

OPERATION MANUAL

IVS-710HS
Video Stabilizer

2nd Edition - Rev. 4





Edition Revision History

Edit.	Rev.	Date	Description	Section/Page
1	-	2013/04/17	First edition	
2	-	2014/01/08	Added trademark information. Added information on AC cord retaining clip installation. Added sections on IVS-710IF interface option.	P 5 P 6 P 11-12, Sec. 6 to 11
2	1	2014/01/16	Menu images changed. "STATUS Page" added. "Get List" added.	Sec. 8-3, 8-8 Sec. 8-5 Sec. 9-2
2	2	2014/10/16	Factual errors corrected. Menu images changed.	Sec. 5-1-8 Sec. 8-8
2	3	2015/08/17	Fan alarm display added (IVS-710IF option required)	Sec. 4-1-1
2	4	2015/09/03	A note on genlock adjustment added	p 11, 41



Precautions

Important Safety Warnings




[Power]

 Caution	Operate unit only at the specified supply voltage.
 Caution	Disconnect the power cord via the power plug only. Do not pull on the cable portion.
 Stop	Do not place or drop heavy or sharp-edged objects on the power cord. A damaged cord can cause fire or electrical shock hazards. Regularly check the power cord for excessive wear or damage to avoid possible fire / electrical hazards.
 Caution	Ensure the power cord is firmly plugged into the AC outlet.


[Grounding]

 Caution	Ensure the unit is properly grounded at all times to prevent electrical shock.
 Hazard	Do not ground the unit to gas lines, units, or fixtures of an explosive or dangerous nature.




[Operation]

 Hazard	Do not operate the unit under hazardous or potentially explosive atmospheric conditions. Doing so could result in fire, explosion, or other hazardous results.
 Hazard	Do not allow liquids, metal pieces, or other foreign materials to enter the unit. Doing so could result in fire, other hazards, or a unit malfunction.
 Caution	If a foreign material does enter the unit, turn the power off and immediately disconnect the power cord. Remove the material and contact an authorized service representative if damage has occurred.


[Transportation]

 Caution	Handle with care to avoid impact shock during transit, which may cause malfunction. When you need to transport the unit, use the original or suitable alternative packing material.
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[Circuitry Access]

	<p>Do not remove covers, panels, casing, or access the circuitry with power applied to the unit. Turn the power off and disconnect the power cord prior to removal. Internal servicing / adjustment of unit should only be performed by qualified personnel.</p>
 <p>Stop</p>	<p>Do not touch any parts / circuitry with a high heat factor. Capacitors can retain enough electric charge to cause mild to serious shock, even after the power has been disconnected. Capacitors associated with the power supply are especially hazardous.</p>
 <p>Hazard</p>	<p>Unit should not be operated or stored with cover, panels, and / or casing removed. Operating the unit with circuitry exposed could result in electric shock / fire hazards or a unit malfunction.</p>


[Potential Hazards]

 <p>Caution</p>	<p>If abnormal odors or noises are noticed coming from the unit, immediately turn the power off and disconnect the power cord to avoid potentially hazardous conditions. If problems similar to the above occur, contact an authorized service representative before attempting to operate the unit again.</p>
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[Rack Mount Brackets, Ground Terminal, and Rubber Feet]

 <p>Caution</p>	<p>To rack-mount or ground the unit, or to install rubber feet, do not use screws or materials other than those supplied. Doing so may cause damage to the internal circuits or components of the unit. If you remove the rubber feet that are attached to the unit, do not reinsert the screws that secure the rubber feet.</p>
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[Consumables]

 <p>Caution</p>	<p>Consumable items that are used in the unit must be periodically replaced. For further details on which parts are consumables and when they should be replaced, refer to the specifications at the end of the Operation Manual. Since the service life of the consumables varies greatly depending on the environment in which they are used, such items should be replaced at an early date. For details on replacing consumable items, contact your dealer.</p>
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Upon Receipt

Unpacking

IVS-710HS units and their accessories are fully inspected and adjusted prior to shipment. Operation can be performed immediately upon completing all required connections and operational settings.

Check your received items against the packing lists below. Check to ensure no damage has occurred during shipment. If damage has occurred, or items are missing, inform your supplier immediately.

ITEM	QTY	REMARKS
IVS-710HS	1	
AC Cord	1 set	(with AC cord retaining clip)
CD-ROM	1	Operation Manual (PDF)
Packing List	1	

Option

ITEM	QTY	REMARKS
Rack mount bracket set (Type 1)	1 set	For single unit mount into EIA 1RU rack space.
IVS-710IF	1	Interface Card

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Firefox is a registered trademark of the Mozilla Foundation.

Google Chrome is a registered trademark of Google Inc.

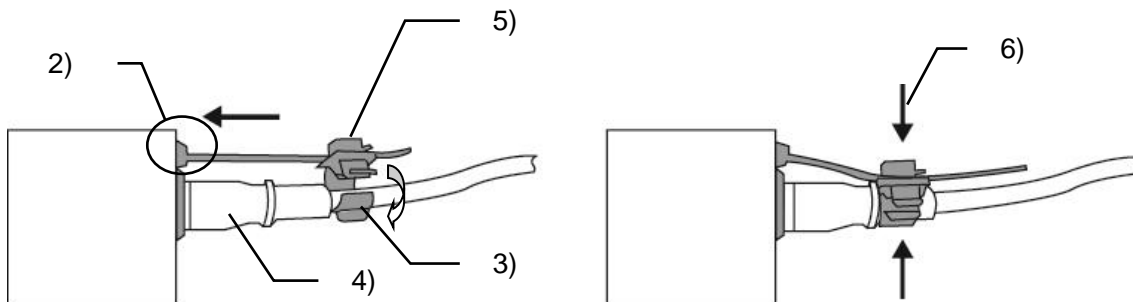
All other trademarks are trademarks or registered trademarks of the respective owners.

Installing the AC Cord Retaining Clip

Secure the AC cord with the supplied ladder strap/retaining clip assembly to prevent accidental removal from the IVS-710HS.

◆ Installing the clip

- 1) Wrap the retaining clip around the AC cord. (with the anchor of the ladder strap toward the unit.)
- 2) Insert the anchor into the hole next to the AC IN socket.
- 3) Lightly fasten the clip around the AC cord.
- 4) Plug in the power cord.
- 5) Slide the clip on the ladder strap toward the plug.
- 6) Fasten the clip tightly.
- 7) Gently pull on the AC cord to ensure it is secured.



◆ Unplugging the AC cord

- 1) Push the tab on the retaining up to unfasten the clip.
- 2) Push the tab on the ladder strap up and slide the clip back.
- 3) Unplug the AC cord.

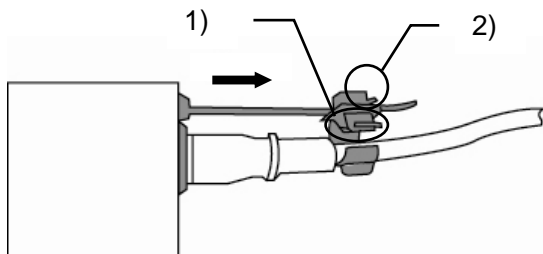


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1. Prior to Starting

1-1. Welcome

Congratulations! By purchasing an IVS-710HS Video Stabilizer you have entered the world of FOR-A and its many innovative products. Thank you for your patronage and we hope you will turn to FOR-A products again and again to satisfy your video and audio needs.

FOR-A provides a wide range of products, from basic support units to complex system controllers, which have been increasingly joined by products for computer video based systems. Whatever your needs, talk to your FOR-A representative. We will do our best to be of continuing service to you.

1-2. Features

The IVS-710HS is a digital video stabilizer that corrects camera shake in digital component video signal. The unit can correct just the unsteadiness that occurs, while maintaining camera pan and tilt movement, in video images used in such TV programs as news headlines and traffic and weather reports. To correct video images, you only need to connect a camera or VCR to the IVS-710HS, which can also correct recorded video images. The unit is easy to install and incorporate into existing systems.

- Accepts multi-bit rate and multi-format HD SDI and SD SDI digital component signals
- Capable of realtime image stabilization (2-frame delay with interlaced video signals)
- Corrects only the unsteadiness while automatically recognizing panning and tilt movements
- Video stabilization available both in LIVE and VCR videos
- Capable of correcting up to 40% of source screen size video shake, vertically or horizontally
- Provides precise sub-pixel level correction
- Simple design - works by simply connecting the video cable without any special connections
- Stabilizes only the data in the active area and keeps all the blanking data unchanged
- Able to pass through blanking data while compensating the processing delay
- RS-232C / RS-422 / LAN remote control interfaces ^(*)
- LAN control via a web browser ^(*)

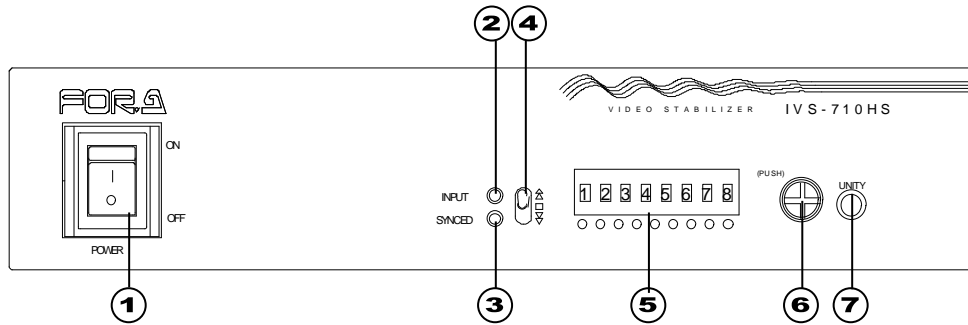
(*) Requires IVS-710IF interface card option.

1-3. Usage Notes

- When shooting with the camera, use the highest possible shutter speed. Shooting moving objects with a slower shutter speed will result in blurred and low-resolution images. A shutter speed of 1/240 sec. or higher is recommended. This value, however, will vary according to the shooting subjects involved, shaking speed and other conditions.
- Note that the IVS-710HS may not obtain proper results with some of the following video images.
 - 1) Images that have a unique brightness level.
Example: Images with uniform illumination of a wall or floor
 - 2) Images with changing illumination in a single direction
Example: Test signals such as Ramp/Color bars where the luminance level only changes horizontally, but not vertically.
 - 3) Images with alternating changes in illumination
Example: Images where an object such as a blind has changing light intensity that varies repeatedly at the same interval.
 - 4) Images with multiple subjects that move in different directions
Example: Images where a big object crosses in front of the camera.

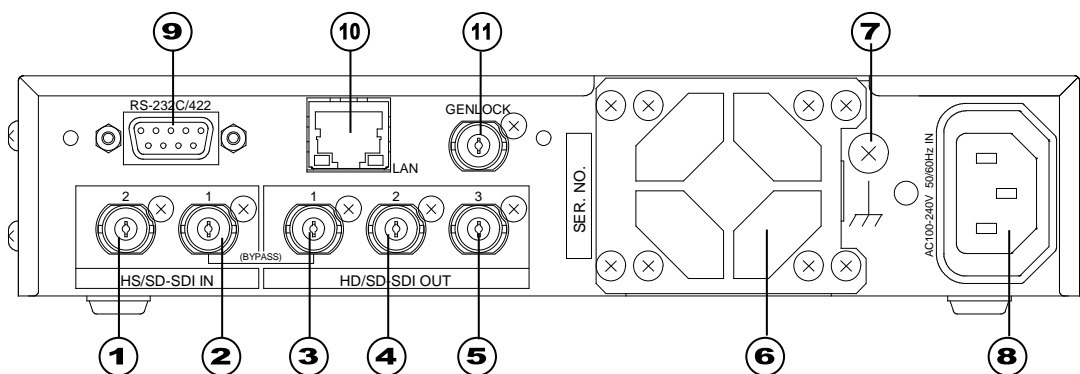
2. Panel Descriptions

2-1. Front Panel



No.	Name	Description	
1	Power switch	Used to turn unit power ON / OFF. Pressing the top " " half of the switch turns on the power.	
2	INPUT LED	Lit	Indicates proper video signal.
		Unlit	Indicates absent or unlocked video signal.
3	SYNCED LED	Lit	Indicates a locked video signal.
		Unlit	Indicates an unlocked video signal.
4	Up/Down switch	Used to select menus.	
5	Menu display	Displays menu items and parameters.	
6	Menu control	Used to select menus and change settings.	
7	UNITY switch	Resets the current menu setting to default.	

2-2. Rear Panel



No.	Name	Description
1	INPUT	SDI 2
2	INPUT *1	SDI 1
3	OUTPUT *1	SDI 1
4	OUTPUT	SDI 2
5	OUTPUT	SDI 3
6	Cooling fan	Used to air cool unit to prevent overheating. Do not block fan vent with other equipment or objects.
7	Ground Terminal	Used to ground unit to protect operators against static electricity and / or electrical shock
8	AC IN (AC 100-240V 50/60Hz)	Used for connection to AC power source via supplied cable.
9	RS-232C/RS-422 (*2)	Used for RS-232C or RS-422 serial connection. (9-pin D-sub, male) See section 5-1-7 and 6-1.
10	LAN (*2)	Used for remote LAN control connection. See section 6-2.
11	GENLOCK IN (*2) (*3)	Used for genlock input. See section 5-1-5.

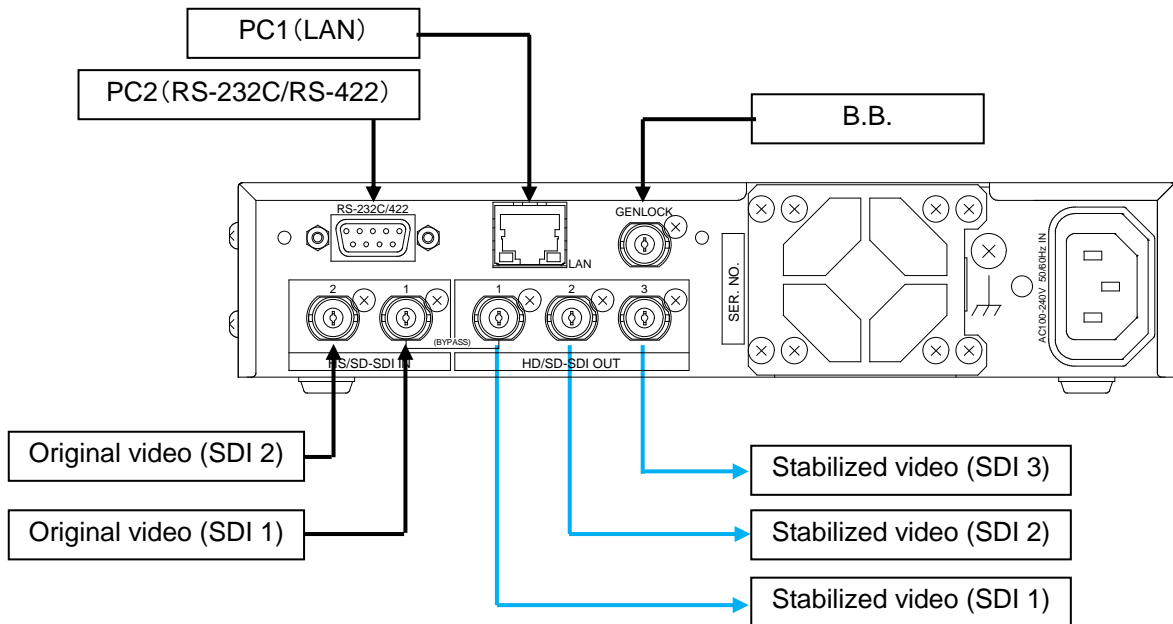
(*1) INPUT1 signal is bypassed to OUTPUT1 while the unit is powered off.

(*2) A blank panel has been installed in the absence of an IVS-710IF.

(*3) The genlock input enables to align the horizontal phase of output video. (Phase-lock range: $\pm 1/2H$) The vertical phase lock function is not implemented. So input the reference signal of the same phase as SDI inputs.

3. Connection

Make sure all units are powered off before connecting peripheral units.



IMPORTANT

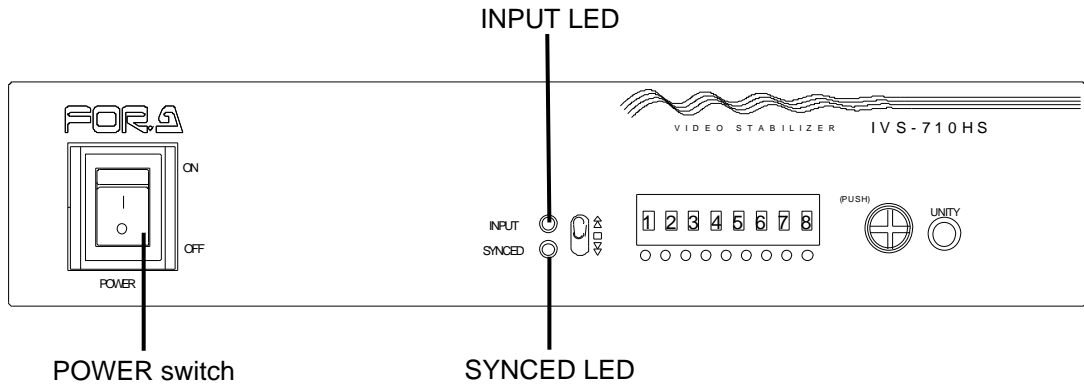
Although there are 2 input ports, only 1 port can be used at a time. The same stabilized video signal is output to 3 output ports, SDI1, SDI2 and SDI3.

IMPORTANT

Note that RS-232C/RS-422, and LAN interfaces and Genlock input are unavailable when no IVS-710IF option card is installed. (A blank panel is installed on standard systems.)

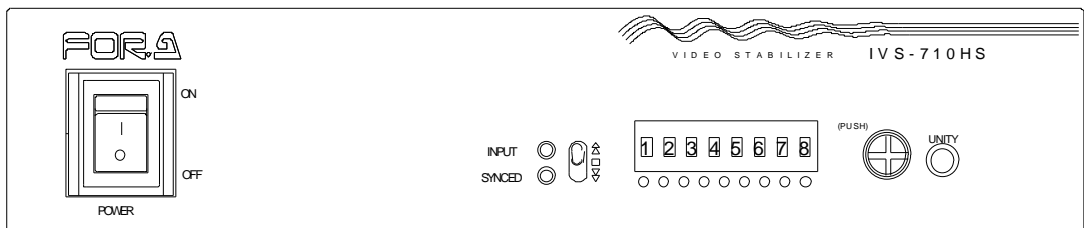
4. Operation

4-1. Power ON



Verify all devices are properly connected, then turn the power of the IVS-710HS on. The IVS-710HS starts up displaying "IVS710HS" in the menu display. The startup takes about 30 seconds to complete. The INPUT and SYNCED LEDs light if input video signal is locked.

4-1-1. Fan Alarm (IVS-710IF Option Required)

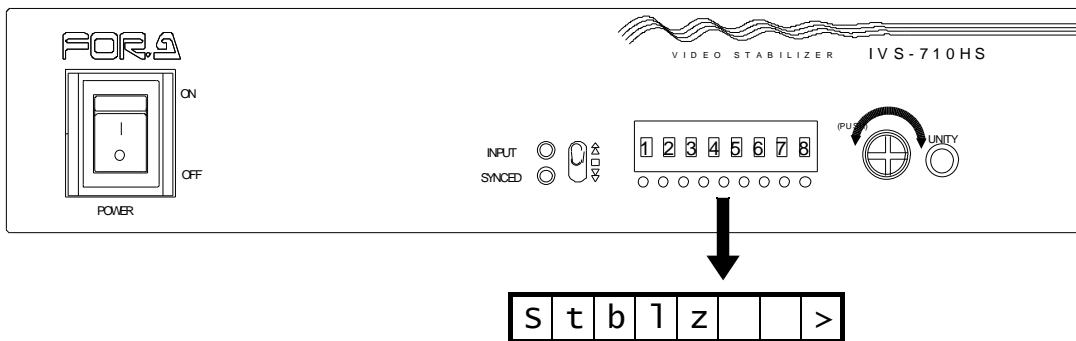


F A N E R R

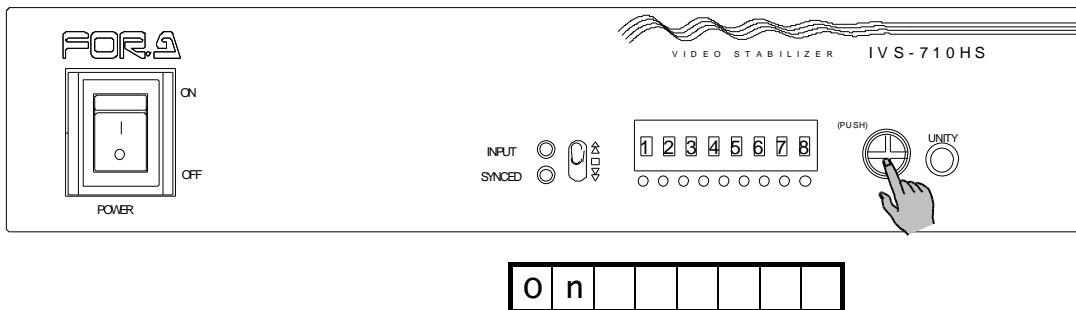
If a fan alarm occurs, "FAN ERR" will appear and flash on the menu display. ("IVS710HS" is displayed in normal operation.) In such cases, power off the unit and consult your FOR-A reseller for cooling fan replacement.

4-2. Menu Operation

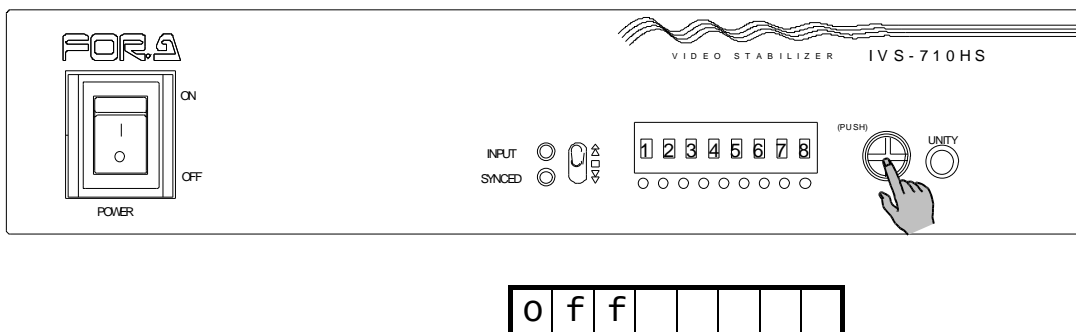
- (1) Turn the menu control knob on the front panel to select the menu item.
The up/down switch allows you to jump to major menus (highlighted in the menu list in section 5.)



- (2) Press the menu control knob to show the setting value of the selected item.



- (3) Turn the menu control knob to select the setting value.
Pressing the UNITY switch resets the setting to default. (Pressing the UNITY switch again returns the value to that before the UNITY switch was pressed.)
Pressing the menu control knob confirms the setting, and the menu display returns to the state in step (1).



Repeat steps (1) to (3) to change parameters that need to be changed.

5. Menu List

Category	Menu display indication	Reference
Camera Shake Stabilize Magnification Percentage Level Correction Area Horizontal Motion Filter Vertical Motion Filter	CamShake Stblz > MAG LVL> C Area > H M Flt> V M Flt>	5-1-1. Camera Shake
Filter Horizontal Low Pass Filter Vertical Low Pass Filter Horizontal Enhancement Vertical Enhancement	Filter H LPF > V LPF > H ENH > V ENH >	5-1-2. Filter
Mask Area Motion Detection Adjust Left Motion Detection Adjust Right Motion Detection Adjust Top Motion Detection Adjust Bottom Effective Area Adjust Horizontal Effective Area Adjust Vertical	MaskArea MD L > MD R > MD Top> MD Bot> EffectH> EffectV>	5-1-3. Mask Area
Clip Setting Super White Super Black Chroma Clip	Clip Set White > Black > Chroma >	5-1-4. Clip Setting
System Input Select System Format Reference Select (*)	System IN SEL > SYS FMT> REF SEL>	5-1-5. System
Video Freeze Freeze On / Off Freeze Field Select Bypass-Operate	Freeze Freeze > FLD FRZ> Byps-Op>	5-1-6. Video Freeze
Utility Front Brightness Serial Select (*) Reset	Utility Bright > Serial > Reset >	5-1-7. Utility
System Status Selected Input Channel Input Format1 Input Format2 Reference Status (*) Genlock Detect (*) FAN Alarm (*)	SysStat SEL IN > IN1Stat> IN2Stat> REFStat> Gen Det> FAN ALM>	5-1-8. System Status (for Viewing)
Version Information CPU Version Information FPGA Version Information	Ver INFO CPU > FPGA >	5-1-9. Version Information (for Viewing)

(*) Appears if an IVS-710IF is installed.

5-1. Menu Details

5-1-1. Camera Shake

Menu	Default	Setting range (Steps)	Description
Camera Shake			
Stabilize	On	On, Off	Enables/disables camera shake correction.
Magnification Percentage Level	5	0 - 15 (1 level)	Sets the correction level.
Correction Area	0	0 - 15	Sets the correction area.
Horizontal Motion Filter	13	0 - 15 (1 level)	Sets the correction level for horizontal video shaking.
Vertical Motion Filter	13	0 - 15 (1 level)	Sets the correction level for vertical video shaking.

5-1-1-1. Stabilize

Set Stabilize to On to correct images that have camera shake. The Magnification Percentage Level setting will be applied to the video images, even if Stabilize is set to Off. If Bypass – Operate is set to Bypass (refer to sec. 5-1-6. Video Freeze), INPUT1 video signal will be bypassed to OUTPUT1 regardless of the Stabilize setting.

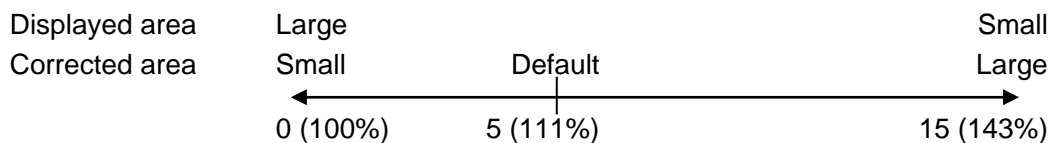
5-1-1-2. Magnification Percentage Level

Camera shake correction magnifies video images to remove shaking. The higher the magnification ratio, the larger the shaking that can be removed. Magnification ratio can be selected to between levels 0 and 15. The setting is displayed with both the magnification ratio and level. According to the shake detection result, a part of the magnified video image will be cut out. The output video image will display the input video image partially.

Less than 5: Effective for small vibrations caused by machines, or vibration in outdoor stationary camera caused by wind.

5-10: Effective for moving vehicle camera shake, and hand-held camera shake

More than 11: Effective for high magnification zooming or if an object is very close to the camera.



* To correct camera shake without magnifying images, refer to section 5-1-1-3. Correction Area. Minute camera shaking can be removed even if the Magnification percentage level is set to 0 (100%).

5-1-1-3. Correction Area

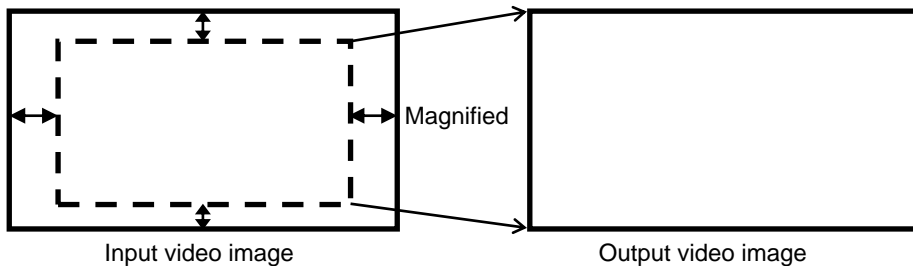
Shake corrections are achieved by cutting the edges (top/bottom/right/left) of images. The size of cut-off areas can be set to between 0 and 15. A larger value enables correction of large shaking. The cut-off areas will be displayed in black. The Magnification percentage setting (see sec. 5-1-1-2. Magnification Percentage Level) can provide more effective shake correction than the correction area setting. To obtain a sufficient level of shake correction, set the magnification percentage higher.

Correction Area can be used to correct shaking without magnifying images, or for corrections of slight shaking that remains after a shake correction with the certain magnification percentage. (See the figure below.)

- Without the correction area

Shake sizes that can be corrected vary depending on the Magnification percentage setting.

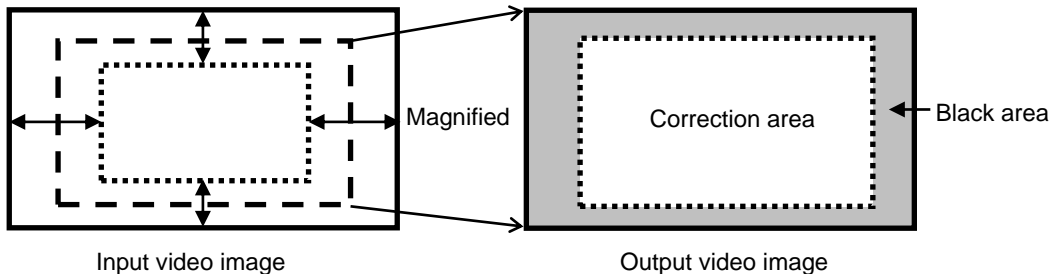
Corrected images are displayed to fit the screen.



- With the correction area (1-15/15)

Shake sizes that can be corrected vary depending on the Magnification percentage and correction area settings.

Corrected images are displayed smaller than the original size with the cut-off by the correction area setting.



* Additional descriptions on the above figure.

--- Indicates the area to be magnified.

..... Indicates the correction area.

↔ Indicates the shake sizes that can be corrected.

5-1-3. Mask Area

Menu	Default	Setting range	Description
Mask Area			
Motion Detection Adjust Left	(*1)	(*1)	Sets the area of motion detection.
Motion Detection Adjust Right	(*1)	(*1)	
Motion Detection Adjust Top	(*1)	(*1)	
Motion Detection Adjust Bottom	(*1)	(*1)	
Effective Area Adjust Horizontal	0	(For HD signals) 0-400	Sets the area where images will be displayed.
	0	(For SD signals) 0-200	
Effective Area Adjust Vertical	0	(For HD signals) 0-100	
	0	(For SD signals) 0-50	

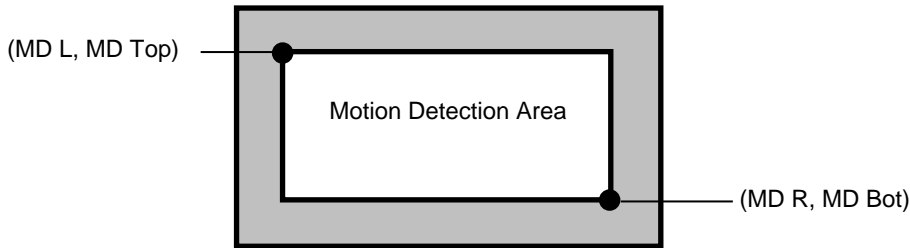
(*1) Refer to section 5-1-3-1. Motion Detection Area.

Mask areas appear on the monitor, shake correction seizes and Magnification percentage changes to 100% while Motion Detection Area or Effective Area is being set. Once the setting is complete, shake correction and magnification percentage settings return to the previous state, and mask areas disappear.

Once Motion Detection Area and Effective Area have been set, changing the Effective Area setting does not affect the Motion Detection Area setting. However, setting the Effective Area larger may change the Motion Detection setting value.

5-1-3-1. Motion Detection Area

Motion Detection Area allows you to set the area to observe motions to be corrected.



Motion detection area setting range (1080/60i, 1080/59.94i, 1080/50i)

MD L	96–1568 (192)	MD Top	27–385 (54)
MD R	352–1824 (1728)	MD Bot	155–513 (486)

Motion detection area setting range (720/60p, 720/59.94p, 720/50p)

MD L	64–960 (128)	MD Top	36–428 (72)
MD R	320–1216 (1152)	MD Bot	292–684 (648)

Motion detection area setting range (525/60)

MD L	36–620 (72)	MD Top	12–197 (24)
MD R	100–684 (648)	MD Bot	44–229 (217)

Motion detection area setting range (625/50)

MD L	36–620 (72)	MD Top	14–239 (28)
MD R	100–684 (648)	MD Bot	46–271 (257)

* Default values are shown in parentheses in the above.

IMPORTANT

Motion Detection areas cannot be set smaller than 256(H) x 256 (V) for HD, or 64(H) x 64 (V) for SD signals in frame basis .

Note the mask signal will be displayed on the output video signal while setting Motion Detection Area. The mask display will disappear when the setting is complete.

5-1-3-2. Effective Area

Effective Area allows you to specify the effective area where images are displayed. If the input video image is smaller than the effective area of the signal standard, video shaking may produce dark areas around edges in some conditions. The Effective Area setting is useful in reducing such types of noise.

IMPORTANT

Note the effective area marker will be displayed on the output video signal while entering the Effective Area setting. The marker will disappear when the setting is complete.

5-1-4. Clip Setting

Menu	Default	Setting range	Description
Clip Setting			
Super White	THRU	THRU, CLIP	Luminance signal levels above the legal SDI signal limit are cut off (CLIP) or passed through (THRU).
Super Black	THRU	THRU, CLIP	Luminance signal levels below the legal SDI signal limit are cut off (CLIP) or passed through (THRU).
Chroma Clip	THRU	THRU, CLIP	Pb/Pr signal levels exceeding the legal SDI signal limit are cut off (CLIP) or passed through (THRU).

* According to the values quantized by 10-bit.

5-1-5. System

Menu	Default	Setting range	Description
System			
Input Select	SDI In1	SDI In1 SDI In2	Selects the input signal to be used.
System Format	Auto DET	Auto DET 525/60 625/50 1080/60i 1080/59.94i 1080/50i 720/60p 720/59.94p 720/50p	Selects the system video format. Auto DET to automatically detect the input signal format or a specific format can be selected.
Reference Select (IVS-710IF required)	Input	Input Ref	Selects Input or Ref (external reference signal: BB or Tri-sync) reference mode.

5-1-6. Video Freeze

Menu	Default	Setting range	Description
Video Freeze			
Freeze On / Off	Off	On (*1), Off	Turns the Freeze function On/Off.
Freeze Field Select	Odd	Odd (*2) Even Frame	Odd: Freezes images at an odd field. Even: Freezes images at an even field. Frame: Freezes a frame.
Bypass - Operate	Operate (*3)	Operate Bypass	Operate: Outputs processed signals. Bypass: Outputs signals without being processed.

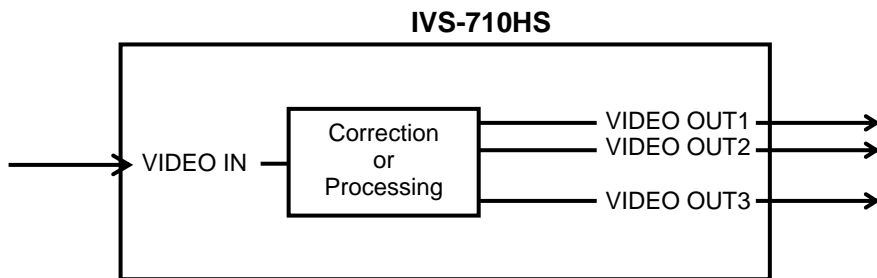
(*1) Once Freeze is turned on, other settings cannot be changed. Turn off Freeze to change other settings.

(*2) If the input signal is 720/60p, 720/59.94p, or 720/50p, the freeze function always freezes the odd frame, regardless of the setting.

(*3) The IVS-710HS always starts up in Operate mode even if Bypass has been selected when the unit is shut down.

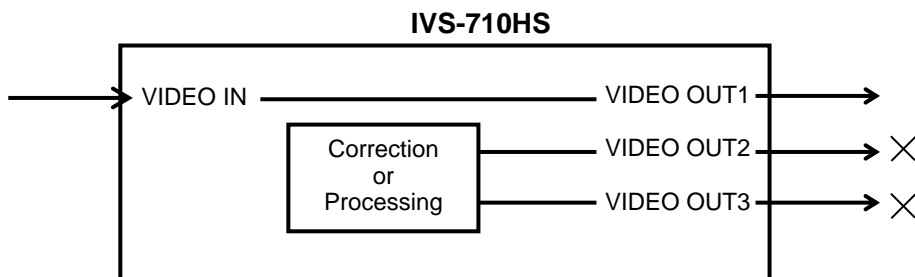
5-1-6-1. Operate

Operate outputs input video signals in VIDEO IN1 or VIDEO IN2 to VIDEO OUT 1 to 3 after processing.



5-1-6-2. Bypass

Bypass output input video signals in VIDEO IN1 to VIDEO OUT1 without processing. VIDEO IN2 input video signals will not be output. No signal will be output from VIDEO OUT 2 and 3.



5-1-7. Utility

Menu Item	Default	Setting range	Description
Utility			
Front Brightness	50%	25% 50% 75% 100%	Selects the brightness of the front panel menu display.
Serial Select (IVS-710IF required)	RS-232C	RS-232C RS-422	Selects the serial interface.
Reset	No (*1)	No Yes	Selects whether to reset the settings.

(*1) Settings will be reset 3 seconds after setting Reset to Yes. Default is No.

IMPORTANT
<p>Automatic data backup: The IVS-710HS automatically backs up changes about 3 seconds. Wait at least 3 seconds after setting change before turning the unit power off. Settings will not be backed up if the unit is powered off within 3 seconds after changes.</p>

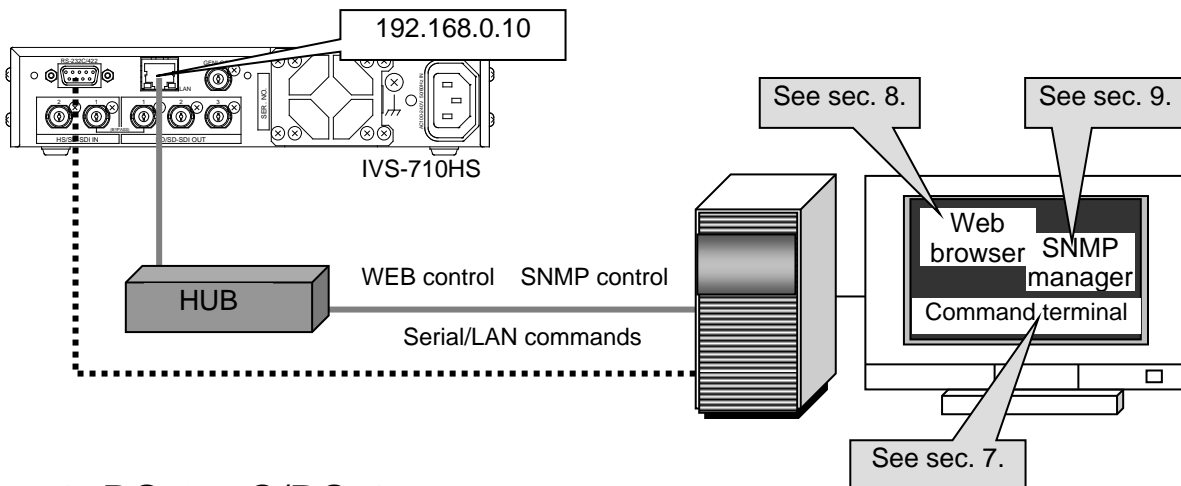
5-1-8. System Status (for Viewing)

Menu Item	Description
System Status	
Selected Input Channel	Displays the selected input channel. Displays Bypass if the input signal is being bypassed.
Input Format1	Displays the video format of the SDI IN1 input signal. Loss is displayed if no signal input is present. Unknown is displayed if an unsupported video signal is input. Bypass is displayed if an input signal is being bypassed.
Input Format2	Displays the video format of the SDI IN2 input signal. Loss is displayed if no signal input is present. Unknown is displayed if an unsupported video signal is input.
Reference Status (IVS-710IF required)	Displays output signal sync status. Lock : Signal output is synchronized with the input signal or external reference signal. Unlock : Signal output is not synchronized with the external reference signal while in Ref mode.
Genlock Detect (IVS-710IF required)	Displays reference (GENLOCK IN) signal status. Detected : Displays presence of external reference signal. None : Displays no reference signal presence.
FAN Alarm (IVS-710IF required)	Displays fan alarm status. Normal : Normal operation Error : Indicates an error has occurred.

5-1-9. Version Information (for Viewing)

Menu Item	Description
Version Information	
CPU Version Information	Displays the CPU version.
FPGA Version Information	Displays the FPGA version.

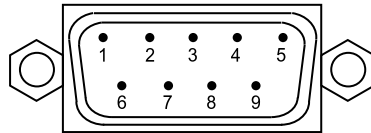
6. Control Interfaces (IVS-710IF)



6-1. RS-232C/RS-422

The serial port interface is selectable between RS-232C (default) and RS-422. See section 5-1-7. "Utility."

◆ Connector



◆ RS-232C Pin Assignments (9-pin D-sub, male)

Pin No.	Signal	Description
1	—	No connection
2	RXD	Receive data
3	TXD	Transmit data
4	—	No connection
5	GND	Signal ground
6	—	No connection
7	CTS	Internally connects to RTS.
8	RTS	Internally connects to CTS.
9	—	No connection

◆ RS-422 Pin Assignments (9-pin D-sub, male)

Pin No.	Signal	Description
1	GND	Frame ground
2	TX-	Transmit data
3	RX+	Receive data
4-6	—	No connection
7	TX+	Transmit data
8	RX-	Receive data
9	GND	Frame ground

◆ Communication Standard

Transmission speed	38,400 [bps]
Data length / Stop bit	8 [bit] / 1 [bit]
Parity / X parameter (flow control)	None / None
Command interval	Greater than 50 [ms]

6-2. LAN

◆ Communication Standards

Ethernet interface	Connector	RJ-45
	Fast or Gigabit Ethernet	100BASE-TX/1000BASE-T
Cabling type	100BASE-TX: STP Category 5 or higher 1000BASE-T: STP Category 6 (straight) or Category 5e	

<When operating in 100BASE-TX mode>

- Use a straight cable if connecting an IVS-710IF to your computer via a hub.
- Use a crossover cable if directly connecting an IVS-710IF to your computer.
- If the LAN port of your hub or computer has the Auto-MDI/MDI-X feature, both straight and crossover cables can be used in the above cases.

<When operating in 1000BASE-T mode>

Both straight/crossover cables in CAT5e can be used.

* Note that CAT6 crossover cables cannot be used.

◆ Network Settings

Factory default IVS-710HS (IVS-710IF) LAN port settings are as shown below.

Item	Default IVS-710HS (IVS-710IF) setting
IP address	192.168.0.10
Subnet mask	255.255.255.0
Default gateway	0.0.0.0

Adjust your PC network settings accordingly.

Once the PC is connected to the IVS-710HS (IVS-710IF) through a web browser using the default IP address, network settings can be changed in the NETWORK page. (See 8-8. "NETWORK Page".)

Notes on LAN Connection

- Set appropriate network **IP address**, **Subnet mask** and **Default gateway** settings according to your LAN environment.
- In an office setup, consult your network administrator.
- An IVS-710HS (IVS-710IF) can be accessed and controlled simultaneously via LAN by a **single** computer.

7. Serial/LAN Control Commands (IVS-710IF)

The following console commands can be sent and received via a serial or LAN interface to set IVS-710HS parameters or obtain the current settings.

If no command is sent to the IVS-710HS within 60 seconds while connecting, the connection is automatically disconnected. Reconnect to the IVS-710HS to send commands.

◆ Notes on LAN connection

To connect via LAN, the IVS-710HS (IVS-710IF) replies using the following TCP port number. Open the port on your PC so that the PC can receive packets from the IVS-710HS.

Receival port on PC	The TCP port number is automatically set between 51001 to 510255 and the last three digits of the number are set to the last octet of the IVS-710IF IP address. Default TCP port number: 51010 (IP address 192.168.0.10)
---------------------	--

7-1. Command Formats

7-1-1. Setting Parameters

◆ Setting Parameter Request

Use the following command to set a parameter value:

[Command parameter][Space][Value][Enter]

◆ Responses to Setting Parameter Request

If a parameter value is properly set: [Write:][Value]

If a parameter value is improperly set: [ERROR:][Error code]

7-1-2. Reading Parameter Settings

◆ Reading Parameter Request

Use the following command to read a parameter value.

[Command parameter][Enter]

◆ Responses to Reading Parameter Request

If a parameter value is properly read: [Read :][Value]

If a parameter value is improperly read: [ERROR:][Error code]

7-1-3. Character Format

Text input: ASCII code in hexadecimal representation

* Note that the IVS-710IF does not echo back messages.

Available characters

Command parameter	Alphabetical characters in uppercase from 'A'(41H) to 'Z'(5AH), Numerical: '1'(31H) and '2'(32H)	-
[Space]	Space (20H)	Used to delimit between Command parameters and Values.
Value	Numerical: '0'(30H) to '9'(39H) Alphabetical: 'A'(41H) to 'F'(46H) and 'a'(61H) to 'f'(66H)	-
[Enter]	CR(0DH) LF(0AH) or none	Used to terminate commands.

◆ Command Response Examples

Ex. 1) To set **Stabilizer** to **OFF**, send the following SET command:

Byte	Command	Description
1-5	STABI	Command parameter
6	[Space]	
7-8	01	OFF (parameter value to be set)
9	CR	
10	LF	

Return in response to the above command:

Byte	Command	Description
1-5	Write:	Reserved parameter
6-7	01	Set value
8	CR	
9	LF	

Ex. 2) To read the **CORRECT** value, send the following READ command:

Byte	Command	Description
1-7	CORRECT	Command parameter
8	CR	
9	LF	

Return in response to the above command:

Byte	Command	Description
1-5	Read :	Reserved parameter
6-7	01	Parameter value
8	CR	
9	LF	

7-2. Error Messages

Error messages will be returned in the following cases:

- When commands are incorrectly received.
- When commands are incorrectly processed.

The following error codes are included in error messages.

Error code	Description
00	Incorrect characters are set in [Command parameter].
01	Incorrect characters are set in [Value].
02	The set value exceeds the setting range.

7-3. Command List

Parameter		Command parameter	Value	Setting
Stabilize		STABI	00	ON
			01	OFF
Magnification Percentage Level		CORRECT	00 to 0F	-
Correction Area		CORA	00 to 0F	-
Motion Filter	Horizontal	MOTH	00 to 0F	-
	Vertical	MOTV	00 to 0F	-
Low Pass Filter	Horizontal	AAFH	00 to 0F	-
	Vertical	AAFV	00 to 0F	-
Enhancement Filter	Horizontal	ENHH	00 to 0F	-
	Vertical	ENHV	00 to 0F	-
Motion Detect Area Marker Display		MAMD	00	Marker OFF
			01	Marker ON
Motion Detect Area	Left	MSTRH	(*1)	-
	Right	MENDH	(*1)	-
	Top	MSTRV	(*1)	-
	Bottom	MENDV	(*1)	-
Effective Area Marker Display		EAMD	00	Marker OFF
			01	Marker ON
Effective Area	Horizontal	AREAH	(*2)	-
	Vertical	AREAV	(*2)	-
Super White		CSWH	00	OFF
			01	ON
Super Black		CSBL	00	OFF
			01	ON
Chroma Clip		CSCH	00	OFF
			01	ON
Input Select		CHSEL	00	SDI Input 1
			01	SDI Input 2
Reference Select		SYNC	00	Reference
			01	Input Lock
System Format		INSEL	00	Auto Detect
			01	525/60
			02	625/50
			03	1080/60i
			04	1080/59.94i
			05	1080/50i
			13	720/60p
			14	720/59.94p
Freeze ON / OFF		FRZS	00	OFF
			01	ON
Freeze Field Select		FRZM	00	Odd
			01	Even
			02	Frame
Bypass-Operate		BYPAS	00	Operate
			01	Bypass
Front Brightness		BRI	00	25%
			01	50%
			02	75%
			03	100%

Parameter	Command parameter	Value	Setting
Reset	RES	01	Setting Reset
Selected Input Channel Status (*3)	CHS	00	SDI Input 1
		01	SDI Input 2
		02	Bypass
Reference Status (*3)	REFS	00	Lock
		01	Unlock
Input 1 Format Status (*3)	INS1	00	Loss
		01	525/60
		02	625/50
		03	1080/60i
		04	1080/59.94i
		05	1080/50i
		13	720/60p
		14	720/59.94p
		15	720/50p
		1D	Unknown
Input 2 Format Status (*3)	INS2	00	Loss
		01	525/60
		02	625/50
		03	1080/60i
		04	1080/59.94i
		05	1080/50i
		13	720/60p
		14	720/59.94p
		15	720/50p
		1E	Bypass
FAN ALARM Status (*3)	FANA	00	Normal
		01	Error

(*1) See section 7-3-1. "Setting Range for Motion Detect Area" for details.

(*2) See section 7-3-2. "Setting Range for Effective Area" for details.

(*3) Read-only parameters.

7-3-1. Setting Range for Motion Detect Area

The Motion Detect Area setting range is as shown below.

	Input Format			
	1080i	720p	525/60	625/50
Left	0060 to 0620	0040 to 03C0	0024 to 026C	0024 to 026C
Right	0160 to 0720	0140 to 04C0	0064 to 02AC	0064 to 02AC
Top	001B to 0181	0024 to 01AC	000C to 00C5	000E to 00EF
Bottom	009B to 0201	0124 to 02AC	002C to 00E5	002E to 010F

7-3-2. Setting Range for Effective Area

The Effective Area setting range is as shown below.

	Input Format	
	HD	SD
Horizontal	0000 to 0190	0000 to 00C8
Vertical	0000 to 0064	0000 to 0032

7-4. Resetting Network Settings

The Reset function is not usually needed. Use the function only in such cases as when you have forgotten the IP address of the IVS-710IF LAN port.

(Note that the Reset function does not reset video processing parameters.)

- (1) Connect the IVS-710IF to the PC using an RS-232C or RS-422 interface.
- (2) Launch your serial terminal software.
Type **MAINTE[Space]1**, then press **ENTER**.
- (3) Type **FACTORY**, then press **ENTER**.
- (4) When the message "**Complete Factory Default**" is returned, wait 5 seconds, then restart your IVS-710HS.

8. WEB Browser Control (IVS-710IF)

8-1. Overview

The IVS-710HS units can be controlled from web browsers on a computer via LAN by installing an optional IVS-710IF interface card.

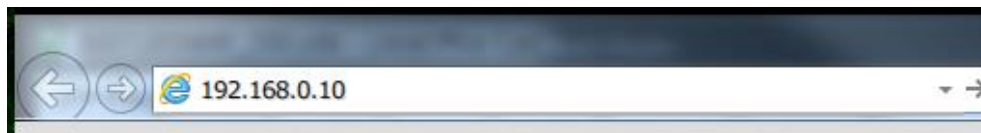
8-2. System Requirements

Below are the PC system requirements for IVS-710HS control via IVS-710IF interface using a web browser.

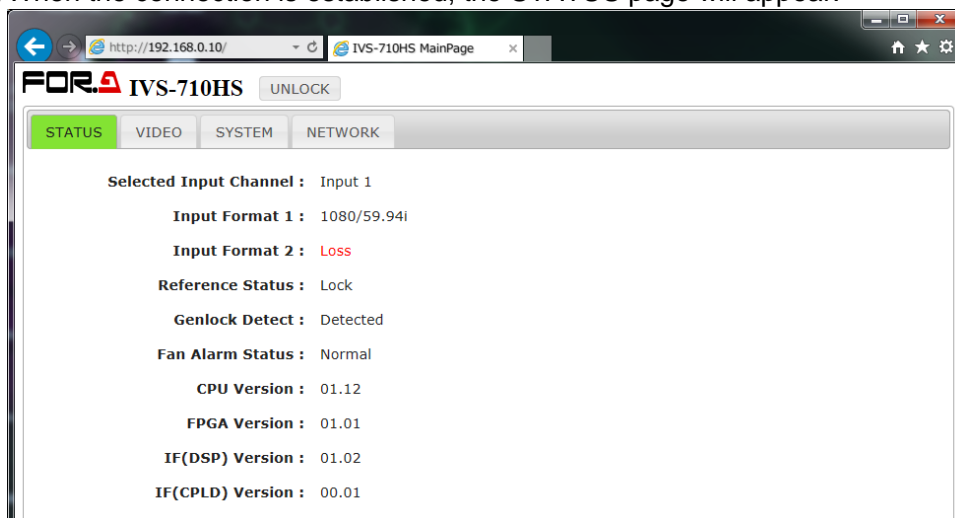
Operation System	Windows® 7 operating system Professional (32/64bit)
Processor	Intel® Core™ 2 Duo processor 2 GHz or greater
Web browser	Internet Explorer® 9 or later Firefox® 3 or later (Version 20 or later recommended) Google Chrome (Version 28 or later recommended)
Memory	1 GB or more
Display	1280 x 800 pixels or higher, 24-bit full-color
LAN port	More than 1 port, 100BASE-TX/1000BASE-T
LAN cable	STP cable 100BASE-TX: CAT5 or better 1000BASE-T: CAT6 or CAT5e

8-3. Connecting from a Web Browser

- (1) Launch your web browser. Enter the IP address set for the IVS-710IF LAN port (Default: **192.168.0.10**) in the address box and press **ENTER**.

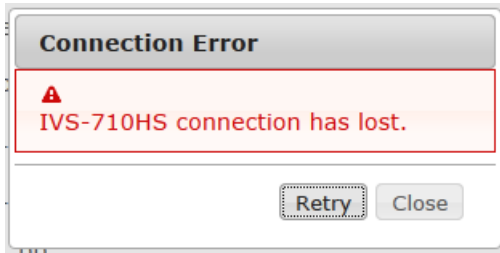


- (2) When the connection is established, the STATUS page will appear.



8-3-1. Connection Error Message

An error message as shown below will appear, if the PC is not connecting to the IVS-710IF properly due to some reasons.

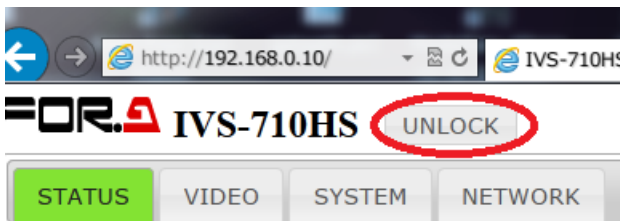


To reconnect to the unit, press **Retry**.
To close the dialog without attempting to connect, press **Close**.

8-4. Unlocking Parameters

When you are initially connected to IVS-710HS web pages via an IVS-710IF, parameters in the web pages can be viewed but not changed. To change parameter settings, unlock them as shown below. Once the parameters are unlocked, they remain unlocked until you re-lock them or exit the browser.

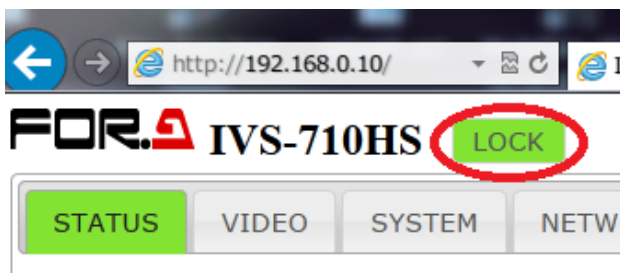
(1) Click on **UNLOCK** as indicated in the figure below.



(2) A dialog as shown below will appear.



(3) Click **OK** to release the lock. The "UNLOCK" button will change to "LOCK."
To re-lock parameters, click **LOCK**.

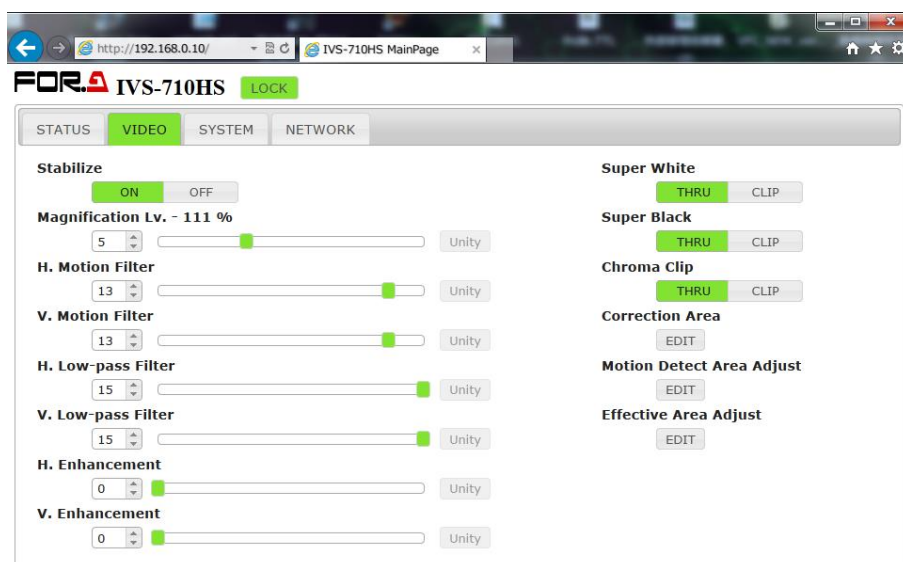


8-5. STATUS Page

Item	Description
Selected Input Channel	Displays the selected input channel.
Input Format 1	Displays the video format of the SDI IN1 input signal.
Input Format 2	Displays the video format of the SDI IN2 input signal.
Reference Status	Displays the output signal sync state.
Genlock Detect	Displays the reference (GENLOCK IN) signal state.
Fan Alarm Status	Displays the fan alarm state.
CPU Version	Displays the CPU version.
FPGA Version	Displays the FPGA version.
IF(DSP) Version	Displays the IVS-710IF DSP version.
IF(CPLD) Version	Displays the IVS-710IF CPLD version.

* See sections 5-1-8. "System Status (for Viewing)" and 5-1-9. "Version Information (for Viewing)" for details on each parameter.

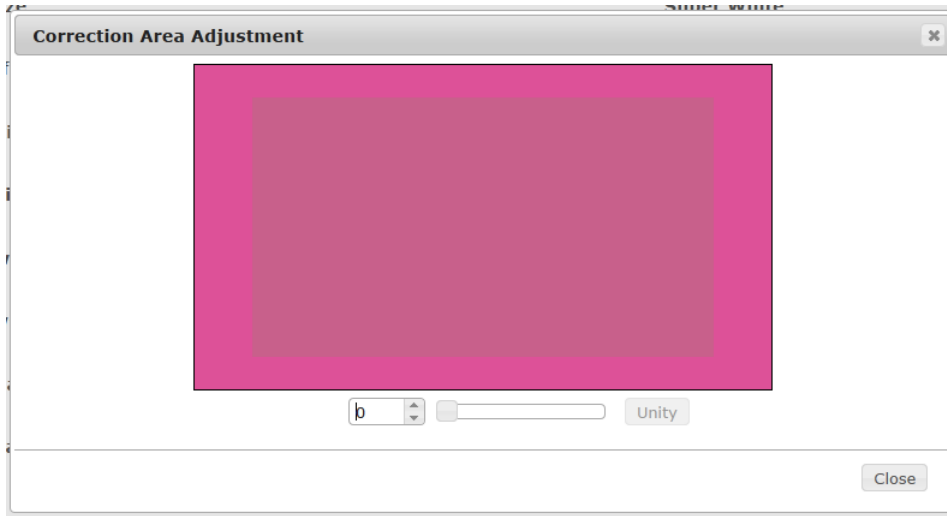
8-6. VIDEO Page



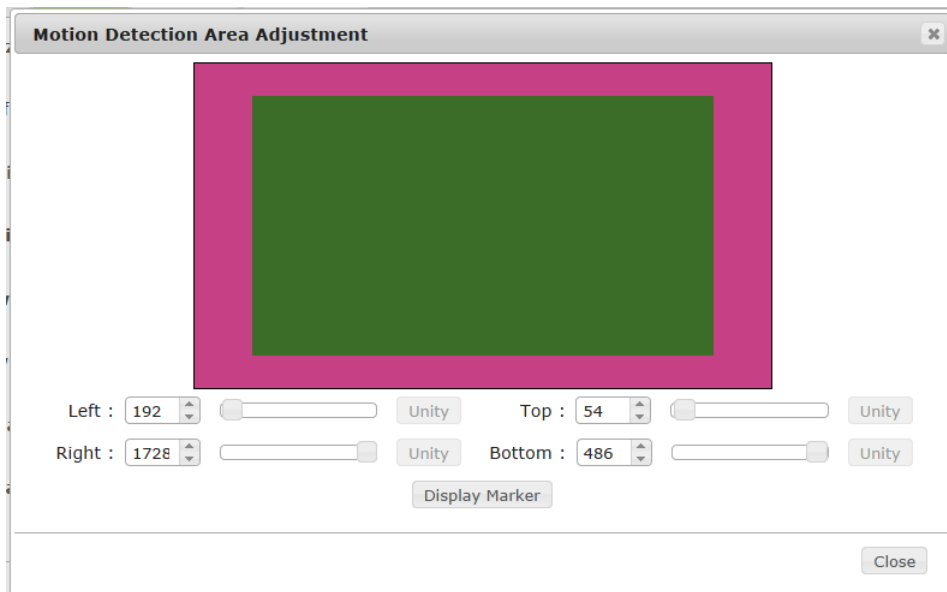
Item	Description	Refer to
Stabilize	Enables/disables camera shake correction.	5-1-1-1
Magnification Lv.	Sets the correction level.	5-1-1-2
H.Motion Filter	Sets the correction level for horizontal video shaking.	5-1-1-4
V.Motion Filter	Sets the correction level for vertical video shaking.	
H.Low-pass Filter	Sets the horizontal low-pass filter level.	5-1-2-1
V.Low-pass Filter	Sets the vertical low-pass filter level.	
H.Enhancement	Sets horizontal edge enhancement.	5-1-2-2
V.Enhancement	Sets vertical edge enhancement.	
Super White	If all three parameters are set to CLIP , only valid SDI signals are output.	5-1-4
Super Black		
Chroma Clip		
Correction Area	Opens the Correction Area dialog, in which the area can be adjusted. The button has a yellow background while the dialog is displayed.	5-1-1-3
Motion Detection Area Adjustment	Opens the Motion Detection Area Adjustment dialog, in which the area can be adjusted. The button has a yellow background while the dialog is displayed.	5-1-1-4
Effective Area Adjustment	Opens the Effective Area Adjustment dialog, in which the area can be adjusted. The button has a yellow background while the dialog is displayed.	5-1-3-2

8-6-1. Correction Area Adjustment

Adjusts the Correction Area. See section 5-1-1-3. "Correction Area" for more details.



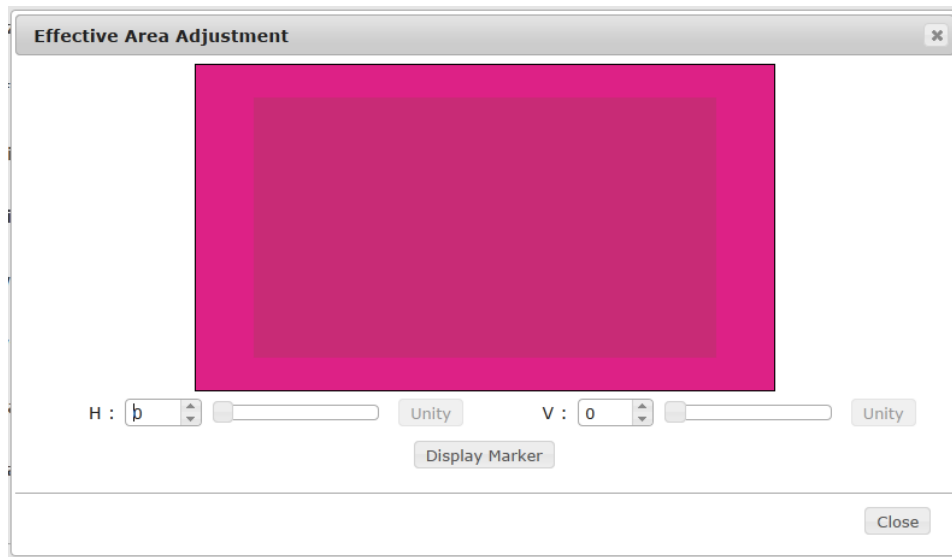
8-6-2. Motion Detection Area Adjustment



Item	Description
Left	Sets the Motion Detection Left side.
Right	Sets the Motion Detection Right side.
Top	Sets the Motion Detection Top side
Bottom	Sets the Motion Detection Bottom side
Display Marker	Shows/hides the Motion Detection Area Mask.

* See section 5-1-3-1. "Motion Detection Area" for details.

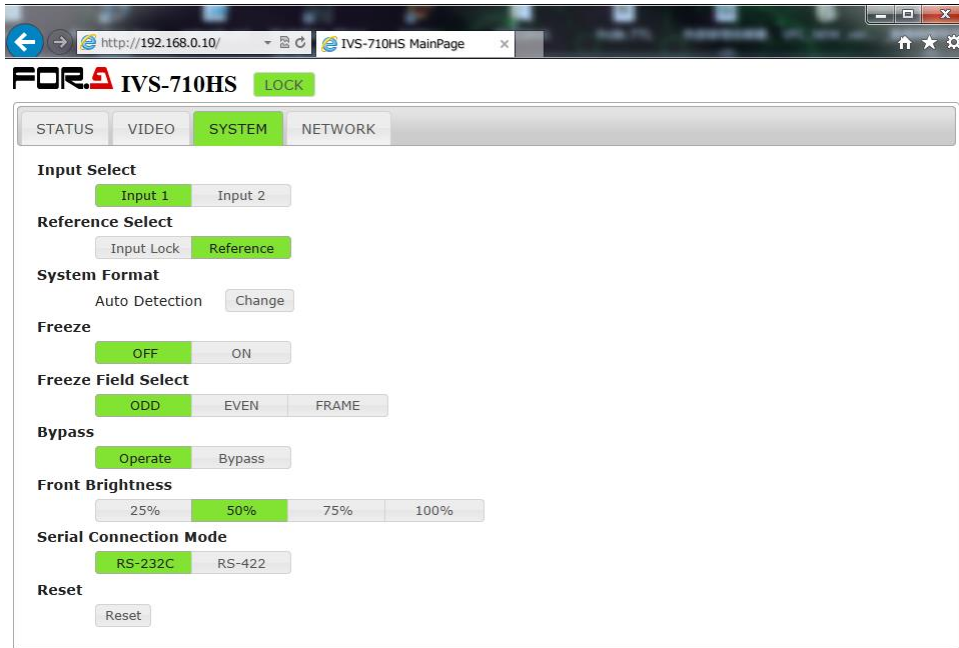
8-6-3. Effective Area Adjustment



Item	Description
H(Horizontal)	Sets the Effective Area horizontal position.
V(Vertical)	Sets the Effective Area vertical position.
Display Marker	Shows/hides the Effective Area Mask.

* See section 5-1-3-2. "Effective Area" for details.

8-7. SYSTEM Page

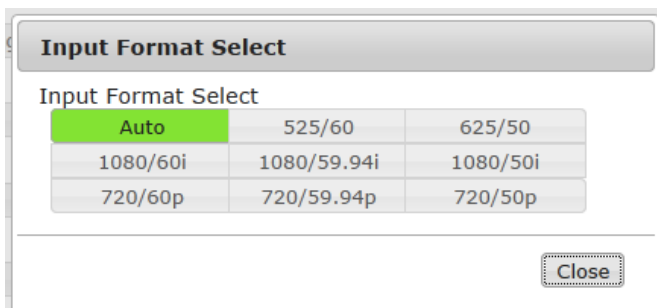


Item	Description
Input Select	Selects the input signal to be used.
Reference Select	Selects the reference mode.
System Format	Open the dialog to select the system video format.
Freeze	Turns the Freeze function On/Off.
Freeze Field Select	Selects the freeze mode.
Bypass	Toggles the mode between Operate and Bypass.
Front Brightness	Selects the brightness of the front panel menu display.
Serial Connection Mode	Selects the serial interface between RS-232C and RS-422.
Reset	Resets all IVS-710HS parameter settings.

* See sections 5-1-5. "System", 5-1-6. "Video Freeze" and 5-1-7. "Utility" for details.

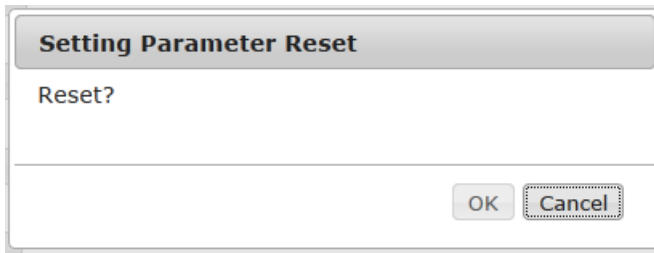
8-7-1. Selecting Input Format

Selects the system video format.

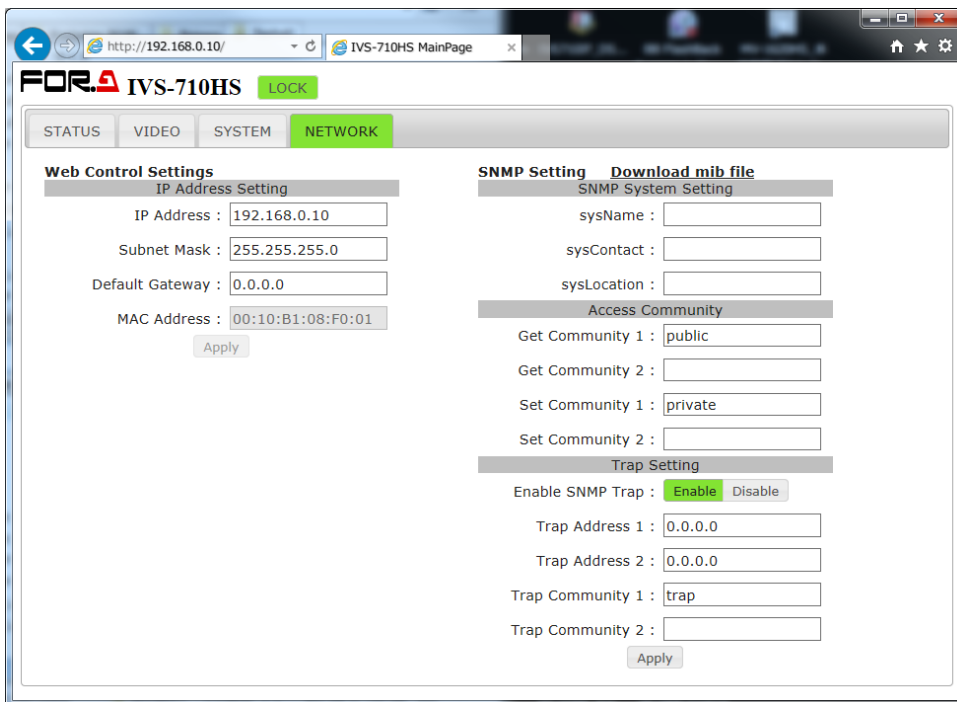


8-7-2. Resetting Parameters

Clicking **OK** resets all IVS-710HS parameter settings.

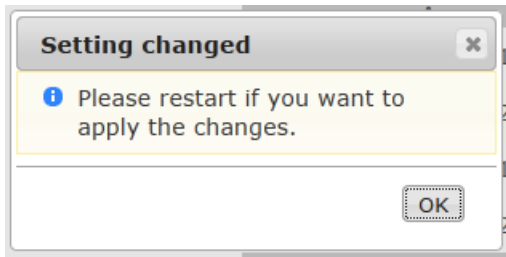


8-8. NETWORK Page

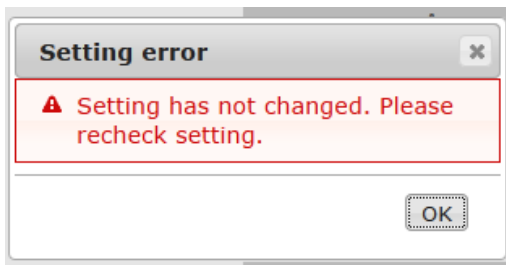


Item	Description
IP Address Setting	
IP Address	IP address setting
Subnet Mask	Subnet mask setting
Default Default gateway	Default gateway setting
MAC Address	MAC address display
SNMP Setting	
sysName	sysName setting (Max. 30 characters)
sysContact	sysContact setting (Max. 30 characters)
sysLocation	sysLocation setting (Max. 30 characters)
Get Community 1	Get Community setting (Max. 20 characters)
Get Community 2	Get Community setting (Max. 20 characters)
Set Community 1	Set Community setting (Max. 20 characters)
Set Community 2	Set Community setting (Max. 20 characters)
Enable SNMP Trap	Status Change Trap On/Off
Trap Address 1	Trap Address setting
Trap Address 2	Trap Address setting
Trap Community 1	Trap Community setting (Max. 20 characters)
Trap Community 2	Trap Community setting (Max. 20 characters)

Pressing **Apply** after changing settings sends changes to the IVS-710HS. If the changes are successfully applied, the following message will return. Restart your IVS-710HS.



If the parameter changes fail in the IVS-710HS (for example, the same or invalid value was sent), the following message will return.



9. SNMP Management and Monitoring (IVS-710IF)

The IVS-710HS can be monitored and managed via SNMP (v2c) when an optional IVS-710IF interface card is installed. The IVS-710HS MIB (Management Information Base) file can be downloaded by clicking "**Download mib file**" in the IVS-710HS **NETWORK** page accessed from web browsers. (See section 8-8. NETWORK Page.)

9-1. Get/Set List

Name	Description (Menu Parameter)	OID	TYPE
OID:1.3.6.1.4.1.20175.1.309.1(ivs710hsSetting)			
ivs710hsStabilize	Stabilizer function	1	INTEGER
ivs710hsMagLv	Magnification Percentage Level	2	INTEGER
ivs710hsMotionH	Horizontal Motion Filter	11	INTEGER
ivs710hsMotionV	Vertical Motion Filter	12	INTEGER
ivs710hsLowpassH	Horizontal Low Pass Filter	13	INTEGER
ivs710hsLowpassV	Vertical Low Pass Filter	14	INTEGER
ivs710hsEnhanceH	Horizontal Enhancement	15	INTEGER
ivs710hsEnhanceV	Vertical Enhancement	16	INTEGER
ivs710hsCorrection	Correction Area	21	INTEGER
ivs710hsMDLeft	Motion Detection Adjust Left	22	INTEGER
ivs710hsMDRight	Motion Detection Adjust Right	23	INTEGER
ivs710hsMDTop	Motion Detection Adjust Top	24	INTEGER
ivs710hsMDBottom	Motion Detection Adjust Bottom	25	INTEGER
ivs710hsEffectiveH	Effective Area Adjust Horizontal	26	INTEGER
ivs710hsEffectiveV	Effective Area Adjust Vertical	27	INTEGER
ivs710hsSuperW	Super White	31	INTEGER
ivs710hsSuperB	Super Black	32	INTEGER
ivs710hsChroma	Chroma Clip	33	INTEGER
ivs710hsInSelect	Input Select	101	INTEGER
ivs710hsRefSelect	Reference Select	102	INTEGER
ivs710hsFormat	System Format	103	INTEGER
ivs710hsFreeze	Freeze On / Off	111	INTEGER
ivs710hsFreezeField	Freeze Field Select	112	INTEGER
ivs710hsBypass	Bypass - Operate	121	INTEGER
ivs710hsFrontBright	Front Brightness	131	INTEGER
ivs710hsReset	Reset	201	INTEGER
ivs710hsMotDetMark	Motion Detection Area Mask Display	211	INTEGER
ivs710hsEffectMark	Motion Detection Area Mask Display	212	INTEGER

9-2. Get List

Name	Description (Menu Parameter)	OID	TYPE
OID:1.3.6.1.4.1.20175.1.309.2(ivs710hsStatus)			
ivs710hsInChannel	Selected Input Channel	11	INTEGER
ivs710hsRefStatus	Output signal reference status	12	INTEGER
ivs710hsGenDetStatus	Genlock signal status	13	INTEGER
ivs710hsInFormat1	SDI IN 1 video signal format	21	INTEGER
ivs710hsInFormat2	SDI IN 2 video signal format	22	INTEGER
ivs710hsFanAlarm	Fan alarm status	1	INTEGER
ivs710hsCPUVersion	CPU version	31	OCTET STRING
ivs710hsFPGAVersion	FPGA version	32	OCTET STRING
ivs710hsIFVersion	IVS-710IF DSP version	33	OCTET STRING
ivs710hsFCPLDVersion	IVS-710IF CPLD version	34	OCTED STRING

9-3. TRAP List

Name	Description (Menu Parameter)	OID	TYPE
OID:1.3.6.1.4.1.20175.1.309.0(ivs710hsTrap)			
ivs710hsInChannelTrap	Selected Input Channel	11	INTEGER
ivs710hsRefStatusTrap	Output signal reference status	12	INTEGER
ivs710hsGenDetStatusTrap	Genlock signal status	13	INTEGER
ivs710hsInFormat1Trap	SDI IN 1 video signal format	21	INTEGER
ivs710hsInFormat2Trap	SDI IN 2 video signal format	22	INTEGER
ivs710hsFanAlarmTrap	Fan alarm status	1	INTEGER

10. Troubleshooting

If any of the following problems occur while operating the IVS-710HS, before assuming a unit malfunction has occurred, follow the troubleshooting procedures below to see if the problem can be corrected.

IMPORTANT

If the problem is not corrected by performing the procedures below, turn the unit off and then on again. If this still does not correct the problem, contact your dealer.

Problem	Check	Remedy
No image is output	Does the connected device support the output format?	Verify if the device supports the output format.
	Do the Input setting and input connector selection match?	Verify if the video signal is input to the proper connector (SDI: HD/SD-SDI) that matches the Input setting.

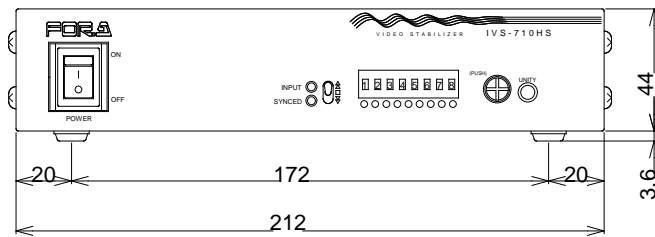
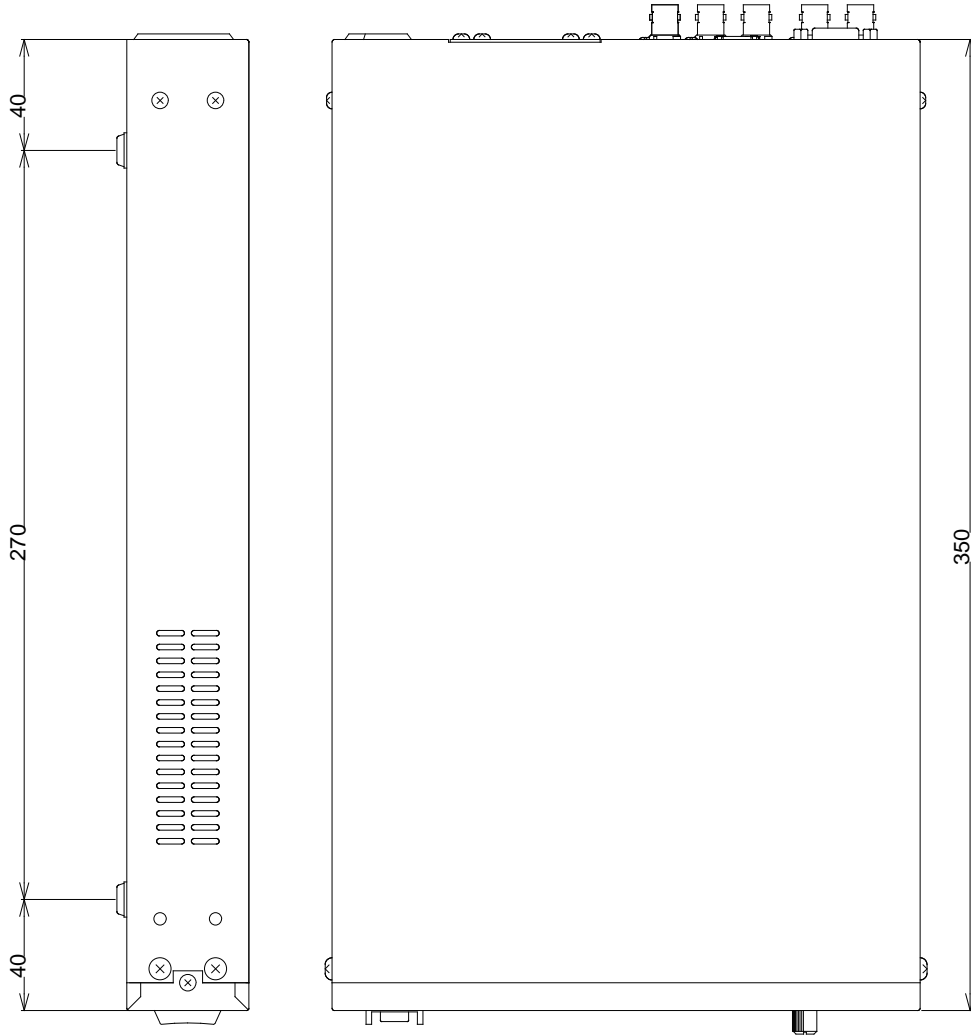
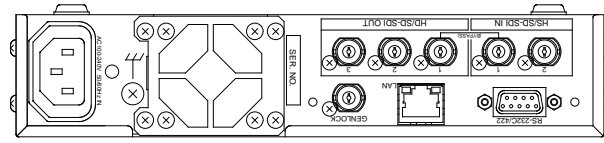
11. Specifications and Dimensions

11-1. Specifications

Video Format	HD-SDI: 1080/60i, 1080/59.94i, 1080/50i, 720/60p, 720/59.94p, 720/50p SD-SDI: 525/60 (NTSC), 625/50 (PAL)
Signal Processing	Component, 4:2:2
Video Input	HD-SDI 1.485/1.001Gbps, 1.485Gbps or SD-SDI 270Mbps 75Ω BNC x 2
Video Output	HD-SDI 1.485/1.001Gbps, 1.485Gbps or SD-SDI 270Mbps 75Ω BNC x 3 (OUTPUT 1 can also output bypassed signals)
Quantization	10-bit
Sampling Frequency	HD-SDI Y: 74.25/1.001MHz, 74.25MHz C: 37.125/1.001MHz, 37.125MHz SD-SDI Y: 13.5 MHz C: 6.75 MHz
Internal Processing	2 inputs (Select manually) 1-channel processing 3 outputs
Input Cable length	HD 5C-FB: approx. 100m SD 5C-2V: approx. 200m
Genlock Input	None (Input Lock only)
Output Image Size	1920×1080 pixels max. (1080/59.94i, 1080/60i, 1080/50i) 1280×720 pixels (720/59.94p, 720/60p, 720/50p) 720×486 pixels (525/60), 720×576 pixels (625/50) (The angle of view varies according to the Input image size and Correction Level settings.)
I/O Delay	1080/60i, 1080/59.94i, 1080/50i, 525/60, 625/50: 2 frames (No FS function) 720/60p, 720/59.94p, 720/50p: 4 frames (No FS function)
Shake Correction	Correction range: Up to 40% horizontally and vertically of images
Frequency Response	Horizontally and vertically 1 Hz to 59.94/2 Hz(1080/59.94i, 720/59.94p, 525/60) 1 Hz to 60/2 Hz(1080/60i, 720/60p) 1 Hz to 50/2 Hz(1080/50i, 720/50p, 625/50) Shaking can be detected (nominal values).
Shake Type	Vertical, horizontal, and diagonal (two-dimensional)
Synchronization	Input mode, External reference mode * External reference mode requires an IVS-710IF option.
ANC Data	Both HANC and VANC can be passed through
Temperature	0 - 40 °C
Humidity	30% - 90% (no condensation)
Power	100V - 240V AC (±10%) 50Hz/60Hz
Power Consumption	42 VA (40 W)(at 100V AC) (with IVS-710IF)
Dimensions	Half 1U (212 (W) × 44 (H) × 350 (D) mm)
Weight	3 kg (with IVS-710IF)
Consumables	(Recommended replacement time spans) Cooling fan: Replace every 5 years (at room temp.)
Interfaces (IVS-710IF option)	
Genlock input	BB: 0.429 Vp-p (NTSC) or 0.45 Vp-p (PAL), or Tri-level sync: 0.6 Vp-p Phase adjustable range: ±1/2H
LAN	100BASE-TX/1000BASE-T, RJ-45 x 1
RS-232C/422	9-pin D-sub (male) x 1

11-2. External Dimensions

(All dimensions in mm)



Warning

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.



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