

DXE-USB Series

USB 2.0 CAT 6 480Mbps 220' Extender



SAFETY INSTRUCTIONS

Please review the following safety precautions. If this is the first time using this model, then read this manual before installing or using the product. If the product is not functioning properly, please contact your local dealer or Aurora for further instructions.



The lightning symbol in the triangle is used to alert you to the presence of dangerous voltage inside the product that may be sufficient to constitute a risk of electric shock to anyone opening the case. It is also used to indicate improper installation or handling of the product that could damage the electrical system in the product or in other equipment attached to the product.



The exclamation point in the triangle is used to alert you to important operating and maintenance instructions. Failure to follow these instructions could result in injury to you or damage to the product.



Be careful with electricity:

- **Power outlet:** To prevent electric shock, be sure the electrical plug used on the product power cord matches the electrical outlet used to supply power to the Aurora product. Use only the power adapter and power connection cables designed for this unit.
- **Power cord:** Be sure the power cord is routed so that it will not be stepped on or pinched by heavy items.
- **Lightning:** For protection from lightning or when the product is left unattended for a long period, disconnect it from the power source.



Also follow these precautions:

- **Ventilation:** Do not block the ventilation slots if applicable on the product or place any heavy object on top of it.
Blocking the air flow could cause damage. Arrange components so that air can flow freely. Ensure that there is adequate ventilation if the product is placed in a stand or cabinet. Put the product in a properly ventilated area, away from direct sunlight or any source of heat.
- **Overheating:** Avoid stacking the Aurora product on top of a hot component such as a power amplifier.
- **Risk of Fire:** Do not place unit on top of any easily combustible material, such as carpet or fabric.
- **Proper Connections:** Be sure all cables and equipment are connected to the unit as described in this manual.
- **Object Entry:** To avoid electric shock, never stick anything in the slots on the case or remove the cover.
- **Water Exposure:** To reduce the risk of fire or electric shock, do not expose to rain or moisture.
- **Cleaning:** Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- **ESD:** Handle this unit with proper ESD care. Failure to do so can result in failure.

FCC

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.
- (2) This device must accept any interference received, including interference that may cause undesired operation.



Trademarks

All trademarks in this document are the properties of their respective owners.

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PACKAGE CONTENTS

Please make sure the following items are included within your package. Contact your dealer if any items are missing or damaged.

DXE-USB-S1/S2

- 1 qty DXE-USB-H1/H2 Host Side (PC) Extender
- 1 qty DXE-USB-D1/D2 Device Side Extender
- 1 qty CA0056-1 Mini USB Type B (5 pin) to USB Type A cable for H1/H2
- 2 qty EN0156-1 Mounting Ears
- 4 qty HD0026-2 4/40" Mounting Ear Black Countersunk Screws
- 1 qty PS0053-1 24v DC 15.5 Watt Power Supply

DXE-USB-H1/H2

- 1 qty DXE-USB-H1/H2 Host Side (PC) Extender
- 1 qty Mini USB Type B (5 pin) to USB Type A cable for H1/H2
- 2 qty EN0156-1 Mounting Ears
- 4 qty HD0026-2 4/40" Mounting Ear Black Countersunk Screws

DXE-USB-D1/D2

- 1 qty DXE-USB-D1/D2 Device Side Extender
- 2 qty EN0156-1 Mounting Ears
- 4 qty HD0026-2 4/40" Mounting Ear Black Countersunk Screws

DXE-USB-D1P/D2P

- 1 qty DXE-USB-D1P/D2P Device Side Extender
- 2 qty EN0156-1 Mounting Ears
- 4 qty HD0026-2 4/40" Mounting Ear Black Countersunk Screws
- 1 qty PS0053-1 24v DC 15.5 Watt Power Supply

Optional Accessories

- PS0053-1 24v DC 15.5 Watt power Supply
- PS0062-1 24v DC 24 Watt power Supply

Note: Go to www.auroram.com for latest manual and firmware

INTRODUCTION

About

The DXE-USB Series is a single cable USB extender capable of transmitting bi-directional USB 2.0 over a CAT 6 cable. Together (DXE-USB-S1/S2) the DXE-USB-H1/H2 (Host PC Side) & DXE-USB-D1/D2 (Device Accessory Side) work together to extend to USB up to 220 feet at a full 480Mbps. To make installations easier the DXE-USB-D1/D2 receives its power over the CAT cable from the DXE-USB-H1/H2 and has dual USB ports with the built in hub. Both units can be ordered individually to work with other devices such as the DXW-2EU which also has USB extension capabilities. Even better the DXE-USB-D1/D2 can supply up to 1A of power allowing for use with power hungry devices like "Smart Boards", touch screens, tablet charging, etc. Low cost, low power, simplicity, and compatibility with other Aurora USB extender products makes the DXE-USB the solution of choice.

Features

- ◆ USB 2.0 Using Single CAT 6 Shielded Cable
- ◆ 480Mbps Data Rate
- ◆ Up to 220ft distance
- ◆ Remote power of DXE-USB-D1/D2 (Device Side)
- ◆ 2 Port Hub (DXE-USB-D1/D2)
- ◆ Supplies up to 1A of power on USB. Can charge tablets and easily handle "Smart Boards" and touch screens
- ◆ DXE-USB-H1/H2 (Host Side) designed to work with DXW-2EU
- ◆ DXE-USB-D1P/D2P (Device Side with Local Power) designed for DXE-2EUH
- ◆ Status LEDs
- ◆ Small Size 78mm x 61mm x 25.4mm
- ◆ Low Power

Warning: Do not plug RJ-45 into a device other than a DXE-USB compliant device or damage may occur to either product.

Note: Although DXE-USB-S1 and S2 series are similar in performance they cannot be intermixed. D1, H1 and D2 and H2 must stay in same family. Also, low skew CAT cable will yield best results for distance.

Front DXE-USB-H1/H2, DXE-USB-D1/D2



DXE-USB-H1/H2 Front

- Power LED – Lights solid green when unit is powered.
- Status LED – Blinks green when processor is running.
- ES1 & ES2 LEDs – Lights red when setup button is pushed to indicate what mode of operation the unit is in. Currently ES LEDs are used for distance settings.
- Setup Button – Use a paper clip or object of similar size in the hole to push the button. For every push the ES LEDs will change its indication for the current mode of operation.

DXE-USB-D1/D2/D1P/D2P Front

- Power LED – Lights solid green when unit is powered.
- Status LED – Blinks green when processor is running.
- ES1 & ES2 LEDs – Lights red when setup button is pushed to indicate what mode of operation the unit is in. Currently ES LEDs are used for distance settings.
- USB1 LED – Lights red when a USB device is plugged into USB port 1 and communicating with PC.
- USB2 LED – Lights red when a USB device is plugged into USB port 2 and communicating with PC.
- Setup Button – Use a paper clip or object of similar size in the hole to push the button. For every push the ES LEDs will change its indication for the current mode of operation.

Note: DXE-USB-D1P/D2P front silk screen is same as D1/D2. The difference is on the rear as it has a 24v DC power jack whereby the D1/D2 does not. The D1P/D2P model is primarily used with the DXW-2EUH.

Rear Panel DXE-USB-H1/H2, DXE-USB-D1/D2, DXE-USB-D1P/D2P



DXE-USB-H1/H2 Rear

- 24V DC – Power connector for 24v DC power supply.
- CAT6 – Connect a standard RJ-45 CAT6 cable to a DXE-USB-D1/D2/D1P/D2P or DXW-2EU.
- USB – Connect this Mini USB Type B connector to a PC (Host) using the supplied cable.

DXE-USB-D1/D2 Rear

- CAT6 – Connect a standard RJ-45 CAT6 cable to a DXE-USB-D1/D2/D1P/D2P or DXW-2EU.
- USB1 – Connect this Type A USB port to a device like a keyboard, mouse, memory stick, touch panel, etc.
- USB2 – Connect this Type A USB port to a device like a keyboard, mouse, memory stick, touch panel, etc.

DXE-USB-D1P/D2P Rear

- 24V DC – Power connector for 24v DC power supply.
- CAT6 – Connect a standard RJ-45 CAT6 cable to a DXE-USB-D1/D2/D1P/D2P or DXW-2EU.
- USB1 – Connect this Type A USB port to a device like a keyboard, mouse, memory stick, touch panel, etc.
- USB2 – Connect this Type A USB port to a device like a keyboard, mouse, memory stick, touch panel, etc.

Note: DXE-USB-D1P rear silk screen is same as D1. The difference is on the rear as it has a 24v DC power jack whereby the D1 does not. The D1P model is primarily used with the DXW-2EUH.

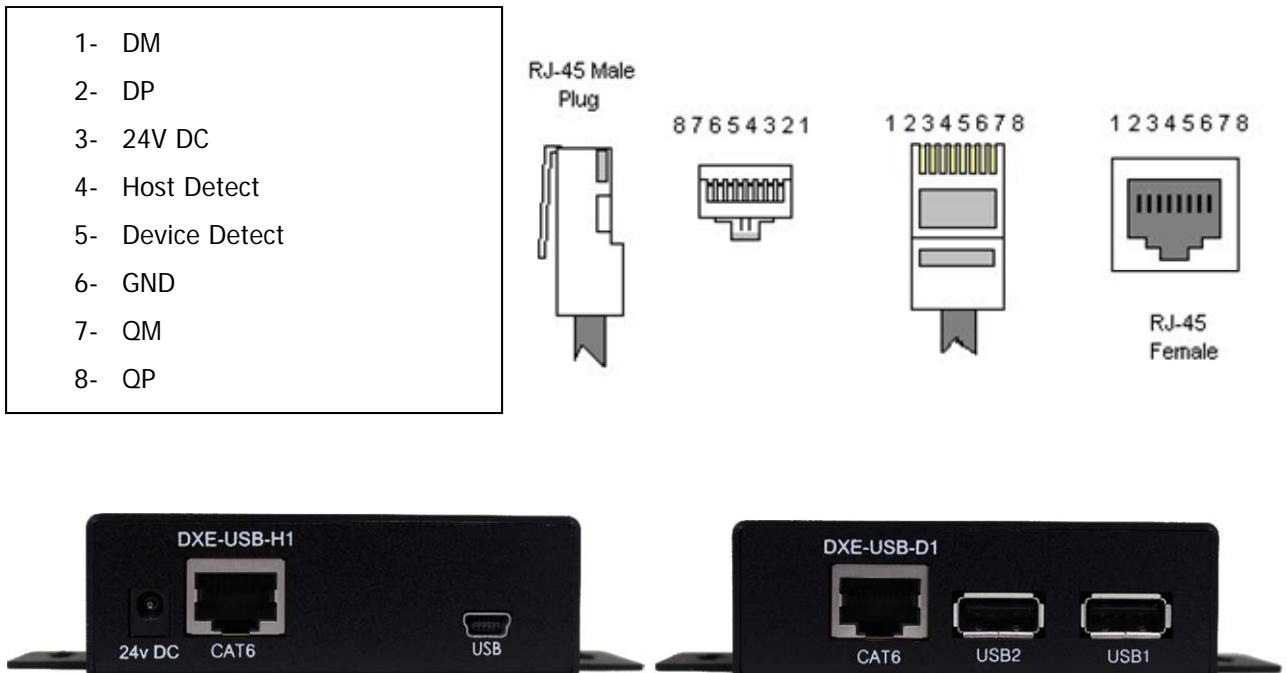
APPLICATIONS

Example 1 DXE-USB-H1/H2 Connected to DXE-USB-D1/D2

The DXE-USB-H1/H2 (Host Unit) will be located by the computer using the Mini USB to USB Type A Male cable that is supplied with the DXE-USB-H1/H2. Power will be drawn from the computer's USB port for the H1/H2. The 24v DC must be connected to power the remote DXE-USB-D1/D2. The DXE-USB-D1/D2 will supply 5v to the USB connectors for local charging even if the DXE-USB-H1/H2 is not connected to a PC as long as the 24v DC is connected. Please note many tablet devices have proprietary charging circuits and may not fast charge.

The RJ-45 of the DXE-USB-H1/H2 labeled CAT 6 will connect to the DXE-USB-D1/D2 CAT 6 port using a standard pin for pin T568A or B style LAN termination. (See connector definition section)

IMPORTANT!!! When using 24v DC remote power from H1/H2 to D1/D2 shielded cable terminated at both ends must be used or damage may occur. The DXE-USB will use it for power ground. Pin 6 gnd will not be enough to handle the load.



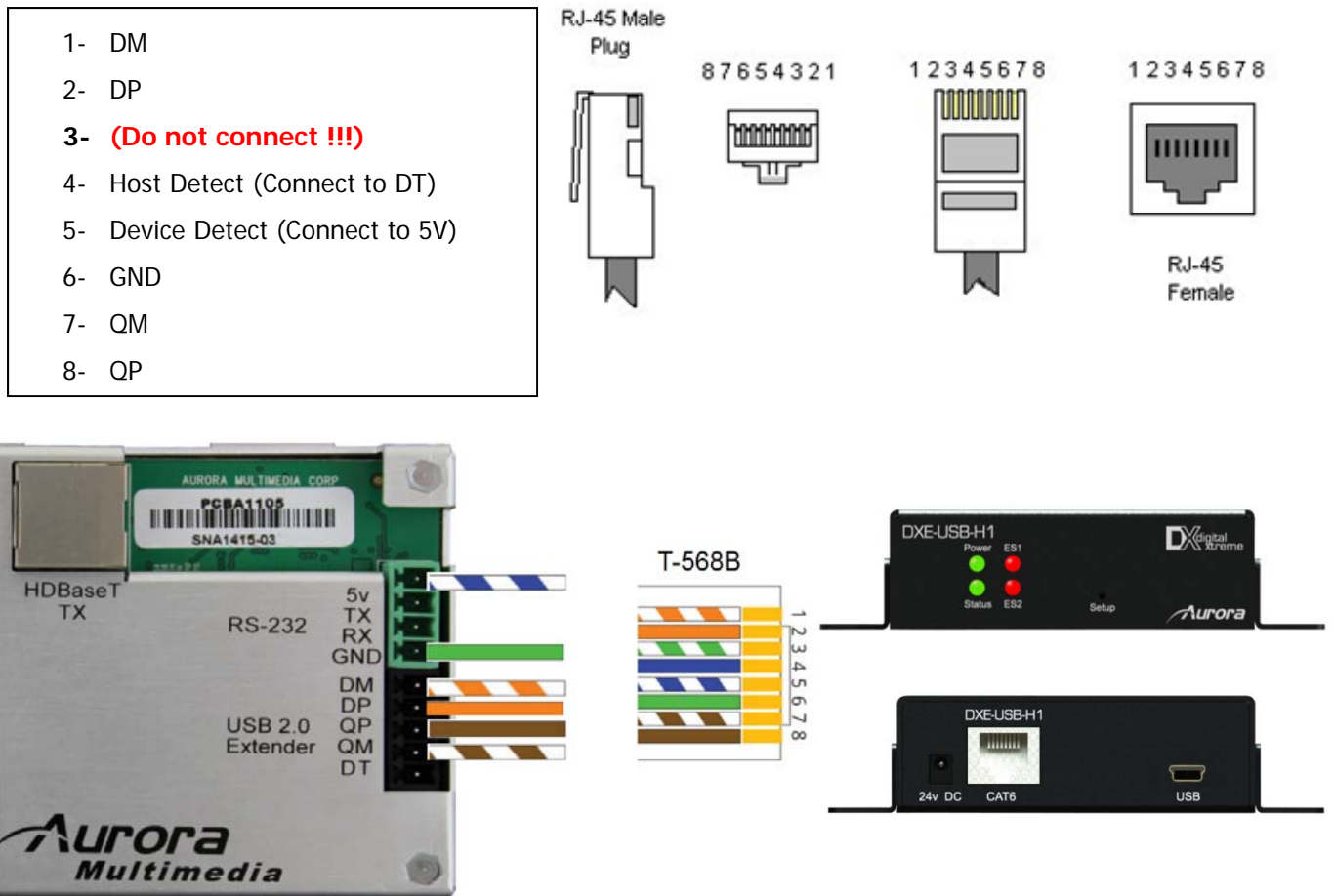
Example 2 DXW-2EU Connected to DXE-USB-H1/H2

The DXE-USB-H1/H2 (Host Unit) will be located by the computer using the Mini USB to USB Type A Male cable that is supplied with the DXE-USB-H1/H2. The 24v DC is not required to be connected when used with the DXW-2EU. Power will be drawn from the computer. The DXW-2EU will supply 5v to the USB connectors for local charging even if the DXE-USB-H1/H2 is not connected as it derives its power from the HDBaseT connection. Please note many tablet devices have proprietary charging circuits and may not fast charge.

The RJ-45 of the DXE-USB-H1/H2 will connect to the DXW-2EU USB 2.0 3.5mm black connector and the RS-232 3.81mm green connector (power & ground only). The pin-out for the RJ-45 is noted below.

More information on the DXE-USB-H1/H2 can be found on the Aurora website

www.auroram.com

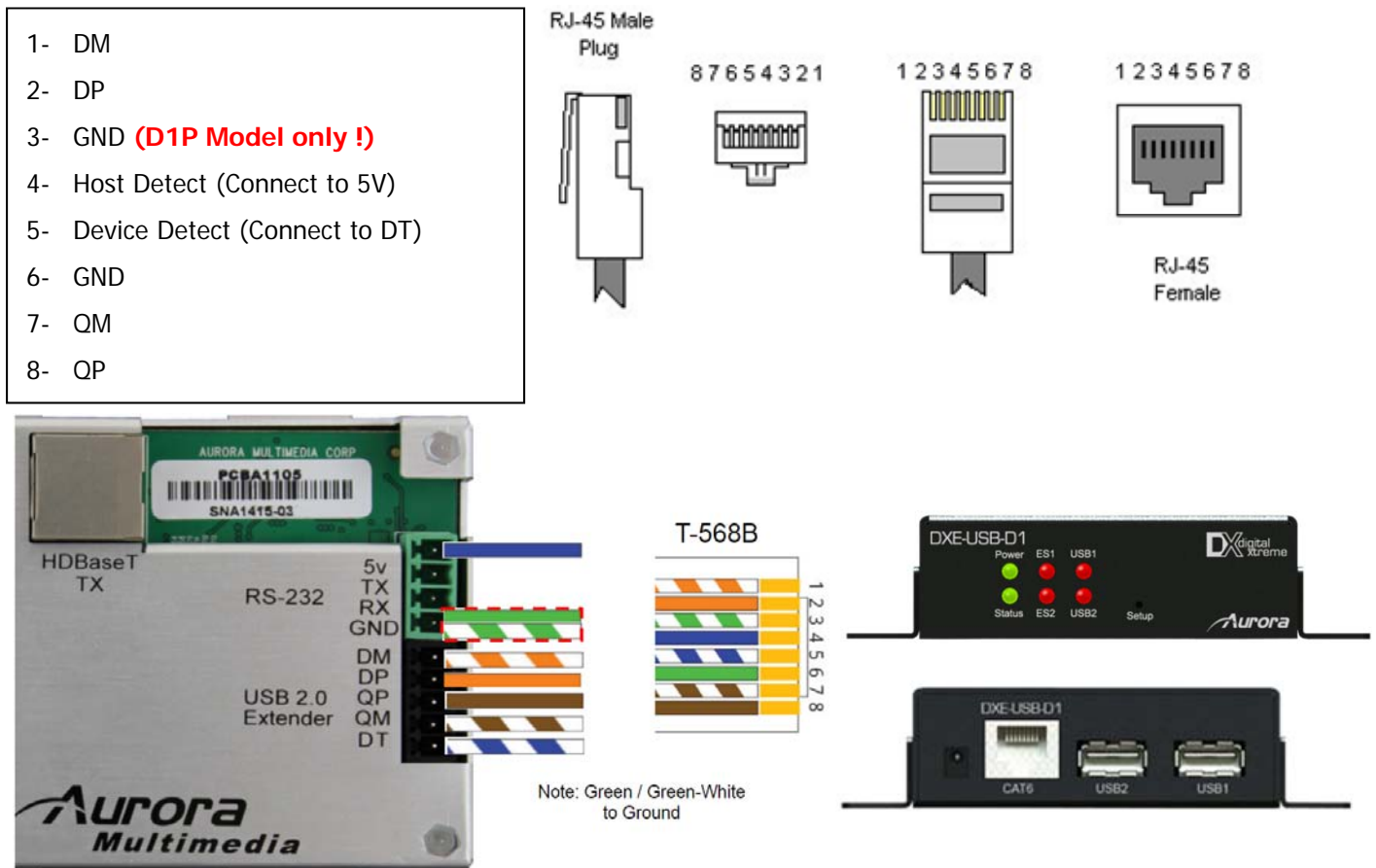


Example 3 DXW-2EUH Connected to DXE-USB-D1P/D2P

The DXE-USB-D1P/D2P (Device Unit with 24v DC supply) will be located by the product using the USB Type A connectors (ex. Keyboard, mouse, etc). The DXW-2EUH will supply 5v to the USB connectors for local charging even if the DXE-USB-D1P/D2P is not connected as it derives its power from the HDBaseT connection. Please note many tablet devices have proprietary charging circuits and may not fast charge. The top USB port of the DXW-2EUH is the Host and the bottom connector is for charging only. The top Host port will connect to the PC USB port via supplied USB Type A to Type A cable.

The RJ-45 of the DXE-USB-D1P/D2P will connect to the DXW-2EUH USB 2.0 3.5mm black connector and the RS-232 3.81mm green connector (power & ground only). The pin-out for the RJ-45 is noted below. Note the RS-232 RX will be used as a detect line but the TX will still work for RS-232.

More information on the DXE-USB-D1P/D2P can be found at www.auroramm.com



OPERATION

The DXE-USB Series has the ability to send USB 2.0 up to 220ft at a data rate of 480Mbps. The DXE-USB-H1/H2 is the host extender that will sit by the computer. It is powered from the USB port itself of the computer. The 24v DC plug is specifically to power the remote DXE-USB-D1/D2 so no power is needed at the other end for the D1/D2. The D1/D2 is a 2 port hub for the remote devices. If it is properly communicating with the computer over the CAT6 cable the USB1 or 2 light will illuminate accordingly and the computer will see the device(s). Please note if the peripheral you are using on the D1/D2 does not work directly plugged into the computer then it will not work through the extender. It is always best to verify operation first directly with the computer on the same USB port of the computer. Some devices do not work well on hubs with other devices. If two devices are plugged in at the same time try removing both then plugging in one or the other to see if operation resumes.

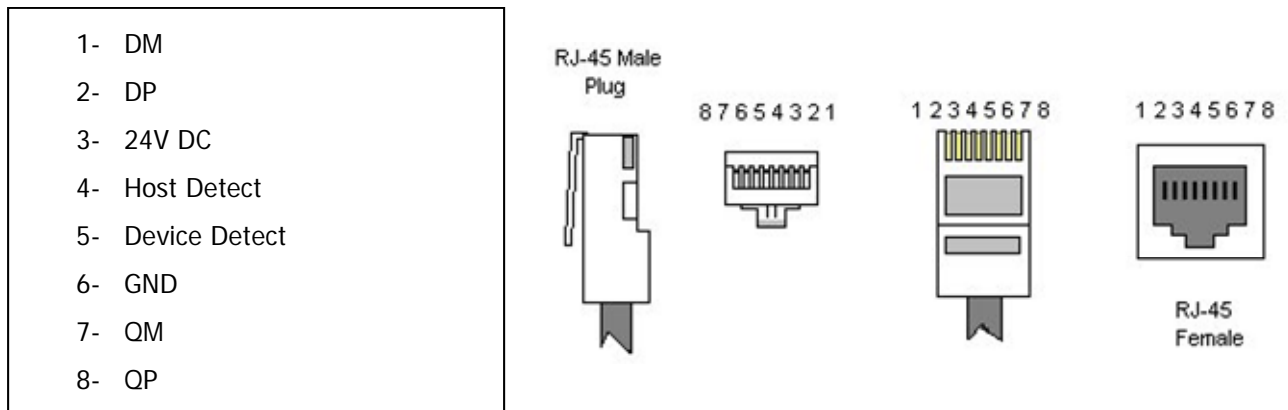
For best operation try to use a direct USB port not a USB port from a HUB as performance may be degraded.



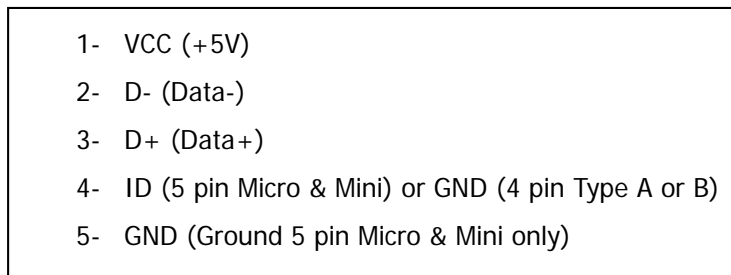
CONNECTOR PIN DEFINITION

CAT6 Extender Port

Please note quality of the CAT cable is important especially for the pair lengths to be match equally or distance will be reduced. It has been found with some cable brands the twist rate is not consistent making the overall length of the pair longer than the other pairs. If this is the case try T568A first and if it does not work T568B. Low skew cable will assure optimal results.



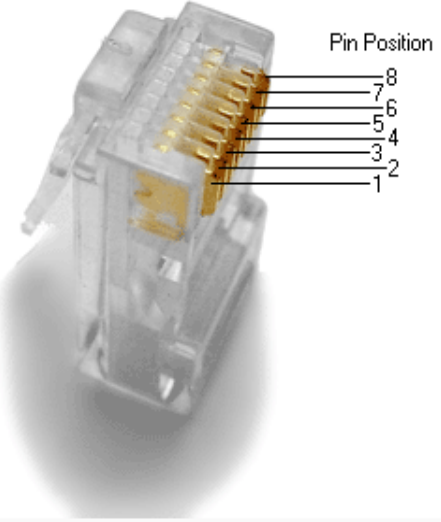
















USB



CAT5e/6/6A

T568A and T568B Wiring

Pin	T568A Pair	T568B Pair	Wire	T568A Color	T568B Color	Pins on plug face (socket is reversed)
1	3	2	tip	 white/green stripe	 white/orange stripe	
2	3	2	ring	 green solid	 orange solid	
3	2	3	tip	 white/orange stripe	 white/green stripe	
4	1	1	ring	 blue solid	 blue solid	
5	1	1	tip	 white/blue stripe	 white/blue stripe	
6	2	3	ring	 orange solid	 green solid	
7	4	4	tip	 white/brown stripe	 white/brown stripe	
8	4	4	ring	 brown solid	 brown solid	

1. All transmission distances are measured using Belden 1583A CAT5e 125MHz Solid UTP cable. The transmission distance is defined as the distance between the video source and the display.
2. To reduce the interference among the unshielded twisted pairs of wires in UTP cable, you can use shielded STP cables to improve EMI problems, which is worsen in long transmission.

APPENDIX 1 Troubleshooting

Problem	Solution
1. Power LED is not lit on D1/D2	<ul style="list-style-type: none"> a. Check 24v power supply is plugged in on H1/H2 unit. b. Check to see if Wall supply is plugged into wall outlet. c. Make certain wall outlet has power. d. Verify CAT6 cable connection
2. Power LED is not lit on D1P/D2P	<ul style="list-style-type: none"> e. Check 24v power supply is plugged in on D1P/D2P unit. f. Check to see if Wall supply is plugged into wall outlet. g. Make certain wall outlet has power.
3. Power LED is not lit on H1/H2	<ul style="list-style-type: none"> a. Check H1/H2 USB connection to computer. b. Make certain computer is on.
4. USB not charging on D1/D2	<ul style="list-style-type: none"> a. Total power between the 2 ports is 5 watts. If exceeded the fuse protection will kick in until within specification. Try connecting one device at a time to make certain it works before plugging in 2 devices. b. iPad® & iPhone® require DXE-USB-H1/H2 connected to PC in order to charge. iPad® will maintain power but not charge.
5. USB not working	<ul style="list-style-type: none"> a. Make certain DXE-USB-H1/H2 is connected to PC b. Make certain the cabling is correct.
6. Device does not show up on PC	<ul style="list-style-type: none"> a. Plug device direct into same port as H1/H2 to verify PC can detect device without the extender. b. If 2 devices unplug both than try one at a time. Some devices do not work well on hubs.

Warning: Do not plug RJ-45 to non-compliant DXE-USB device or damage may occur to either product.

IMPORTANT!!! When using 24v DC remote power from H1/H2 to D1/D2 shielded cable terminated at both ends must be used or damage may occur. The DXE-USB will use it for power ground. Pin 6 gnd will not be enough to handle the load.

Note: Although DXE-USB-S1 and S2 series are similar in performance they cannot be intermixed. D1, H1 and D2 and H2 must stay in same family.

Please note quality of the CAT cable is important especially for the pair lengths to be match equally or distance will be reduced. It has been found with some cable brands the twist rate is not consistent making the overall length of the pair longer than the other pairs. If this is the case try T568A first and if it does not work T568B. Low skew cable will assure optimal results.

APPENDIX 2 Technical Specifications

Model Name	DXE-USB
Technical	DXE-USB Series
USB 2.0 Distance	220ft CAT 6 (must be shielded when using from external D1 to H1/H2)
Front Selections	Paperclip hole setup button
Front LED for H1/H2	Power, Status, ES1, ES2
Front LED for D1 / D1P	Power, Status, ES1, ES2, USB1, USB2
CAT 6 Extender Connector	RJ-45 WE/SS 8P8C Right Angle
D1 / DP USB Connector	Type A
H1/H2 USB Connector	Mini Type B 5 Pin
Power Connector	Diameter 1.35mm ID, 3.5mm OD
Mechanical	DXE-USB Series
Housing	Aluminum painted black
Dimensions [L x W x D]	3" x 2.42" x 1" (78mm x 61mm x 25.4mm)
Weight	DXE-USB-D1: .207lbs (93.89g) DXE-USB-H1/H2: .193lbs (87.54g)
Mounting	Wall Mounting (Detachable right angle ears)
Power supply	24 .65A DC
Power consumption	DXE-USB-D1 / D1P: 1.37 Watts DXE-USB-H1/H2: .575 Watts
USB Available Power	DXE-USB-D1 / D1P: 5 Watts total between port 1 & 2
Operation temperature	0~40°C [32~104°F]
Storage temperature	-20~60°C [-4~140°F]
Relative humidity	20~90% RH [no condensation]
Package Contents	<p><u>DXE-USB-S1/S2</u> 1x DXE-USB-D1 Device Side / 1x DXE-USB-H1/H2 Host Side 1x CA0056-1 USB Mini Type B to USB Type A 1x PS0053-1 24v DC Power Supply 2x EN0156-1 Mounting Ears 4x HD0026-2 4/40" Mounting Ear Black Countersunk Screws</p> <p><u>DXE-USB-H1/H2</u> 1x DXE-USB-H1/H2 Host Side 1x CA0056-1 USB Mini Type B to USB Type A 2x EN0156-1 Mounting Ears 4x HD0026-2 4/40" Mounting Ear Black Countersunk Screws</p> <p><u>DXE-USB-D1/D2</u> 1x DXE-USB-D1/D2 Device Side 2x EN0156-1 Mounting Ears 4x HD0026-2 4/40" Mounting Ear Black Countersunk Screws</p> <p><u>DXE-USB-D1P/D2P</u> 1x DXE-USB-D1P/D2P Device Side 1x PS0053-1 24v DC Power Supply 2x EN0156-1 Mounting Ears 4x HD0026-2 4/40" Mounting Ear Black Countersunk Screws</p>
Options	PS0053-1 24v DC 15.5 Watt power Supply PS0062-1 24v DC 24 Watt power Supply

Specifications subject to change without notice.

APPENDIX 3 Warranty

Limited 3 Year Warranty

Aurora Multimedia Corp. ("Manufacturer") warrants that this product is free of defects in both materials and workmanship for a period of 3 years as defined herein for parts and labor from date of purchase. This Limited Warranty covers products purchased in the year of 2009 and after. Motorized mechanical parts (Hard Drives, DVD, etc), mechanical parts (buttons, doors, etc), remotes and cables are covered for a period of 1 year. Touch screen displays are covered for 1 year; touch screen overlay components are covered for 90 days. Supplied batteries are not covered by this warranty. During the warranty period, and upon proof of purchase, the product will be repaired or replaced (with same or similar model) at our option without charge for parts or labor for the specified product lifetime warranty period.

This warranty shall not apply if any of the following:

- A. The product has been damaged by negligence, accident, lightning, water, act-of-God or mishandling; or,
- B. The product has not been operated in accordance with procedures specified in operating instructions; or,
- C. The product has been repaired and or altered by other than manufacturer or authorized service center; or,
- D. The product's original serial number has been modified or removed; or,
- E. External equipment other than supplied by manufacturer, in determination of manufacturer, shall have affected the performance, safety or reliability of the product.
- F. Part(s) are no longer available for product.

In the event that the product needs repair or replacement during the specified warranty period, product should be shipped back to Manufacturer at Purchaser's expense. Repaired or replaced product shall be returned to Purchaser by standard shipping methods at Manufacturer's discretion. Express shipping will be at the expense of the Purchaser. If Purchaser resides outside the contiguous US, return shipping shall be at Purchaser's expense.

No other warranty, express or implied other than Manufacturer's shall apply.

Manufacturer does not assume any responsibility for consequential damages, expenses or loss of revenue or property, inconvenience or interruption in operation experienced by the customer due to a malfunction of the purchased equipment. No warranty service performed on any product shall extend the applicable warranty period. This warranty does not cover damage to the equipment during shipping and Manufacturer assumes no responsibility for such damage.

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