PRIVACY MASK FOR VK-S274R SERIES

[REV. 1.1]

This manual applies following models:

<NTSC> VK-S274R
<PAL> VK-S274ER
<EIA> VK-K274R
<CCIR> VK-K274ER

CONTENTS

[Note] ***is difference of data between VK-S274 series and VK-S274R series.***

PART
ONE

- SPECIFICATION

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 / non
Baudrate	4800 / 9600 / 19200 / 38400 / 57600 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)

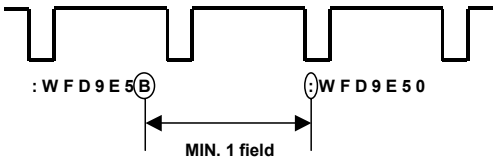
Fig. 1 Communication data format

4. Command timing

a) Write command timing

Writing commands space requirement is 1 field.

< Write timing >

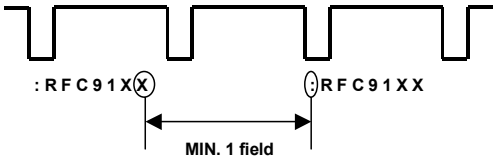


b) Read command timing

i) 4800bps

Reading commands space requirement is 1 field.

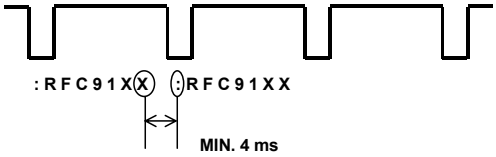
< Read timing >

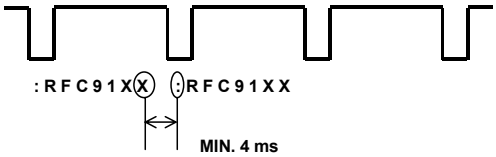


ii) The other baudrate (9600bps, 19200bps, 38400bps, 57600bps)

Reading commands space requirement is 4ms.

< Read timing >





c) Timing table program AE command
[Please attached Fig. 2]

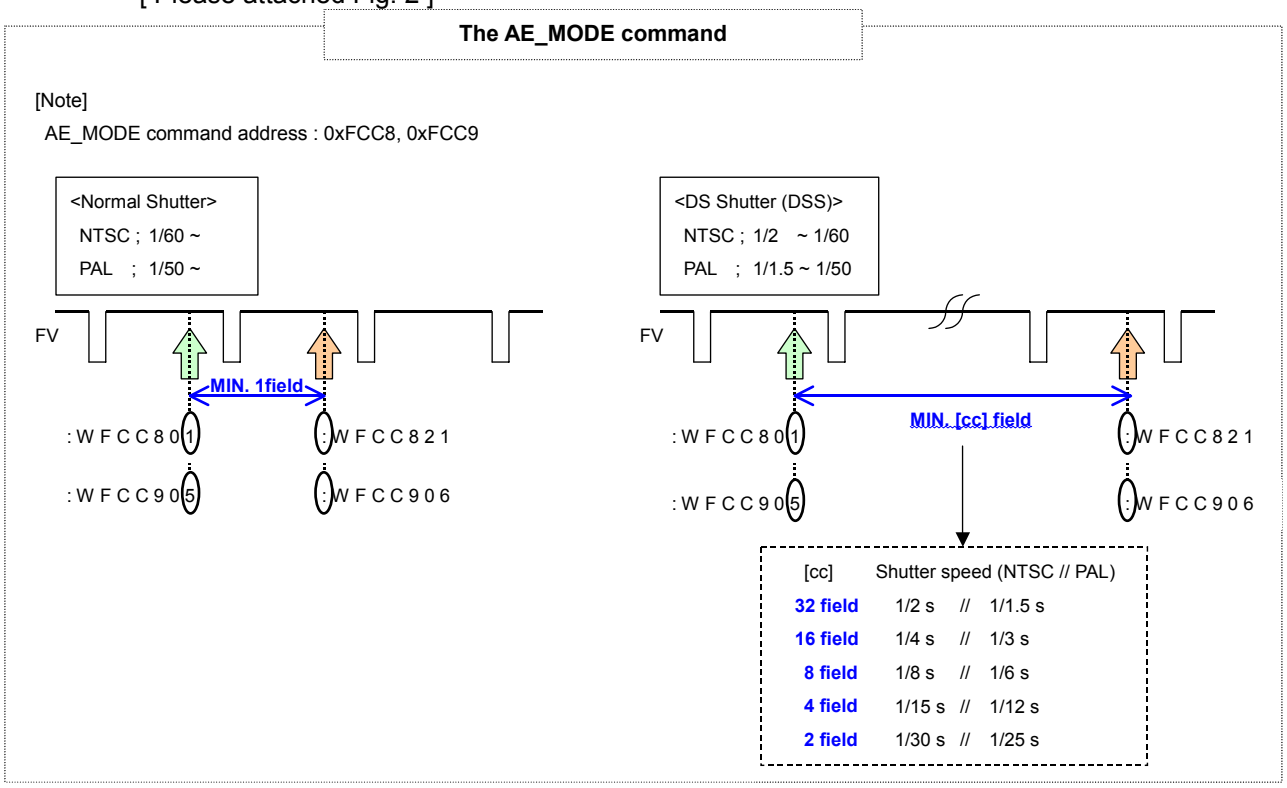


Fig. 2 Changed to AE_MODE timing

d) Timing table after ZOOM commands (DSS mode only)
[Please attached Fig. 3]

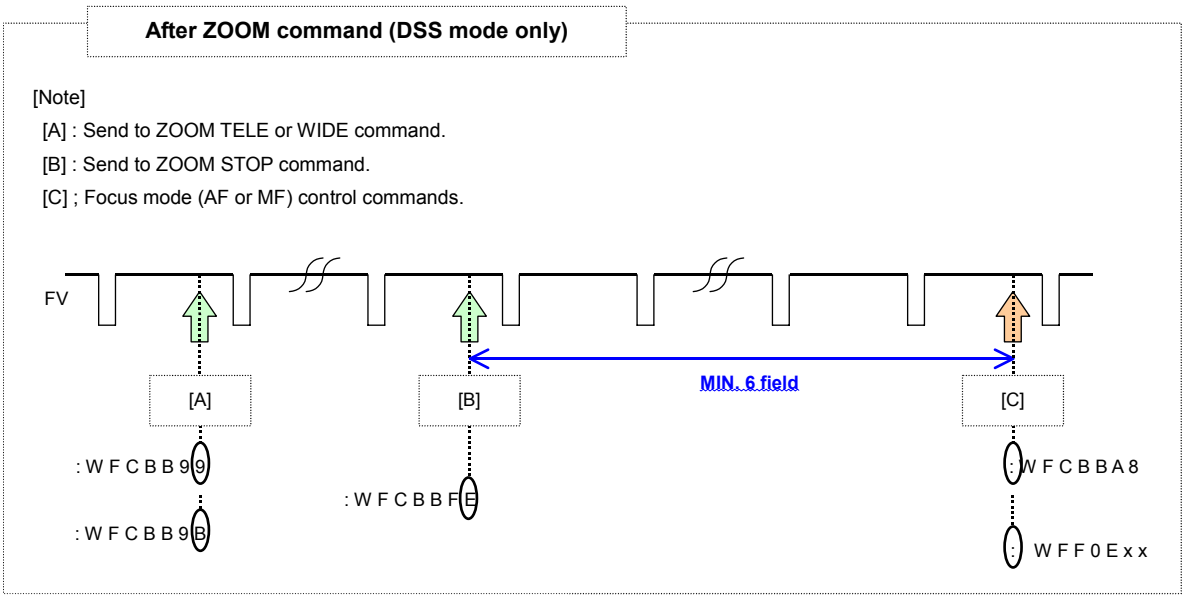


Fig. 3 After ZOOM commands timing

PART
TWO

- PRIVACY MASK <**Current function**>

1. Function Specification:

a) Setting:

Send the position data (A, B) and the width data (C, D) via RS232C to set the masking zone.

i) Center position data:

Signed 256-formalized assume data for the display screen (747 [H] x 240 [V]).

ii) Width data:

Non-signed 256-formalized assume data for the display screen (747 [H] x 240[V]).

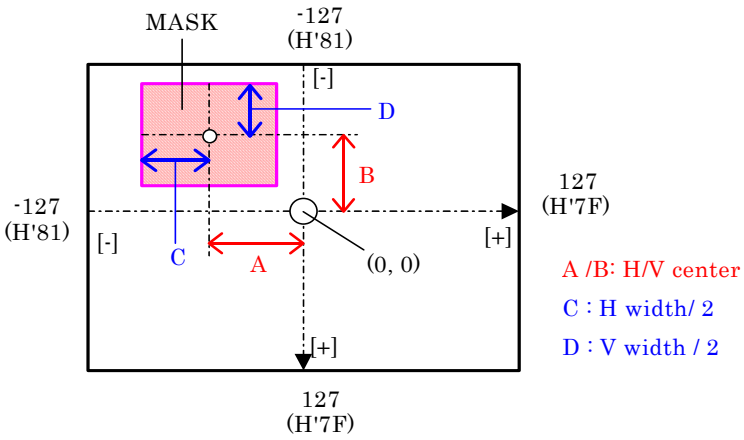


Fig. 1 Coordinate axis for Privacy Mask

b) Decomposability for the masking setting (Display screen):

[H Decomposability]: 2.918 pixels

[V Decomposability]: 0.937 H

c) Masking zone display:

Masking ON/OFF and Gray Scale gradation can be set.

And it will be No display (Standby),if H/V width data=0.

d) Number of masking zone:

Maximum 2 position /zone.

e) Interlocking control with Zooming.

Compensate the masking zone size data according to the zooming (Optical/Digital) ratio.

2. Interlocking control with Panning and Tilting:

a) Pan / Tilt angle:

Center of Pan/Tilt angle is set at the center of the Video display screen ＜fig. 2 (x, y)＞ and this center angle data (x, y) will be memorized for each masking setting.
Set the absolute position angle data during Pan/Tilt operation.
（Set reference position as optionally）

b) Pan/Tilt movement amount:

Movement Amount (MA) can be calculated as follow:

MA = tan[d] x ｆ value

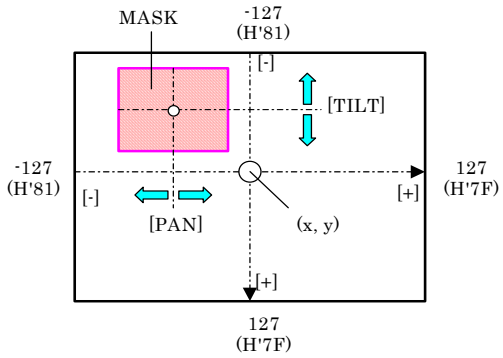
[d]= (Current angle [P] -> Initial setting angle [Q]) < Refer to fig. 4 >

Note: In case of [d] > 60 degree: Set limit as [d]=60degree < refer to fig. 3 >

Therefore, In order to maintain the interlocking the masking zone movement with Pan/Tilt Movement the angle data should be updated during Pan/Tilt operation.

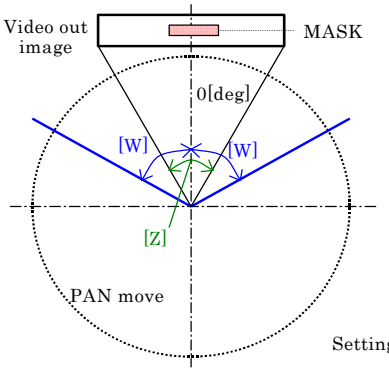
c) Pan/Tilt angle decomposability:

Set every 1/8 degree (H'000～H'B40).



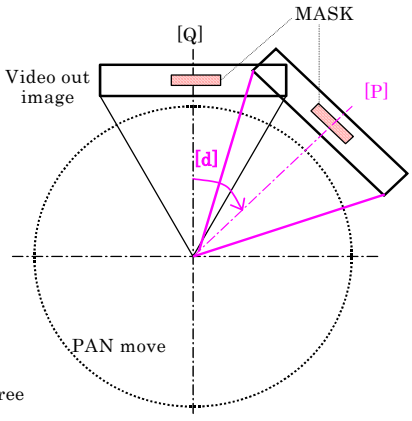
x : Video out center Angle/Degree[H]
y : Video out center Angle/Degree[V]

fig. 2



[Z] : View Angle
[W] : Calculation range = 60 deg

fig. 3



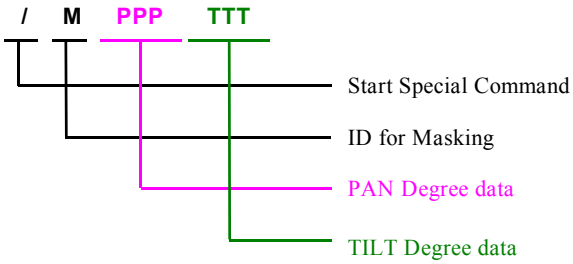
Setting degree

[Q] : Mask setting position (degree)
[P] : Now degree (current angle)
[d] : PAN moved degree (new angle)

fig. 4

3. New communication command format for the Privacy Masking:
   a) Center position and width data command:
      Use conventional command format for setting.

   b) Pan/Tilt communication command:
      Since the absolute angle date is used for setting, the angle data should be updated every field during Pan/Tilt operation and use the following new command format to maintain the movement of the interlocking masking zone with Pan/Tilt operation.



4. command:
   a) command list:

		Format	Command	Note
Masking On / Off switch		Current	Refer to i)	Common to Mask 1 & 2
Masking gradation setting		Current	Refer to ii)	Common to Mask 1 & 2
Masking color setting		Current	Refer to iii) iv)	Common to Mask 1 & 2
Mask 1	H Center position	Current	Refer to v)	
	H width data	Current	Refer to v)	
	V Center position	Current	Refer to v)	
	V width data	Current	Refer to v)	
	Mask setting Switch	Current	Refer to v)	Use Initial Mask setting
	H Mask setting angle	Current	Refer to vii)	1/16 degree notch angle data
	V Mask setting angle	Current	Refer to vii)	1/16 degree notch angle data
Mask 2	H Center position	Current	Refer to vi)	
	H width data	Current	Refer to vi)	
	V Center position	Current	Refer to vi)	
	V width data	Current	Refer to vi)	
	Mask setting Switch	Current	Refer to vi)	Use Initial Mask setting
	H Mask setting angle	Current	Refer to vii)	1/16 degree notch angle data
	V Mask setting angle	Current	Refer to vii)	1/16 degree notch angle data
Panning data		New	Refer to viii)	Write only, Common to Mask 1 & 2.. 1/8 degree notch angle data
Tilting data		New	Refer to viii)	Write only, Common to Mark 1 & 2. 1/8 degree notch angle data

i) Switch the Privacy Mask ON/OFF

:RF9000
:WF900X_1X_0
X_1X_0=00 ; OFF
X_1X_0=03 ; ON [default]

ii) 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

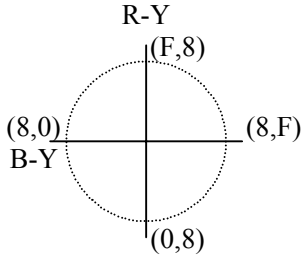
iii) Privacy Mask color (R-Y) setting

:RF92200
:WF922X_1X_0
(X_1X_0=00 - 0F ; 16 step)
H'00 ; <R-Y> min
H'08 ; <R-Y> center [default]
H'0F ; <R-Y> max
[Note] Privacy mask color level tuning value at Fig. 5

iv) Privacy Mask color (B-Y) setting

:RF92300
:WF923X_1X_0
(X_1X_0=00 - 0F ; 16 step)
H'00 ; <B-Y> min
H'08 ; <B-Y> center [default]
H'0F ; <B-Y> max
[Note] Privacy mask color level tuning value at Fig. 5

[Masking color vector]



(x, y) ; x =R-Y ; address "F922" data
y = B-Y ; address "F923" data

[example]

"x"	"y"	Setting color
8	8	WHITE
F	8	RED
0	8	GREEN
8	F	BULE
8	0	YELLOW

Fig. 5 Privacy mask color setting

v) Set the Privacy Mask position - MASK1

[New data set] :WF90EX$_1$X$_0$
H'01 ; New data set
Become H'00 after the data processing.
H'00 ; Mask data modify

[H center] :WF904X$_1$X$_0$
(X$_1$X$_0$=81 (nega) - 00 (center) - 7F (plus))

[V center] :WF905X$_1$X$_0$
(X$_1$X$_0$=81 (nega) - 00 (center) - 7F (plus))

[H size] :WF906X$_1$X$_0$
(X$_1$X$_0$=00 - 8F ; 144 step)

[V size] :WF907X$_1$X$_0$
(X$_1$X$_0$=00 - 8F ; 144 step)

vi) Set the Privacy Mask position - MASK2

[New data set] :WF90FX$_1$X$_0$
H'01 ; New data set
Become H'00 after the data processing
H'00 ; Mask data modify

[H center] :WF908X$_1$X$_0$
(X$_1$X$_0$=81 (nega) - 00 (center) - 7F (plus))

[V center] :WF909X$_1$X$_0$
(X$_1$X$_0$=81 (nega) - 00 (center) - 7F (plus))

[H size] :WF90AX$_1$X$_0$
(X$_1$X$_0$=00 - 8F ; 144 step)

[V size] :WF90BX$_1$X$_0$
(X$_1$X$_0$=00 - 8F ; 144 step)

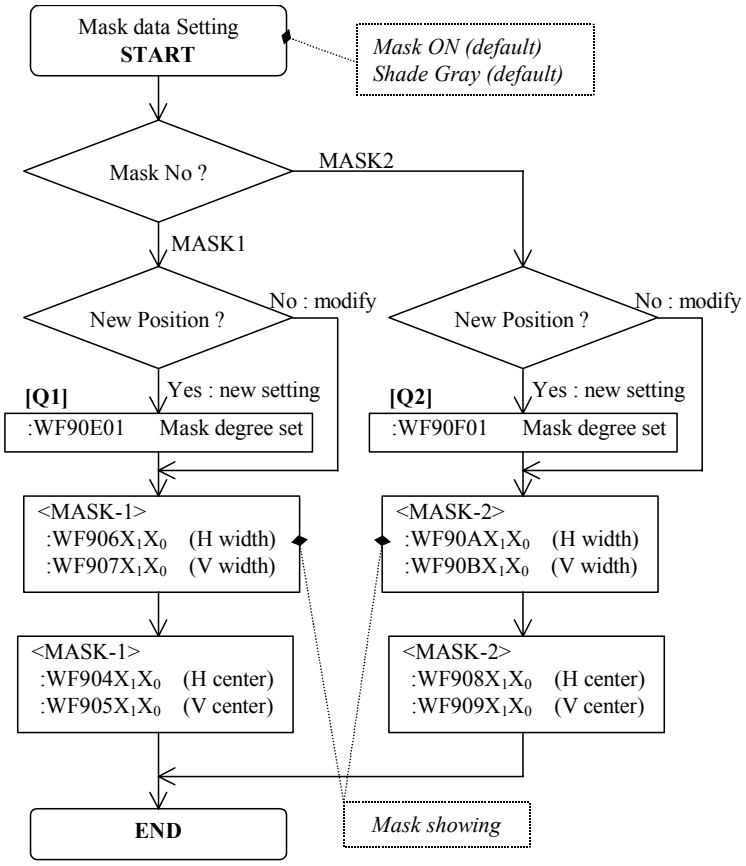
vii) Read the setting degree data of MASK1 / MASK2

:rF9140000 ; Mask 1 H degree data
(data range ; H'00000 - H'1680,
; 0.0625 degree/step)
:rF9160000 ; Mask 1 V degree data
(data range ; H'00000 - H'1680,
; 0.0625 degree/step)
:rF9180000 ; Mask 2 H degree data
(data range ; H'00000 - H'1680,
; 0.0625 degree/step)
:rF91A0000 ; Mask 2 V degree data
(data range ; H'00000 - H'1680,
; 0.0625 degree/step)

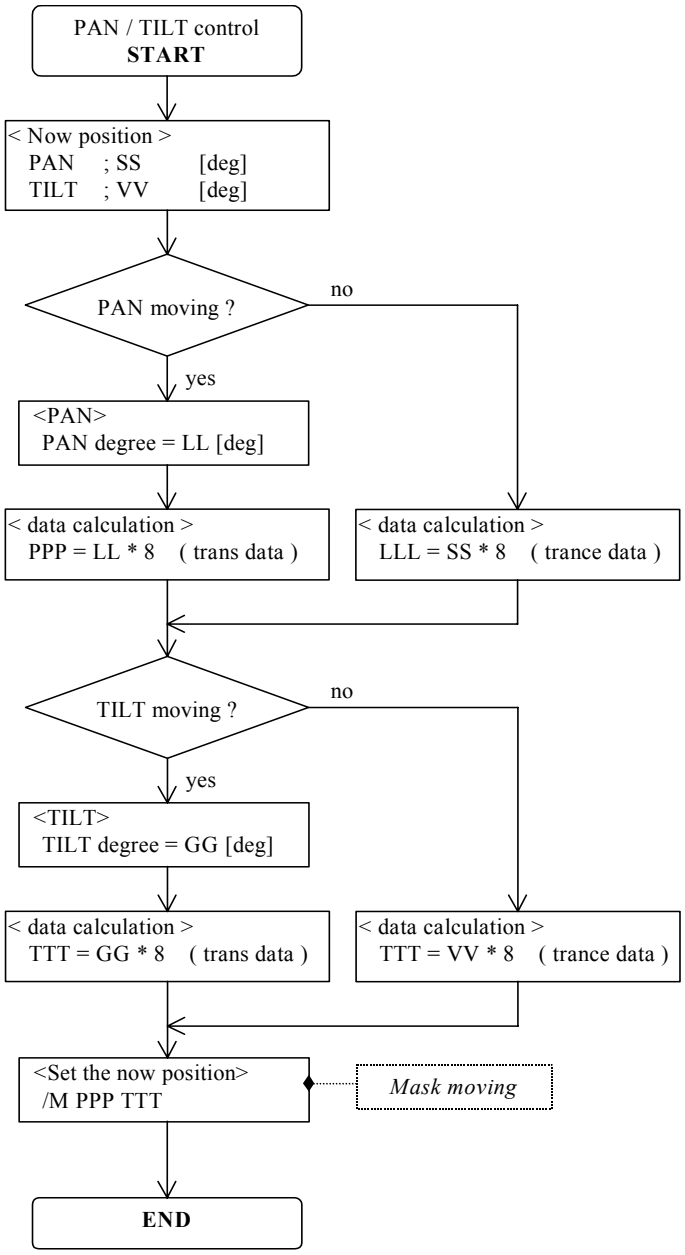
viii) Degree data (Pan / Tilt)

/MX$_2$X$_1$X$_0$Y$_2$Y$_1$Y$_0$ [special write command]
X$_2$X$_1$X$_0$; PAN degree
Y$_2$Y$_1$Y$_0$; TILT degree
(X$_2$X$_1$X$_0$ / Y$_2$Y$_1$Y$_0$ 000 - B40 ; 0.125 degree/step)

5. Flow Chart:
   a) Center position, Width data setting:
      Follow the flow chart below for the center position and width data setting.
      Masking setting angle data will be memorized when [Q1][Q2] are sending.



b) PAN / TILT Angle data setting:
Refer to the flow chart below for the PAN / TILT angle setting:



• APPENDIX

REV. No.	DATE	Firmware Version				Contents
		VK-S274R	VK-S274ER	VK-K274R	VK-K274ER	
1.0	2003/01/22	Ver. 1.02	*Not Complete*	*Not Complete*	*Not Complete*	**New Release**
1.1	2003/04/21	Ver. 1.02	Ver. 1.02	Ver. 1.02	Ver. 1.02	<Addition Model> VK-S274ER, VK-K274R, VK-K274ER