Operating Manual – VideoMitter.com

VideoMitter®

Wireless Analogue Video Transceivers!

 Wireless Video Transmission with no cables

✓ Digital Data Transmission for cleaner, sharper images

 Privacy Pairing Function keeps TX data private for GDPR compliance

Whisper Mode
 "listens" for data in low power mode

 Power Pass-through camera & TX can share 1 PSU

Mini Size Both RX & TX just H80 x W40mm with no antenna

Digital, Reliable Transmission, up to 1Km!*

Typical Installation

Order Code:

IMINIMITS

Link

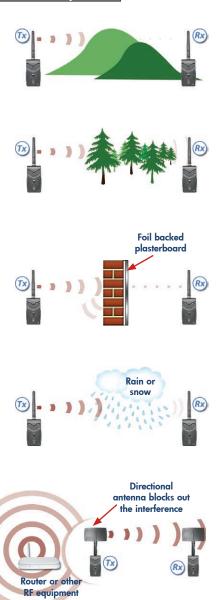


Email: support@videomitter.com Web: v

Things the professionals know!

Tip

- different sites will affect the range.



1. Microwave signals will not go through hills. The density of the hill and water it contains in the soil absorbs the signal.

 Microwave signals will go through branches of trees but remember that they will be attenuated greatly by water. Vegetation is full of water so fit the best directional antennas and/or avoid the trees.

3. In modern buildings sometimes the structure is lined with "FOIL". This can reflect or "ground" the wireless signal. Avoid transmitting through such "shields". If wiring is not an option then try mounting the receiver unit on the exterior of a building in an ABS box.

4. Remember if you are installing on a day when the weather is good the signal will be good. However, when it is raining heavily microwave signals will be absorbed by the rain and reduce the distance it travels. Always keep the distance to a minimum and allow for the use of additional directional antennas.

5. On some sites you may have other RF equipment that can interfere with the transmission unit. The best solution for a site like this is fitting directional antennas as they help "block" out the interference.

Things the professionals know!

Tip

- getting maximum performance when fitting multiple pairs of VideoMitters on the same site.

When you are fitting multiple pairs of VideoMitters on the same site, it's really important to have some knowledge of good installation practice of wireless devices.

When you are installing any transmission device, it's always good practice to keep it a reasonable distance away from another transmission devices. This is because the signal from one could overwhelm the other leading to poor performance of one or both devices. Poor performance may result in intermittent loss of signal or non operation.

The VideoMitters are actually "transceivers" this means that the "transmitters" and the "receivers" BOTH transmit and means you also need to keep pairs of receivers a reasonable distance from each other.

The standard antenna that the VideoMitters are supplied with is called an "Omni-directional" antenna, this means it transmits in "all" directions. So when two transmitters are close to each other they will be transmitting signals at each other as well as the receiver which is why you need to keep them spaced apart, spacing of 1-2 metres is required between each transmitting device.

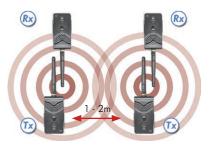
Professional installers of wireless equipment would always use "directional" antennas so that one transmitter is aiming its signal directly at its own receiver and therefore the signal is far less likely to interfere with another transmitter located near it.

So on sites with multiple pairs of video transmitters, it is always recommended to use directional antennas for a professional installation.

The added benefit of the directional antennas is that they will also add increased range making the whole system more reliable.

Tip

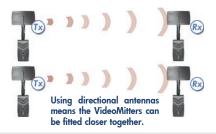
The VideoMitter has 20 channels so theoretically 20 pairs can be used per site however it is only recommended to use 4 pairs per site to minimise any chance of cross interference.



Two transmitters close together with omni directional antennas, the signal from each can overwhelm each other. Try keeping them at least 1-2 metres apart.



Adding directional antennas means the transmitters next to each other don't overwhelm each other with erroneous transmission.



Read these instructions before using the MINIMITS as they contain vital information...

Connections - TX/RX

Although identical in appearance each unit is clearly marked on the face as:

- TX Transmitter
- RX Receiver





The **Receiver** unit has the following connections



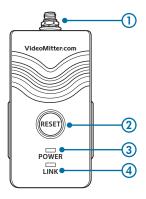
- 1. 2.1mm 12V D.C. power in connection
- 2. Video out connection via a BNC Lead

The **Transmitter** unit has the following connections



- 1. 2.1mm 12V D.C. power in connection
- 2.1mm 12V D.C. power out connection for power pass-through so camera and TX can share 1 PSU
- 3. Video in connection via a BNC Lead

Both units have the following:



- Antenna Connection (RP SMA Male Socket) connects to extension cables or direct connection antenna models
- 2. Reset Button
- Red Power Indicator LED
- 4. Green Link Indicator LED

Connecting the Video

Transmitter



Receiver



Connect the video input feed to the video BNC socket (1) on the Transmitter.

Connect the video output feed to the BNC socket marked (2) on the Receiver.

Powering the Units



Both the transmitter and receiver require a power supply unit (PSU). The PSU for the receiver and transmitter needs to be capable of supplying 12V D.C. @ 190mA continuously. Please keep this in mind if you are intending to share a PSU for both the TX unit and your chosen CCTV camera. When choosing any PSU for CCTV equipment ensure that it is fully regulated or you risk damaging the CCTV equipment. A good quality supply such as the "AntiHum" POW803 featured on page 14 is ideal.

Powering your Camera



To power your camera via power pass-through connect the power out cable (1) on the transmitter to your camera's power in female lead.



Pairing Receiver with Transmitter

For security purposes and to ensure that transmissions are only shared by the receiver connected, the transmitter is paired with the receiver. This is done automatically by randomly setting the same ID in both units from an extensive ID range. Note that when purchasing a transmitter and receiver they are already paired and it is unlikely that you will need to rerun the pairing process. However if one of the units is replaced or taken to another site, it will be necessary to do this. This is a simple process that will take only a few minutes.



Checking if the units are paired

- 1. Set the units up at least 2 feet apart.
- Connect a 12V DC regulated power supply to the Transmitter.
- Connect a 12V DC regulated power supply to the Receiver. The red Power LED will light.
- After 4 seconds, on both units, the Link LEDs will light permanently if the units are paired. (figure 1)
- If the Link LEDs are not lit then the units are not paired, then follow the instructions on the next page.

How to Pair Units

1. First ensure that a monitor is connected to the RX Receiver and a video feed to the TX Transmitter. Press the RESET button down for 3 seconds on the RX Receiver. The Link LED will start flashing.



5. In the event that no signal is displayed after the pairing process, this means that the transmitter and receiver have failed to pair within the countdown period **R**



countdown period. Return to step 1.

2. A countdown on the monitor then gives you 30 seconds to press the pairing button on the **TRANSMITTER**. Hold the button down until the led starts flashing.



6. If no video signal is displayed, check that a video source is connected to the transmitter.



3. When pairing is complete the monitor will display

Pair OK



✓ If both Transmitter and Receiver Link LEDs are lit permanently, the units are paired.

If the link LEDs are not both lit, then start the pairing procedure again. If you press only one pairing button on units that are already paired, you do not lose the pairing. After 30 seconds it will be paired with its original unit.

4. When the transmitter and receiver are successfully paired the monitor will display the camera picture and in the top left hand corner



of the display screen a signal strength bar will show up to 4 bars.

Only one Transmitter and one Receiver

The pairing process effectively works with only one transmitter and one receiver. It will not allow two or more receivers to pair with the same transmitters. If this is



attempted, the following is displayed on the monitor connected to the receiver that is not paired. Note that the pairing process pairs the transmitter and receiver for security purposes, so that only the data transmitted is seen by the paired receiver. It does not determine the channel used.

Installation Procedure

The transmitter and receiver will give the best results if there is line of sight between them. Obstructions will affect transmissions if the digital signal is corrupted, but provided the receiver sees the digital signal you will always get excellent quality results similar to the picture quality generated by the camera. With digital, it will always be a good picture or nothing. It is therefore advisable to mount the transmitter and receiver at an adequate height to avoid vehicles and people.

If using several transmitters in the same location try to keep them 1 metre or more apart. Also it is good practice to fit directional antennas where multiple pairs are used.

This also applies to the "receivers" try and also keep them 1 metre apart.

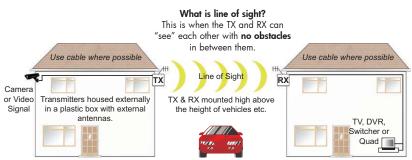
The units have wall mount fixing lugs for internal installation but for external applications, they must be installed in a suitable IP rated plastic enclosure. Do not use metal enclosures. If fitting the Transmitter or Receiver in an enclosure it is not necessary to make a hole in the plastic enclosure if it is large enough to house the complete unit including the antenna. If not, it is not recommended to have the antenna protruding from a hole in the top of the enclosure unless a watertight seal can be made between the antenna and box. It is therefore recommended to mount the unit so that any hole cut for the antenna is made in the base of the enclosure and a good silicon seal made to protect from water/moisture (**figure 2**).



figure 2

In some instances where you can not achieve a clear line of sight, you may need to fit a more powerful antenna than those supplied free with the kit. A range of both internal and external models are available and shown later in this manual. Whilst different models are available to suit different installations, please note the same model of antenna must be fitted at both TX & RX ends.

Once connected, the RX unit will overlay a signal strength bar on the transmitted picture. This is a useful indicator if you will be inputting the transmitted signal to a device other than a monitor as whilst a monitor will display a signal strength as low as 0.7V p-p, devices such as DVRs, quads and switchers require a stronger signal of 1V p-p to display an image.



The TX is mounted in an external weatherproof box and only has to send its signal "line of sight" through air. There is little to attenuate the signal and good results should be achieved. The external antenna in the receiver helps "pull-in" the signal from the transmitter.

Our Recommended System Design...

The diagram below shows how three sets of VideoMitters can provide a wirefree connection to another piece of equipment. It is recommended up to 4 pairs per site can be utilised providing superior digital image quality from that of analogue transmission equipment. Whilst transmission distances can be affected due to the building construction, extra video gain can be produced using an improved antenna detailed later in these instructions. As previously stated ensure the groups of receivers and the groups of transmitters are installed at least 1 metre apart.



Installation Tips

When using the units externally, a line of sight will always achieve the best results. Line of sight means the units can visibly see each other without any obstructions. Remember whatever is in the way of the line of sight between the two units will attenuate the signal. A building, people, hills or a mound of earth for example will reduce the overall range at which a good picture quality is attainable. You can often get good or near lines of sight, by taking your power and video signals to the ends of facing buildings using cabling and then transmitting between the two buildings (rather than through them) using the TX & RX. If you are going to put the units in external enclosures make sure the enclosures are the plastic/ABS type, as these will allow the radiated signal to pass through them. Better still, put the transmitter and receiver in the box and put an external antenna outside the box. Whatever you do you must not put the receiving or transmitting antenna in a metallic box as this will adversely affect the products and their performance.

This also means that you must not put either device in a metallic CCTV housing.

Mount the units at a reasonable height. If you mount both units at over 2.5 metres indoors, people walking around will not get in the line of sight of the two units and attenuate the signal.

Similarly when using the units externally, mount them above the height of any passing cars and lorries, which could drastically attenuate the signal.

Note that metal objects can completely screen a wireless signal, so avoid metal gates and do not install in a metal cage such as a lorry or lift, unless you are able to position an extension antenna on the outside. Also be aware that the closer an obstacle to the transmitter, the weaker the signal will be.

Therefore it is not advisable to place the transmitter directly behind a wall. Whilst the VideoMitter may work indoors through walls and office constructions, there are no easy ways of confirming this, so use the signal strength bar and attach a pair of antenna to improve transmission quality if necessary. Ensure that if fitting multiple transmitters and receivers, that the transmitters are more than 1m apart.

General Information

The VideoMitter transmitter and receiver are a new generation of digital equipment, that convert an analogue signal to digital format and transmit it to the receiver wirelessly, where the receiver decodes the video back into an analogue output. The analogue output can then be taken to the DVR or monitor.

The advantage of using digital is that you get 100% interference free video quality. As digital signals are binary codes of 1's and 0's, providing the video signal can be detected, you should be able to get a high quality, interference free video signal.

These transmitters work over the 2.4Ghz band and are paired to a receiver to provide security and signal quality. The pairing selects a random ID code from an extensive ID range and is shared only by the transmitter and receiver pair. Therefore the wireless video signal cannot be received by any receiver other than its own. It should therefore only be necessary to rerun the pairing procedure if either the transmitter or receiver has to be replaced.

Unlike analogue transmitters, the VideoMitter has no dipswitches for selecting transmission bands in the 2.4GHz range. It uses an automatic channel hopping feature to select a clear usable channel and this channel may change frequently dependent on the traffic detected on the channel band. Therefore spurious use by other equipment e.g. WiFi, will trigger the unit to search for another available channel seamlessly. The channel hopping facility also allows a number of paired VideoMitters to be installed at the same location. The total number of channels that can operate at one site is a maximum of 20. Note that this number is dependent on other traffic density so the number may be less.

Always ensure that the transmitter and receiver have line of sight. Any obstacles will have an effect on the video signal. Line of sight means that there are no materials between the transmitter and receiver, only air. Placing units behind glass is not line of sight. Metal can completely block a transmission, whereas non-metallic obstacles will introduce a certain amount of signal attenuation. Providing this attenuation does not corrupt the digital transmission, the results should always be very good. Note that dense material close to the transmitter will have the greatest effect.

Increasing signal gain can be accomplished by fitting an improved antenna. These are described in more detail, later in this instruction manual. Without line of sight, no guarantee can be given on transmission distance.

Troubleshooting



Q.1 I cannot pair the Transmitter and Receiver. I keep getting a "No Video Signal" displayed.

A.1 If no video signal is displayed but the Link LEDs are permanently lit on both the Transmitter and Receiver, the units are paired. The No Video Signal is displayed if the units are setup without a video input. Ensure a video or camera signal is connected to the TX input.

Q.2 I am getting No Video Signal or the video stream is very slow.

A.2 If the distance is within range but you do not have line of sight, then the problem may be due to obstacles screening the video signal. Metal is the main substance that can completely screen a wireless signal, therefore avoid completely metal constructions. Metal gates, plasterboard lined with aluminium sheeting, metal cages or vehicle cabs or lorries etc. can also screen the video signal. As the VideoMitter pack will either provide good video quality or nothing at all, you can either move the equipment to provide line of sight, use an external antenna and extension lead that will allow line of sight or you can try a more powerful antenna. You will find that thick brick or stone wall constructions will reduce signal strength and the closer they are to the transmitter the greater their effect.

Q.3 In order to reduce costs, can one pair be used to transmit the output from a DVR that has 16 cameras connected to it?

A.3 Yes this will transmit whatever the DVR is outputting on the CVBS Spot Output.

Troubleshooting

Q.4 No power light on the Transmitter or Receiver.

A.4 This could mean that there is no power to the Transmitter or Receiver. Check that the power light comes on when power is applied. Check the same at the transmitter.

Symptom	Power light	Link light	Reason
No Video Signal	OFF	OFF	No Power
No Video Signal	ON	OFF	Not Paired
Slow or Static Image	ON	ON	Poor Signal Strength

Tip

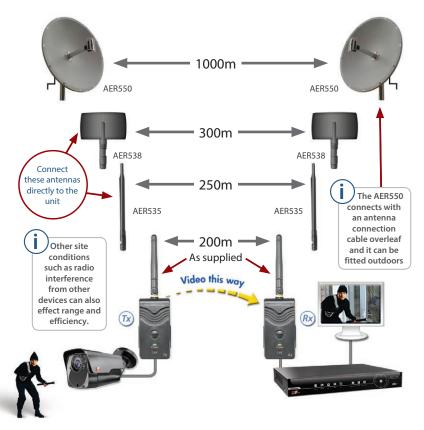
Remember, different sites will produce different results.

Microwave signals are reflected by metallic objects and also absorbed by water, that's how microwave ovens work, they heat the water in the food to make it hot and the metal casing of the oven keeps the microwave signal inside!

This means anything on a site that contains water can reduce the signal and transmission distance, similarly metal can reflect or block the signal. Where the signal has been reduced and the VideoMitters performance affected you will need to use additional antennas to help "boost" the range. Directional antennas always work best.

To solve installation problems you need to read these instructions from cover to cover and apply the advice contained within them.

Get up to 1KM "Line of sight" range by adding extra antennas..



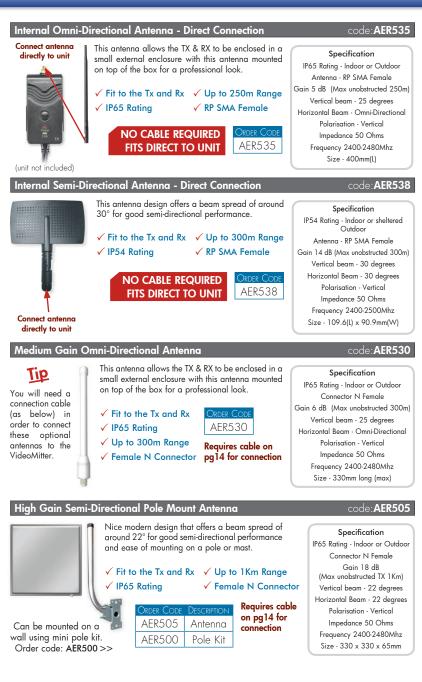
*Line of sight means no physical obstacles and the antennas can actually see each other.

Replacement Antennas

The antennas that are supplied with the transceivers are specified to work up to 200 metres with line of sight. If you need to extend this range up to 1 km, or if you do not have line of sight, then you can try a set of antennas from our omni-directional or semi-directional antenna range.

Available models for both internal & external applications.

The next pages show antennas available for both internal and external use as well as other appropriate accessories.



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VideoMitter[™] Accessories/Spares

High Gain Dir	a focussed direction an attractive com 440mm diameter. Dia ✓ Fit to the Tx 440mm ✓ IP65 Rating f External use Small Diameter!	olic dish antenna provide: nal signal. Aluminium build ir pact design measuring only and Rx ✓ Up to 1Km Range	IP65	Sper 5 Rating - Connec Gair Max unob Vertical Be vizontal B vizontal B vizont	code: AER550 cification Indoor or Outdoor tor N Female n 18.5 dB structed TX 1Km) am - 21 degrees ser - 21 degrees fertical or Horizontal nce 50 Ohms 2400-2483Mhz Diameter lepth 360 mm
	RP SMA FEMALE Fit to the VideoMitter N MALE Fit to the antenna	Extension cables to connect the Tx and Rx to the external antenna above. ✓ Fit to the Tx and Rx ✓ 4 Available Lengths	(00) (00) (00)	CODE 1902 1910 1912 1915	DESCRIPTION 0.2m Long 1m Long 2m Long 5m Long
Spare 12V Po	High quality low of PSU 1.5A 12V D use with VideoMitt	C, ideal to ters. and Rx plus 1 PSU ad		Boxen fitting Rx e IP65 ABS b (158 p	externally, rated comes in ivory
POW	MINIMITS RX & T) draws 190mA	BO) litters Order Code	(415	✓ Ivo Desc	ry ABS Build



Order Code	Description		
CON006	BNC to Phono Converter		

VoiceOFF MK3

D

Now with RS485 Input triggers up (Vacion) to **9999** sounds!!



nlus **10** alarm inputs trigger 10 user recordable warnings!

The new VoiceOff MK3 is an alarm activated voice or sound warning unit that has 10 separate alarm inputs to trigger up to 10 different sound recording files and with the new added feature of an RS485 input can trigger up to 9999 sounds!!!

at obje Alarm activations can be triggered from an internal or external PIR, break beam detectors, panic button, key fob or from a DVR detecting video motion in a camera's footage.

detected!!" Voice warning messages can be downloaded or recorded yourself in a MP3 format onto a removable

VOX300 VoiceOff Unit

This is

a hard hat area!"

> micro SD card stored in the VoiceOff unit and used to deter intruders or even welcome visitors. Similarly sound files such as a police siren or dog barking can be used to deter unwanted visitors in vulnerable areas.

. Welco

"Warning!

intruder

to our

When used in conjunction with the alienDVR range, the VoiceOff can be activated remotely over the internet when a suspicious sighting has been made.

Specification 10 x Alarm Inputs Speaker output 8W 80 ohms Micro SD card compatible (supplied) MP3 file compatible 8-18V AC/ DC 12V DC 120mA Standby 200mA max (depending on volume) Wall Mounting Fixing Lugs Ivory ABS Housing, Rated IP65 Max Size: H234 x W188 x D85 (inc. gland/speaker)

Features

- Accepts up to 10 alarm inputs
- Powerful 10 Watt Output
- ✓ Voice & sound files stored on a removable micro SD card
- Can be activated automatically using alarm inputs
- Can be used as a talkback amp with DVRs

Use the VoiceOff for...

vandals



NFORM

must be worr

in this area

Inform in risk

areas

✓ RS485 or RS232 connection to PC or DVR



oves Garde

WARN

detected, CCTV

system recording

Warning off

intruders



visit: www.VideoMitter.com

Or scan the ar code with your phone to take you to the website!



Technical Specification

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Model	MINIMIT - TX	MINIMIT - RX		
Operating Frequency	2.400GHz - 2.4835GHz			
Transmission Channels	20 (recommended maximum 4 pairs per site)			
Operational Range	Up to 200 metres line of sight with antenna supplied			
Channel Hopping	FHSS employed to frequently switch channels			
Transmission Options	Video			
ID Pairing	TX and RX are paired with a random ID code			
Power	1 2v DC			
Current Drawn	190mA			
Power Supply Recommended	12v DC 500mA regulated per unit			
Video Connections	BNC Output x 1	BNC Output x 1		
Antenna Connection	RP SMA Female			
Unit Size Overall	(H) 80mm x (W) 40mm x (D) 18mm			



WEE/CG0783SS

This symbol on the products and/or accompanying documents means that used electronic equipment must not be mixed with general household waste. For treatment, recovery and recycling please return this unit to your trade supplier or local designated collection point as defined by your local council.

Licence Exempt - EN300440 Short range digital data transmission using frequency hopping modulation.

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