

Specifications

Environment:	Private and public broadband CATV, VHF and FM networks.
Devices:	Terrestrial CATV, local channel amplified antennas, DVD players, RF modulators, splitters, cable modems and other broadband video equipment.
Transmission:	Transparent to the user
3dB bandwidth:	5 MHz to 900 MHz.
Video Channels Supported:	CATV 2-142, VHF channels 2-13, FM broadcast band.
Insertion Loss Per Pair:	<9 dB: 5 – 10 MHz <3 dB: 10 – 900 MHz
Return Loss:	>10 dB: 15 – 370 MHz >7 dB: 370 – 770 MHz >10 dB: 770 – 900 MHz
Common Mode Rejection (CMMR):	-20dB or higher at 5 MHz to 900 MHz.
Cable – UTP:	24-AWG or lower solid copper twisted pair. Impedance: 100-120-ohms
Cable – Coax:	Impedance: 75-ohms at 1MHz (RG6)
Connector – Input:	“F” connector – male
Connector - Output:	RJ45 – female
RJ45 Pin Configuration:	RJ45 Pins 7&8.
Maximum distance:	Up to 100m (330ft) via Cat 5 UTP depending on channel frequency and input power. Maximum 100m at CATV Channel 2. May require tilt amplifiers at higher frequencies.
Temperature:	Operating: 0° to 40°C. Storage: -10° to 70°C.
Enclosure:	ABS.
Humidity:	Maximum 95% (non-condensing)
Dimensions:	2.5” x 1” diameter (6.35 x 2.54 cm diameter)
Weight	1.05 oz (30 gms)
Regulatory Approval:	FCC, CE
Warranty:	Lifetime
Order Information	500302 CATV Balun II

MuxLab

Tel.: (514) 905-0588, Fax: (514) 905-0589

Toll Free (North America): (877) 689-5228

E-mail: videoease@muxlab.com

URL: www.muxlab.com

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VideoEase CATV Balun II (500302)

Quick Installation Guide

Overview

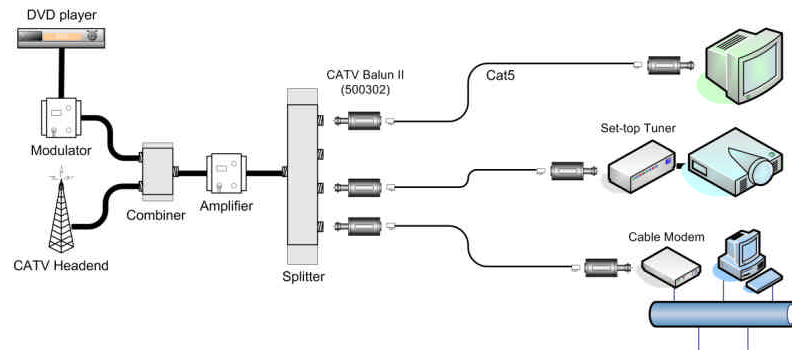
The CATV Balun II allows traditional 75-ohm coaxial cable to be replaced by a single (1) unshielded twisted pair (UTP) of wires in the CATV, VHF and FM environments. Used in pairs, the CATV Balun II allows terrestrial broadband video and Internet equipment to be integrated into a structured cabling system thereby facilitating moves, adds and changes via any convenient modular wall outlet. Typically, the CATV Balun II is installed on the connection between the RF head end and the set-top tuner or cable modem at the receiver end. Applications include; private RF networks, guestroom TV and Internet services, apartments and condominiums. The CATV Balun II is designed for point-to-point connections only.

Installation

In order to install the CATV Balun II, perform the following steps:

1. Verify that the maximum distance between the two (2) CATV baluns is within MuxLab specifications. Please refer to the specification table in this installation guide or contact MuxLab Technical Support.
2. **Caution:** Do not attempt to open the housing. There are no user-serviceable parts inside the CATV Balun II. Opening the unit will void your warranty.
3. Turn off power and disconnect the CATV video equipment by following the manufacturer's instructions.
4. Make certain that modular outlets and cross connects to which you will connect the CATV Balun II are configured properly and labeled appropriately to identify the circuit.
5. **Caution:** Do not connect the CATV Balun II to a telecommunication outlet wired to unrelated equipment. Making such a connection may damage the equipment and/or the balun. Please ensure that all wiring is "straight-through" twisted pair.
6. Verify that the desired twisted pairs are not being used for other LAN or telephony equipment.
7. The CATV Balun II operates in pairs.

8. Connect one CATV Balun II to the RF output at the head-end.
9. **Caution:** Do not mount the balun over equipment ventilation openings. Covering the openings may cause the equipment to overheat.
10. Connect a line cord from the RJ45 modular jack of the CATV Balun II to the horizontal wiring of the building.
11. At the receiver end, connect a CATV Balun II to the set-top tuner or cable modem.
12. Connect a line cord from the RJ45 connector of the CATV Balun II to the appropriate modular video wall outlet.
13. Power on the video equipment. See typical application below.



Troubleshooting

The following table describes some of the symptoms, probable causes and possible solutions in respect to the installation of the CATV Balun II. If you still cannot diagnose the problem, please call MuxLab Customer Technical Support at 877-689-5228 (toll-free in North America) or (+1) 514-905-0588 (International).

Symptom	Probable Causes	Possible Solutions
No video	No continuity in video link	Check cable continuity between baluns.
No video	No power	Check power supplies.
No video	Improper connection Swapped pairs	Check that baluns are connected to correct video inputs and outputs.
Snowy picture	Insufficient signal strength	Increase signal power at head-end using a "tilt" amplifier. Verify cable grade. Use higher grade cable if necessary.
Over bright image	Signal strength too high	Attenuate signal by reducing amplifier gain or by inserting a signal attenuator in the link.

Application Tips

In a point-to-point scenario for CATV (superband and hyperband), VHF and FM, cable lengths of up to 45 meters may be achieved without amplification if the nominal input is about 15dBm. In some applications, a tilt amplifier may be required since the UTP losses are higher than coax at the higher frequencies. Linear gain compensation of up to 20-25dB at 750MHz is usually adequate. Conversely, if amplification is used to compensate for losses at higher frequencies and long distances, it may be necessary to attenuate the lower frequency, shorter distance signals to avoid over-driving the TV monitors. The CATV Balun II may be used in conjunction with tilt/gain amplifiers, CATV splitters and splitters with built-in amplifiers. The following are some helpful guidelines when planning your cabling:

1. Try for 10dBmv of signal level at each television channel. Use a little more for big screen TVs. Measure the signal level at the high and low end of the spectrum to determine whether a tilt amplifier is needed.
2. When laying out your system, there will be approximately 5dB of signal loss per 100' of RG6-coaxial cable.
3. Please ensure all splitters and amplifiers are broadband. For UTP installations, splitters should have 5 MHz to 900 MHz bandwidth with a bi-directional filter at 5 to 50 MHz.
4. Check and make sure that all televisions are set up for the proper frequency spectrum (i.e. UHF or cable).
5. If extra channels are available, allow 1 to 2 channels spacing between "modulated" and "active" channels.
6. Always compensate for insertion loss with a good amplifier. There will always be a drop in signal strength when combining a modulator to an existing system due to insertion loss from the combiner.
7. When combining an existing signal with a modulated signal, make sure to have equal signal strength at the point of the combiner so one signal does not degrade the other.
8. When possible, use the lowest frequencies available for the modulated channels. Lower frequency channels have lower signal loss on the cable runs.
9. When in doubt, run the signal a little high to the television and use an attenuator to lower the signal strength going into the TV. Attenuators may be combined (i.e. two -3dB attenuators will = -6dB).
10. Combine the modulator into the video distribution system as far "up-stream" as possible.
11. If the system needs to be amplified, use the amplifier as far "up-stream" as possible. For example, place one amplifier at the head end and one tilt amplifier in each wiring closet where the baluns are located.