

**UTP PARTNER**



*INSTRUCTION MANUAL*

**Video Balun  
Transceiver**

Unshielded Twisted Pair(UTP) Transmissior

## Summary

The unit is a device that allows the transmission of real-time monochrome or color video over Unshielded Twisted Pair telephone wire. Enabling reactance equally to zero, it transforms the video signal into an identical signal but with opposite polarized magnetic fields. With unparalleled common interferences rejection, the unit can transmit image in high quality even in strong interference environment. It is ideal for a wide variety of applications such as security, surveillance, video conferencing, elevator surveillance, and P/T/Z control signals.

## Advantage

- 1) High quality and long distance transmission.

Employs advanced technology, the video transceiver can compensate the attenuation of video signal and different frequency. Keep up the sharpness and color of original picture. It achieves longer and better signal transmission.

- 2) Enable cost-effective, point to point transmission appliance.

Normally, there are four pairs unshielded twisted pair (UTP) in UTP cable. However, one pair UTP is necessary for 1ch CCTV video signal transmission, the others can be used for transmitting Audio signal, Control Signal, Power input or 4 channel cctv video signal. The cost are saved about 20%~50%.

- 3) Outstanding interference rejection. The Video transceiver is highly immune to common mode interference and Multi channel signals in the same cables transmission. Even in Strong interference environment, The unit can transmit image in high quality.

- 4) Easy installation
- 5) Transient protection
- 6) Exceptional interference rejection

## Features

- Full motion CCTV video at long distance(Max. 9,000ft/3000M).
- Built-in linearity, Sharpness and Chroma control
- Enable unparallelled common interferences rejection
- Built-in transient Protection.
- Improve the picture definition when connect to DVR or Quad, and reduce noise affects .

## Applications

There are two kinds of video balun transceivers. One is Active and the other is Passive. According to different transferring distance , Please refer to the system selection chart below:

Nos of Cam.	Max.Distance(ft)		Transmitter	Receiver	Remarks
	BW	Color			
1	1800	1200	LLT201A/C	LLT201A/C	No power required
1	6600	4800	LLT201A/C	LLT301R LLT351R LLT302R	DC 12V
1	8400	6600	LLT301T LLT351T LLT302T	LLT301R LLT351R LLT302R	DC 12V
4	6600	4800	LLT201A/C	LLT401R	DC 12V
4	8400	6600	LLT301T LLT351T LLT401T	LLT401R	DC 12V
> 4	6600~ 8400	4800~ 6600	LLT201A/C LLT301T LLT351T LLT302T LLT401T	LLT301R LLT351R LLT302R LLT401R LLT1610R	DC 12V  1610R: AC 220V

- Use UTP CAT5 24AWG to measure the transferring distance in above chart .

Max:1200ft(Color)/1800ft(BW)UTP video transceiver



Max:4800ft(Color)/6600ft(BW)UTP video transceiver



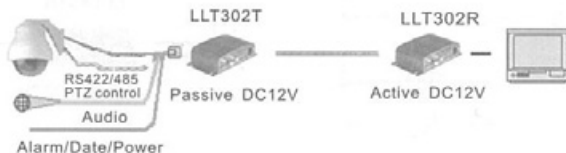
Max:6600ft(Color)/8400ft(BW)UTP video transceiver



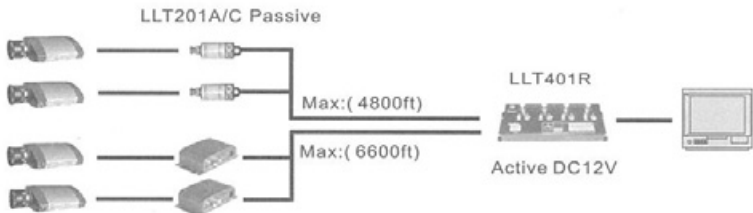
Max:4800ft(Color)/6600ft(BW) 1ch Video / Control / Power Transceiver



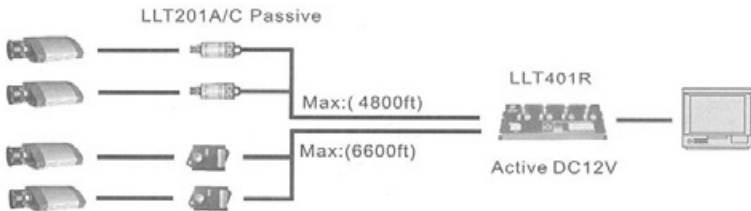
Max:6600ft(Color)/8400ft(BW) 1ch Video / Control / Power Transceiver



## 4channels video transceiver



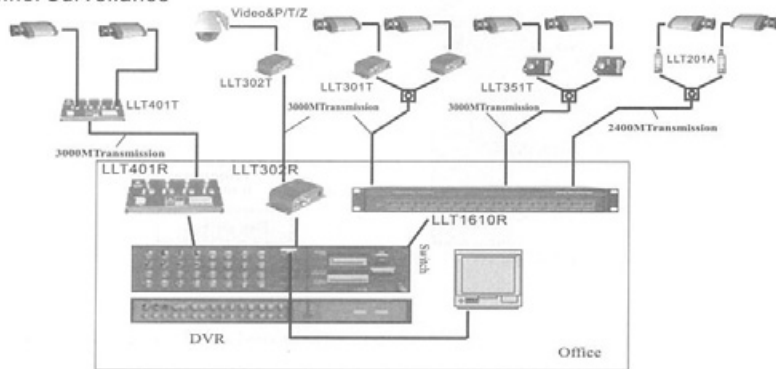
LLT301T Passive DC120V



LLT351T Passive DC120V

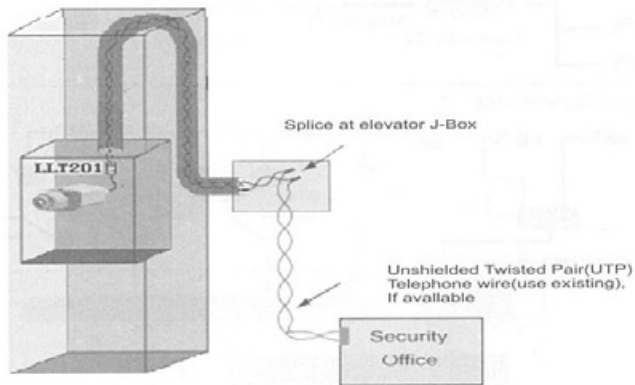


Multi-Channel Surveillance





## Install in elevator

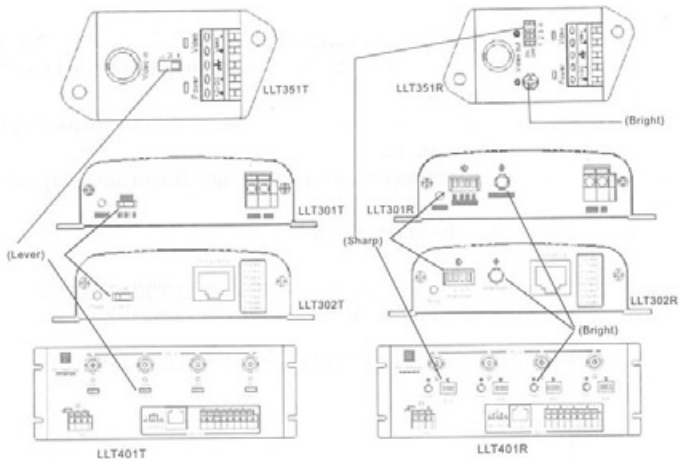


\* Video signal transmitting through video balun transceiver in elevator will efficiently decrease interference.

## HOW TO SET GAIN

3 kinds of image gain setting according to different distance

LMH	0-4500ft
LMH	4500-6000ft
LMH	>6000ft



## Note

- (1) Lever — gain setting switch on active transmitter (LLT301T / LLT302T/LLT401T), which has three modes as L, M, H. It can be adjusted according to distance and can change signal intensity.
- (2) Sharp — image compensation switch on active receiver (LLT301R/LLT302R/LLT401R/LLT1610R), which has 16 kinds of setting methods according to different distance. It can efficiently improve image definition.
- (3) Bright — brightness adjusting pot on active receiver, which can respectively adjust video signal intensity of every channel.

You should do nothing but set and adjust Lever, Sharp and Bright seriously, so you can achieve the best image effect.

Your initial setting can refer to the chart in P10.

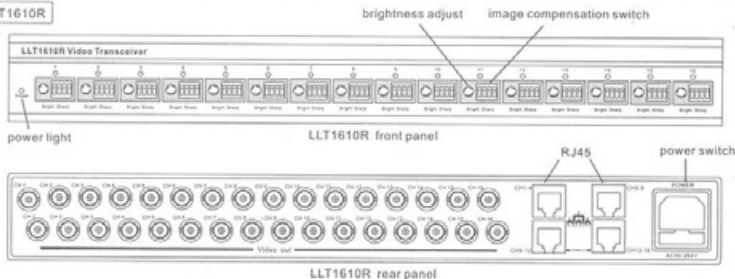
- ※ Pay attention to the jack connection of LLT201A/C, LLT301T, LLT301R, LLT351T, LLT351R. Make sure of the right connection according to the remark on the unit

The jack connection of LLT302T, LLT302R, LLT401T, LLT401R, LLT1610R like below:



## Video Balun Unshielded Twisted Pair(UTP) Transceiver

LLT1610R



There are 16 kinds of image compensation setting according to different distance

Status	Passive-Active	Active-Active	Status	Passive-Active	Active-Active
	983.61ft	1967.21ft		2950.82ft	4918.03ft
	1311.48ft	2622.95ft		3278.68ft	5573.77ft
	1475.41ft	2950.82ft		3934.43ft	6229.51ft
	1639.34ft	3278.69ft		4590.16ft	6885.24ft
	1803.28ft	3606.56ft		5245.90ft	7540.98ft
	1967.21ft	3868.85ft		5901.64ft	8196.72ft
	2295.08ft	4262.30ft		6557.38ft	8688.52ft
	2622.95ft	4590.16ft		7213.11ft	9180.32ft

- Mentioned distances are subject to BW image transmission.  
Color image transmission is shorter than that of BW.

## Specifications

Model	LLT201A LJT201C	LLT301T LJT301R	LLT351T LJT351R	LLT302T LJT302R	LLT401T LJT401R	LLT1610R
Spec.	1ch (passive)	1ch (active)		1ch video&audio;2ch data/power (active)	4ch video(active)	16ch video (active)
Video	Frequency response: DC-6MHz Common-mode/differential-mode rejection: 15Hz-6MHz 60dB typ.					
Audio	————		14dB		————	
Wire type	Spec. 24AWG UTP CAT5 Impedance:100Ω ± 20% DC loop resistance: 18Ω/100M Differential Capacitance: 62pF/M(Max)					
Power	————	DC 12V < 80mA				AC220<100mA
Surge Suppression	————	6000V 1.2μS×50μS				
Dimensions	55×25 ×25cm	90×60× 28cm	76×38× 37cm	90×60× 28cm	180×70× 25cm	430×160× 44cm
Weight	50g	130g	41g	130g	400g	2000g
Impedance	BNC coax: 75Ω UTP/Connector: 100Ω or RJ-45 100Ω					
Control	————	Receiver: 4 range distance at option; adjustable brightness&sharpness Transmitter: adjustable gain				
Environment	Temperature: 0 ~ +50℃ Humidity: 0 ~ 95 %					

## Frequently Asked Question

### 1) What kind of wire do I need to use with LLT devices?

We recommend to use Unshielded Twisted Pair, Category 2 or better, 16-24AWG, stranded or solid. Using a multi-pair wire (six pairs or more) with an overall shield is OK.

STP(Shield Twisted Pair) may degrade the transmission distance due to interference susceptibility. When you need to prolong UTP, you can use special UY box or jointing to make connection. Video can be sent through a dozen of these connections without significant degradation.

### 2) Can I use RJ11 wire with LLT?

It is feasible. It can cut the wire cost but will disturb image signal and degrade transmission distance and performance.

### 3) Can I use CAT 6 wire with LLT?

Yes. CAT 6 wire is better interference rejection than CAT 5.

### 4) Can I bind UTP with other kinds of wire when installation?

UTP can bind with RJ11 wire, internet wire(CAT5) and coaxial cable, but the power line easily arise interference.

### 5) Can I utilize existing internet wire(CAT5) to transmit image signal?

You can transmit image signal through on of unused a pair of twisted-pair. Generally, a PC uses the first and the second twisted-pair to link to internet. Thus you can utilize the third and the fourth unused twisted-pair to transmit image signal, but these twisted-pairs should not pass through HUB.

### 6) Can I transmit more than multi-chnannels of video signal in a multi-pair wire bundle?

Yes. LLT transceivers can transmute 4ch video signal in the same wire bundle without any interference. LLT transceivers can transmute 1ch video signal, 1ch audio signal, RS-422 ,RS-485 and others control signal in the same wire bundle as well.

## Solve different image interference problem on application

### 1) Tilted veins interference and high frequency interference appear on the image

Please firstly check-up if the camera, housing, monitor and DVR creepage, In addition, make the surface of Video Transceiver connected with terra; And then, check-up if the wire joint points connect well.

### 2) The image become BW form color or the color is too light

If adopt passive+active transferring project, please adjust Video Transceiver SHARPS four DIP switch of receiver. If it is not solved, please change active+active transferring project.

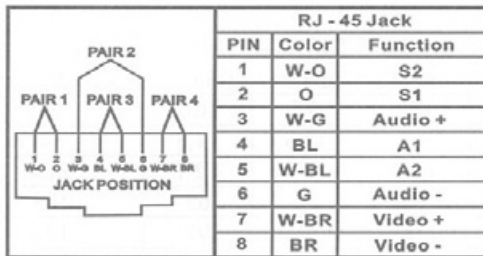
### 3) What is the cause about image twist and wobble when 1ch Video Transceiver transfer ?

If this phenomenon exists during using Video Transceiver to transfer 1ch image, the cause should be line and nip reversal. The method of getting rid of this phenomenon is that exchange twisted-pair in any extremity.

### 4) When transmitting 4ch image in the same bundle CAT5, there is 1ch image norm others image exist a string of image. What should I do?

The unbalance image signal may cause by mistake jack connection.

Please be sure to connect the jack as following instructions.



5) Using multi-active twisted-pair transceiver, the image is too bright and twisted, even there are much much snowflake. What is the cause?

The cause is that signal intensity of every channel is different after use Video Transceiver products. According to user manual, please select passive+passive, passive+active or active+active collocation in the light of actual installation distance. Video Transceiver has multi-segments style compensation and gain inching switch in transmission and receive extremities, so that adapt different transferring distance and adjust image gain and compensation of every channel. If image gain is over great, compensation is over strong, which will cause too bright and twisty image, even included snowflake.



**Conductor DC Resistance(Two Line)**

Distance (ft)	18AWG (ohms)	20AWG (ohms)	22AWG (ohms)	Cat 5 24AWG(ohms)
500	4	6.7	10.7	17.5
700	8.7	13.3	21.3	34
1500	16.9	26.7	42.7	68.4
2000	26	41	65	103
3000	38	61	97	154
4000	51	81	129	205
5000	64	102	161	257
6000	77	122	194	308
7000	89	142	226	359
8000	102	162	258	411
9000	115	183	291	462
11000	134	213	339	539
12000	153	244	387	616

\* Designs and Specifications are subject to change without notice.