USER MANUAL

DIGITAL TURBO DOME CAMERA

MODEL NO. NK-97(98) CHE/CHR/CHS

NIKO

Contents

I. Preface

We truly appreciate that you purchase the high-performance digital turbo Dome Camera (2 kinds: NK-97 CHE/CHR/CHS series and NK-98 CHE/CHR/CHS series) (hereinafter "Dome Camera). This product is designed to be installed and utilized indoors for the purpose of crime prevention such as a means of burglarproof in large buildings, especially large distribution stores, hotels or offices not to mention small buildings. This instruction manual contains the contents that users must be well informed of about the product ranging from Features & Construction of Product, Installation, Function & Instruction to Troubleshooting in case of malfunctioning.

Therefore, we highly recommend that buyers manipulate the product after reading through the manual carefully and keep the manual.

1. Instruction & Features of Product

(1) Introduction

Dome Camera (NK-97 (98) CHE/CHR/CHS) is the most appropriate product ever designed for the 21st century crime prevention system that materializes the most advanced technology perfectly. Depending on how peripheral connecting devices are hooked up, there are 6 models of it produced and put on the market.

▶ **NK-97 (98) CHE: PC or DVR connection type**

▶ **NK-97 (98) CHR: Receiver connection type**

▶ **NK-97 (98) CHS: Sensor connection type**

✳ Difference between NK-97 series NK-98 series
NK-97 series are equipped with a 22X optical zoom and deliver the power of a maximum of 220X digital zoom.
NK-98 series with a 27X optical zoom and maximum of 270X digital zoom.

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(2) Main Features

1) High definition screen provided

The camera provides the high quality picture of 811(H) X 508(V) effective pixels.

2) 128 Preset Position function.

A maximum of 128 Preset Position available enable the camera to keep under the optimal surveillance more promptly and accurately certain locations that should be watched tightly.

3) Auto Pan function

The camera has an AUTO PAN function that allows keeping under surveillance every detail occurring around the specific area, which is preset to watch in advance

4) Auto Flip Function

The camera will not allow a blind spot for surveillance, for it is ENDLESS TYPE capable of 360° rotations. That is, when the camera is operated to tilt through the 90° degree, it can watch the opposite side of the locations by Auto rotation of a 180° degree horizontally.

5) Sophisticated design

This is the surveillance camera that can fit with any indoor surroundings because it comes in the compact size and sophisticated design.

6) 22X(27X) Zoom Lens & Auto Focus Function

In case of NK-97 series model, it has a 22X optical Zoom Lens (built-in item) built inside and can zoom in and out on object quickly.
The digital zoom(optional) has a powerful Zoom function capable of 220X at maximum.
In case of NK-98 series model, it has a 27X optical Zoom Lens built in as an optional item and digital Zoom is capable of 270X at maximum. And with an Auto Focus function built in, the moment Pan and Tilt stop, the Focus in adjusted automatically. So the camera is capable of detecting a subject precisely wherever it is indoors.

7) Sensor (detector) linkage function.

The camera is capable of capturing a subject by the focus of camera moving promptly toward the subject at the rate of 360° degree/sec when working with each detector (magnetic, beam, infrared rays) and a subject moving within a detection area is captured by a detector.

8) Control by General CONTROLLER possible

This camera can be controlled by any type of communication modes such as RS-232C, RS-422, RS-485 of PC CONTROL. Especially the camera has an excellent cost-saving effect in constructing system because it can be controlled by a general Rx point of contact signal and easily controlled by a Controller.

9) Connection among a maximum of 256 cameras possible

This camera can be utilized after being connected with a maximum of 256 cameras. Therefore, it is capable of performing an excellent job at its best in large buildings or large distribution stores.

10) Color ON/OFF

This camera can select COLOR or BLACK & WHITE in color. So, with COLOR set in the daytime and BLACK & WHITE at nighttime due to the low illumination then, the camera can watch around the clock.

11) Power Supply

This camera can use both DC 24V and AC 24V as a power supply, which enables the camera to be installed and used flexibly with convenience in any environment.

2. Precautions

(1) Do not attempt to disassemble the camera.

To prevent electric shock, do not remove screws or covers.
There are no user serviceable parts inside. Ask a qualified service person for servicing.

(2) Handle the camera with care.

Do not abuse the camera. Avoid striking, shaking, etc. the camera could be damaged by improper handling or storage.

(3) Do not expose the camera to rain or moisture

This product is designed for indoor use or locations where it is protected from rain and moisture.
When exposed to moisture, turn the power off immediately and ask a qualified service person for servicing. Moisture can damage the camera and also create the danger of electric shock.

(4) Do not use or abrasive detergents.

Use a dry cloth to clean the camera when dirty.
In case the dirt is hard to remove, use a mild detergent and wipe gently.

(5) Never face the camera towards the sun.

Do not aim the camera at bright objects. Whether the camera is in use or not, never aim it at the sun or other extremely bright objects. Otherwise, blooming or smear may be caused.

(6) Do not install this camera upside down.

This camera is designed for mounting on the ceiling or wall. Using this camera installed upside down, for example, mounted on the floor, may cause malfunction.

(7) If "OVER HEAT" sign appears on the monitor screen.

The temperature inside the camera exceeds the normal level because of a malfunction of the cooling fan etc.Turn the power off immediately and refer servicing to qualified service personal.

(8) Do not operate the camera beyond the specified temperature, humidity or power source ratings.

Use the camera under conditions where temperature is between - 10°C ~ +50°C (14° F ~ 122°F), and humidity is below 90%. The input power source is AC 24V or DC 24V.

(9) Do not install the camera near the air outlet of an air conditioner.

The lens may become cloudy due to condensation if the camera is used under the following conditions.
- Rapid temperature fluctuations by switching the air conditioner on and off.
- Rapid temperature fluctuations due to frequent door opening and closing.
- Use in an environment where eyeglasses become foggy.
- Use in a room filled with cigarette smoke or dust.

If the lens becomes cloudy due to condensation, remove the dome cover and wipe all moist surfaces with a soft cloth.

(10) Consumables

Parts having contacts such as the lens-drive motors, cooling fan motor and slip-rings built inside the camera are subject to wear with time. About replacement and maintenance of such parts, please ask the nearest service center.

3. Construction

Check whether this product includes the following accessories before the installation

(1)

(2)

(3)

Option

(5)

(6)   (7)

(4)
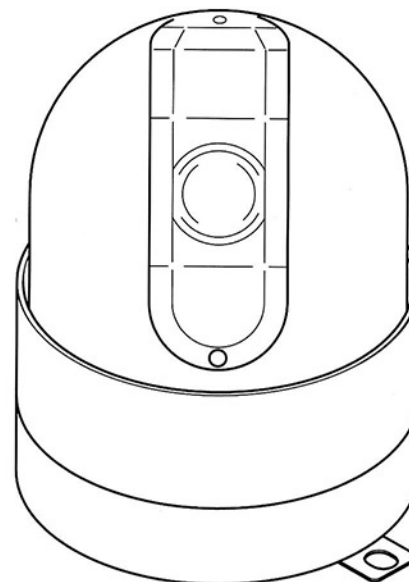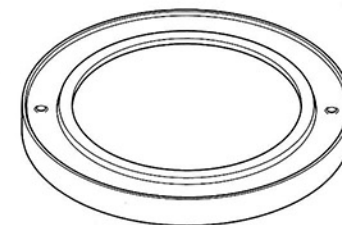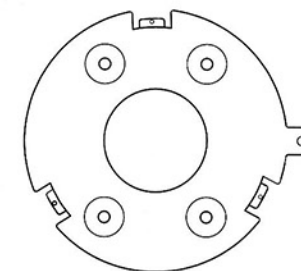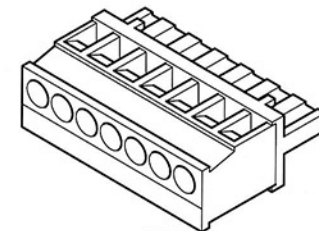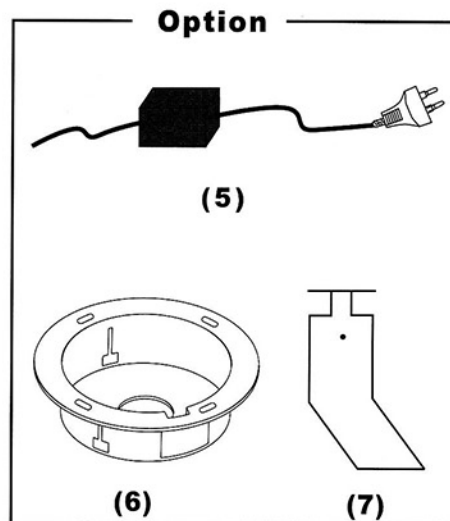
(1) Camera Body
(2) Decoration Cover
(3) Camera Mounting Base
(4) Connector
(5) Adapter (Optional)
(6) Insert Ceiling Bracket Camera Base (Optional)
(7) Fall Prevention Special Screw (Insert Ceiling Bracket)

II. Installation

1. Camera Installation

❊ Precautions

*   The following steps of installation and connection should be taken by qualified service personnel or system engineer and should conform to all installation regulations.
*   Make sure to switch the camera off before installation and connection.
*   Do not install the camera near the air outlet of an air conditioner.

#### (1) Setting the switches

The DIPswitch of the camera is a 6-bit switch and employs RS-485 communication mode for basic use. Switch settings are read in to the camera when the power is turned on. Make sure to turn it off, then turn it back after changing the switch settings.
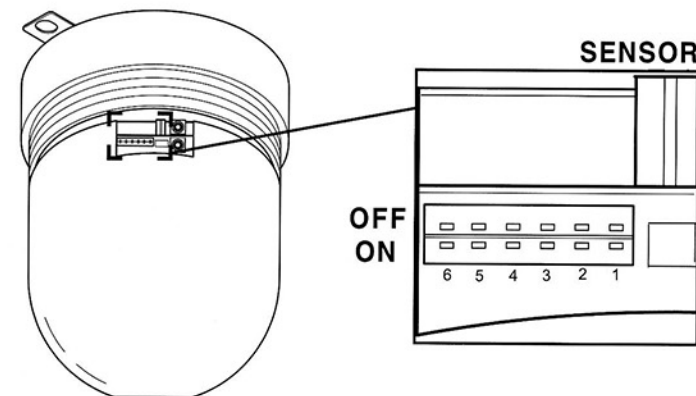
1) RS-485 Parameter Setup

The selected protocol, communication parameters, and set unit numbers are read into the camera when power is switched on.

(1) Remove the aluminum ring from the camera

(2) Switch off the camera

(3) Set the DIP switch on the bottom part of the backside of the camera according to the function shown in the table below

(4) Switch on the camera

(5) Setup is completed

2) DIP Switch Function

| No.	On	Off	FUNCTION	EFFECT
1	O		TERMINATE	Communication Noise Decreases When 2 Cameras or Over are installed.
2 3	O O		BAUD RATE	19,200bps
2 3	O	O	BAUD RATE	9,600bps(Generally used, the condition at the time of the shipment)
2 3	O	O	BAUD RATE	4,800pbs
2 3		O O	BAUD RATE	2,400bps
4 5	O	O	LEFT/RIGHT CONVERSION	Camera Left/Right conversion (When Camera is used turned up side down)
6 6	O	O	RS-485 RS-422	Set the Communication type meeting the Controller

(2) Camera ID Setting
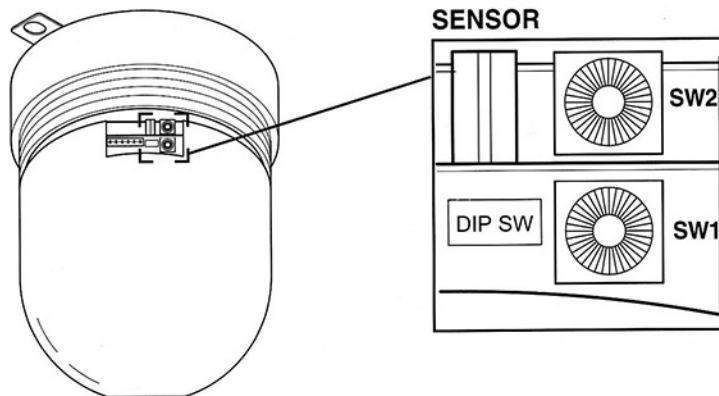
This camera has the camera ID set at "1" at the time of the shipment. In case of using 2 cameras or over simultaneously, change the ID to "2" by turning the DIP switch rotation axis
(SW1) of the 2 camera with a screwdriver.
Set the camera ID setting referring to the pictures above and the table below.

Camera ID	Switch No. 1	Switch No. 2	Camera ID	Switch No. 1	Switch No.2	Camera ID	Switch No.1	Switch No. 2	Camera ID	Switch No. 1	Switch No. 2
0	0	0	32	0	2	64	0	4	96	0	6
1	1	0	33	1	2	65	1	4	97	1	6
2	2	0	34	2	2	66	2	4	98	2	6
3	3	0	35	3	2	67	3	4	99	3	6
4	4	0	36	4	2	68	4	4	100	4	6
5	5	0	37	5	2	69	5	4	101	5	6
6	6	0	38	6	2	70	6	4	102	6	6
7	7	0	39	7	2	71	7	4	103	7	6
8	8	0	40	8	2	72	8	4	104	8	6
9	9	0	41	9	2	73	9	4	105	9	6
10	A	0	42	A	2	74	A	4	106	A	6
11	B	0	43	B	2	78	B	4	107	B	6
12	C	0	44	C	2	76	C	4	108	C	6
13	D	0	45	D	2	77	D	4	109	D	6
14	E	0	46	E	2	78	E	4	110	E	6
15	F	0	47	F	2	79	F	4	111	F	6
16	0	1	48	0	3	80	0	5	112	0	7
17	1	1	49	1	3	81	1	5	113	1	7
18	2	1	50	2	3	82	2	5	114	2	7
19	3	1	51	3	3	83	3	5	115	3	7
20	4	1	52	4	3	84	4	5	116	4	7
21	5	1	53	5	3	85	5	5	117	5	7
22	6	1	54	6	3	86	6	5	118	6	7
23	7	1	55	7	3	87	7	5	119	7	7
24	8	1	56	8	3	88	8	5	120	8	7
25	9	1	57	9	3	89	9	5	121	9	7
26	A	1	58	A	3	90	A	5	122	A	7
27	B	1	59	B	3	91	B	5	123	B	7
28	C	1	60	C	3	92	C	5	124	C	7
29	D	1	61	D	3	93	D	5	125	D	7
30	E	1	62	E	3	94	E	5	126	E	7
31	F	1	63	F	3	95	F	5	127	F	7

Camera ID	Switch No. 1	Switch No. 2	Camera ID	Switch No. 1	Switch No. 2	Camera ID	Switch No. 1	Switch No. 2	Camera ID	Switch No. 1	Switch No. 2
128	0	8	160	0	A	192	0	C	224	0	E
129	1	8	161	1	A	193	1	C	225	1	E
130	2	8	162	2	A	194	2	C	226	2	E
131	3	8	163	3	A	195	3	C	227	3	E
132	4	8	164	4	A	196	4	C	228	4	E
133	5	8	165	5	A	197	5	C	229	5	E
134	6	8	166	6	A	198	6	C	230	6	E
135	7	8	167	7	A	199	7	C	231	7	E
136	8	8	168	8	A	200	8	C	232	8	E
137	9	8	169	9	A	201	9	C	233	9	E
138	A	8	170	A	A	202	A	C	234	A	E
139	B	8	171	B	A	203	B	C	235	B	E
140	C	8	172	C	A	204	C	C	236	C	E
141	D	8	173	D	A	205	D	C	237	D	E
142	E	8	174	E	A	206	E	C	238	E	E
143	F	8	175	F	A	207	F	C	239	F	E
144	0	9	176	0	B	208	0	D	240	0	F
145	1	9	177	1	B	209	1	D	241	1	F
146	2	9	178	2	B	210	2	D	242	2	F
147	3	9	179	3	B	211	3	D	243	3	F
148	4	9	180	4	B	212	4	D	244	4	F
149	5	9	181	5	B	213	5	D	245	5	F
150	6	9	182	6	B	214	6	D	246	6	F
151	7	9	183	7	B	215	7	D	247	7	F
152	8	9	184	8	B	216	8	D	248	8	F
153	9	9	185	9	B	217	9	D	249	9	F
154	A	9	186	A	B	218	A	D	250	A	F
155	B	9	187	B	B	219	B	D	251	B	F
156	C	9	188	C	B	220	C	D	252	C	F
157	D	9	189	D	B	221	D	D	253	D	F
158	E	9	190	E	B	222	E	D	254	E	F
159	F	9	191	F	B	223	F	D	255	F	F

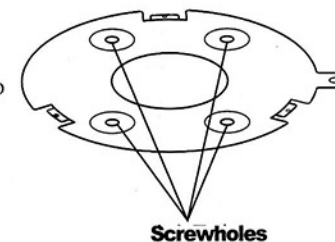## (3) Assembly & Installation procedure of camera

✳ *Precautions*

Be sure to select a ceiling board strong enough to support 4 times the total weight of the camera.
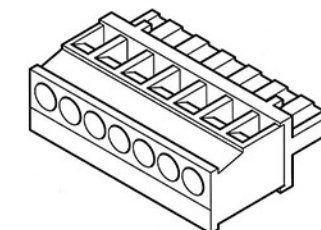
1) Camera Mounting Base

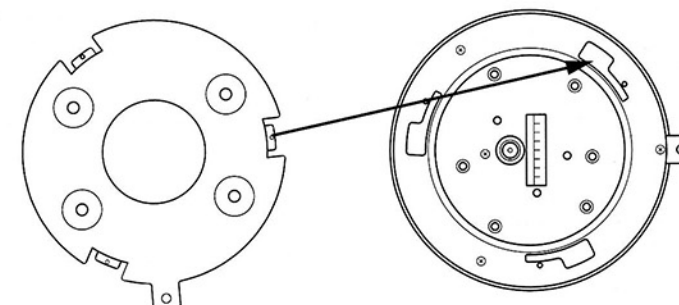① Prepare a 5-cm hole in diameter in the ceiling board to run the .

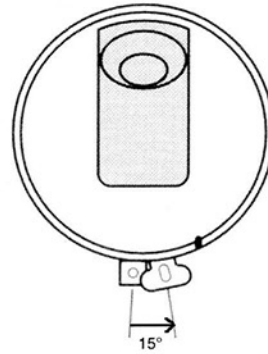② Fix the Camera Mounting Base to the ceiling with four screws.

Screwholes

③ Connect the data connector and the video output terminal (2. Refer to the wiring connection)

④ Place the Camera Mounting Base connection hole of the back panel of the camera on the protruding part of the Camera Mounting Base.
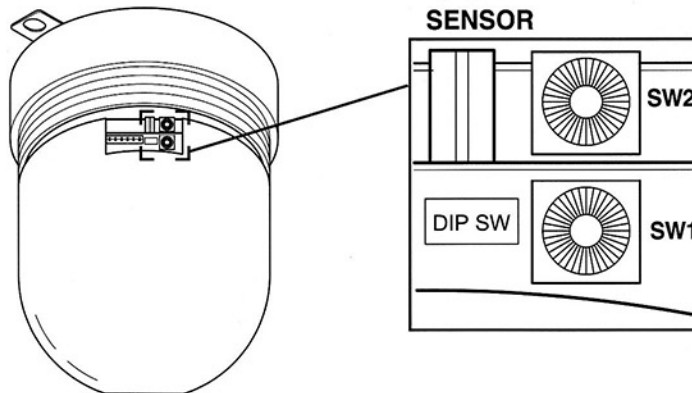
⑤ Rotate the camera counterclock-
wise by 15° and attach it to
meet the horizontal movement
start point.

15°

⑥ Fix the Camera Mounting Base
and the camera to the hole of
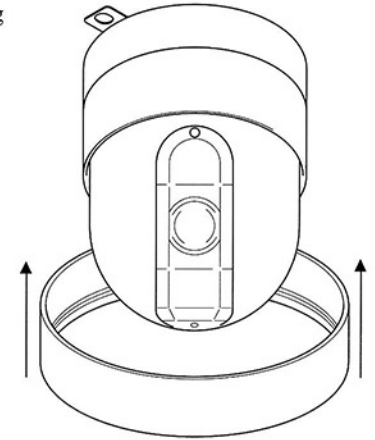horizontal movement start point.
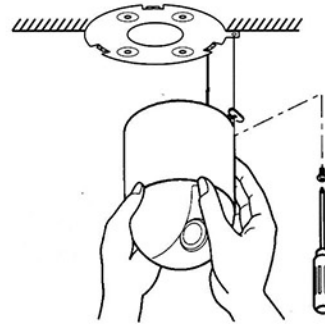
⑦ Select the proper ID for the camera.

SENSOR

SW2

DIP SW   SW1

✷ Precautions

*   Use the supplied dust protection sheet if the Camera Mounting Base
    is liable to exposed to a dusty atmosphere.
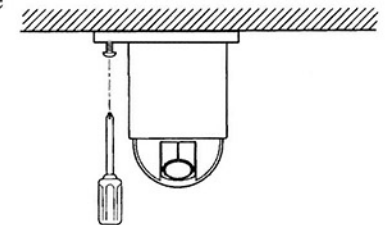*   The sheets attached on the camera upon shipment

⑧ Turn and mount the aluminum ring
on the camera.

⑨ Mark the spot in the ceiling to
mount the decoration cover on
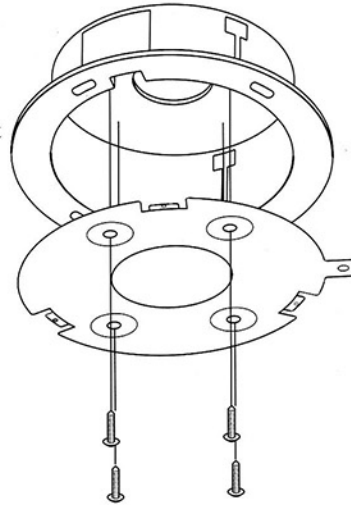with it attached on the ceiling
and mounts it there.
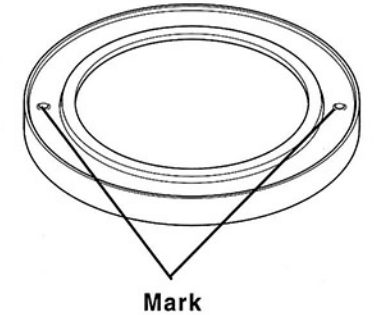
Mark

⑩ Fix the decoration cover to the
ceiling using 2 screws after
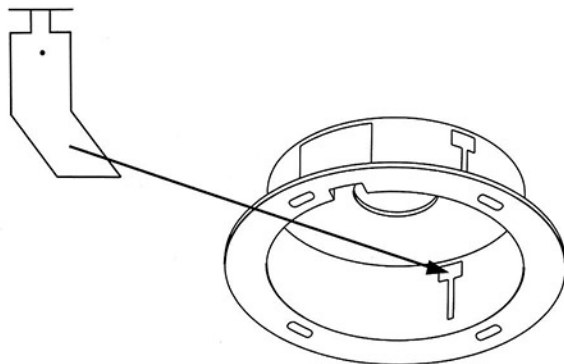letting the decoration cover
pass get past the camera.

2) Insert Ceiling Bracket

① Mark the circle of 17cm in diameter in the ceiling board.

② Cut the marked part.

③ Fix the Basic Camera Mounting Base to the Insert Ceiling Bracket using 4 screws.

④ Connect the data connector with the video output terminal (2. Refer to the Wiring Connection).

⑤ Insert the Insert Ceiling Bracket through the cutout made in the ceiling.

⑥ Put the Fall prevention special screws into the 3 holes inside the Insert Ceiling Bracket and tighten them up again.

⑦ Mark the spot in the ceiling to mount the decoration cover on with it attached on the ceiling and mounts it there.

⑧ Mark the spot in the ceiling to mount the decoration cover on with it attached on the ceiling and mounts it there.
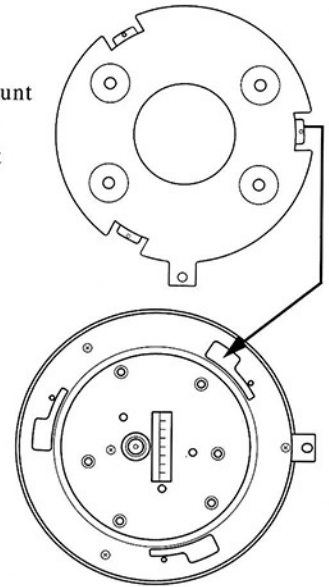
⑨ Fix the Camera Mounting Base and the camera to the hole of horizontal movement start point using a screw.
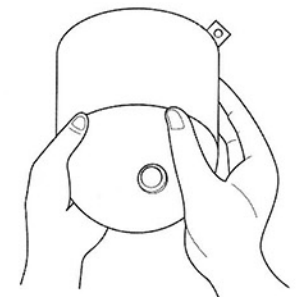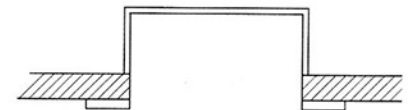
⑩ Rotate the camera counterclock-
wise by 15° and attach it to
meet the horizontal movement
start point.

15°

⑪ Mark the spot in the ceiling to
mount the decoration cover on
with it attached on the ceiling.

⑫ Let the decoration cover get past
the camera and then place and fix
the decoration cover on the screw
hole of the Insert Ceiling Bracket
using 2 screws

2. Connection of Wiring

Check the each applicable type and then connect the wiring acccording to the
table.

✳ Precautions
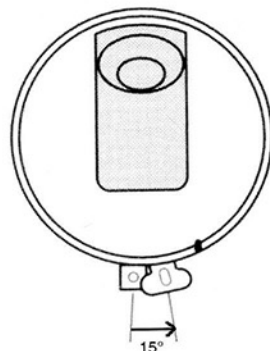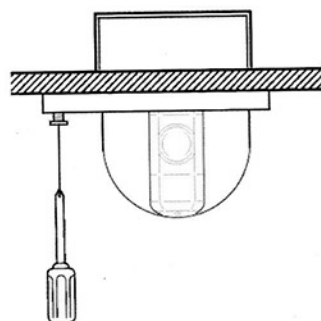*   The following connections should be made by qualified service personnel or
    system installers.
*   Make sure to switch the camera off before installation or connection.
*   Both DC 24V and AC 24V can be used as a power source

The length of Video Cable (BNC 5C2V) is 2000 meters long at maximum.

✳ Note
When powered up, the unit performs a self-check (including one panning,
tilting, zooming and focusing operation)

◈ Recommended wire gauge sizes for Data Cable Connection AC/DC 24V
*   PC, Sensor type
    - Data cable: CVVS 1.25 2C
    - Power source cable: CVV 2.5 2C
*   Receiver type
    - Pan, Tilt (left, right, up, down movement)
      In case of cable being unconnected -VCT 1.25 10C
    - Controller-Receiver: CVVS 1.25 2C
      Receiver-Controller: VCT 1.25 10C

(1) Precautions in connecting wiring

**1) The twin axis cable is recommended for a communi
cation cable.**

2) In case of RS-422 communication system (a unit for control)

① RS-232 TO RS-422/485 converter is used.
② The twin axis is used, which consists of 3 pieces of twisted pair cable
   tied together
③ Set the slide switch of converter at 422.
④ Connect a piece of the twisted pair cable to the Rx-, Rx+ terminal
   of the converter.
⑤ Connect another piece of the twisted pair cable to the Tx-, Tx+
   terminal of the converter.
⑥ Tie the last piece of the twisted pair cable and other remaining cables
   together and connect it to GND terminal.
⑦ Apply the same connections as the controller's to the camera.
⑧ It is not necessary to control the RTS signal in the application of
   Controller (PC, DVR etc).
⑨ In case of using the converter without an external power source, DTR
   signal should be maintained as "ON" in the application of Controller
   (PC, DVR etc)

**3) In case of RS-422 communication system (many units for
control), set RTS signal at ON only when transmission
action is being made in the application of Controller (PC,
DVR etc), at OFF for the rest of the time.**

**4) In case of RS-485 communication system (a unit for control)**

① RS-232 TO RS-485 converter is used.

② The twin axis is used, which consists of 2 pieces of twisted pair cable tied together

③ Set the slide switch of converter at 485.

④ Connect a piece of the twisted pair cable to the TRx-, TRx+ terminal of the converter.

⑤ Tie another piece of the twisted pair cable and other remaining cables together and connect it to GND terminal.

⑥ Apply the same connections as the controller's to the camera.

⑦ It is not necessary to control the RTS signal in the application of Controller (PC, DVR etc).

⑧ In case of using the converter without an external power source, DTR signal should be maintained as "ON" in the application of Controller (PC, DVR etc)

5) In case of RS-485 communication system (many units for control), set RTS signal at ON only when transmission action is being made in the application of Controller (PC, DVR etc), at OFF for the rest of the time.

6) When AC 24V is in use, make sure to insulate the first part from the second part using Adapter.

7) When DC 24V is in use, use a power source unit excellent at insulation.

8) Assign a single power source unit to the camera if possible

9) Camera should be insulated from any external objects.

(2) Connection method by types

1) PC or D.V.R type (NK-97, 98CHE) connection.

1	2	3	4	5	6	7
Power	Power	RxD–	RxD+	TxD–	TxD+	FGND
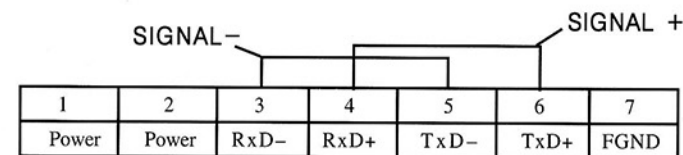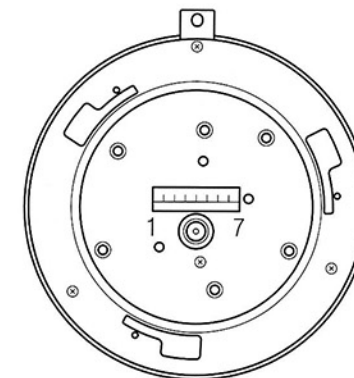
① In case of using RS-422 or RS-485 system, tie RxD+, TxD+ and connect them to SIGNAL+; RxD-,TxD- to SIGNAL- as shown in the table above. (in case of using NK-2000Tx Controller)

② In case of using Controller from other companies, use RxD- (No. 3) for SIGNAL-, RxD+(No.4) for SIGNAL+ and it does not matter whether to tie together TxD+ and TxD-. (DVR or PC used)

③ In case of using RS-485 in PC, use the converter designed to convert from RS-232 to RS-485.

④ Connect the Data cable to the converter converting from RS-232 to RS-485, and then connect them to the SERIAL PORT of PC or DVR.

⑤ Connect video-input terminal to the VIDEO IN of TV monitor.
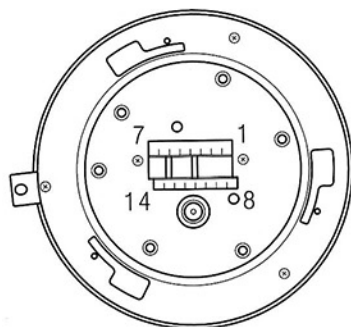
⑥ DC power source is neutral

✳ Precautions

Make sure to connect the shielded cable of CAMERA DATA to the F/GND.

2) Receiver type (NK-97, 98 CHR) connection

✳ *Precautions*

Make sure to match the COM terminal of RECEIVER with the COM terminal of CAMERA in connecting RECEIVER.

7	6	5	4	3	2	1
220V P/T COM	110V P/T COM	24V P/T COM	Z-F ZOOM	F G N D	Power	Power

| 14	13	12	11	10	9	8
LEFT	RIGHT	U P	D O W N	AUTO -PAN	Z O O M	FOCOS

✳ PAN and TILT speed adjustment

① PAN speed increase: Press UP with LEFT or Right of Controller pushed.

② PAN speed decrease: Press DOWN with LEFT or Right of Controller pushed.

③ In case of increasing/ decreasing TILT speed: Press UP or DOWN with LEFT or Right of Controller pushed.

④ Adjustment of the speed consists of 3 levels. (6°/ SEC, 12°/ SEC, 24°/SEC). However it only applies to products capable of using Relay Point of Contact.

⑤ Focus is set to MANUAL at the time of shipment.
In case of activating AUTO FOCUS, press MENU at the back panel of the camera, and then set AUTO/MANUAL in FOCUS MODE

⑥ DC power source is neutral.

✳ *Precautions*

Make sure to connect the shielded cable of CAMERA DATA to the F/ GND.

3) SENSOR type (NK -97,98 CHS) connection

Power/Data

Sensor or Alarm

VIDEO (BNC)
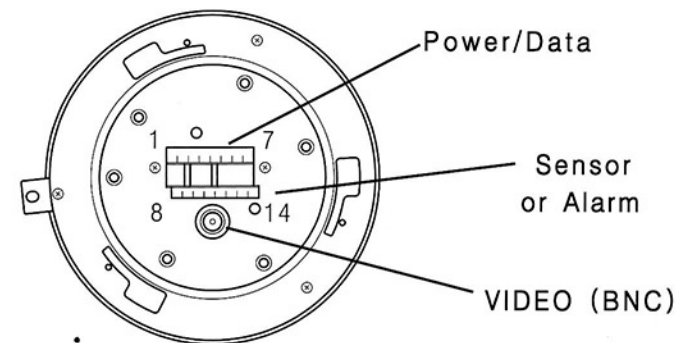
SIGNAL –   SIGNAL +

1	2	3	4	5	6	7
Power	Power	RxD-	RxD+	TxD-	TxD+	FGND

8	9	10	11	12	13	14
Sensor1	Sensor2	Sensor3	Sensor4	Sensor5	Sensor6	Sensor7

① In case of using RS-422 or RS-485 system, tie RxD+, TDx+ and connect them to SIGNAL+; RxD-,TxD- to SIGNAL- as shown in the table above.

② Up to 7 sensors are available and tie the COM of sensor to F/GND in parallel.

③ In case of using RS-485 in PC and DVR, use the converter that converts from RS-232 to RS-485.

④ DC power source is neutral.

✳ *Precautions*

Make sure to connect the shielded cable of CAMERA DATA to F/GND.

III. Main Functions (Menu Description)

1. Each name of Camera by parts
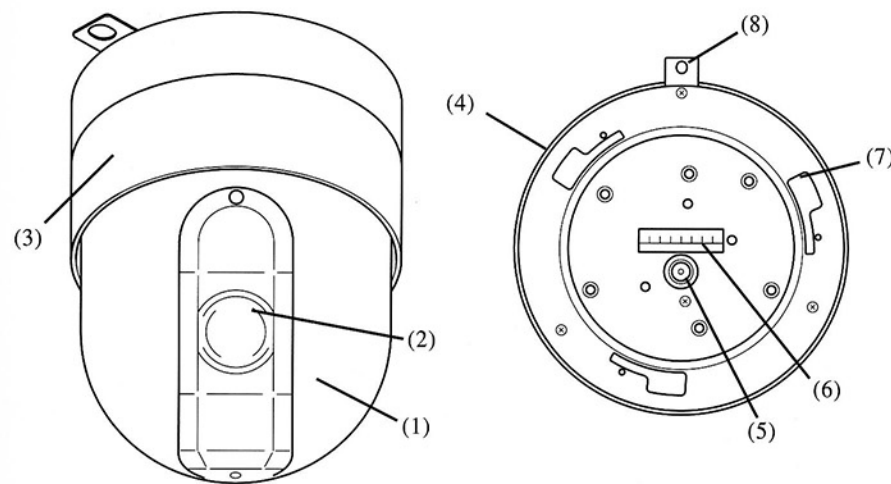
(1) Dome Cover	(2) Lens
(3) Aluminum Ring	(4) Back Panel of Camera
(5) Video Output Terminal	(6) Power Source, Data Connection Terminal
(7) Connection hole	(8) Horizontal movement start point & Camera Fixture hole

2. Focus

(1) Type of Focus

1) Manual

Adjusts the focus manually.

2) Adjusts the focus manually.

Adjusts the focus automatically tracing moving objects.

3) Push Auto

Adjusts the focus at the fixed position automatically and prevents being affected by WHITE BALANCE.("☞" appears on the monitor when in PUSH AUTO)

(2) Speed Adjustment of Focus

1) **STEP:** Makes the adjustment speed of focus faster or slower by one steplevel upon one adjustment.

2) **SLOW:** Adjusts the focus slowly

3) **QUICK(FAST):** Adjusts the focus quickly

(3) Adjustment of Focus

Focus can be adjusted to watch the wanted object making it look far away or near only when in MANUAL or PUSH AUTO mode. In AUTO FOCUS mode, Focus can be adjusted not manually but automatically.

3. ZOOM

(1) Zoom-In & Zoom-Out

Zoom-In (drawing an object near) & Zoom-Out (placing an object far away) make it possible to watch an object conveniently and accurately.

(2) Zoom lens

1) NK-97 series camera
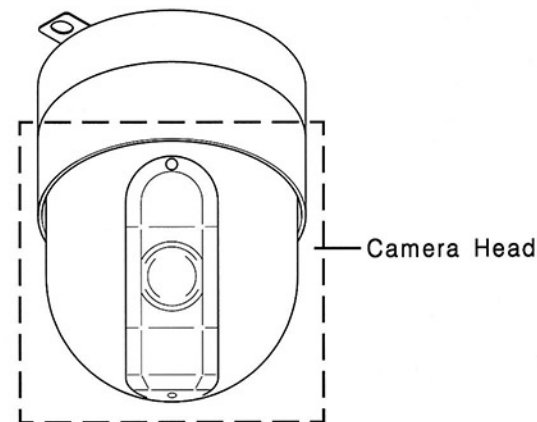① Optical zoom : 22X
② Digital zoom : 44 (2x), 88X(4x), 220X(10x)

* Initially presetted as 44X

2) NK-98 series camera
① Optical zoom : 27X
② Digital zoom : 54X (2x), 108X(4x), 270X(10x)

* Initially presetted as 54X

4. Camera Head

Camera Head

(1) Movement

1) **UP:** Moves the Camera Head Up

2) **DOWN:** Moves the Camera Head Down.

3) **LEFT:** Moves the Camera Head Left.

4) **RIGHT:** Moves the Camera Head Right.

(2) UP: Moves the Camera Head upwards.

1) **TILT:** Sets the speed of the Camera Head moving up and down. (0~ 255 levels are available to set and the speed gets faster as the number gets high)

2) **PAN:** Sets the speed of the Camera Head moving left and right. (0~ 255 levels are available to set and the speed gets faster as the number gets high)

(3) Camera ID

You can control and adjust 256 cameras in total. The Camera ID can select from 0 to 255.
(Install different Line AMP to every 32 units.)

5. Preset Position Setting

(1) Preset

Enables to watch up to 128 points promptly and accurately, which are programmed in advance.

(2) Operation Description of Preset

1) **MOVE:** Moves to the selected Preset number ranging from 1 to 128.

2) **SET:** Sets the current position of the Camera Head to the desired number.

(3) Preset Command

1) **POSITION No.:** Preset Position Setting number set using MOVE, SET, CLEAR, REPLACE and ALL CLEAR button. Selectable from 0 to127.

2) **MOVE:** Moves to the selected Position No.

3) **SET:** Is used to set the direction of Camera Head and the position to establish to the selected Position No.

4) **CLEAR:** Clears the selected Position No.

5) **REPLACE:** retrieves the cleared Preset Setting.

6) **ALL CLEAR:** Deletes the all Preset Setting

(4) SCAN

1) **SCAN:** Moves to the Preset Position in sequence.

2) **HALT TIME:** The interval time that takes when the Camera Head stops before moving from one Preset Position No. to the next one.(available from 1 to 60sec)

3) **STOP:** Discontinues SCAN

6. Auto Pan

Enables to watch what are occurring in the selected areas while the Camera Head is panning after presetting the start position and the end position.

(1) Auto Pan Setting

1) **Set the start position as No. 1, and then place the Camera Head on the desired point and set the search speed (panning speed) and the Halt Time (Halt Time before the next search after moving from the start position to the end position).**

  - Panning Speed: available from 0 to 255 levels
  - HALT TIME: available from 1 to 60 sec

2) **Set the end position as No. 2 and then place the Camera Head on the desired point and set the search speed and the Halt Time.**

7. Camera

(1) Focus Mode

This is to convert the Focus Mode from AUTO to MANNUAL MODE and vice versa.

(2) Camera Adjust

The Camera Adjust MENU appears on the TV screen, not on the monitor in case of PC, not on the LCD in case of the Controller.

1) **OSD MENU1**

MEMU 1	
INITIAL SET	
BACKLIGHT	ON
COLOR	ON
NEGATIVE	OFF
FOCUS	PUSH AUTO
FLICKERLESS	OFF
WBC MODE	AUTO

① INTIAL SET

Turn the initial mode ON, and then the changed data are renewed (reset back to the factory setting)

② BACKLIGHT

In case the excessive light is behind the center object, it is necessary to prevent the center object from being too dark.

③ COLOR

Use for changing color and monochrome of picture.

ON: Color mode, OFF: Monochrome mod

④ NEGATIVE

Use for changing NEGATIVE and POSITIVE mode.

ON: Negative mode. OFF: Positive mode

⑤ FOCUS

Use for changing Focus mode

A. PUSH AUTO

Set the focus mode to PUSH AUTO

B. AUTO/ MANUAL

Set the focus mode to AUTO/ MANUAL

⑥ FLICKERLESS

Use for removing the flicker of picture

ON: Remove the flicker (in case of NTSC System: Shutter speed 1/ 100 sec. In case of PAL System: Shutter speed 1/120.)

⑦ WBC MODE

You can select one of six modes for white balance within a color temperature range of 2800°K ~ 8000°K.

* WHITE BALANCE

Use the WHITE BALANCE function to capture scenes not affected by the phenomena where a color of blue appears in case of the external illuminant of high color temperature; a color of red in case of the external illuminant of low color temperature.

A. AUTO

In this mode, accurate white balance is obtained with a color temperature range of approx. 2800°K ~ 8000°K.

B. PUSH AUTO

An object in a regular environment is forced to do white balance action. And then the MWB mode should be turned off (Manual white balance mode). It makes good use of Manual white balance mode in the usual environment. It can prevent excessive color-loading or discoloring in AUTO white balance condition.

C. MANUAL

In this mode, there are 50 levels of hue control adjustment available manually.

D. OUTDOOR

In this mode, white balance adjustable for outdoor use can be obtained within a color temperature range of approx. 5100°K ~8000°K

E. INDOOR

In this mode, white balance adjustable for outdoor use can be obtained within a color temperature range of approx. 3200°K ~8000°K

F. SPECIAL

Under the special white balance condition (different from the refraction of the color temperature control), adjust Red and Blue to perform a desired Auto white balance. 0~ 255 level for each gain in red and blue.

2) OSD MENU 2

MEMU 2	
CAMERA ID	OFF
SHARPNESS	12
BRIGHTNESS	51
AE MODE	AUTO

① CAMERA ID

To connect a large number of cameras, ID can be assigned to each camera for convenient camera control.

(0~255: total number of ID is 256)

* In order to transmit a recognition password of a camera, set the recognition number of the camera at a first byte under the control status of PC and then recognition munber of the camera appears consecutively

② SHARPNESS

Use to change the contour of scene (0~15 Step)

③ BRIGHTNESS

Use to change the brightness of scene (0~99 Step)

※ **Note**

The effect of the Brightness Adjustment function can be delayed according to the Adjustment method. (IRIS and AGC function should be performed at the same time)

④ AE MODE AE mode supports to get a fixed exposure

A AUTO

Use to compensate the exposure automatically.

B SHUTTER

Use to adjust the shutter speed control. At this moment, AE mode is activated automatically.

C IRIS ADJUST

Use to change the value of Lens's iris. (IRIS of lens is fixed manually, and the exposure compensation is adjusted depending on the AGC value)

*AGC(AUTOMATIC GAIN CONTROL)

It is to control GAIN automatically when an image with over a certain degree of brightness is obtained after capturing the object in dark illumination.For reference,GAIN is a ratio of incident light from an object being converted to an electric signal. The noise on the screen becomes high because when GAIN gets high, it produces an big electric signal using a small amount of light.

D AGC ADJUST

The adjustment of AGC is available (0~255 Level).

(OFF: "1F", 38db: "E5") (AGC of camera is fixed manually, and the action of exposure compensation depends on the value of IRIS of Lens)

E MANUAL

Use to set the shutter speed, IRIS, AGC manually.

IV. Instruction

1. PC connection

(1) Precautions in installing software

At least the hardware and software shown below are required in order to install CONSOLE (VER1.1), Camera operation control software.

Classification	Contents
PC	IBM PC or its compatible
RAM	Higher than 16MB (32MB recommended)
HDD	At least 10MB-or-over Serial Port
OS	WINDOWS 95 or 98 NT

classfication contents PC IBM-PC or its compatable RAM over 16MB(32MB recommended) HDD Serial port operating system(OS) with over 10MB at least windows 95, 98, NT

(2) Construction of Software

1) **Installation program CD-ROM1**

2) **User Registration Card 1**

3) **Certificate of software license 1**

(3) Construction of System in connecting PC
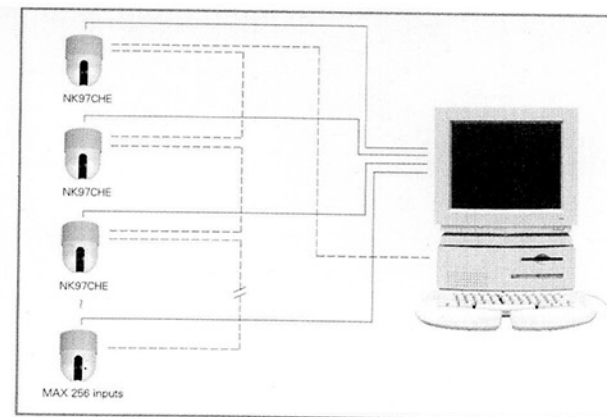
SYSTEM

## (4) Installation of software

1) Execution of SETUP program

① execute WINDOWS.
② insert CD- ROM into the CD-ROM drive of computer
③ open up the SETUP.EXE file in CD-ROM
④ start the installation according to the instruction order on the screen

2) Procedure of operation of SETUP

Installation program helps programs to be installed work properly after copying itself into the computer's hard disk and receiving the information about the user and the computer that installation work is about to be conducted on.

① Conformation of installation
② Setting up the installation channel
③ Setting up Program group
④ Copying program
⑤ Creating CONSOLE folder or program short-cut icon in program menu
⑥ Conformation of completion of program installation

(5) Initial Screen
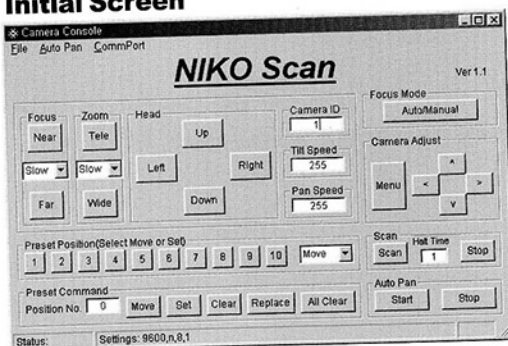
You can see the initial screen as shown above after the installation of CON-SOLE is done properly and it is executed.

(6) Focus
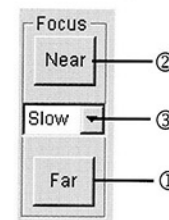
1) FAR: Focus lens move towards to far in manual focus mode
2) NEAR: Focus lens move towards to near in manual focus mode
3) Control focus speed:

    A. Step: one step forward upon one click
    B. Slow: Focus moves slowly.
    C. Fast: Focus moves quickly

(7) Zoom
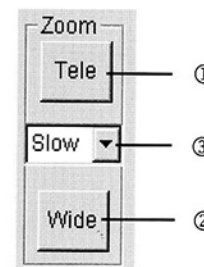

① TELE: Zoom lens move towards to Zoom In
② WIDE: Zoom lens move towards to Zoom Out
③ Speed adjustment of Zoom Lens
    A. Slow: Zoom Lens works slowly.
    B. Fast: Zoom Lens works quickly

(8) Camera Head
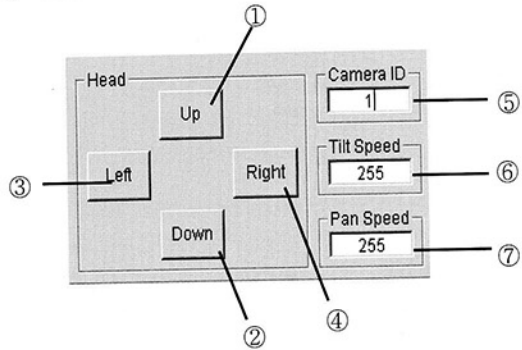
① UP: camera heads move toward to UP

② DOWN: camera heads move toward to DOWN

③ LEFT: camera heads rotates toward to LEFT

④ RIGHT: camera heads rotates toward to RIGHT

⑤ CAMERA ID: select camera to adjust and control

⑥ TILT SPEED: set the speed at which the camera heads move up and down (available from 0-255 levels)

⑦ PAN SPEED: set the speed at which the camera heads move left and right (available from 0-255 levels)
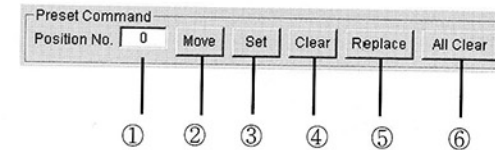
(9) Preset Position
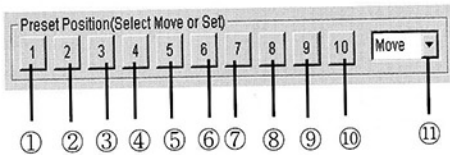
1) Methods for Setting the Preset

1. Change selection to SET by pushing the ⑪ button shown in the above.

2. Set the PP by turning the CAMERA HEAD toward the desired point.(ZOOM IN, ZOOM OUT)

3. Select the [1] in the PRESET POSITION: Setting the PRESET No. 1 is completed.

4. When setting the 2nd PRESET, repeat the procedures of 2 to 3 shown as above.

5. Select the selection to MOVE in the ⑪ after finishing the PRESET setting.

### 2) Preset Position (select MOVE or SET)- hereinafter "PP"

① 1: set or move camera head to PP1

② 2: set or move camera head to PP2

③ 3: set or move camera head to PP3

④ 4: set or move camera head to PP4

⑤ 5: set or move camera head to PP5

⑥ 6: set or move camera head to PP6

⑦ 7: set or move camera head to PP7

⑧ 8: set or move camera head to PP8

⑨ 9: set or move camera head to PP9

⑩ 10: set or move camera head to PP10

⑪ Setting PP operation

　　A. MOVE: moves toward to the PP of selected number

　　B. SET: sets the current position of camera to the PP of selected button

* Notes: For the ones beyond PP11, please refer to the PRESET COMMAND as shown below.

3) Preset Command

① POSITION No.: This is Preset Position number to select using MOVE, SET, CLEAR, ALL CLEAR button (selectable from 0 to 127)

② MOVE: moves toward to the selected POSITION No.

③ SET: sets the current position and condition of camera head at the selected POSITION No.

④ CLEAR: deletes the selected POSITION No.

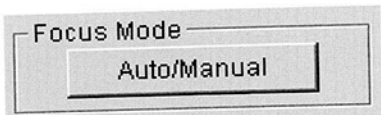⑤ REPLACE: Recovers the setting of PP cleared

⑥ ALL CLEAR: deletes all PP
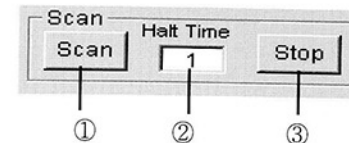
4) Scan

① SCAN: searches the selected PP while moving in sequence.

② HALT TIME: sets the halt time until before moving to the next PP from the previous PP (available from 1~ 60sec)
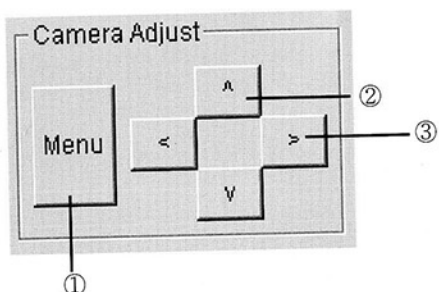
③ STOP: stops SCAN

(10) Camera

1) Focus Mode

AUTO/MANUAL: this button is designed to convert Focus mode of camera. Upon each click, the mode is converted from AUTO to MANUAL or vice versa.

2) Camera Adjust

This is designed to adjust TV monitor while watching it and not displayed on the PC monitor.

① MENU: turns on and off OSD MENU on TV monitor
② UP/ DOWN: sets the value of OSD MENU
③ LEFT/ RIGHT: converts the value of selected OSD MENU

Note:

Use TELE and WIDE of Zoom for each item of OSD MENU

(11) Auto Panning

1) Auto Pan

① START: Starts AUTO PANNING.
② STOP: Ends AUTO PANNING.

If you click on ATUO PAN on the above MENU, SELECT menu is displayed. Upon another click, the below OSD MENU appears.

2) Setting Auto Pan
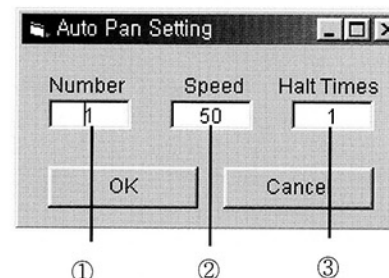
① NUMBER: AUTO PAN No. to select (1 and 2)
② SPEED: the speed of AUTO PAN No. to select. (Available from 0~ 255 levels)
③ HALT TIME: the halt time until before moving to AUTO PAN No1. from AUTO PAN No.2 (available from 0-60 see)

3) Auto Panning Setting

① Place the Camera Head on the position to select as the start point of search area and then set NUMBER as 1
② Set PAN speed
③ Set HALT TIME
④ Place the Camera Head on the position to select as the end point of search area and then set NUMBER as 2
⑤ Set PAN speed

⑥ Set HALT TIME
⑦ Setting is completed
⑧ Check the status of the search using START, STOP button of AUTO PAN

(12) Communication Port
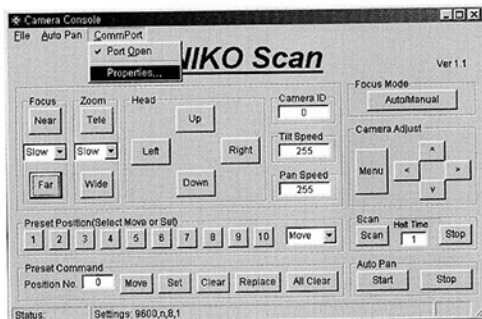
1) Comport

Set PROPERTIES clicking on COMPORT menu.

① PORT: Selects the communication PORT connected to the came
(COM1 -COM 16)
② MAXIMUM SPEED: sets the communication speed.
(110- 256000BPS)

Note: set the normal speed as 9600.

2) Connection Preferences

ⓐ DATA BITS: Communication Data Bit (7 or 8 bit)

Note: normally 8 BIT is set

ⓑ PARITY: Parity Check (EVEN/ODD/NONE/MARK/SPACE)

Note: normally NONE is set

ⓒ STOP BITS: Communication Stop Bits (1/1.5/2)

Note: normally 1 is set

ⓓ ECHO: sets ON/ OFF

Note: normally OFF is set

ⓔ FLOW CONTROL: means Control Method of Communication Data Flow

Note: normally NONE is set

---

2. Controller Connection

(1) Each name of Controller by parts
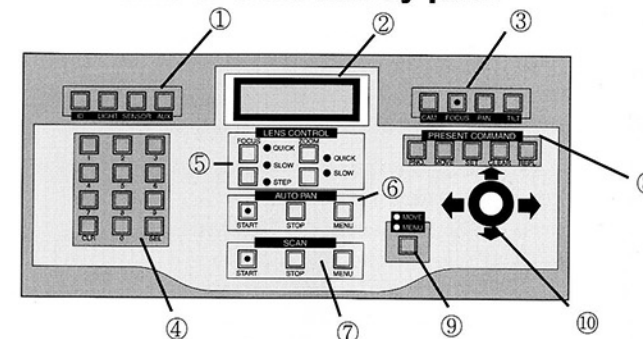
① External connection device adjustment key	② LCD
③ Camera adjustment key	④ Number key
⑤ Adjustment key	⑥ Auto Pan key
⑦ SCAN (PRESET) Search key	⑧ Preset Command key
⑨ Movement, Menu selection key	⑩ Movement stick
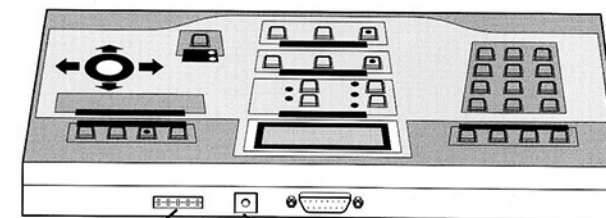
Data connection unit   Power source unit(DC 12V (IA))

1	2	3	4	5
TxD+	TxD–	F/GND	RxD+	RxD–
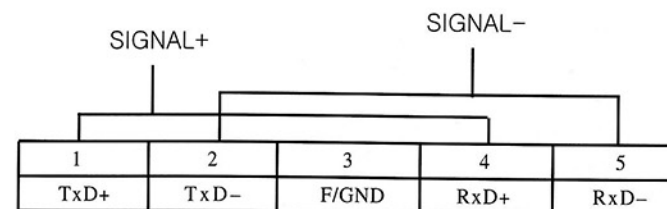
✿ Precautions

Make sure to connect FGND of camera with FGND of controller

(2) External Connection Device Adjustment key

1) ID setting method

① Press ID button
② Press the desired number in Number key
③ Press SEL key in Number key

2) Sensor setting method

① Move the Camera Head toward the direction of Sensor
② Press Sensor key
③ Press the desired number in Number key
④ Press SEL key in Number key
⑤ Make SET POSITION appear on LCD by moving Movement stick downwards
⑥ Press SEL key in Number key again
⑦ L:OFF, R: OFF appear on LCD
⑧ Press SEL

(3) Camera Adjustment key

1) OSD MENU

① Press CAM key
② OSD MENU of CAMERA appears on the TV monitor
③ Select the desired mode by moving Movement stick left, right
④ Select the desired mode by moving Movement stick upwards and downwards when you convert the selected mode
⑤ Exit OSD MENU after pressing CAM key upon completing the selection

2) PAN SPEED adjustment

① Press PAN key.
② Select the desired speed in Number key at the left-hand corner if "PAN SPEED" appears on LCD
③ Press SEL key in Number key

3) TILT SPEED adjustment

① Press TILT key
② Select the desired speed in Number key at the left-hand corner if "TILT SPEED" appears on LCD
③ Press SEL key in Number key

(4) Lens adjustment key

1) Press the menu key at the bottom of the Movement stick.
2) Obtain the focus by the Movement stick after pressing FOCUS key.
3) Press the menu key after pressing ZOOM key.
4) Select the desired speed between QUICK and SLOW
5) Press MOVE key.
6) ZOOM operates while ZOOM key is being pressed.

(5) AUTO PAN

1) Move the Camera Head toward the desired position using the Movement stick.
2) Press AUTO PAN MENU key.
3) Select SEL key in Number key after pressing "1".
4) Press SEL key after adjusting the SPEED of LCD.
5) Press SEL key after setting HALT TIME of LCD.
6) Move the Camera Head toward the desired position using the Movement stick again.
7) Press AUTO PAN MENU key.
8) Press SEL key after pressing "2".
9) Press SEL key after adjusting the SPEED of LCD.
10) Press SEL key after setting HALT TIME of LCD.
11) Press AUTO PAN START key.

(6) PRESET command key

1) Move the Camera Head toward the desired position using the Movement stick.
2) Press PNO key of PRESET COMMAND.
3) Select the desired number key in Number key.
4) Press SEL key in Number key.
5) Press SET key of PRESET command key.
   Ex) PNO - 1 - SEL - SET at the time of setting PRESET 1.
6) Press the menu of SCAN key in order to set PRESET HALT TIME.
7) Set the desired time in Number key and press SEL key.
8) Exit by pressing SCAN key menu.
9) Press START key of SCAN key.

NIKO

(7) System Construction at the time of MATRIX connection
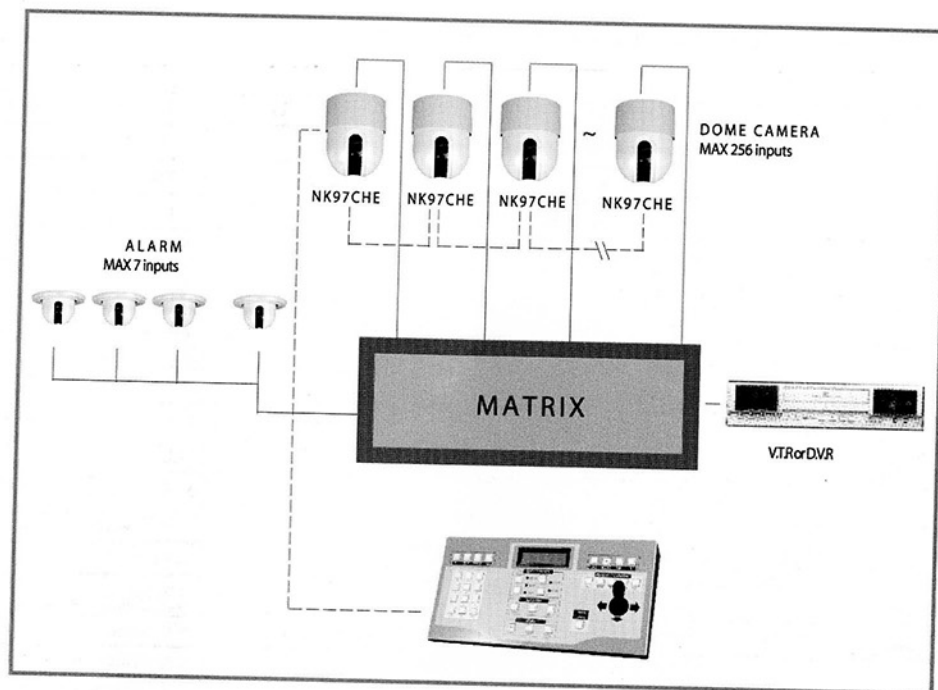
V. SPECIFICATION

1. NK - 97 Series dome camera

MODEL NO.	NK- 97CHE(NORMAL)	NK- 97CHR(RX)	NK- 97CHS(SENSOR)
NUMBER OF PIXEL	811(H) X 508(V)	811(H) X 508(V)	811(H) X 508(V)
SIGNAL SYSTEM	DSP / NTSC / PAL	DSP / NTSC / PAL	DSP / NTSC / PAL
RESOLUTION	480 TV LINES	480 TV LINES	480 TV LINES
S/N RATIO	MORE THAN 50dB	MORE THAN 50dB	MORE THAN 50dB
MIN ILLUMINATION	22X : 1 LUX(Day)/ 0.01LUX(DSS ON)	22X : 1 LUX(Day)/ 0.01LUX(DSS ON)	22X : 1 LUX(Day)/ 0.01LUX(DSS ON)
LENS	f=3.9-85.8mm(22X)	f=3.9-85.8mm(22X)	f=3.9-85.8mm(22X)
SHUTTER SPEED CONTROL	28 STEP	28 STEP	28 STEP
AGC	ON / OFF	ON / OFF	ON / OFF
WDR FUNCTION	OPTION	OPTION	OPTION
MOTION DETECTION	YES	NO	YES
WHITE BALANCE	AUTO, MANUAL, PRESET,ONEPUSH AWB	AUTO, MANUAL, PRESET,ONEPUSH AWB	AUTO, MANUAL, PRESET,ONEPUSH AWB
OPTICAL ZOOM	TELE- WIDE 22X (DIGITAL 220X)	TELE- WIDE 22X (DIGITAL 220X)	TELE- WIDE 22X (DIGITAL 220X)
ELECTRIC ZOOM	UP - DOWN	UP - DOWN	UP - DOWN
VIDEO FOCUS	AUTO, MANUAL(NEAR,FAR)	AUTO, MANUAL(NEAR,FAR)	AUTO, MANUAL(NEAR,FAR)
CONTROL METHOD	PC / DVR / TX	GENERAL CONTROL	PC / DVR / TX
PRESET	128 POSITION	NO	128 POSITION
PRESET SPEED	PAN 270°, TILT 180°	NO	PAN 270°, TILT 180°
CHARACTER	10 CHARACTERS	NO	10 CHARACTERS
AUTOFLIP FUNCTION	YES	YES	YES
ALARM INPUT	NO	NO	7 INPUT
PAN ANGLE	1°~ 360°/ENDLESS	6°,12°,24°/SEC	1°~ 360°/ENDLESS
PAN SPEED	270°/ SEC	24°/SEC	270°/ SEC
TILT RANGE	1°~ 110°	1°~ 110°	1°~ 110°
TILT SPEED	180°/SEC	24°/SEC	180°/SEC
ZONES FUNCTION	YES	NO	YES
POWER SURGE PROTECTION	BUILT IN	BUILT IN	BUILT IN
ID	256 CONNECT	256 CONNECT	256 CONNECT
BACK LIGHT COMPENSATION	ON / OFF	ON / OFF	ON / OFF
COLOR	ON / OFF	ON / OFF	ON / OFF
ZOOM SPEED	2 STEP	NO	2 STEP
FOCUS SPEED	3 STEP	NO	3 STEP
IRIS CONTROL	AUTO / MANUAL	AUTO / MANUAL	AUTO / MANUAL
OPERATING TEMP	-10℃ ~ + 50℃	-10℃ ~ + 50℃	-10℃ ~ + 50℃
POWER SUPPLY	DC 24V / AC 24V	DC 24V / AC 24V	DC 24V / AC 24V
WEIGHT	APPROX 1900g	APPROX 1900g	APPROX 1900g
DIMENSION	Φ150 X 180(H)	Φ150 X 180(H)	Φ150 X 180(H)

2. NK - 98 Series done CAMERA

MODEL NO.	NK- 98CHE(NORMAL)	NK- 98CHR(RX)	NK- 98CHS(SENSOR)
NUMBER OF PIXEL	811(H) X 508(V)	811(H) X 508(V)	811(H) X 508(V)
SIGNAL SYSTEM	DSP / NTSC / PAL	DSP / NTSC / PAL	DSP / NTSC / PAL
RESOLUTION	480 TV LINES	480 TV LINES	480 TV LINES
S/N RATIO	MORE THAN 50dB	MORE THAN 50dB	MORE THAN 50dB
MIN ILLUMINATION	27X : 1 LUX(Day)/ 0.003LUX (Night) 0LUX (Infrared on)	27X : 1 LUX(Day)/ 0.003LUX (Night) 0LUX (Infrared on)	27X : 1 LUX(Day)/ 0.003LUX (Night) 0LUX (Infrared on)
LENS	f=3.25-88mm(27X)	f=3.25-88mm(27X)	f=3.25-88mm(27X)
SHUTTER SPEED CONTROL	28 STEP	28 STEP	28 STEP
AGC	ON / OFF	ON / OFF	ON / OFF
WDR FUNCTION	BUILT IN	BUILT IN	BUILT IN
MOTION DETECTION	YES	NO	YES
WHITE BALANCE	AUTO,MANUAL, PRESET,ONEPUSH AWB	AUTO,MANUAL, PRESET,ONEPUSH AWB	AUTO,MANUAL, PRESET,ONEPUSH AWB
OPTICAL ZOOM	TELE- WIDE 27X (DIGITAL 270X)	TELE- WIDE 27X (DIGITAL 270X)	TELE- WIDE 27X (DIGITAL 270X)
ELECTRIC ZOOM	UP - DOWN	UP - DOWN	UP - DOWN
VIDEO FOCUS	AUTO, MANUAL(NEAR,FAR)	AUTO, MANUAL(NEAR,FAR)	AUTO, MANUAL(NEAR,FAR)
CONTROL METHOD	PC / DVR / TX	GENERAL CONTROL	PC / DVR / TX
PRESET	128 POSITION	NO	128 POSITION
PRESET SPEED	PAN 270°, TILT 180 °	NO	PAN 270°, TILT 180 °
CHARACTER	10 CHARACTERS	NO	10 CHARACTERS
AUTOFLIP FUNCTION	YES	YES	YES
ALARM INPUT	NO	NO	7 INPUT
PAN ANGLE	1°~ 360°/ ENDLESS	6°,12°,24°/SEC	1°~ 360°/ ENDLESS
PAN SPEED	270°/ SEC	24°/SEC	270°/ SEC
TILT RANGE	1°~ 110°	1°~ 110°	1°~ 110°
TILT SPEED	180 °/SEC	24°/SEC	180 °/SEC
ZONES FUNCTION	YES	NO	YES
POWER SURGE PROTECTION	BUILT IN	BUILT IN	BUILT IN
ID	256 CONNECT	256 CONNECT	256 CONNECT
BACK LIGHT COMPENSATION	ON / OFF	ON / OFF	ON / OFF
COLOR	ON / OFF	ON / OFF	ON / OFF
ZOOM SPEED	2 STEP	NO	2 STEP
FOCUS SPEED	3 STEP	NO	3 STEP
IRIS CONTROL	AUTO / MANUAL	AUTO / MANUAL	AUTO / MANUAL
OPERATING TEMP	-10℃ ~ + 50℃	-10℃ ~ + 50℃	-10℃ ~ + 50℃
POWER SUPPLY	DC 24V / AC 24V	DC 24V / AC 24V	DC 24V / AC 24V
WEIGHT	APPROX 1900g	APPROX 1900g	APPROX 1900g
DIMENSION	Φ150 X 180(H)	Φ150 X 180(H)	Φ150 X 180(H)