# CDS-EasyIP
# CDS-EasyIP/SMA

**ver. 1.3**

## User`s Manual

*External wireless video and audio transmission system for IP cameras HD and UHD in the band 5.1 - 5.8 GHz*

CamSAT
www.camsat.com

Thank you for choosing the CDS-EasyIP. We trust that its unique features will come in very handy.

Please, read this instruction manual to ensure safe operation and maximise efficiency of the device.

# 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 CDS-EasyIP module is maintenance-free. We recommend installing it on a stable structure and connecting its power cables in a manner which would prevent them from being accidentally damaged by the operator or any bystanders.

## Safety tips

This device has been designed and manufactured with the utmost care for the safety of its installers and users. For safety reasons, observe all the guidelines in this manual and peripheral devices' manuals, such as the PC or IP camera. Before installing the device, 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 device has passed through the mandatory compliance assessment and it meets basic requirements in the European New Approach Directives. The product is CE-marked.

Note: This device can operate within the frequency and power ranges which might be contradictory to laws applicable in selected countries.

Do not approach the device when it is on at the distance below 30 cm.

## R&TTE declaration of conformity

This device meets requirements of the European directive on radio equipment, telecommunications 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).

The CDS-EasyIP module is compliant with provisions related to the safety in using electrical devices. Observe the following guidelines:

- the power outlet must be earthed 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 they pose a threat to the user's safety,
- installation works must be performed by sufficiently qualified technicians, do not use the device in locations where flammable substances are kept,
- secure the device so that children or unauthorised persons should not gain access to it,
- make certain that the device has been reliably fixed,
- 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 previously been kept, water vapour may condensate inside its casing, which will prevent its proper use (Wait until the condensed water evaporates).

## Distances and interferences

- The transmission distance may vary, depending on the frequency, environment, radio waves, buildings, weather conditions, etc.
- 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.
- 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.
- Meteorological radars operating within the frequency ranges of 5,250-5,350 MHz and 5,650-5,850 MHz have the highest priority. These radars can interrupt the device operation or even prevent it entirely

**WARNING**

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

# CDS-EasyIP

System for transmission of video and audio from IP cameras.

## Key features of the module CDS-EasyIP:

- Easy configuration by the switches, no need to connect a computer
- Power output 48V / 15.4W for IP Camera PoE
- CDS-EasyIP can work both as a receiver and transmitter
- Ensures continuous and stable transmission capacity
- Operates in bridge mode - transmits all data transparently, regardless of
- IP cameras and recorders.
- Working on Point-to-Point and Point-to-Multipoint modes receiving the signal from the 4transmitters.
- Output power of 27dBm at 5GHz band operation
- Built-in dual antenna MIMO 2 x 5 GHz 14 dBi (range LoS 2,5km)
- Outer casing IP65
- Operating temperature from -20 ° C to +55 ° C

## Contents of the package

- CDS-Easy IP x 1 pc.
- PoE power supply 48V 0.5A with cable 230V x1szt.
- Clamps for mounting x 2 pcs
- Manual and Declaration of conformity



## Description of connectors and LEDs

**RESET** - reset button to get back to the default settings of the radio module

**PORT 2** - LAN port used simultaneously to power IP camera (PoE 48V) or AC adapter connection

**PORT 1** - LAN port to connect to the DVR or connect the power adapter PoE48V. This port can also be used to connect a second IP camera through the LAN in the power supply.

**SETTINGS** – switches used to configure the device

**LINK** – LED indicating the connection: red - the signal is too strong (overdrive), or device is starting; orange - a link with a high signal level (very good signal); green - a valid link with the correct signal level; off - the device is out of range or is incorrectly configured. More information about the level of radio signals can be obtained by logging on to the panel's website.

**POWER** – red LED for power status

# Preparation for operation

It is recommended that the first start-up and configuration of the system is done on the desk at small distances. This can save a lot of valuable time with the configuration of many different cameras.



Working mode key    Matching key    IP key
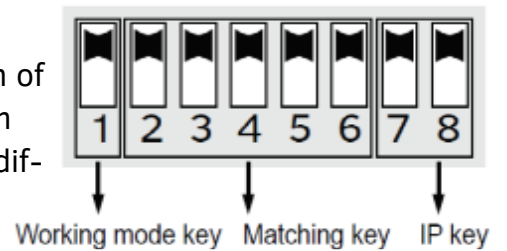
| Function | | SETTINGS | |
|---|---|---|---|
| Operating mode: | | **R**eceiver (MASTER) | |
| | | **T**ransmitter (SLAVE) | |
| Operating channel and IP address of the device | | CH 36 | 5.180 Ghz (192.168.112.x) |
| | | CH 40 | 5.200 Ghz (192.168.113.x) |
| | | CH 44 | 5.220 Ghz (192.168.114.x) |
| | | CH 48 | 5.240 Ghz (192.168.115.x) |
| | | CH 149 | 5.745 Ghz (192.168.116.x) |
| | | CH 153 | 5.765 Ghz (192.168.117.x) |
| | | CH 157 | 5.785 Ghz (192.168.118.x) |
| | | CH 161 | 5.805 Ghz (192.168.119.x) |
| | | CH 165 | 5.825 Ghz (192.168.120.x) |
| No ID of transmitter: | | Transmitter 1 (192.168.x.2) | |
| | | Transmitter 2 (192.168.x.3) | |
| | | Transmitter 3 (192.168.x.4) | |
| | | Transmitter 4 (192.168.x.5) | |

MASTER receiver and all SLAVE transmitters must be set to the same operating channel to establish a connection. Each next set working nearby must be set to a different operating channel.

Transmitter SLAVE



Transmitter

Channel

Transmitter ID (P-MultiP)
*4 Transmitter for 1 receiver*

Receiver MASTER



Receiver

Channel

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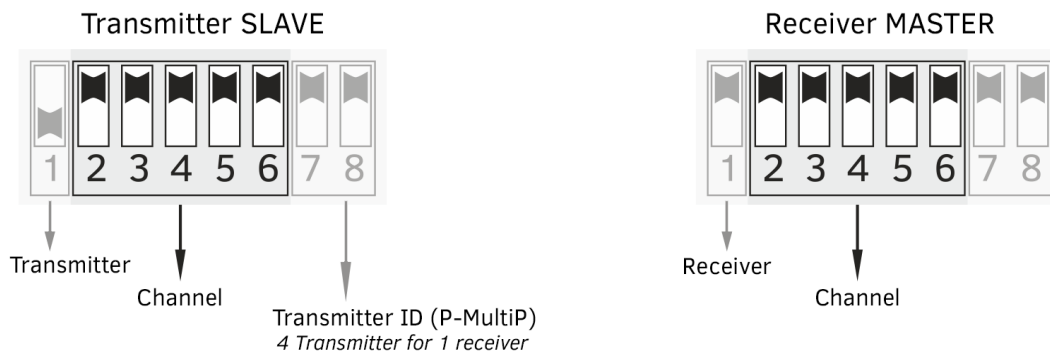
In parentheses there is the IP address of the device that depends on the settings. The receiver always has the ID address 192.168.x.1. These addresses are reserved for radio equipment.

# Multipoint Configuration

CDS-EasyIP can be connected in Point-to-Multipoint configuration with up to 4 transmitters to one receiver. These settings are configured by switches 7 and 8 in each transmitter according to the following formula:

After 90 seconds since power start equipment will make a transparent interconnection sending all IP addresses connected to the ports of the device.

In the case of connection problems check:

- direction of antennas and if there are no obstacles between them,
- Change the channel number to another one,
- Check the power supply capacity or replace to another.
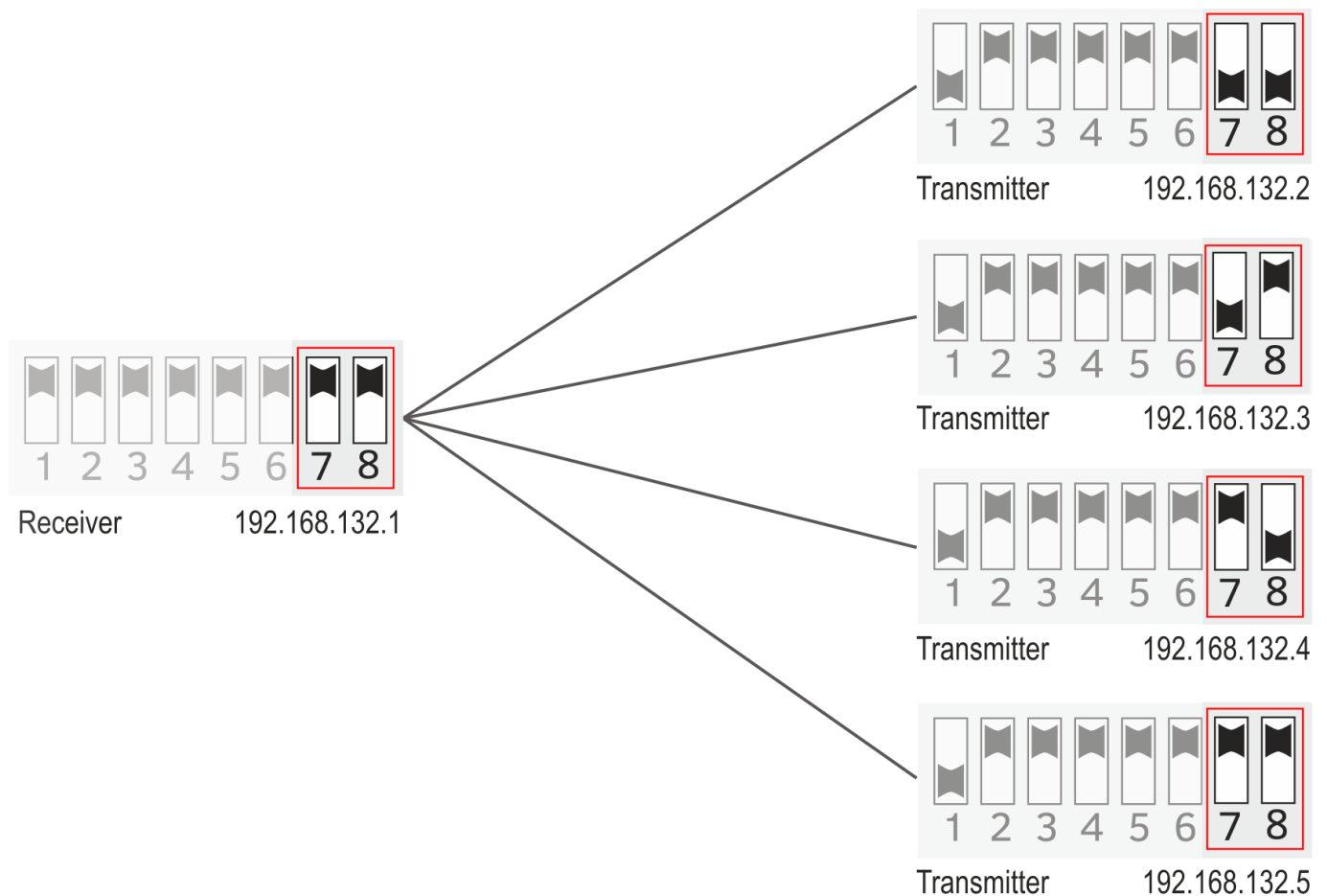
# Montage

Assembly bands designed to be mounted on a mast should be inserted into the corresponding holes in the rear of the body of the device and firmly tighten. Attach the device to the mast with the antenna pointed directly at the point of receiving. Be sure to use two bands. Bands contained in the kits are designed for outdoor installation and resistant to UV radiation, which guarantees safety.

> **WARNING**
> The antenna of the transmitter must "see" optically with an antenna of receiving part.
> Do not install the devices at distances of less than 0.5 m from each other. It is recommended to use a minimum distance of 1m.

Install receiver and antenna directed exactly to the transmitting point.

Set the desired operating channel according to the table. Channel numbers and polarity of antennas should be the same in both cooperating transceivers.
Connect the power cables with power.
The device must be powered from the supplied AC adapter 48V PoE which is also used to power IP camera with a power consumption up to 15.4W.

> **WARNING**
> MASTER receiver and all SLAVE transmitters must be set to the same operating channel to each connection established. Each next set working nearby must be set to a different operating channel.

**For advanced (not required):** MASTER receiver and all SLAVE transmitters must be set to the same operating channel to each connection established. Each next set working nearby must be set to a different operating channel.

For advanced (not required): CDS-EasyIP enables logging in to the Web panel and checking multiple link parameters, eg. the strength of the radio signal. To log in to your dashboard, connect the CDS-EasyIP to a computer with network card set compatible with addresses according to the table on page 3. Start the web browser and enter the IP address of the wireless device (see table p. 3).

**Login Information:**

User: CAMSAT
password: CAMSAT

> **WARNING**
>
> The device manufacturer is not responsible for the devices that are not properly protected and for related damage of the equipment and other network infrastructure.
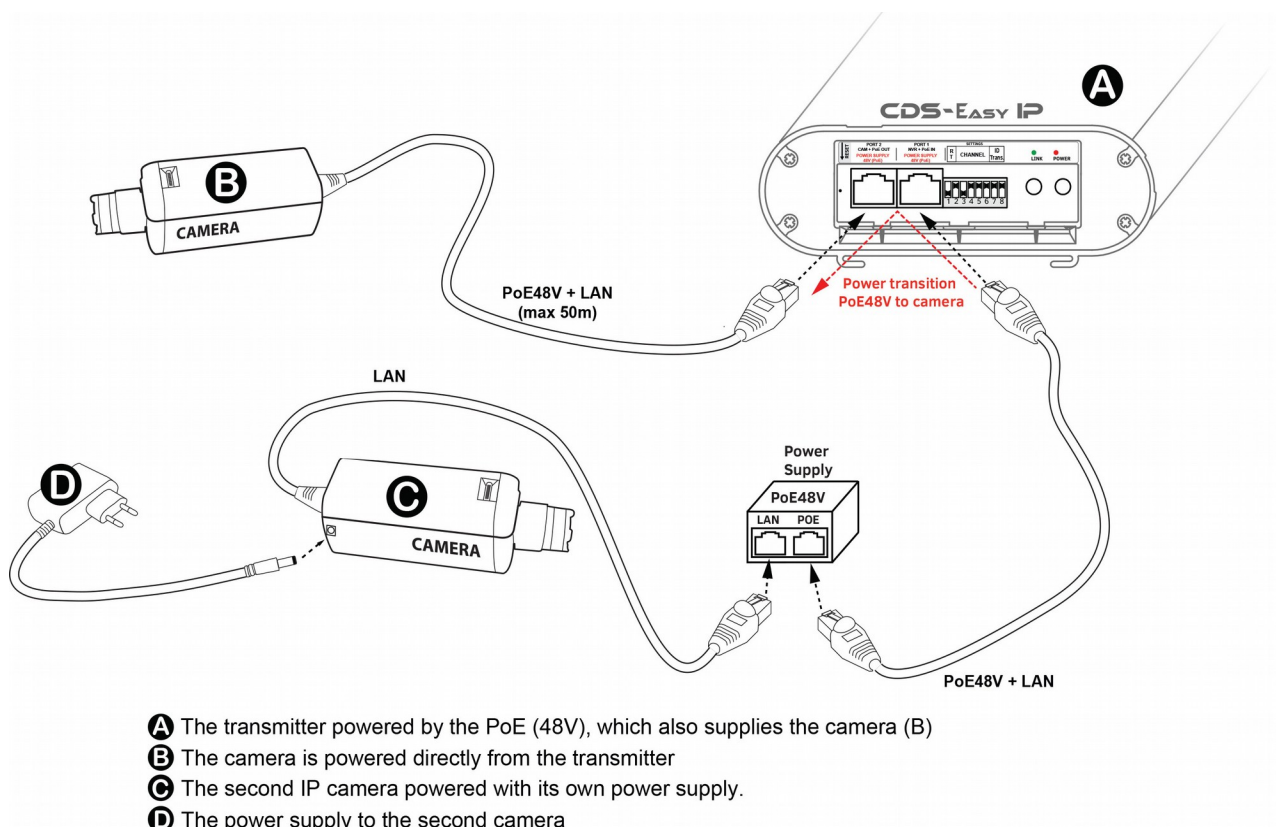
# Connection and start-up

It is recommended that the first start-up and configuration of the system is done at the desk at small distances. This can save a lot of valuable time with the configuration of many different cameras.

### *Transmitter (IP camera):*

- Set the dipswitch No. 1 in OFF (transmitter mode), set the operating channel according to a table, set the number of transmitter (if there is more than one transmitter).
- Connect IP camera compatible with standard 802.3af using a cable with RJ45 to PORT-2
- Connect included power supply 48VPoE to PORT-1
- connect the second camera by the network cable with RJ45to the LAN input in the power supply of the transmitter.

> **WARNING**
> Due to the common voltage PoE 48V in port 2 connection other than specified in the instructions can cause damage to the recorder, switch or other IT equipment.



Ⓐ The transmitter powered by the PoE (48V), which also supplies the camera (B)
Ⓑ The camera is powered directly from the transmitter
Ⓒ The second IP camera powered with its own power supply.
Ⓓ The power supply to the second camera

> **WARNING**
> The current efficiency of such connections is limited to the performance of the recorder port / PoE switch and is generally 15.4W. Current consumption of receiver (approximately 8W) gives approximately 7W power for the camera. Please take this into account when selecting a camera.

## Receiver powered by PoE (NVR).

- Set the dipswitch No. 1 to ON (receiver mode), set the operating channel by a table identical to the transmitter, set DIP7 and DIP8 to ON (up)
- Connect NVR with the network cable to the PORT 1 or LAN port in PoE power supply.
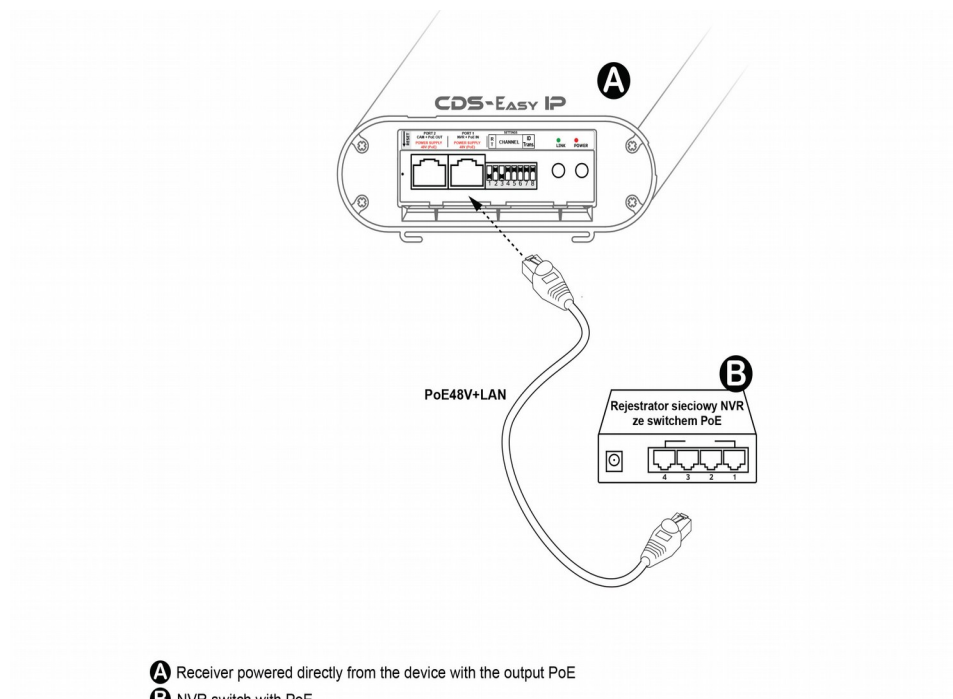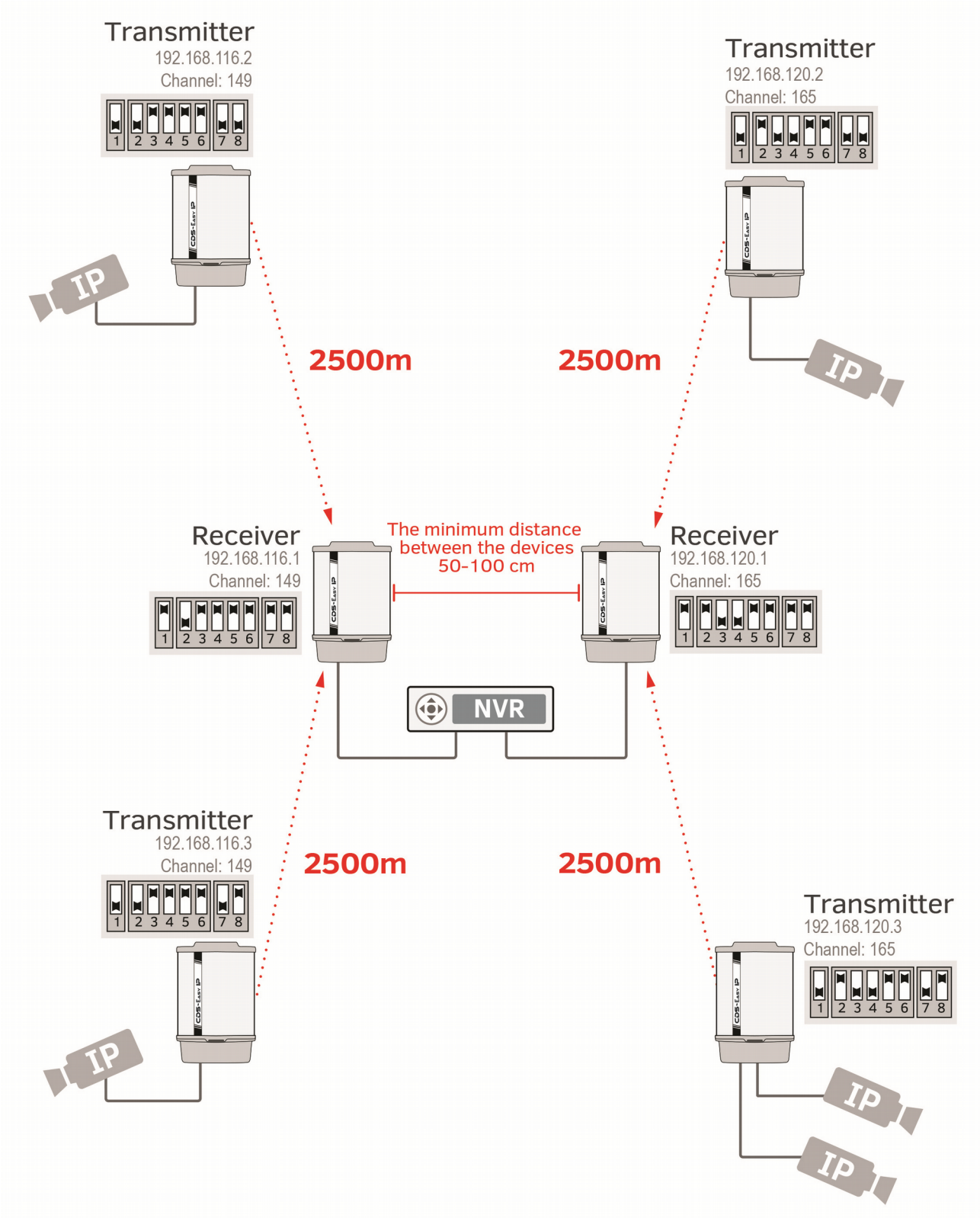- Connect included power supply 48VPoE to PORT 2

Note: Due to the existing PoE voltage of 48V in port 2 connection other than specified in the instructions can cause damage to the recorder, switch or other IT equipment.
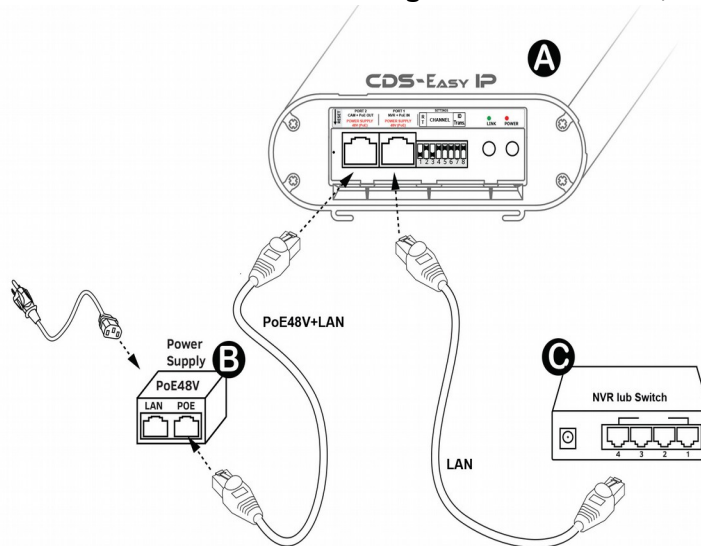


Ⓐ Receiver
Ⓑ Receiver power supply (48V PoE)
Ⓒ NVR or IP switch

## Receiver powered with PoE switch (NVR).

- Set the dipswitch No. 1 to ON (receiver mode), set the operating channel by a table identical to the transmitter, set DIP7 and DIP8 to ON (up)
- Connect NVR equipped with PoE switch by the network cable to PORT 1. The receiver will be powered directly from your PoE switch.

CDS-Easy IP

PoE48V+LAN

Rejestrator sieciowy NVR
ze switchem PoE

A Receiver powered directly from the device with the output PoE
B NVR switch with PoE

# Examples of application

**Transmitter**
192.168.116.2
Channel: 149

**Transmitter**
192.168.120.2
Channel: 165

2500m

2500m

**Receiver**
192.168.116.1
Channel: 149

The minimum distance between the devices 50-100 cm

**Receiver**
192.168.120.1
Channel: 165

NVR

**Transmitter**
192.168.116.3
Channel: 149

2500m

2500m

**Transmitter**
192.168.120.3
Channel: 165

**Transmitter**
192.168.118.5
Channel: 157

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

**2500m**

**Transmitter**
192.168.116.2
Channel: 149

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

IP

IP

**Transmitter**
192.168.120.5
Channel: 165

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

The minimum distance
between the devices
50-100 cm

**Receiver**
192.168.118.1
Channel: 157

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

**2500m**

**2500m**

The minimum distance
between the devices
50-100 cm

**Receiver**
192.168.116.1
Channel: 149

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

**Receiver**
192.168.120.1
Channel: 165

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

NVR

## Table of available operating frequencies and paid

| CHANNEL | 2-6 Dial | Frequency | IP Address | Destiny |
|---|---|---|---|---|
| 36 CH | | 5.18G | 192.168.112.X | CE FCC |
| 40 CH | | 5.2G | 192.168.113.X | CE FCC |
| 44 CH | | 5.22G | 192.168.114.X | CE FCC |
| 48 CH | | 5.24G | 192.168.115.X | CE FCC |
| 149 CH | | 5.745G | 192.168.116.X | FCC |
| 153 CH | | 5.765G | 192.168.117.X | FCC |
| 157 CH | | 5.785G | 192.168.118.X | FCC |
| 161 CH | | 5.805G | 192.168.119.X | FCC |
| 165 CH | | 5.825G | 192.168.120.X | FCC |

Use of specific channels according to their purpose:
- CE – Europe
- FCC – US

*Using other frequencies depends on the legal regulations of the country where you are. If you are not sure about regulations in your country, consult your supplier.*

## Table of frequencies outside the EU and the US and

| CHANNEL | 2-6 Dial | Frequency | IP Address | Destiny |
|---|---|---|---|---|
| | | 4.96G | 192.168.101.X | Other |
| | | 4.98G | 192.168.102.X | Other |
| | | 5.0G | 192.168.103.X | Other |
| | | 5.02G | 192.168.104.X | Other |
| 8 CH | | 5.04G | 192.168.105.X | Other |
| 12 CH | | 5.06G | 192.168.106.X | Other |
| 16 CH | | 5.08G | 192.168.107.X | Other |
| 20 CH | | 5.10G | 192.168.108.X | Other |
| 24 CH | | 5.12G | 192.168.109.X | Other |
| 28 CH | | 5.14G | 192.168.110.X | Other |
| 32 CH | | 5.16G | 192.168.111.X | Other |
| 169 CH | | 5.845G | 192.168.121.X | Other |
| 173 CH | | 5.865G | 192.168.122.X | Other |
| 177 CH | | 5.885G | 192.168.123.X | Other |
| 181 CH | | 5.905G | 192.168.124.X | Other |
| 185 CH | | 5.925G | 192.168.125.X | Other |
| 189 CH | | 5.945G | 192.168.126.X | Other |
| 193 CH | | 5.965G | 192.168.127.X | Other |
| 197 CH | | 5.985G | 192.168.128.X | Other |
| 201 CH | | 6.005G | 192.168.129.X | Other |
| 205 CH | | 6.025G | 192.168.130.X | Other |
| 213 CH | | 6.045G | 192.168.131.X | Other |
| 217 CH | | 6.065G | 192.168.132.X | Other |

**WARNING**
The device can operate at frequencies and power, which can be paid or completely prohibited in your area or your country.

# Supplement A:

**Applies to version with SMA antenna connectors:**

Connection of CDS-EasyIP / SMA module without connected external antenna may result in device damage, which is not covered by the warranty. If you use the CDS-EasyIP / SMA module adjust the output power of the device to gain of used antenna. EIRP power must not exceed the permissible power, as described in the regulations of the country where you install the devices. If you are not sure what settings to use, consult your supplier. Power adjustments can be done through the web panel.

Connect the antenna cables gently to the antenna terminals on the unit and in the antenna. Close the protective cover precisely and remember to cut out the holes for additional cables.

NOTE: Askew screwing the antenna cables may permanently damage the SMA socket.

NOTE: Please pay special attention to the type (male / female) of SMA connectors used in the RF cable.



Złącze antenowe, nie wolno uruchamiać urządzenia jeśli anteny nie są wkręcone w złącze.

Internal antennas were attached at the factory. You can remove them, and in their place screw own.
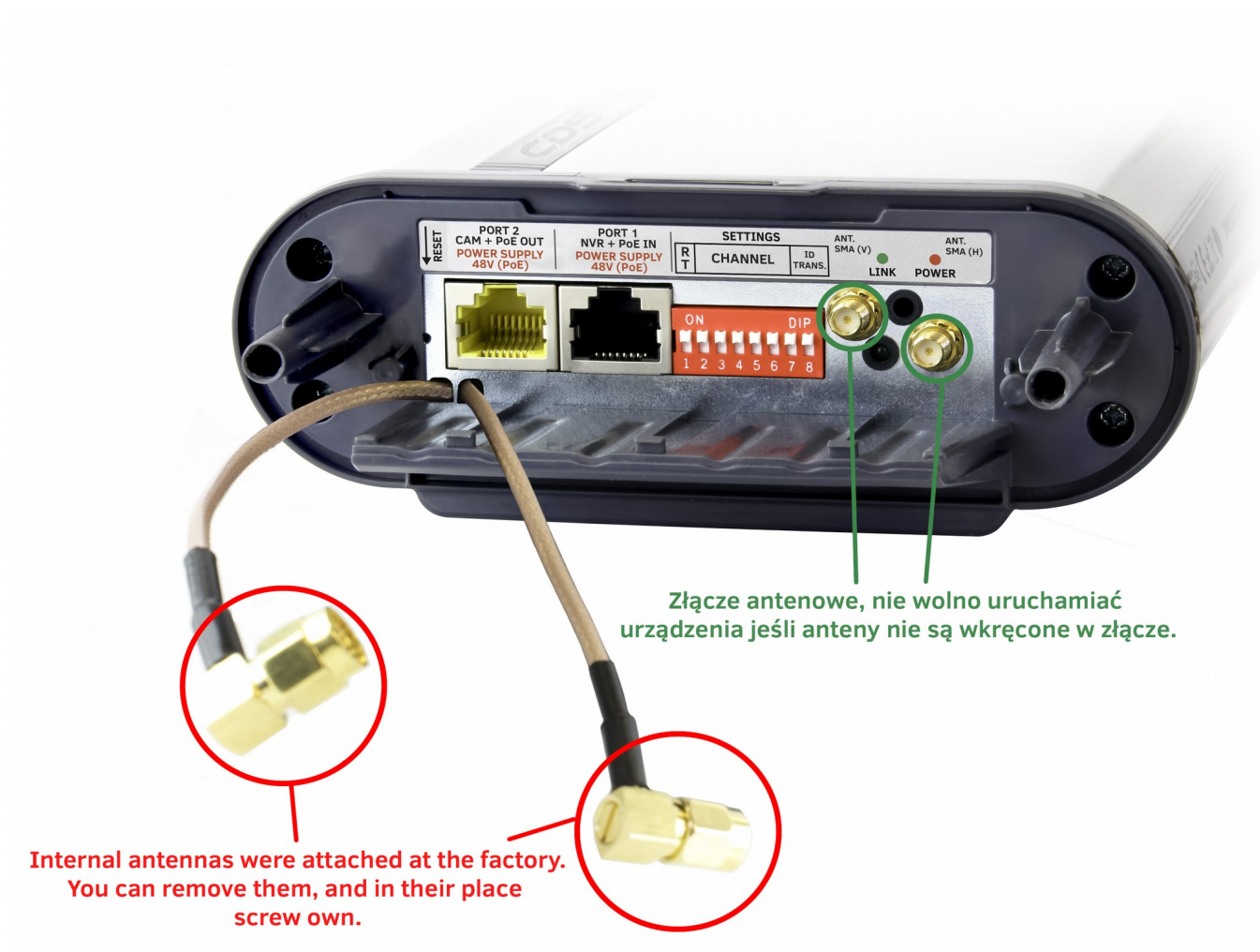
## 2. General warranty terms

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 damages 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 CDS-EasyIP 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 the 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 After the repairs have been carried out, the warranty period will be extended by the repair time

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

**The 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 power supply voltage)

3. Claims on account of the technical parameters, if they are consistent with those indicated by the manufacturer

4. Marks created during usage, such as scratches, soiling and localised wear are not covered by warranty.

In cases not regulated by the terms of this warranty sheet, the appropriate provisions of the Civil Code are applicable.

# 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:    Bezprzewodowy system *do kamer IP*

*Product name:*    *Wireless IP cameras system*

Typ:    **CDS-EasyIP**
    **CDS-EasyIP/SMA**

*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<br>*Essentials requirements* | Zastosowane normy<br>*Applicable standards* | Ocena<br>*Result* |
|---|---|---|
| Bezpieczeństwo i Ochrona zdrowia<br>*Safety and Health* | EN 50335:2002<br>EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013 | Zgodność<br>*Conformity* |
| Kompatybilność elektromagnetyczna<br>*Electromagnetic compatibility* | ETSI EN301 489-1 V1.9.2(2011-09)<br>ETSI EN 301 489-17 V2.2.1(2012-09) | Zgodność<br>Conformity |
| Efektywne wykorzystanie zasobów częstotliwości<br>*Effective use of the radio spectrum* | ETSI EN 301 893 V1.7.1(2012-06) | Zgodność<br>Conformity |

$C\epsilon$

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

Miejscowość i data:
Solec Kujawski 10.08.2016
*Place and date*

# 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 Improper waste disposal is subject to penalties provided for in the appropriate regulations