

SE500 RS-232 Remote Control Command

VER: 1.02

Release date: 2006/01/20

1. Physical layer

- 1.1 Control output format: RS-232C
- 1.2 Communication rate: 57600 BPS
- 1.3 Data format: 8 bits serial, LSB first, 1 start bit, 1 stop bit, odd parity
- 1.4 Must delay 100uSEC between 2 bytes

2. Data link layer

2.1 Frame format

1st	2nd	3rd	4th	5th	6th	7th	„	Last-2	Last-1	Last
Header	ID	Length	Data0	Data1	Data2	Data3	„	Chksum_L	Chksum_H	End

1) Header

Code consisting of one byte for frame synchronization.

The frame header send from the master machine is termed the command header.

The frame header send from the slave machine is termed the return header.

The command header byte is fixed as fallow.

1st: F0h (base 16)

The return header byte is fixed as fallow.

1st: FCh (base 16)

2) ID number

The equipment ID number is composed of 8 bits

The ID of SE500: 32h (base 16)

3) Length

The length is the sum of bytes from the header to the end.

It is composed of 8 bits.

6h (base 16) < Length <= 80h (base 16)

4) Data

Data block used by application layer.

Refer to Section 3.

5) Checksum

The 8 bits checksum is obtain from header to the last data, and then convert to two numeric ASCII code.

Checksum=header+ID+legth+data0+data1+...+data_last

chksum_L=(low nibble of checksum) + 30h

chksum_H=(high nibble of checksum) + 30h

6) End

The end byte are fixed to FFh(base 16).

3. Application layer

The application layer designates the command structure and contents.

3.1 Command data format

4 th	5 th	6 th	7 th	8 th	9 th	10 th	11 th	...
Command	Operated	Operated	Operated	Operated	Operated	Operated	Operated	...
Group	#0	#1	#2	#3	#4	#5	#6	

1) The command group

05h (base 16) = SE500 control command

2) The operated refer to section 4.

3.2 Return data format

4 th	5 th	6 th	7 th	8 th	9 th	10 th	11 th	...
Command	parameter	parameter	parameter	parameter	parameter	parameter	parameter	...
Status	#0	#1	#2	#3	#4	#5	#6	

1) The command status

05h=SE500 control command status

2) The parameter refers to section 6.

4. The operated of SE500 control command

5th	6th	7th	8th			
Operated #0	Operated #1	Operated #2	Operated #3			
Mode Code	Key code	T-bar low	T-bar high			

4.1. OP#0 = Control mode code

00H = Ask status

01H = Normal key control

02H = T-BAR control

4.1. OP#1 = control key code.(refer to section 5) when OP#0=01H

= 00h= disable remote control T-bar when OP#0=02H

= 01h= enable remote control T-bar when OP#0=02H

4.2. OP#2 and OP#3 = T-BAR control value when OP#0=02H

The T-bar control value is 10 bits

The bit4 to bit 0 of OP#1 = the low 5 bits of the T-bar control value.

The bit4 to bit 0 of OP#2 = the high5 bits of the T-bar control value.

5. The SE500 control key code

(Base 16)

01h = key_main_A

02h = key_main_B

03h = key_main_C

04h = key_main_D

05h = key_main_BK

06h = key_sub_A

07h = key_sub_B

08h = key_sub_C

09h = key_sub_D

0ah = key_sub_BK

0bh = key_QUAD

0ch = key_POP

0dh = key_freeze

0eh = key_preview

0fh = key_take

10h = key_fade

11h = key_center_block (wipe)

12h = key_right_top_block (wipe)

13h = key_right_bottom_block (wipe)

14h = key_left_top_block (wipe)

15h = key_left_bottom_block (wipe)

16h = key_top_block (wipe)

17h = key_bottom_block (wipe)

18h = key_right_block (wipe)

19h = key_left_block (wipe)

1ah = key_horizontal (wipe)

1bh = key_vertical (wipe)

20h = key_border_on

22h = key_background_color

24h = key_speed*

26h = key_PIP

3bh = key_menu

3ch = key_up

3dh = key_down

3eh = key_left

3fh = key_right

40h = key_reset

41h = key_plus

42h = key_minus

*Note: Send the key_speed code to the SE500, the speed of effect will be changed follow the below rule.

SPEED_1 → SPEED_2 → SPEED_3 → SPEED_1 → ,,,

6. The return parameter of SE500 control command status

5th	6th	7th	8th	9th	10th	11th	12th
parameter #0	parameter #1	Parameter #2	parameter #3	parameter #4	parameter #5	parameter #6	Parameter #7
Error code	Busy flag	Effect Mode +Speed	Effect No.	Background Color & border	LED1	LED2	LED3

13th	14th	...
parameter #8	parameter #9	...
LED4	LED5	...

1) The error code

- 01h = Time out (over 15ms)
- 02h = length error
- 03h = checksum error
- 04h = not support command
- 05h = operated error

2) The Busy Flag

- 00h = ready
- 01h = busy
- 11h = busy + T_bar active

3) The effect mode & effect speed

The bit 3 to bit0 is the effect mode

x0h=cut mode, x1h=MENU mode, x2h=fade mode, x3h=wipe mode, x4h=QUAD mode, x5h=POP mode,
x6h=PIP mode

The bit6 to bit4 are the auto effect speed

- 0xh = SPEED_1, 1xh= SPEED_2
- 2xh = SPEED_3

4) The effect No.

The value from 0 to 99(63h)

Fade effect No. = 0

Wipe effect No.= 0 to 10

Quad effect No.= 0

POP effect No. = 0 to 1

PIP effect No.:bit3 to bit0= x0h to x4h (position)

Bit4=0=big size, bit4=1=small size

Bit5=0=not shift, bit5=1=shift to close center.

5) The background color & border

The bit4 to bit0 are the background color

x0h=Black , x1h=Blue , x2h=Magenta , x3h=Red

x4h=Green , x5h=Cyan , x6h=Yellow , x7h=White

The bit5 are the border flag

0xh= border off

1xh= border on

6) LED data

The bit = 1 = LED on, the bit = 0 = LED off

Bit0 of LED1 = LED of key_main_a

Bit1 of LED1 = LED of key_main_b

Bit2 of LED1 = LED of key_main_c

Bit3 of LED1 = LED of key_main_d

Bit4 of LED1 = LED of key_main_bk

Bit6 of LED1 = LED of key_take

Bit0 of LED2 = LED of key_sub_a

Bit1 of LED2 = LED of key_sub_b

Bit2 of LED2 = LED of key_sub_c

Bit3 of LED2 = LED of key_sub_d

Bit4 of LED2 = LED of key_sub_bk

Bit6 of LED2 = LED of key_preview

Bit0 of LED3 = LED of key_FADE

Bit1 of LED3 = LED of key_QUAD

Bit2 of LED3 = LED of key_POP

Bit3 of LED3 = LED of key_PIP
Bit4 of LED3 = LED of key_freeze
Bit5 of LED3 = LED of key_border
Bit6 of LED3 = LED of key_MENU

Bit0 of LED4 = LED of key_center_block
Bit1 of LED4 = LED of key_right_top_block
Bit2 of LED4 = LED of key_right_bottom_block
Bit3 of LED4 = LED of key_left_top_block
Bit4 of LED4 = LED of key_left_bottom_block
Bit5 of LED4 = LED of key_top_block
Bit6 of LED4 = LED of key_bottom_block

Bit0 of LED5 = LED of key_right_block
Bit1 of LED5 = LED of key_left_block
Bit2 of LED5 = LED of key_horizontal
Bit3 of LED5 = LED of key_vertical
Bit4 of LED5 = LED1 of speed
Bit5 of LED5 = LED2 of speed
Bit6 of LED5 = LED3 of speed

Note: If the controller or the computer needs the response data,
Computer should read back SE500 response data within 20mS or error may result.

7. EXAMPLE

1) PC control SE500, key command = key_take= 0fh

a.) The command stream = F0h,32h,09h,05h,01h,0fh,30h,34h,ffh

Header=F0h

ID=32h

Length = 9 bytes=09h

Command group=05h

Command mode=normal control code=01h

Control key code=key_take =0fh

checksum= (f0h+32h+09h+05h+01h+0fh) = 40h

checksum_low =00h+30h = 30h

checksum_high=04h+30h = 34h

END =ffh

b.) SE500 return data,

The return data stream =

Fch,32h,11h,05h,00h,01h,10h,00h,07h,41h,42h,01h,00h,20h,30h,30h,ffh

Header=fch

ID=32h

Length = 17 bytes=11h

Command status=05h

Error code =00h

Busy flag=01h

Effect mode & speed=fade +speed_2=00h+10h=10h

Effect No. =00h

Background color & border =white + border off =07h +00h=07h

LED1=41h

LED2=42h

LED3=01h

LED4=00h

LED5=20h

Checksum = (fch+32h+11h+05h+00h+01h+10h+00h+07h+41h+42h+01h+00h+20h) =x00h

checksum_low =00h+30h = 30h

checksum_high=00h+30h = 30h

END=ffh

SE500 MIDI Remote Control Command

VER: 1.00a

Release date: 2005/06/03

1. Physical layer

- 1.5 Follow the MIDI SPEC. 1.0
- 1.6 Communication rate: 31250 BPS
- 1.7 Data format: 8 bits serial, LSB first, 1 start bit, 1 stop bit, none parity

2. Data link layer

2.1 Control messages = MIDI Channel voice messages

- * Received only if Note Mode is ON
- * The input of each channel is selected.
- * Ignored if a non-selectable note message is received.

2.2 Control messages

* Note-on

Status	2 nd byte	3 rd byte
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9nH	kkH	vvH
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Symbol	Meaning	Range
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n:	MIDI channel	
0H-FH(ch.1--ch.16)		
kk:	Note number = SE500 control command	00H-7FH(0--127)
vv:	Velocity value,etc. Only in the case of Note-on Velocity	00H-7FH(0--127) 01H-7FH(1--127)

3. SE500 control command correspond to note number as follows

Note	Note No.	SE500 command
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C4	48	 fade key
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C#4	49	 wipe key
D4	50	 wipe key
D#4	51	 wipe key
E4	52	 wipe key
F4	53	 wipe key
F#4	54	 wipe key
G4	55	 wipe key
G#4	56	 wipe key
A4	57	 wipe key
A#4	58	 wipe key
B4	59	 wipe key
C5	60	SUB A key
C#5	61	QUAD key
D5	62	SUB B key
D#5	63	SPLIT key
E5	64	SUB C key
F5	65	SUB D key
F#5	66	PIP key
G5	67	SUB BG key
G#5	68	Freeze key
A5	69	Preview key
A#5	70	NC
B5	71	TAKE key
C6	72	MAIN A key
C#6	73	Background color key
D6	74	MAIN B key
D#6	75	Border key

E6	76	MAIN C key
F6	77	MAIN D key
F#6	78	Speed_1 key
G6	79	MAIN BG key
G#6	80	Speed_2 key
A6	81	Change Speed key
A#6	82	Speed_3 key

4. Example

1. Change the transition effect to fade = 90H, 30H, 64H
90H= Note on, Channel =1 (IF the SE500's MIDI channel is 1)
30H=Note No 48=fade key
64H= Velocity value > 0
2. Take the transition effect = 90H, 47H, 64H
47H=Note No 71=Take key

*** Very Easy to use, any MIDI keyboard can control the SE500.**