

Technical information: Command List for HV-D27/D37 Remote Control

20.Jul.2001

The Hitachi HV-D27/D37 series color cameras are provided with the functions which can be controlled from a PC.

This information is prepared to explain the commands corresponding respective control items. For remote control procedure, see Technical Information entitled Protocol for remote control.

1. ON/OFF control commands (Setting commands, response request commands, response commands)

Note 1. Set character S listed in the (DT4) column to 0 to control a camera, and 1 not to control it.

2. Setting data can be backed up to the EEPROM by the command MEMORY BACK UP.

In the case of the last of the name of the column of (DT3) is described as ON or OFF, (DT3) becomes ON or OFF as the name in case of 1 and (DT3) becomes the opposite condition in case of 0.

(Example)

KNEE OFF : Bit 2 of (DT3)

OFF : (20,02,04,FB) / ON : (20,02,00,FB))

(DT1)	(DT2)	(DT3)		(DT4)
CTL	MODE	Bit	Item	MASK
20H 23H 22H	01H	0		1
		1		1
		2		1
		3		1
		4		1
		5	GAIN 0	S
		6	1	S
		7	ULTRA GAIN ON	S
	02H	0		1
		1	GAMMA OFF	S
		2	KNEE OFF	S
		3	WHITE CLIP OFF	S
		4	DETAIL OFF	S
		5	M.SHAD OFF	S
		6	MASKING ON	S
		7		1
	04H	0		1
		1		1
		2	WHITE BAL MODE 0	S
		3	1	S
		4	AGC MODE 0	S
		5	1	S
		6		1
		7	AUTO KNEE OFF	S

GAIN

if AGC MODE:PRESET(20,04,00,CF).

	NORM	HIGH	MAX	-	(DT4)
0	0	1	0	1	9FH
1	0	0	1	1	

if AGC MODE:PRESET(20,04,00,CF).

WHITE BAL MODE

	PRESET	MEMORY	AUTO	-	(DT4)
0	0	1	0	1	F3H
1	0	0	1	1	

AGC MODE

	PRESET	VARIABLE	AUTO	-	(DT4)
0	0	1	0	1	CFH
1	0	0	1	1	

PRESET : The setting of NORMAL/HIGH/MAX by "GAIN(2001H)" command is enable.

VARIABLE : The setting of variable gain by "VARIABLE GAIN(302AH)" command is enable.

AUTO : AGC ON

(DT1)	(DT2)	(DT3)			(DT4)
CTL	MODE	Bit	Item		MASK
20H 23H 22H	05H	0	SHUTTER ON	0	S
		1	SHUTTER MODE	1	S
		2		2	S
		3	SHUTTER PRESET	3	S
		4	MODE	4	S
		5		5	S
		6	SHUTTER EXT TRIG	0	S
		7	MODE	1	S
	06H	0			1
		1			1
		2			1
		3			1
		4			1
		5			1
		6			1
		7	FLARE OFF		S
	07H	0			1
		1			1
		2	DTL	0	S
		3		1	S
		4	ALC PEAK/AVE	0	1
		5		1	1
		6			1
		7			1

SHUTTER

	OFF	PRESET SHUTTER							VAR.
		1/ 100	1/ 250	1/ 500	1/ 1000	1/ 2000	1/ 4000	1/ 10000	
0	0	1	1	1	1	1	1	1	1
1	-	0	0	0	0	0	0	0	1
2	-	0	0	0	0	0	0	0	0
3	-	1	0	1	0	1	0	1	-
4	-	0	1	1	0	0	1	1	-
5	-	0	0	0	1	1	1	1	-
6	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-
(DT4)	FEH	C0H	C0H	C0H	C0H	C0H	C0H	C0H	F8H

	AES	EXT						
		1 TRIG SHORT	1 TRIG LONG	1/ 100	1/ 250	1/ 500	1/ 1000	1/ 2000
0	1	1	1	1	1	1	1	1
1	0	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1
3	-	-	-	1	0	1	0	1
4	-	-	-	0	1	1	0	0
5	-	-	-	0	0	0	1	1
6	-	0	1	0	0	0	0	0
7	-	0	0	1	1	1	1	1
(DT4)	F8H	38H	38H	00H	00H	00H	00H	00H

1/100 become 1/60 in PAL.

VARIABLE : The setting of variable shutter by
"SHUTTER VARIABLE(3038H)"
command is enabled.

AES : AES ON

EXT:FILED-ON-DEMAND FACTION

DTL

If DETAIL ON(20.02.00.EF).

	VARIABLE	LOW	NORMAL	HIGH	(DT4)
0	0	1	0	1	F3H
1	0	0	1	1	

VARIABLE : The setting of variable DTL by
"DETAIL(302CH)" command is enable.

ALC PEAK/AVE

	50/50	25/75	15/85	0/100	(DT4)
0	0	1	0	1	CFH
1	0	0	1	1	

(DT1)	(DT2)	(DT3)		(DT4)
CTL	MODE	Bit	Item	MASK
20H 23H 22H	08H	0	BAR/CAM	S
		1	CONTRAST	0 S
		2		1 S
		3	MONO ON	S
		4		1
		5		1
		6	SETUP OFF	S
		7	MESSAGE RTN ON	S
	09H	0		1
		1	PROC TEST ON	S
		2		1
		3		1
		4	TEST SAW ON	S
		5		1
		6		1
		7		1
	11H	0		1
		1	OUTPUT SEL	0 S
		2		1 S
		3		1
		4		1
		5	SYNC ON G ON	S
		6	GL MODE VBS/HD•VD	S
		7	GL IN 75Ω/HIGH	S
	15H	0	DNR	0 S
		1		1 S
		2		1
		3		1
		4		1
		5		1
		6		1
		7		1
	16H	0	DYNA CHROMA ON	S
		1		1
		2		1
		3		1
		4		1
		5		1
		6		1
		7		1

BAR/CAM

CAM	BAR	(DT4)
0	1	FEH

CONTRAST

	OFF	NORM	HIGH	-	(DT4)
0	0	1	1	0	F9H
1	0	0	1	1	

SETUP OFF

The 7.5IRE SETUP is added the video signal in case of "SETUP ON".

PROC TEST ON

The video signal is cut.

TEST SAW ON

If PROC TEST ON (20,09,02,FD), the SAW test signal is output

OUTPUT SEL

	RGB	Y/R-Y/B-Y	Y/C	-	(DT4)
0	0	1	0	1	F9H
1	0	0	1	1	

GL MODE VBS/HD•VD

VBS	HD•VD	(DT4)
0	1	BFH

GL IN 75Ω/HIGH

75Ω	HIGH	(DT4)
0	1	7FH

DNR

	OFF	MODE1	MODE2	-	(DT4)
0	0	1	1	0	FCH
1	0	0	1	1	

(DT1)	(DT2)	(DT3)		(DT4)
CTL	MODE	Bit	Item	MASK
20H 23H 22H	17H	0		1
		1		1
		2	INDICATOR DISPLAY	S
		3		S
		4		1
		5		1
		6		1
		7		1
	18H	0	GAMMA TABLE	S
		1		S
		2		1
		3		1
		4		S
		5		1
		6		1
		7		1

INDICATOR DISPLAY

The display of various kinds detection indicator of AWB, ABB, ASC are set up.

	OFF	ABB / ASC	ALC GATE	-	(DT4)
0	0	1	0	1	F3H
1	0	0	1	1	

The display of various kinds detection indicator of AWB, ABB, ASC are set up.

GAMMA TABLE

	LOW	STANDARD	HIGH	-	(DT4)
0	0	1	0	1	FCH
1	0	0	1	1	

(DT1)	(DT2)	(DT3)		(DT4)
CTL	MODE	Bit	Item	MASK
28H 2BH 2AH	00H	0	ID DISPLAY	0 S
		1		1 S
		2	TITLE DISPLAY	0 S
		3		1 S
		4		1
		5		1
		6		1
		7	ALC GATE ON	S
	01H	0		1
		1		1
		2		1
		3		1
		4	FLD/FRM	S
		5		1
		6		1
		7	CAM MODE	S
	06H	0	GAIN HIGH	S
		1	01H(+1dB) ~	S
		2	0AH(+10dB)	S
		3		S
		4		1
		5		1
		6		1
		7		1
	07H	0	GAIN MAX	S
		1	0BH(+11dB) ~	S
		2	14H(+20dB)	S
		3		S
		4		S
		5		1
		6		1
		7		1
	08H	0	AGC LIMIT	S
		1	06H(+6dB) ~	S
		2	14H(+20dB)	S
		3		S
		4		S
		5		1
		6		1
		7		1

ID DISPLAY

	OFF	TOP	BOTTOM	-	(DT4)
0	0	1	0	1	FCH
1	0	0	1	1	

TITLE DISPLAY

	OFF	TOP	BOTTOM	-	(DT4)
0	0	1	0	1	F3H
1	0	0	1	1	

FLD/FRM

FLD	FRM	(DT4)
0	1	EFH

CAM MODE

MANUAL	AUTO	(DT4)
0	1	7FH

(DT1)	(DT2)	(DT3)		(DT4)
CTL	MODE	Bit	Item	MASK
28H 2BH 2AH	10H	0		1
		1		1
		2		1
		3		1
		4	MEM 3200K/MEM 5600K	S
		5		1
		6		1
		7		1
	11H	0	ALC SPEED	0 S
		1		1 S
		2		1
		3		1
		4		1
		5		1
		6		1
		7		1
	20H ~27H	0	ALC GATE DATA	0 S
		1		1 S
		2		2 S
		3		3 S
		4		4 S
		5		5 S
		6		6 S
		7		7 S
	28H	0	ALC GATE SEL	0 S
		1		1 S
		2		2 S
		3		1
		4		1
		5		1
		6		1
		7		1

MEM 3200K/MEM 5600K

MEM 3200K	MEM 5600K	(DT4)
0	1	EFH

If WHITE BAL MODE:MEMORY(20,04,04,F3), this item is enable.

ALC SPEED

It sets up it with the action speed of AGC and AES.

	SLOW	STANDARD	FAST	-	(DT4)
0	0	1	0	1	FCH
1	0	0	1	1	

ALC GATE DATA

Change the ALC GATE SEL to MEMORY1(28,28,05,F8) or MEMORY2(28,28,06,F8), before setting the ALC GATE DATA. When the ALC GATE ON is (28,00,80,7F), this item enable.

DATA1(28,20) The top data

DATA8(28,27) The bottom data

(MSB: The left end, LSB: The right end),

(Exsample)

28,20,00,00

28,21,00,00

28,22,00,00

28,23,3C,00

28,24,7C,00

28,25,7C,00

28,26,7C,00

28,27,7C,00

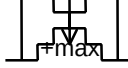
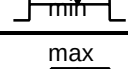
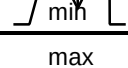
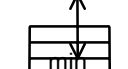
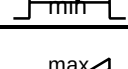
ALC GATE SEL

	PRE1	PRE2	PRE3	PRE4	PRE5	MEM1	MEM2	-	(DT4)
0	0	1	0	1	0	1	0	1	F8H
1	0	0	1	1	0	0	1	1	
2	0	0	0	0	1	1	1	1	

2. Analog control commands (Setting commands, response request commands, response commands)

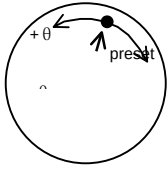
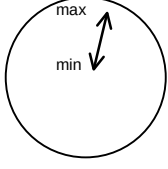
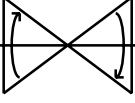
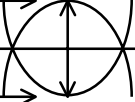
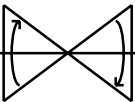
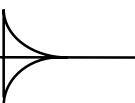
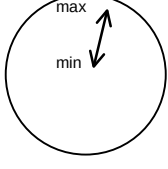
Note 1. X in the DATA column is undefined.

2. Setting data can be backed up to the EEPROM by the command MEMORY BACK UP.

Item	(DT1)	(DT2)	(DT3) _u , (DT4) _b	
	CTL	MODE	DATA	
R GAIN	30H	00H	min preset max	
B GAIN	33H	02H	80XXH~00XXH~7FXXH (SINGED)	
R FLARE	32H	06H	-max FLARE off +max	
G FLARE		07H	80XXH~00XXH~7FXXH (SINGED)	
B FLARE		08H		
R BLACK		09H	min max	
G BLACK		0AH	80XXH~00XXH~7FXXH (SINGED)	
B BLACK		0BH		
W.CLIP		13H	min preset max 80XXH~00XXH~7FXXH (SINGED)	
R PULSE CANCEL		15H	min max	
G PULSE CANCEL		16H	80XXH~00XXH~7FXXH (SINGED)	
B PULSE CANCEL		17H		
R paint GAIN		18H	min preset max	
B paint GAIN		1AH	80XXH~00XXH~7FXXH (SINGED)	
R paint BLACK		21H	min preset max	
B paint BLACK		23H	80XXH~00XXH~7FXXH (SINGED)	
VARIABLE GAIN		2A	0dB +20dB 80XXH~00XXH~20XXH (SINGED)	
MASTER BLACK		2BH	min preset max 80XXH~00XXH~7FXXH (SINGED)	
DETAIL		2CH	min preset max 80XXH~00XXH~7FXXH (SINGED)	

Item	(DT1)	(DT2)	(DT3) _U , (DT4) _D
	CTL	MODE	DATA
SC PHASE	30H 33H 32H	33H	(Under table reference)
H.PHASE		34H	-128 0 +127 80XXH~00XXH~7FXXH (SINGED)
Y LEVEL		35H	-128 0 +127 80XXH~00XXH~7FXXH (SINGED)
C LEVEL		36H	-128 0 +127 80XXH~00XXH~7FXXH (SINGED)
SHUTTER VARIABLE		38H	NTSC:FF10H(8) ~ FFFFH(1/30) INTEGRATION 0002H(1/60.38) ~ 00C8H(1/251.5) LOCK SCAN PAL :FF38H(8) ~ FFFFH(1/25) INTEGRATION 0002H(1/50.31) ~ 00FBH(1/253.8) LOCK SCAN
OVER RIDE		39H	-128 0 +127 80XXH~00XXH~7FXXH (SINGED)
MASTER BLK TRIM		3EH	-128 0 +127 80XXH~00XXH~7FXXH (SINGED)
AUTO KNEE TRIM		3FH	LOW HIGH 80XXH~00XXH~7FXXH (SINGED)

SC PHASE			
SC COARSE	SC FINE	(DT3)	(DT4)
0°	-128	00 00 00 00	00 XX XX XX
	0	00 10 00 00	00 XX XX XX
	+127	00 11 11 11	11 XX XX XX
90°	-128	01 00 00 00	00 XX XX XX
	0	01 10 00 00	00 XX XX XX
	+127	01 11 11 11	11 XX XX XX
180°	-128	10 00 00 00	00 XX XX XX
	0	10 10 00 00	00 XX XX XX
	+127	10 11 11 11	11 XX XX XX
270°	-128	11 00 00 00	00 XX XX XX
	0	11 10 00 00	00 XX XX XX
	+127	11 11 11 11	11 XX XX XX

Item	(DT1)	(DT2)	(DT3) _U , (DT4) _D
	CTL	MODE	DATA
R HUE CROMA COMPEN	30H	40H	$+ \theta$ preset $- \theta$ E0XXH~00XXH~31XXH (SINGED) 
G HUE CROMA COMPEN		41H	
B HUE CROMA COMPEN		42H	
Y HUE CROMA COMPEN		43H	
C HUE CROMA COMPEN		44H	
M HUE CROMA COMPEN		45H	
R SAT CROMA COMPEN		46H	min max E0XXH~00XXH~31XXH (SINGED) 
G SAT CROMA COMPEN		47H	
B SAT CROMA COMPEN		48H	
Y SAT CROMA COMPEN		49H	
C SAT CROMA COMPEN		4AH	
M SAT CROMA COMPEN		4BH	
DTL HV BALANCE		55H	Ajust balance between horizontal and vertical detail H<V H=V H>V 80XXH~00XXH~7FXXH (SINGED)
Boost FREQ		57H	— — — LOW — STANDARD — HIGH 1.75, 2.35, 2.70, 3.00, 3.50, 4.00, 5.40, 7.00 (MHz) 8000H,A000H,C000H,E000H,0000H, 2000H, 4000H,6000H
R AXIS HS		80H	80XXH →  BLACK LEVEL 00XXH → 7FXXH →
G AXIS HS		81H	
B AXIS HS		82H	
R AXIS HP		86H	7FXXH →  BLACK LEVEL 00XXH → 80XXH →
G AXIS HP		87H	
B AXIS HP		88H	
R MOD VS		8FH	80XXH →  WHITE LEVEL 00XXH → 7FXXH →
G MOD VS		90H	
B MOD VS		91H	
R AXIS LEFT FRM		98H	80XXH →  BLACK LEVEL 00XXH → 7FXXH →
G AXIS LEFT FRM		99H	
B AXIS LEFT FRM		9AH	
CHROMA GAIN		A4	min max 80XXH~00XXH~7FXXH 

3. Auto function control commands (Setting commands, response commands)

Item	(DT1)	(DT2)	(DT3)
	CTL	MODE	RESULT
AUTO WHITE	40H	10H	00H:"OK" 11H:"NG","CHANGE TO CAM" 12H:"NG","CHANGE TO MEMORY MODE" 13H:"NG","LOW LIGHT" 14H:"NG","HIGH LIGHT" 15H:"NG","C.TEMP.HIGH" 16H:"NG","C.TEMP.LOW" 18H:"NG","???" 1BH:"NG","C.TEMP.HIGH","CHANGE TO MEM 5600K" 1CH:"NG","C.TEMP.LOW","CHANGE TO MEM 3200K"
AUTO BLACK		20H	00H:"OK" 11H:"NG","CHANGE TO CAM" 18H:"NG","???"
AUTO SHADING		30H	00H:"OK" 11H:"NG","CHANGE TO CAM" 13H:"NG","LOW LIGHT" 14H:"NG","HIGH LIGHT" 18H:"NG","???"

4. Memory backup

The change setting data can be backed up to the EEPROM.

(1) In a bundle memory backup

Item	(DT1)	(DT2)
	CTL	CTL
MEMORY BACK UP1	61H	02H

(2) One item memory backup

Item	(DT1)	(DT2)	(DT3)	Remark
	CTL	CTL	CTL	
MEMORY BACK UP2	65H	20H	XXH	ON/OFF Command
		28H	XXH	ON/OFF Command
		30H	XXH	Analog Command
		60H	01H	Scene File Mode

The same value as DT1 and DT2 of when that command to, DT2, DT3 setting are set up.

Note

The memory backup writes data to the address of memory IC which was assigned in the unit of a command. The rewriting guarantee number to the same address of memory IC that is using with the HV-D27/D37 camera is becoming 100,000 times. Therefore, please pay attention in the case that a memory backup command is used.

5. Scene file select

Setting data can be backed up to the EEPROM by the command MEMORY BACK UP.

Item	(DT1)	(DT2)	(DT3)
	CTL	CTL	CTL
FILE-1	60H	01H	01H
FILE-2			02H
FILE-3			03H

6. States read (Response request commands, response commands)

Item	(DT1)	(DT2)	(DT3),(DT4),(DT5)
	CTL	MODE	RESULT
CAMERA TYPE	13H	00H	(DT3) 60H: HV-D27/D37
CAMERA VERSION	12H	01H	Ver.(DT3).(DT4)....ASCII code
CAMERA ID		02H	(DT3),(DT4),(DT5)....ASCII code
SCENE FILE MODE		04H	(DT3) 01H:FILE-1,02H:FILE-2,03H:FILE-3
NTSC/PAL		05H	(DT3) 00H:NTSC,FFH:PAL

7. ID code chart

CHR.	ASCII code	CHR.	ASCII code	CHR.	ASCII code
SPACE	20H	A	41H	N	4EH
0	30H	B	42H	O	4FH
1	31H	C	43H	P	50H
2	32H	D	44H	Q	51H
3	33H	E	45H	R	52H
4	34H	F	46H	S	53H
5	35H	G	47H	T	54H
6	36H	H	48H	U	55H
7	37H	I	49H	V	56H
8	38H	J	4AH	W	57H
9	39H	K	4BH	X	58H
		L	4CH	Y	59H
		M	4DH	Z	5AH