



## HUE-100

4K HDMI and USB-C Over HDBaseT 3.0

100 Meter Extension System with Bi-Directional PoC

# USER MANUAL



PureLink™

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## Introduction

The **HUE-100** HDMI and USB-C HDBaseT 3.0 extension system offers full HDMI 2.0b, HDR/HDR10/HDR10+ (High Dynamic Range) 4K@60Hz 4:4:4 up to 100 meters on CAT6a/7 cable. The **HUE-100** can also transport 1080P60 8 bit up to 150 meters over CAT6a/7 cable. Manual or automatic selection of HDMI and USB-C inputs is available on front panel controls and API. User defined EDID and extraction of display EDID are easy operations using the **HUE-100** simple API.

The **HUE-100** provides Dolby Vision, HLG, multi-channel audio, CEC pass-through, bi-directional RS-232 and IR control, and PoC – all with zero loss and zero noise. The **HUE-100** also supports Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio plus LCPM. Additionally, the low profile “slim box” enclosure design makes the **HUE-100** ideal for limited space installation environments, such as behind flat panel displays and video walls.

## Features

- HDMI and USB-C Inputs
- Manual or Automatic Input Selection
- API Control of:
  - Manual / Auto Input Selection
- EDID Management
- De-embedded Audio Mute / Unmute
- Downscaling
- Resolutions up to 4K/60Hz (4:4:4)
- HDMI 2.0b
- HDR /HDR10/HDR10+
- HDCP 2.3
- USB 2.0/1.1
- Extends 4K/60Hz up to 328 ft. (100m) and 1080p up to 492 ft. (150m)
- HDBaseT 3.0 Uncompressed Extension
- High Bandwidth Support – Up to 18 Gbps
- USB-C Port Charging up to 60W
- RS-232 Extension
- Bi-directional PoC
- Power Either End from the Other
- Bi-directional IR Extension

## What's in the Box

- 1 × 18Gbps HDMI/USB-C over HDBaseT 3.0 Extender (Transmitter)
- 1 × 18Gbps HDMI/USB-C over HDBaseT 3.0 Extender (Receiver)
- 1 × IR Blaster Cable (1.5 meters)
- 1 × IR Wideband Receiver Cable (1.5 meters)
- 2 × 3pin-3.81mm Phoenix Connector (male)
- 1 × 24V/3.75A Desktop Power Supply

## Specifications

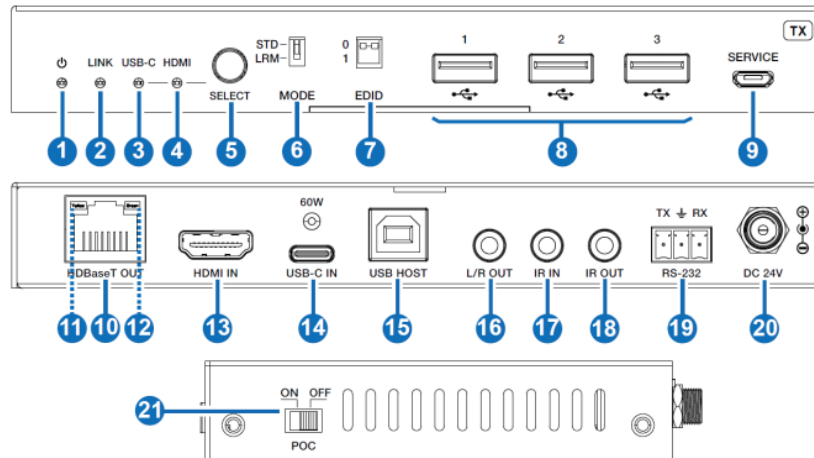
Technical	
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.3
USB Compliance	USB 2.0
Video Bandwidth	18Gbps
Video Resolution	Up to 4K@60Hz 4:4:4
Color Space	RGB, YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0
Color Depth	8/10/12bit
IR Level	12Vp-p
IR Frequency	Wideband 20K-60KHz
HDR	HDR, HDR10, HDR10+, Dolby Vision, HLG
Audio Formats	<b>HDMI/USB-C/HDBT:</b> LPCM 2/5.1/7.1CH, Dolby Digital/Plus/EX, Dolby True HD, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD <b>3.5mm Analog Audio:</b> LPCM 2CH
Transmission Distance	<b>HDBT Standard Mode (4K60/4K30/1080P):</b> 328ft/100m (CAT6A/7) <b>HDBT Long Reach Mode (1080P 8bit):</b> 492ft/150m (CAT6A/7)
ESD Protection	Human body model — ±8kV (Air-gap discharge) & ±4kV (Contact discharge)
Connection	
Transmitter	Input: 1 x HDMI IN [Type A, 19-pin female] 1 x USB-C IN [USB Type C, 24-pin female] Output: 1 x HDBaseT OUT [RJ45, 8-pin female] 1 x L/R OUT [3.5mm Stereo Mini-jack] Control: 1 x IR IN [3.5mm Stereo Mini-jack] 1 x IR OUT [3.5mm Stereo Mini-jack] 1 x RS-232 [3pin-3.81mm phoenix connector] 1 x SERVICE [Micro USB, 5-pin female] 1 x USB HOST [USB Type B, 4-pin female] 3 x USB Devices [USB Type A, 4-pin female]
Receiver	Input: 1 x HDBaseT IN [RJ45, 8-pin female] Output: 1 x HDMI OUT [Type A, 19-pin female] 1 x L/R OUT [3.5mm Stereo Mini-jack] Control: 1 x IR IN [3.5mm Stereo Mini-jack] 1 x IR OUT [3.5mm Stereo Mini-jack] 1 x RS-232 [3pin-3.81mm phoenix connector] 1 x SERVICE [Micro USB, 5-pin female] 2x USB Devices [USB Type A, 4-pin female]
Mechanical	
Housing	Metal Enclosure
Color	Black
Dimensions	Transmitter: 170mm [W] x 102mm [D] x 22mm [H] Receiver: 144mm [W] x 78mm [D] x 23mm [H]
Weight	Transmitter: 484g, Receiver: 318g
Power Supply	Input: AC 100 - 240V 50/60Hz

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	Output: DC 24V/3.75A (US/EU standard, CE/FCC/UL certified)		
Power Consumption (Max)	94.32W (Power supply from TX, 60W USB-C charging, POC to RX)10.8W (Power supply from TX or RX, without USB-C charging)		
Operating Temperature	32 - 104°F / 0 - 40°C		
Storage Temperature	-4 - 140°F / -20 - 60°C		
Relative Humidity	20 - 90% RH (no condensation)		
Resolution / Cable Length	4K60 - Feet / Meters	4K24 - Feet / Meters	1080P60 - Feet / Meters
HDMI IN / OUT	26ft / 8M	39ft / 12M	50ft / 15M

## Operation Controls and Functions

### Transmitter Panel



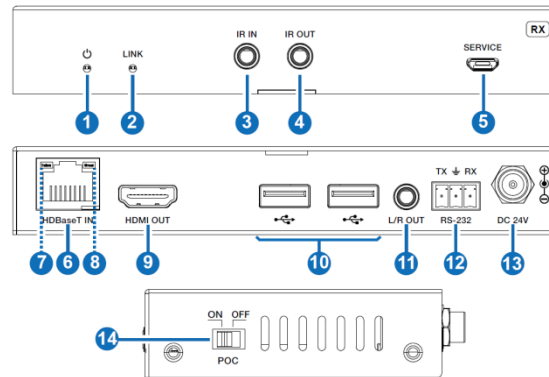
No.	Name	Function Description
1	Power LED	Red LED indicates that the transmitter is powered on.
2	LINK LED (Green)	<ul style="list-style-type: none"> <li>Light on: Transmitter and receiver are in good connection status.</li> <li>Light flashing: Transmitter and receiver are in poor connection status.</li> <li>Light off: Transmitter and receiver are not connected.</li> </ul>
3	USB-C LED (Green)	When the USB-C IN port is selected as the video signal input channel, the USB-C LED will be on.
4	HDMI LED (Green)	When the HDMI IN port is selected as the video signal input channel, the HDMI LED will be on.
5	SELECT button	Press this button to switch HDMI/USB-C signal input.
6	MODE switch	<p>Used to switch HDBT mode.</p> <p><b>Switch to "STD":</b> The HDBT Standard Mode (as factory default) is enabled, it can extend 4K60/4K30/1080P signal between the transmitter and the receiver up to 100m via a single CAT6A/7 cable.</p> <p><b>Switch to "LRM":</b> The HDBT Long Reach Mode is enabled, it can extend 1080P 8bit signal between the transmitter and the receiver up to 150m via a single CAT6A/7 cable.</p>
7	EDID DIP switch	<p>Used for EDID setting:</p> <p>00 - Copy display's EDID (as factory default)</p> <p>01- 4K30 4:4:4</p> <p>10- 1080p60 4:4:4</p> <p>11- 1200p60 4:4:4</p>

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8	USB Device Ports	Three USB extension ports, connected to mouse, keyboard, USB Flash Drive or other USB devices, with a maximum power supply of 500mA.
9	SERVICE	Firmware update and API command control port.
10	HDBaseTOUT	HDBaseT output port, connected to the HDBaseT IN port of receiver with a CAT6A/7 cable. It is used for various signals pass-through.
11	Data Signal Indicator (Yellow)	<ul style="list-style-type: none"> <li>Light on: There is video signal transmission with HDCP encryption.</li> <li>Light flashing: There is video signal transmission without HDCP encryption.</li> <li>Light off: There is no video signal transmission.</li> </ul>
12	Link Signal Indicator (Green)	<ul style="list-style-type: none"> <li>Light on: Transmitter and receiver are in good connection status.</li> <li>Light flashing: Transmitter and receiver are in poor connection status.</li> <li>Light off: Transmitter and receiver are not connected.</li> </ul>
13	HDMI IN	HDMI signal input port, connected to HDMI source device.
14	USB-C port	<p>USB Type C port with following three functions:</p> <p>(1) USB-C video signal input port, connected to source device.</p> <p>(2) USB-C host port. When the USB-C port is selected as the video signal input channel, the USB-C port can be used as a USB 2.0 signal transmission port simultaneously.</p> <p>(3) USB-C charging port. Only when TX is connected to the 24V/ 3.75A power supply, the USB-C port can provide 60W charging power for external USB-C devices. When TX is not connected to the power supply and RX is connected to the power supply, the USB-C port cannot provide charging function.</p>
15	USB HOST	USB host port, connected to PC. It follows the HDMI IN port. When the HDMI IN port is selected as the input channel, the USB 2.0 signal can only be output through the USB HOST port.
16	L/R OUT	Analog audio output port, used for audio de-embedding output.
17	IR IN	IR signal input port, connected with the IR Receiver cable.
18	IR OUT	IR signal output port, connected with the IR Blaster cable.
19	RS-232	RS-232 serial port, used for RS-232 command pass-through and API command control.
20	DC 24V	<p>DC 24V/3.75A power supply input port.</p> <p><i>Note that the extender supports POC function, it means that either transmitter or receiver is powered on by 24V/3.75A power adapter, the other one doesn't need a power supply.</i></p>
21	POC switch	Use the switch to turn on/off the POC function.

*Note: In the HDBT Long Reach Mode, due to bandwidth limitations, USB cannot transmit USB 2.0 devices, but only can transmit USB HID devices (such as mice and keyboards). When using the USB pass-through function, the serial baud rate may also be limited.*

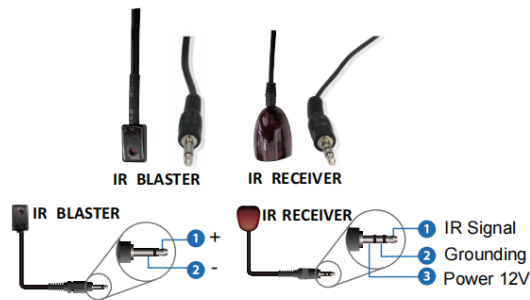
## Receiver Panel



No.	Name	Function Description
1	Power LED	Red LED indicates that the receiver is powered on.
2	LINK LED (Green)	<ul style="list-style-type: none"> <li>Light on: Transmitter and receiver are in good connection status.</li> <li>Light flashing: Transmitter and receiver are in poor connection status.</li> <li>Light off: Transmitter and receiver are not connected.</li> </ul>
3	IR IN	IR signal input port, connected with the IR Receiver cable.
4	IR OUT	IR signal output port, connected with the IR Blaster cable.
5	SERVICE	Firmware update and API command control port.
6	HDBaseT IN	HDBaseT input port, connected to the HDBaseT OUT port of transmitter with a CAT6A/7 cable. It is used for various signals pass-through.
7	Data Signal Indicator (Yellow)	<ul style="list-style-type: none"> <li>Light on: There is video signal transmission with HDCP encryption.</li> <li>Light flashing: There is video signal transmission without HDCP encryption.</li> <li>Light off: There is no video signal transmission.</li> </ul>
8	Link Signal Indicator (Green)	<ul style="list-style-type: none"> <li>Light on: Transmitter and receiver are in good connection status.</li> <li>Light flashing: Transmitter and receiver are in poor connection status.</li> <li>Light off: Transmitter and receiver are not connected.</li> </ul>
9	HDMI OUT	HDMI signal output port, connected to HDMI display device, such as a TV or monitor.
10	USB Device ports	Two USB extension ports, connected to mouse, keyboard, USB Flash Drive or other USB devices.
11	L/R OUT	Analog audio output port, used for audio de-embedding output.
12	RS-232	RS-232 serial port, used for RS-232 command pass-through and API command control.
13	DC 24V	DC 24V power supply input port. <i>Note that the extender supports POC function, it means that either transmitter or receiver is powered on by 24V power adapter, the other one doesn't need a power supply.</i>
14	POC switch	Use the switch to turn on/off the POC function.

## IR Cable Pin Assignment

The pin assignment of the IR Receiver cable and IR Blaster cable is as below:



*Note: When the angle between the IR receiver and the remote control is  $\pm 45^\circ$ , the transmission distance is 0-5 meters; when the angle between the IR receiver and the remote control is  $\pm 90^\circ$ , the transmission distance is 0-8 meters.*

## API Commands

The product also supports API commands control. Connect the RS-232 port of the product to a PC or control system with a 3-pin phoenix connector cable or connect the SERVICE port of the product to a PC with a Micro USB cable. Then, open a serial command tool on PC to send ASCII commands to control the product. The ASCII commands list about the product is shown below.

ASCII Commands				
RS-232 Communication Protocol				
Baud rate: 115200; Data bit: 8; Stop bit: 1; Parity bit: none. The end mark of command is "<CR><LF>".				
Command Code	Function Description	Example	Feedback	Default
help	Get the list of all commands	help	<pre>===== Help Info FW Version:TX 1.00.02 RX 1.00.02 00. help 01. r fw version 02. s reboot 03. s reset 04. r status 05. s tx input x 06. r tx input 07. s tx autoswitch x 08. r tx autoswitch 09. s tx autoswitch mode x 10. r tx autoswitch mode 11. s rx downscale x 12. r rx downscale 13. s tx audio mute x 14. r tx audio mute 15. s rx audio mute x 16. r rx audio mute 17. s edid x to y 18. r edid x 19. r edid data x 20. s user edid x &lt;y&gt; 21. r user edid x =====</pre>	



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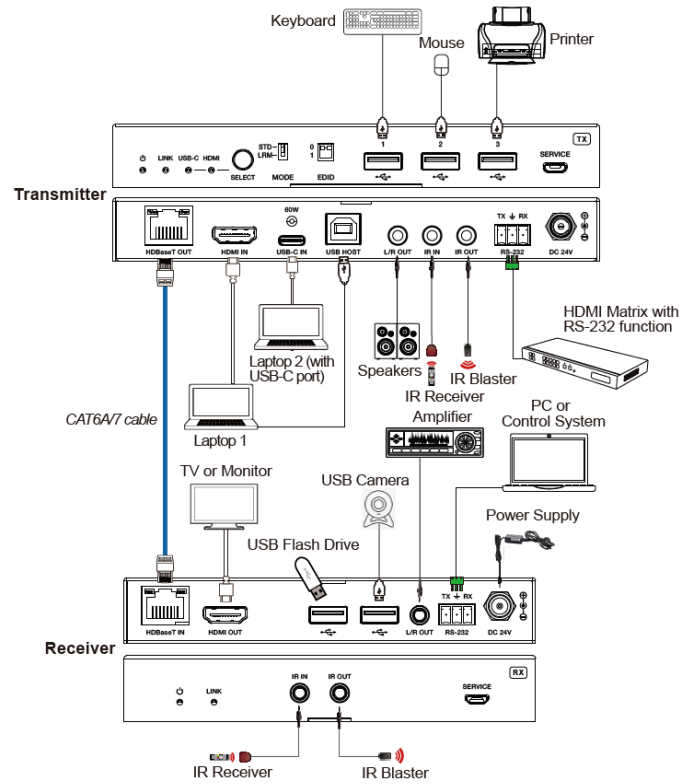
r fw version	Get the firmware version	r fw version	TX 1.0.0 RX 1.0.0	
s reboot	Reboot the device	s reboot	Reboot... System Initializing... Initialization Finished!TX 1.0.0 RX 1.0.0	
s reset	Reset to factory defaults	s reset	Sure to RESET to default settings? Type "Yes" after next prompt to confirm...	
r status	Get system status	r status	Input: USB-C Video: 1920x1080p60 Audio:48K PCM 2CHHDCP: 1.4 USB Host: ConnectedHDBT Link: ON HDBT Signal: ON EDID: DIP_00 (Copy display's EDID)	
s tx input x	Set TX input video x = USBC, HDMI, AVMUTE, OFF	s tx input USBC	Set tx input from USBC	USBC
r tx input	Get TX input port	r tx input	USBC	
s tx autoswitchx	Set TX auto-switching on/off x = ON, OFF	s tx autoswitchON	Set tx autoswitch ON	ON
r tx autoswitch	Get TX auto- switchingstatus	r tx autoswitch	ON	
s tx autoswitch mode x	Set TX auto-switching mode x = 0: 5V detection 1: signal detection	s tx autoswitch mode 1	Set tx autoswitch mode 1:signal detection	1: signal detection
r tx autoswitch mode	Get TX auto- switchingmode status	r tx autoswitch mode	TMDs	
s rx downscalex	Set RX downscaling mode,x= AUTO: automatically according to display'scapability ON: force 4K to 1080pOFF: bypass video	s rx downscale AUTO	Set rx downscale AUTO	AUTO
r rx downscale	Get RX downscaling mode	r rx downscale	AUTO	
s tx audio mutex	Set TX de-embedding audio mute on/off x = ON, OFF	s tx audio muteON	Set tx audio mute ON	OFF
r tx audio mute	Get TX de-embedding audio mute status	r tx audio mute	OFF	
s rx audio mutex	Set RX de-embedding audio mute on/off x = ON, OFF	s rx audio muteON	Set rx audio mute ON	OFF
r rx audio mute	Get RX de-embedding audio mute status	r rx audio mute	OFF	

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s edid x to y	Set input ports EDID x = USBC, HDMI, ALL y = 00 - EDID dip switch (default) 01 - 1920x1080@60 8bit Stereo 02 - WUXGA 1920x1200 03 - 1920x1080@60 8bit High Definition Audio 04 - 3840x2160@60Hz 4:2:0 Deep Color Stereo Audio 05 - 3840x2160@60Hz Deep Color Stereo Audio 06 - 3840x2160@30Hz 8bit Stereo Audio 07 - 3840x2160@60Hz Deep Color High Definition Audio 08 - 3840x2160@60Hz Deep Color HDR LPCM 6CH 09 - copy EDID from RX HDMI output 10 - User Defined 1 11 - User Defined 2	s edid USBC to 00	Set edid USBC to 00 - EDID dip switch (default)	00
r edid x	Get input ports EDID x = USBC, HDMI	r edid USBC	00 - EDID dip switch (default)	
r edid data x	Get input ports EDID datax = USBC, HDMI	r edid data USBC	USBC EDID <00 FF FF FF....>	
s user edid x <y>	Set user defined EDID x = 1 (User Defined 1) x = 2 (User Defined 2) y = 00 FF FF FF ..... (y is 256 bytes EDID data)	s user edid 1 <00 FF FF FF....>	User edid 1 is loaded	
r user edid x	Get user defined EDID x = 1 (User Defined 1) x = 2 (User Defined 2)	r user edid 1	User edid 1 <00 FF FF FF....>	
s hdbt update	Set Micro USB (UART) to HDBT UART for FW update	s hdbt update	Hdbt update	

**Note:** The API command “s hdbt update” is for internal use only .

## Application Example



## Warranty

### **PureLink Five (5) Year Limited Warranty for PureStream™ Branded Products Only**

Dtrovision, LLC. (hereinafter “PureLink”) warrants its HDTools and PureStream™ branded products (hereinafter “Product”) purchased directly from PureLink or Dealer shall be free from defects in workmanship and materials, under normal use and service, for a period of five (5) years on parts and five (5) years on labor. Any repaired or replaced equipment related to Product shall be covered only under the remaining portion of the warranty. This warranty has no relationship to and exists independently of any warranty offered by Dealer. This warranty is a limited warranty and gives you specific legal rights. You may also have other rights which vary from state to state.

#### **TERMS & CONDITIONS**

PureLink shall repair or replace the Product if it develops a material fault during the period of warranty, on condition that i) the Product has only been subject to normal use in a domestic or commercial environment in a manner consistent with its specification and functionality, ii) the Product has been cared for reasonably and only subjected to reasonable wear and tear, iii) the defect has not been caused by willful or negligent abuse or neglect, or any accident or improper installation procedure, iv) the serial number of the Product has not been altered or removed.

This warranty only applies to the original purchaser, and shall be the exclusive remedy to the original purchaser. PureLink shall not be liable for any damages whatsoever caused by Product or the failure of Product to perform, including incidental or consequential damages. PureLink shall not be liable for any claim made by a third party or made by the purchaser for a third party.

Except as expressly set forth in this warranty, PureLink makes no other warranties, expressed or implied, including any implied warranties of merchantability and fitness for a particular purpose. PureLink expressly disclaims all warranties not satisfied in this limited warranty. Any implied warranties that may be imposed by law are limited to the terms of this limited warranty. This warranty statement supersedes all previous warranties.

#### **WARRANTY RETURNS/REPAIRS/EXCHANGES**

No merchandise may be returned without prior authorization from PureLink, and a Return Materials Authorization (RMA) number. Failure to comply with these conditions will result in rejection of the returned merchandise.

Any warranty service on Products must be arranged through Dealer. Authorized returns must be shipped freight prepaid and fully insured to PureLink, Fair Lawn, NJ USA, with the RMA number clearly marked on the outside of all shipping boxes and containers. PureLink reserves the right at its sole discretion to refuse any shipments arriving freight collect or without an RMA number. Any authorized returned merchandise must be accompanied by a note describing the reason for return, along with contact information including name, phone number, return mailing and shipping addresses, e-mail address, and RMA number.

On any products returned and accepted with an RMA number, return freight charges following repair of items under warranty shall be paid by PureLink, shipping by the standard ground carrier of its choice.

#### **ADVANCE WARRANTY REPLACEMENTS**

PureLink’s advance replacement service offers a Replacement Unit upon request - free of charge for eligible products purchased less than one (1) year of the warranty claim. Products purchased more than one (1) year prior to the warranty claim do not qualify for advance replacement services.

Advance replacement requests must be validated by a member of PureLink’s Technical Support Team. Replacement units may be new or refurbished and is subject to availability. PureLink is responsible for shipping the Replacement Unit to your designated location by standard ground service. All other shipping methods will be responsibility of the Dealer.

**Original Unit Return** – the Original Unit must be returned within thirty (30) calendar days of the return authorization date. Failure to return the Original Unit within this period will be subject to a minimum 15% re-stocking fee. Dealer is solely responsible for the shipping of the Original Unit to PureLink.

#### **TO MAKE A WARRANTY CLAIM**

To make a warranty claim, promptly notify PureLink within the warranty periods described above by calling PureLink's Technical Support Department at 1-201-488-3232. PureLink, in its sole discretion, will determine what action, if any, is required under this warranty.

Most problems can be corrected over the phone through close cooperation between Customer and a PureLink technician. To better enable PureLink to address a warranty claim, please have the Product's serial and model numbers. If PureLink, in its sole discretion, determines that an on-site visit or other remedial action is necessary, PureLink may send a representative to Customer's site.

#### **CUSTOMER SERVICE**

Technical support inquiries can be submitted electronically through the PureLink website at [www.purelinkav.com](http://www.purelinkav.com). For immediate assistance please contact PureLink's Customer Care Team at

+1 (201) 488-3232