SE-2200 DVIP Serial (RS-232/422) Control Protocol

Rev. 1.0

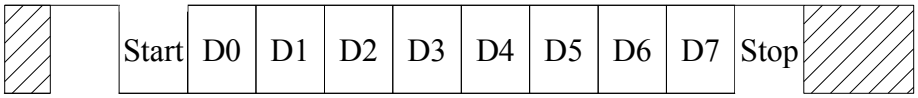
1 Hardware Specification

1.1 Serial Port Specification

Item	Description
Baud Rate	115,200 bps
Word Size	8 bits, 1 Start bit, 1 Stop bit
Parity	None
Communication	RS-232/422
Connection	9 Pin D-Sub

Table 1 Serial Port Specification

1.2 Serial Data Word Description



- Start bit always low
- Data 8 bit, LSB first
- No Parity
- Stop bit always high

1.3 Connector Pin Assignment

Interface : 9 pin D-Sub female

The RS-232 pin assignment of the Controller and SE-2200 is shown in the following table:

Pin / Signal	Controller	SE-2200
1	-	-
2	Receive (RX)	Transmit (TX)
3	Transmit (TX)	Receive (RX)
4	-	-
5	Ground	Ground
6	-	-
7	-	-
8	-	-
9	-	-

Table 2 RS-232 pin assignment

The RS-422 pin assignment of the Controller and SE-2200 is shown in the following table:

Pin / Signal	Controller	SE-2200
1	-	-
2	Receive A (RX-)	Transmit A (TX-)
3	Transmit B (TX+)	Receive B (RX+)
4	-	-
5	Ground	Ground
6	-	-
7	Receive B (RX+)	Transmit B (TX+)
8	Transmit A (TX-)	Receive A (RX-)
9	-	-

Table 3 RS-422 pin assignment

1.4 Command/Response Block Structure

1.4.1 Control Command Block

Sync Byte	Byte Count	Effect Address	Command **20H**	Parameter 1		Parameter 16	Check Sum

Item	Description
Sync Byte	AAH
Byte Count	The total number of subsequent bytes in the block (from Byte Count to Byte of parameters, Check-sum excluded)
Effect Address	FFH
Control Command	20H
Parameter 1 ~ 16	Command parameter (1 ~ 16 Bytes). Refer Table 6
Check Sum	Command block check sum (Byte count + Effect Address + Command + Parameter 1 + … + Parameter 16)

Table 4 Command Block

1.4.2 Control Command Response Block

Byte Count	Status

Item	Description
Byte Count	Numbers of response data bytes, include itself
Status	Command execution status: 20H : Command Ignore 40H : Command Protocol Error 80H : Command OK

Table 5 Switcher Response Block

Parameter Name	Parameter (Hex)	Description
WIPE EFFECT 1	06H	Vertical wipe left to right
WIPE EFFECT 2	07H	Vertical wipe right to left
WIPE EFFECT 3	08H	Upper left corner wipe to lower right corner
WIPE EFFECT 4	09H	Upper right corner
WIPE EFFECT 5	0AH	Vertical wipe from center to left and right sides
WIPE EFFECT 6	0BH	Vertical wipe from left and right sides to center
F1	0CH	Function Key 1
F2	0DH	Function Key 2
PIP 1 PGM	0EH	PIP 1 Program
PIP 2 PGM	0FH	PIP 2 Program
DSK PGM	10H	DSK Program
MSCP PGM	11H	Switch the multi-screen view or program view
WIPE EFFECT 7	16H	Horizontal wipe from top to buttom
WIPE EFFECT 8	17H	Horizontal wipe from bottom to top
WIPE EFFECT 9	18H	Lower left corner wipe to upper right corner
WIPE EFFECT 10	19H	Lower right corner wipe to lower left corner
WIPE EFFECT 11	1AH	Horizontal wipe from center to top and bottom
WIPE EFFECT 12	1BH	Horizontal wipe from top and bottom to center
F3	1CH	Function Key 3
F4	1DH	Function Key 4
PIP 1 PVW	1EH	PIP 1 Preview
PIP 2 PVW	1FH	PIP 2 Preview
DSK PVW	20H	DSK Preview
BK PROGRAM	21H	Black background - Program
PROGRAM 1	22H	Program 1
PROGRAM 2	23H	Program 2
PROGRAM 3	24H	Program 3
PROGRAM 4	25H	Program 4
PROGRAM 5	26H	Program 5
PROGRAM 6	29H	Program 6
BG PROGRAM	2AH	Background - Program
FREEZE	2EH	Freeze the program source image or return to live video
MIX	2FH	Selects basic A/B dissolve for the next transition

WIPE	30H	Selects WIPE effect
BK PRESET	31H	Black background - Preset
PRESET 1	32H	Preset 1
PRESET 2	33H	Preset 2
PRESET 3	34H	Preset 3
PRESET 4	35H	Preset 4
PRESET 5	36H	Preset 5
PRESET 6	39H	Preset 6
BG PRESET	3AH	Background - Preset
CUT	3EH	Performs a simple immediate switch from the current main source to the selected sub source.
FTB	3FH	Fade to black
AUTO	40H	Performs an automated switch from the current program source to the select preset source
TIMER	41H	Count down timer.
AUDIO FIXED	42H	Manual selection of a mixed of audio channels fixed to a video channel at your choice
AUDIO FOLLOW VIDEO	43H	Manual selection of one audio channel fixed to one video at your choice.
WIPE EFFECT 13	46H	Box wipe from outside edges to center
WIPE EFFECT 14	47H	Box wipe from center to outside edges
WIPE EFFECT 15	48H	Circle wipe from center to outside edges
WIPE EFFECT 16	49H	Circle wipe from outside edges to center.
WIPE EFFECT 17	4AH	Diamond wipe from center to ourside edges.
BORDER	4BH	Enable/Disable wipe border
LOGO 1	4CH	Display LOGO 1
LOGO 2	4FH	Display LOGO 2
CLOCK	50H	Display clock on Program/Preset
SPEED 1	5EH	The rate of transition or time taken when using the AUTO
SPEED 2	5FH	The rate of transition or time taken when using the AUTO
SPEED 3	60H	The rate of transition or time taken when using the AUTO

Table 6 Command

1.4.2.1 Control Command example:

Select program to channel 2

Controller : AAH, 04H, FFH, 20H, 23H, 46H

Switcher : 02H, 80H

– Check Sum : 46H = (04H + FFH + 20H + 23H) & FFH

Select Preset to channel 5

Controller : AAH, 04H, FFH, 20H, 36H, 59H

Switcher : 02H, 80H

– Check Sum : 59H = (04H + FFH + 20H + 36H) & FFH

1.4.3 T-Bar Command

Sync Byte	Byte Count	Effect Address	Command **21H**	Position Low	Position High	Check Sum

Item	Description
Sync Byte	AAH
Byte Count	05H
Effect Address	FFH
Command	21H
Position Low	T-Bar position low byte
Position High	T-Bar position high byte
Check Sum	Command block check sum (Byte count + Effect Address + Command + Position Low + Position High)

Table 7 Set T-Bar position

1.4.3.1 T-Bar Command example

AAH, 05H, FFH, 21H, 00H, 00H, 25H

1.4.4 Get Switcher Status

Sync Byte	Byte Count	Effect Address	Command **22H**	Check Sum

Item	Description
Sync Byte	AAH
Byte Count	The total number of subsequent bytes in the block (from Byte Count to Byte of parameters, check-sum excluded)
Effect Address	FFH
Command	22H
Check Sum	Command block check sum (Byte count + Effect Address + Command)

Table 7 Get Switcher Status

1.4.5 Switcher Status Response

Byte Count	Command Status	Switcher Status 1	Switcher Status 2		Switcher Status 7

Item	Description	
Byte Count	09H	
Command Status	Command execution status: 20H : Command Ignore 40H : Command Protocol Error 80H : Command OK	
Switcher Status Byte 1	bit 0 ~ 3	Program Channel Number
	bit 4 ~ 7	Preset Channel Number
	1 = Channel 1 3 = Channel 3 5 = Channel 5 7 = Black background	2 = Channel 2 4 = Channel 4 6 = Channel 6 8 = Background
Switcher Status Byte 2	bit 0 ~ 4	Wipe effect number
	Effect 1 ~ Effect 17 = 1 ~ 17	
	bit 5 ~ 7	Transition speed
	Speed 1 ~ Speed 3 = 1 ~ 3	
Switcher Status Byte 3	bit 0	Logo 1 (0 = Off, 1 = On)
	bit 1	Logo 2 (0 = Off, 1 = On)
	bit 2	Border (0 = Off, 1 = On)

	bit 3	Function 1 (0 = Off, 1 = On)
	bit 4	Function 2 (0 = Off, 1 = On)
	bit 5	Function 3 (0 = Off, 1 = On)
	bit 6	Function 4 (0 = Off, 1 = On)
	bit 7	*RESERVED*
Switcher Status Byte 4	bit 0	PIP 1 Program (0 = Off, 1 = On)
	bit 1	PIP 2 Program (0 = Off, 1 = On)
	bit 2	DSK Program (0 = Off, 1 = On)
	bit 3	PIP 1 Preview (0 = Off, 1 = On)
	bit 4	PIP 1 Preview (0 = Off, 1 = On)
	bit 5	DSK Preview (0 = Off, 1 = On)
	bit 6	Clock (0 = Off, 1 = On)
	bit 7	Timer (0 = Off, 1 = On)
Switcher Status Byte 5	bit 0	Audio Fixed (0 = Off, 1 = On)
	bit 1	Audio Follow Video (0 = Off, 1 = On)
	bit 2	MSCR/Program (0 = MSCR, 1 = Program)
	bit 3	Wipe (0 = Off, 1 = On)
	bit 4	Mix (0 = Off, 1 = On)
	bit 5	FTB (0 = Off, 1 = On)
	bit 6	*RESERVED*
	bit 7	*RESERVED*
Switcher Status Byte 6	T-Bar position low byte	
Switcher Status Byte 7	T-Bar position high byte	

Table 8 Switcher Status

2 Configure SE-2200 to accept DVIP Serial Control Protocol

2.1 RS-232/422 Selection

Set DIP SW (near D-SUB 9 pin connector) to :

00 : RS-232

10 : RS-422

2.2 Set SE-2200 Remote Control to DVIP board

- Enter SE-2200 MENU mode
- Enter “REMOTE CONTROL” function
- Enable (Check) DVIP board
- Exit MENU mode

2.3 Set SE-2200 into Remote Control mode

- Press “PC CTRL” button on the SE-2200's Control Panel to enter Remote Control mode

Revision History:

1.0	Initial release	MAR-01-2015