

SONY®

RS-232C PROTOCOL MANUAL
1st Edition

LCD DIGITAL COLOR TV

KDL-40XBR5

KDL-46XBR5

KDL-52XBR5

SXRD PROJECTION TV

KDS-Z60XBR5

KDS-Z70XBR5

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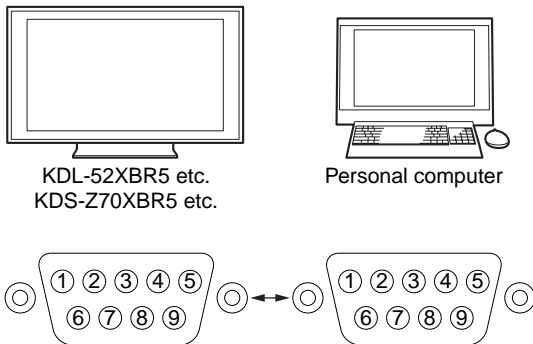
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1. Communication Parameter

Communication system	RS-232C
Synchronous system	Asynchronous communication
Baud rate	9600 bps
Character length	8 bit
Parity	None
Start bit	1 bit
Stop bit	1 bit
Flow control	None

2. Pin Configuration

Display side (D-sub 9-pin male) Host side (D-sub 9-pin)



- External view -

- External view -

Pin No.	Signal	Pin No.	Signal
1	NC	1	NC
2	RD	2	RD
3	TD	3	TD
4	NC	4	NC
5	GND	5	GND
6	NC	6	NC
7	NC	7	NC
8	NC	8	NC
9	NC	9	NC

3. Restriction for Communication

- * Send control command after 20 seconds of power on.
- * Strictly keep to send next command after receiving answer response from Display.
- * Set the command interval to 500ms or more.
- * Value range for direct command is same as user can change by menu.
- * When set is at standby mode, only receives Power ON command.
- * To turn on the set, first set standby command as Enable. After this, the set can receive Power ON command.

4. Communication Data Format

(a) Control (Host → Request of Write to Display)

No.	Item	Value
1	Header	0x8C: Control
2	Category	0x00 (fixed)
3	Function	0xXX
4	Data1 (Length)	0xXX (=X-3 byte)
5	Data2 (Data1)	0xXX
:	:	0xXX
:	:	0xXX
X	Data (X-3)	0xXX
X+1	Check Sum	0xXX

* Check Sum: The total from No.1 to No. X, when value exceeds 255, 1byte of data is confirmed the bottom.

(b) Answer (Display → Response to host)

① Control answer

No.	Item	Value
1	Header	0x70: Answer
2	Answer*	0x00: Completed (Normal End) 0x01: Limit Over (Abnormal End-Exceed maximum value) 0x02: Limit Over (Abnormal End-Exceed minimum value) 0x03: Command Canceled (Abnormal end) 0x04: Parse Error (Data Format Error)
3	Check Sum	0xXX

- * 0x00: Completed Normal response.
- 0x01: Limit Over The packets was received normally, but the data value was over the upper limit.
- 0x02: Limit Over The packets was received normally, but the data value was over the lower limit.
- 0x03: Command canceled The packet is received normally but either the value of data is incorrect or request is not permitted for the current host value.
- 0x04: Parse Error Received not defined format data or check sum Error.

* Check Sum: The total from No.1 to No. X, when value exceeds 255, 1byte of data is confirmed the bottom.

5. Command Example

Select CH

	Head	Category	Function	Length														Check Sum
(Terr) Analogue : Last ch	0x8c	0x00	0x04	0x0d	0x01	0x02	0xff	0xff	0xff	0xff	0xff	0xff	0xff	0xff	0xff	0xff	0xff	0xXX
(CATV) Digital : 85.3 ch	0x8c	0x00	0x04	0x0d	0x01	0x03	0x00	0x08	0x05	0x2c	0x03	0xff	0xff	0xff	0xff	0xff	0xff	0xXX
(CATV) Analogue : 125 ch	0x8c	0x00	0x04	0x0d	0x01	0x03	0x01	0x02	0x05	0xff	0xff	0xff	0xff	0xff	0xff	0xff	0xff	0xXX

Select Language

	Head	Category	Function	Length					Check Sum
English1"eng"	0x8c	0x00	0x07	0x05	0x00	0x65	0x6e	0x67	0xXX
Spanish "spa"	0x8c	0x00	0x07	0x05	0x00	0x73	0x70	0x61	0xXX
French "fre"	0x8c	0x00	0x07	0x05	0x00	0x66	0x72	0x65	0xXX

6. RS232C Command List

	[a] Function		Command		[b]Length (Include Checksum)	[c] Range/Switch Code						Detail		
	Syntax	Code	Stand by	Power On		byte0: Syntax	Code	byte1: Syntax	Code	byte2-n: Syntax& code				
Mode Control	Power	0x00	Enable	Enable	0x02	OFF	0x00					OFF is always Enable ON is Enable When Standby Command(0x02) received Enable(0x01)		
	Standby Command	0x01	Disable	Enable	0x02 0x02	ON Disable	0x01 0x00							
	Input Select		0x02	Disable	Enable	0x02	Toggle	0x00					select input same as RC	
						0x02	TV	0x01						select last TV channel
						0x03	Video	0x02	#1	0x01				
									#2	0x02				
									#3	0x03				
						0x03	Component	0x03	#1	0x01				
									#2	0x02				
						0x03	HDMI	0x04	#1	0x01				
									#2	0x02				
									#3	0x03				
				#4	0x04									
										#4 is only available for SXR models.				
	Program Select		0x04	Disable	Enable	0x03	UpDown	0x00	Up	0x00			select program(channel) same as RC control.	
									Down	0x01				
						0x0d	Direct	0x01	Terr Digital	0x01	byte2-byte11 (10 byte Fix length, include terminator) Channel number the following value can be set.: 0x00-0x09,0x2c,0xFF (terminator) In CATV(US) case, set 0x2c as".". if all values are full by "0xFF", system will tune last channel.			
								Terr Analogue	0x02					
									CATV	0x03				
	Volume Control		0x05	Disable	Enable	0x03	UpDown	0x00	Up	0x00				
									Down	0x01				
						0x03	Direct	0x01	values	0xnn				
	Audio Muting		0x06	Disable	Enable	0x02	Toggle	0x00					values in cycle: Unmuting Muting	
0x03						Direct	0x01	Unmuting	0x00					
								Muting	0x01					
Language					0x05		0x00	English		"eng"		byte 1-3: ASCII "eng" (for English)		
								French		"fre"				
								Spanish		"spa"				
Off Timer(SLEEP)					0x02	Toggle	0x00							
					0x03	Direct	0x01	timer offset	0xnn				supported values: OFF: 0x00 15 min: 0x0F 30 min: 0x1E 45 min: 0x2D 60 min: 0x3C 90 min: 0x5A 120 min: 0x78	
Display		0x0F	Disable	Enable	0x02	Toggle	0x00					same as display (info) key		

	[a] Function		Command		[b] Length (Include CheckSum)	[c] Range/Switch Code						Detail	
	Syntax	Code	Stand by	Power On		byte0: Syntax	Code	byte1: Syntax	Code	byte2-n: Syntax& code			
Closed Caption		0x10	Dis able	Ena ble	0x02	Toggle Display	0x00					toggle between Off and On	
					0x03	Direct Display	0x01	OFF	0x00				
								ON	0x01				
					0x04	Direct Setting	0x02	Analog	0x00	CC1	0x01		
								CC2	0x02				
								CC3	0x03				
								CC4	0x04				
								Text1	0x05				
								Text2	0x06				
								Text3	0x07				
			Text4	0x08									
						Digital	0x01	Service1	0x01				
								Service2	0x02				
								Service3	0x03				
								Service4	0x04				
								Service5	0x05				
								Service6	0x06				
								CC1	0x07				
								CC2	0x08				
								CC3	0x09				
								CC4	0x0a				
Picture	Picture Mode	0x20	Dis able	Ena ble	0x02	Toggle	0x00					values in cycle : Vivid Standard Cinema Custom.	
					0x03	Direct	0x01	Vivid	0x00				
								Standard	0x01				
								Cinema	0x02				
				Custom	0x03								
	Cine Motion	0x2A	Dis able	Ena ble	0x02	Off	0x00				change only current Input		
						Auto1	0x02						
						Auto2	0x03						
	Advanced Iris	0x2B	Dis able	Ena ble	0x02	Min	0x00					change only current Input only available for SXR models.	
	Low					0x01							
Mid	0x02												
High	0x03												
max	0x04												
Auto1	0x05												
Auto2	0x06												
Picture	0x23	Dis able	Ena ble	0x03	UpDown	0x00	Up	0x00					
							Down	0x01					
					Direct	0x01	values	0xXX					
Brightness	0x24	Dis able	Ena ble	0x03	UpDown	0x00	Up	0x00					
							Down	0x01					
					Direct	0x01	values	0xXX					
Color	0x25	Dis able	Ena ble	0x03	UpDown	0x00	Up	0x00					
							Down	0x01					
					Direct	0x01	values	0xXX					
Hue	0x26	Dis able	Ena ble	0x04	UpDown	0x00	Red	0x00	Up	0x00			
							Green	0x01	Down	0x01			
							Red	0x00	values				
							Green	0x01					
Sharpness	0x28	Dis able	Ena ble	0x03	UpDown	0x00	Up	0x00					
							Down	0x01					
					Direct	0x01	value	0xXX					

	[a] Function		Command		[b]Length (Include Checksum)	[c] Range/Switch Code						Detail
	Syntax	Code	Stand by	Power On		byte0: Syntax	Code	byte1: Syntax	Code	byte2-n: Syntax& code		
Sound	Sound Mode	0x30	Dis able	Ena ble	0x02	Toggle	0x00					values in cycle: Dynamic Standard Custom
					0x03	Direct	0x01	Dynamic	0x00			
								Standard	0x01			
								Custom	0x02			
	Treble	0x32	Dis able	Ena ble	0x03	UpDown	0x00	Up	0x00			
					0x04	Direct	0x01	Down	0x01			
								plus	0x00	values	0xnn	
								minus	0x01			
	Bass	0x33	Dis able	Ena ble	0x03	UpDown	0x00	Up	0x00			
					0x04	Direct	0x01	Down	0x01			
								plus	0x00	values	0xnn	
								minus	0x01			
Speaker Off	0x36	Dis able	Ena ble	0x02	Toggle	0x00						
				0x03	Direct	0x01	OFF	0x00				
Size/ Shift	H Size	0x40	Dis able	Ena ble	0x03	UpDown	0x00	Up	0x00			
					0x04	Direct	0x01	Down	0x01			
								plus	0x00	value	0xnn	
								minus	0x01			
	H Shift	0x41	Dis able	Ena ble	0x03	UpDown	0x00	Up	0x00			
					0x04	Direct	0x01	Down	0x01	values	0xnn	
								plus	0x00			
								minus	0x01			
	V Size	0x42	Dis able	Ena ble	0x03	UpDown	0x00	Up	0x00			
					0x04	Direct	0x01	Down	0x01			
								plus	0x00	values	0xnn	
								minus	0x01			
V Shift	0x43	Dis able	Ena ble	0x03		0x00	Up	0x00				
				0x04	Direct	0x01	Down	0x01				
							plus	0x00	values	0xnn		
							minus	0x01				
Screen	Wide	0x44	Dis able	Ena ble	0x02	Toggle	0x00					
					0x03	Direct	0x01	Wide Zoom	0x00			
								Full	0x01			
								Zoom	0x02			
								Normal	0x03			
								PC_Normal	0x05			
								PC_Full1	0x06			
								PC_Full2	0x07			
								PC_ZOOM	0x08			
											only available for SXRD models.	
	4:3 Mode	0x46	Dis able	Ena ble	0x02	Toggle	0x00					
					0x03	Direct	0x01	Normal	0x04			
Wide Zoom	0x03											
Full	0x02											
Zoom	0x01											
Off	0x00											

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