[Pilot Sample stage]

CONTROL COMMAND OF VK-S274 SERIES

[REV. 1.0]

This manual applies following models:

<NTSC>	*VK-S274*	
<PAL>	*VK-S274E*	*(NOT COMPLETED)*
<EIA>	*VK-K274*	*(NOT COMPLETED)*
<CCIR>	*VK-K274E*	*(NOT COMPLETED)*

CONTENTS

[Note] ***is difference of data between VK-S234 series and VK-S274 series.***

PART
ONE

• EXTERNAL CONTROL

1. Communication protocol

Communication between the microcomputer of the camera and the PC is available by using the RS-232C protocol. The microcomputer receives each control command given by the PC and echoes it back to the PC.

2. Connect condition

Data length	8 bit
Stop bit	1 bit
Parity	even
Baudrate	4800 bps

3. Communication data format

All communication data consist of eight or ten ASCII characters (8 bytes or 10 bytes).
The format of the communication data is shown in Fig. 1.

a) Normal command
Communication data start with the character ":"(colon).

b) Special command
Communication data start with the character "/"(slash).

(a) 8 bytes format [Normal command]

1st byte							8th byte
:	CM	A3	A2	A1	A0	D1	D0

CM Command as follows
R :Read 1 byte data of micro-Com. RAM or EEPROM
W :Write 1 byte data of micro-Com. RAM or EEPROM

A3-A0 Address data of micro-Com. RAM or EEPROM (write in hex. 0000-FFFF)
D1-D0 Data of micro-Com. RAM or EEPROM (write in hex. 00-FF)

(b) 10 bytes format [Normal command]

1st byte									10th byte
:	CM	A3	A2	A1	A0	D3	D2	D1	D0

CM Command as follows
r :Read 2 bytes data of micro-Com. RAM or EEPROM
w :Write 2 bytes data of micro-Com. RAM or EEPROM

A3-A0 Address data of micro-Com. RAM or EEPROM (write in hex. 0000-FFFF)
D3-D0 Data of micro-Com. RAM or EEPROM (write in hex. 0000-FFFF)

(c) 8 bytes format [Special command]

1st byte							8th byte
/	CM	D5	D4	D3	D2	D1	D0

CM Command as follows
M : <Privacy mask> DEGREE WRITE command

D5-D0 Data of micro-Com. RAM or EEPROM (write in hex. 000000-FFFFFF)

Fig. 1 Communication data format

4. Control commands

a) Switch the auto focus / manual focus

:RFF0E00
:WFF0EX_1X_0
bit 3 of X_1X_0 : 0-Auto 1-Manual
or
:WFCBBA8 ;Change
:WFCBBFE ;Neutral

b) Move focus to FAR in manual focus mode

:WFCBBA9 ;Start
:WFCBBFE ;Stop

c) Move focus to NEAR in manual focus mode

:WFCBBAA ;Start
:WFCBBFE ;Stop

d) Move zoom to TELE

:WFCBB99 ;Start
:WFCBBFE ;Stop

e) Move zoom to WIDE

:WFCBB9B ;Start
:WFCBBFE ;Stop

f) Select the zoom speed of optical zoom

:RFDFC00
:WFDFCX_1X_0
Super HIGH SPEED (2.4 s) * ;
X_1X_0 : Set bit 3 of echo back data to “0”.
Set bit 2 of echo back data to “1”.
HIGH SPEED (3.9 s);
X_1X_0 : Set bit 3 of echo back data to “0”.
Set bit 2 of echo back data to “0”.
NORMAL SPEED (6.3 s);
X_1X_0 : Set bit 3 of echo back data to “1”.
Set bit 2 of echo back data to “0”.

[Note] * mark : for “Zoom Trace Preset Mode” only

g) Get the status of zoom position

:RFC9100

If echo back data is not “FF”, zoom position is calculated by following equation.

zoom position = 22 * 256 / (XX + 1)

XX; echo back data

If echo back data is “FF”, then following commands should be sent.

:rF7200000

Echo back data shows zoom position.

[Please refer to the attached Table.1.]

Table.1 Zoom position data table (reference value)

Zoom position	x1	x2	x3	x4	x5	x6	x7	x8	x9	x10	x11
Echoback data	14BA less	2DDD less	3A56 less	422D less	47C7 less	4C15 less	4F96 less	528E less	5517 less	575B less	5953 less
Zoom position	x12	x13	x14	x15	x16	x17	x18	x19	x20	x21	x22
Echoback data	5B20 less	5CB1 less	5E18 less	5F4B less	605D less	6143 less	6208 less	62AA less	6333 less	63A2 less	63A2 more

h) Switch the continuous digi. zoom ON/OFF

:RFCCB00

:WFCCBX_1X_0

X_1X_0=00 ; OFF X_1X_0=01 ; ON

i) Set the maximum mag. tuning value in continuous digi. zoom ON mode

:WFDF0X_1X_0

X_1X_0 (hex) = {256 - (256 / MM)} (dec)

MM; maximum mag.

[EX. mag.1; MM=1 -> X_1X_0=00

mag.2; MM=2 -> X_1X_0=80]

mag.12; MM=10 -> X_1X_0=EB max.]

j) Switch the instant digi. zoom ON/OFF

:RFF0F00

:WFF0FX_1X_0

bit 7 of X_1X_0 : 0-OFF 1-ON

k) Set the instant mag. tuning value in instant digi. zoom ON mode

:WFDE6X_1X_0

X_1X_0 (hex) = IM * 10(dec)

IM; instant mag.

(more than 1.0 and 0.1 step)

[EX. mag.1; IM=1.0 -> X_1X_0=0A

mag.2; IM=2.0 -> X_1X_0=14 ; max.]

l) Switch the auto / manual shutter speed
Please see the attached Program AE command sheet.

m) Set the shutter speed tuning value in manual shutter mode
Please see the attached Program AE command sheet.

n) Switch the auto / manual exposure
Please see the attached Program AE command sheet.

o) Set the brighter exposure tuning value in manual exposure mode
Please see the attached Program AE command sheet.

p) Set the darker exposure tuning value in manual exposure mode
Please see the attached Program AE command sheet.

q) Switch the auto gain control (AGC) ON/OFF
Please see the attached Program AE command sheet.

r) Set the fixed AGC level tuning value in AGC OFF mode
Please see the attached Program AE command sheet.

s) Switch the auto / manual white balance

:RFBFF00
:WFBFFX_1X_0
bit 3 of X_1X_0 : 0-Auto 1-Manual

t) Set the white balance (R gain) tuning value in manual white balance mode

:wFBBC$X_3X_2X_1X_0$
$X_3X_2X_1X_0$: tuning value
(min. H'0080, max. H'03FF)

data range:	H'0080	-	H'00FF
	H'0180	-	H'01FF
	H'0280	-	H'02FF
	H'0380	-	H'03FF

u) Set the white balance (B gain) tuning value in manual white balance mode

:wFBBE$X_3X_2X_1X_0$
$X_3X_2X_1X_0$: tuning value
(min. H'0080, max. H'03FF)

data range:	H'0080	-	H'00FF
	H'0180	-	H'01FF
	H'0280	-	H'02FF
	H'0380	-	H'03FF

v) Switch the MIRROR ON/OFF

:RFF3B00
:WFF3BX_1X_0
X_1X_0=00 ; OFF X_1X_0=01 ; ON

w) Switch the instant fade(black) ON/OFF

:RFA2100
:WFA21X_1X_0
X_1X_0=00 ; OFF X_1X_0=01 ; ON

x) Switch the Image Freeze ON/OFF

:RFF3300
:WFF33X_1X_0
X_1X_0=00 ; OFF X_1X_0=01 ; ON

y) Switch the Mosaic ON/OFF

:RFF3A00
:WFF3AX_1X_0
X_1X_0=00 ; OFF X_1X_0=01 ; ON

5. Others

[Note] * mark : It is available after power reset.
Default value in EEPROM area are subject to change without notice.

a) Get the camera type

[EEPROM area]
:RE1EDX_1X_0
:RE1EEX_1X_0

	Type data (X_1X_0 =)					
MODEL	VK-S274	VK-S274E	VK-K274	VK-K274E		
FORMAT	NTSC Hi-BAND	PAL Hi-BAND	EIA Hi-BAND	CCIR Hi-BAND		
EEPROM area "E1ED"	**01**	**01**	**01**	**01**		
EEPROM area "E1EE"	**0X_0**	**1X_0**	**2X_0**	**3X_0**		

b) Set the minimum focus length tuning value in zoom-wide

[EEPROM area]*
:WE139X_1X_0
(X_1X_0=00 ; 1cm (approx.) ; default
X_1X_0=F9 ; 10cm (approx.)
X_1X_0=F8 ; 30cm (approx.)
X_1X_0=F7 ; 1m (approx.) ; max.)

c) Set the auto iris control level tuning value in auto exposure mode

i) Iris offset (average) level

[RAM area]
:WFD9EX_1X_0 (X_1X_0=00 - FF ; 256 step)

[EEPROM area]*
:WE09EX_1X_0 (X_1X_0=00 - FF ; 256 step)

	default value (X_1X_0 =)					
MODEL	VK-S274	VK-S274E	VK-K274	VK-K274E		
FORMAT	NTSC Hi-BAND	PAL Hi-BAND	EIA Hi-BAND	CCIR Hi-BAND		
EEPROM area "E09E"	**3A**					

ii) Iris offset (peak) level

[RAM area]
:WFD9FX$_1$X$_0$ (X$_1$X$_0$=00 - 7F ; 128 step)

[EEPROM area]*
:WE09FX$_1$X$_0$ (X$_1$X$_0$=00 - 7F ; 128 step)

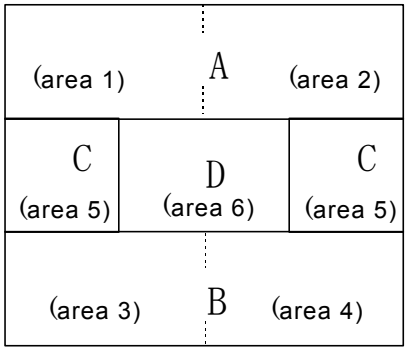
	default value (X$_1$X$_0$ =)					
MODEL	VK-S274	VK-S274E	VK-K274	VK-K274E		
FORMAT	NTSC Hi-BAND	PAL Hi-BAND	EIA Hi-BAND	CCIR Hi-BAND		
EEPROM area "E09F"	**10**					

d) Get the luminance data for the 6 screen areas

[RAM area]
area 1 :RFAE0000000 ; data length 3Byte
area 2 :RFAE3000000 ; data length 3Byte
area 3 :RFAE6000000 ; data length 3Byte
area 4 :RFAE9000000 ; data length 3Byte
area 5 :RFAEC000000 ; data length 3Byte
area 6 :RFAEF000000 ; data length 3Byte

[Note] This is the average data per one field.

< screen areas >



< weighting areas >
A= area 1 + area 2
B= area 3 + area 4
C= area 5
D= area 6

< default weighting-ratio >
A:B:C:D = (K$_a$+1): (K$_b$+1): (K$_c$+1): (K$_d$+1)
= (4+1): (6+1): (9+1): (F+1)
= (5): (7): (10): (16)

e) Set the luminance weighting data tuning value

[RAM area]
:wFDA0X$_3$X$_2$X$_1$X$_0$
(X$_3$=X$_2$=X$_1$=X$_0$=0 - F ; 16 step)
(X$_3$: K$_a$, X$_2$: K$_b$, X$_1$: K$_c$, X$_0$: K$_d$)

[EEPROM area]*
:wE0A0X$_3$X$_2$X$_1$X$_0$
(X$_3$=X$_2$=X$_1$=X$_0$=0 - F ; 16 step)
(X$_3$: K$_a$, X$_2$: K$_b$, X$_1$: K$_c$, X$_0$: K$_d$)
[X$_3$X$_2$X$_1$X$_0$=469F ; default]

f) Switch the back light compensation (BLC) ON/OFF

[RAM area]

:RFECE0

:WFECEX$_1$X$_0$

X$_1$X$_0$=00 ; OFF X$_1$X$_0$=02 ; ON

g) Set the BLC level tuning value in BLC ON mode

[RAM area]

:WFD8EX$_1$X$_0$ (X$_1$X$_0$=00 - FF ; 256 step)

[EEPROM area]*

:WE08EX$_1$X$_0$ (X$_1$X$_0$=00 - FF ; 256 step)

	default value (X$_1$X$_0$ =)					
MODEL	VK-S274	VK-S274E	VK-K274	VK-K274E		
FORMAT	NTSC Hi-BAND	PAL Hi-BAND	EIA Hi-BAND	CCIR Hi-BAND		
EEPROM area "E08E"	10	10	10	10		

h) Set the burst ON/OFF

[EEPROM area]*

:WE198X$_1$X$_0$ (X$_1$X$_0$=00 - FF ; 256 step)

:WE199X$_1$X$_0$ (X$_1$X$_0$=00 - FF ; 256 step)

:WE19AX$_1$X$_0$ (X$_1$X$_0$=00 - FF ; 256 step)

:WE19BX$_1$X$_0$ (X$_1$X$_0$=00 - FF ; 256 step)

	default value (X$_1$X$_0$=)		
MODEL	VK-S274	VK-S274E	
FORMAT	NTSC Hi-BAND	PAL Hi-BAND	NTSC / PAL
	burst ON		OFF
EEPROM area			
"E198"	**63**		**80**
"E199"	80		**80**
"E19A"	00		**80**
"E19B"	00		**80**

i) Set the chroma suppression level tuning value in AGC range

[RAM area]

AGC gain		-	AGC ON	:WFC10X_4Y_4
AGC gain	AGC ON	-	1/3 maximum AGC level	:WFC11X_3Y_3
AGC gain	1/3 maximum AGC level	-	2/3 maximum AGC level	:WFC12X_2Y_2
AGC gain	2/3 maximum AGC level	-	maximum AGC level	:WFC13X_1Y_1
AGC gain	Maximum AGC level	-		:WFC14X_0Y_0

($X_?X_?$=00 - FF ; 256 step)

darker (H'00) < center (H'7F) < brighter (H'FF)

[Note] maximum AGC level setting at page 17 - m)
chroma suppression level tuning values at Fig. 1

[EEPROM area]*

AGC gain		-	AGC ON	:W1360X_4Y_4
AGC gain	AGC ON	-	1/3 maximum AGC level	:W1361X_3Y_3
AGC gain	1/3 maximum AGC level	-	2/3 maximum AGC level	:W1362X_2Y_2
AGC gain	2/3 maximum AGC level	-	Maximum AGC level	:W1363X_1Y_1
AGC gain	maximum AGC level	-		:W1364X_0Y_0

($X_?X_?$=00 - FF ; 256 step)

darker (H'00) < center (H'7F) < brighter (H'FF)

[Note] maximum AGC level setting at page 17 - item m)
chroma suppression level tuning values at Fig. 1

	default value ($X_?X_?$ =)					
MODEL	VK-S274	VK-S274E	VK-K274	VK-K274E		
FORMAT	NTSC Hi-BAND	PAL Hi-BAND				
EEPROM area						
"1360"	7F					
"1361"	7F					
"1362"	**5E**					
"1363"	**42**					
"1364"	**42**					

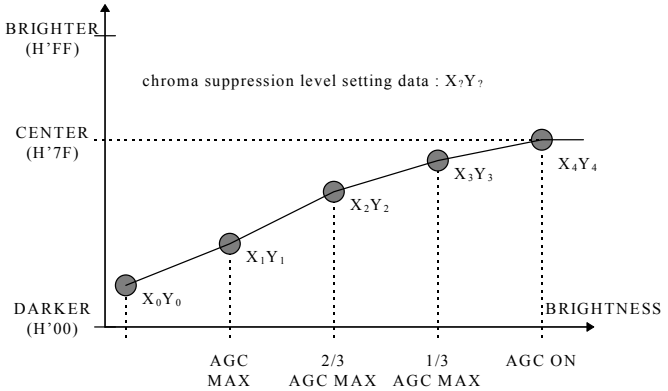


Fig. 1 Chroma suppression level

j) Select the manual aperture mode

[RAM area]
:RFBFF00
:WFBFFX_1X_0
X_1X_0 : Set bit 1 of echo back data to "1".
[bit 1 of X_1X_0 : 0-Auto 1-Manual]

k) Set the horizontal aperture level tuning value

:WFBF6X_1X_0 (X_1X_0=00 - 1F ; 32 step)

[EEPROM area]*

AGC gain		-	AGC ON	:W136AX_4Y_4
AGC gain	AGC ON	-	1/3 maximum AGC level	:W136BX_3Y_3
AGC gain	1/3 maximum AGC level	-	2/3 maximum AGC level	:W136CX_2Y_2
AGC gain	2/3 maximum AGC level	-	Maximum AGC level	:W136DX_1Y_1
AGC gain	Maximum AGC level	-		:W136EX_0Y_0

($X_?X_?$=00 - 3F ; 64 step)

[Note] maximum AGC level setting at page 17 - item m)
horizontal aperture level tuning values at Fig. 2

	default value ($X_?X_?$ =)					
MODEL	VK-S274	VK-S274E	VK-K274	VK-K274E		
FORMAT	NTSC Hi-BAND	PAL Hi-BAND	EIA Hi-BAND	CCIR Hi-BAND		
EEPROM area						
"136A"	1A					
"136B"	18					
"136C"	**0E**					
"136D"	**06**					
"136E"	**02**					

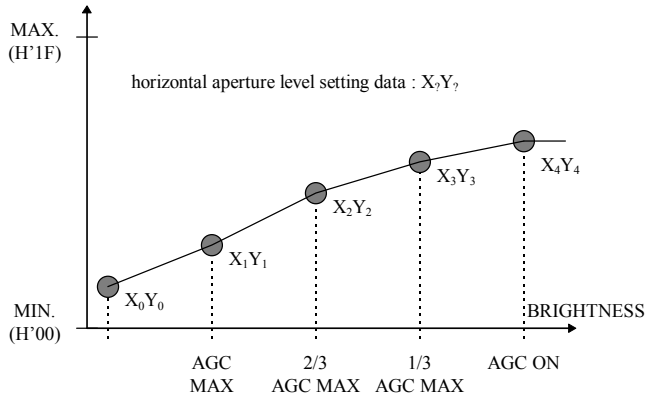


Fig. 2 horizontal aperture level

l) Set the vertical aperture level tuning value
:WFBF9X_1X_0 (X_1X_0=00 - 1F ; 32 step)

[EEPROM area]*

AGC gain		-	AGC ON	:W139CX_4Y_4
AGC gain	AGC ON	-	1/3 maximum AGC level	:W139DX_3Y_3
AGC gain	1/3 maximum AGC level	-	2/3 maximum AGC level	:W139EY_2Y_2
AGC gain	2/3 maximum AGC level	-	Maximum AGC level	:W139FX_1Y_1
AGC gain	maximum AGC level	-		:W13A0X_0Y_0

($X_?X_?$=00 - 3F ; 64 step)

[Note] maximum AGC level setting at page 17 - item m)
vertical aperture level tuning values at Fig. 3

	default value ($X_?X_?$ =)					
MODEL	VK-S274	VK-S274E	VK-K274	VK-K274E		
FORMAT	NTSC Hi-BAND	PAL Hi-BAND	EIA Hi-BAND	CCIR Hi-BAND		
EEPROM area						
"139C"	1A					
"139D"	15					
"139E"	**0E**					
"139F"	**04**					
"13A0"	**02**					

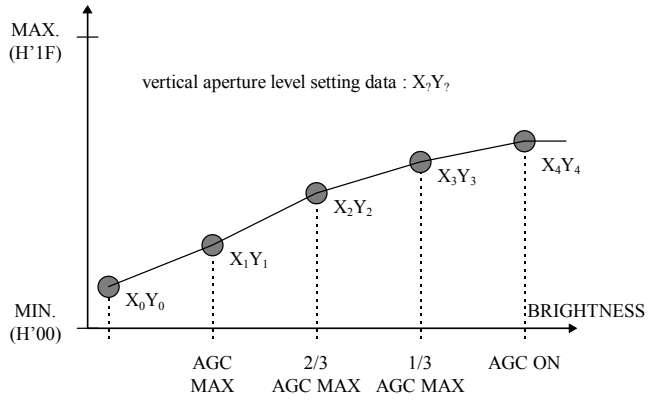


Fig. 3 vertical aperture level

m) Set the maximum AGC gain tuning value in AGC ON mode

[RAM area]
:wFD46$X_3X_2X_1X_0$
:WFA20Y_1Y_0
($X_3X_2X_1X_0$=0000 - 0500 ; 0.03125dB/step)
[Note] condition between $X_3X_2X_1X_0$ and Y_1Y_0
$Y_1Y_0 = X_3X_2X_1X_0 / 8$
[$X_3X_2X_1X_0$=0000, Y_1Y_0=00 ; 0dB ,
$X_3X_2X_1X_0$=0500, Y_1Y_0=A0; 40dB]

[EEPROM area]*
:wE046$X_3X_2X_1X_0$
:W116CY_1Y_0
($X_3X_2X_1X_0$=0000 - 0500 ; 0.03125dB/step)
[Note] condition between $X_3X_2X_1X_0$ and Y_1Y_0
$Y_1Y_0 = X_3X_2X_1X_0 / 8$
[$X_3X_2X_1X_0$=0000, Y_1Y_0=00 ; 0dB ,
$X_3X_2X_1X_0$=0500, Y_1Y_0=A0; 40dB]

	default value ($X_3X_2X_1X_0$ =)					
MODEL	VK-S274	VK-S274E	VK-K274	VK-K274E		
FORMAT	NTSC Hi-BAND	PAL Hi-BAND	EIA Hi-BAND	CCIR Hi-BAND		
EEPROM area						
“E046”	**0360**					
“116C”	**6C**					
maximum AGC Gain	**27.0dB**					

n) Change Communication Baudrate

[EEPROM area]*
:WE05EX_1X_0
(X_1X_0=80 or 00
; 4800 bps , even Parity ; default
X_1X_0=B0 ; 9600 bps , even Parity
X_1X_0=C0 ; 4800 bps , non Parity
X_1X_0=F0 ; 9600 bps , non Parity)

o) Set RAM initialize

[RAM area]
:WFCAC00

6. Other useful commands

a) PRESET MODE
(MF, No-Trace, Zoom Speed ; 1.6sec)

- Preset mode - Flow chart
  See an annexed document "<TYPE-1> TRACE PRESET"
  <TYPE-1> TRACE PRESET : s274_pp0_E.doc

b) ZOOM TRACE PRESET MODE
(MF, Trace, Zoom Speed ; 2.4sec)

- Zoom trace preset mode - Flow chart
  See an annexed document "<TYPE-2> TRACE PRESET"
  <TYPE-2> TRACE PRESET : s274_zt0_E.doc

c) PRIVACY MASK

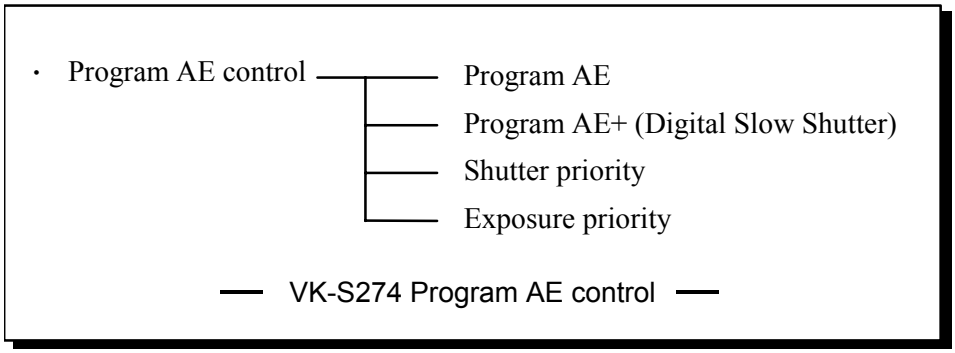
- PRIVACY MASK SPECIFICATION
  See an annexed document "PRIVACY MASK'
  PRIVACY MASK S274_Pmask_E.doc

PART
TWO

• PROGRAM AE CONTROL COMMAND

1. Program AE mode

The following Control Commands are Program AE added to VK-S274.



2. Program AE

a) Function of program AE mode
[Please attached Table 1.]

Table. 1 Program AE mode table

Program AE mode / function	DSS
Program AE	X
Program AE+ (DSS)	O [auto]
Shutter priority	O [Manual]
Exposure priority	X
AGC priority	X

b) Mode switch

:RFCC800
:WFCC8X_1X_0
[Please attached Table 2.]

Table. 2 Program AE mode data

Program AE mode	X_1X_0
Program AE	00
Program AE+ (DSS)	01
Shutter priority	07
Exposure priority	08
AGC priority	09

3. Digital Slow Shutter

a) digital slow shutter status

:RFCC700

Echo back data is digital slow shutter status.
[Please attached Table 3.]

Table. 3 Digital slow shutter table

X_1X_0 (echo back data)	Shutter Speed (s)	
	NTSC	PAL
01	- 1/60	- 1/50
02	1/60 - 1/30	1/50 - 1/25
04	1/30 - 1/15	1/25 - 1/12
08	1/15 - 1/ 8	1/12 - 1/ 6
10 [default]	1/ 8 - 1/ 4	1/ 6 - 1/ 3
20	1/ 4 - 1/ 2	1/ 3 - 1/ 1.5

b) Auto digital slow shutter limit

:R11E500

:W11E5X_1X_0

[Please attached Table 4.]

Table. 4 Digital slow shutter limit table

X_1X_0 (echo back data)	Shutter Speed (s)	
	NTSC	PAL
01	1/60	1/50
02	1/30	1/25
04	1/15	1/12
08	1/ 8	1/ 6
10 [default]	1/ 4	1/ 3
20	1/ 2	1/ 1.5

4. Shutter priority
   a) Mode switch

:RFCC800
:WFCC8X_1X_0
X_1X_0=07

   b) Set the shutter speed tuning value

:RFCC900
:WFCC9X_1X_0
X_1X_0 ; tuning value
[Please refer to the attached Table.5.]

Table. 5 Shutter speed data table in shutter priority mode

X_1X_0 (setting data)	Shutter Speed (s)	
	NTSC / EIA	PAL / CCIR
00	1/2	1/1.5
01	1/4	1/3
02	1/8	1/6
03	1/15	1/13
04	1/30	1/25
05	1/60	1/50
06	1/120	1/100
07	1/180	1/150
08	1/250	1/250
09	1/500	1/500
0A	1/1000	1/1000
0B	1/2000	1/2000
0C	1/4000	1/4000
0D	1/10000	1/10000
0E	1/30000	1/30000

5. Exposure priority

a) Mode switch

:RFCC800
:WFCC8X_1X_0
X_1X_0=08

b) Set the exposure tuning value

:RFCC900
:WFCC9X_1X_0
X_1X_0 ; tuning value
[Please refer to the attached Table.6.]

Table. 6 Exposure data table in exposure priority mode

F-value	X_1X_0 (setting data)
F1.6	00
F2.2	01
F3.2	02
F4.4	03
F6.4	04
F8.8	05
F12	06
F17	07
F24	08
F34	09

6. AGC priority

a) Mode switch

:RFCC800
:WFCC8X_1X_0
X_1X_0=09

b) Set the AGC tuning value

:RFCC900
:WFCC9X_1X_0
X_1X_0 ; tuning value
[Please refer to the attached Table.7.]

Table. 7 AGC data table in AGC priority mode

AGC gain	X_1X_0 (setting data)
0 [dB]	00
6 [dB]	01
12 [dB]	02
18 [dB]	03
24 [dB]	04
30 [dB]	05

PART
THREE

- PRIVACY MASK

1. Privacy Mask

[Please attached Fig. 1]

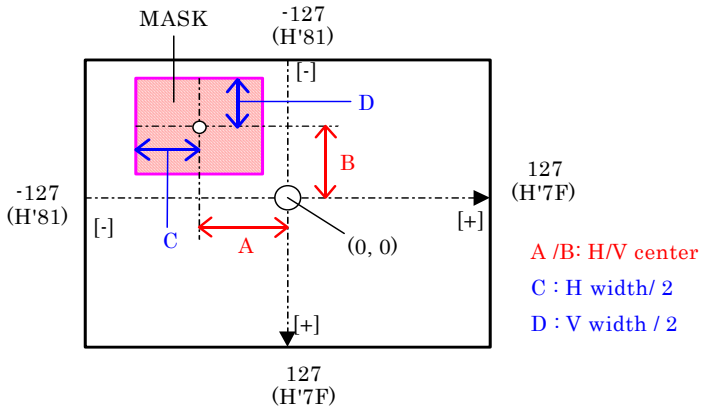


Fig. 1 VK-S274 Privacy Mask

a) Switch the Privacy Mask ON/OFF

:RF90000
:WF900X_1X_0
X_1X_0=00 ; OFF
X_1X_0=03 ; ON [default]

b) Privacy Mask shade setting

:RF90100
:WF901X_1X_0
(X_1X_0=00 - 0F ; 16 step)
H'00 ; Black
H'08 ; Gray [default]
H'0F ; White

c) Privacy Mask position setting

i) Mask1

[New data set] :WF90EX_1X_0
H'01 ; New data set
After the data was set, It will be returned to H'00.
H'00 ; Mask data modify
[H center] :WF904X_1X_0
(X_1X_0=81 (nega) - 00 (center) - 7F (plus))
[V center] :WF905X_1X_0
(X1X0=81 (nega) - 00 (center) - 7F (plus))
[H size] :WF906X_1X_0
(X1X0=00 - 8F ; 144 step)
[V size] :WF907X_1X_0
(X1X0=00 - 8F ; 144 step)

ii) Mask2

[New data set] :WF90FX_1X_0
H'01 ; New data set
After the data was set, It will be returned to H'00
H'00 ; Mask data modify
[H center] :WF908X_1X_0
(X_1X_0=81 (nega) - 00 (center) - 7F (plus))
[V center] :WF909X_1X_0
(X_1X_0=81 (nega) - 00 (center) - 7F (plus))
[H size] :WF90AX_1X_0
(X_1X_0=00 - 8F ; 144 step)
[V size] :WF90BX_1X_0
(X_1X_0=00 - 8F ; 144 step)

d) Read the setting degree data of MASK1 / MASK2

:rF9140000
; Mask 1 H degree data
(data range ; H'00000 - H'1680)
:rF9160000
; Mask 1 H degree data
(data range ; H'00000 - H'1680)
:rF9180000
; Mask 2 H degree data
(data range ; H'00000 - H'1680)
:rF91A0000
; Mask 2 H degree data
(data range ; H'00000 - H'1680)

2. Degree data (Pan / Tilt)

a) Set the degree data

/M$X_2X_1X_0Y_2Y_1Y_0$ [special command]
$X_2X_1X_0$; PAN degree
$Y_2Y_1Y_0$; TILT degree
($X_2X_1X_0$ / $Y_2Y_1Y_0$ 000 - B40 ; 0.125 degree/step)

3. Demo mode

a) Moving of mask

:RF9200
:WF92X_1X_0
X_1X_0=00 ; STOP [default]
X_1X_0=31 ; Mask UP
X_1X_0=32 ; Mask DOWN
X_1X_0=34 ; Mask LEFT
X_1X_0=35 ; Mask UP + LEFT
X_1X_0=36 ; Mask DOEN + LEFT
X_1X_0=38 ; Mask RIGHT
X_1X_0=39 ; Mask UP + RIGHT
X_1X_0=3A ; Mask DOWN + RIGHT

PART
FOUR

- CONTROL COMMAND TIMING

1. Timing table program AE command

(Fig. 1)

[Nete]
AE_MODE command address is 0xFCC8
[A] : Send to AE_MODE chamge command

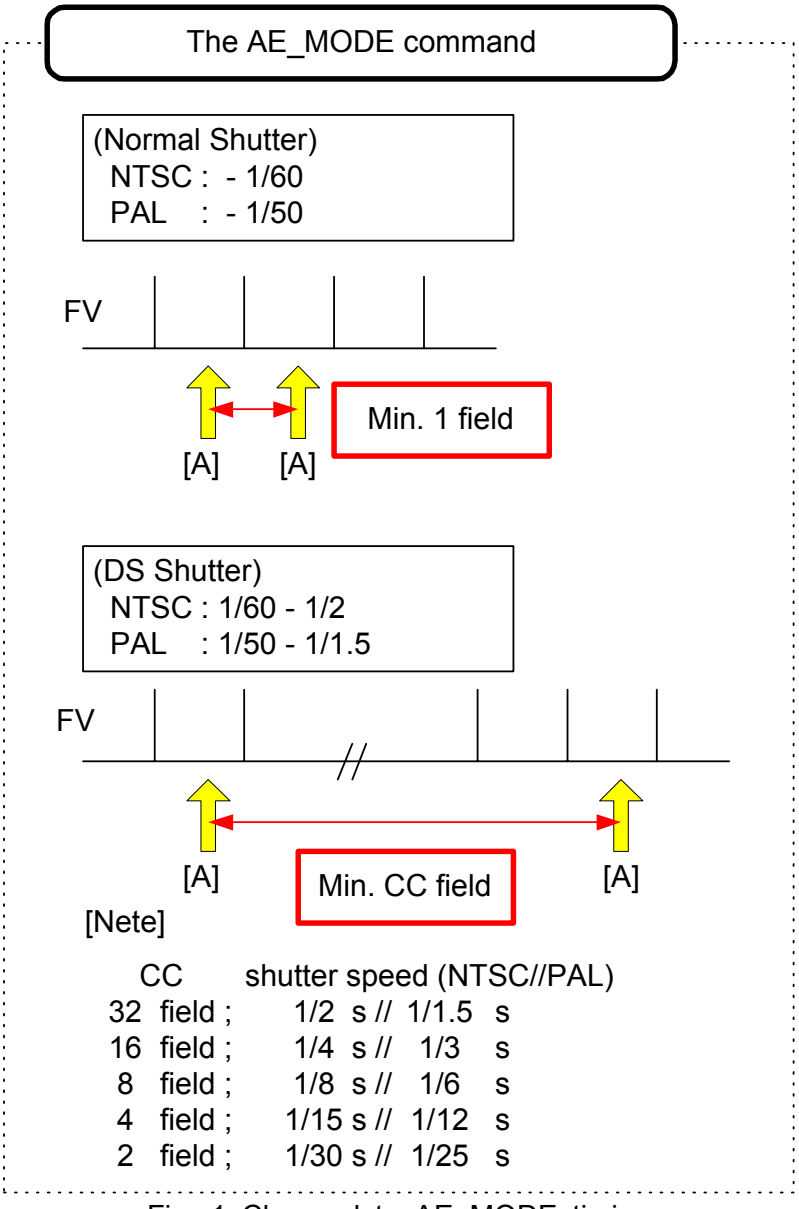


Fig. 1 Changed to AE_MODE timing

2. Timing table after ZOOM commands (DSS mode only)
(Fig. 2)

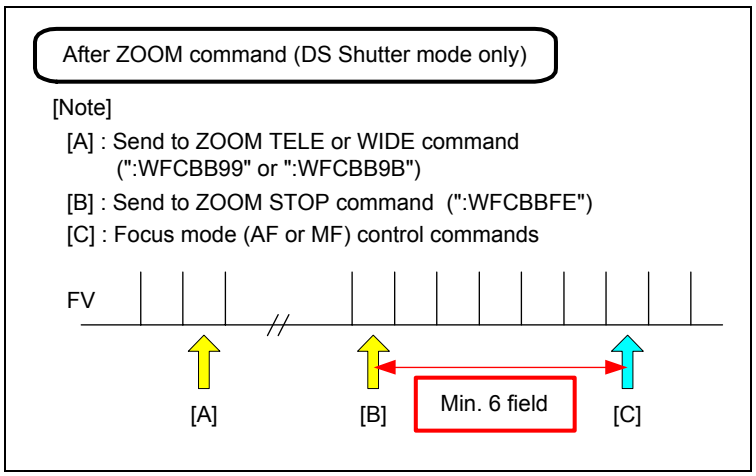


Fig. 2 After ZOOM commands timing

3. Timing table other commands
(Fig. 3)

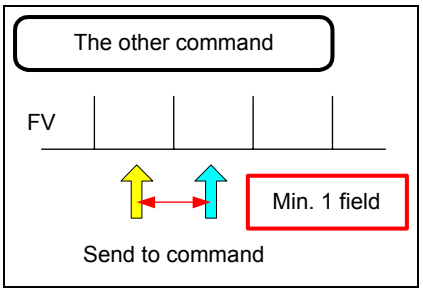


Fig. 3 Changed to other command timing

PART
FIVE

• FOCUS MODE IN DS SHUTTER

1. Focus mode in DS Shutter
(Table 1)

Table 1

shutter speed		zoom	focus mode
NTSC/EIA	PAL/CCIR		
1/60 - 1/8	1/50 - 1/6	no	AF or MF
1/8 - 1/2	1/6 - 1/1.5	no	MF
1/60 - 1/2	1/50 - 1/1.5	yes[*1]	MF

[*1] The following fig.1 is zoom mode in DS Shutter.

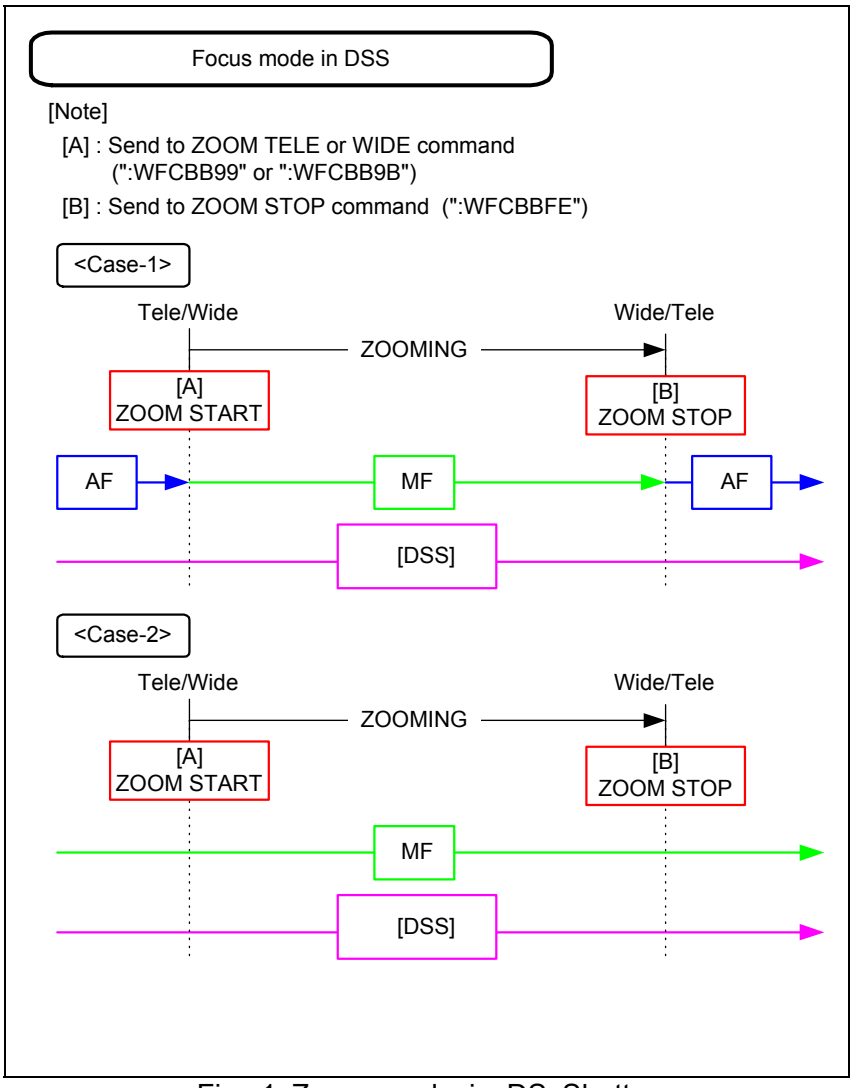


Fig. 1 Zoom mode in DS Shutter

• APPENDIX

[REV. 1.0]

2001/07/13 * Pilot sample Version (VK-S274)