

## ViewSonic Commercial CDxxxx RS232 Protocol

### Contents

1	Introduction.....	2
2	Description.....	2
2.1	Hardware specification .....	2
2.2	Communication Setting .....	2
2.3	Command Message Reference.....	3
3	Protocol 1: with ID.....	3
3.1	Command Description .....	3
3.2	Set-Function Listing.....	3
	Send: (Command Type="s") .....	3
	Reply: (Command Type="+” or “-”).....	4
3.3	Get-Function Listing.....	7
	Send: (Command Type="g") .....	7
	Reply: (Command Type="r” or “-”) If the Command is valid, Command Type ="r” ...	7
4	Protocol 2: without ID .....	10
4.1	Set function listing .....	10
	Set-Function format: .....	10
4.2	Get-Function Listing.....	12
4.3	Remote Control Pass-through mode .....	15

### Version control

Date	Reversion	Changes and additions	by
05/03/2010	V1.0	First release, combine two protocol sets in one document	

## 1 Introduction

This document describes the hardware interface spec and software protocols of RS232 interface communication between ViewSonic Commercial Display and PC or other control unit with RS232 protocol.

ViewSonic **commercial CD displays** contain 2 set of protocol command

### 1. Protocol 1, with ID

This set protocol allow user to assign the ID in the command to control the specify ID of multiple displays

### 2. Protocol 2, without ID

This set protocol is best for single display control and for ViewSonic Network Media Players.

Both sets protocol contain three sections command:

- Set-Function
- Get-Function
- Remote control pass-through mode

※In below document, "PC" will represents all the control units that can sent or receive the RS232 protocol command.

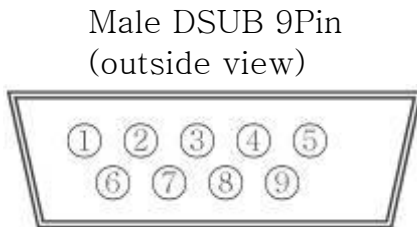
## 2 Description

### 2.1 Hardware specification

ViewSonic LCD communication port in the rear side

(1) Connector type: DSUB 9 Pin Male

(2) Pin Assignment



Pin #	Signal	Remark
1	NC	
2	RXD	Input to LCD Monitor
3	TXD	Output from LCD Monitor
4	NC	
5	GND	
6	NC	
7	NC	
8	NC	
9	NC	
frame	GND	

\*Use of crossover (null modem) cable required for use with PC

### 2.2 Communication Setting

- Baud Rate Select: 9600bps (fixed)
- Data bits: 8bits (fixed)
- Parity: None (fixed)
- Stop Bits: 1(fixed)

### 2.3 Command Message Reference

PC sends to Monitor command packet followed by "CR". Every time PC sends control command to the Monitor, the Monitor shall response as follows:

1. If the message is receives correctly it will send "+" (02Bh) followed by "CR" (00Dh)
2. If the message is receives incorrectly it will send "-" (02Dh) followed by "CR" (00Dh)

## 3 Protocol 1: with ID

### 3.1 Command Description

<b>Length:</b>	Total Byte of Message excluding "CR"
<b>TV ID</b>	Identification for each of TV
<b>Command Type</b>	Identify command type, "s" (0x73h) : Set Command "g" (0x67h) : Get Command "r" (0x72h) : Reply Command "p" (0x70h) : RCU Pass-through "+" (0x2Bh) : Valid command Reply "-" (0x2Dh) : Invalid command Reply
<b>Command:</b>	Function command code: One byte ASCII code
<b>Value[1~3]:</b>	Three bytes ASCII that defines the value
<b>CR</b>	0x0D

### 3.2 Set-Function Listing

The PC can control the LCD Monitor for specific actions. The Set-Function command allows you to control the LCD monitor behavior in a remote sit through the RS232 port. The Set-Function packet format consists of 11 bytes.

#### Set-Function description:

<b>Length:</b>	Total Byte of Message excluding "CR"
<b>TV ID</b>	Identification for each of TV If we want to set all TV settings, TV ID can use "99" to achieve, and it will not have <b>Reply</b> command on this function.
<b>Command Type</b>	Identify command type, "s" (0x73h) : Set Command
<b>Command:</b>	Function command code: One byte ASCII code
<b>Value[1~3]:</b>	Three bytes ASCII that defines the value
<b>CR</b>	0x0D

#### Set-Function format

Send: (Command Type="s")

Name	Length	ID	Command Type	Command	Value1	Value2	Value3	CR
Byte Count	1 Byte	2 Byte	1 Byte	1 Byte	1 Byte	1 Byte	1 Byte	1 Byte
Bytes order	1	2~3	4	5	6	7	8	9

**Reply: (Command Type="+", "-" or "-")**

Name	Length	ID	Command Type	CR
Byte Count	1 Byte	2 Byte	1 Byte	1 Byte
Bytes order	1	2~3	4	5

**Example1: Set Brightness as 76 for TV-02 and this command is valid**

**Send (Hex Format)**

Name	Length	ID	Command Type	Command	Value1	Value2	Value3	CR
Hex	<u>0x38</u>	<u>0x30</u> <u>0x32</u>	<u>0x73</u>	<u>0x24</u>	<u>0x30</u>	<u>0x37</u>	<u>0x36</u>	<u>0x0D</u>

**Reply (Hex Format)**

Name	Length	ID	Command Type	CR
Hex	<u>0x34</u>	<u>0x30</u> <u>0x32</u>	<u>0x2B</u>	<u>0x0D</u>

**Example2: Set Brightness as 176 for TV-02 and this command is NOT valid**

**Send (Hex Format)**

Name	Length	ID	Command Type	Command	Value1	Value2	Value3	CR
Hex	<u>0x38</u>	<u>0x30</u> <u>0x32</u>	<u>0x73</u>	<u>0x24</u>	<u>0x31</u>	<u>0x37</u>	<u>0x36</u>	<u>0x0D</u>

**Reply (Hex Format)**

Name	Length	ID	Command Type	CR
Hex	<u>0x34</u>	<u>0x30</u> <u>0x32</u>	<u>0x2D</u>	<u>0x0D</u>

**Example3: Set Tint as 32 for TV-03 and this command is valid**

**Send (Hex Format)**

Name	Length	ID	Command Type	Command	Value1	Value2	Value3	CR
Hex	<u>0x38</u>	<u>0x30</u> <u>0x33</u>	<u>0x73</u>	<u>0x27</u>	<u>0x30</u>	<u>0x33</u>	<u>0x32</u>	<u>0x0D</u>

**Reply (Hex Format)**

Name	Length	ID	Command Type	CR
Hex	<u>0x34</u>	<u>0x30</u> <u>0x33</u>	<u>0x2B</u>	<u>0x0D</u>

**Example4: Set Tint as 75 for TV-03 and this command is NOT valid**

**Send (Hex Format)**

Name	Length	ID	Command Type	Command	Value1	Value2	Value3	CR
Hex	<u>0x38</u>	<u>0x30</u> <u>0x33</u>	<u>0x73</u>	<u>0x27</u>	<u>0x30</u>	<u>0x37</u>	<u>0x35</u>	<u>0x0D</u>

**Reply (Hex Format)**

Name	Length	ID	Command Type	CR
Hex	<u>0x34</u>	<u>0x30</u> <u>0x33</u>	<u>0x2B</u>	<u>0x0D</u>

**Example5: Set Brightness as 76 for all TV and this command is valid**

**Send (Hex Format)**

Name	Length	ID	Command Type	Command	Value1	Value2	Value3	CR
Hex	0x38	0x39 0x39	0x73	0x24	0x30	0x37	0x36	0x0D

No Reply.

**Commercial displays set-function table**

Set Function	Length	ID	Command Type	Command		Value Range (Three ASCII bytes)	Comments
				Code (ASCII)	Code (Hex)		
Power	8		s	!	21	000: STBY 001: ON	Controlled power status: ON or Standby
Input Select	8		s	"	22	000 : VGA 001 : <b>HDMI</b> 002 : <b>DVI-D</b> 003 : AV 004 : YPbPr 005 : S-Video	
Contrast	8		s	#	23	000 ~ 100	
Brightness	8		s	\$	24	000 ~ 100	
Sharpness	8		s	%	25	000 ~ 100	
Color	8		s	&	26	000 ~ 100	
Tint	8		s	`	27	000 ~ 100	
Bass	8		s	.	2E	000 ~ 100	Sets Bass value
Treble	8		s	/	2F	000 ~ 100	Sets Treble value
Balance	8		s	0	30	000 ~ 100	Sets Balance position
Picture Size	8		s	1	31	000 : <b>FULL</b> 001 : <b>NORMAL</b> 002 : <b>CUSTOM</b> 003 : <b>DYNAMIC</b> 004 : <b>REAL</b>	
OSD Language	8		s	2	32	000 : English 001 : French 002 : Spanish 003 : Germany 004 : Italian 005 : Simplified Chinese 006 : Russian 007 : <b>Polish</b> 008 : <b>Turkish</b>	
OSD timeout	8		s	3	33	005 ~120 Sec	Set OSD timeout
Volume	8		s	5	35	000 ~ 100	
Mute	8		s	6	36	000: OFF 001: ON (mute)	
Off Timer	8		s	7	37	000: OFF 001~024 (hour)	
PIP Mode	8		s	9	39	000 : OFF 001: PIP 002: POP 003 : PBP 004 : PBPA	

PIP Sound select	8		s	:	3A	000: Main 001: PIP	
PIP position	8		s	;	3B	000: Up 001: Down 002: Left 003: Right	
PIP Input	8		s	<	3C	000 : VGA 001 : <b>HDMI</b> 002 : <b>DVI-D</b> 003 : AV 004 : YPbPr 005 : S-Video	
Monitor ID	8		s	=	3D	001 ~ 026	
Key Pad	8		s	A	41	000 : POWER 001 : SOURCE 002 : MENU/EXIT 003 : UP 004 : DOWN 005 : LEFT 006 : RIGHT 007 : MUTE	
Remote Control	8		s	B	42	000: Disable 001: Enable 002: Pass through	<b>Disable:</b> RCU has no effect on HDTV. <b>Enabled:</b> RCU controls the HDTV. This is the power up default on the HDTV. <b>Pass through:</b> RCU has no effect on HDTV and all RCU command codes are transmitted to FC via the RS232 port. See page 15 for more details
Key Pad	8		s	C	43	000: Disable 001: Enable	<b>Disable:</b> Key Pad have no effect on HDTV. <b>Enabled:</b> Key Pad control the HDTV. This is the power up default on the HDTV.
Factory reset	8		s	~	7E	0	Rests HDTV to factory setting

### 3.3 Get-Function Listing

The PC can interrogate the LCD Monitor for specific information. The Get-Function packet format consists of 5 bytes which is similar to the Set-Function packet structure. Note that the "Value" byte is always = 00.

#### Get-Function description:

- Length:** Total Byte of Message excluding "CR"  
**TV ID** Identification for each of TV  
**Command Type** Identify command type,  
 "g" (0x67h) : Get Command  
**Command:** Function command code: One byte ASCII code  
**Value[1~3]:** Three bytes ASCII that defines the value  
**CR** 0x0D

#### Get-Function format

##### Send: (Command Type="g")

Name	Length	ID	Command Type	Command	Value1	Value2	Value3	CR
Byte Count	1 Byte	2 Byte	1 Byte	1 Byte	1 Byte	1 Byte	1 Byte	1 Byte
Bytes order	1	2~3	4	5	6	7	8	9

##### Reply: (Command Type="r" or "-")

*If the Command is valid, Command Type = "r"*

Name	Length	ID	Command Type	Command	Value1	Value2	Value3	CR
Byte Count	1 Byte	2 Byte	1 Byte	1 Byte	1 Byte	1 Byte	1 Byte	1 Byte
Bytes order	1	2~3	4	5	6	7	8	9

*If the Command is Not valid, Command Type = "-"*

Name	Length	ID	Command Type	CR
Byte Count	1 Byte	2 Byte	1 Byte	1 Byte
Bytes order	1	2~3	4	5

**Example1: Get Brightness from TV-05 and this command is valid.**

**The Brightness value is 67.**

#### Send (Hex Format)

Name	Length	ID	Command Type	Command	Value1	Value2	Value3	CR
Hex	<u>0x38</u>	<u>0x30</u> <u>0x35</u>	<u>0x67</u>	<u>0x62</u>	<u>0x30</u>	<u>0x30</u>	<u>0x30</u>	<u>0x0D</u>

#### Reply(Hex Format)

Name	Length	ID	Command Type	Command	Value1	Value2	Value3	CR
Hex	<u>0x38</u>	<u>0x30</u> <u>0x35</u>	<u>0x72</u>	<u>0x62</u>	<u>0x30</u>	<u>0x36</u>	<u>0x37</u>	<u>0x0D</u>

**Example2: Get Brightness from TV-05, but the Brightness command ID is error and it is NOT in the command table.**

**Send (Hex Format)**

Name	Length	ID	Command Type	Command	Value1	Value2	Value3	CR
Hex	0x38	0x30 0x35	0x67	0XD3	0x30	0x30	0x30	0x0D

**Reply (Hex Format)**

Name	Length	ID	Command Type	CR
Hex	0x34	0x30 0x35	0x2D	0x0D

**Example3: Get Tint from TV-0007 and this command is valid.  
The Tint value is 32.**

**Send (Hex Format)**

Name	Length	ID	Command Type	Command	Value1	Value2	Value3	CR
Hex	0x38	0x30 0x37	0x67	0X65	0x30	0x30	0x30	0x0D

**Reply (Hex Format)**

Name	Length	ID	Command Type	Command	Value1	Value2	Value3	CR
Hex	0x38	0x30 0x37	0x72	0x65	0x30	0x33	0x32	0x0D

**Example4: Get Tint from TV-07 , but the Brightness command ID is error and it is NOT in the command table.**

**Send (Hex Format)**

Name	Length	ID	Command Type	Command	Value1	Value2	Value3	CR
Hex	0x38	0x30 0x37	0x67	0XD7	0x30	0x30	0x30	0x0D

**Reply (Hex Format)**

Name	Length	ID	Command Type	CR
Hex	0x34	0x30 0x37	0x2D	0x0D

**Example5: Get SN from TV-01 , but the Brightness command ID is error and it is NOT in the command table.**

**Send (Hex Format)**

Name	Length	ID	Command Type	Command	Value1	Value2	Value3	CR
Hex	0x38	0x30 0x31	0x67	0X6B	0x30	0x30	0x30	0x0D

**Reply (Hex Format)**

Name	Length	ID	Command Type	CR
Hex	0x34	0x30 0x37	0x2D	0x0D



**PC Get-function command to Commercial Displays**

Get Function	Length	ID	Command Type	Command		Response Range (Three ASCII bytes)	Comments
				Code (ASCII)	Code (Hex)		
Get-Contrast	8		g	a	61	000 ~ 100	Gets Contrast value
Get-Brightness	8		g	b	62	000 ~ 100	Gets Brightness value
Get-Sharpness	8		g	c	63	000 ~ 100	Gets Sharpness value
Get-Color	8		g	d	64	000 ~ 100	Gets Color value
Get-Tint	8		g	e	65	000 ~ 100	Gets Tint value
Get-Volume	8		g	f	66	000 ~ 100	Gets Volume value
Get-Mute	8		g	g	67	000: OFF (unmuted) 001: ON (muted)	Gets Mute ON/OFF status
Get-RCU	8		g	h	68	000: Disable 001: Enable 002: Pass through	Gets RCU mode status
Get-Key Pad	8		g	i	69	000: Disable 001: Enable	Gets Buttons ON/OFF status
Get-Input select	8		g	j	6A	000: VGA 001: HDMI 002: DVI-D 003: AV 004: YPbPr 005: S-Video	Gets Input select status
Get-Power status	8		g	l	6C	000: STBY 001: ON	Gets the status of the HDTV power. HDTV response: 000 = HDTV is in standby 001 = HDTV is ON
Get-ACK	8		g	z	7A	0	This command is used to test the communication link.

## 4 Protocol 2: without ID

### 4.1 Set function listing

The PC can control the LCD Monitor for specific actions. The Set-Function command allows you to control the LCD monitor behavior in a remote sit through the RS232 port. The Set-Function packet format consists of 5 bytes. Note that the "Value" byte is always = 00.

#### Set-Function description:

**Length:** Total bytes of message = 5 ASCII (35H) excluding "CR"

**Command:** Function command code: One byte ASCII code

**Value[1~3]:** Three bytes ASCII that defines the value

#### Set-Function format:

Name	Length	Command	Value1	Value2	Value3	CR
Byte Count	1 Byte	1 Byte	1 Byte	1 Byte	1 Byte	1 Byte
Bytes order	1	2	3	4	5	6

#### All Set-Function from PC to Monitor (ASCII)

Name	Length	Command	Value1	Value2	Value3	CR
Byte Count	<b>5</b>	<b>1 Byte</b>	<b>1 Byte</b>	<b>1 Byte</b>	<b>1 Byte</b>	<b>00D</b>
Bytes order	1	2	3	4	5	6

#### Example: Set Mute-ON command (ASCII)

Name	Length	Command	Value1	Value2	Value3	CR
Byte Count	<b>5</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>00D</b>
Bytes order	1	2	3	4	5	6

#### Example: Set Mute-OFF command (ASCII)

Name	Length	Command	Value1	Value2	Value3	CR
Byte Count	<b>5</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>00D</b>
Bytes order	1	2	3	4	5	6

#### Example: Set Tint to 50 command (ASCII)

Name	Length	Command	Value1	Value2	Value3	CR
Byte Count	<b>5</b>	<b>`</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>00D</b>
Bytes order	1	2	3	4	5	6

LCD Monitor will send "+" (02Bh) and "CR" bytes to PC after receiving a valid command.

LCD Monitor will send "-" (02Dh) and "CR" bytes to PC if the command is not valid.

Value Range: Three bytes ASCII value range  
Command Code: Function command code in ASCII

#### Commercial displays set command table

Set Function	Length	Command Code (ASCII)	Command Code (Hex)	Value Range (Three ASCII bytes)	Comments
Power	5	!	21	000: STBY 001: ON	Controlled power status: ON or Standby
Input Select	5	"	22	000 : VGA 001 : <b>HDMI</b> 002 : <b>DVI-D</b> 003 : AV 004 : YPbPr 005 : S-Video	
Contrast	5	#	23	000 ~ 100	
Brightness	5	\$	24	000 ~ 100	
Sharpness	5	%	25	000 ~ 100	
Color	5	&	26	000 ~ 100	
Tint	5	`	27	000 ~ 100	
Bass	5	.	2E	000 ~ 100	Sets Bass value
Treble	5	/	2F	000 ~ 100	Sets Treble value
Balance	5	0	30	000 ~ 100	Sets Balance position
Picture Size	5	1	31	000 : <b>FULL</b> 001 : <b>NORMAL</b> 002 : <b>CUSTOM</b> 003 : <b>DYNAMIC</b> 004 : <b>REAL</b>	
OSD Language	55	2	32	000 : English 001 : French 002 : Spanish 003 : Germany 004 : Italian 005 : Simplified Chinese 006 : Russian 007 : <b>Polish</b> 008 : <b>Turkish</b>	
OSD timeout	5	3	33	005 ~120 Sec	Set OSD timeout
Volume	5	5	35	000 ~ 100	
Mute	5	6	36	000: OFF 001: ON (mute)	
Off Timer	5	7	37	000: OFF 001~024 (hour)	
PIP Mode	5	9	39	000 : OFF 001: PIP 002: POP 003 : PBP 004 : PBPA	
PIP Sound select	5	:	3A	000: Main 001: PIP	
PIP position	5	;	3B	000: Up 001: Down 002: Left 003: Right	
PIP Input	5	<	3C	000 : VGA 001 : <b>HDMI</b> 002 : <b>DVI-D</b> 003 : AV	

				004 : YPbPr 005 : S-Video	
Monitor ID	5	=	3D	001 ~ 026	
Number	5	@	40	000 ~ 009	
Key Pad	5	A	41	000 : POWER 001 : SOURCE 002 : MENU/EXIT 003 : UP 004 : DOWN 005 : LEFT 006 : RIGHT 007 : MUTE	
Remote Control	5	B	42	000: Disable 001: Enable 002: Pass through	<b>Disable:</b> RCU has no effect on HDTV. <b>Enabled:</b> RCU controls the HDTV. This is the power up default on the HDTV. <b>Pass through:</b> RCU has no effect on HDTV and all RCU command codes are transmitted to FC via the RS232 port. See page 15 for more details
Key Pad	5	C	43	000: Disable 001: Enable	<b>Disable:</b> Key Pad have no effect on HDTV. <b>Enabled:</b> Key Pad control the HDTV. This is the power up default on the HDTV.
Factory reset	5	~	7E	0	Rests HDTV to factory setting

#### 4.2 Get-Function Listing

The PC can interrogate the LCD Monitor for specific information. The Get-Function packet format consists of 5 bytes which is similar to the Set-Function packet structure. Note that the "Value" byte is always = 00.

##### Get-Function description:

**Length:** Total bytes of message = 5 ASCII (35H), excluding "CR"

**Command:** Get-Function command code: One byte ASCII code

**Value[1~3]:** Always = 000

##### Get-Function format from PC to LCD (ASCII)

Name	Length	Command	Value1	Value2	Value3	CR
Byte Count	5	1 Byte	0	0	0	00D
Bytes order	1	2	3	4	5	6

Monitor shall response to Get-Function with the following packet format:

##### LCD Monitor response packet format:

Name	Length	Value1	Value2	Value3	Value4	CR
------	--------	--------	--------	--------	--------	----

Byte Count	<b>5</b>	<b>1 Byte</b>	<b>1 Byte</b>	<b>1 Byte</b>	<b>1 Byte</b>	<b>00D</b>
Bytes order	1	2	3	4	5	6

**Response packet (to Get-Function):**

**Length:** Total bytes of packet = 5 ASCII excluding "CR"

Exception: Total bytes for On-Hours = 6

**Value[1-4]:** Four ASCII codes: Value range is from 0000 ~ 9999

Exception: Value[1-5] for On-Hours

LCD Monitor will send "+" (02Bh), "CR" bytes to PC after receiving a valid command

LCD Monitor will send "-" (02Dh), "CR" bytes to PC if the command is not valid

- **The following is an example of PC requesting the volume value from the LCD Monitor:**

PC send Get-Volume-value packet to Monitor (In ASCII)

Name	Length	Command	Value1	Value2	Value3	CR
Byte Count	<b>5</b>	<b>f</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>00D</b>
Bytes order	1	2	3	4	5	6

LCD Monitor will send "-" (02Dh), "CR" to PC if command is not recognized.

Otherwise the LCD Monitor will respond with the volume value as outlined below:

LCD-Monitor response packet to Get-volume-value (in this example the volume value is 50):

Name	Length	Value1	Value2	Value3	Value4	CR
Byte Count	<b>5</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>00D</b>
Bytes order	1	2	3	4	5	6

A special command "Get-ACK" is used to test the communication link between PC and the LCD Monitor. The LCD Monitor shall response to "Get-ACK" command with a "+" or "-".

Get-ACK from PC to LCD (ASCII)

Name	Length	Command	Value1	Value2	Value3	CR
Byte Count	<b>5</b>	<b>z</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>00D</b>
Bytes order	1	2	3	4	5	6

LCD Monitor will send "+" (02Bh); "CR" bytes to PC after receiving the command indicating that the communication link is OK

Get Function	Length	Command Code (ASCII)	Command Code (Hex)	Response Range (Three ASCII bytes)	Comments
Get-Contrast		a	61	000 ~ 100	Gets Contrast value
Get-Brightness		b	62	000 ~ 100	Gets Brightness value
Get-Sharpness		c	63	000 ~ 100	Gets Sharpness value
Get-Color		d	64	000 ~ 100	Gets Color value
Get-Tint		e	65	000 ~ 100	Gets Tint value
Get-Volume		f	66	000 ~ 100	Gets Volume value
Get-Mute		g	67	000: OFF (unmuted) 001: ON (muted)	Gets Mute ON/OFF status
Get-RCU		h	68	000: Disable 001: Enable 002: Pass through	Gets RCU mode status
Get-Key Pad		i	69	000: Disable 001: Enable	Gets Buttons ON/OFF status
Get-Input select		j	6A	000: VGA 001: <b>HDMI</b> 002: <b>DVI-D</b> 003: AV 004: YPbPr 005: S-Video	Gets Input select status
Get-Power status		l	6C	000: STBY 001: ON	Gets the status of the HDTV power. HDTV response: 000 = HDTV is in standby 001 = HDTV is ON
Get-ACK		z	7A	0	This command is used to test the communication link.

### 4.3 Remote Control Pass-through mode

When PC sets the LCD monitor to Remote Control Pass through mode, the LCD shall send a three bytes packet (followed by "CR") in response to RCU button activation. Note, that in this mode the RCU shall have no effect on the monitor function. For example: "+Volume" will not change the volume in the LCD but only sends "+Volume" code to PC over the RS232 port.

#### Remote Control pass-through packet format from LCD monitor to PC(ASCII)

Name	Length	RCU-Code1	RCU-Code2	CR
Byte Count	<b>3</b>	<b>MSB</b>	<b>LSB</b>	<b>00D</b>
Bytes order	1	2	3	4

#### Example: Remote Control pass-through when "Menu" key is pressed (1A)

Name	Length	RCU-Code1	RCU-Code2	CR
Byte Count	<b>3</b>	<b>1</b>	<b>A</b>	<b>00D</b>
Bytes order	1	2	3	4

Example: Remote Control pass-through when key "1" is pressed (01)

Name	Length	RCU-Code1	RCU-Code2	CR
Byte Count	<b>3</b>	<b>0</b>	<b>1</b>	<b>00D</b>
Bytes order	1	2	3	4

Example: Remote Control pass-through when "OK" key is pressed (1F)

Name	Length	RCU-Code1	RCU-Code2	CR
Byte Count	<b>3</b>	<b>1</b>	<b>F</b>	<b>00D</b>
Bytes order	1	2	3	4

Key	Code (HEX)
Size	0F
Volume Up (+)	10
Volume Down (-)	11
Mute	12
POWER	15
INPUT	16
PIP ON/OFF	17
MENU	1A
Up	1B
Down	1C
Left(-)	1D
Right(+)	1E
SET	1F

PIP INPUT	20
PIP CHANGE	21
PICTURE MODE	22
AUDIO INPUT	23
SCREEN SAVER <b>MOTION</b>	24
SCREEN SAVER BRIGHTNESS	25
DISPLAY	26
AUTO SETUP	27
EXIT	28