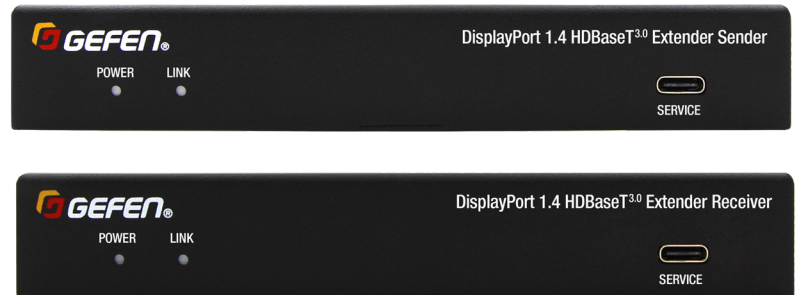


GF-EXT-DP4-HBT3



DisplayPort 1.4 Extender over HDBaseT 3.0

User Manual

Table of Contents

Important Safety Instructions	3
Contacting Gefen Technical Support	4
Technical Support	4
Email	4
Web	4
Mailing Address	4
Warranty Information	4
Licensing	5
Features & Specifications	6
GF-EXT-DP4-HBT3	6
Specifications	6
Features & Specifications	7
Package Contents	8
Introduction - GF-EXT-DP4-HBT3	9
GF-EXT-DP4-HBT3 Sender and Receiver Front Panel	10
GF-EXT-DP4-HBT3 Sender and Receiver Rear Panel	11
GF-EXT-DP4-HBT3 DIP Switch Configurations	12
GF-EXT-DP4-HBT3 Connection Instructions	13
GF-EXT-DP4-HBT3 RS-232 Operation	14
LED Status	15
Using the Virtual COM Port	16
Firmware Update Instructions	17
Warranty Information	18

Important Safety Instructions

GENERAL SAFETY INFORMATION

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this product near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install or place this product near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. To reduce the risk of electric shock and/or damage to this product, never handle or touch this unit or power cord if your hands are wet or damp. Do not expose this product to rain or moisture.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. Batteries that may be included with this product and/or accessories should never be exposed to open flame or excessive heat. Always dispose of used batteries according to the instructions.

Contacting Gefen Technical Support

Technical Support

1-760-438-7000

Monday - Friday, 5:00 a.m. to 4:00 p.m. PST

Email

support@gefen.com

Web

<http://www.niceforyou.com>

Mailing Address

Nice North America LLC

c/o Customer Service

5919 Sea Otter Place, Suite 100

Carlsbad, CA 92010 USA

Warranty Information

For the latest warranty coverage information, refer to the Warranty and Return Policy under the Warranty section of the Nice website at <http://www.niceforyou.com/na/warranty-and-returns>.

This product uses software that is subject to open source licenses, including one or more of the General Public License Version 2 and Version 2.1, Lesser General Public License Version 2.1 and Version 3, BSD, and BSD-style licenses. Distribution and use of this product is subject to the license terms and limitations of liability provided in those licenses. Specific license terms and Copyright Notifications are provided in the source code.

For three years from date of activation of this product, any party may request, and we will supply, for software covered by an applicable license (e.g. GPL or LGPL), a complete machine-readable copy of the corresponding open source code on a medium customarily used for software interchange. The following software and libraries are included with this product and subject to their respective open source licenses:

- lwIP
- jQuery

lwIP is licensed under the BSD license:

Copyright (c) 2001-2004 Swedish Institute of Computer Science.

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Features & Specifications

GF-EXT-DP4-HBT3

- DisplayPort 1.4 over HDBaseT 3.0 extender up to 328 ft (100 m) via a single CAT 6a cable
- Compliant with DisplayPort 1.4a, HDCP 2.3 and HDCP 1.x
- DSC (Display Stream Compression) technology
- Video resolutions up to 8k@30Hz 4:2:2 8-bit, 4k@120Hz, and max data rate up to 32.4 Gbps
- HDR10, HDR10+, Dolby Vision Low Latency Mode, HLG pass-through
- EDID Management via DIP switches: EDID Copy from Downstream Sink, Gefen Internal EDIDs
- TX features with 1x DisplayPort input port, 1x RS-232 port
- RX features with 1x DisplayPort output port, 1x RS-232 port
- Audio pass-through
- RS-232 pass-through
- Bi-directional 24V PoC (Power over Cable) function
- Field updatable firmware via Syner-G port (USB-C with virtual RS-232)
- Compact design for easy and flexible installation
- HPD remains active (Keep source signal active regardless of a cable disconnect on output or display turned off; HPD on TX shall only toggle on a power up)
- Selectable HDCP pass-through modes (via DIP switches): Pass-through (default), Block (HDCP block will prevent HDCP encryption to pass-through on input (TX); HDCP pass-through to allow HDCP encryption.

Specifications

Specification	Description
DisplayPort version	Others: DisplayPort 1.4a
HDCP version	HDCP 2.3
Video broadband	32.4 Gbps
Video resolution	640x480p60Hz, 800x600p60Hz, 1024x768p60Hz, 1280x1024p60Hz, 1360x768p60Hz, 1440x900p60Hz, 1440x1050p60Hz, 1600x1200p60Hz, 720x480i59.94Hz(480i59), 720x480p59.94Hz(480p59), 720x576i50Hz(576i50), 720x576p50Hz(576p50), 1280x720p50Hz(720p50), 1280x720p59.94Hz(720p59), 1280x720p60Hz(720p60), 1920x1080i50Hz(1080i50), 1920x1080i59.94Hz(1080i59), 1920x1080i60Hz(1080i60), 1920x1080p23.98Hz(1080p23), 1920x1080p24Hz(1080p24), 1920x1080p25Hz(1080p25), 1920x1080p29.97Hz(1080p29), 1920x1080p30Hz(1080p30), 1920x1080p50Hz(1080p50), 1920x1080p59.94Hz(1080p59), 1920x1080p60Hz(1080p60), 3840x2160p23.98Hz(2160p23), 3840x2160p24Hz(2160p24), 3840x2160p25Hz(2160p25), 3840x2160p29.97Hz(2160p29), 3840x2160p30Hz(2160p30), 3840x2160p50Hz(2160p50), 3840x2160p59.94Hz(2160p59), 3840x2160p60Hz(2160p60), 4096x2160p23.98Hz, 4096x2160p24Hz, 4096x2160p25Hz, 4096x2160p29.97Hz, 4096x2160p30Hz, 4096x2160p50Hz, 4096x2160p59.94Hz, 4096x2160p60Hz, 4096x2160p100Hz, 4096x2160p120Hz, 5120x2160p50Hz, 5120x2160p60Hz, 7680x4320p23.98Hz, 7680x4320p24Hz, 7680x4320p25Hz, 7680x4320p29.97Hz, 7680x4320p30Hz
Color depth	8/10/12bit
Color space	RGB, YCbCr_4:4:4, YCbCr_4:2:2, YCbCr_4:2:0

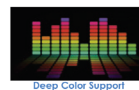
Features & Specifications

Specification	Description
HDR	HDR, HDR10, HDR10+, Dolby Vision, HLG
Audio format	LPCM, Dolby Digital/Plus/EX, Dolby True HD, Dolby Atmos, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio
Transmission distance	DisplayPort passive cable 3m CAT6A cable 328 ft/100 m
Power supply	DC 24V/1A locking power supply with US, EU, UK, and AU power plugs
Infrared level	5Vp-p
Infrared frequency	Broadband 20K-60KHz
Supply electricity	DC 24V@1A
Sender (TX)/ Receiver (RX)	TX Front Panel: 1x POWER LED [Blue SMT LED, Power indicator] 1x LINK LED [Green SMT LED, TX/RX link indicator] 1x SERVICE [USB-C with USB 2.0 only, 12-pin female, MCU/HDBT FW upgrade and API control] TX Rear Panel: 1x DC locking connector [24V/2A, 19 mm tuning fork] 1x HDBaseT OUT [RJ45 connector, HDBaseT output with 24V/PoC] 1x DP IN [DisplayPort Type A, 20-pin female] 1x RS-232 [3-pin phoenix, 3.5 mm pitch, RS-232 pass-through] 1x SETTING [4-pin DIP switch, EDID/HDCP setting] RX Front Panel: 1x POWER LED [Blue SMT LED, Power indicator] 1x LINK LED [Green SMT LED, TX/RX link indicator] 1x SERVICE [USB-C with USB 2.0 only, 12-pin female, MCU/HDBT FW upgrade and API control] RX Rear Panel: 1x DC locking connector [24V/2A, 19 mm tuning fork] 1x HDBaseT IN [RJ45 connector, HDBaseT input with 24V/PoC] 1x DP OUT [DisplayPort Type A, 20-pin female] 1x RS-232 [3-pin phoenix, 3.5 mm pitch, RS-232 pass-through]
Measurements	TX/RX Dimensions W x D x H: 144 mm x 78 mm x 25.5 mm
Power supply	DC 24V/1A
Power consumption	24 watts
Working temperature	0° C – 40° C / 32° F – 104° F
Storage temperature	-20° C – 60° C / -4° F – 140° F
Relative humidity	10% – 90% RH (no condensation)

Package Contents

The GF-EXT-DP4-HBT3 DisplayPort 1.4 Extender ships with the items listed below, If any of these items are not present in the box when opened, immediately contact your dealer or Gefen.

- 1x GF-EXT-DP4-HBT3 Sender (TX)
- 1x GF-EXT-DP4-HBT3 Receiver (RX)
- 2x 3-pin 3.5 mm Phoenix Connector (RS-232)
- 4x Mounting Ear
- 8x Machine screw (KM3*4)
- 1x Quick Start Guide – 1 sheet folded to 4 pages with color
- 1x DC 24V/1A locking power supply with US, EU, UK, and AU power plugs



Introduction - GF-EXT-DP4-HBT3

The Gefen GF-EXT-DP4-HBT3 delivers high-performance DisplayPort 1.4 video extension up to 100 meters (328 feet) using a single CAT6a cable. Supporting 8K@30Hz, 4K@120Hz, HDR10+, Dolby Vision, and HDCP 2.3, it offers visually lossless, highly detailed 8K Ultra HD resolutions, perfect for eye-catching digital signage or detailed content in medical setups. This extender also supports lossless audio formats including Dolby True HD and DTS-HD, to add powerful multi-channel sound to video content, providing an enhanced experience and sense of realism for the viewer.

With robust EDID and HDCP management via DIP switches, RS-232 control, and Power-over-Cable capability, the GF-EXT-DP4K-HBT3 is engineered for stability and simplicity in advanced AV networks.

GF-EXT-DP4-HBT3 Sender and Receiver Front Panel

Sender



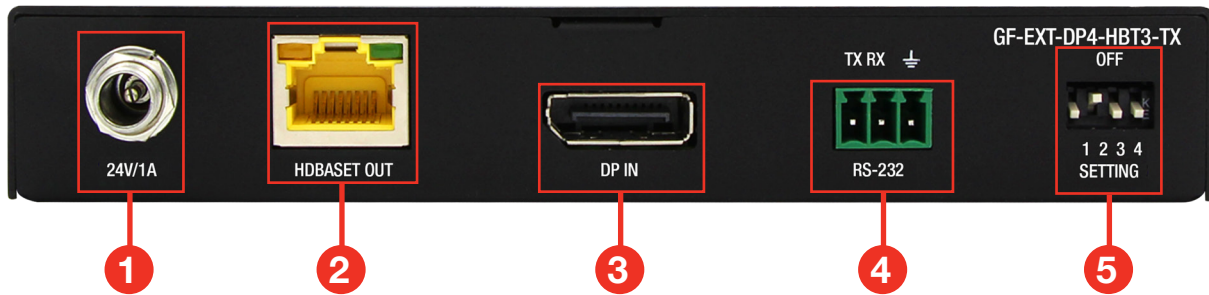
Receiver



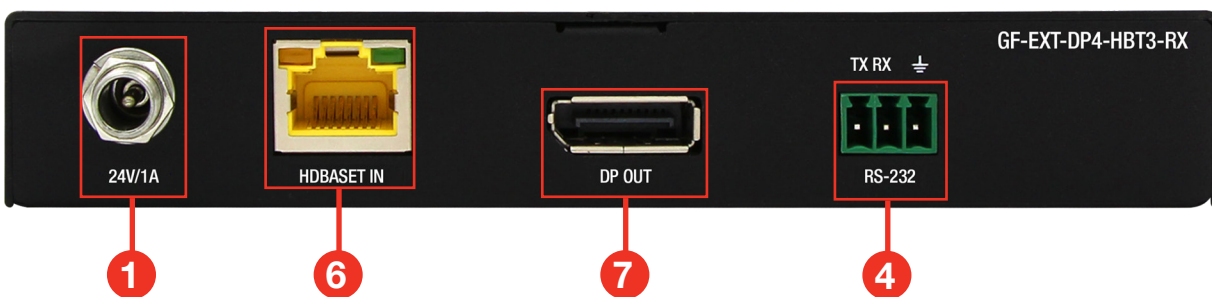
ID	Name	Description
1	Power LED	Illuminates blue when the device is powered ON.
2	Link LED	ON: Link between sender and receiver is working properly. OFF/Blinking: Link error or no link.
3	Service	USB Type-C port. Connect to a PC for firmware updates and EDID management.

GF-EXT-DP4-HBT3 Sender and Receiver Rear Panel

Sender



Receiver



ID	Name	Description
1	24V/1A	Connect to the included DC 24V/1A power adapter.
2	HDBaseT OUT	Connect to the HDBaseT IN port on the receiver.
3	DP IN	Connect to a DisplayPort source device.
4	RS-232	Connect 3.5 mm Phoenix Terminal male and RS-232 communication interface.
5	SETTING	4-pin switch for RS-232, HDCP, and EDID configurations. For more information, see "GF-EXT-DP4-HBT3 DIP Switch Configurations" on page 12.
6	HDBaseT IN	Connect to the HDBaseT OUT port on sender.
7	DP OUT	Connect to a DisplayPort display device.

GF-EXT-DP4-HBT3 DIP Switch Configurations

The 4-pin SETTINGS switch on the front panel of the sender and receiver configures input HDCP, RS-232 mode, and input EDID. By default, pins 1 to 4 are set to the "Off" or "Up" position.

All switches in the
"Off" or "Up" position



All switches in the "On"
or "Down" position



Function	Dip Switch Position			
	1	2	3	4
LOCAL EDID COPY (Default)	Up	Up	Up	—
8K30 2CH	Up	Up	Down	—
8K30 MultiCH	Up	Down	Up	—
4K144/120 2CH	Up	Down	Down	—
4K144/120 MultiCH	Down	Up	Up	—
4K60 4:4:4 2CH	Down	Up	Down	—
USER BANK 1	Down	Down	Up	—
USER BANK 2	Down	Down	Down	—
HDCP PASS-THROUGH*	—	—	—	Down
HDCP DISABLE**	—	—	—	Up

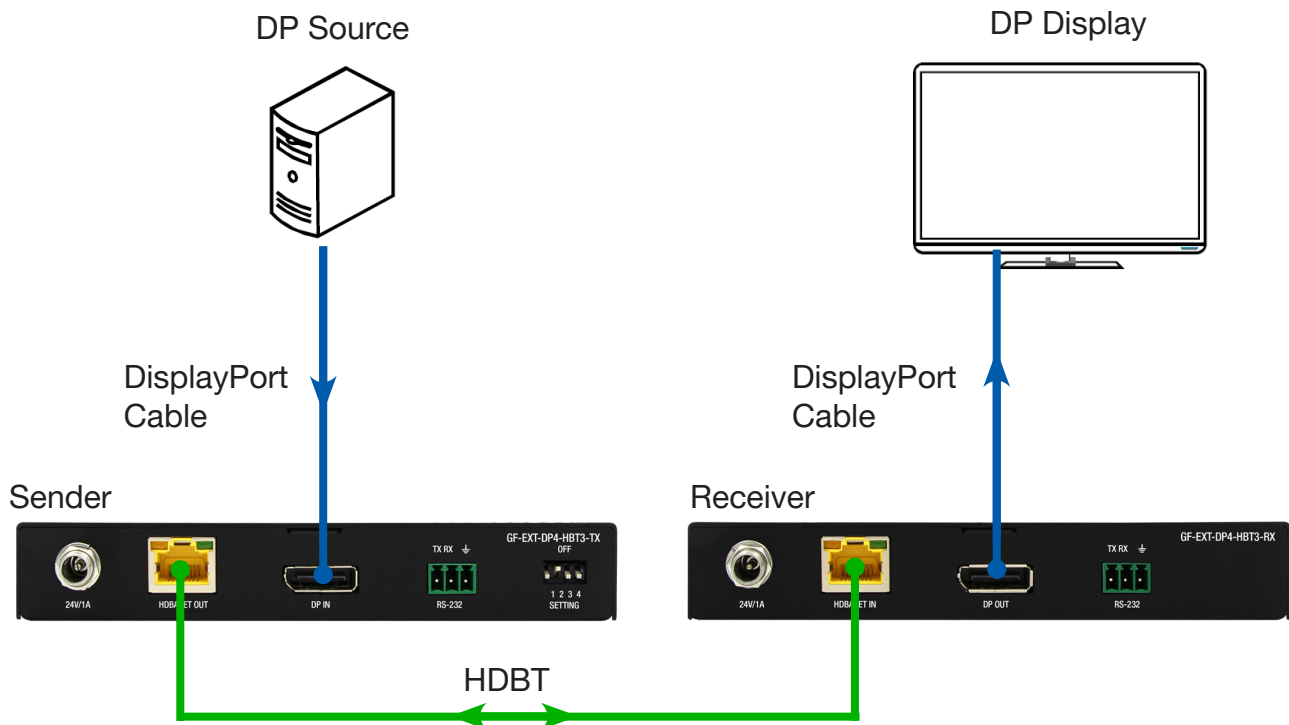
* HDCP PASS-THROUGH: HDCP will be pass-through to allow HDCP encryption.

** HDCP DISABLE: HDCP disable will prevent HDCP encryption to pass through on input (TX).

GF-EXT-DP4-HBT3 Connection Instructions

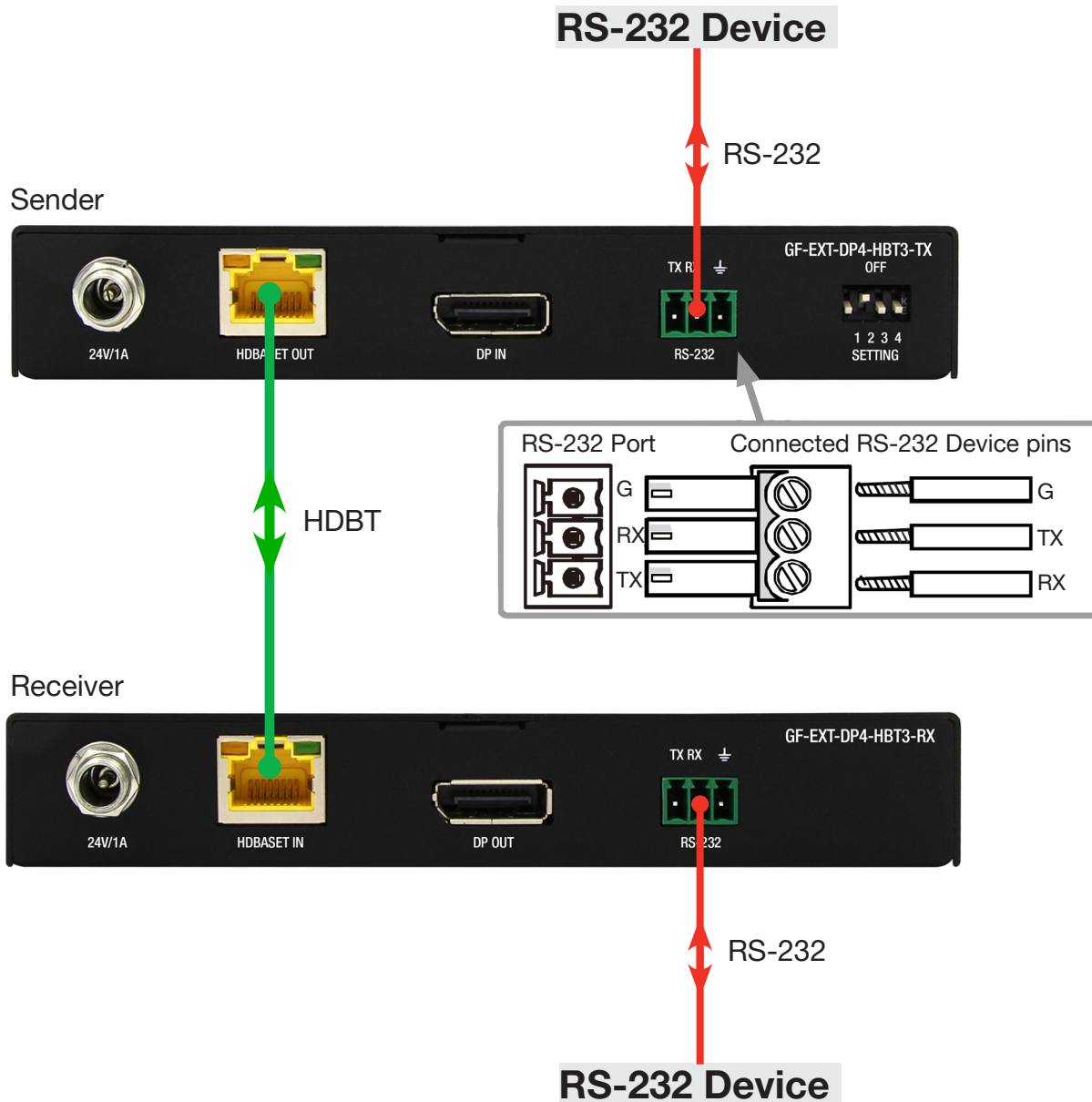
Follow these steps to connect the GF-EXT-DP4-HBT3:

1. Connect the source device to the DP IN port on the sender using an DisplayPort cable.
2. Connect the DP OUT port on the receiver to the display device using another DisplayPort cable.
3. Connect to the HDBT OUT port of the sender to the HDBT IN port of the receiver using CAT6a or better cabling.
4. Plug in the power adapters for one (if using PoC) or both the sender and receiver to power on the system.



GF-EXT-DP4-HBT3 RS-232 Operation

The RS-232 ports support bi-directional pass-through, allowing RS-232 data to transfer between the sender and the receiver. Before operation, ensure that pin 2 on the sender **SETTINGS** switch is set to the "Up" position.



The **Power** and **Link** LED indicators on the Sender and Receiver units provide basic information on the current status of each unit.

The information in the tables below applies to both the Sender and the Receiver units.

Power LED	Description
Solid blue ●	The Sender/Receiver unit is powered
Off ○	Check the power supply and the Link connection between the Sender and the Receiver unit

Link LED	Description
Solid green ●	Link integrity is good between the Sender and the Receiver unit.
Off ○	Check the power supply and the Link connection between the Sender and the Receiver unit

Using the Virtual COM Port

When the GF-EXT-DP4-HBT3 unit is connected to a computer running the Windows® operating system, a virtual communications port is created.

To create a virtual communication port:

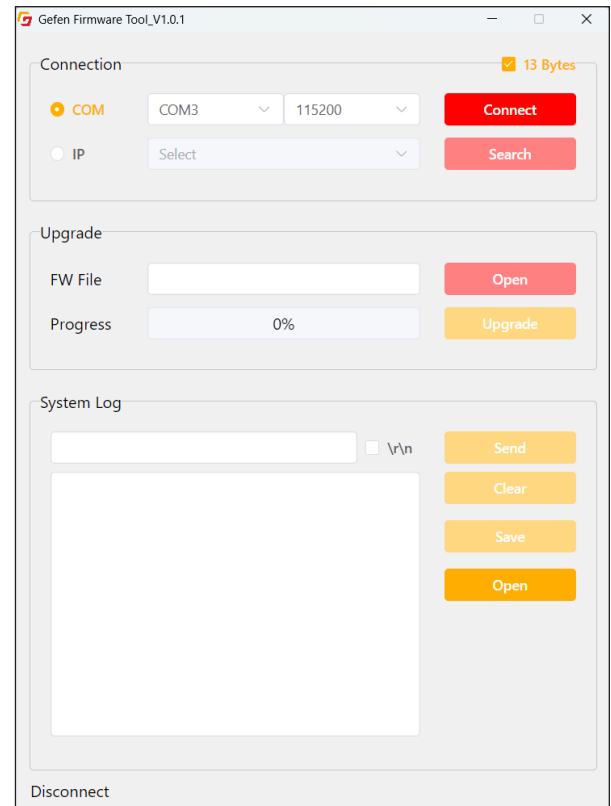
1. Connect a USB Type A to Type C cable from the **Service** port on the front panel of the Sender or Receiver to the computer.
 - The COM port driver will automatically be detected.
2. Go to **Control Panel > Device Manager** and click **Ports** to see the driver.
 - The driver will be identified as **USB-SERIAL CH340**.
3. The connected Sender or Receiver will be recognized as USB Human Interface Device (HID) and does not require installation of any drivers.
4. Launch the terminal-emulation program and set the terminal-emulation program to use the COM port specified next to the driver. COM 8 has been automatically assigned to the driver.
5. Set the **Baud Rate** to **115200**.

Firmware Update Instructions

To update the firmware, you must first download and install the Firmware Update Tool.

To download the Firmware Update Tool:

1. Log onto gefen.com and go to the Downloads page.
2. Download the latest available firmware update package and download the Gefen Firmware Update Tool.
3. Extract the contents of the Gefen Firmware Update Tool .zip file to a folder on the computer desktop.
4. Double-click on the *setup.exe* file to launch the application.



To update the firmware:

1. Connect the USB-C cable to the **Service** port on the Sender front panel.
2. Launch the Gefen Firmware Update Tool and configure to the COM port of the device using 115200 Baud Rate.
3. Press **Connect**.
4. Browse for MCU_MAIN_GF-EXT-DP4-HBT3-TX_Vxx.bin and press **Upgrade**.
5. Browse for MCU_SUB_LT2204_TX_Vxx.bin and press **Upgrade**.
6. Disconnect the USB-C cable from the **Service** port on the Sender and connect it to the **Service** port on the Receiver.
7. Repeat Steps 2 through 5 using files MCU_MAIN_GF-EXT-DP4-HBT3-RX_Vxx.bin and MCU_SUB_LT2204_RX_Vxx.bin for the upgrade.

Warranty Information

Nice North America warrants the equipment it manufactures to be free from defects in material and workmanship. If Gefen equipment fails because of such defects and Nice North America is notified within the specified warranty period from the documented date of purchase, Nice North America will, at its option, repair or replace the equipment, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications. This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed. Warranty period begins on the date of purchase by the original end-purchaser, as indicated on the proof of purchase document. This Limited Warranty extends to the original end-user purchaser of the product, and is not transferable to any subsequent purchaser(s) or owner(s). Customers outside the continental United States of America are responsible for shipping charges to and from Nice North America.

1. Proof of sale may be required to claim warranty.
2. Customers outside the US are responsible for shipping charges to and from Gefen.
3. Copper cables are limited to a 30-day warranty and cables must be in their original condition.

The information in this manual has been carefully checked and is believed to be accurate. However, Gefen assumes no responsibility for any inaccuracies that may be contained in this manual. In no event will Gefen be liable for direct, indirect, special, incidental, or consequential damage resulting from any defect or omission in this manual, even if advised of the possibility of such damage. The technical information contained herein regarding the features and specifications is subject to change without notice.

For the latest warranty coverage information, refer to the Warranty and Return Policy under the Support section of the Gefen website at www.gefen.com.



support@gefen.com

Customer Service

760-438-7000
Monday – Friday, 5:00 a.m. – 4:00 p.m. PST

Nice North America

5919 Sea Otter Place, Suite 100
Carlsbad, CA 92010 USA



Niceforyou.com

