Technical information: Command List for HV-D15 Remote Control

27.Oct.1999

The Hitachi HV-D15 series color cameras are provided with the functions which can be contro
a PC. This information is prepared to explain the commands corresponding respective control
For remote control procedure, see Technical Information entitled Protocol for remote contro
HV-D15 R2 camera will work on *1 items with these commands 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 t
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.

(Exsample)

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	00H		PRST 3200K/PRST 5600K	*1	
	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

PRST 3200K/PRST 5600K (*1)

PRST 3200K	PRST 5600K	(DT4)
0	1	FEH

If WHITE BAL MODE:PRESET(20,04,00,F3), this item is enable.

GAIN

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

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

(Exsample) GAIN HIGH : (20,01,20,9F)

(DT1)	(DT2)	(DT3)			(DT4)
CTL	MODE	Bit	Item		MASK
		0	IRIS MODE	0	S
		1		1	S
20H	04H	2	WHITE BAL MODE	0	S
23H		3		1	S
22H		4	AGC MODE	0	S
		5		1	S
		6			
		7	AUTO KNEE OFF		S
		0	SHUTTER ON	0	S
		1	SHUTTER MODE	1	S
	05H	2		2	S
		3	SHUTTER PRESET	3	S
		4	MODE	4	S
		5		5	S
		6			1
		7			1
		0			1
		1			1
	06H	2			1
		3			1
		4			1
		5			1
		6			1
		7	FLARE OFF		S
		0			1
		1			1
	07H	2	DTL	0	S
		3		1	S
		4			1
		5			1
		6			1
		7			1

IRIS MODE

	MANUAL	REMOTE	AUTO	-	(DT4)
0	0	1	0	1	FCH
1	0	0	1	1	

MANUAL : Manual iris of the camera is done effectively.
REMOTE : The iris is controlled by "IRIS (302EH)" command.
AUTO : AUTO IRIS. Iris level is adjusted by "OVER RIDE(3039H)" command.

WHITE BAL MODE

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

AGC MODE

	PRESET	VARIABL	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.
VARIABL : The setting of variable gain by "VARIABLE GAIN(302AH)" command is enable.
AUTO : AGC ON

SHUTTER

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

1/100 become 1/60 in PAL.
VARIABLE : The setting of variable shutter by "SHUTTER VARIABLE(3038H)" command is enabled.
AES : AES ON

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.

(DT1)	(DT2)	(DT3)			(DT4)
CTL	MODE	Bit	Item		MASK
		0	BAR/CAM		S
20H	08H	1	CONTRAST	0	S
23H		2		1	S
22H		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
	0BH	0			1
		1			1
		2			1
		3			1
		4			1
		5			1
		6			1
		7	PAINT ENABLE *1		S
	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 75 /HIGH		S
	15H	0	DNR	0	S
		1		1	S
		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

PAINT ENABLE *1

if PAINT ENABLE ON(20,0B,80,7F),R/B Paint GAIN, R/B Paint BLACK adjustment become effective.

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 75 /HIGH

75	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
		0	DYNA CHROMA ON		S
20H	16H	1			1
23H		2			1
22H		3			1
		4			1
		5			1
		6			1
		7			1
		0			1
	17H	1			1
		2	INDICATOR DISPLAY	0	S
		3		1	S
		4			1
		5			1
		6			1
		7			1
		0	GAMMA TABLE *1		1
	18H	1		1	S
		2			1
		3			1
		4			1
		5			1
		6			1
		7			1

INDICATOR DISPLAY

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

	OFF	WHT / BLK	IRIS GATE	-	(DT4)
0	0	1	0	1	F3H
1	0	0	1	1	

WHT/BLK : The detection indicator of WHT is displayed normally. Detection indicator of ABB, ASC is displayed if ABB ON or ASC ON.

IRIS GATE : The indicator of IRIS GATE is displayed.

GAMMA TABLE (*1)

If GAMMA:ON(20,02,00,FD).

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

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

IRIS OPEN LIMIT ADJ

If IRIS OPEN LIMIT ADJ : ON(28,00,10,EF), the setting of iris open limit is adjusted by “AUTO IRIS OPEN LIMIT(303CH)” command.

IRIS CLOSE LIMIT ADJ

If IRIS CLOSE LIMIT ADJ : ON(28,00,20,DF), the setting of iris close limit is adjusted by “AUTO IRIS CLOSE LIMIT(303BH)” command.

FLD/FRM

FLD	FRM	(DT4)
0	1	EFH

IRIS GATE SIZE

Horizontal pixel Number of line

	GATE1 64x16	GATE2 128x32	GATE3 256x64	GATE4 512x128-	(DT4)
0	0	1	0	1	9FH
1	0	0	1	1	

CAM MODE

MANUAL	AUTO	(DT4)
0	1	7FH

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

MEM 3200K/MEM 5600K

MEM 3200K	MEM 5600K	(DT4)
0	1	7FH

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

ALC SPEED (*1)

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	

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

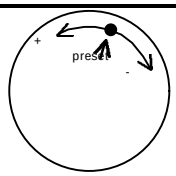
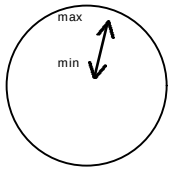
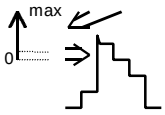
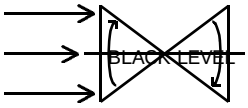
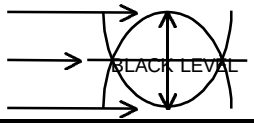
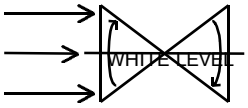
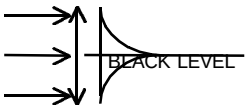
Note 1. X in the DATA column is undefined.

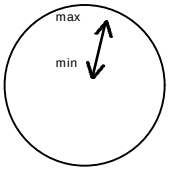
2. Setting data can be backed up to the EEPROM by the command MEMORY BACK UP.

Item	(DT1) CTL	(DT2) MODE	(DT3)U , (DT4)D DATA
R GAIN	30H	00H	min preset max 80XXH 00XXH 7FXXH SIGNED
B GAIN	33H	02H	
R GAMMA *1	32H	03H	min preset max 80XXH 00XXH 7FXXH SIGNED
B GAMMA *1		05H	
R FLARE	32H	06H	-max FLARE off +max 80XXH 00XXH 7FXXH SIGNED
G FLARE		07H	
B FLARE		08H	
R BLACK		09H	min max 80XXH 00XXH 7FXXH SIGNED
G BLACK		0AH	
B BLACK		0BH	
W.CLIP		13H	min preset max 80XXH 00XXH 7FXXH SIGNED
R PULSE CANCEL		15H	min max 80XXH 00XXH 7FXXH SIGNED
G PULSE CANCEL		16H	
B PULSE CANCEL		17H	
R paint GAIN		18H	min preset max 80XXH 00XXH 7FXXH SIGNED
B paint GAIN		1AH	
R paint BLACK		21H	min preset max 80XXH 00XXH 7FXXH SIGNED
B paint BLACK		23H	
TOTAL GAMMA *1		27H	min preset max 80XXH 00XXH 7FXXH SIGNED
VARIABLE GAIN		2A	0dB +20dB 80XXH 00XXH 20XXH SIGNED
MASTER BLACK		2BH	min preset max 80XXH 00XXH 7FXXH SIGNED
DETAIL		2CH	min preset max 80XXH 00XXH 7FXXH SIGNED
IRIS		2EH	CLOSE OPEN 80XXH 00XXH 7FXXH SIGNED
FOCUS		2FH	NEAR FAR 80XXH 00XXH 7FXXH SIGNED
ZOOM		30H	WIDE TELE 80XXH 00XXH 7FXXH SIGNED
PAN		31H	LEFT RIGHT 80XXH 00XXH 7FXXH SIGNED
TILT		32H	DOWN UP 80XXH 00XXH 7FXXH SIGNED

Item	(DT1) CTL	(DT2) MODE	(DT3)U , (DT4)D DATA
SC PHASE		33H	Under table reference
H.PHASE	30H 33H	34H	-128 0 +127 80XXH 00XXH 7FXXH SINGED
Y LEVEL	32H	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
AUTO IRIS CLOSE LIMIT		3BH	CLOSE OPEN 80XXH FFXXH
AUTO IRIS OPEN LIMIT		3CH	CLOSE OPEN 00XXH 7FXXH
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) CTL	(DT2) MODE	(DT3)U , (DT4)D DATA
R HUE CROMA COMPEN		40H	+ preset - 
G HUE CROMA COMPEN	30H	41H	E0XXH 00XXH 31XXH SINGED
B HUE CROMA COMPEN	33H	42H	
Y HUE CROMA COMPEN	32H	43H	Note: When the data of the setting
C HUE CROMA COMPEN		44H	range outside is set up in the ROM Ver: 2.0, it acts
M HUE CROMA COMPEN		45H	be wrong. Please pay attention.
R SAT CROMA COMPEN		46H	min max 
G SAT CROMA COMPEN		47H	E0XXH 00XXH 31XXH SIGNED
B SAT CROMA COMPEN		48H	
Y SAT CROMA COMPEN		49H	Note: When the data of the setting
C SAT CROMA COMPEN		4AH	range outside is set up in the ROM Ver: 2.0, it acts
M SAT CROMA COMPEN		4BH	be wrong. Please pay attention.
DTL LEVEL DEPEND		53H	 Low High 80XXH 00XXH 7FXXH SIGNED
DTL CRISP		54H	 0 max 80XXH 00XXH 7FXXH SIGNED
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 
G AXIS HS		81H	00XXH
B AXIS HS		82H	7FXXH
R AXIS HP		86H	7FXXH 
G AXIS HP		87H	00XXH
B AXIS HP		88H	80XXH
R MOD VS		8FH	80XXH 
G MOD VS		90H	00XXH
B MOD VS		91H	7FXXH
R AXIS LEFT FRM		98H	80XXH 
G AXIS LEFT FRM		99H	00XXH
B AXIS LEFT FRM		9AH	7FXXH

Item	(DT1) CTL	(DT2) MODE	(DT3)U , (DT4)D DATA
IRIS GATE H POSI	30H 33H 32H	AO	LEFT CENTER RIGHT GATE1 AC00H 0000H 5800H (NTSC) AE00H 0000H 5400H (PAL) GATE2 B400H 0000H 5000H (NTSC) B600H 0000H 4C00H (PAL) GATE3 C400H 0000H 4000H (NTSC) C600H 0000H 3C00H (PAL) GATE4 E400H 0000H 2000H (NTSC) E600H 0000H 1C00H (PAL)
IRIS GATE V POSI		A1	UP CENTER DOWN GATE1 C800H 0000H 3800H (NTSC) BD00H 0000H 4400H (PAL) GATE2 CC00H 0000H 3400H (NTSC) C100H 0000H 4000H (PAL) GATE3 D400H 0000H 2C00H (NTSC) C900H 0000H 3800H (PAL) GATE4 E400H 0000H 1C00H (NTSC) D900H 0000H 2800H (PAL)
WHITE GATE H POSI		A2	LEFT RIGHT AC00H 0000H 5800H (NTSC) AE00H 0000H 5300H (PAL)
WHITE GATE V POSI		A3	UP DOWN CA00H 0000H 3600H (NTSC) C000H 0000H 4000H (PAL)
CHROMA GAIN		A4	min max 80XXH 00XXH 7FXXH 

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

Item	(DT1) CTL	(DT2) MODE	(DT3) 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" 23H:"CAM MODE:AUTO", "CHANGE TO MANUAL" 24H:"NG","LONG SHUTTER MODE","CHANGE SHUTTER MODE"
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","???" 24H:"NG","LONG SHUTTER MODE","CHANGE SHUTTER MODE"

4.Memory backup

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

(1) In a bundle memory backup

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

(2) One item memory backup

Item	(DT1) CTL	(DT2) CTL	(DT3) CTL	Remark
MEMORY BACK UP2	65H	20H	XXH	ON/OFF Command
		28H	XXH	ON/OFF Command
		30H	XXH	Analog Command
		60H	01H	Application 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-D15 camera is becoming 100,000 times. Therefore, please pay attention in the case that a memory backup command is used.

5.Application file select

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

Item	(DT1) CTL	(DT2) CTL	(DT3) CTL
APP-1	60H	01H	01H
APP-2			02H
APP-3			03H
APP-4 *1			04H

6.States read Response request commands, response commands)

Item	(DT1) CTL	(DT2) MODE	(DT3),(DT4),(DT5) RESULT
CAMERA TYPE	13H	00H	(DT3) 50H: HV-D15, 52H:HV-D15 R2
CAMERA VERSION	12H	01H	Ver.(DT3).(DT4)····ASCII code
CAMERA ID		02H	(DT3),(DT4),(DT5)····ASCII code
APPLICATION FILE MODE		04H	(DT3) 01H:APP-1,02H:APP-2,03H:APP-3,04H:APP-4
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