

SONY®

RS-232C PROTOCOL MANUAL
1st Edition (Revised 1)

LCD DIGITAL COLOR TV

KDL-40XBR5

KDL-46XBR5

KDL-52XBR5

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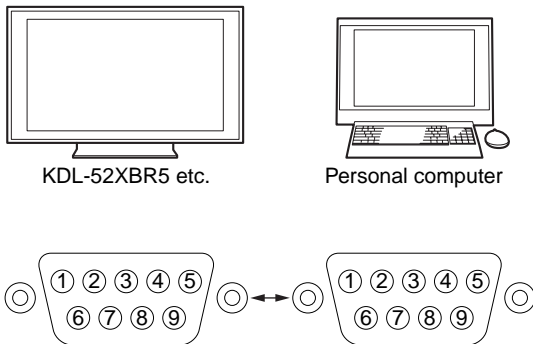
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1. Communication Parameter

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 model.				
	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 model.			
								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									
					0x03	Direct	0x01	values	0xXX								
Brightness	0x24	Dis able	Ena ble	0x03	UpDown	0x00	Up	0x00									
							Down	0x01									
					0x03	Direct	0x01	values	0xXX								
Color	0x25	Dis able	Ena ble	0x03	UpDown	0x00	Up	0x00									
							Down	0x01									
					0x03	Direct	0x01	values	0xXX								
Hue	0x26	Dis able	Ena ble	0x04	UpDown	0x00	Red	0x00	Up	0x00							
							Green	0x01	Down	0x01							
					0x04	Direct	0x01	Red	0x00	values							
								Green	0x01								
Sharpness	0x28	Dis able	Ena ble	0x03	UpDown	0x00	Up	0x00									
							Down	0x01									
					0x03	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	ON	0x01				
								Down	0x01				
								plus	0x00	value	0xnn		
	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 SXR model.									
	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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