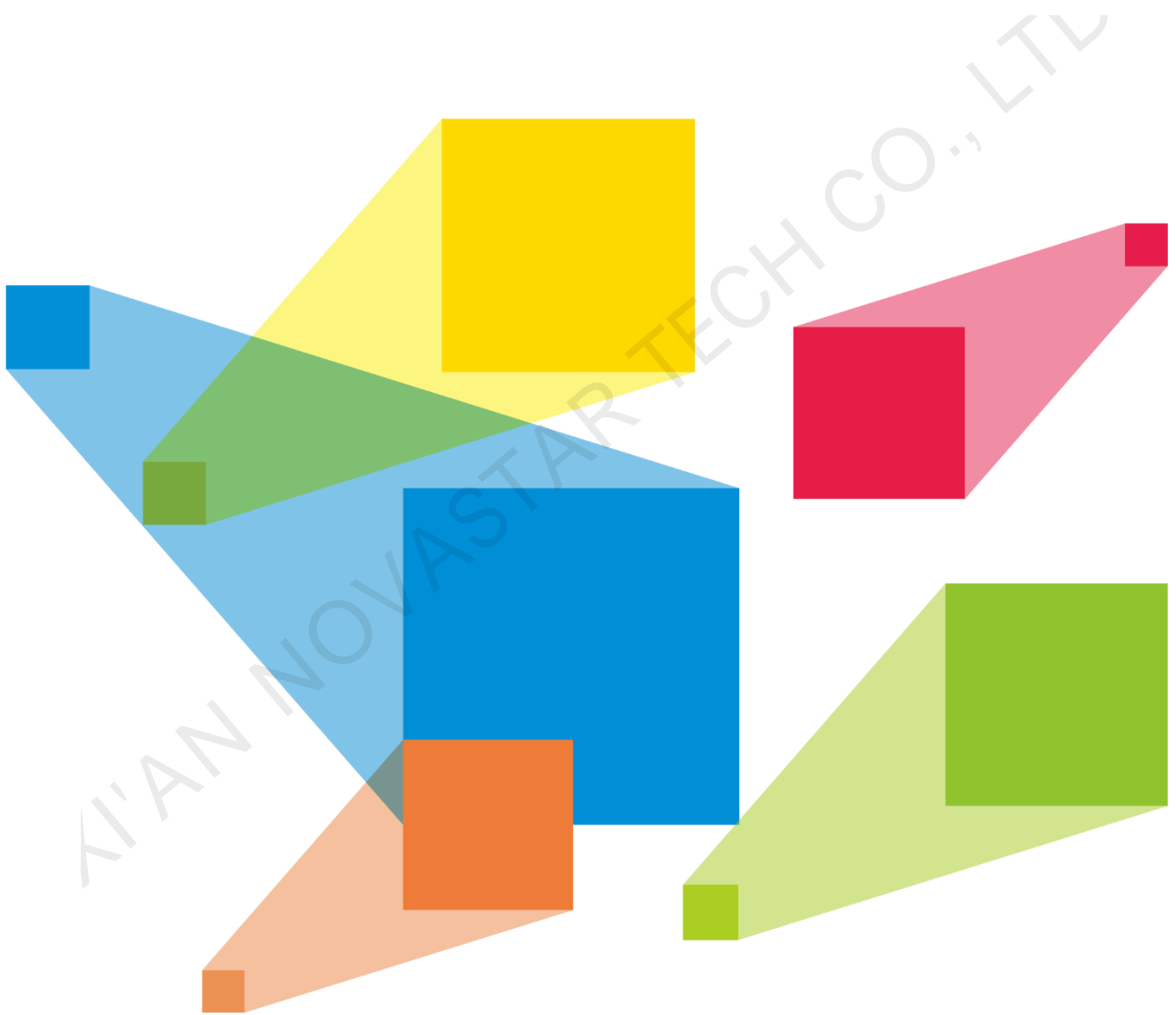


HDR Master 4K

Video Processor

V2.0.0



Specifications

Introduction

The HDR Master 4K is a video processor converting SDR content into an HDR format. By analyzing the SDR content and then intelligently filling in the missing information, the HDR Master 4K raises the dynamic range of brightness, color gamut and color depth to HDR standard. With this all-round upgrade, the SDR video source is converted into an HDR10 format which has a wider dynamic range of brightness, more colors and richer bright and dark details.

The HDR Master 4K provides full 4Kx2K@60Hz input and output connectors. Based on a pure hardware system architecture, the HDR Master 4K allows for stable and highly-efficient processing capabilities, output connector converting, SDI mosaic as well as long-distance optical fiber transmission.

Thanks to the powerful capabilities of receiving a variety of video signals, ultra HD image processing and HDR10 image output, the HDR Master 4K can be widely used in applications such as high-end rental, stage control, fine-pitch LED screens and video source conversion.

Features

- 1 pluggable input card
 - 1x DP 1.2, 1x HDMI 2.0 and 4x 12G-SDI
 - 3G-SDI mosaic input
 - Up to six 4Kx2K@60Hz video inputs simultaneously
- 2 pluggable output cards that output the same content synchronously
 - One with 1x HDMI 2.0 and 4x 10G optical fiber ports
 - The other one with 1x HDMI 2.0 and 4x 12G-SDI output connectors
 - 3G-SDI mosaic output
- Free conversion between SDR and HDR10/HLG
 - Convert SDR content to HDR10/HLG format
 - Convert HDR10/HLG content to SDR format
- BKG and LOGO file importing via a USB drive
 - Up to 10 BKG images, each width or height up to 8192 pixels
 - Up to 10 LOGO images, each width or height up to 512 pixels
- An LCD screen dedicated for monitoring
- Self-test and status monitoring
- Input hot backup function
- Output auto scaling to fit screen
- Output color space, sampling rate and bit depth settings
- Layer image flipping, input crop and layer mask

Appearance

Front Panel



Area	Description
Power button	Power on or power off the device.
Monitoring screen	An LCD screen Displays the monitoring information and input source RGB parade.
Input source and number buttons	Press the buttons to switch the layer input source or enter numbers. <ul style="list-style-type: none"> • Status LEDs for input source buttons: <ul style="list-style-type: none"> - On (green): The input source is accessed and used by the layer. - Flashing (red): The input source is not accessed but used by the layer. - On (yellow): The input source is accessed but not used by the layer.

Area	Description
	<ul style="list-style-type: none"> - Off: No input source is accessed or the input source is abnormal. • Status LEDs for number buttons: <ul style="list-style-type: none"> - On (green): The number button is active and can be used to enter a number.
Control screen	<p>An LCD screen</p> <p>Displays the device statuses, menus, submenus and messages.</p>
Knob	<ul style="list-style-type: none"> • Rotate the knob to select a menu item or adjust a parameter value. • Press the knob to confirm the selection or enter the submenu screen.
ESC button	Exit the current menu or cancel the operation.
Function buttons	<ul style="list-style-type: none"> • FN 1: A reserved button for a custom function, or used as a number button to enter 5 • FN 2: A reserved button for a custom function • HDR: Turn on or turn off the SDR to HDR converting function. <ul style="list-style-type: none"> - On: SDR to HDR converting function turned on - Off: SDR to HDR converting turned off • TEST: Enter the test pattern menu, or used as a number button to enter 5 <ul style="list-style-type: none"> - On: Test pattern opened - Off: Test pattern closed • FRZ: Freeze the output image. <ul style="list-style-type: none"> - On: Freeze function turned on - Off: Freeze function turned off • SCALE: Make the layer size equal to the output resolution. <ul style="list-style-type: none"> - On: Scaling function turned on (default) - Off: Scaling function turned off
USB port	<p>1x USB 2.0 (Type-A)</p> <ul style="list-style-type: none"> • Insert a USB drive to update the device. • Insert a USB drive to import the BKG or LOGO files.

Rear Panel



Input Card			
R_4x12G SDI+1xHDMI2.0+1xDP1.2 Input Card			
Connector	Qty	Standard	Description
HDMI 2.0	1	HDMI 2.0 Backwards compatible with HDMI 1.4 and HDMI 1.3	<ul style="list-style-type: none"> • Up to 4Kx2K@60Hz input resolution • 1080i/576i/480i deinterlacing • HDCP 2.2 and HDCP 1.4 compliant • HDR10 and HLG supported • Max. width: 4092 pixels, max. height: 4095 pixels
DP 1.2	1	DP 1.2 Backwards compatible	<ul style="list-style-type: none"> • Up to 4Kx2K@60Hz input resolution • 1080i/576i/480i deinterlacing

		with DP 1.1	<ul style="list-style-type: none"> • HDCP 1.3 compliant • Max. width: 4092 pixels, max. height: 4095 pixels
12G-SDI	4	12G-SDI Backwards compatible with 6G-SDI, 3G-SDI, HD-SDI and SD-SDI	<ul style="list-style-type: none"> • Supports ST-2082-1 (12G), ST-2081-1 (6G), ST-424 (3G), ST-292 (HD) and SMPTE 259 (SD). • Up to 4Kx2K@60Hz input resolution • 1080i/576i/480i deinterlacing • For 3G-SDI, HD-SDI or SD-SDI inputs, SDI mosaic input is supported. <p>Note:</p> <p>When the input source is a 12G-SDI signal, you must use CANARE / L-4.5CHD+ / UHDTV-SDI SDI cables and the cable length should be less than 50 m.</p>

Output Card

R_1xHDMI2.0+4xFiber Output Card



Connector	Qty	Standard	Description
HDMI 2.0	1	HDMI 2.0 Backwards compatible with HDMI 1.4 and HDMI 1.3	<ul style="list-style-type: none"> • SDR, HDR10 and HLG supported • Up to 4Kx2K@60Hz or 8Kx1K@60Hz output resolution • Max. width: 8192 pixels, max. height: 7680 pixels
10G optical fiber port	4	10G	<ul style="list-style-type: none"> • OPT 1 and OPT 2 copy the output on HDMI 2.0. • OPT 3 copies the output on OPT 1. • OPT 4 copies the output on OPT 2.

R_4x12G SDI+1xHDMI2.0 Process Card



Connector	Qty	Standard	Description
HDMI 2.0	1	HDMI 2.0 Backwards compatible with HDMI 1.4 and HDMI 1.3	<ul style="list-style-type: none"> • SDR, HDR10 and HLG supported • Up to 4Kx2K@60Hz or 8Kx1K@60Hz output resolution • Max. width: 8192 pixels, max. height: 7680 pixels
12G-SDI	4	12G-SDI Backwards compatible with 6G-SDI, 3G-SDI, HD-SDI and SD-SDI	<ul style="list-style-type: none"> • Up to 4Kx2K@60Hz output resolution on each connector • For 3G-SDI, HD-SDI or SD-SDI outputs, SDI mosaic output is supported.

R_Control Card



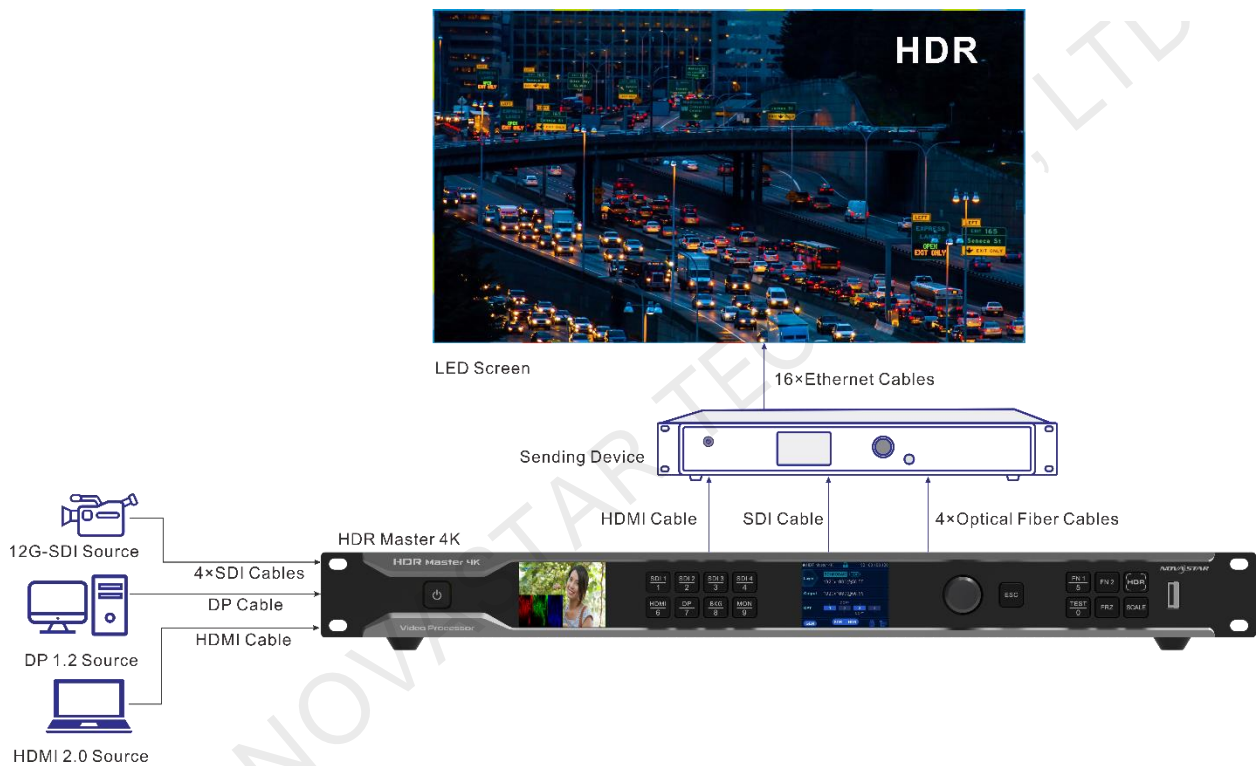
ETHERNET	Gigabit Ethernet port Connect to the control PC.
USB	2x USB 2.0 (Type-A) <ul style="list-style-type: none"> • Insert a USB drive to update the device. • Insert a USB drive to import the BKG or LOGO files.

CONTROL UI	A reserved connector
GENLOCK	<p>Connect to a synchronization signal.</p> <p>Supports bi-level and tri-level.</p> <ul style="list-style-type: none"> • IN: Accept the sync signal. • LOOP: Loop the sync signal.

Note:

The R_1xHDMI2.0+4xfiber output card and 4x12G SDI+1xHDMI2.0 process card output the same content synchronously.

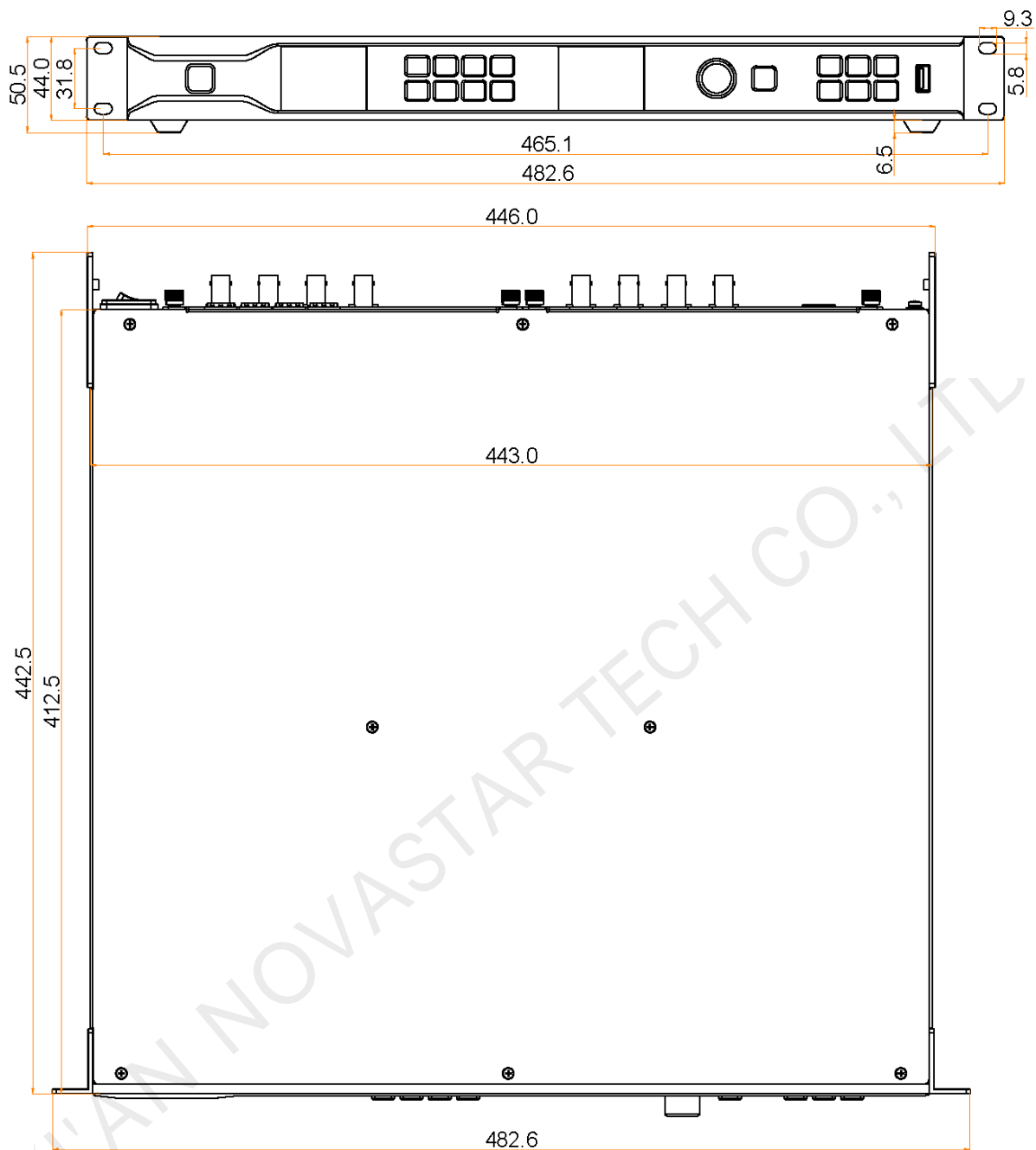
Applications



Note:

When SDR to HDR converting function is enabled, only NovaStar's NovaPro UHD, NovaPro UHD Jr and MCTRL 4K devices can be connected currently.

Dimensions



Tolerance: ± 0.3 Unit: mm

Specifications

Overall Specifications		
Operating Environment	Temperature	0°C to 45°C
	Humidity	10% to 85%, non-condensing
Storage Environment	Temperature	-20°C to +60°C
	Humidity	10% to 90%, non-condensing
Electrical Parameters	Power supply	100–240V~, 3A, 50/60Hz
	Max. power consumption	120 W
Physical Specifications	Dimensions	482.6 mm x 442.5 mm x 50.5 mm
	Net weight	7.5 kg
	Gross weight	12.1 kg
Packing Information	Carrying case	582 mm x 185 mm x 555 mm
	Packing box	612 mm x 225 mm x 595 mm
	Accessory box	2x HDMI cables 1x Mini DP to DP cable 1x DP cable 1x Ethernet cable 1x Power cord (EU) 1x Power cord (UK) 1x Power cord (US) 1x Power cord (CN) 1x Cable clip 1x Cable tie 1x Quick Start Guide 1x Safety Manual 1x Customer Letter 1x Certificate of Approval
Certifications		CE, FCC, IC, RoHS
Noise Level (typical at 25°C/77°F)		50 dB (A)

Input and Output Features

Connector	Bit Depth		Max. Input and Output Resolutions
<ul style="list-style-type: none"> • HDMI 2.0 • DP 1.2 	8-bit	RGB 4:4:4	4096x2160@60Hz 8192x1080@60Hz
		YCbCr 4:4:4	
		YCbCr 4:2:2	
		YCbCr 4:2:0	Not supported
	10-bit	RGB 4:4:4	2560x1600@60Hz
		YCbCr 4:4:4	
		YCbCr 4:2:2	3840x2160@60Hz
		YCbCr 4:2:0	Not supported
	12-bit	RGB 4:4:4	2560x1600@60Hz
		YCbCr 4:4:4	
		YCbCr 4:2:2	3840x2160@60Hz
		YCbCr 4:2:0	Not supported
12G-SDI	<ul style="list-style-type: none"> • Supports ST-2082-1 (12G), ST-2081-1 (6G), ST-424 (3G), ST-292 (HD) and SMPTE 259 SD. • Up to 4096x2160@60Hz inputs and outputs • The input resolution and bit depth settings are not supported. 		

Input and Output Resolutions

Resolution and Frame Rate		Input Connector		Output Connector	
Standard Resolution	Standard Frame Rate (Hz)	HDMI 2.0	DP 1.2	HDMI 2.0/OPT	12G-SDI
720x480i	59.94	x	x	x	√
720x576i	50	x	x	x	√
1024x768	48/50/59.94/60/75/85	√	√	√	x
1280x720	23.98/24/25/29.97/30/50/59.94/60	√	√	√	√
1280x720	48	√	√	√	x
1280x1024	48/50/59.94/60/75/85	√	√	√	x
1440x900	60/75/85	√	√	√	x
1600x1200	48/50/59.94/60	√	√	√	x
1680x1050	60	√	√	√	x
1920x1080	23.98/24/25/29.97/30/50/59.94/60	√	√	√	√
1920x1080	48	√	√	√	x
1920x1080i	50/59.94/60	x	x	x	√
1920x1200	50/59.94/60	√	√	√	x
2048x1080	48	√	√	√	x
2048x1080	23.98/24/25/29.97/30/50/59.94/60	√	√	√	√
2048x1152	30/60	√	√	√	x
2560x1080	50/59.94/60	√	√	√	x
2560x1600	50/59.94/60/120	√	√	√	x
3840x1080	30/50/59.94/60/120	√	√	√	x
3840x2160	23.98/24/25/29.97/30/60	√	√	√	x
3840x2160	50/59.94	x	x	x	√
4096x2160	23.98/24/25/29.97/50/59.94	x	x	x	√
4096x2160	30/60	x	x	√	√
7680x1080	30/60	x	x	√	x
8192x1080	30/60	x	x	√	x

- √: The connector supports this resolution and frame rate.
- x: The connector does not support this resolution and frame rate.
- The SDI connectors do not support input resolution settings.

FCC Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the 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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