

# PS753 RS-232 command set

## History

No	Issue Date	Description	Apply Firmware
1	2021/09/13	First version.	PVX106_PVY100_PVZ100
2	2022/02/10	Modify command: 1. Preset load 2. Preset save	PVX110_PVY102_PVZ100

**\*Notice:**

- 1. The RS-232 command list is for PS753.
- 2. The yellow highlight  means the latest update.
- 3. The blue highlight  means the deleted item.

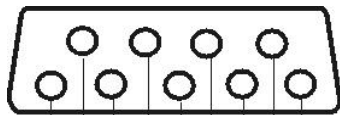
### 1. Communication Protocol

Transmit Method: Asynchronous Interface Half Duplex Serial Communication.

- Transmit Speed: 9600bps
- Start bit: 1Bit
- Parity Check: NA
- Data Bit: 8Bit
- Stop Bit: 1Bit

### 2. The wire diagram

The RS232 wire diagram between presenter and remote controller as below



Female

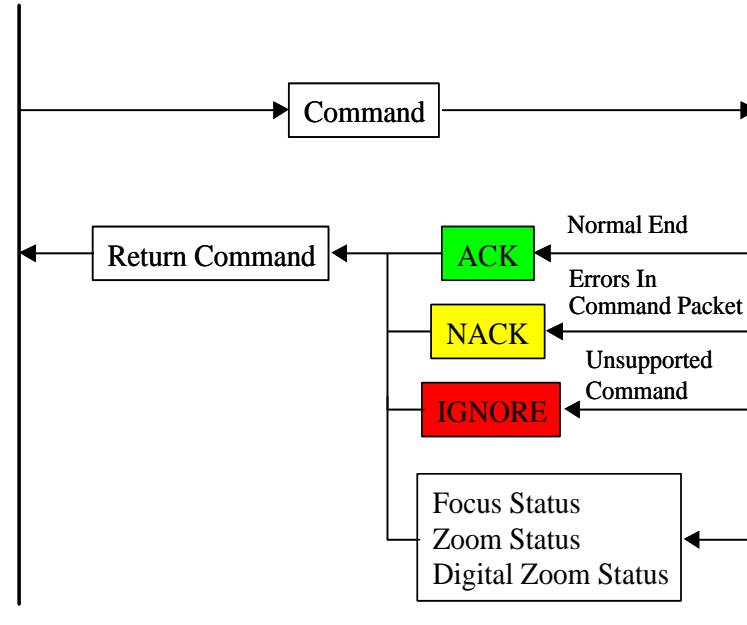
1 2 3 4 5 6 7 8 9

CONNECTIONS		
DB 9F	COLOUR	DB 9F
2	-	3
3	-	2
5	-	5
SHELL	DRAIN	SHELL

### 3. Communication Program

Host Controller

Camera Module



## 4. Command Format

### 4.1 Command Packet Format

1Byte	STX	Start Of Command	: A0h
2Byte	Command	Command	: 00~FFh
3Byte	Parameter1	Data	: 00~FFh
4Byte	Parameter2	Data	: 00~FFh
5Byte	Parameter3	Data	: 00~FFh
6Byte	ETX	End Of Command	: AFh

### 4.2 Return Packet Format

1Byte	STX	Start Of Command	: A0h	
2Byte	Command	Command	: 00~ FFh	
3Byte	Parameter1	Data	: 00~FFh	
4Byte	Parameter2	Data	: 00~FFh	
5Byte	Status	<Bit>	<Contents>	
		7	(0)	
		6	Iris Moving Status (1)/(0)Stop Status	
		5	Zoom Moving Status (1)/(0)Stop Status	
		4	Focus Moving Status (1)/(0)Stop Status	
		3	(0)	
		2	(0)	
		1	Communication Response 0=ACK/1=NAK/2=IGNORE/3=Not Used	
0	Communication Response			
6Byte	ETX	End Of Command	: AFh	
Communication Response		Bit1	Bit0	Status

ACK	0	0	Capable Of Normal End Or Normal Operation
NAK	0	1	Detecting Errors In Command Packet(STX, ETX Byte)
			Parity Error ,Framing Error, Overrun Error
			Data in out of specified range
IGNORE	1	0	Cannot execute the transmitted command for other operations
			Unsupported command
Not Used	1	1	

## 5. Send Packet

Item		Function	PC AP to the Master command format						Comment
			1B	2B	3B	4B	5B	6B	
1	SET	Power	A0h	B1h	P1	00h	00h	AFh	P1=00 : standby 01 : power up IR -> Power
2		Lamp	A0h	C1h	P1	00h	00h	AFh	P1=00 : all OFF 02 : lamp ON 03 : backlight ON IR -> Lamp
3		Rotate	A0h	B4h	P1	00h	00h	AFh	P1=00 : 0 degree 01 : 180 degree 02 : Flip 03 : Mirror 04 : 90 degree 05 : 270 degree OSD -> Rotate
4		Freeze	A0h	2Ch	P1	00h	00h	AFh	P1=00 : OFF 01 : ON IR -> Freeze
5		Playback	A0h	B3h	00h	00h	00h	AFh	IR -> Playback
6		PIP	A0h	B3h	01h	00h	00h	AFh	IR -> PIP
7		Source	A0h	3Ah	P1	00h	00h	AFh	P1=00 : camera 01 : passthrough IR -> Source
8		Pan	A0h	26h	P1	00h	00h	AFh	P1=00 : OFF 01 : ON IR -> Pan
9		Record	A0h	B2h	01h	00h	00h	AFh	IR -> Record
10		Capture / Delete	A0h	B2h	00h	00h	00h	AFh	IR -> Capture / Delect
11		Auto Tune	A0h	22h	00h	00h	00h	AFh	OSD -> Auto Tune
12		AWB one push	A0h	22h	01h	00h	00h	AFh	OSD -> Auto White Balance
13		AF one push	A0h	A3h	01h	00h	00h	AFh	HW -> AF Key
14		Mask / Spotlight	A0h	27h	P1	00h	00h	AFh	P1=0 : disable 1 : mask

Item	Function	PC AP to the Master command format						Comment
		1B	2B	3B	4B	5B	6B	
								2 : spotlight OSD -> Mask OSD -> Spotlight
15	Zoom Limit	A0h	40h	P1	00h	00h	AFh	P1=00 : 20x (lens 10x * dzoom 2x) 01 : 30x (lens 10x * dzoom 3x) 02 : 40x (lens 10x * dzoom 4x) 03 : 100x (lens 10x * dzoom 10x) 04 : 300x (lens 10x * dzoom 30x) OSD -> Zoom Limit
16	Zoom Direct Step	A0h	13h	P1	P2	00h	AFh	P1=low byte 0 - (215 +127) P2=high byte 0 - (215 +127) lens zoom = 215 sensor + digital zoom = 127
17	Zoom Step	A0h	12h	P1	P2	00h	AFh	P1=00 : -A, follow IR behavior 01 : +A, follow IR behavior P2= step unit : 0 - 255
18	Zoom Start	A0h	11h	P1	00h	00h	AFh	P1=tele : 0x20 - 0x27 are available wide : 0x30 - 0x37 are available stop : 0x00 OSD -> Zoom
19	Brightness Direct	A0h	30h	P1	P2	P3	AFh	P1= 00 : ae OFF 01 : ae ON P2=low byte ae OFF : 0 - 297 ae ON : 0 - 18 P3=high byte ae OFF : 0 - 297 ae ON : 0 - 18 OSD -> Brightness
20	Brightness Step	A0h	39h	P1	00h	00h	AFh	P1=00 : -A, follow IR behavior 01 : +A, follow IR behavior OSD -> Brightness
21	Focus Start	A0h	1Ah	P1	00h	00h	AFh	P1=far : 0x20 - 0x27 are available near : 0x30 - 0x37 are available stop : 0x00 OSD -> Manual Focus

Item	Function	PC AP to the Master command format						Comment
		1B	2B	3B	4B	5B	6B	
22	Focus Direct	A0h	1Bh	P1	P2	00h	AFh	P1=low byte (full range 0 - 536) P2= high byte (full range 0 - 536)
23	Focus Step	A0h	1Ch	P1	00h	00h	AFh	P1=00 : -A, follow IR behavior 01 : +A, follow IR behavior
24	Image Mode	A0h	A9h	P1	00h	00h	AFh	P1=00 : normal 01 : film 02 : slide 03 : microscope OSD -> Mode
25	Photo / Text	A0h	A7h	P1	00h	00h	AFh	P1=00 : photo 01 : text 02 : gray OSD -> Photo / Text
26	Slide Show	A0h	04h	P1	00h	00h	AFh	P1=00 : OFF 01 : ON OSD -> Slide Show
27	Menu	A0h	A0h	06h	00h	00h	AFh	IR -> Menu
28	Up	A0h	A0h	02h	00h	00h	AFh	IR -> Up
29	Down	A0h	A0h	03h	00h	00h	AFh	IR -> Down
30	Left	A0h	A0h	04h	00h	00h	AFh	IR -> Left
31	Right	A0h	A0h	05h	00h	00h	AFh	IR -> Right
32	Enter	A0h	A0h	01h	00h	00h	AFh	IR -> Enter
33	Preset Load	A0h	03h	00h	00h	P1	AFh	P1= 1 -8 : group index OSD -> Preset Load
34	Preset Save	A0h	03h	00h	01h	P1	AFh	P1= 1 -8 : group index OSD -> Preset Save
34	Factory Reset	A0h	03h	01h	00h	00h	AFh	OSD -> Factory Reset
36	Audio Levels	A0h	D4h	P1	00h	00h	AFh	P1=0 - 10 OSD -> Audio Levels
37	Audio Out Volume	A0h	D6h	P1	00h	00h	AFh	P1=0 - 31 OSD -> Audio Out Volume
38	Audio Source	A0h	D8h	P1	00h	00h	AFh	P1=00 : build-in MIC 01 : line in

Item	Function	PC AP to the Master command format						Comment	
		1B	2B	3B	4B	5B	6B		
								OSD -> Audio Source	
1	GET	Call Power	A0h	B7h	00h	00h	00h	AFh	P2= 00 : standby 01 : power up
2		Call Lamp	A0h	50h	00h	00h	00h	AFh	P1=00 : all OFF 02 : lamp ON 03 : backlight ON
3		Call Rotate	A0h	77h	00h	00h	00h	AFh	P1=00 : 0 degree 01 : 180 degree 02 : Flip 03 : Mirror 04 : 90 degree 05 : 270 degree
4		Call Freeze	A0h	78h	00h	00h	00h	AFh	P1=00 : OFF 01 : ON
5		Call Source	A0h	79h	00h	00h	00h	AFh	P1=00 : camera 01 : passthrough
6		Call Image Mode	A0h	7Ah	00h	00h	00h	AFh	P1=00 : normal 01 : film 02 : slide 03 : microscope
7		Call Photo / Text	A0h	51h	00h	00h	00h	AFh	P1=00 : photo 01 : text 02 : gray
8		Call Zoom Limit	A0h	61h	00h	00h	00h	AFh	P1=00 : 20x (lens 10x * dzoom 2x) 01 : 30x (lens 10x * dzoom 3x) 02 : 40x (lens 10x * dzoom 4x) 03 : 100x (lens 10x * dzoom 10x) 04 : 300x (lens 10x * dzoom 30x)
9		Call Zoom	A0h	8Ah	00h	00h	00h	AFh	P1=0 - (215+127) lens zoom = 215 sensor + digital zoom = 127
10		Call Auto Exposure	A0h	46h	00h	00h	00h	AFh	P1=00 : ae OFF 01 : ae ON
11		Call Brightness	A0h	89h	00h	00h	00h	AFh	P1=low byte ae OFF : 0 - 297 ae ON : 0 - 18 P2= high byte ae OFF : 0 - 297



Item	Function	PC AP to the Master command format						Comment
		1B	2B	3B	4B	5B	6B	
								ae ON : 0 - 18
12	Call Focus	A0h	64h	00h	00h	00h	AFh	P1=low byte (full range 0 - 536) P2=high byte (full range 0 - 536)
13	Call Audio Levels	A0h	D5h	00h	00h	00h	AFh	P1=0 - 10
14	Call Audio Out Volume	A0h	D7h	00h	00h	00h	AFh	P1=0 - 31
15	Call Audio Source	A0h	D9h	00h	00h	00h	AFh	P1=00 : build-in MIC 01 : line in

## 6. Return Packet

Item	Function	PC AP to the Master command format						Comment
		1B	2B	3B	4B	5B	6B	
1	Power	A0h	B1h	P1	00h	St.	AFh	P1=00 : standby 01 : power up IR -> Power
2	Lamp	A0h	C1h	P1	00h	St.	AFh	P1=00 : all OFF 02 : lamp ON 03 : backlight ON IR -> Lamp
3	Rotate	A0h	B4h	P1	00h	St.	AFh	P1=00 : 0 degree 01 : 180 degree 02 : Flip 03 : Mirror 04 : 90 degree 05 : 270 degree OSD -> Rotate
4	Freeze	A0h	2Ch	P1	00h	St.	AFh	P1=00 : OFF 01 : ON IR -> Freeze
5	Playback	A0h	B3h	00	00h	St.	AFh	IR -> Playback
6	PIP	A0h	B3h	01h	00h	St.	AFh	IR -> PIP
7	Source	A0h	3Ah	P1	00h	St.	AFh	P1=00 : camera 01 : passthrough IR -> Source
8	Pan	A0h	26h	P1	00h	St.	AFh	P1=00 : OFF 01 : ON IR -> Pan
9	Record	A0h	B2h	01h	00h	St.	AFh	IR -> Record
10	Capture / Delete	A0h	B2h	00h	00h	St.	AFh	IR -> Capture / Delect
11	Auto Tune	A0h	22h	00h	00h	St.	AFh	OSD -> Auto Tune
12	AWB one push	A0h	22h	01h	00h	St.	AFh	OSD -> Auto White Balance
13	AF one push	A0h	A3h	01h	00h	St.	AFh	HW -> AF Key
14	Mask / Spotlight	A0h	27h	P1	00h	St.	AFh	P1=0 : disable 1 : mask 2 : spolight

Item	Function	PC AP to the Master command format						Comment
		1B	2B	3B	4B	5B	6B	
15	Zoom Limit	A0h	40h	P1	00h	St.	AFh	P1=00 : 20x (lens 10x * dzoom 2x) 01 : 30x (lens 10x * dzoom 3x) 02 : 40x (lens 10x * dzoom 4x) 03 : 100x (lens 10x * dzoom 10x) 04 : 300x (lens 10x * dzoom 30x) OSD -> Zoom Limit
16	Zoom Direct Step	A0h	13h	P1	P2	St.	AFh	P1=low byte 0 - (215 +127) P2=high byte 0 - (215 +127) lens zoom = 215 sensor + digital zoom = 127
17	Zoom Step	A0h	12h	P1	P2	St.	AFh	P1=00 : -A, follow IR behavior 01 : +A, follow IR behavior P2= step unit : 0 - 255
18	Zoom Start	A0h	11h	P1	00h	St.	AFh	P1=tele : 0x20 - 0x27 are available wide : 0x30 - 0x37 are available stop : 0x00 OSD -> Zoom
19	Brightness Direct	A0h	30h	P1	P2	St.	AFh	P1= 00 : ae OFF 01 : ae ON P2=low byte ae OFF : 0 - 297 ae ON : 0 - 18 P3=high byte ae OFF : 0 - 297 ae ON : 0 - 18 OSD -> Brightness
20	Brightness Step	A0h	39h	P1	00h	St.	AFh	P1=00 : -A, follow IR behavior 01 : +A, follow IR behavior OSD -> Brightness
21	Focus Start	A0h	1Ah	P1	00h	St.	AFh	P1=far : 0x20 - 0x27 are available near : 0x30 - 0x37 are available stop : 0x00 OSD -> Manual Focus
22	Focus Direct	A0h	1Bh	P1	P2	St.	AFh	P1=low byte (full range 0 - 536) P2= high byte

Item	Function	PC AP to the Master command format						Comment
		1B	2B	3B	4B	5B	6B	
								(full range 0 - 536)
23	Focus Step	A0h	1Ch	P1	00h	St.	AFh	P1=00 : -A, follow IR behavior 01 : +A, follow IR behavior
24	Image Mode	A0h	A9h	P1	00h	St.	AFh	P1=00 : normal 01 : film 02 : slide 03 : microscope OSD -> Mode
25	Photo / Text	A0h	A7h	P1	00h	St.	AFh	P1=00 : photo 01 : text 02 : gray OSD -> Photo / Text
26	Slide Show	A0h	04h	P1	00h	St.	AFh	P1=00 : OFF 01 : ON OSD -> Slide Show
27	Menu	A0h	A0h	06h	00h	St.	AFh	IR -> Menu
28	Up	A0h	A0h	02h	00h	St.	AFh	IR -> Up
29	Down	A0h	A0h	03h	00h	St.	AFh	IR -> Down
30	Left	A0h	A0h	04h	00h	St.	AFh	IR -> Left
31	Right	A0h	A0h	05h	00h	St.	AFh	IR -> Right
32	Enter	A0h	A0h	01h	00h	St.	AFh	IR -> Enter
33	Preset Load	A0h	03h	00h	00h	St.	AFh	OSD -> Preset Load
34	Preset Save	A0h	03h	00h	01h	St.	AFh	OSD -> Preset Save
35	Factory Reset	A0h	03h	01h	00h	St.	AFh	OSD -> Factory Reset
36	Audio Levels	A0h	D4h	P1	00h	St.	AFh	P1=0 - 10 OSD -> Audio Levels
37	Audio Out Volume	A0h	D6h	P1	00h	St.	AFh	P1=0 - 31 OSD -> Audio Out Volume
38	Audio Source	A0h	D8h	P1	00h	St.	AFh	P1=00 : build-in MIC 01 : line in OSD -> Audio Source

Item		Function	PC AP to the Master command format						Comment
			1B	2B	3B	4B	5B	6B	
1	GET	Call Power	A0h	B7h	01h	P2	St.	AFh	P2= 00 : standby 01 : power up
2		Call Lamp	A0h	50h	P1	00h	St.	AFh	P1=00 : all OFF 02 : lamp ON 03 : backlight ON
3		Call Rotate	A0h	77h	P1	00h	St.	AFh	P1=00 : 0 degree 01 : 180 degree 02 : Flip 03 : Mirror 04 : 90 degree 05 : 270 degree
4		Call Freeze	A0h	78h	P1	00h	St.	AFh	P1=00 : OFF 01 : ON
5		Call Source	A0h	79h	P1	00h	St.	AFh	P1=00 : camera 01 : passthrough
6		Call Image Mode	A0h	7Ah	P1	00h	St.	AFh	P1=00 : normal 01 : film 02 : slide 03 : microscope
7		Call Photo / Text	A0h	51h	P1	00h	St.	AFh	P1=00 : photo 01 : text 02 : gray
8		Call Zoom Limit	A0h	61h	P1	00h	St.	AFh	P1=00 : 20x (lens 10x * dzoom 2x) 01 : 30x (lens 10x * dzoom 3x) 02 : 40x (lens 10x * dzoom 4x) 03 : 100x (lens 10x * dzoom 10x) 04 : 300x (lens 10x * dzoom 30x)
9		Call Zoom	A0h	8Ah	P1	00h	St.	AFh	P1=0 - (215+127) lens zoom = 215 sensor + digital zoom = 127
10		Call Auto Exposure	A0h	46h	P1	00h	St.	AFh	P1=00 : ae OFF 01 : ae ON
11		Call Brightness	A0h	89h	P1	P2	St.	AFh	P1=low byte ae OFF : 0 - 297 ae ON : 0 - 18 P2= high byte ae OFF : 0 - 297 ae ON : 0 - 18

Item	Function	PC AP to the Master command format						Comment
		1B	2B	3B	4B	5B	6B	
12	Call Focus	A0h	64h	P1	P2	St.	AFh	P1=low byte (full range 0 - 536) P2=high byte (full range 0 - 536)
13	Call Audio Levels	A0h	D5h	P1	00h	St.	AFh	P1=0 - 10
14	Call Audio Out Volume	A0h	D7h	P1	00h	St.	AFh	P1=0 - 31
15	Call Audio Source	A0h	D9h	P1	00h	St.	AFh	P1= 00 : build-in MIC 01 : line in

\*\* St : 0 =Action Succeed, 1= NAK (No Action), 2 = Ignore (Command is not in the command list.)