

## **TP3R-200 TRIPLE VIDEO DISTRIBUTION AMPLIFIER DATASHEET**

**Extends VGA video signals up to 300m along Cat. 5 TP cable to drive VGA monitors**

Boxed units joined by Cat. 5 UTP / FTP cable with RJ45 ends wired to EIA568B

**C.A. Designs** twisted-pair video distribution amplifier products comprise a collection of modules capable of high quality picture and data transmission over category 5 (4-pair) UTP or FTP cables. This typically allows the transport of PC video signals using twisted-pair cables throughout office complexes (wired with structured cable systems) to remote monitor screens.

Each video link has a line-driving module and line-receiving module. Available versions cover different distances, number of outputs, signal formats, power supply, enclosures, etc.

The **TP3R-200** has three, independent, line driving modules which transform the video signal into a form matched to Cat.5 UTP or FTP cable.

It accepts inputs of VGA type monitor signals from which a propriety video output is constructed, modified by gating and time delays then amplified to differentially drive a balanced transmission line.

Compensation for cable length is externally switchable for up to 100 or 200 metres (additive to the 100 metre receiver compensation). The 100/200 maximum is set by internal jumpers – the 100 metre setting gives highest picture quality – jumpers all set LEFT.

Note that each TP3R has 3 internal circuit cards and each card has 3 jumpers (J1/J2/J3).

It is housed in a 1U rack-mounting metal case and takes power from an external power supply (**MP7**).

Line receiving modules are required at the display end of the Cat.5/6 extension cable to reconstruct the video signal from the transmission line into a compatible output signal for an appropriate monitor:

Typically **TP1K-100** receivers are used which output VGA type monitor signals with switchable TTL sync polarity (some monitors sense this to set picture size)

Balanced differential input amplifiers reduce unwanted common-mode interference and have externally adjustable frequency and gain compensation for cable lengths up to 100 metres (in addition to the line driver compensation). Differential delay compensation (sometimes called SKEW compensation) is provided on **TP1K-100** modules – see below.

Cat 5 cable has four separate twisted pairs each with a different number of turns per unit length to reduce crosstalk between pairs. This results in each pair being a slightly different overall length which may have a significant effect on the video signal passed down the cable, similar to misconvergence, as signals take a slightly different time to arrive at the receiver and as a result suffer visible colour separation between Red, Green and Blue. This distortion is worse for higher resolution signals and Cat.5e & Cat.6 spec. cables tend to have even greater differential delays.

**TP1K-100** includes a passive wide bandwidth video delay system, designed to compensate for the varying path lengths often found in UTP and STP cable.

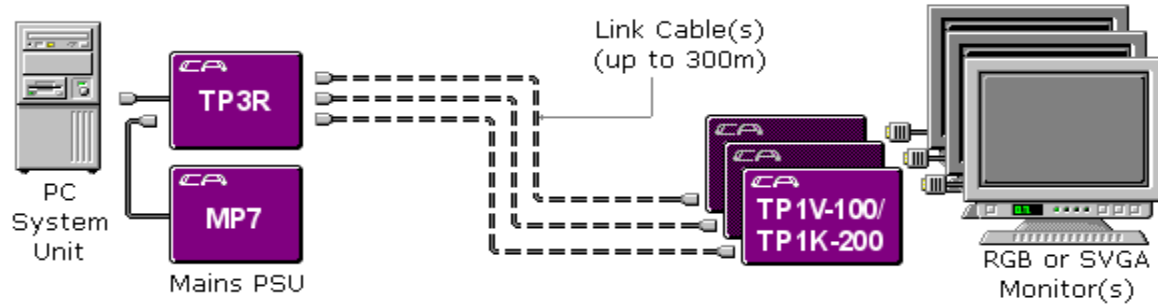
One colour is left undelayed and the other two may each be delayed.

Selection of the delay is via switches which select delays of 2, 4, 8, 16 and 32 nanoseconds which may be added - resulting in delays from 0 to 62nS in 2nS increments.

These line-receiving units take their power from the twisted-pair line and require no external power supply. The twisted-pair cable used must be category 5 (or above) grade cable. Foil screening is recommended for optimum EMC.

Excellent picture quality is obtainable with resolutions up to 1280x1024 (non-interlaced), depending on cable length and quality.

### Typical Configuration



### Specifications

<b>General:</b>	
<b>Video Bandwidth</b>	<ul style="list-style-type: none"> <li>&gt; 100Mhz</li> </ul>
<b>Input Signals:</b>	
<b>TP1K-100</b>	<ul style="list-style-type: none"> <li>3 analogue channels (red, green and blue)</li> <li>0.7v positive, 100 ohm termination</li> <li>0.3v negative composite Sync mixed on green</li> <li>(from <b>TP3R-200</b>)</li> <li>RJ45 connector (shielded)</li> </ul>
<b>TP3R-200 (3 channels)</b>	<ul style="list-style-type: none"> <li>Analogue RGB (256) levels</li> <li>0.7v positive, 75 ohm termination</li> <li>Separate TTL horizontal and vertical syncs (+ or -)</li> <li>15 pin High Density D socket</li> </ul>
<b>Output Signals:</b>	
<b>TP3R-200 (3 outputs)</b>	<ul style="list-style-type: none"> <li>3 analogue channels (red, green and blue)</li> <li>0.7v positive, 100 ohm termination</li> <li>0.3v negative composite Sync mixed on green</li> <li>RJ45 connector (shielded)</li> </ul>
<b>TP1K-100</b>	<ul style="list-style-type: none"> <li>Analogue RGB (256) levels</li> <li>0.7v positive, 75 ohm termination</li> <li>Separate TTL horizontal and vertical syncs</li> <li>Polarity switchable (+ or -)</li> <li>15 pin High Density D socket</li> </ul>
<b>Power:</b>	
<b>TP3R-200</b>	<ul style="list-style-type: none"> <li>12v @ 0.5A max.</li> </ul>
<b>TP1K-100</b>	<ul style="list-style-type: none"> <li>12v @ 0.06A supplied from driver down TP cable</li> <li>(optional external input on <b>TP1K-100</b>)</li> </ul>
<b>Mechanical:</b>	
<b>TP3R-200</b>	<ul style="list-style-type: none"> <li>1U metal rack enclosure</li> <li>44mm high x 484mm wide x 135mm deep</li> </ul>
<b>TP1K-100</b>	<ul style="list-style-type: none"> <li>Beige ABS plastic box, flame retardant to UL94-V0</li> <li>30mm high x 130mm wide x 100mm deep</li> </ul>
<b>INTERCONNECTING CABLE:</b>	
<b>Description</b>	<ul style="list-style-type: none"> <li>4-pair twisted pair EIA568B Category 5/5e (UTP or FTP)</li> <li>Pairing: 1/2 3/6 4/5 7/8 EIA568B or AT&amp;T 258A</li> </ul>