Outdoor HD-Housing Camera

KP-HD2005RH-S2

Operation manual



Thank you for purchase this fine Hitachi Kokusai Electric HD color housing camera. Before using the camera, please read this operation manual carefully and keep this manual on file for ready reference in the future.

Hitachi Kokusai Electric Inc.

IMPORTANT SAFETY INSTRUCTIONS

1. Read Instructions

All the safety and operating instructions should be read before the product is operated.

2. Retain Instructions

The safety and operating instructions should be retained for future reference.

3. Heed Warnings

All warnings on the product and the operating instructions should be adhered to.

4. Follow Instructions

All operating and use instructions should be followed.

5. Cleaning

Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

6. Attachments

Do not use attachments not recommended by the product manufacturer as they may cause hazards.

7. Water and Moisture

Do not use this product near water - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool; and the like.

8. Accessories

Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

9. Moving

A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.

10. Ventilation

Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered.

The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

11. Power Sources

This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.

12. Grounding or Polarization

This product is equipped with a three-wire grounding-type plug a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

13. Power-Cord Protection

Power-supply cords should be routed to that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plug, convenience receptacles, and the point where they exit from the product.

14. Lightning

For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet. This will prevent damage to the product due to lightning and power-line surges.

15. Overloading

Do not overload wall outlets, extension cords or integral convenience receptacles as this can result in a risk of fire or electric shock.

16. Object and Liquid Entry

Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

17. Inflammable and Explosive Substance

Avoid using this product where there are gases, and also where there are inflammable and explosive substances in the immediate vicinity.

18. Heavy Shock or Vibration

When carrying this product around, do not subject the product to heavy shock or vibration.

19. Servicing

Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

20. Damage Requiring Service

Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- a. When the power-supply cord or plug is damaged.
- b. If liquid has been spilled, or objects have fallen into the product.
- c. If the product has been exposed to rain or water.
- d. If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
- e. If the product has been dropped or damaged in any way.
- f. When the product exhibits a distinct change in performance-this indicates a need for service.

21. Replacement Parts

When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part.

Unauthorized substitutions may result in fire, electric shock, or other hazards.

22. Safety Check

Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

23. Wall or Ceiling Mounting

The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

24. Heat

The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

Contents

1. Introduction	5
2. Operating considerations Notes to users	5
3. CCD characteristics	5
4. Name and function of each section	6
5. Connection	8
6. A method of enclosing Nitrogen gas	9
7. Remote control protocol & command1	10
8. Setting Camera Menu description 3	13
9. Main specifications	55

1. Introduction

Hitachi KP-HD2005RH-S2 type outdoor housing camera is a surveillance camera which built-in 2000mm (x60) power zoom lens and the single Sensor brings high sensitivity and high resolution picture. Besides power zoom function, auto focus function is installed as standard. The removal effect of the fog is obtained by the Adaptive Fog Reduction function.

2. Operating considerations Notes to users

1) Power supply

Use this camera with a 24VDC power supply. Time will be needed for about five seconds by the time the camera works normally after turning on the power supply.

2) Handling

Do not attempt to remove cover.

3) Installing and storage

Avoid installing or storing the camera in the following environments.

- a. Environments where combustible or corrosive gas exists.
- b. Excessively warm or cold environment (Operating ambient temperature: -26 to 51°C).
- c. Place subjected to excessive vibration or shock.
- d. Environment exposed to strong electric or magnetic field.
- e. Do not aim the camera lens at the sun.
- f. Do not shoot strong light.

4) To obtain stable performance for long time

When the camera is used continuously for long time under high ambient temperature, the inside electrical parts become deteriorated, resulting in shortening its life. To use the camera continuously for long time, the highest temperature must be below 60°C.

5) Cleaning

- a. Use a blower or a lens brush to remove dusts on the lens or the front glass.
- b. Wipe dirt on the case off with dry soft cloth. If dirt is hardened, wipe them off with cloth Moistened with neutral detergent liquid; wipe the cover with dry cloth.
- c. Do not use benzene, thinner, alcohol, liquid cleaner or spray-type cleaner.

3. Sensor characteristics

The following phenomenon is not defects but might occur due to characteristics of Sensor

1) Smear and blooming

This phenomenon occurs when strong light object (fluorescent lamp, car head light, strong reflection of the sun light etc) is captured. Thin band at monitor screen is displayed above and below of the strong light object. In this case, please change the camera angle in the position where strong light does not enter in the camera.



2) Fixed pattern noise

Fixed pattern (vertical strip, white pixel spots, rough sprinkling) might be appearing on the monitor screen, when camera is operated at high temperature. It becomes easy to see at high sensitivity setting (AGC, electronic sensitivity improvement) of camera.

3) Moire

When group of fine strips or stripped pattern is captured, additional stripped pattern (interference inducted strips) which is not real might be seen on the monitor screen.

•It is necessary to note the following phenomenon specially.

4) Burning

When sun light or extremely strong light enters for a long time, the characteristics of the spectral filter (color filter) of Sensor image sensor might be deteriorated and the color of the corresponding portion may change. Do not set or keep lens or Sensor towards sun or extremely strong light direction in either power on or off state.

5) White spot

Imperceptible white spots may rarely come up on the screen due to cosmic rays and so on. It becomes easy to appear when the sensitivity of the camera is raised in the operation at the high temperature.

4. Name and function of each section



Air stopgap screw M6x10SUS Refer to page 9 (A method of enclosing Nitrogen gas).

[Side view]



[Back view]



Camera installation screw (4-1/4-20UNC [Corresponds to M&]) Install these screws to the bottom of the camera.



5. Connection

Pin	Description	Remark
Α	VIDEO GND	Video signal ground
В	VIDEO	Video signal output
С	GND	24VDC Return
D	24VDC	DC POWER input (90W max)
E	DAY CAM/LENS Tx	Camera/Lens RS-232C serial data output
F	DAY CAM/LENS Rx	Camera/Lens RS-232C serial data input
G	DAY CAM/LENS Tx/Rx GND	Camera/Lens RS-232C serial data ground
Н	N.C.	Do not connect
J	LENS Tx	Lens RS-232C serial data output (see note)
K	LENS Rx	Lens RS-232C serial data input (see note)
L	LENS Tx/Rx GND	Lens serial data ground (see note)
М	N.C.	Do not connect
N	N.C.	Do not connect
Р	N.C.	Do not connect
R	N.C.	Do not connect
S	N.C.	Do not connect
Т	N.C.	Do not connect
U	N.C.	Do not connect
V	N.C.	Do not connect
W	N.C.	Do not connect
Х	N.C.	Do not connect
Y	N.C.	Do not connect
Z	N.C.	Do not connect
а	N.C.	Do not connect
b	N.C.	Do not connect
С	N.C.	Do not connect

REMOTE / Power supply connector [ITT-Cannon, KPTR7P16-26P]

* **NOTE:** Lens control line may not able to offer to all configurations. Check with Hitachi for detail information,



Acceptable plug

ITT-Cannon, KPTR8F16-26S or, interchangeable goods.

6. A method of enclosing Nitrogen gas

6.1 Exhaust air in the housing case

The closing screw for the air vomit hole under the front panel is taken, and air in the case is exhausted.



6.2 Enclosing of Nitrogen gas

- 1) The Nitrogen gas implantation bulb screw is removed.
- 2) The chokedamp is enclosed from the Nitrogen gas implantation bulb.
- 3) Nitrogen is enclosed for five minutes or more on the following conditions, and air in the case is

Conditions: 7.2 psi (pound per square inch), 10L/min This has aimed to raise the nitrogen gas concentration in the case.

- 4) The air vomit hole of the front panel will be closed with the screw in five minutes, and pressure in the case is raised.
- 5) To keep the internal pressure to be constant when the internal pressure exceeds 7.25 psi, nitrogen gas that is more extra than the relief valve is exhausted.
- 6) Finally, the cap of the Nitrogen gas implantation bulb is tightened and the end of work.



7. Setting Camera Menu description

Composition of camera setting menu (scene FILE1)



MAIN MENU

1) Press the Set button for at least 2 seconds to display the Main menu on the monitor screen.

■MAIN MENU	[FILE1]		Setting scene files setting
SHUTTER	: 1/30	·····	Shutter speed setting
SENS UP	: OFF		Sensitivity enhancement setting
LIGHT CONT.	:->		Light control menu
GAIN	:->		AGC setting menu
WHITE BAL.	:->		White balance setting menu
SUB	:->		Sub menu
TITLE	:->		Camera title setting menu
B/W MODE	:->		Color or B/W mode setting menu
LENS	:->		Lens setting menu
SYSTEM	:->		System menu

Main menu

- 2) Check the current settings at the main menu.
- Shift the cursor vertically by pushing the Up and Down buttons, then press the Set button to change the setting of the selected item.
- 4) To return to the normal screen, press the Set button.
- 5) Changed settings are stored in the camera memory (flash memory) and restore them when the power is switched on.
- 6) When button operation is not performed for 5minute during displaying menu, changed items are saved and menu display disappears.

SCENE FILTE SETTING

Scene file is a function to record various mode settings and the adjusted values of the camera at the file.

- 1) Press the Set button for at least 2 seconds to display the main menu on the monitor screen.
- 2) Use UP and Down buttons to move the cursor to MAIN MENU. The scene file setting data blinks. In this state, push the Set button to change the scene file.

Set button : FILE1 \rightarrow FILE2 \rightarrow FILE3 \rightarrow FILE4 \rightarrow FILE5 Factory setting is FILE1.

SHUTTER SPEED

1) Shutter speed can be switched at MAIN MENU. Select "SHUTTER" by Up (Down) button. Then shutter speed can be changed by Right/Left button.

[Preset]

```
\begin{array}{l} 1/30 \rightarrow 1/50 \rightarrow 1/100 \rightarrow 1/250 \rightarrow 1/500 \rightarrow 1/1000 \rightarrow 1/2000 \rightarrow 1/5000 \rightarrow 1/10000 \\ \rightarrow \text{AES} \rightarrow \text{AES\&LENS}(1/1000) \rightarrow \text{AES\&LENS}(1/2000) \rightarrow \text{AES\&LENS}(1/5000) \end{array}
```

Factory setting is "1/30".

* AES&LENS is AES priority mode.

AES&LENS(1/1000): AES works to 1/1000, and an automatic iris works afterwards.

SENSITIVITY ENHANCEMENT SETTING (SENS UP)

(1) It is on a MAIN MENU display, a cursor can be united with SENS UP with the upper (below) direction switch, and a sensitivity rise setup can be switched with a horizontal direction switch.

Preset value

```
OFF-> AUTOX2 -> AUTOX4 -> AUTOX8 -> AUTOX16 -> AUTOX30 -> OFF -> MANUX2 -> MANUX4 -> MANUX8 -> MANUX16 -> MANUX30
```



Light control menu

Light control menu setting

1) Press the Set button for longer than 2 seconds to display the Main menu.

Select "LIGHT CONTROL" by Up (Down) button. Then LIGHT CONTROL MENU can be displayed by Right,

- (1) PEAK/AVE : (PEAK/AVERAGE) Set the rate of automatic iris PEAK/AVERAGE. 0/100, 15/85, 30/70, 50/50, 75/25, 100/0.
- (2)LEVEL : (LEVEL)

Standard level of Automatic exposure control(AUTO IRIS, AGC, AES) (dark)-128 to 0 to127 (bright)

(3)ALC GATE : (PEAK/AVERAGE)

Set PEAK/AVERAGE Automatic level control gate.

OFF: Full screen、 Select 1 to 9.

(4) FOG : (ON/OFF)

Select mode of fog adjust.

ON : .Fog adjust by setting of FOG ADJ.

OFF: Not use fog adjust mode

*At the time of fog mode, an upper limit level of the gain in AGC mode of GAIN MENU and the PRESET mode become 42dB from 75dB. (Refer to 7 pages of GAIN setting.)

(5) FOG ADJ: (Manual setting of Fog adjust level)

(As for this, FOG is available only at the time of ON mode.)

1 to 128

*Under conditions of a subject or environment, when it is high at an adjustment level, over and under exposure of the picture may be out standing.

(6)STEP : Parameter of response speed setting for the Fog video signal.

(As for this, FOG is available only at the time of ON mode.)

*By a set point, the phenomenon such as the behavior of hunting may occur.

1 to 511

GAIN MENU



Gain setting

- 1) Press the Set button for at least 2 seconds to display the main menu on the monitor screen.
- 2) Select GAIN by Up (Down) button, and display GAIN MENU by Right button.
 - (1)MODE : Set gain mode.

PRESET : Preset gain mode

AGC : Automatic gain mode

(2)PRESET GAIN : Set gain value of manual. 0dB to 75dB *FOG MODE: MAX42dB

(3) AGC LIMIT : Set maximum of the automatic gain. 0dB~75dB

WHITE BALANCE MENU

.			
WHI	1E	BALANCE	MENU

MODE ATW RANGE	: ATW : NORM	Mode setting Range of Following color temperature setting
*AWB *RGAIN *BGAIN	:push R : 0 : 0	One push setting Manual setting(R gain) Manual setting (B gain)
white gate	: OFF	Auto level control gate setting

White balance setting menu

- (1) MODE : Set white balance modeATW : Automatic white balance.Manual : Set white balance.
- (2) ATW RANGE : Set Range of Following color temperature NORMAL : 2500K to 10000K. SPECIAL : 2100K to 12000K
- (3) AWB : One push automatic white balance A white balance is adjusted with auto after pressing the right button. The value of R and G GAIN is updated and it fixes to MANUAL.
- (4) R GAIN : White balance hand regulation of R gain -128 to 0 to 127

This operates, only when a white balance is a manual.

(5) B GAIN : White balance hand regulation of B gain -128 to 0 to 127

This operates, only when a white balance is a manual.

(6) WHITE GATE : Set auto level control of white balance. OFF/ NO.1 to NO.9

SUB MENU

SUB MENU		
CHROMA DETAIL PEDESTAL GAMMA KNEE KNEE S/P MASKING *HUE/SAT DNR INITIAL 17E	: 0 : 0 : 0N : 0N : -> : PRESET : -> : AUT01 : PIISH R	Chroma level setting Detail correction setting Black level setting Gamma correction setting KNEE mode setting KNEE function setting Masking mode setting Masking function setting DNR setting Initialize

٦

- (1) CHROMA : Chroma level setting -128 to 0 to 127
 - Chroma level is fixed to the value of "-128", and cannot be adjusted, at time of B/W MODE.
- (2) DETAIL : The optimum detail level setting -128 to 0 to 127
- (3) PEDESTAL : Set black level.
- -28 to 0 to100
- (4) GAMMA : Gamma correction setting
 - ON : Gamma ON
 - HIGH : Gamma ON (High)
 - OFF : Gamma OFF
- (5) KNEE MODE: Mode select
 - OFF : Not use KNEE function
 - ON : Use Knee function
- (6) KNEE: KNEE function setting when KNEE MODE is "ON".
- (7) MASKING MODE: Mode select
 - PRESET : Use a standard preset
 - VARIABLE : Use a user setting mode
- (8) MASKING: Masking function setting when MASKING MODE is "VARIABLE".
- (9) DNR : (Digital Noise Reduction)
 - OFF: DNR OFF
 - FIX: Fixed DNR
 - AUTO1: With an emphasis on S/N. (Default setting)
 - Afterimage will be many.
 - AUTO2: Emphasis on movement
 - Afterimage compared to AUTO1 it will be less, but will be noisy.
- (10) INITALIZE : Initializing in the factory-shipments state for the current scene file. The following message is show after INITIALIZE command execution.
 - Push R : INITIALIZE command cancel
 - Push D : INITIALIZE command execution

KNEE MENU





G

Saturation

TITLE



MODE : Set the display position of a camera title

OFF : A character is not displayed.

TOP : A character is displayed on the upper part of a screen.

BOTTOM : A character is displayed on the lower part of a screen.

<TITLE setting>

- (1) In the state where a cursor is in TITLE, if the Down button is pushed, a cursor will move to the setting line of TITLE data, and the 1st character will blink.
- (2) Select the characters by four directions button.
- (3) The character chosen is inputted when the Set button was pushed. This cursor moves to the following character.
- (4) Once it goes into character setting mode The Set button turn into a character selection button, and the usual menu ON/OFF operation is forbidden.
- (5) If the input of a character is completed, a cursor will be moved to RET by four directions buttons. If the Set buttons are pushed, a cursor will move to TITLE and will return to the usual menu operation.
- (6) <-: Character blink of a character setting part moves to the one character left.
- (7) ->: Character blink of a character setting part moves to the one character left.
- (8) DEL : The blinking character eliminate.
- (9) INS : A space is inserted in the position of the blinking character.
- (10) RET : A cursor is moved to DATA SET.

B/W MENU



(1) B/W MODE :

OFF : This mode is of color picture.

ON : This mode is of black and white picture

AUTO(H) : About 70% or less of proper value

AUTO(M) : About 50% or less of proper value

AUTO(L) : About 35% or less of proper value

B/W MODE AUTO does not operate at the time of AGC OFF and SENSUP OFF / manual. B/W MODE AUTO operates only at the time of AGC ON or SENSUP AUTO. (2) BURST : Burst signal is set to ON/OFF, when BW MODE is ON or AUTO.

- OFF : Add no burst signal.
- ON : Add the burst signal.

L	ENS			
	■LENS LENS TYPE IRIS GAIN IRIS OPEN	: DC : 0 : 0FF	Lens type setting Iris gain setting Iris open setting	
		HH I I I I I I I I I I I I I I I I I I	Н	

- (1) LENS TYPE:DC type or VIDEO type
 - VIDEO : B/W MODE AUTO does not operate at the time of AGC OFF and SENSUP OFF / manual..
 - DC: To which control of the lens of DC input control (position servo) is attained.
- (2) IRIS GAIN : Set a control standard level
 - -128 to 0 to127
- (3) LENS OPEN : A lens is opened wide and AES is turned ON.
 - OFF : Control automatic iris
 - ON : Lens open and AES control.

At the time of ENS OPEN ON, * is attached to a shutter speed command and operation becomes improper.

- (4) Level indicator
 - The NAM level meter for ALC
 - Explanation -

When the value of NAM detection is equal to the reference level of ALC, a marker moves to central "+" mark. When it is less than reference level, a marker moves on the left of a center. On the contrary, when it is larger than reference level, a marker moves on the right of a center.

SYSTEM MENU

SYSTEM MENU	
TV FORMAT :1080p,29.97	TV format setting
VBS ASPECT:16:9	ASPECT setting
*SERIAL :RS-232C	SERIAL mode setting

- TV FORMAT (video output) The format displayed now is displayed (fixed value).
- (2) ASPECT :Set ASPECT ratio
 - 16:9: 16:9 ratio
 - 4:3: 4:3 ratio
- (3) SERIAL mode :Set RS-232C: RS-232C mode

TV FORMAT MENU

Operation : Select TV FORMAT by Up (Down) button, and press Right button.

TV FORMAT

- □ HD:1080i,59.94Hz *□ HD:1080i,50 Hz □ HD:1080p,29.97Hz *□ HD:1080p,25 Hz
-1080i 59.94HzNot used1080p 29.97HzNot used
- (1) 1080i 59.94Hz (2) 1080i 50Hz (3) 1080p 29.97Hz (4)1080p 25Hz (Not used)

9. Main specifications

1) Housing

Nitrogen pressured gas type

Standard pressure: 5PSI

: Recommendation and enclosed condition: 7.2 PSI, 10L/min

Pressure drawdown: 25%/year

Combination Connector (Power, Camera / Lens control, Video Line)

Built-in heater

Material aluminum

2) Built-in visible camera

Color standard:	SMPTE 292M and NTSC standard confirmed
Imaging device:	1/1.9" CMOS Sensor.
Effective pixels:	1937(H) x 1097(V)
Resolution:	Horizontal: 800TV lines
Min. Illumination:	wo/extender (F3.5, AGC: MAX)
	Color: 0.07 lx (color full motion)
	0.002 lx at integrated mode (Sens. x30)
	B/W: 0.0045 Ix (Tungsten lamp)
	0.00015 lx at integrated mode (Sens. x30)

3) Lens

Zoom:	60 times (Fujinon : D60x16.7 TYPE)	
Focal distance:	f = 16.7 - 1000 mm	+/-5% (wo/extender)
	f=33.4-2000 mm	+/-5% (w/extender 2.5x)
Angle of view:	Horizontal:	24.33°-0.41° (wo/extender)
		12.16°-0.21° (w/extender x2)
	Vertical:	13.83°-0.23° (wo/extender)
		6.94°-0.12° (w/extender x2)

4) Camera housing I/F on the multi-connector (MIL-C-26482 | type)

Control:	RS-232C One control line.
	Camera control command with KP-D format.
	Lens control command with Husing format.
	NOTE: Lens control line may not able to offer to all configurations.
	Check with Hitachi for detail information,
	Option : Camera & Lens control command with HiKE format.

Power supply: DC24V regulated

5) Auto focus

One-push auto focus as standard

6) Power supply requirement

DC24V approx.110W (regulated)

7) Ambient temperature and humidity

-26 to +50°C 100%RH

8) Protecting structure

IP67 (Applied to IEC/EN60529)

9) Dimensions

Approx. 227(W) × 201 (H) × 700(D) mm

10) Mass

Approx. 20kg (Housing+ lens+ Camera, Option excluded) or less

11) Painting

Desert Tan (Ref: Federal Standard 595c#33446)



Hitachi Kokusai Electric Inc.

UDX Akihabara Bldg. 14-1 Sotokanda 4-choume, Chiyoda-ku, Tokyo 101-8980, Japan Phone: +81(0) 3-6734-9432, Fax: +81(0) 3-5209-5942 URL: http://www.hitachi-kokusai.com

Hitachi Kokusai Electric (Shanghai) Co., Ltd.

Beijing Branch : Room 1413, Beijing Fortune Building, 5 Dong San Huan Bei-Lu, Chao Yang District, Beijing, 100004 China Phone: +86(0) 10-6590-8755/8756, Fax: +86(0) 10-6590-8757

Hitachi Kokusai Electric America, Ltd.

Headquarters and	: 150 Crossways Park Drive, Woodbury, New York 11797, U.S.A.
Northeast Office	Phone: (+1) 516-921-7200, Fax: (+1) 516-496-3718
West Office	: 371 Van Ness Way, Suite 120 Torrance, CA, 90501, U.S.A.
	Phone: (+1) 310-328-6166, Fax: (+1) 310-328-6252
Midwest Sales	: Phone: (+1) 330-334-4115, Fax: (+1) 516-496-3718
	Service: (+1) 989-345-5379
South Sales	: Service: (+1) 256-774-3777
Parts Center	: Phone: (+1) 516-682-4435, Fax: (+1) 516-921-0993
Latin Sales	: Phone: (+1) 519-682-4420, Fax: (+1) 516-496-3718
URL: http://www.hita	chikokusai.us

Hitachi Kokusai Electric Europe GmbH

Sales and Engineering : Siemensstr. 9, D-63263 Neu-Isenburg, Germany Frankfurt Office Phone: +49(0) 6102-8332-0, Fax: +49(0) 6102-202616 General email address: info@hitachi-ke-eu.com URL: http://www.hitachi-keu.com/

Hitachi Kokusai Electric U.K. Ltd.

Head Office : Windsor House, Britannia Road, Waltham Cross, Hertfordshire EN8 7NX, United Kingdom Phone: +44(0) 845-121-2177, Fax: +44(0) 845-121-2180 General email address: uksales@hitachi-ke-eu.com

URL: http://www.hitachi-keu.com/