VSS NEDERLAND
VIDEO SYSTEMS

CAM-Analog2.0
CVI/TVI/AHD
User manual

ver. 1.1

Wireless signal transmission kit for analog CVI, TVI and AHD CCTV cameras with resolution up to 2Mpix

camSAT

VSS Nederland B.V. | Zwolle | T.038 - 428 9 420 | info@vssnederland.nl | www.vssnederland.nl

Thank you for choosing our product. We are sure that you will appreciate its unique features. Please read the manual to ensure safe use and enable maximum performance.

Table of contents

1. Safety and maintenance tips.

In order to safely use our device, you should read and observe the tips contained in this instruction manual.

> The devices do not need additional maintenance actions. We recommend placing them on reliable construction and lying cables in that way to avoid accidental damage and to avoid entering water into the device.

This device has been designed and manufactured with the utmost care for the safety of its installers and users. For safety reason, observe all the guidelines in this manual and peripheral devices' manuals, such as the PC,IP camera, NVR recorder. Before installing the devices, carefully read the entire instruction manual.
Ensure safe working conditions. The user's own modifications of the device will prevent its legal use and render the warranty null and void. The devices have passed through the mandatory compliance assessment and its basic requirements in the European New Approach Directives. The product is CE-marked.

The device is suitable for use in the European Union and beyond. It is necessary to comply with laws and regulations of the country. The device can work with power and on the frequencies forbidden in some countries.

It is necessary to comply with current norms and safety standards in current location and on current site. Both user and installer are obliged to check the current norms and conditions of specific installation every time. In case non-compliance of norms with current safety requirements please refrain from installing the devices.

2. R&TTE declaration of conformity

This device meets requirements of the European directive on radio equipment, telecommunication terminals as well as on their mutual identification and compatibility (Directive 1999/5/CE of the European Parliament and the Council of Europe, march 1999, on radio equipment and telecommunication terminal equipment and the mutual recognition of their conformity).

CAM-Analog2.0 is compliant with provisions related to the safety in using electrical devices. Observe the following guidelines:

- the power outlet must be grounded in compliance with applicable provisions,
- before transferring the device or performing any other technical operations, disconnect the power supply,
- do not use any damaged or worn power supply cables, as the pose a threat to the user's safety,
- installation works must be performed by sufficiently qualified technicians,
- do not use the device on locations where flammable substances are kept,
- secure the device so that children or unauthorized persons should not have access to it, make certain that the device has been reliably mounted,
- the device is off only after disconnecting its power supply cables and the cables between it and other devices,
- if the device is transferred to a room where the temperature is higher than where it has been previously kept, water vapour may condensate inside its casing which will prevent its proper use (wait until the condensed water evaporates).

Distances and interferences

1. The transmission distance may vary, depending on the frequency, environment, radio waves, buildings, weather conditions, etc.
2. When the transmitter is near such equipment as the TV set, R-LAN wireless network, another transmitter, or when it is placed between other radio devices, then the video stream may be interrupted or the devices might even lose the connection. If this occurs, increase the distance between the interrupted devices and the transmitter.
3. The signal reception may vary, depending on the transmitter's working height and angle. If the signal reception is not stable, optimise the antenna settings.
4. Meteorological radars operating withing the frequency ranges of 5.250-5.350MHz and 5.650-5.850MHz have the highest priority. These radars can interrupt the device operation or prevent it entirely.

Warning

The antennas used for transmission from this transmitter must be installed according to the instruction manual and they must be placed at least 30cm from all persons. The transmitter is not compatible with another antenna nor transmitter.

3. Basic information

The kit is intended for wireless transmission of an HD-TVI, HD-CVI and AHD signal through a radio link in the ISM 5.8GHz band. It supports 2 channels in the CE frequencies ranging from 5725MHz and 5825MHz, and additional 4 channels in the frequencies from 5200MHz to 5875MHZ intended for operation in some non-EU countries.

The system enables camera image transmission in the following standards:

- HD-TVI 2.0Mpix (1080p and below)
- HD-CVI 2Mpix (1080p and below)
- AHD 2.0 Mpix (1080p and below)
- CVBS in the PAL/NTSC standard.

The system has surge protectors and anti-interference protection built-in. It guarantees input socket protected from damage and interference through wires.

Transmitter has:

- BNC 75ohm video input for cameras' signal
- DC power socket
- DIPswitch for setting up channels and working parameters

Receiver has:

- BNC 75ohm video output for camera's signal
- DC power socket
- DIPswitch for setting up channels and working parameters

a) Package contents:

- Transmitter video/audio with built-in directional antenna
- Receiver video/audio with built-in directional antenna
- U-bolt or zip ties
- User manual

b) Technical parameters:

Video standard	TVI (TurboHD, Hikvision), CVI (Dahua, BCS) AHD; Resulution up to 2Mpix
Range	over 500 m
CE Frequencies / Frequencies for some non-UE countries	from 5725 MHz to 5875 MHz / from 5200 MHz to 5875 MHz
Width of the working channel	20 / 40Mhz
Number of working channels: all/CE UE	6 / 2
Transmitting power	25 mW (14 dBm) maximal power permitted in the EU (CE)
Antenna	Built-in directional antenna, with working angle 45°
Audio	No
OSD controls	No
Video	BNC 1Vp-p (75 Ω)
Receiver sensitivity	-85 dBm
Modulation	Analog FM
Power supply	Transmitter: 9-16V DC / 800mA Receiver: 9-16V DC / 500mA
Mounting	Zip ties or u-bolt
Working temperature	-20°C ÷ 55°C
Dimensions	Tx: 152x105x60 [mm], Rx: 164x164x80 [mm]
Use	Outdoor IP66
Guarantee	2 years
Norms compliance	CE, RoHS

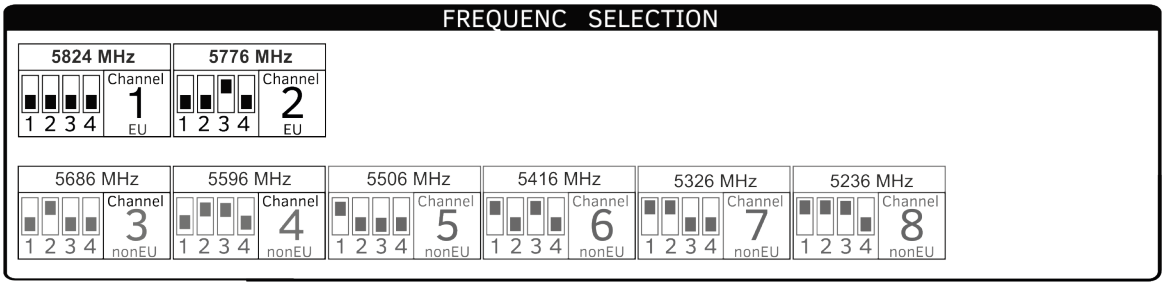
4. First start

a) Before you begin

- Before you proceed to install the unit on the mast you need to:
  - check if the device has not been damaged during transport,
  - select the right location for installation to ensure full line of sight of the antennas; materials and obstructions such as glass, a tree or walls cause significant attenuation of the signal and transmission interference,
  - it is recommended to install the device 3 meters above the highest obstruction in the transmission route;
  - receiver and transmitter should be installed at long distance from other radio devices; the recommended minimal distance is 6m,
  - check the channel settings (dipswitch CHANNEL): transmitter and receiver must be set to the same channel; if the settings are not the same, please select them as specified in the table below.

b) Working channel settings (dipswitch CHANNEL)

In the EU countries you should use channels 1 and 2. Other channels are intended to use in some non-EU countries.



c) Setting up the radio power (dipswitch SETTINGS – 5)

Configure the radio power referring to current laws in the installation region using switch SETTINGS nr 5. For most UE countries 14dBm in 5.8GHz is the maximal signal strength.

DIP 5 - OFF

Max power: 14dBm EIRP UE

DIP 5 - ON

Max power: 28dBm EIRP nonUE

d) Setting up working mode (dipswitch SETTINGS - 6)

Configure the format of video signal using SETTINGS – 6 switch referring to camera standard.

DIP 6 - OFF

CVI, TVI

DIP 6 - ON

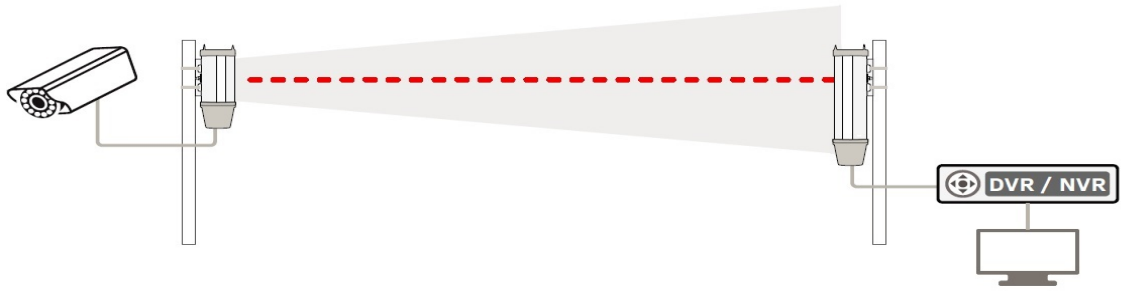
AHD CVBS

e) Installation

Mount the device to the pole in such way to direct the antenna directly into receiver location. **Attention**: Transmitter's antenna need to have clear line of sight with receiver's antenna (example of installation is shown below).
Connect the video signal cables to the BNC socket.

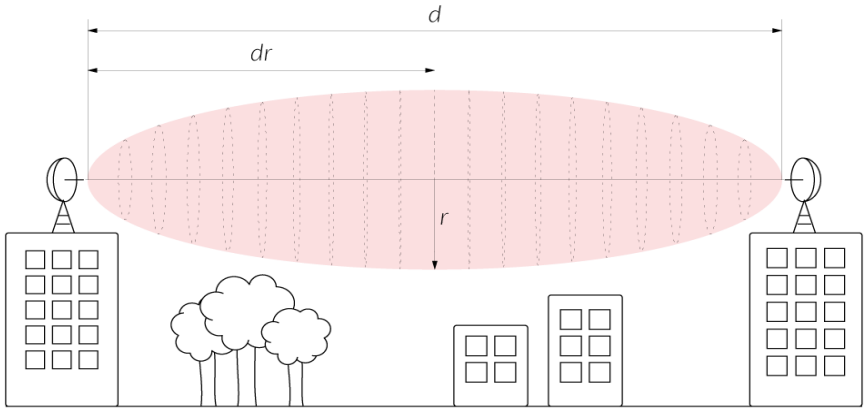
The length of the coaxial cable with video signal should not exceed 50m. Attention: use only high-quality 75Ω coaxial cables, for example RG6. Using UTP 100Ω cables it is necessary to use high-quality matching transformer (Balum) Remember that every transformer or its passive video converter cause video signal loss. With signal loss through the air, the level of the signal may be visibly lowered.

Set up the working channel. Antennas polarisation (vertical installation) and the number of the channel should be the same in both cooperating devices.



WARNING

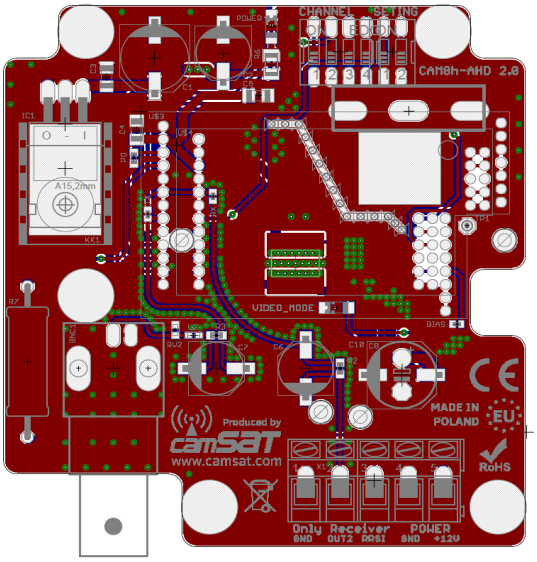
To ensure stable radio range, the antennas need to have clear line of sight. It is necessary to ensure full optical visibility in the first Fresnel zone. With 5.8GHz frequency and 400m distance you need to ensure at least free 3.2m radius of space (r in the dr point) for radio beam.



f) Description of indicators and joints

LED POWER indicator – lights up to indicate connected power

MODE indicator – type of video standard – lights up to indicate detected video signal in CVI or TVI standard; only in the transmitter.



g) Recommendations

1. The system works in analog FM standard and may be exposed on interference caused by other radio systems. Before the installation check the occupancy of 5GHz band in the vicinity of the installation.
2. Larger systems containing a few sets should be launched and set in sequence, i.e. connect the next set only after precise configuration and launching previous set.
3. Due to generating interferences it is not recommended use of cheap switch-mode power supplies and other power supplies than intended to use, for example CAMSAT ZS12/1A.
4. It is not recommended to connect transmitter with receiver to one shared power supply. It is possible to use one power supply with few receivers and another power supply with few transmitters.
5. It is recommended to install the transmitters at the distance of 6-7m from other wireless systems like GSM or Wi-Fi.
6. High-quality coaxial-cables should be used.

5. Safety warnings

5.1. General warranty terms

The device is supplied with a standard warranty card. The manufacturer declines all other warranties. In no case the producer is liable for any damages (including, without limitation, consequential, special, or incidental damages, or damage for loss of profits, business interruption, loss of business information or other pecuniary loss) arising out of the use or inability to use this product, even if the manufacturer has been advised of the possibility of such damages.

Camsat grants a 24 month warranty for the CAM-Analog2.0 transmission kit
1. If the device is not be operating properly, make sure, before returning the device for servicing, that everything was done according to the operating manual.
2. If the faulty device is returned or send in for repairs, a thorough written description of the signs of the device's faulty operation, including the operating environment and the manner in which they appear, should be enclosed.
3. The prerequisite for exercising the warranty rights is enclosing the proof of purchase, including the purchase date and description of damage, with faulty device.
4. Warranty repairs cover only faults occurring due to reasons inherent to the sold device.
5. Warranty repairs will be carried out in the shortest possible amount of time not exceeding 14 days, counting from the moment of accepting the device for servicing. If parts need to be imported, the repair deadline may be extended by the repair time.
6. The warrantor is not responsible for the loss of the device configuration settings resulting from device repair or malfunction.
7. The warrantor may refuse to carry out warranty repairs or terminate the warranty if it is determined that the seals placed on devices or components comprising it are damaged.
8. All repair services resulting from warranty are made exclusively in the Camsat service.

Warranty does not cover

1. Mechanical damage of devices and failures occurring due to fortuitous events, such as: fire, power grid overvoltage, electrical discharges, power supply, effects of chemical substances.
2. Damage occurring due to: improper handling of the device, using the device against its intended use or the operating manual, customer's negligence, improper use (temperature, humidity, flooding, dust, sanding up, improper supply voltage).
3. Claims on account of the technical parameters, if they are consistent with those indicated by the manufacturer.

5.2. Declaration of conformity

DEKLARACJA ZGODNOŚCI
DECLARATION OF CONFORMITY

Niżej podpisany, reprezentujący firmę:
The undersigned representing the manufacturer:

CAMSAT Przemysław Gralak
ul. Ogrodowa 2a, 86-050 Solec Kujawski
Polska/Poland

niniejszym deklaruję z pełną odpowiedzialnością, że urządzenie:
herewith declares under our sole responsibility that the product:

Nazwa urządzenia: *CAM-Analog 2.0 - Bezprzewodowy zestaw przesyłu obrazu dla kamer AHD/TVI/CVI w paśmie radiowym 5,8GHz.*

Product name: *CAM-Analog 2.0 - Wireless image transmission kit for AHD/TVI/CVI cameras in 5.8GHz radio band.*

Typ: **CAM-Analog** 2.0
Model:

jest dopuszczone do pracy na terenie EU i jest zgodne z zasadniczymi wymaganiami oraz innymi stosownymi postanowieniami dyrektywy 1999/5/WE
is allowed to work in EU and it is in conformity with the provisions of the following 1999/5/EC directives:

Wymagania *Essentials requirements*	**Zastosowane normy** *Applicable standards*	**Ocena** *Result*
Kompatybilność Elektromagnetyczna – art.3.1b *Electromagnetic compatibility*	ETSI EN 301 489-1 V1.6.1 ETSI EN 301 489-3 V1.4.1	Zgodność *Conformity*
Efektywne wykorzystanie Zasobów częstotliwości – art.3.2 *Effectively RF spectrum use*	ETSI EN 300 440-1 V1.4.1 ETSI EN 300 440-2 V1.2.1	Zgodność *Conformity*

CE

Osoba odpowiedzialna: **Przemysław Gralak**
Name of responsible person
Stanowisko: **właściciel/owner**
Position
Podpis/Signature

Miejscowość i data:
Solec Kujawski 20.09.2019
Place and date

Hereby, CAMSAT Gralak Przemysław declares that the product series CAM-Analog2.0 meets the essential requirements and other relevant provisions of Directive 1999/5/WE. The device is CE marked, which indicates compliance with the guidelines of the Directive. The device can be sold and used for transmission in the 5GHz band. The frequency range can be adjusted using the settings in accordance with legal regulations in every country. It is your responsibility to be adequate settings of the complying with the applicable laws in the country or region.

5.3. Device disposal

The mark presented to the left informs that this electrical or electronic device, after its use has ended, cannot be thrown together with household refuse. The device should be delivered to a specialised collection point. Detailed information about the closest collection point is available from local authorities.

The proper disposal of this device allows for preserving precious resources and avoiding the negative impact on health and environment, which may be endangered if the waste is handled improperly. Importer waste disposal is subject to penalties provided for in the appropriate regulations.

Manufacturer:
CAMSAT
Ogrodowa 2a
86-050 Solec Kujawski
Poland

Service: serwis@camsat.com.pl

Technical support
tel. + 48 505 272 224

CAM-Analog2.0 Manual

MADE IN POLAND EU CE RoHS