

SONY®

RS-232C PROTOCOL MANUAL

1st Edition (Revised 3)

LCD DIGITAL COLOR TV

KDL-40XBR5

KDL-46XBR5

KDL-52XBR5

KDL-40XBR7

KDL-70XBR7

KDL-46XBR8

KDL-55XBR8

KDL-46XBR10

KDL-52XBR10

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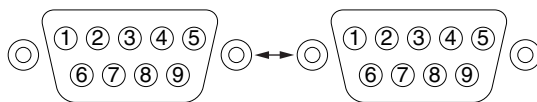
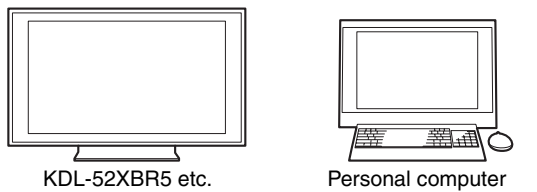
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1. Communication Parameter

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 -

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

- External view -

Pin No.	Signal
1	NC
2	RD
3	TD
4	NC
5	GND
6	NC
7	NC
8	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 Property		[b]Length (Include Checksum)	[c] Range/Switch Code						Detail				
	Syntax	Code	Standby	PowerOn		byte0:		byte1:		byte2-n:						
						Syntax	Code	Syntax	Code	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)				
						0x02	ON	0x01								
	Standby Command	0x01	Disable	Enable	0x02	Disable	0x00					select input same as RC control. select last TV channel				
						0x02	Enable	0x01								
	Input Select	0x02	Disable	Enable	0x02	Toggle	0x00						values which are supported is defined as for each regional spec.			
						0x02	TV	0x01								
						0x03	Video	0x02	#1	0x01						
									#2	0x02						
						0x03	Component	0x03	#1	0x01						
									#2	0x02						
						0x03	HDMI	0x04	#3	0x03						
									#4	0x04						
						0x03	PC	0x05	#1	0x01						
	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)		
											Terr Analoue	0x02				
								CATV	0x03	In CATV (US) case, set 0x2c as "A"						
	Volume Control	0x05	Disable	Enable	0x03	UpDown	0x00	Up	0x00				values which are supported is defined as for each regional spec.			
								Down	0x01							
	Muting	0x06	Disable	Enable	0x02	Toggle	0x00						values in cycle: Unmuting Muting			
								0x03	Direct	0x01	Unmuting	0x00				
	Language				0x05			English	0x01	"eng"			values in cycle are defined as each regional spec.			
								French		"fre"						
								Spanish		"spa"						
	Off Timer(SLEEP)	0x0C	Disable	Enable	0x02	Toggle	0x00						values in cycle are defined as each regional spec. 0-255; values which are supported is defined as for each regional spec.			
								0x03	Direct	0x01	timer offset	0xnn				
	Picture Off	0x0D	Disable	Enable	0x02	Toggle	0x00						values in cycle are defined as each regional spec.			
								0x03	Direct	0x01	OFF	0x00				
	Display	0x0F	Disable	Enable	0x02	Toggle	0x00	ON	0x01				same as display (info) key toggle between Off and On			
								0x03	Direct	0x01	OFF	0x00				
	Closed Caption	0x10	Disable	Enable	0x04	Direct Setting	0x02	Analog	0x00	CC1	0x01			values in cycle are defined as each regional spec.		
										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															

	[a] Function		Command Property		[b]Length (Include Checksum)	[c] Range/Switch Code						Detail			
	Syntax	Code	Standby	PowerOn		byte0:		byte1:		byte2-n:					
						Syntax	Code	Syntax	Code	Syntax&code					
Picture	Picture Mode	0x20	Disable	Enable	0x02	Toggle	0x00					values in cycle are defined as for each regional spec.			
					0x03	Direct	0x01	Vivid	0x00						
								Standard	0x01						
								Cinema	0x02						
								Custom	0x03						
								Cine2	0x06						
								Sports	0x07						
	Game	0x08													
	Cine Motion (Cinema Drive)	0x2A	Disable	Enable	0x02	Off	0x00					change only current Input values which are supported is defined as for each regional spec.			
						Auto1	0x02								
						Auto2	0x03								
	Picture	0x23	Disable	Enable	0x03	UpDown	0x00	Up	0x00			max / min values are defined as for each regional spec.			
						Direct	0x01	values	0xXX						
	Brightness	0x24	Disable	Enable	0x03	UpDown	0x00	Up	0x00			max / min values are defined as for each regional spec.			
Direct						0x01	values	0xXX							
Color (Colour)	0x25	Disable	Enable	0x03	UpDown	0x00	Up	0x00			max / min values are defined as for each regional spec.				
					Direct	0x01	values	0xXX							
Hue	0x26	Disable	Enable	0x04	UpDown	0x00	Red	0x00	Up	0x00	max / min values are defined as for each regional spec.				
					Direct	0x01	Green	0x01	Down	0x01					
Sharpness	0x28	Disable	Enable	0x03	UpDown	0x00	Red	0x00	values	0xnn	max / min values are defined as for each regional spec.				
					Direct	0x01	Green	0x01							
					Up	0x00									
Sound	Sound Mode	0x30	Disable	Enable	0x02	Toggle	0x00				values in cycle: Dynamic Standard Custom				
					0x03	Direct	0x01	Dynamic	0x00						
								Standard	0x01						
	Treble	0x32	Disable	Enable	0x03	UpDown	0x00	ClearVoice	0x03		values which are supported is defined as for each regional spec.				
						Direct	0x01	Up	0x00	values		0xnn			
	Bass	0x33	Disable	Enable	0x03	UpDown	0x00	Down	0x01		values which are supported is defined as for each regional spec.				
						Direct	0x01	plus	0x00	values		0xnn			
	Speaker Off	0x36	Disable	Enable	0x02	Toggle	0x00	minus	0x01						
						Direct	0x01	OFF	0x00						
	Size/Shift	H Size	0x40	Disable	Enable	0x03	UpDown	0x00	ON	0x01		values which are supported is defined as for each regional spec.			
							Direct	0x01	Up	0x00	values		0xnn		
		H Shift	0x41	Disable	Enable	0x03	UpDown	0x00	Down	0x01		values which are supported is defined as for each regional spec.			
							Direct	0x01	plus	0x00	values		0xnn		
		V Size	0x42	Disable	Enable	0x03	UpDown	0x00	minus	0x01		values which are supported is defined as for each regional spec.			
Direct							0x01	Up	0x00	values	0xnn				
V Shift		0x43	Disable	Enable	0x03	UpDown	0x00	Down	0x01		values which are supported is defined as for each regional spec.				
						Direct	0x01	plus	0x00	values		0xnn			
Wide		0x44	Disable	Enable	0x02	Toggle	0x00					values in cycle are defined as for each regional spec.			
						0x03	Direct	0x01	Wide Zoom	0x00					
									Full	0x01					
									Zoom	0x02					
									Normal	0x03					
									PC_Normal	0x05					
	PC_Full1								0x06						
PC_Full2	0x07														
Auto Wide	0x45	Disable	Enable	0x02	Toggle	0x00	H Stretch	0x09							
					Direct	0x01	OFF	0x00							
4:3 Mode	0x46	Disable	Enable	0x02	Toggle	0x00	ON	0x01			values in cycle are defined as for each regional spec.				
					0x03	Direct	0x01	Normal	0x04						
								Wide Zoom	0x03						
Scene	Scene Select	0x1F	Disable	Enable	0x02	General	0x00				Select Scene Restriction follow system spec. Don't have to show message on screen if prohibited				
						Cinema	0x01								
						Photo	0x02								
						Sports	0x03								
						Game	0x04								
						Text	0x05								
						Music	0x06								
						Reserved	0x07								
Auto	0x08														

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