Features

> Supports resolution up to WUXGA (1920x1200@60Hz)
> Transmission distance up to 330m/1,000 feet
> Supports RS-232 half-duplex
> Adjustable equalization on Remote Display
> Adjustable gain control on Remote Display
> Adjustable RGB delay/De-skew compensation
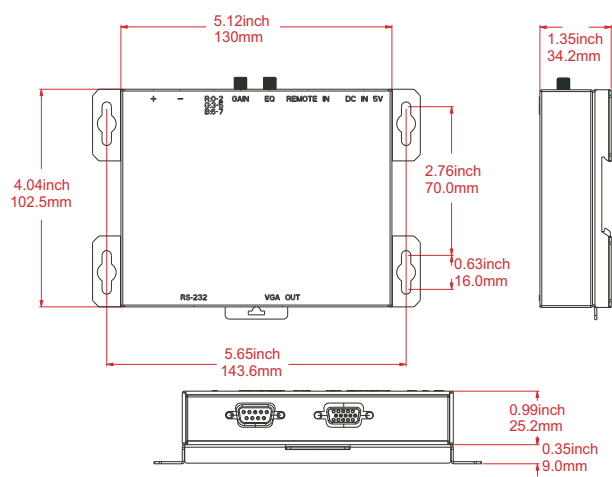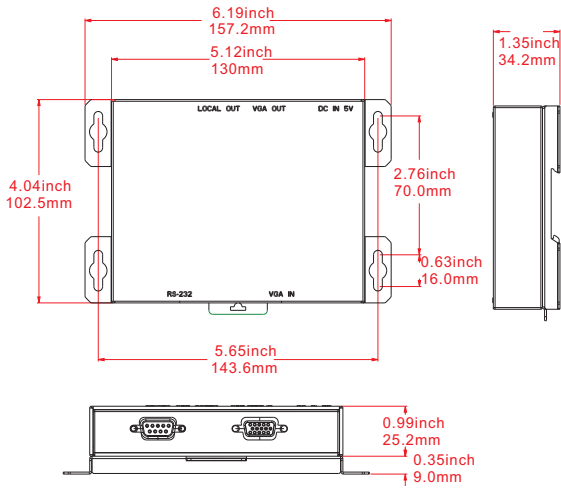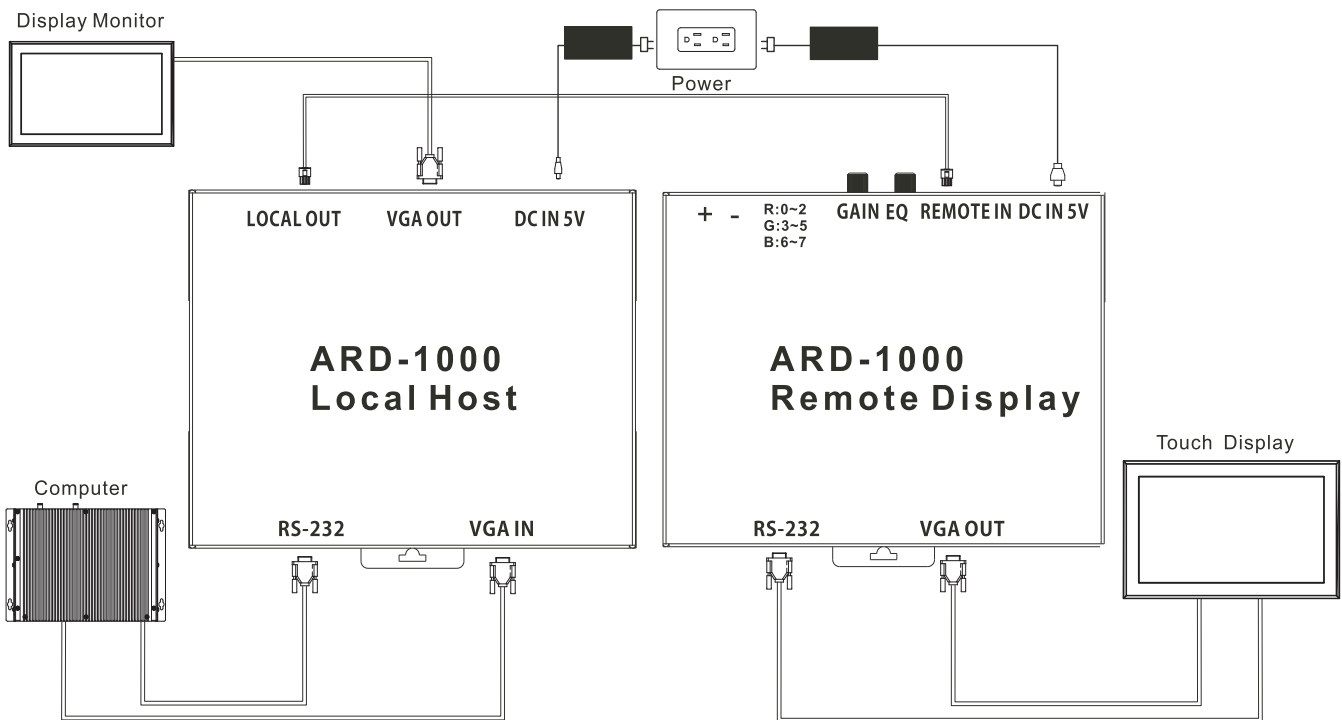> Wall Mount / DIN-RAIL Mount

RS-232   **VGA Input**

Specifications

Technical	ARD-1000 Local Host	ARD-1000 Remote Dislay
Role of usage	Local Transmitter	Remote Receiver
Video bandwidth	350MHz	
Video support	VESA	
Transmission	WUXGA [1920x1200] 330m (1,000ft) [CAT5e]	
Audio support	N/A	
RS-232 signal type	Half-duplex & baud rate	
Input video signal	1.2 Volts (peak to peak)	
Equalization	Continuous analog control	
RGB delay control	Yes	
Loop-out	1 VGA loop-out	
ESD protection	[1] Human body model — ±15kV (air-gap discharge) & ±8kV (contact discharge)[2] Core chipset ±8kV	
PCB stack-up	4-layer board [impedance control — differential 100Ω; single 50Ω]	
Input	1x VGA, 1x RS-232	1x RJ-45
Output	1x VGA, 1x RJ-45	1x VGA, 1x RS-232
VGA connector	HD-15 (15-pin D-sub female)	
RJ-45 connector	WE/SS 8P8C with 2 LED indicators	
RS-232 connector	DE-9 (9-pin D-sub female)	
Mechanical		
Physical Dimensions(L x W x H)	6.19 x 4.26 x 1.35 inch / 157.2 x 108.4 x 34.3 mm	6.19 x 4.5 x 1.35 inch /157.2 x 114.3 x 34.3 mm
Net Weight	2.33 lbs / 1.06 kg	2.33 lbs / 1.06 kg
Mounting	Wall Mount / DIN-RAIL Mount	
Power supply	5V / 2A DC	
Power consumption(Max)	5 W	
Operating Temp	0 - 50°C (32 - 122°F)	
Storage Temp	-20 - 60°C (-4 - 140°F)	
Relative Humidity	20 - 90% RH (no condensation)	

VGA over CAT5/6 Cable Transmission

Performance rating		Type of LAN cable		
Wiring	Shielding	CAT5	CAT5e	CAT6
Solid	Unshielded (UTP)	✱✱✱	✱✱✱✱	✱✱✱✱✱
	Shielded (STP)	✱✱✱	✱✱✱	✱✱✱✱
Stranded	Unshielded (UTP)	✱	✱	✱✱
	Shielded (STP)	✱	✱	✱✱
Termination		**Please use EIA/TIA-568-B termination (T568B) at any time**		

ARISTA™
Talk to us. We listen.

ARP-5500AX Series Power Supply

6.19inch
157.2mm

5.12inch
130mm

1.35inch
34.2mm

LOCAL OUT   VGA OUT   DC IN 5V

4.04inch
102.5mm

2.76inch
70.0mm

0.63inch
16.0mm

RS-232   VGA IN

5.65inch
143.6mm

0.99inch
25.2mm

0.35inch
9.0mm

5.12inch
130mm

1.35inch
34.2mm

+   -   GAIN   EQ   REMOTE IN   DC IN 5V

4.04inch
102.5mm

2.76inch
70.0mm

0.63inch
16.0mm

RS-232   VGA OUT

5.65inch
143.6mm

0.99inch
25.2mm

0.35inch
9.0mm

APM - 004 Mounting Bracket Line Drawing

Display Monitor

Power

| LOCAL OUT | VGA OUT | DC IN 5V |

**ARD-1000
Local Host**

Computer

RS-232   VGA IN

+ -   R:0~2
       G:3~5   GAIN EQ REMOTE IN DC IN 5V
       B:6~7

**ARD-1000
Remote Display**

Touch Display

RS-232   VGA OUT

Order Information

Model	Description
ARD-1000	VGA & RS-232 over CAT5 Extender with RGB Delay Control

Packing list

Item	Packing List
1.	1x Local Host
2.	1x Remote Display
3.	Two 100 - 220VAC input, 5VDC/2A output power adapters
4.	6 feet modeling RS-232 cable (male to male)
5.	6 feet modeling VGA cable (male to male)
6.	6 feet modeling RS-232 cable (male to female)
7.	User's Guide

VGA over CAT5 Extension

CAT-5 cable provides an enormous cost benefit over coax. The average cost of 100 meters of CAT-5 cable is $20 while the average cost of 100 meters of coax cable could easily exceed $240.

Furthermore, wiring is reduced from a bulky bundle of cables to 1 easily pulled cable.

Let us also have a look at the characteristics of CAT-5 type cable before we go deeper on the topic. Standard CAT-5 cable consists of 4 twisted pairs of AWG 24 cable, which has a characteristic impedance of 100 ohm. The DC resistance is 10 ohm / 100 m with a capacitance of 4.6nF/100 m. The figure below demonstrates the losses within CAT-5 cable!
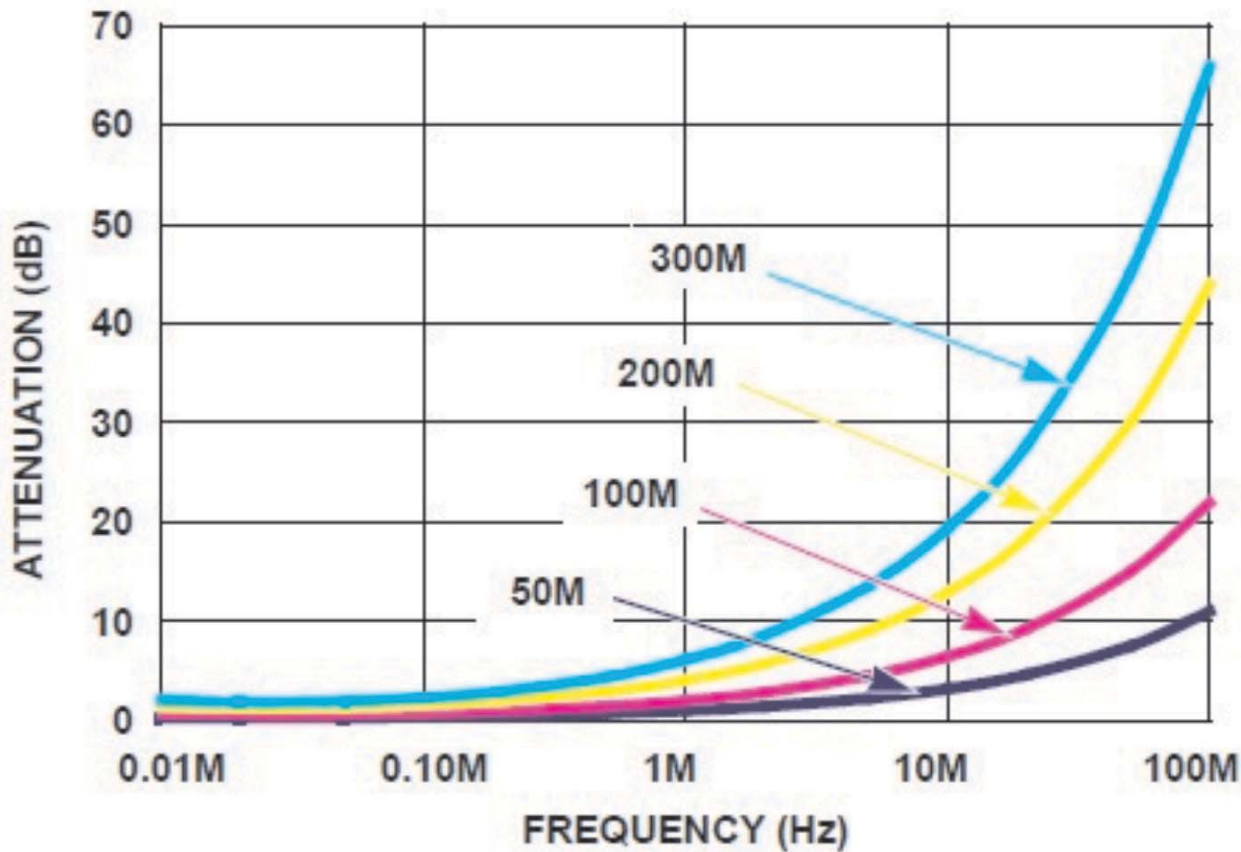
In order to transmit the VGA over CAT-5, differential signal transmission is considered for almost all of VGA over CAT-5 extenders. Because of the low bandwidth of the cables, on the receiver is inevitable. Appropriate compensations such as equalization and gain control, and even delay adjustment among component colors are a necessary means in order to get at least acceptable quality of video and audio.

Performance Guide for VGA over LAN Cable Transmission

Performance rating		Type of LAN cable		
Wiring	Shielding	CAT5	CAT5e	CAT6
Solid	Unshielded (UTP)	✳✳✳	✳✳✳✳	✳✳✳✳✳
	Shielded (STP)	✳✳✳	✳✳✳	✳✳✳✳
Stranded	Unshielded (UTP)	✳	✳	✳✳
	Shielded (STP)	✳	✳	✳✳
Termination		Please use EIA/TIA-568-B termination (T568B) at any time		

How to select VGA extenders over CAT-5:

Since the lossless transmission is impossible for such a kind of converters, there are a couple of key factors while evaluating these modules. First of all, it is about the signal bandwidth. Fundamentally, the higher the bandwidth, the better it is supposed to be.

Secondly, the slew rate! The slew rate represents the maximum rate of change of a signal at any point in a circuit. Limitations in slew rate capability can give rise to non linear effects in electronic amplifiers. These two factors above are especially important while designing TX unit, because the receiver cannot do much on improving the distortion of the resulting video caused by low quality amplifiers on transmitters. Because of the low bandwidth and low quality of CAT-5 in the most cases, the received video is expected to be distorted seriously. One good VGA over CAT-5 extender should at least be capable of equalizing the received differential video signal to some extent. Basic functions like equalization and gain controls are designed for this purpose.

Depending upon the ability of equalization and gain compensation, smearing, ghosting, and color mismatch may be eliminated or ameliorated.

To further improve the resulting video quality, the functionality of de-skewing is essential. Again, due to the quality of CAT-5 type cables, the arrival time of the component colors R, G, B is basically different especially thru the long distance transmission. Therefore the channel timing mismatch is inevitable. VGA over CAT-5 extenders with delay control could be the best choice to guarantee the video quality for very long distance transmission applications.