

Colorimetric and Resolution requirements of cameras

Richard Salmon

ADDENDUM 11: Menu settings for

Panasonic AK-HC900P Box-Cam (720/60Hz proscan)

This document is a report of the results of tests that are the precursor of those described in the EBU technical document Tech3335. It is not an endorsement of the product.

Assessment was made on an AK-HC900P (S/N 37A00005), 720-line progressive 60 Hz camera, and all menu items refer to this camera only. Later versions may differ. The camera appears to be a cut down version of the HDC 27 without the camcorder back but with a remote control panel, and different menu structure and capabilities.

The camera body has Lens and Zoom/Focus connectors, a control cable for the remote panel, and HD-SDI output on a pair of BNCs. The control panel has an Analogue HD output, with pre-equalisation for up to 150m, Tally and Gen-lock inputs.

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Many menu items have little or no effect on the image. Those that do so are highlighted. The full menus are given for completeness.

The menus are much less exhaustive than the 27/27F, with no engineering/hidden. The most obvious lack of control is over Matrix, where only a single, unnamed camera matrix is available, which one assumes should be Rec.709. If necessary the "A" or "B" matrices could be defined to produce an optimised matrix combination, but this is beyond the scope of the initial assessment.

Black Stretch (negative, off or positive) appeared to put a rather disturbing bump in the transfer characteristic at quite a high video level (35%), and so is probably best avoided.

Cable equalisation on the Analogue output is for an unnamed cable type. It is a shame there is no HD-SDI output from the control panel, two cables thus being required from the camera. The maximum length of control cable between camera and control panel is 10m.

Settings can be stored on an "SD Card".

Two problems were noted. Firstly, when connected to our Canon HJ15x8B lens, the iris hunted when set to "Auto". Secondly, when the camera head is set to produce sawtooth, with the gamma turned off the output becomes very blue in the mid greys. Possible to correct this by altering blue gain, but should be corrected automatically when doing a white balance in normal (gamma) operation.

There is no explicit film or video mode in this camera. The table below defines detail settings suggested for video or film look. Similarly for video look, the knee might well not be used. The knee defined here should give 9dB (1.5 stops) extra headroom.

The master pedestal appeared to require a negative setting to remove an unwanted pedestal.

The Low/Medium/High Gain settings are conventionally set to 0, 6dB and 12dB, but this camera has 0, 9dB and 18dB inscribed on control panel! Therefore I have avoided changing these settings. If the operator chooses to do so, he/she will thus be aware of the change.

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USER MENU: 1 Maintenance

1. Black Shading

Maintenance Menu

Item	Range	Factory	Description	BBC	
DETECTION			Causes camera to undertake black shading correction followed by ABB (taking about 1 minute)		
CORRECT (DIG)	Off/On	On		On	

2. PED, GAMMA, FLARE

Maintenance Menu

Item	Range	Factory	description	BBC	
M PED		+000	Controlled by knobs on panel	-018	
R PED		+000	and so not accessible within	+000	
G PED		+000	menu structure	+000	
M GAMMA	0.35 ... 0.75	0.45	0.40 desaturates too much; keep 0.45	0.45	
R GAMMA		+00		+00	
B GAMMA		+00		+00	
R FLARE		007	Dependent on lens		
G FLARE		000	Dependent on lens		
B FLARE		004	Dependent on lens		
GAMMA	On/Off	On		On	
FLARE	On/Off	On		On	

3. KNEE, WHITE CLIP

Maintenance Menu

<i>Item</i>	<i>Range</i>	<i>Factory</i>	<i>description</i>	<i>BBC</i>
M KNEE POINT	80% ... 107% (0.25% step)	95%	Setting to give 1.5 stops highlight handling for film mode	91.5%
R KNEE POINT		+00.00%		+00.00%
B KNEE POINT		+00.00%		+00.00%
M KNEE SLOPE	00 ... 99	85		50
R KNEE SLOPE		+000		+000
B KNEE SLOPE		+000		+000
A KNEE POINT	80% ... 107% (0.25% step)	95%		
A KNEE LVL	100 ... 109	108		
WHITE CLIP LVL	90% ... 109%	109%		106%
KNEE	Manual/Auto/Off	Manual	{v} Video Mode, {f} Film Mode	{v} Off, {f} Manual
WHITE CLIP	On/Off	On		On

4. R/B GAIN

Maintenance Menu

<i>Item</i>	<i>Range</i>	<i>Factory</i>	<i>description</i>	<i>BBC</i>
R GAIN		+000	Set using knob on Control Panel; cannot be changed from menu item	
B GAIN		+000		

5. DTL

Maintenance Menu

<i>Item</i>	<i>Range</i>	<i>Factory</i>	<i>description</i>	<i>BBC</i>
DTL	On/Off	On		On
TOTAL DTL LVL	-31 ... 31	+07	{v} Video Mode, {f} Film Mode	{v} +07, {f} -10
H DTL LVL	0 ... 63	02		{v} 02, {f} 00
CRISP	0 ... 15	02		02
LEVEL DEPENDANT	0 ... 5	2		2
PEAK FREQUENCY	0 ... 31	10		31
KNEE APPERTURE		On		On
KNEE APA LVL		5		5
SLIM DTL		Off		Off
DTL (+)		+00		+00
DTL (-)		+00		+00
DTL CLIP		00		00
DTL SOURCE	(R+G)/2, (G+B)/2, (3G+R)/4, R, G, (2G+R+B)/4	(R+G)/2	Seems to give best noise performance	(R+G)/2

6. GAIN, AUTO IRIS

Maintenance Menu

<i>Item</i>	<i>Range</i>	<i>Factory</i>	<i>description</i>	<i>BBC</i>
LOW GAIN	-6,-3,0,3,6,9, 12,18,24,30 dB	0dB		0dB
MID GAIN	"	9dB	6dB would be more conventional	Operator
HIGH GAIN	"	18dB	12dB would be more conventional	Operator
A IRIS LVL		0.45		0.45
A IRIS PEAK/AVG		0.45		0.45
A IRIS WINDOW	NORM1, NORM2, CENT	NORM1		NORM1
IRIS MODE	Lens/Cam	Lens		Lens
IRIS GAIN	01 ... 10	08		08

7, 8 & 9. S.GAIN 1, 2 & 3

Super-Gain, unchanged from factory settings.

Maintenance Menu

<i>Item</i>	<i>S.GAIN 1</i>	<i>S.GAIN 2</i>	<i>S.GAIN 3</i>
TOTAL GAIN	30dB	48dB	62dB
ANLG GAIN	18dB	24dB	30dB
PIX MIX	+6dB	+6dB	+6dB
V MIX	+6dB	+6dB	+6dB
FRAME MIX	OFF	+12dB	+20dB
H DTL LEVEL	00	00	00
CRISP	10	10	10
LEVEL DEPENDANT	5	5	5
PEAK FREQUENCY	05	05	05
M GAMMA	0.50	0.55	0.6
M PED OFFSET	+000	+000	+000
R PED OFFSET	+010 ???	+000	+000

B PED OFFSET	+070 ???	+100 ???	-160 ???		
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10. FRAME MODE

Maintenance Menu

Item	Range	Factory	description	BBC	
SCAN REVERSE	Off/1/2/3	Off	1: Left/right mirror 2: Top/bottom mirror 3: Rotate 180 degrees	Off	

11. MATRIX

Maintenance Menu

Item	Range	Factory	description	BBC	
MATRIX TABLE	A/B		Not used unless selected in "Setting Menu: Mode"		
Matrix R-G		0			
Matrix R-B		0			
Matrix G-R		0			
Matrix G-B		0			
Matrix B-R		0			
Matrix B-G		0			

12 & 13. COLOR CORRECTION 1 & 2

CC1 and 2 interleave

Maintenance Menu

Item	Sat	Phase	description	BBC	
R	+000	+000	Rather dangerous territory, not recommended. Not used unless selected in "Setting Menu: Mode"		
Mg	+000	+000			
B	+000	+000			
Cy	+000	+000			
G	+000	+000			
Yl	+000	+000			

USER MENU: 2 Setting**1. MODE**

Setting Menu

Item	Range	Factory	description	BBC	
Black Stretch	-3,-2,-1,Off,1,2,3	Off	Appears to act rather high	Off	
D5600K		Off		Off	
Angl Output Sel	YPrPb/RGB	YPrPb	Analogue output on control panel		
Cable Compe	0,50,100,150 m	0m	Cable type not specified	0m	
Super Gain	Off, 1,2,3	Off	Mimics control panel buttons	Off	
Cam ID Mode	Off, Bar, On	Bar		Bar	
Cam ID POST	0 ... 3	1		1	
Matrix Table	Off, A, B	Off		Off	
Color Correct	Off/On	Off		Off	

2. SHUTTER

Setting Menu

Item	Range	Factory	description	BBC	
Shutter Mode	Off / Synchro / On	Off		Off	
Shutter Speed	1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000	1/120		1/120	
Synchro Scan	44.7 ... 7500.0	120.0	100 will remove UK florescent light flicker	100.0	

3. H-PHASE

Setting Menu

Item	Range	Factory	description	BBC	
H Phase Course	-	07	Adjustment relative to genlock?		
H Phase Fine		32			

USER MENU: 3 Camera ID

Item	Range	Factory	description	BBC	
ID	Alpha-Numeric and special characters		Up to 10 characters		

USER MENU: 4 File Menu

Item	Range	Factory	description	BBC	
File	Preset/User1/User2/Current	Current	Recall also via buttons on panel		
Save File?	User1/User2				
Save			Execute the save		

