=data** data is LAMP48 setting (see examples on page 4).
Only applicable if Technovision LD48 is attached to the PC2.
- OUTPUT=data** data is Parallel port setting (see examples on page 4).
Parallel Port pin configuration can be found on page 5.
Example:
OUTPUT=01-030,070,090,15F sets outputs 1 to 3, 7 and 9 ON and 15 OFF
- TMP=data** data is the RS232 data to be sent to a Toshiba TMP-100U video wall (9600 baud, 8 bits, odd parity, 1 stop). This data is transmitted from the PC2 using Port A, bit 7 (Parallel Port pin 15). By using a Technovision LD1, attached to the Parallel port of the PC2, the signal is converted to RS232 data. If non-ASCII characters are to be sent (i.e. carriage return) then they can be sent by including the hex value between square brackets. For example, the hex value 0D is included in the data string as [0D]. Note: the hex value must be UPPERCASE.
Example:
TMP=[02][81][00][00][03] will transmit hex 02,81..etc to the Toshiba TMP wall processor.
- WAITP#=frame** # is the serial port of the Pioneer laserdisc/DVD player (1..4).
frame is the frame number that the system will wait for.
If you are using a CAV laserdisc, then frame is entered as 5 digits (leading 0s included).
If you are using a DVD-V7400 then frame is entered as **7 digits**. On a DVD player, the 7 digits are the exact frame number and not the "time code" as on the LD-V4400 or LD-V8000 - those seven digits on a laserdisc represent the hour, minutes, seconds and frame number on the disc.(HMMSSFF). **The WAITP command is available for CLV laserdiscs on only the LD-V4400 or LD-V8000.**
Example:
WAITP1=01000 will wait until laserdisc player 1 reaches frame 1000 on a CAV laserdisc.
WAITP1=0001000 will wait until DVD player 1 reaches frame 1000.
WAITP1=0002200 will wait until DVD player 1 reaches frame 2200.
- WAITT#=frame** # is the serial port of the Toshiba SD-B100 DVD player that you will receive from (1..4).
frame is the 7-digit frame number that the system will wait for.
Those seven digits represent the hour, minutes, seconds and frame number on the disc.(HMMSSFF).
Example:
WAITT1=0124502 will wait until player 1 reaches minute 12, second 45 and frame 2.

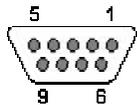
Sample text file	Description
INIT=1499	SET PORT 1 TO 1200, PORT 2 TO 4800, REST TO 9600 BAUD
LAMP=01-08F,120,140	LAMP OUTPUT 1 TO 8 OFF, 12 AND 14 ARE SET ON
BLOCK=1	LOCK OUT ALL BUTTONS (EXCEPT "F" AND "G")
;DVD-V7400 STARTUP	COMMENT
:S	LABEL S
WAIT=00:05	WAIT 5 SECONDS
SERIAL1=[0D]	SEND CARRIAGE RETURN TO DVD PLAYER 1 (TO CLEAR THE PLAYER'S BUFFER)
WAIT=00:01	WAIT 1 SECONDS
SERIAL1=CLSA[0D]	TRANSMIT "CLSA" ON SERIAL PORT 1
RSIN1=R,S	WAIT FOR SINGLE CHARACTER "R" ON PORT 1. IF NOT "R", GO TO LABEL ":S"
:W	LABEL W
BLOCK=0	DISABLE BUTTON LOCKOUT
WAIT=99:99	WAIT FOREVER
:1	BUTTON 1 IS AN EXAMPLE OF A SEARCH AND WAITP COMMAND
RELEASE	WAIT FOR BUTTON RELEASE
BLOCK=1	ENABLE BUTTON LOCKOUT (NO BUTTON INTERRUPT)
SERIAL1=100SE[0D]	TRANSMIT TO SERIAL PORT 1 - SEARCH TO FRAME 100
RSIN1	WAIT FOR ANY SEARCH COMPLETION CHARACTER ON PORT 1
OUTPUT=01-030	TURN ON OUTPUT 1 TO 3
WAIT=00:01	WAIT ONE SECOND
OUTPUT=01F,03F	TURN OFF OUTPUT 1 AND 3
SERIAL1=FR1000SMPL[0D]	SEND STOP MARKER (FRAME 1000) AND PLAY COMMAND
RSWAIT1	WAIT UP TO 10 SECONDS FOR CHARACTER ON SERIAL PORT 1
WAITP1=0001500	WAIT FOR THE DVD-V7400 TO REACH FRAME 1500 (7 DIGITS)
OUTPUT=040	TURN ON OUTPUT 4
WAIT=00:01	WAIT ONE SECOND
OUTPUT=02F,04F	TURN OFF OUTPUT 2 AND 4
GOTO W	GOTO LABEL W
;PLAY IN SYNC	BUTTON 2 PLAYS FOUR PIONEER PLAYERS IN SYNC
:2	
SERIAL1=1000SE[0D]	TRANSMIT TO SERIAL 1 - SEARCH TO FRAME 1000
SERIAL2=2000SE[0D]	TRANSMIT TO SERIAL 2 - SEARCH TO FRAME 2000
SERIAL4=3000SE[0D]	TRANSMIT TO SERIAL 3 - SEARCH TO FRAME 3000
SERIAL8=4000SE[0D]	TRANSMIT TO SERIAL 4 - SEARCH TO FRAME 4000
RSIN4	WAIT FOR ANY CHARACTER FROM SERIAL PORT 4 (SEARCH COMPLETION)
SERIALF=PL[0D]	TRANSMIT "PL" TO ALL PORTS
SERIAL1=2000PL[0D]	TRANSMIT END FRAME TO SERIAL 1
SERIAL2=3000PL[0D]	TRANSMIT END FRAME TO SERIAL 2
SERIAL4=4000PL[0D]	TRANSMIT END FRAME TO SERIAL 3
SERIAL8=5000PL[0D]	TRANSMIT END FRAME TO SERIAL 4
RSIN4	WAIT FOR ANY CHARACTER ON PORT 4 (COMPLETION CODE)
GOTO 2	BACK TO LABEL 2 (REPEAT)
;BUTTON F	BUTTON F CAN BE USED AS A RESTART - NOT AFFECTED BY BLOCK=1
:F	BUTTON LABEL
BLOCK=1	LOCKOUT ALL BUTTONS
RELEASE	WAIT FOR BUTTON RELEASE
GOTO S	GO to LABEL :S (STARTUP)

Parallel Port Outputs (DB25M connector)

Outputs on the Parallel Port are 5 volts DC rated at 35 ma each with the total output for the port not to exceed 200ma.

Output	Pin on Parallel Port
1	6
2	18
3	5
4	17
5	4
6	16
7	3
8	15 – Do not use if using LD-1 with TMP command
9	10 – Do not use if using LAMP48
10	22 – Do not use if using LAMP48
11	9 – Do not use if using LAMP48
12	21
13	8
14	20
15	7
16	19
GROUND	1 or 13

Button Configuration (pins on keypad port)



PC2 keypad port

	SCAN 0 (6) BROWN	SCAN 1 (7) RED	SCAN 2 (8) ORANGE	SCAN 3 (9) YELLOW	GROUND (1)
RETURN 0 (2) GREEN	1	2	3	4	H
RETURN 1 (3) BLUE	5	⑥	7	8	I
RETURN 2 (4) WHITE	9	A	B	C	J
RETURN 3 (5) BLACK	D	E	**F	**G	K

Contact requirements: The signals that are carried through the keypad port are TTL (low voltage signals) level – it is recommended that the momentary contact closure be within forty (40) feet of the controller.

Button Example: The “6” button is wired to SCAN 1 (pin 7 on keypad assembly) and RETURN 1 (pin 3) which are usually the RED and BLUE wires on a button assembly. When this button is pressed, the program will start running at label “:6”

** **Note:** the BLOCK=1 (button lockout command) does not affect Buttons “F” and “G”.

Serial Port pin configuration on the COMMUNICATIONS PORT of the PC2

SERIAL #	Tx PIN (OUTPUT)	Rx PIN (INPUT)	DATA GROUND
1	2	3	6
2	14	15	18
3	4	5	7
4	16	17	19

For example:

SERIAL1=CLSA[0D] will transmit "CLSA"+ <carriage return> on pin 2 of the communications port.

Version Changes

Version #	Changes	Date
1.4	TMP command added WAITP (5 digit) command added	
1.5	WAITT command added WAITP (7 digit) command added	
1.6	RSWAIT command added	FEB 2001
1.7	Additional Buttons H..K added to keypad port	FEB 2003