

DC265 Protocol

History

No	Issue Date	Version	Description	Apply Firmware
1	2008/10/21	1.0	First version.	DTE113

**** Notice: Only for DC265 use**

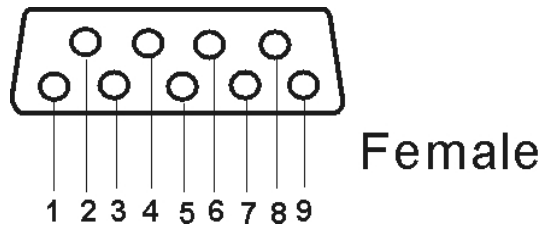
1. Communication Protocol

Transmit method : Asynchronous Interface Half Duplex Serial Communication.

- Transmit Speed: 9600bps
- Flow control: NA
- Data Bit: 8Bit
- Parity Bit: NA
- Stop Bit: 1Bit

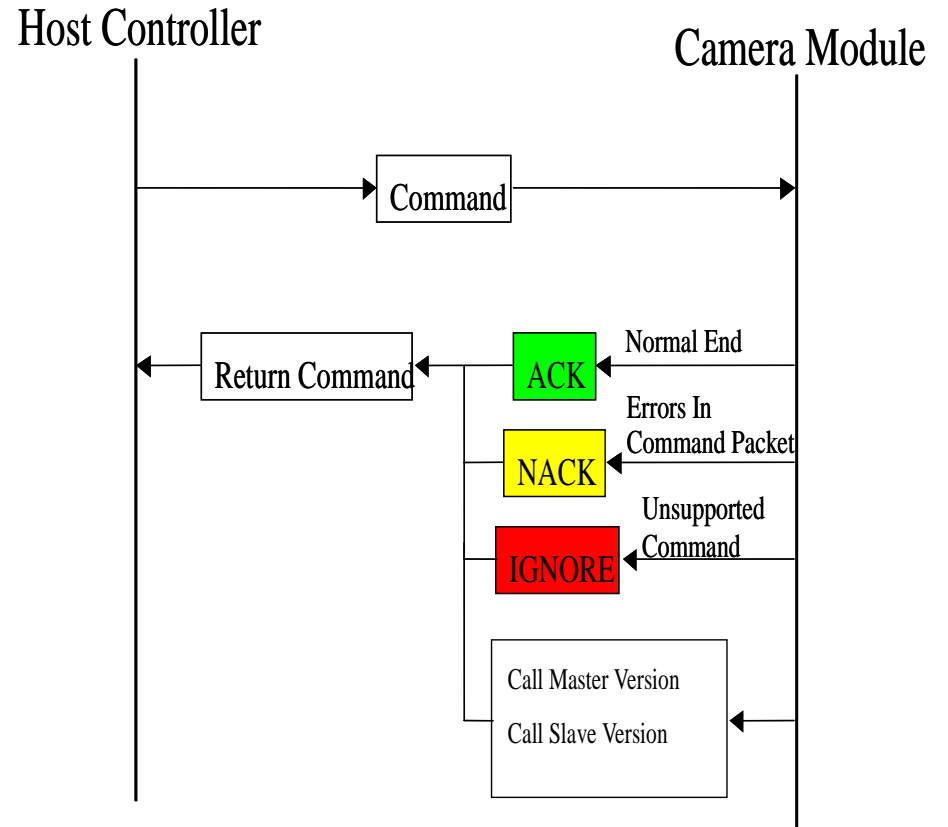
2. The wire diagram

The RS232 wire diagram between presenter and remote controller as below



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

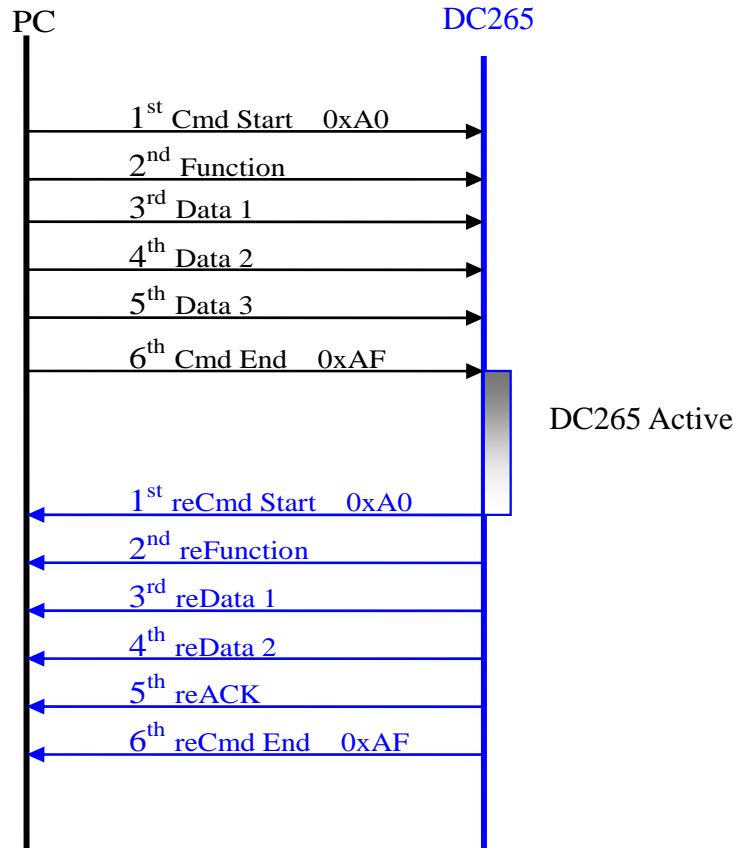
3. Command Process



4. The Command Transfer

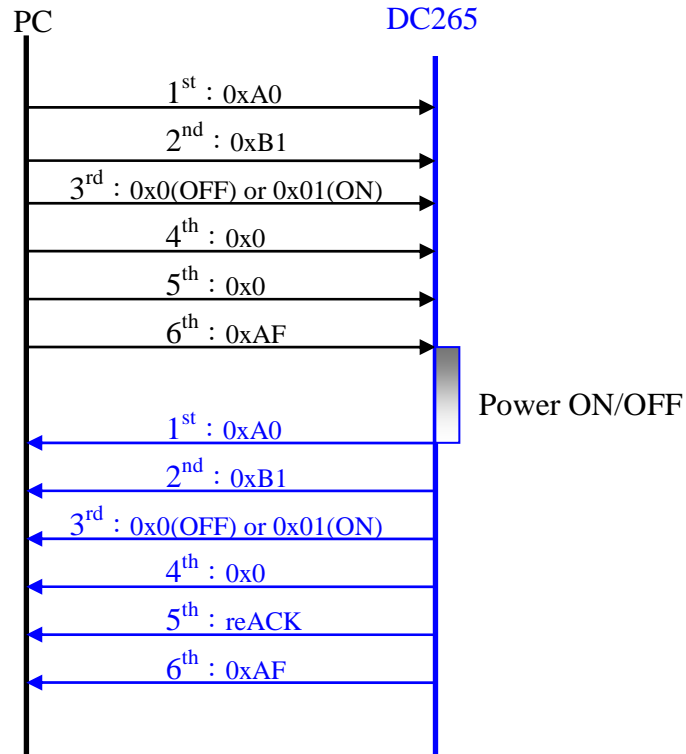
Control method

Control scheme as below



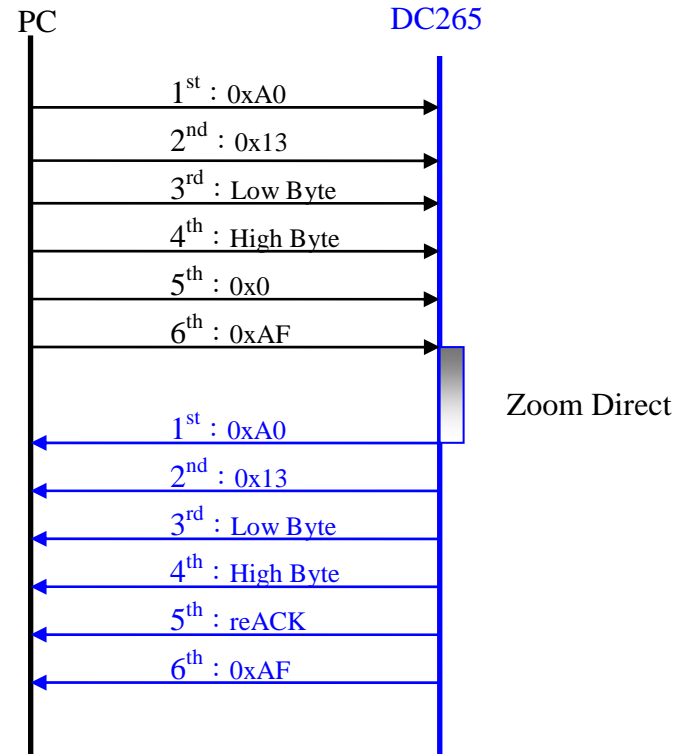
5. Example

Example 1 : (Power ON/OFF)



A0h△B1h△01h (Power ON)△00h△00h△AFh ← (PC send Command to DC265) → A0h△B1h△01h△00h△00h△AFh ← (DC265 Return Command to PC)

Example 2 : (Zoom Direct (Straight, No AF))



A0h△13h△06h△01h△00h△AFh ← (PC send Command to DC265) → A0h△13h△06h△01h△00h△AFh ← (DC265 Return Command to PC)

6. Packet Format

<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

<Return Packet Format>

1Byte	STX	Start Of Command	:A0h
2Byte	Command	Command	:00~ FFh
3Byte	Parameter1	Data	:00~FFh
4Byte	Parameter2	Data	:00~FFh

Communication Response	5 th Byte	Status
ACK	0x00	Capable Of Normal End Or Normal Operation
NAK	0x01	Detecting Errors In Command Packet(STX, ETX Byte) Parity Error ,Framing Error, Overrun Error
		Data in out of specified range
IGNORE	0x10	Cannot execute the transmitted command for other operations Unsupported command

7. Control Command

Item	Command	PC AP to DC265 Master Command Format						Parameters
		1B	2B	3B	4B	5B	6B	
1	Preset/Factory Reset	A0h	03h	P1	P2	00h	AFh	P1=0, P2=00/01:Preset Load/Save P1=1:Factory Reset
2	Slide show On/Off	A0h	04h	P1	00h	00h	AFh	P1=00/01:Off/On
3	Slide show Effect	A0h	05h	P1	00h	00h	AFh	P1=0~5:Off/Shutter/Right/Down/Side/Open
4	Slide show Delay	A0h	06h	P1	00h	00h	AFh	P1=0~4:1sec/3sec/5sec/10sec/Manual
5	Image/Record Quality	A0h	07h	P1	00h	00h	AFh	P1=00/01/02:High/Medium/Low
6	Copy To SD Card	A0h	08h	00h	00h	00h	AFh	
7	Zoom Stop	A0h	10h	00h	00h	00h	AFh	
8	Zoom Start (No AF)	A0h	11h	P1	00h	00h	AFh	P1=00/01:Tele/Wide
9	Zoom Direct (Straight, No AF)	A0h	13h	P1	P2	00h	AFh	P1(LowByte) · P2(HighByte)=SXGA:0~620 · 720P:0~622 · XGA:0~630(Dec):Zoom Position
10	Focus Stop	A0h	19h	00h	00h	00h	AFh	
11	Focus Start	A0h	1Ah	P1	P2	00h	AFh	P1=00/01:Near/Far P2=01~05:Speed
12	Focus Direct	A0h	1Bh	P1	P2	P3	AFh	P1(LowByte)P2(HighByte)=0~324(Dec):Focus Position P3=01~05:Speed
13	Zoom Start (with AF)	A0h	1Dh	P1	00h	00h	AFh	P1=00/01:Tele/Wide
14	Zoom Direct (Straight) (with AF)	A0h	1Fh	P1	P2	P3	AFh	P1(LowByte) · P2(HighByte)=SXGA:0~620 · 720P:0~622 · XGA:0~630(Dec):Zoom Position
15	White Balance (AWB, Auto Tune)	A0h	22h	P1	00h	00h	AFh	P1=00/01:Auto Tune/AWB
16	Pan PBP	A0h	25h	P1	P2	00h	AFh	P2=00/01:Still/Preview P1= XGA:0~32(Dec)Step SXGA · 720P:0~40(Dec)Step

Item	Command	PC AP to DC265 Master Command Format						Parameters
		1B	2B	3B	4B	5B	6B	
17	Set Pan Mode	A0h	26h	P1	00h	00h	AFh	P1=00:Normal =01~04:Pan
18	Freeze	A0h	2Ch	P1	00h	00h	AFh	P1=00/01:Off/On
19	Iris	A0h	30h	P1	P2	00h	AFh	P1=00/01/02:Auto/Manual/Stop (AC 50Hz)P2=00~110(Dec) (Microscope)P2=00~69(Dec):Brightness (AC 60Hz)P2=00~111(Dec) (Microscope)P2=00~75(Dec):Brightness
20	Switch USB Transfer	A0h	32h	P1	00h	00h	AFh	P1=00/01:Mass Storage/USB Camera
21	Negative (film)	A0h	36h	P1	00h	00h	AFh	P1=00/01:Off/On
22	Color (gray)	A0h	37h	P1	00h	00h	AFh	P1=00/01:Photo/Gray
23	Language Select	A0h	38h	P1	00h	00h	AFh	P1=0~8:English/Mandarin/Deutsch/Francais/Spanish/Russian /Nederlands /Finland/Polish
24	Brightness Control	A0h	39h	P1	00h	00h	AFh	P1=00/01:-1/+1
25	Source live/PC	A0h	3Ah	P1	00h	00h	AFh	P1=00/01:PC/DM350(no PC auto switch)
26	Disable Digital Zoom After Optical Zoom	A0h	40h	P1	00h	00h	AFh	P1=00/01:Disable/Enable
27	Call Master Version	A0h	45h	00h	00h	00h	AFh	DTExxx = DTE P1 P2 P3(ASCII)
28	Call AE Status	A0h	46h	00h	00h	00h	AFh	P1=00/01:Off/On
29	Enable/Disable LOGO Image	A0h	47h	P1	00h	00h	AFh	P1=00/01:Off/On
30	Playback Image Index Change Page	A0h	4Ah	P1	00h	00h	AFh	P1=00/01:Page Up/Page Down
31	All OSD On/Off	A0h	4Bh	P1	00h	00h	AFh	P1=00/01:Off/On

Item	Command	PC AP to DC265 Master Command Format						Parameters
		1B	2B	3B	4B	5B	6B	
32	Call Slave Version	A0h	4Dh	00h	00h	00h	AFh	DTFxxx = DTF P1 P2 P3(ASCII)
33	Frame Average	A0h	4Eh	P1	00h	00h	AFh	P1=00/01:Off/On
34	Call lamp Status	A0h	50h	00h	00h	00h	AFh	P1=00/01:Off/On
35	Call Text/Photo Status	A0h	51h	00h	00h	00h	AFh	P1=00/01/02:Photo/Text/Gray
36	reg1	A0h	52h	P1	P2	00h	AFh	P1=00/01:Read/Write P2=0x00~0xff
37	reg2	A0h	53h	P1	P2	00h	AFh	
38	reg3	A0h	54h	P1	P2	00h	AFh	
39	Call AC 50/60 Hzpower state	A0h	58h	00h	00h	00h	AFh	Call AC 50/60 Hz power State.
40	Call Zoom Position	A0h	60h	00h	00h	00h	AFh	P1(LowByte) , P2(HighByte)=SXGA:0~620 、 720P:0~622 、 XGA:0~630(Dec):Zoom Position
41	Call Digital Zoom Position	A0h	62h	00h	00h	00h	AFh	P1=XGA:0~47(Dec) 720P:0~55(Dec) SXGA:0~57(Dec) Digital Zoom Position
42	Call Focus Position	A0h	64h	00h	00h	00h	AFh	P1(LowByte)P2(HighByte)=0~324(Dec):Focus Position
43	Call Freeze Status	A0h	78h	00h	00h	00h	AFh	P1=00/01:Off/On
44	Call Iris Status	A0h	7Ah	00h	00h	00h	AFh	P1=00/01:Auto/Manual 、 Stop (AC 50Hz)P2=00~110(Dec) (Microscope)P2=00~69(Dec):Brightness (AC 60Hz)P2=00~111(Dec) (Microscope)P2=00~75(Dec):Brightness
45	Call Negative	A0h	87h	00h	00h	00h	AFh	P1=00/01:Off/On

Item	Command	PC AP to DC265 Master Command Format						Parameters
		1B	2B	3B	4B	5B	6B	
46	Call Color	A0h	88h	00h	00h	00h	AFh	P1=00/01:Photo/Gray
47	Call Brightness Position	A0h	89h	00h	00h	00h	AFh	P1=0~130(Dec):Brightnes
48	Call Mix Zoom Position	A0h	8Ah	00h	00h	00h	AFh	P1(LowByte)P2(HighByte)=0~677(Dec):Mix Zoom Position
49	Call Menu Status	A0h	8Bh	00h	00h	00h	AFh	P1=00/01:Off/On
50	Capture type	A0h	96h	P1	00h	00h	AFh	P1=00/01/02:Single/Continuous/Disable
51	Capture time	A0h	97h	P1	00h	00h	AFh	P1=00/01/02/03/04:1hr/ 2hr/ 4hr/ 8hr/ 24hr
52	Capture interval	A0h	98h	P1	00h	00h	AFh	P1=00/01/02/03/04/05:5sec /10sec /30sec /1min/ 2min /5min
53	Key Function	A0h	A0h	P1	00h	00h	AFh	P1=01/02/03/04/05/06=Enter/Up/Down/Left/Right/Menu
54	AF One Push Trigger	A0h	A3h	01h	00h	00h	AFh	
55	Set Sharpness (Gamma)	A0h	A7h	P1	00h	00h	AFh	P1=00/01/02:Photo/Text/Gray
56	Set Image Mode	A0h	A9h	P1	00h	00h	AFh	P1=00/01/02/03:Normal/Slide/Film/Microscope
57	Night Vision	A0h	ABh	P1	00h	00h	AFh	P1=00/01:Off/On
58	System ON/OFF	A0h	B0h	P1	00h	00h	AFh	P1=00/01:Off/On
59	Power	A0h	B1h	P1	00h	00h	AFh	P1=00/01:Off/On
60	Capture	A0h	B2h	P1	00h	00h	AFh	P1=00/01:Capture/Record
61	Playback thumbnail	A0h	B3h	P1	00h	00h	AFh	P1=00/01:Thumbnail/PBP Thumbnail
62	Preview rotation	A0h	B4h	P1	00h	00h	AFh	P1=00/01/02/03:Rotate 0/90/180/270
63	Delete	A0h	B6h	P1	P2	P3	AFh	P1=00/01/02: Delete one/Delete all/Format Format: P2=00/01 Format Nan B\External
64	call system status	A0h	B7h	00h	00h	00h	AFh	P1(system situation)= 00/01:not ready/ Ready to accept commend P2(Power Status)=00/01:Off/On
65	Lamp On/Off	A0h	C1h	P1	00h	00h	AFh	P1=00/01:Off/On
66	Set Audio Volume	A0h	D6h	P1	00h	00h	AFh	P1=0~15(Dec):Volume

8. Return Packet

Item	Command	PC AP to DC265 Master command format						Parameters
		1B	2B	3B	4B	5B	6B	
1	Preset/Factory Reset	A0h	03h	P1	P2	St.	AFh	P1=0, P2=00/01:Preset Load/Save, P1=1:Factory Reset
2	Slide show On/Off	A0h	04h	P1	00h	St.	AFh	P1=00/01:Off/On
3	Slide show Effect	A0h	05h	P1	00h	St.	AFh	P1=0~5:Off/Shutter/Right/Down/Side/Open
4	Slide show Delay	A0h	06h	P1	00h	St.	AFh	P1=0~4:1sec/3sec/5sec/10sec/Manual
5	Image/Record Quality	A0h	07h	P1	00h	St.	AFh	P1=00/01/02:High/Medium/Low
6	Copy To SD Card	A0h	08h	00h	00h	St.	AFh	
7	Zoom Stop	A0h	10h	00h	00h	St.	AFh	
8	Zoom Start (No AF)	A0h	11h	P1	00h	St.	AFh	P1=00/01:Tele/Wide
9	Zoom Direct (Straight, No AF)	A0h	13h	P1	P2	St.	AFh	P1(LowByte) · P2(HighByte)=SXGA:0~620 · 720P:0~622 · XGA:0~630(Dec):Zoom Position
10	Focus Stop	A0h	19h	00h	00h	St.	AFh	
11	Focus Start	A0h	1Ah	P1	P2	St.	AFh	P1=00/01:Near/Far P2=01~05:Speed
12	Focus Direct	A0h	1Bh	P1	P2	St.	AFh	P1(LowByte)P2(HighByte)=0~324(Dec):Focus Position P3=01~05:Speed
13	Zoom Start (with AF)	A0h	1Dh	P1	00h	St.	AFh	P1=00/01:Tele/Wide
14	Zoom Direct (Straight) (with AF)	A0h	1Fh	P1	P2	St.	AFh	P1(LowByte) · P2(HighByte)=SXGA:0~620 · 720P:0~622 · XGA:0~630(Dec):Zoom Position
15	White Balance (AWB, Auto Tune)	A0h	22h	P1	00h	St.	AFh	P1=00/01:Auto Tune/AWB
16	Pan PBP	A0h	25h	P1	P2	St.	AFh	P2=00/01:Still/Preview P1= XGA:0~32(Dec)Step SXGA · 720P:0~40(Dec)Step
17	Set Pan Mode	A0h	26h	P1	00h	St.	AFh	P1=00:Normal =01~04:Pan

Item	Command	PC AP to DC265 Master command format						Parameters
		1B	2B	3B	4B	5B	6B	
18	Freeze	A0h	2Ch	P1	00h	St.	AFh	P1=00/01:Off/On
19	Iris	A0h	30h	P1	P2	St.	AFh	P1=00/01/02:Auto/Manual/Stop (AC 50Hz)P2=00~110(Dec) (Microscope)P2=00~69(Dec):Brightness (AC 60Hz)P2=00~111(Dec) (Microscope)P2=00~75(Dec):Brightness
20	Switch USB Transfer	A0h	32h	P1	00h	St.	AFh	P1=00/01:Mass Storage/USB Camera
21	Negative (film)	A0h	36h	P1	00h	St.	AFh	P1=00/01:Off/On
22	Color (gray)	A0h	37h	P1	00h	St.	AFh	P1=00/01:Photo/Gray
23	Language Select	A0h	38h	P1	00h	St.	AFh	P1=0~8:English/Mandarin/Deutsch/Francais/Spanish/Russian /Nederlands/Finland/Polish
24	Brightness Control	A0h	39h	P1	00h	St.	AFh	P1=00/01:-1/+1
25	Source live/PC	A0h	3Ah	P1	00h	St.	AFh	P1=00/01:PC/DM350(no PC auto switch)
26	Disable Digital Zoom After Optical Zoom	A0h	40h	P1	00h	St.	AFh	P1=00/01:Disable/Enable
27	Call Master Version	A0h	45h	P1	P2	P3	AFh	DTExxx = DTE P1 P2 P3(ASCII)
28	Call AE Status	A0h	46h	P1	00h	St.	AFh	P1=00/01:Off/On
29	Enable/Disable LOGO Image	A0h	47h	P1	00h	St.	AFh	P1=00/01:Off/On
30	Playback Image Index Change Page	A0h	4Ah	P1	00h	St.	AFh	P1=00/01:Page Up/Page Down
31	All OSD On/Off	A0h	4Bh	P1	00h	St.	AFh	P1=00/01:Off/On
32	Call Slave Version	A0h	4Dh	P1	P2	P3	AFh	DTFxxx = DTF P1 P2 P3(ASCII)

Item	Command	PC AP to DC265 Master command format						Parameters
		1B	2B	3B	4B	5B	6B	
33	Frame Average	A0h	4Eh	P1	00h	St.	AFh	P1=00/01:Off/On
34	Call lamp Status	A0h	50h	P1	00h	St.	AFh	P1=00/01:Off/On
35	Call Text/Photo Status	A0h	51h	P1	00h	St.	AFh	P1=00/01/02:Photo/Text/Gray
36	reg1	A0h	52h	P1	P2	St.	AFh	P1=00/01:Read/Write P2=0x00~0xff
37	reg2	A0h	53h	P1	P2	St.	AFh	
38	reg3	A0h	54h	P1	P2	St.	AFh	
39	Call AC 50/60 Hzpower state	A0h	58h	00h	00h	St.	AFh	Call AC 50/60 Hz power State.
40	Call Zoom Position	A0h	60h	P1	P2	St.	AFh	P1(LowByte) , P2(HighByte)=SXGA:0~620 、 720P:0~622 、 XGA:0~630(Dec):Zoom Position
41	Call Digital Zoom Position	A0h	62h	P1	00h	St.	AFh	P1=XGA:0~47(Dec) 720P:0~55(Dec) SXGA:0~57(Dec) Digital Zoom Position
42	Call Focus Position	A0h	64h	P1	P2	St.	AFh	P1(LowByte)P2(HighByte)=0~324(Dec):Focus Position
43	Call Freeze Status	A0h	78h	P1	00h	St.	AFh	P1=00/01:Off/On
44	Call Iris Status	A0h	7Ah	P1	P2	St.	AFh	P1=00/01:Auto/Manual 、 Stop (AC 50Hz)P2=00~110(Dec) (Microscope)P2=00~69(Dec):Brightness (AC 60Hz)P2=00~111(Dec) (Microscope)P2=00~75(Dec):Brightness
45	Call Negative	A0h	87h	P1	00h	St.	AFh	P1=00/01:Off/On
46	Call Color	A0h	88h	P1	00h	St.	AFh	P1=00/01:Photo/Gray

Item	Command	PC AP to DC265 Master command format						Parameters
		1B	2B	3B	4B	5B	6B	
47	Call Brightness Position	A0h	89h	P1	00h	St.	AFh	P1=0~130(Dec):Brightness
48	Call Mix Zoom Position	A0h	8Ah	P1	P2	St.	AFh	P1(LowByte)P2(HighByte)=0~677(Dec):Mix Zoom Position
49	Call Menu Status	A0h	8Bh	P1	00h	St.	AFh	P1=00/01:Off/On
50	Capture type	A0h	96h	P1	00h	St.	AFh	P1=00/01/02:Single/Continuous/Disable
51	Capture time	A0h	97h	P1	00h	St.	AFh	P1=00/01/02/03/04:1hr/ 2hr/ 4hr/ 8hr/ 24hr
52	Capture interval	A0h	98h	P1	00h	St.	AFh	P1=00/01/02/03/04/05:5sec /10sec /30sec /1min/ 2min /5min
53	Key Function	A0h	A0h	P1	00h	St.	AFh	P1=01/02/03/04/05/06=Enter/Up/Down/Left/Right/Menu
54	AF One Push Trigger	A0h	A3h	01h	00h	St.	AFh	
55	Set Sharpness (Gamma)	A0h	A7h	P1	00h	St.	AFh	P1=00/01/02:Photo/Text/Gray
56	Set Image Mode	A0h	A9h	P1	00h	St.	AFh	P1=00/01/02/03:Normal/Slide/Film/Microscope
57	Night Vision	A0h	ABh	P1	00h	St.	AFh	P1=00/01:Off/On
58	System ON/OFF	A0h	B0h	P1	00h	St.	AFh	P1=00/01:Off/On
59	Power	A0h	B1h	P1	00h	St.	AFh	P1=00/01:Off/On
60	Capture	A0h	B2h	P1	00h	St.	AFh	P1=00/01:Capture/Record
61	Playback thumbnail	A0h	B3h	P1	00h	St.	AFh	P1=00/01:Thumbnail/PBP Thumbnail
62	Preview rotation	A0h	B4h	P1	00h	St.	AFh	P1=00/01/02/03:Rotate 0/90/180/270
63	Delete	A0h	B6h	P1	00h	St.	AFh	P1=00/01/02: Delete one/Delete all/Format Format: P2=00/01 Format Nan B\External
64	call system status	A0h	B7h	P1	P2	St.	AFh	P1(system situation)= 00/01:not ready/ Ready to accept commend P2(Power Status)=00/01:Off/On
65	Lamp On/Off	A0h	C1h	P1	00h	St.	AFh	P1=00/01:Off/On
66	Set Audio Volume	A0h	D6h	P1	00h	St.	AFh	P1=0~15(Dec):Volume

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