



User Manual

Code: VHD-15

REPEATER **VHD-15** AHD, HD-CVI, HD-TVI SIGNAL AMPLIFIER DELTA

Warning!

Please read the user manual included in this work as it contains important information related with safety of installation and use of the device.

Only persons who read the user manual may use the device.

The user manual must be kept because it may be required in the future. The device is to be used exclusively for purposes specified in this user manual.

The device must be unpacked prior to starting-up. After removing the packaging make sure the device is in working order.

If the product has defects, it should not be used until it is repaired.

The product is intended for use at home and commercial use and may not be used for other than intended use.

The manufacturer is not liable for damages resulting from not adhering to the rules contained in the user manual, therefore, we recommend to follow the aforementioned safety rules for operation and maintenance of the device. In this way you will ensure yourself safety and avoid causing damage to the device.

The manufacturer and the supplier are not liable for losses or damages arising out of the product, including financial or intangible losses, loss of profits, income, data, pleasure from use of the product or other products related with it - indirect, incidental or consequential loss or damage. The above provisions apply whether the loss or damage concerns:

1. Deterioration of quality or the lack of operation of the products or products related with it due to damage as well as the lack of access to the product when it is undergoing repair, which results in stoppage the loss of user's time or a break in business activity;
2. Improper results of operation of the product or products related with it;
3. It applies to losses and damages according to any legal category, including negligence and other losses, termination of a contract, expressed or implied guarantee and strict liability (even if the manufacturer or the supplier was notified about the possibility of occurrence of such damages).

Safety measures:

Particular attention at designing was directed to quality standards of the device where ensuring safety of operation is the most important factor.

The device must be secured against contact with caustic, staining and viscous fluids.

The device was designed in such a way that it restarts operation when power supply is restored after a break.

Attention! We recommend using protections to further protect the device from possible overvoltages in installations. Surge protectors are effective protection against accidental pass to the device voltages higher than the rated. Damages caused by pass the voltages higher than specified in manual, are not under warranty.

Turn off the device before transporting it.

Prior to connecting the device to a power source check whether the supplied voltage is consistent with rated voltage specified in the user manual.

Proper product disposal:

A marking of a crossed out waste bin indicates that the product may not be disposed together with other household waste in the entire EU. To avoid possible damage to the natural environment of health due to uncontrolled waste disposal, therefore, it should be handed over for recycling, propagating in this way sustainable use of natural resources.

To return a worn-out product, use a collection and disposal system of this type of equipment or contact a seller from whom it was purchased. He will then be recycled in an environmentally-friendly way.

The VHD-15 repeater is designed to amplification of the video signal transmitted via twisted-pair cable or coaxial cable, what enables high resolution video transmission of (AHD, HD-CVI, HD-TVI) signals for long distance.

A single repeater allows to correct attenuation of approx. 150 m UTP cable and approx. 300 m - 500 m coaxial cable (depending on the type of cable used). The using of single repeater ensures good quality of image for twisted-pair cable at a distance up to 300 m. At a distance up to 450 m two repeaters are required, and at a distance up to 600 m you should use three repeaters. For coaxial cable, depending on type, these distances will be correspondingly longer.



| | |
|-------------------------------------|---|
| Standard: | <ul style="list-style-type: none"> • AHD - 5 Mpx, 12 fps, • HD-CVI - 1080p, 25 fps, • HD-TVI - 5 Mpx, 12 fps, • CVBS - PAL / NTSC |
| Device type: | Active |
| The ability of signal regeneration: | 150 m - Twisted-pair cable , 300 m - RG59 , 500 m - Triset113 |
| Power supply: | <ul style="list-style-type: none"> • 8 V ... 24 V DC (power adapter not included) • The possibility of remote powering through the unused pairs of twisted-pair cable |
| Current consumption: | < 50 mA |
| Coaxial socket impedance: | 75 Ω |
| Symmetrical socket impedance: | 100 Ω |
| Number of inputs: | 1 |
| Number of outputs: | 1 |
| Coaxial socket type: | BNC socket |
| Symmetrical socket type: | terminals |
| Weight: | 0.080 kg |
| Dimensions: | 103 x 62 x 29 mm |
| Manufacturer / Brand: | DELTA |
| Guarantee: | 3 years |

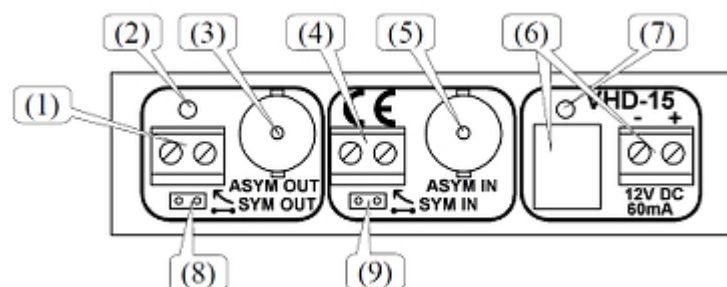
Front panel:



Top view:



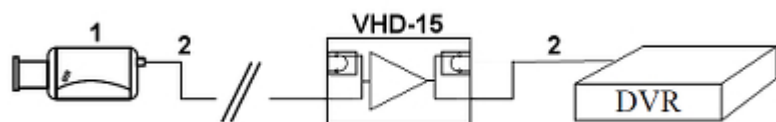
Front panel description:



1. Symmetrical output (UTP)
2. Video signal indicator
3. Asymmetrical output (COAX)
4. Symmetrical input (UTP)
5. Asymmetrical input (COAX)
6. Power supply
7. Power indicator
8. Output transformer switch
9. Input transformer switch

Configuration with application of a single repeater:

Example configuration with application of a single repeater and coaxial cable:



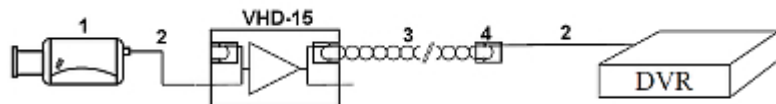
1. Camera
2. Coaxial cable

The most preferred configuration for reasons of noise. Repeater at a distance of approx. 50% - 70% of the cable length:



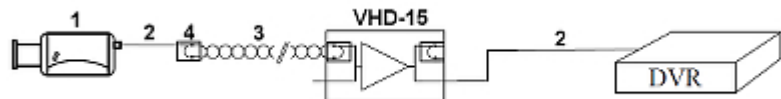
1. Camera
2. Coaxial cable
3. Video Balun
4. Twisted-pair cable

The risk of overdriving of the repeater by a strong signal from the close placed camera. The discoloration may be visible:



1. Camera
2. Coaxial cable
3. Twisted-pair cable
4. Video Balun

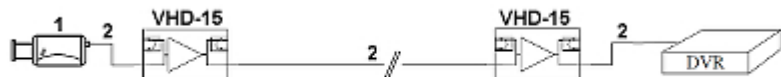
Due to the amplification of heavily suppressed signal obtained worst signal-to-noise ratio:



1. Camera
2. Coaxial cable
3. Twisted-pair cable
4. Video Balun

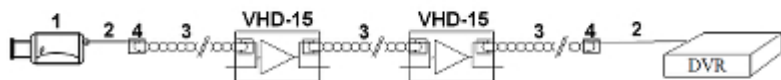
Configurations with application of two repeaters. The performed tests show that the maximum distance segments connecting device for twisted pair cable should not exceed 300 m due to deteriorating the signal-to-noise ratio. For a coaxial cable, this distance is approx. 600 m ... 1000 m depending on cable type:

Example configuration with application of two repeaters and coaxial cable:



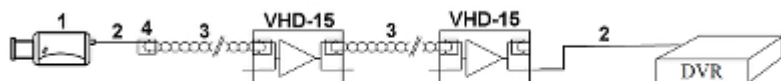
1. Camera
2. Coaxial cable

For best results, place the devices at similar distances from each other:



1. Camera
2. Coaxial cable
3. Twisted-pair cable
4. Video Balun

Signal amplification in the end results in a worse signal-to-noise ratio, because the amplified signal is strongly suppressed:



1. Camera
2. Coaxial cable
3. Twisted-pair cable

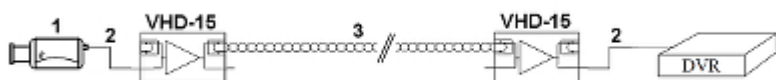
4. Video Balun

Increasing the distance between the devices causes a worse signal-to-noise ratio and increases the risk of distortion of the repeater:



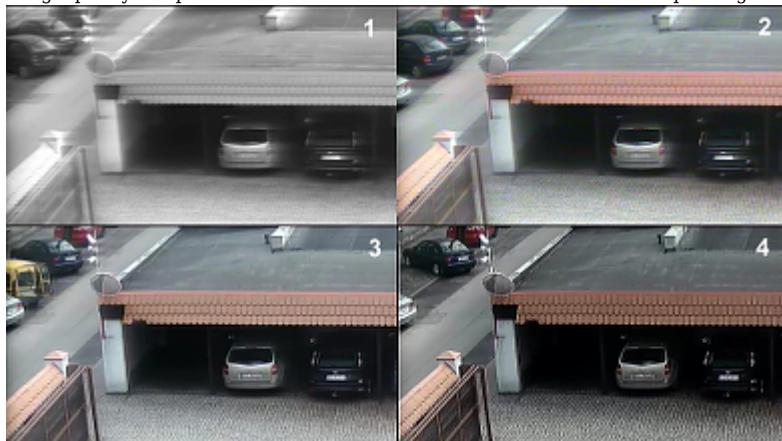
1. Camera
2. Coaxial cable
3. Twisted-pair cable
4. Video Balun

The least recommended configuration (although the easiest to do); large distance between the devices results in a low signal-to-noise ratio and a repeater placed close to the camera increases the risk of overdriving:



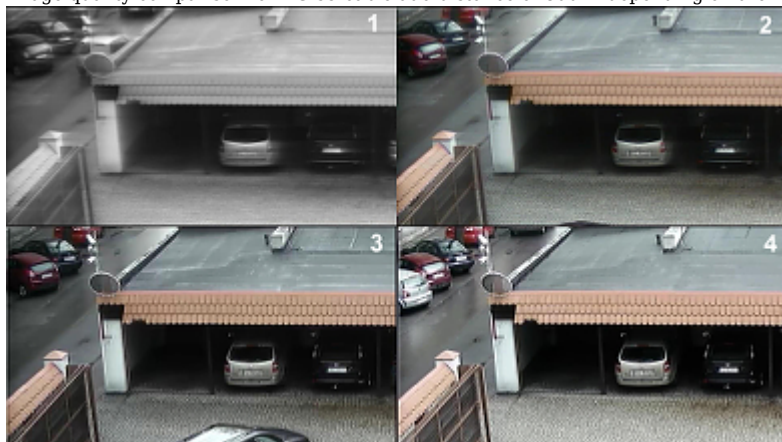
1. Camera
2. Coaxial cable
3. Twisted-pair cable

Image quality comparison for cat. 5e UTP cable at a distance of 500m depending on the number of repeaters used:



- 1) Image without the repeater
- 2) 1 x VHD-15
- 3) 2 x VHD-15
- 4) 3 x VHD-15

Image quality comparison for RG-59 cable at a distance of 800 m depending on the number of repeaters used:



- 1) Image without the repeater
- 2) 1 x VHD-15

3) 2 x VHD-15

4) 3 x VHD-15

Image quality comparison for Triset-113 cable at a distance of 1100 m depending on the number of repeaters used:



1) Image without the repeater

2) 1 x VHD-15

3) 2 x VHD-15

Connection method of the VHD-15 with video transformers:



PACKAGE

| | |
|----------------------------------|--------------------|
| Dimensions (L x W x H): 0x0x0 mm | Gross Weight: 0 kg |
|----------------------------------|--------------------|