



**Special Surveillance Equipment  
Development and Production**

# **Endoacustica Europe Catalogue 2017**

# **Special Surveillance Equipment**

**Development and Production**

**Catalogue**



## AUDIO SURVEILLANCE SYSTEMS

**8**

Basic Modules of Audio Information Transmitters

**9**

Multifunctional Audio Transmitters

**10**

Digital and Analog Audio Transmitters

**13**

Radio Lines

**14**

Camouflaged Audio Transmitters

**18**

Universal Sets of Audio Transmitters

**20**

Receivers

**22**

Transmitters for Telephone Lines Monitoring

**23**

Transmitters for Telephone Lines and Room Monitoring

**24**

Radio Repeaters

**25**

Stethoscopes

**26**

Wired Audio Surveillance Systems

**31**

Auxiliary Equipment for Audio Sets

## VIDEO MONITORING SYSTEMS



**32**

Video Transmitters

**34**

Video Receivers

**36**

Video Recorders

**42**

Camouflaged Video Complexes Based On Video Transmitters and Video Recorders

**46**

Video Systems

**72**

Video Cameras

**78**Additional Equipment  
for Video Systems

## REMOTE CONTROL SYSTEMS

**84**Remote Control  
Systems

## AUDIO RECORDING EQUIPMENT

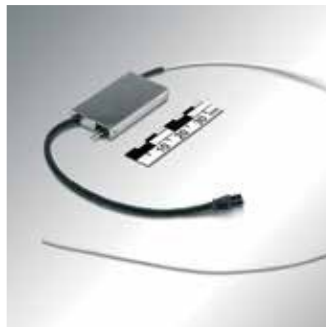
**90**

Digital IC Recorders



## TACTICAL EQUIPMENT FOR SURVEILLANCE

**96**Tactical Equipment  
for Surveillance







# AUDIO SURVEILLANCE S Y S T E M S

## BASIC MODULES OF AUDIO INFORMATION TRANSMITTERS

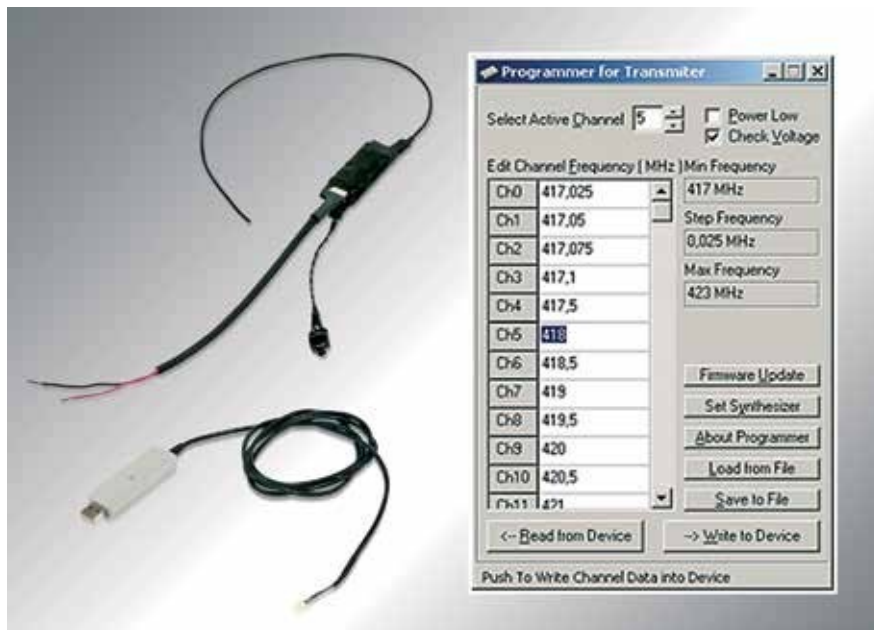
### EN-RMS 001, EN-RMS 002 Programmable Basic Modules of Audio Transmitter with Channel Selector and Output Power Control

The products are designed to transmit the acoustic and audio data via RF link. EN-RMS 001 and EN-RMS 002 are frameless modules with built-in microphone, antenna and input for connection of power supply, remote control and programmer. Products are universal basic modules for radio transmitting devices and are designed for camouflage.

#### Features

- ▶ When supply voltage reduction occurs (below the level preset by the user) the device produces a tone signal via audio channel.
- ▶ The user can program the following parameters from PC:
  - level of output power (nominal and reduced);
  - operating frequency for each of the 16 frequency channels (25 kHz step).
- ▶ When remote control receiver is connected to the device following functions are available from the remote control:
  - remote selection of one of the 16 channels;
  - remote switch of the output power level.

Audio information is transmitted to the audio receivers.



Transmitter

Interface

## SPECIFICATIONS

Operating frequency, MHz	417–423
Frequency setting step, kHz	25
Frequency stabilizer	synthesizer
The relative frequency instability in the operation	
temperature range (at $U_p = 3-4.5V$ )	$5 \times 10^{-6}$ , not more than
Modulation	WFM
Supply voltage, V	3–4.5
Output power (at $U_p = 3.6V$ , $R_H = 500\Omega$ , VSWR not more than 1.2), mW:	
- EN-RMS 001 (low/hi)	1–2/12–17
- EN-RMS 002 (low/hi)	7–15/80–120
Current consumption (at $U_p = 3.6V$ , $R_H = 500\Omega$ , VSWR not more than 1.2), mA:	
- EN-RMS 001 (at low/hi power)	10/20, not more than
- EN-RMS 002 (at low/hi power)	30/80, not more than

# MULTIFUNCTIONAL AUDIO TRANSMITTERS

## EN-RMTK 100, EN-RMTK 500 Multifunction Audio Transmitters

EN-MTK 100 and EN-RMTK 500 are designed to transmit audio data obtained via room acoustic and telephone line. Models EN-RMTK 100R, EN-RMTK 500R have the recording function and authentication of audio recordings.

The main feature of these devices is the possibility to select operation mode and functions (in any combination) using internal selectors or via the remote control unit (RCU) (must be ordered separately).

### Available models

EN-RMTK 100, EN-RMTK 500 – basic multifunctional audio transmitter.

EN-RMTK 100D, EN-RMTK 500D – basic multifunctional audio transmitter with digital encryption of the channel.

EN-RMTK 100DU, EN-RMTK 500DU – basic multifunctional audio transmitter with the remote control.

EN-RMTK 100DDU, EN-RMTK 500DDU – basic multifunctional audio transmitter with digital encryption of the channel and remote control.

EN-RMTK 100Rxxx, EN-RMTK 500Rxxx – basic multifunctional audio transmitter with built-in high-quality audio recorder.

### Basic Functions and Operating Modes

- ▶ Acoustics or telephone line monitoring (via connection of external wired microphone or external inductive sensor respectively).
- ▶ Opened and closed RF link «Delta modulation». The closed RF link eliminates the possibility of unauthorized interception of audio signal.
- ▶ The simultaneous transmission and recording of audio information or recording without transmission (for EN-RMTK 100R, EN-RMTK 500R models).
- ▶ Authentication of audio information recording (for models EN-RMTK 100R, EN-RMTK 500R) excludes the possibility of changes to the original recording.
- ▶ Control of the transmitter's output power. Low output power increases device's operating time and makes it difficult to detect it. The increased output power can increase coverage range.



Transmitter with Stethoscope Sensor



DPK 010 Remote Control

- ▶ On/off switching of VOX function, which activates the transmitter if the signal occurs from the source. It is used to save power and increase operating time from the battery.
- ▶ On/off switching of the remote control function allows to operate the device remotely.
- ▶ On/off switching of the transmitter from the remote control.

The product can transmit audio information from a microphone, an inductive sensor or a stethoscope sensor:

- Wired microphone is designed to monitor the acoustic environment;
- Inductive sensor is mounted on one of the two wires of telephone line;
- Stethoscope piezoceramic sensor is designed to monitor the acoustic information through building construction elements (walls, ceilings, etc.).

Audio information is transmitted to the audio receivers.

## SPECIFICATIONS

Operating frequency range, MHz	416.5-423.5
Frequency stabilizer	crystal control
Modulation	WFM/GMSK
Output power, mW:	
- for EN-RMTK 100	30/100
- for EN-RMTK 500	100/450
Current consumption, mA:	
- for EN-RMTK 100 (30/100mW)	30/100
- for EN-RMTK 500 (100/450mW)	100/500
Power supply	Li-Ion battery BL-5C (3.7V)
Operating time in the transmitting mode from the internal battery, h:	
- for EN-RMTK 100 (30/100mW)	12/8, not less than
- for EN-RMTK 500 (100/450mW)	8/2, not less than
DC Input, (800mA), V	5-15
Recording time (for EN-RMTK 100R, EN-RMTK 500R), h	38

### The following versions of the transmitter and delivery sets

Versions	Functions					Sensors			Battery
	Min/max power	Anal./dig.	RX	VOX	Recording	RMTK-A	RMTK-T	RMTK-S	Li-Ion
EN-RMTK 100/500	●			●		●	+	+	●
EN-RMTK 100DU/500DU	●		●	●		●	+	+	●
EN-RMTK 100D/500D	●	●		●		●	+	+	●
EN-RMTK 100DDU/500DDU	●	●	●	●		●	+	+	●
EN-RMTK 100/500Rxxx	●	●	●	●	●	●	+	+	●

● — Options that are included in the kit; + — Items might be ordered separately.



## DIGITAL AND ANALOG AUDIO TRANSMITTERS

### EN-RMD 100 Compact Wireless Digital Microphone

The product is designed to transmit audio data via RF link.

The product has inputs to connect external power supply, antenna and external microphone.

The transmitter has high output power.  
The output power depends on the supply voltage.

Audio data is transmitted to the audio receivers.



#### SPECIFICATIONS

Frequency Range	416.5–423.5MHz
Modulation	GMSK
Output Power	Not less than 100mW
Current Consumption at 3V voltage	Not more than 110mA
Supply Voltage	2.7–4.2V
Battery	1.5AA x 3
Dimensions	45x18x7mm

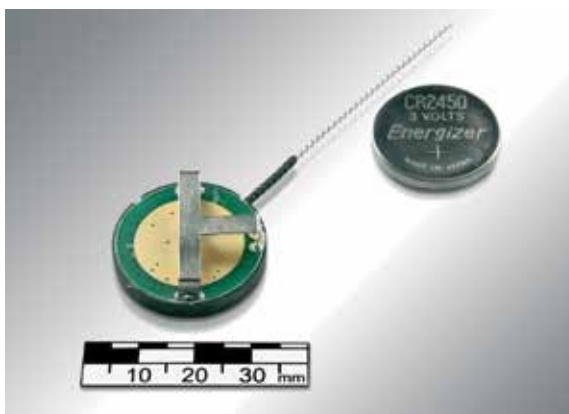
### EN-RMK 012 DISK Audio Transmitter

EN-RMK 012 is designed to transmit audio data via RF link.

The product is designed as a surface-mounted PCB (printed circuit board) secured with plastic cover. Battery compartment is situated on the reverse side of the PC board. The product has a built-in microphone and an external antenna.

The device begins operating once the battery is installed.

Audio data is transmitted to the audio receivers.



#### SPECIFICATIONS

Operating Frequency Range	416.5– 423.5MHz
Frequency Stabilizer	crystal control
Modulation	WFM
Frequency Range	0.3–6kHz
Output Power	Not less than 5mW
Power Supply	CR 2450, 3V
Current Consumption	Not more than 6mA
Operating time (from one battery)	Not less than 40 hours
Dimensions	Diameter 30x7mm

# DIGITAL AND ANALOG AUDIO TRANSMITTERS

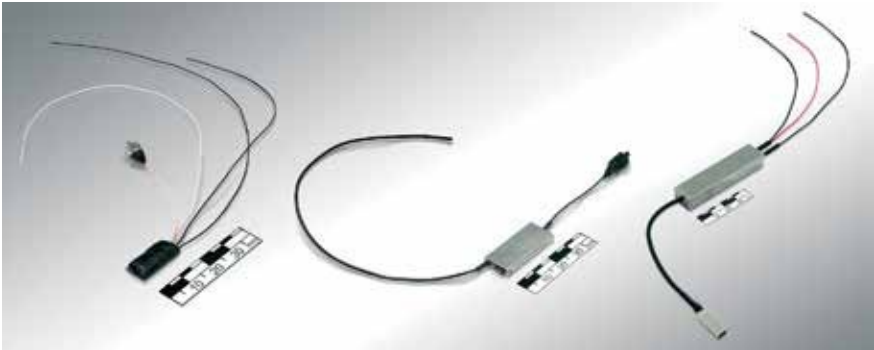
## EN-RMK 073, EN-RMK 122, EN-RMK 128, EN-RMK 129 Audio Transmitters

Audio transmitters are designed to transmit audio data via RF link. Products are universal basic modules for covert radio transmitting devices.

The transmitter EN-RMK 073 is designed as PCB covered with protective compound. It has flexible outputs to connect external power supply source, external microphone and flexible external antenna.

Transmitters EN-RMK 122, EN-RMK 128, EN-RMK 129 are made in small metal cases with flexible outputs to connect external power supply device, external microphone and flexible external antenna. These transmitters can be upgraded with remote control function.

Audio data is transmitted to the audio receivers.



EN-RMK 073                      EN-RMK 122 / RMK 128                      EN-RMK 129

### SPECIFICATIONS

	EN-RMK 073	EN-RMK 122	EN-RMK 128	EN-RMK 129
Frequency Range	416.5–423.5MHz			
Modulation	WFM			
Supply Voltage	2–6V	2–3V	2–3V	2–3V
Output Power	1–30mW	Not less than 100mW	Not less than 30mW	Not less than 500mW
Current Consumption	5–30mA	Not more than 80mA	Not more than 30mA	Not more than 400mA

## EN-RMK 121 MODULE-MS Audio Transmitter (Vehicle Version)

The device is designed to transmit audio data via RF link from mobile objects with on-board power system.

The audio transmitter has metal case, external microphone (cable length of up to 1m), flexible external antenna and output for connection to power supply (on-board of the vehicle).

The product is protected from polarity reverse.

In order to add a remote control function, the unit may work with the remote control receiver KDK 003, and remote control unit.

Audio data is transmitted to the audio receivers.



### SPECIFICATIONS

Frequency Range	416.5-423.5MHz
Frequency Stabilizer	Crystal control
Modulation	WFM
Audio signal frequency range	0.3-6kHz
Output Power	not less than 400mW
Supplied Voltage	5-15V
Current Consumption (at Supplied 5/12/15V)	220/120/100mA

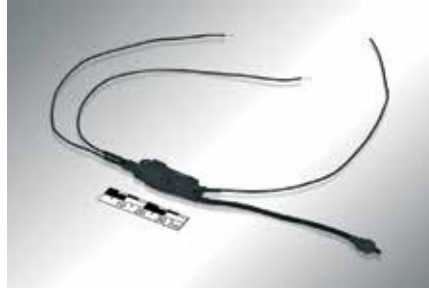
## DIGITAL AND ANALOG AUDIO TRANSMITTERS

### EN-RMK 141 Mains DC Audio Transmitter with Mains Power Supply 220V

The transmitter is designed to transmit the acoustics and audio data via RF link.

The product has a shape of a rectangular PCB, covered with a shrink wrap. The unit has an external microphone with a flexible cable, flexible outputs for connection to mains line and flexible external antenna. The product is powered by mains line 220V.

Audio data is transmitted to the audio receivers.



#### SPECIFICATIONS

Frequency Range	416.5–423.5MHz
Frequency Stabilizer	Crystal control
Modulation	WFM
Audio Signal Frequency Range	0.3-6kHz
Output Power	not less than 15mW
Supply Voltage	220V, 50Hz
Current Consumption (at 220V +/-10%)	not more than 15mA

### EN-RMK 191 STICKER Miniature Portable Audio Transmitter

EN-RMK 191 is designed to transmit the acoustics and audio data via RF link.

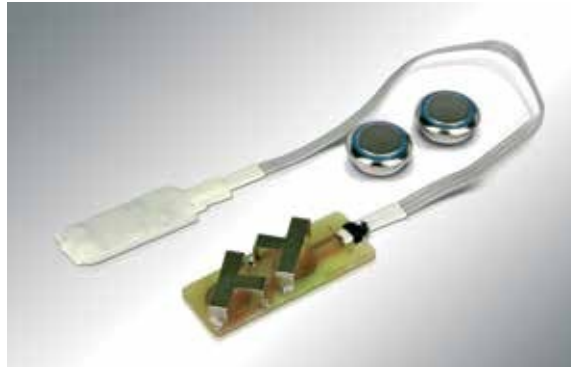
#### Features

- ▶ High output power.
- ▶ Small size.
- ▶ Flexible modular design.
- ▶ Convenient for camouflage.
- ▶ High quality of acoustic signal.
- ▶ Standard batteries (2 x 1.5 V625).
- ▶ Easy battery replacement.

The product consists of two small size modules (transmitter and microphone with amplifier, and battery container), connected by a flexible cable that functions as antenna.

The product is designed for body-worn application: the flexible modules to be placed inside the outfit.

Audio data is transmitted to the audio receivers.



#### SPECIFICATIONS

Frequency Range	416.5–423.5MHz
Frequency Stabilizer	Crystal control
Modulation	WFM
Feeding Voltage	2.2–3.3V
Output Power	30mW
Current Consumption (at Power Supply of 3V)	not more than 30mA

## STAGE Digital Stereo RF Link with Remote Control

Digital Stereo RF Link is designed for audio data transmission in stereo mode via encrypted digital RF link.

The analogue-to-digital conversion algorithm allows to compress and transmit frame structured data. The use of such algorithm allows significantly improvement of the quality of the receiving signal, furthermore extending the dynamic range and improving the noise immunity of the RF link.

Flexible structure of the system allows transmitting of two independent audio signals (stereo) with a high level of an inter-channel separation via one channel only. It also enables monitoring of the battery's state. It is possible to switch between the stereo/mono modes using the remote control. Mono mode provides double band enhancement of the acoustic signals. The use of frequency synthesizer significantly simplifies selection of the transmission frequency and enables the control the frequency from the remote control. Step control of the transmitter power is performed from the remote control.



EN-DPK 010 Remote Control

## SPECIFICATIONS

### DATA TRANSMITTER

Frequency Range	416-422MHz (16 channels)
The Dynamic Range of the Signals via Microphone Input	Not less than 83dB
Frequency Range via Microphone Input (Stereo/Mono Mode)	0.3-4kHz/0.3-8kHz
Modulation	GMSK
Transmission Speed	125kBit/s.
Power Output P1/P2 (at 3.6V)	20/100mW
Remote Control Receiver Sensitivity	Not less than 0.7mkV
Supply Voltage	2.5-5V
Current Consumption (at 3.6V, in P2 mode)	Not more than 100mA

### RECEIVER

Frequency Range	416-422MHz (16 channels)
Sensitivity	Not less than 1.5mkV
Supply Voltage	6V
Current Consumption	Not more than 150mA

### REMOTE CONTROL

Frequency	151MHz
Output Power (50Ohm load)	Not less than 300mW
Supply Voltage	6V



EN-RMD 200S Transmitter



EN-PRK 045S Receiver

## CAMOUFLAGED AUDIO TRANSMITTERS

### Camouflaged Audio Transmitters

- ▶ Analog/digital.
- ▶ Built-in batteries.
- ▶ **WIRELESS BATTERY CHARGE.**
- ▶ Covert magnetic power switch.
- ▶ Optionally the products may be accomplished with the remote control function.

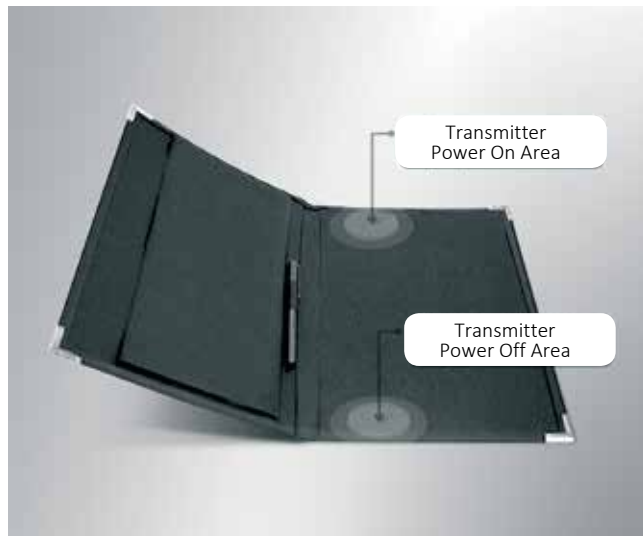
#### CARDBOARD

Output power, mW ..... 5-7  
Time of continuous operation, h ..... 1000, not less



#### FOLDER

Output power, mW ..... 7-10  
Time of continuous operation, month ..... 1, not less



#### BASKET

Output power, mW ..... 10  
Time of continuous operation, h ..... 200-1000



#### CALCULATOR

Output power, mW ..... 5-7  
Time of continuous operation, h ..... 100, not less



#### BAR

Output power, mW ..... 7 / 20  
Time of continuous operation, h ..... 200 / 100, not less





CAMOUFLAGED AUDIO TRANSMITTERS

Camouflaged  
Audio Transmitters

- ▶ Analog/digital.
- ▶ Built-in batteries.
- ▶ WIRELESS BATTERY CHARGE.
- ▶ Covert magnetic power switch.

WALLET

Output Power, mW ..... 100  
Time of continuous  
operation, h ..... 10, not less



BELT

Output Power, mW ..... 100  
Time of continuous  
operation, h ..... 5, not less



## CAMOUFLAGED AUDIO TRANSMITTERS

Analog.  
 Built-in batteries.  
**WIRELESS BATTERY CHARGE.**  
 Covert magnetic power switch (for MARKER  
 and CIGARETTE PACK items).

### PEN

Output Power ..... 7mW  
 Time of continuous operation ..... 6h



### MARKER

Output Power ..... 10mW  
 Time of continuous operation  
 not less than ..... 20h



### CIGARETTE PACK

Output Power ..... 5mW  
 Time of continuous operation  
 not less ..... 18h



### KEY FOB

Output Power  
 not less than ..... 100/30mW  
 Time of continuous operation  
 not less than ..... 2/6h



# CAMOUFLAGED AUDIO TRANSMITTERS

## VEHICLE USB ADAPTER

Analog.  
Power supply 12V.

Output Power ..... 100mW  
Time of continuous  
operation ..... unlimited



## THREE SOCKET MULTI PLUG

Analog.  
Power supply 220V (50-60Hz).

Output Power ..... 15mW  
Time of continuous  
operation ..... unlimited



## POWER STRIP

Analog/digital.  
Power supply 220V (50-60Hz) or built-in  
batteries.  
Covert magnetic power switch.  
Optionally the products may be  
accomplished with the remote control  
function.

Output Power ..... 15mW  
Time of continuous  
operation:  
- 220V ..... unlimited  
- built-in battery ..... 24h



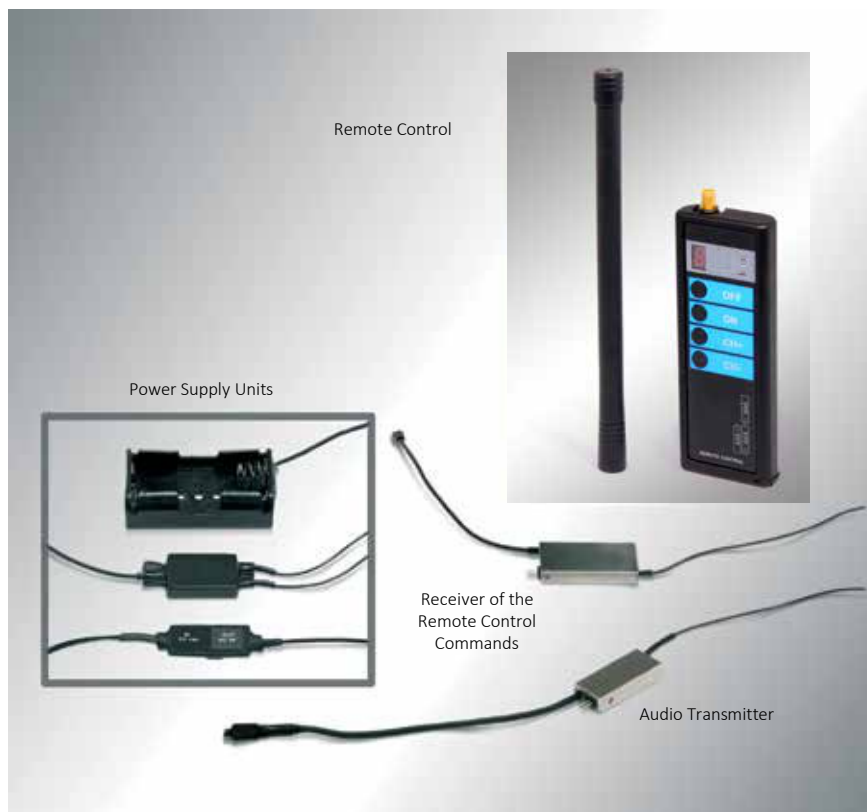
## UNIVERSAL SETS OF AUDIO TRANSMITTERS

### LEGO-100 DU Universal Set for Audio Transmission with Remote Control and Different Types of Power Supply

The set transmits audio data via RF link.  
The set includes universal modules for  
covert transmitter.

Miniature plug-in connections between the  
blocks allow them to be used in different  
combinations, using different power  
sources (main power of 220V, on-board  
vehicle system 12V, batteries 2 x 1.5V AA),  
with an optional use of the remote control  
receiver.

Audio data is transmitted to the audio  
receivers.



### SPECIFICATIONS

Frequency Range	416.5-423.5MHz
Frequency Stabilizer	Crystal control
Modulation	WFM
Output Power	not less than 100mW
Current Consumption (Stand-by/Operating)	0.12/80mA
Operating Time from 220V Network	Unlimited
Supply Voltage of Microphone	2.2-3.2V
Types of Power Supply (3V):	
- Converter from 220V Network	not less than 80mA
- Adapter from in Vehicle Network	not less than 100mA
- Battery Pack 2 x 1.5AA	

# UNIVERSAL SETS OF AUDIO TRANSMITTERS

## MAESTRO-ZS

### The Audio Surveillance Set Includes Digital and Analog Audio Transmitters, Receiver and Recorder

The set is designed for audio surveillance via digitally encrypted RF link. It has possibility of remote control implementation.

The set includes analog and digital audio transmitters, and audio receiver with recorder MAESTRO-ZS.

The audio data is transmitted to the multi-channel receiver with "Delta Modulation" decryption. The received audio data is recorded to the professional digital recorder.

This set can be used in both stationary and mobile (in vehicle, portable and body-worn) applications.



## CONTENT

	16. Headphones KOSS UR5 (2 pcs.).
2. External microphone RMTK-A (2 pcs.).	18. Flexible Antenna AG- 1 (2 pcs.).
4. Stethoscope piezoceramic sensor RMTK-S (2 pcs.).	20. Battery 3.7V, 850mAh (2 pcs.).
	22. The battery 1.5V AA (8 pcs.).
6. Wireless microphone RMK 141 "AC mains" (2 pcs.).	
	24. Container for battery V625U (2 pcs.).
8. Miniature audio transmitter RMK 122 (3 pcs.).	26. Battery charger for lithium batteries (2 pcs.).
10. The audio transmitter RMK 191 "Sticker" (3 pcs.).	28. Power adapter from the vehicle on-board system (2 pcs.).
12. Compact audio transmitter with digital encryption RMD 100 camouflaged in belt "Belt D" (2 pcs.).	30. User's guide (1 copy).



## RECEIVERS

### Series of the Multi-Channel Receivers EN-PRK 040

Series of multi-channel receivers EN-PRK 040 is designed to receive audio data from the transmitters with WFM or GMSK modulated (for EN-PRK 040D and EN-PRK 040DR). They operate at the 416-421MHz frequency range.

### Hardware Versions

- ▶ EN-PRK 040 – multi-channel receiver.
- ▶ EN-PRK 040D – multi-channel receiver with «Delta Modulation» decoder.
- ▶ EN-PRK 040R – multi-channel receiver with audio recorder.
- ▶ EN-PRK 040DR - multi-channel receiver with «Delta Modulation» decoder and audio recorder.

EN-PRK 040 and PRK 040R receive data only via open RF link.

EN-PRK 040D and EN-PRK 040DR receive data via both open and encrypted with “Delta modulation” RF link.

EN-PRK 040R and EN-PRK 040DR have built-in recorder.

### Features

- ▶ 10 channels. Settings and saving of the frequency is done with the help of the buttons on the main panel.
- ▶ Squelch function.
- ▶ High sensitivity and selectivity.
- ▶ Built-in «Delta modulation» decoder (for EN-PRK 040D and EN-PRK 040DR models), which switches on automatically when digital signals with «Delta modulation» appear.
- ▶ Built-in audio recorder with recording duration from 9 to 19 hours, depending on the selected quality of the recording (for EN-PRK 040R and EN-PRK 040DR models). Optionally recording time can be increased up to 38 hours. The recorded data are saved to the built-in FLASH-memory. The recorded audio data can be protected with a PIN-code from an unauthorized downloading.
- ▶ Low power consumption (internal Li-PO battery of 3.7V, 720mAh).

- ▶ Possibility to connect an external power supply.
- ▶ Charging USB device.
- ▶ User-friendly.

All multi-channel receivers from the EN-PRK 040 series are compatible with transmitting devices. These devices use WFM-modulation and «Delta modulation» (only used for EN-PRK 040D and EN-PRK 040DR models). Operating frequency range is 416-421 MHz.



### Comparison of Multi-Channel Receivers from EN-PRK 040 Series

Versions	Functions			Recorder		Power supply	
	10 Frequency Channel	Frequency synthesizer	Built-in “Delta Modulation” Decoder	Built-in	Output for Connecting ext. recorder	Internal Li-Ion	External
EN-PRK 040	●	●	-	-	●	●	●
EN-PRK 040D	●	●	●	-	●	●	●
EN-PRK 040R	●	●	-	●	●	●	●
EN-PRK 040DR	●	●	●	●	●	●	●

### SPECIFICATIONS

	EN-PRK 040	EN-PRK 040D	EN-PRK 040R	EN-PRK 040DR
Frequency Range, MHz	416.0 - 421.0			
Frequency Step, kHz	25			
Number of Channels	10			
Modulation	WFM	GMSK, WFM	WFM	GMSK, WFM
Sensitivity, mV (at Signal/Noise Ratio of 10dB)	not less than 0.5			
Power Supply:				
- Internal	3.7V, 720mA*h 3			
- External	5V ±5%			
Current Consumption at a Moderate Sound Level, mA	not more than 80			
Operating Time, h	not less than 6			
Recording Time when Operating from External power supply (at Sampling Rates 32/16kHz), h	—		9 / 19	

Universal Receiver  
EN-PRK 050

Universal receiver EN-PRK 050 is designed to receive audio data from analog and digital transmitters, which operate at the 416-421MHz frequency range.

New features

- ▶ Recording of the received audio data. The recorded data is saved on a memory card in WAV format.
- ▶ Universal battery container that allows to use both 3xAAA batteries and Li-ON battery.
- ▶ OLED-display.

Features

- ▶ 10 channels. Settings and saving of the frequency is done with the help of the buttons on the main panel.
- ▶ Squelch function.
- ▶ High sensitivity and selectivity.
- ▶ Built-in «Delta modulation» decoder, which switches on automatically when digital signals with «Delta modulation» appear.
- ▶ Built-in audio recorder.
- ▶ Playback function of the recorded audio data.
- ▶ WAV recording format.
- ▶ Up to 120 hours of the recording from an external power supply on the 8GB memory card.
- ▶ Operating modes settings from the menu.
- ▶ Charging USB device.
- ▶ User-friendly.

The universal receiver EN-PRK 050 is designed in metal case with OLED-display. The OLED-display of the receiver reflects battery status, date, time and mode of the built-in audio recorder. It also displays main parameters, such as the frequency, channel and signal level. The built-in audio recorder settings can be adjusted from the menu on the OLED-display. The universal receiver EN-PRK 050 is compatible with audio transmitters that operate at 416-421MHz frequency range.



SPECIFICATIONS

Frequency Range, MHz	416.0–421.0
Frequency Step, kHz	25
Number of Frequency Channels	10
Sensitivity, mV (at Signal/Noise Ratio of 10 dB)	not less than 0.5
Power Supply: Internal/ External	3.7V, 1400mA*h or 3xAAA 1.5V/5V ± 5%
Current Consumption at a Moderate Sound Level, mA	not more than 200
Operating Time, h	not less than 6
Memory Card	SD
Recording Time (External Power Supply), h.	not less than 120

## TRANSMITTERS FOR TELEPHONE LINES MONITORING

### EN-PTK 093, EN-PTK 100D Transmitters for Telephone Line Monitoring via RF Link

The product is designed to monitor telephone line and transmit obtained information via RF link.

#### Basic features

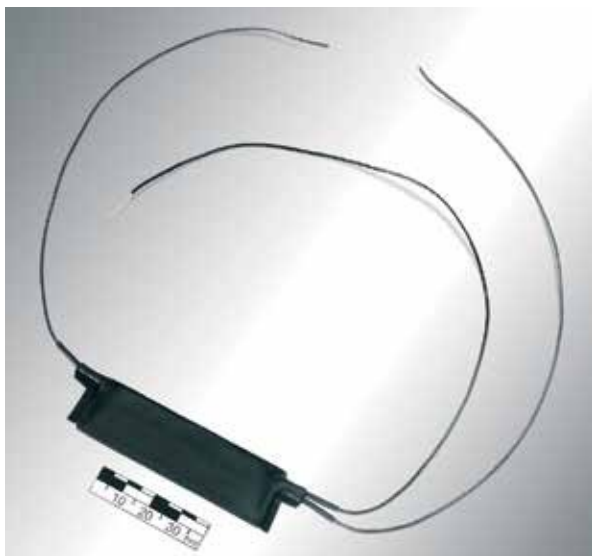
- ▶ EN-PTK 093 – has serial connection to the telephone line, the output power is 30 mW.
- ▶ EN-PTK 100D – has serial connection to the telephone line, the output power is 15 mW, the digital encryption «Delta Modulation», that eliminates the possibility of unauthorized signal interception.

The device switches on automatically to the transmitting mode when telephone is off the hook. When the telephone is on-hook the device is in standby mode. The device connected to the phone line does not cause any interference. The device connection place and the polarity are insignificant. Operating time of the transmitter is unlimited. Power is supplied from telephone line.

Audio data is transmitted to the audio receivers.



EN-PTK 093



EN-PTK 100D

### SPECIFICATIONS

	EN-PTK 093	EN-PTK 100D
Operating Frequency Range	416.5–423.5MHz	
Frequency Stabilizer	WFM	GMSK
Modulation	Crystal control	
Output Power	30mW	15mW
Voltage Drop to the Device in the Telephone Line Control Mode	Not more than 6.5V	Not more than 6.5V
Connection to the Telephone Line	sequential	
Power Supply	telephone line	

# TRANSMITTERS FOR TELEPHONE LINES & ROOM MONITORING

## EN-STK 050, EN-STK 100D Devices for Telephone Line and the Room Acoustic Monitoring with the Transmission via RF Link

The products are designed to obtain audio data from telephone line and room acoustics and transmit data via RF link.

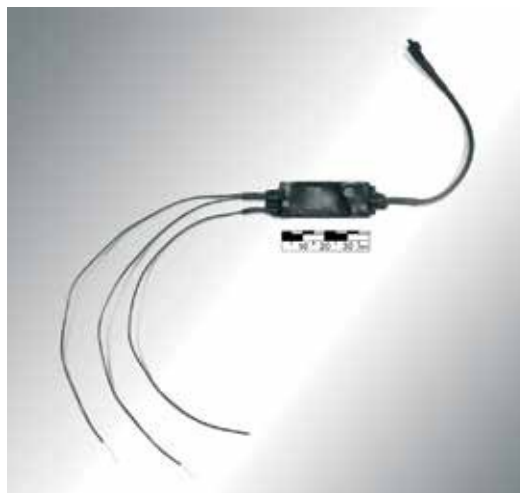
### Basic features

► EN-STK 050 features parallel connection to the telephone line, the output power is not less than 5 mW.

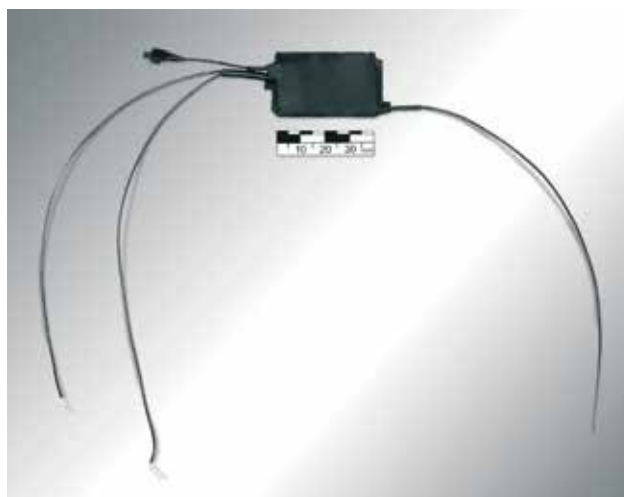
► EN-STK 100D features parallel connection to the telephone line, the output power is not less than 3 mW, digital encryption «Delta Modulation» that eliminates the possibility of unauthorized signal interception.

When telephone is on-hook the device obtains data from the room's acoustics. When the phone is off-hook, the device automatically switches to phone line monitoring mode. The device connected to the phone line does not cause any interference with telephone line reception. The device connected parallel to the telephone line. The product is powered from the telephone line.

Audio data is transmitted to the audio receivers.



EN-STK 050



EN-STK 100D

## SPECIFICATIONS

	EN-STK 050	EN-STK 100D
Operating Frequency Range	416.5–423.5MHz	
Frequency Stabilizer	Crystal control	
Modulation	WFM	GMSK
Power Supply:	telephone line	
- when the Telephone is on Hook	6–15V	
- when the Telephone is off Hook	40–60V	
Current Consumption:		
- when the Telephone is on Hook	not more than 1mA	not more than 1.5mA
- when the Telephone is off Hook	not more than 12mA	not more than 15mA
Output Power	not less than 5mW	not less than 2.5mW
Connection to the Phone Line	parallel	parallel

## RADIO REPEATERS

### EN-RRU 010 Radio Repeater

Radio repeater is designed to receive a low-level signal from the low power audio transmitters via the open RF link and to retransmit it to the encrypted RF link.

The repeater channel is encrypted with adaptable "Delta modulation".

The radio repeater is equipped with the impact-resistant plastic frame. It has inputs for connection of external antennas and external power supply.

A special receiver with integrated decoder and additional converter is used as a receiving device. The digital signal is identified and decrypted automatically.

4 receiving channels and 1 transmitting channel can be saved on the radio repeater. The transmitting frequency is preset by the manufacturer.

The remote control EN-DPK 010 can be used to control the repeater. The repeater can be switched on and off and the receiving channels can be changed from the remote control.

It is recommended to use the external directional antennas included in the supply kit to increase the transmitting/receiving distance of the repeater.



Repeater



EN-DPK 010 Remote Control



Receiver

## SPECIFICATIONS

Frequency Range .....	416-421MHz
Number of Stored Channels .....	4
Sensitivity of the Receiving Channel (at the Signal/Noise Ratio 10dB) .....	not less than 1mkV
Current Consumption (Operating/Standby Mode) .....	330/0.5mA
Frequency Range of the Transmitter .....	1020-1080MHz (16 Channels)
Type of Channel Encryption .....	GMSK
Output Power of the Transmitter (at Load Resistance 50Ohm) .....	not less than 0.5V
Remote Control Frequency .....	150.082MHz
Sensitivity of Remote Control Receiver .....	not less than 0.5mkV
Supply Voltage .....	12V, 1A



EN-SS 021  
Stereo Stethoscope

Stereo stethoscope is designed to monitor the acoustic data via building construction elements (wall, ceiling, etc.).

Features

- ▶ Stereo mode.
- ▶ High-resolution piezoceramic transducer.
- ▶ Autonomous power supply.
- ▶ Batteries can be easily replaced.
- ▶ Portable.

Sensors have a metallic undismountable frame and flexible cable to connect to the amplifier. The sensors are based on the piezoelectric ceramic elements. The amplifier is designed in the metallic case, it has volume and balance control, attenuator, power and battery indicator. The front panel has headphones and external recorder connectors. Special low-noise amplifiers and additional compressor are used to improve the quality of the dynamic range of audio signals.



Stethoscope Sensor



Amplifier

SPECIFICATIONS

Sensor Sensitivity	not less than $10^{-5}$ g
Dynamic Range of the Amplifiers	not less than 60dB
Frequency Dependent Attenuation	
Provides a roll-off of the Amplitude Frequency	
Characteristics at 1kHz/300Hz	6/15dB
Sound Forge between Channels	not less than 40dB
Stereo Balance Control	+/-10dB
Current Consumption at a Moderate Sound Level	not more than 25mA
Power Supply Internal/External	4xAA 1.5V/9V

## WIRED AUDIO SURVEILLANCE SYSTEMS



### EN-KPL-S, EN-KPL-SD Audio Data Transmitting Systems via 220 V Mains

Audio data transmitting systems are designed to monitor room's acoustic and transmit obtained data via 220V mains at subcarrier frequencies.

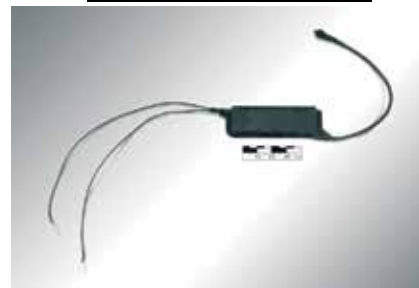
- ▶ EN-KPL-S – analog channel.
- ▶ EN-KPL-SD – digital encryption of channel.

The transmitters are designed as the frameless modules with flexible outstanding microphone and outputs for connection to the 220V mains. The transmitters are connected parallel to the 220V mains. The receivers are designed in the metal case. They have connectors for headphones, 220V mains, microphone (can be used to connect recorder as well) and external power supply. The front panel has volume controls, which serve also as a power switch, frequency tuning tumbler and plug for headphones. The receiver KPL-SD has built-in Delta Modulation decoder.

The receiver can be connected to external magnetic antenna, which enables reception of an audio data near the power lines or the power electric switchboards without contact connection to the 220V mains line.



EN-KPL-S Transmitter



EN-KPL-SD Transmitter



EN-KPL-S/KPL-SD Receiver



External Magnetic Antenna

### SPECIFICATIONS

	EN-KPL-S	EN-KPL-SD
	TRANSMITTER	
Frequency Range	1.6 – 2.4MHz	
Modulation	WFM	GMSK
Current Consumption from the 220V mains	not more than 15mA	not more than 20mA
Output Power	not less than 200mW	
Power Supply	220V, 50Hz	
	RECEIVER	
Tuning Range of the Receiver	1.6–2.4MHz	
Modulation of the Received Signal	WFM	GMSK
Sensitivity, mV (at Signal/Noise Ratio of 10dB)	not worse than 10mkV	
Power Supply: Internal/ External	4x1.5V AAA/6V DC 100mA	
Operating Frequency Range with the Magnetic Antenna	1.7 +/-0.1MHz 2.2 +/-0.1MHz	

## EN-KPL-T, EN-KPL-TD Audio Data Transmitting Systems via Phone Line

Audio data transmitting systems are designed to monitor room's acoustic and transmit obtained data via telephone line at subcarrier frequencies.

- ▶ EN-KPL-T – analog channel.
- ▶ EN-KPL-TD – digital encryption of channel.

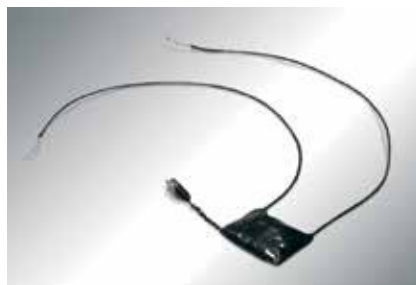
The transmitters are designed as the frameless modules with flexible outstanding microphone and outputs for parallel connection to the telephone line.

The receivers are designed in the metal case. They have telephone cable connectors, volume controls, combined with the power switch, headphones jack, battery indicator, line output for external recorder, external power supply connector and indicator of external power supply availability.

EN-KPL-TD has built-in «Delta Modulation» decoder.

Additionally, the EN-KPL-TD set may include the amplifying and commutation unit EN-KPL-TD BUK, designed for amplification and transmitting the information from one telephone line to another, bypassing the PBX switch.

The devices' connection to the phone line does not influence telephone and telephone line operation and does not affect the quality of the telephone line signal.



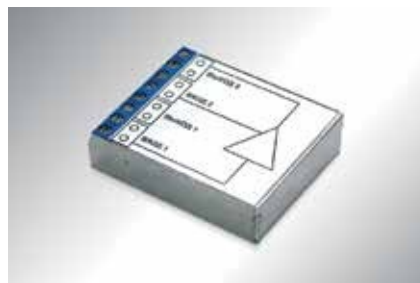
EN-KPL-T Transmitter



EN-KPL-TD Transmitter



EN-KPL-T/EN-KPL-TD Receiver



EN-KPL-TD BUK Amplifying and Commutation Unit

## SPECIFICATIONS

	EN-KPL-T	EN-KPL-TD
	AUDIO TRANSMITTER	
Frequency Range	360-400kHz	360-400kHz
Modulation	WFM	GMSK
Current Consumption from the Telephone Line	not more than 0.9mA	not more than 1mA
Output Power	not less than 100mW	
Power Supply	Telephone Line	
	AUDIO RECEIVER (for KPL-TD)	
Active Resistance	—	200hm
Amplification Coefficient	—	15dB

## WIRED AUDIO SURVEILLANCE SYSTEMS



### EN-PM 010 Wired Microphone

The device is designed to transmit audio data via double-wire unshielded line to the distances up to 250m.

The wired microphone EN-PM 010 (8mm) is designed in cylindrical metal case.

There is connection pad on one of the ends of the cylinder to connect microphone to the wire. An audio input is located at the opposite side.

The wired microphone EN-PM 010 (3.5mm) consists of 2x modules - external microphone, installed into a thin metal tube of 3.5mm diameter, and the amplifier module

SELECTOR A8 is recommended to be used with EN-PM 010. Any audio recorder equipped with microphone or line input may be used with EN-PM 010.

The device has high audio quality and is capable to operate in harsh acoustic environment.



EN-PM 010 (8mm)



EN-PM 010 (3.5mm)



EN-PM 010

### SPECIFICATIONS

Audio Frequency Range .....	200-12000Hz
Supply Voltage .....	10-13V
Current Consumption .....	not more than 12mA
Output Power of Audio Signal ( $R_H = 620\Omega \pm 20\%$ ) .....	not less than 250mW
Recommended Length of Double-Wire Unshielded Line .....	250m
Maximum Length of Double-Wire Unshielded Line .....	1km

**SELECTOR-A8**  
**8-Channel**  
**Audio Selector**

Selector-A8 is designed for simultaneous operation of up-to 8 wired microphones. It provides independent switching of microphones for recording and listening through headphones and the management of the audio recorders.

The SELECTOR-A8 significantly simplifies the work with the wired microphones, has an ergonomic design, an understandable and informative interface. Built-in battery allows to use SELECTOR-A8 without connection to 220V mains.

The SELECTOR-A8 is compatible with all types of the recording devices that have line input for recording. The device is user-friendly and it does not require any special training.



**Features**

- ▶ Switching between 8-wired microphones.
- ▶ Compatibility with wired microphone PM 010.
- ▶ Signal level indication.
- ▶ Indication of the selected channel.
- ▶ Digital control.
- ▶ Independent switching of the recording channels and listening through headphones.
- ▶ Autonomous power supply, built-in Li-PO battery.
- ▶ Recording control.
- ▶ High quality sound.

**SPECIFICATIONS**

Number of Channels ..... 8

**Microphone Input Parameters**

Voltage ..... 12V  
Impedance ..... 600Ohm  
Input Signal Level ..... 250mW  
Number of Point-to-Point Channels ..... 8  
Signal Level of Point-to-Point Channels ..... 250mW  
Signal Level of Recording Channel ..... 250mW  
Power Supply (External/Internal) ..... 5V; 1A/battery Li-PO 680mA\*h; 3.7V  
Operating Time ..... Not less than 2 hours

**Parameters of Compatible Wired Microphone PM 010**

Supply Voltage ..... 10-13V  
Current Consumption ..... not more than 12mA  
Output Power of Audio Signal  
( $R_H = 620\text{Ohm} \pm 20\%$ ) ..... not less than 250mW  
Audio Frequency Range ..... 200-12000Hz  
Recommended Length of Double-Wire Unshielded Line ..... 250m  
Maximum Length of Double-Wire Unshielded Line ..... 1km





# VIDEO MONITORING S Y S T E M S

## VIDEO TRANSMITTERS

### EN-VPCH 051 Compact Video Transmitter

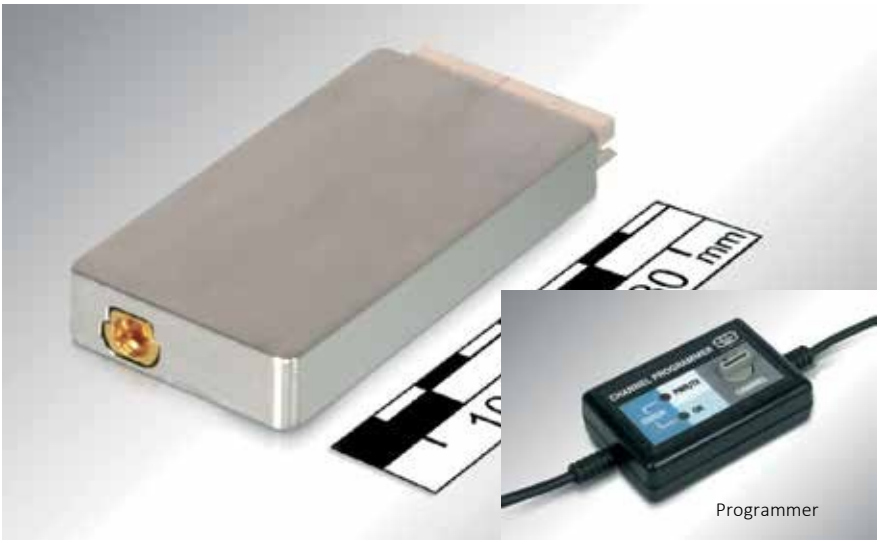
Video transmitter is designed to transmit the audio and video signals over short distances via radio channel. The device is designed in metal case with external device connectors. Video transmitter can be used in compact robotic systems. Boost converter or step down stabilizer is used to adjust power supply for different types of video cameras. Remote control EN-DPK 010 can be used to control device with the help of external receiver of the remote control commands EN-KDK 003.

### Features

- ▶ High video stability.
- ▶ High sound quality.
- ▶ Low voltage power supply.
- ▶ Low power consumption.
- ▶ Compact size.

Frequency channel can be changed using external programming unit.

Video receiver EN-PRM TV is used to obtain video and sound.



### SPECIFICATIONS

Frequency range, MHz	1020-1200
Modulation	FM
Voltage supply, V	3-5
Current Consumption, mA	240, not more than
Output power, mW	200, not more than

EN-VPCH 061  
Video Transmitter

Video transmitter is designed to transmit audio and video signals via radio channel. Video transmitter has built-in extended microphone and inputs to connect video camera and power supply. There is SMA connector for the antenna. Built-in converter supplies power to the camera. The device can be equipped with RC function.

Features

- ▶ Small dimensions.
- ▶ Tone alert function in the audio channel:
  - when the supply voltage is below 3.4V;
  - when video camera with the current consumption of more than 180mA is connected (it results the supply voltage to video camera shut down).
- ▶ Low-voltage supply from Li-Po battery.

Frequency channel can be changed using external programming unit.

Video receiver EN-PRM TV is used to obtain video and sound.

Power Supply Types

- ▶ 3x1.2V or 1x3.6V battery.
- ▶ On-board vehicle network (via adapter).
- ▶ Mains adapter (3.6-4.5V, output current is not less than 1.2A).



SPECIFICATIONS

Frequency range, MHz	1020-1200
Frequency stabilization (including subcarrier frequencies)	Synthesizer (relative instability not more than $5 \times 10^{-6}$ )
Modulation	FM
Power supply	Li-PO
Supply voltage, V	3-4.5
Supply voltage of connected video camera (from video transmitter), V	9-10
Current consumption of connected video camera, mA	140, not more than
Current consumption (at 3.6V) (without camera), mA	400, not more than
Output power (at 3.6V), W	0.4, not more than

VIDEO RECEIVERS

EN-PRM TV  
Multi-Channel Video  
Receiver

Multi-channel video receiver is designed for FM-signals reception from video transmitters.

The device has metal case. The front panel of the device has SMA antenna connector, channel switch and LED power indicator.

The video outputs for connection of external monitor or video recorder, and external power supply and audio input are located on the back panel of the device.

Features

- ▶ 16 channels.
  - ▶ High sensitivity and selectivity.
  - ▶ Low power consumption.
  - ▶ User-friendly.
- The product can operate from on-board vehicle network and from mains adapter with 12V output voltage and load current not less than 200mA.



SPECIFICATIONS

Frequency range, MHz	1020-1200
Modulation	FM
Sensitivity, mkV	15
Video output level (at 75Ohm), V	1
Power supply, V	8-12
Power consumption, W	1.3, not less than

## Checkpoints Of Audio and Video Data Reception

Checkpoints (CP) are designed to receive and record audio and video data, received from the video transmitters via radio channel.

### Possible Versions of CP

- ▶ Impact-resistant version in PELI case.
- ▶ Impact-resistant version in PELI case.
- ▶ Standard version in rigidly framed computer bag.
- ▶ Simplified version in a compact leather bag.
- Standard version in rigidly framed computer bag.
- ▶ Simplified version in a compact leather bag.

The EN-PRM TV video receiver is used for the analog video signal reception. The CORDON video receiver is used to receive signal with Delta modulation.

Three types of batteries can be used with CP: the lead helium batteries, Li-PO batteries (if CP is used under normal environmental conditions), and using the LiFePO4 batteries (if CP is used under harsh climatic conditions). All three power supply systems have automatic charging systems and automatic switch to another power source (when connected to the 220V mains, or to the on-board vehicle network), and protection system against discharge/recharge.

All CPs are equipped with remote control transmitters from the DPK or DOUBLET series to enable remote control of the video transmitters.



Impact-resistant version in PELI case



Simplified version in a compact leather bag



Standard version in rigidly framed computer bag



Standard version in rigidly framed computer bag

## VIDEO RECORDERS

### STAYER Portable High Quality Video Recorder

The video recorder is designed to capture high quality audio and video data to the SD memory card.

The video recorder has wired and wireless remote control, as well as timer controlled recording.

The video recorder is equipped with OLED-display and buttons for indication of operating mode and configuration of recording and power supply settings.

Recordings are saved to the memory card in a special format. Recordings from memory card are downloaded and converted with the help of special software.

External video cameras from RIBBON and RIBBON-DECOR series can be used with the device.

### Features

- ▶ Three modes of the record quality: high, medium, low.
- ▶ Maximum resolution: 720x576i.
- ▶ Confirmation of the record authenticity.
- NEW**
- ▶ Non-removable flexible extended wired microphone.
- ▶ External video camera.
- ▶ Work with analogue PAL video cameras with voltage supply of 5 and 12V.
- ▶ Recording is switched on with one switch located on the side panel of the device.
- ▶ Record control via wireless remote control with feedback function.
- ▶ Turning on the recording mode via wired remote control (additional feature).
- ▶ Operating from built-in Li-PO battery with possibility to connect mini USB power supply unit/charger.
- ▶ Built-in Li-PO battery provides up to 4.5h of continuous recording (when fully charged).
- ▶ Video recording to SD card. The device supports up to 128 GB memory card.
- ▶ Special recording format. Recordings from memory card are downloaded and converted with the help of special software.
- ▶ Saving of date/time recording information is done via super positioning the text to the picture.
- ▶ Timer-controlled recording.





Optional accessories

- Remote Control Unit.
- IR Motion Sensor.
- Wired Remote Control.
- VOX Sensor.



Remote Control Unit



IR Motion Sensor



Wired Remote Control



VOX Sensor

SPECIFICATIONS

Compression Type:	
- video	H.264, up to 4 Mbit/s
- audio	AAC (Advanced Audio Coding), 48 kHz, stereo, 16-bit, flow 56-130 kbit/s
Video Standard	PAL B/G/H/I, 50 Hz
Recording Time to Memory Card 32GB:	
- High Quality, h	20, not less than
- Medium Quality, h	37, not less than
- Low Quality, h	75, not less than
Voltage Power Supply of External Camera, V	from 5 to 12
Recording Time from Fully Charged Built-in Battery, h	4.5, not less

## VIDEO RECORDERS



### FOCUS Miniature Full HD DVR with wireless Remote Control

The DVR is designed for recording to the micro-SD memory card of high-quality video in full HD resolution and stereo audio by dual-channel external and internal microphones.

DVR's recording control and monitoring of its state is operated by Remote Control Unit with up to 50 meters range.

DVR's parameters setting and saving of records is executed by special software with user-friendly interface.

#### Features

- ▶ Four rates of recording quality: the highest, good, medium, low.
- ▶ High-definition video full HD.
- ▶ Ability to connect various external cameras PAL, VGA, FULL HD.
- ▶ Compatible with video cameras RIBBON and RIBBON-DECOR series.
- ▶ Recording Start/Stop by use of a wireless Remote Control Unit with up to 50 meters range.
- ▶ Ability to connect wire Remote Control Unit and various sensors.
- ▶ Connecting to a computer via the micro-USB interface.
- ▶ Built-in Li-PO battery provides long term self-contained operation time.
- ▶ Ability to connect external power supply.
- ▶ Video recording to micro-SD memory card supporting SD HC and up to 256GB.
- ▶ Saving the date/time information in the records file.
- ▶ Based on AES password algorithm protection from unauthorized access to records files.
- ▶ Recording switching on by data timer or by VOX function (additional feature ).
- ▶ External microphone and camera on cables with 70 cm length.
- ▶ Ability to authenticate the recordings (digital signature).

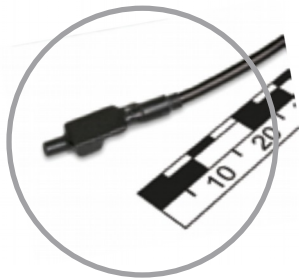


Remote Control Unit

## Video Cameras

- ▶ Low-energy high sensitive VGA camera for shooting in low light.
- ▶ Full HD camera for high quality recording
- ▶ PAL analog camera.
- ▶ Thermal imaging IR camera for capturing at the complete absence of light.
- ▶ Compatible with video cameras RIBBON and RIBBON-DECOR series.

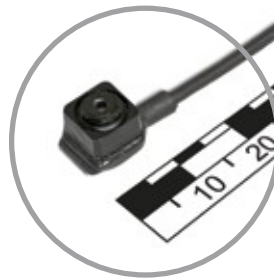
For ease of replacing the video cameras are equipped with one-type connectors for recorder linking-up.



Microphone



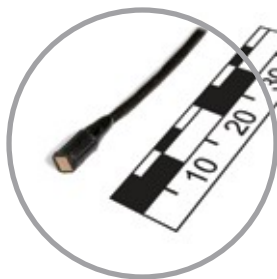
VGA Video Camera



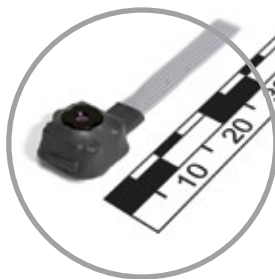
Full HD  
Video Camera



PAL Video Camera



Micro Digital  
Video Camera



Thermal Imaging  
IR camera

## SPECIFICATIONS

Resolution, pixel	1920x1080
Frame rate, fps	25
Video flow, Mbit/s	from 5 to 60
External camera power supply, V	from 3 to 9
Video compression standard	MJPEG
Audio compression standard	PCM
Audio input range, Hz	from 100 to 6000
Audio signal to noise ratio, dB	86
Built-in power supply, type / mA·h	Li-PO / 1650
Recording time under fully charged battery, h	7, not less
Remote control operating range, m	50, not less
Case dimensions, mm	87x62x5
Operating temperature range, °C	from 5 to 45
Weight, g	58

## VIDEO RECORDERS

NEW

### STEK Audio, Video Recorder with Remote Access via GSM

The Product is designed for remote real time video surveillance with data recording and its transmission via 3G GSM network.

The information from installed video camera and microphone is obtained by the Product and is recorded in high quality to the built-in SD-card and sent to the user's e-mail address or FTP-server via 3G GSM network.

The user is able to view the high quality files in pseudo-real time mode - with the delay due to transmission duration. Surveillance in real time is provided by «Video Call» function while using a smartphone or a laptop.

Video recording can be done remotely over the user's command or by the timer or by the external «dry contact» alarm sensor.

The user is informed about alarm sensor activation via SMS-message. The snapshots are simultaneously sent by e-mail and as MMS-messages.

The Product is controlled by use of special software or by special SMS-messages using the supplied GSM modem. The Product setting up and the built-in battery charging is executed via computer USB-port.

The device allows to use any SIM-card with activated data transmission function without fixed IP-address and it's possible to receive video information from the Recorder even if its SIM-card has zero balance.

The Product is PIN-protected from unauthorized access.

The Recorder is compatible with any analog camera. Video camera based on a PTU can be connected to the Product. PTU is to be connected by an external adapter that uses the Pelco D protocol.

### The Recorder Interfaces

- ▶ Connector for video camera.
- ▶ Microphone connector.
- ▶ External device control (RS232 or RS485).
- ▶ USB.



### Features

- ▶ Monitoring of the object in real time mode.
- ▶ Snapshot mode.
- ▶ Recording and data transferring to the user's e-mail address or user's server via 3G GSM network.
- ▶ Video surveillance by use of a smartphone or a laptop.
- ▶ Function of recording enabling under alarm signal.
- ▶ The Product control by a special software and SMS-messages.
- ▶ Using a SIM-card without fixed IP-address.
- ▶ Unauthorized access protection.
- ▶ Powered by a built-in Li-PO battery.



IR Motion Sensor

### SPECIFICATIONS

Video recording standard	MPEG-4
Resolution (video), pixel	320x240
Resolution (video) at "Video Call" mode, pixel	176x144
Audio signal	stereo
Audio recording format	AMR
Audio sample rate, kHz	12
Delay for viewing via server, sec.	10-15
Snapshots recording format	JPG
Recorder power supply:	
- built-in Li-PO battery	3.5A*h
- external, V	5
Video camera power supply, V	12
Charger	external
Setting up and control	via USB-connection
Current consumption, mA:	
- "camera, video recording, data transmission" mode	360, not more than
- "camera, video recording" mode	120, not more than
- stand-by mode (GSM module is ON)	7-10, not more than
- hibernation mode	1-3, not more than



## VIDEO RECORDERS

### ENTOURAGE HD Audio and Video Recorder

Miniature recorders of ENTOURAGE product line are designed for high quality data recording. Available in two versions ENTOURAGE-PHOTO and ENTOURAGE-VIDEO. Irreplaceable in a situation requiring a simple and rapid installation.

ENTOURAGE-PHOTO makes snapshots automatically.

ENTOURAGE-VIDEO carries out audio and video information recording.

#### Features

- ▶ Miniature design.
- ▶ Possibility of quick installation.
- ▶ Exchangeable memory card.
- ▶ High quality video recording (HD-format).
- ▶ High-resolution of snapshots.
- ▶ High-quality recording in motion.
- ▶ Ability to operate at low light.

The main feature of the products is a modular design - the recorders are developed as a module with remote sensor and microphone.

The modular design combined with pin-hole camera lens allows to secretly install products in clothing, interior, etc., and removable flexible mount supplied, significantly simplify the installation process.

The product turning ON/OFF is executed by a switch located on the battery case.

Received information is recorded on a removable microSD memory card.

The recorded information playback is executed by standard media player (VLC, etc.).

Recorders have an external battery with 5 V voltage converter.



#### SPECIFICATIONS

	ENTOURAGE-PHOTO	ENTOURAGE-VIDEO
Video camera	color, CMOS	
Lens type	flat pin-hole	
Angle of view, degree	65	
Memory	microSD	
Format	JPG	MPEG4
Resolution, pixels	4032x3024	1280x720
Snap shots (32Gb)	6000, not less than	-
Snapshots framing, sec.	3-4	-
Time of recording (32Gb)	5, not less than	4, not less than
Time of operation, h	4, not less than	
Power supply	autonomous battery 5V	
Current consumption (recording), mA	230	

#### Complete Set

- ▶ Miniature recorder with external sensor.
- ▶ Wireless remote control (optional).
- ▶ External battery.
- ▶ AC adapter 220/12 V.
- ▶ Charger.
- ▶ 32GB microSD Card.
- ▶ Supplies and accessories:
  - Flexible, «Velcro» type self-adhesive mount for easy installation (3 pcs.), mandrel 1/4»;
  - A drill (diameter: 0.8 mm, P18);
  - Hex-nut wrench 42-0.9.
  - Locknut M8x0.5;
  - Drill jig;
  - ▶ Adapter for control monitor connecting (RCA).

## CAMOUFLAGED VIDEO COMPLEXES BASED ON VIDEO TRANSMITTERS AND VIDEO RECORDERS

### Camouflaged Video Transmitters

Frequency Range 1020–1200MHz.  
Output Power not less than 200mW.  
High image stability.  
High quality sound.  
Low voltage power supply.  
Low power consumption.  
Compact size.



### Video Complexes Based On ENTOURAGE HD Video Recorder and Miniature Video Cameras

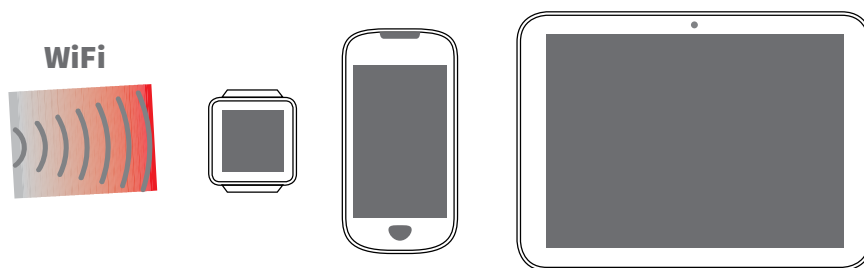
Recording information on ENTOURAGE HD Video Recorder.  
Time of continuous operation 8h.  
Lens 65 °.





# CAMOUFLAGED VIDEO COMPLEXES BASED ON VIDEO TRANSMITTERS AND VIDEO RECORDERS

## VIDEODIGIT-MINI HD Video Surveillance System



Video stream transmission and control of the system via WiFi.  
Video reception on any mobile device.



The basic kit: the unit for remote control and for information receiving, video camera, power supply unit

## Features

- ▶ HD-quality video recording.
- ▶ Video transmission and control of the system via WiFi.
- ▶ Video reception on any mobile device.
- ▶ Snapshot mode.
- ▶ External wired microphone connection.
- ▶ Various types of video camera and lens mounting.
- ▶ Different camouflage solutions.

VIDEODIGIT-MINI HD is designed for concealed video and audio recording and making concealed snapshots.

included in the complete set) with Android 4.0 and later or iOS operating system is provided.

The product is made as a handbag with the following items mounted inside it:

- Full HD digital video camera with Pin-hole lens.
- Stereo microphone.
- Mobile USB 5V battery, providing additional power supply for the video camera.
- Wireless Remote Control Unit with confirmation function.

Information received is recorded on the SD memory card. In addition by use of GPS module the camcorder has the function of recording of information about its location during making video recording.

The remote control unit provides monitoring of the image from the camera in real-time mode, enables remote control of the main recording features and provides making settings for partial system configuration.

Ability for video camera control via WiFi connection by use of smartphone (not

## SPECIFICATIONS

Video .....	MPEG4, H.264
Photo .....	compatible with JPEG (DCF 2.0, Exif 2.3, MPF Baseline)
Resolution (video), pixel .....	1920x1080, 1280x720, 800x480, 640x480
Resolution (photo), pixel .....	1920x1080
Lens type .....	Pin-hole
Focal length, mm .....	6
Angle of view (horizontal), degree .....	46
Video camera compatible memory cards .....	Micro SD/SDHC/SDXC (up to 64 GB)
Recording time (video, XAVC S, 64GB, 1920x1080), min. ....	155
Recording time (video, MP4, 64GB, 640x480), min. ....	2410
Battery of video camera, mA*h .....	1240
Operating time (external battery 5000 mA*h), min. ....	550
LCD display diagonal of the Remote Control Unit, inch .....	1.5
Remote Control Unit WiFi operating range, m .....	5
Remote Control Unit operating time in video playback mode (when fully charged), min. ....	200, is not less than

## CAMOUFLAGED VIDEO COMPLEXES BASED ON VIDEO TRANSMITTERS AND VIDEO RECORDERS

### Video Complexes Based On STAYER Video Recorder and Miniature Video Cameras

Recording information on STAYER recorder and digital wireless.  
Time of continuous operation 4.5h.  
Remote control.  
Power supply 220V or autonomous battery.



Recording information on STAYER recorder and wireless transmission (transmitting distance 5m).  
Time of continuous operation 4.5h.  
High resolution camera (700TVL).  
Lens 80 °.



Recording information on STAYER recorder.  
Time of continuous operation 4.5h.  
Color CMOS video camera with microphone.  
Remote control.  
Lens 70 °.



## CAMOUFLAGED VIDEO COMPLEXES BASED ON VIDEO TRANSMITTERS AND VIDEO RECORDERS

Recording information on STAYER recorder.  
Time of continuous operation 4.5h.  
Color video camera DECOR-MINI series with  
microphone.  
Remote control.



## VIDEO SYSTEMS

### BELT, WAIST Hidden Video Systems

Video systems are designed to transmit and receive covert audio and video data via radio stations. Sets are based on compact video transmitter VPCB 061.

The sets BELT and WAIST are placed inside of the fabric belt or waist, which have special compartment for devices. Both sets are designed for covert surveillance. The belt and waist come in 3 colors: white, beige and black. Each set consists of video transmitter, antenna, Li-Po accumulator and charger.

The video transmitter has an external microphone and a connector for video camera. Power supply of video camera is provided from video transmitter. Black and white or color video cameras can be used in different camouflages. Body-worn antenna consists of two emitters: front and back. They are used to minimize desynchronizing of video picture during the operator's movements.

The set can be equipped with remote control as well as digital video recorder STAYER to record received information. The video receiver PRM TV or CP with recoding, are used to receive video and sound.



BELT



WAIST



Transmitter



Body-worn antenna



STAYER video recorder



Power Supply Li-PO 3.7V; 3.5 A\*h

SPECIFICATIONS

Frequency Range, MHz	1020–1200
Frequency stabilization (including subcarrier frequencies)	Synthesizer (relative instability not more than $5 \cdot 10^{-6}$ )
Modulation	FM
Supply voltage, V	3–4.5
Video camera supply voltage (from video transmitter), V	9–10
Video camera current consumption, mA	140, not more than
Current consumption (at 3.6V, without camera), mA	400, not more than
Power output (at 3.6V), W	0.4, not more than
Sound subcarrier, MHz	7.5



## VIDEO SYSTEMS

### RANGE

### Remote Video Surveillance System

Range is autonomous and quickly deployable system for remote video surveillance with remote control. It is designed to receive and record video data from remotely controlled video cameras and thermal camera via radio channel.

### Features

- ▶ Transmission of video and telemetric data.
- ▶ Digital recording of video data.
- ▶ Remotely control of the pan&tilt mechanism and the video camera («up», «down», «right», «left» movement), lens («focus», «zoom») as well as «On / Off» function of the entire system.
- ▶ Variable speed control.
- ▶ Four preset positions of the camera, zoom and focus are available.

System includes high-quality and high-resolution digital video camera and high-resolution thermal camera (640x480).

Video camera «Day/Night» has built-in varifocal lens with auto focus. The lens of the thermal camera enables video surveillance in complete absence of light or during the fog, within 200-300m radius. Video camera and thermal camera are installed in separate temperature-proofed housing with heater. Both cameras are attached to a high-speed high-precision pan&tilt device manufactured by the FLIR Company. This device enables panoramic view (360 °) with the precision of memorized positions up to 0.06 °. The set can control up to 4 remote devices.

Video data transmission is accomplished via digital radio channel to ensure high quality and stability of the image even under insufficient signal condition. Digital radio link is based on the video transmitters and receivers from the CORDON series with COFDM-modulation. It is possible to operate several sets simultaneously on different frequencies. The radio link is protected from unauthorized interception and enables use of a PIN-code for data protection. Transmission and control unit (TCU) has impact-resistant and waterproof design. The unit is installed in PELI case. TCU has autonomous built-in battery, control keyboard and test monitor, which allow to check the proper installation and performance of the optical module and TCU without control point use.



The set has two-way remote control system, which can control the device within 5 km line-of-sight distance. Remote control system allows alternate management of one out of 4 remote devices, the position and

configuration of video cameras, and storing the preset settings in the memory.

The set includes receiving control point (RCP), which is designed to receive and





The following devices can be used as receivers:

- analog video-receiver;
- digital video receiver from CORDON series.

Received information is recorded to built-in 4 channel video recorder.

The following devices can be used as audio and video recorders:

- independent video recorders from RVI series;
- personal computer with video capture module.

RCP is equipped with 17" video monitor with «picture in picture» function which allows to display the video information.

RCP has built-in battery that continues operation up to 4 hours (depending on the operating mode). RCP can operate and be charged from 220V mains and from on-board vehicle network. It is possible to use following battery options:

- lead-helium battery;
- Li-Po battery for normal environmental conditions;
- LiFePO4 battery for operation under harsh climatic conditions.

All three batteries have automatic charging systems and automatic switch to another power source (when connected to the 220V mains, or to the on-board vehicle network), and protection system against discharge/recharge.

### Versions of RCP

- Impact-resistant and waterproof design in PELI case.
- Standard version in rigidly framed computer bag.

The RANGE set includes directional antennas, which allow operation in up to 5km range (with optimal position of antennas and absence of interference).

The structure of optical modules, types of cameras and lenses can be changed according to customer's request.

record audio and video data. RCP has built-in multi-channel receiver, which enables reception of signal from the transmitting module of the remote device. It is possible to install up to 4 video receivers that would

allow simultaneous signal reception from 4 remote devices working at different frequencies.

## VIDEO SYSTEMS

### CORDON Tx2 Video COFDM Transmitter

Compact digital COFDM video transmitter CORDON Tx2 is designed to transmit high quality audio and video signals via radio channel. COFDM-modulation allows excellent performance under poor radio signal conditions.

Due to COFDM-modulation, the video transmitter CORDON Tx2 provides high-quality stable picture during movements and in the absence of direct visibility.

MPEG2 compression is used in the video transmitter that enables transfer of high resolution video image without delay.

Output power of the video transmitter CORDON Tx2 is 500mW.

The device is designed to be used with video receivers from CORDON series (CORDON Rx2, CORDON Rx3, CORDON Rx4).

Due to small size and high performance, digital video transmitter CORDON Tx2 can be successfully used in compact video surveillance systems.

Unique COFDM modulation offers unprecedented spectral efficiency, while also increasing the system sensitivity and, therefore, transmitting distance and allows simultaneous work of several transmitters in the narrow frequency range.

CORDON Tx2 video transmitter is designed to work from external 12V power supply, which provides load current of not less than 1500mA or Li-PO ABP3 battery of 11.1V 2.5A\*h.

The video transmitter can work with video camera with supply voltage of 12V. Video camera is connected with 4-pin Binder. Video camera from RIBBON series is recommended to be used with CORDON video transmitter.

Video transmitter is equipped with a high-quality flexible outstanding microphone with an amplifier.



CORDON Tx2 Video COFDM Transmitter

## Additional Features

- ▶ Stereo microphone.
- ▶ Additional connector for data transfer via telemetry channel (transmission speed of 115kbit/s. simultaneously with the video stream).
- ▶ Configuration parameters of video transmitter CORDON Tx2 and video receiver from series CORDON significantly affect the signal's transmission range, video image quality and signal delay. Optimizing of the settings can significantly improve work of the system. For example, if ultra-narrow band is activated, it can increase transmitting distance several times without transmitter output power increase.

Additional configurations are optional and not included in standard set. If the additional configurations are required, delivery time and price might increase.

## SPECIFICATIONS

### HF Parameters

Output power, mW .....	500, not less than
Tuning range (standard), GHz .....	1.30-1.40
Tuning interval, kHz .....	250

### Modulation

#### Narrowband Mode

Bandwidth:	
- Standard, MHz .....	2.5
- Optional, MHz .....	1.25
- Optional, kHz .....	625
Error correction .....	2/3, 1/3
Modulation .....	QPSK, 16QAM

#### Wideband Mode

DVB-T bandwidth, MHz .....	8/7/6
Error correction .....	1/2, 2/3, 3/4, 5/6
Modulation .....	QPSK, 16QAM, 64QAM

### Video

Signal format .....	PAL, NTSC
Video compression:	
- Narrow band mode .....	MPEG2
Delay (depending on the mode), ms .....	43-500

### Audio

Standard .....	700mm flexible extended microphone, mono
Compression:	
- MPEG Layer 1 .....	32kHz, 384-64kbit/s
- NICAM Style .....	32kHz, 16kHz, 8kHz
Capacity, bit .....	12 and 8

### Data Interface

RS232 data input (optional), kbit/s .....	1.2-115.2
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### Data Protection

Format .....	ABS Encryption 32bit
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### Remote Control

RS232 remote control input (optional) .....	Control via PC, PO GUI Application
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### Power Supply

External DC (depends on the video camera type), V .....	9-16
Current consumption without camera (at 12V), mA .....	500, not more than

## VIDEO SYSTEMS



### CORDON Tx2R Video COFDM Transmitter with Built-in Video Recorder

Digital compact COFDM video transmitter CORDON Tx2R with built-in video recorder is designed to provide high quality transmission of audio and video data via digital radio channel with COFDM-modulation under poor radio signal conditions. Video transmitter CORDON Tx2R can record transmitted data.

#### Features

- ▶ COFDM modulation.
- ▶ Built-in video recorder with recording duration up to 15 hours. **NEW**
- ▶ Circular recording. **NEW**
- ▶ Video recorder automatically switches on when power supply is connected. **NEW**
- ▶ Wired RC for transmitter (optional). **NEW**
- ▶ Pre-programming of the parameters (optional).
- ▶ User-friendly.

Built-in recorder provides continuous recording up to 15 hours. Obtained audio and video data is recorded to the microSD memory card (up to 32GB) in MPEG2 (MPEG-TS) format.

Video transmitter CORDON TX2R can be connected to the PC via USB-cable for transmission of the recorded data.

Due to COFDM-modulation, the video transmitter CORDON Tx2 provides high-quality stable picture during movements and in the absence of direct visibility. MPEG2 compression is used in the video transmitter that enables transfer of high resolution video image without delay.

Output power of the video transmitter CORDON Tx2R is not less than 500mW. The device can continuously operate with video receivers from the CORDON series (CORDON Rx2, CORDON Rx3, CORDON Rx4) of the corresponding frequency range.

Due to small size and high performance, digital video transmitter CORDON Tx2R can be successfully used in compact video surveillance systems.

Unique COFDM modulation offers unprecedented spectral efficiency, while also increasing the system sensitivity and, therefore, transmitting distance and allows simultaneous work of several transmitters in the narrow frequency range.

CORDON Tx2R video transmitter is designed to work from external 12V power supply, which provides load current of not less than 1500mA or LIPO ABP3 battery of 11.1V 2.5A\*h.

The video transmitter can work with video camera with supply voltage of 12V. Video camera is connected with 4-pin Binder. Video camera from RIBBON series is recommended to be used with CORDON video transmitter.

Video transmitter is equipped with a high-quality flexible outstanding stereo microphone with an amplifier.

#### Additional Features

- ▶ Stereo microphone.
- ▶ Additional connector for data transfer via telemetry channel (transmission speed of 115kbit/s. simultaneously with the video stream).

Parameters of the video transmitter can be pre-programmed by manufacturer.

#### Main programmable parameters

- ▶ Operating frequency.
- ▶ Output power.
- ▶ Bandwidth of the transmitted signal.
- ▶ Modulation.
- ▶ Video signal compression type.
- ▶ Amount of transmitted frames per second.
- ▶ Processing and encoding parameters of audio signal.
- ▶ Amplifying coefficient of audio signal.
- ▶ Mono/stereo mode.
- ▶ Data transmission speed via telemetry channel.

Configuration parameters of video transmitter CORDON Tx2 and video receiver from series CORDON significantly affect the signal's transmission range, video image quality and signal delay. Optimizing of the settings can significantly improve work of the system. For example, if ultra-narrow band is activated, it can increase transmitting distance several times without transmitter output power increase.

Additional configurations are optional and not included in standard set. If the additional configuration are required, delivery time and price might increase.



## SPECIFICATIONS

**HF-Parameters**

Output Power ..... not less than 500mW  
 Tuning Range:  
 - Standard ..... 1.30-1.40GHz  
 Tuning Step ..... 250kHz

**Modulation****Narrow Band Mode**

Bandwidth:  
 - Standard ..... 2.5MHz  
 - Optional ..... 1.25MHz  
 - Optional ..... 625kHz  
 Error Correction ..... 2/3, 1/3  
 Modulation ..... QPSK, 16QAM

**Wide Band Mode**

DVB-T Band ..... 8/7/6MHz  
 Error Correction ..... 1/2, 2/3, 3/4, 5/6  
 Modulation ..... QPSK, 16QAM, 64QAM

**Video**

Signal Format ..... PAL, NTSC, SDI (Optional)  
 Video Signal Compression:  
 - Narrow Band Mode ..... MPEG2  
 - Wide Band Mode ..... MPEG2  
 MPEG2 Frame Frequency ..... Full-Frame Mode  
 Delay ..... 43-500ms Depends on the Mode

**Audio**

Standard ..... Flexible Extended Microphone 700mm, Mono  
 Optional ..... Linear Input, Stereo  
 Compression:  
 - MPEG Layer 1 ..... 32kHz 384-64kbit/s  
 - NICAM Style ..... 32kHz, 16kHz, 8kHz  
 Digits ..... 12 and 8bits

**Data Interface**

RS232 Data Input (optional) ..... 1.2-115.2kbit/s

**Data encryption**

Format ..... ABS Encryption 32 bit

**Recording NEW**

Memory card ..... MicroSD  
 Recording from the External Power Supply Source ..... Not less than 15h  
 Video Standard ..... PAL B/G/H/I, 50Hz

**Remote Control**

RS232 Remote Control Input (Optional) ..... Control via PC, and GUI Application

**Power Supply**

External DC (depends on the video camera type) ..... 9-16V  
 Current Consumption without Video Camera ..... Not more than 800mA

## VIDEO SYSTEMS

### CORDON Tx4 Digital Video COFDM Transmitter

The CORDON Tx4 video transmitter is designed to operate in wireless audio/video transmission systems via digital radio link with COFDM modulation. The product supports audio/video transmission under conditions of poor radio signal distribution. This product as a part of wireless audio/video transmission system can be used in field environment, stationary and in mobile complexes.

#### Features

- ▶ COFDM modulation.
- ▶ High quality stable image while moving, at urban conditions, with no line of sight.
- ▶ High resolution image without delay.
- ▶ Transmission of audio (stereo), video and telemetry data.
- ▶ Output power not less than 800mW.
- ▶ Switching of frequency channels.
- ▶ Pre-programming of the parameters.
- ▶ Simultaneous operation of several video transmitters in a narrow frequency range.
- ▶ High quality external microphone with an amplifier.
- ▶ Waterproof design.
- ▶ Temperature range from -50 to +600 C.
- ▶ Compact size.
- ▶ User friendly.

#### Design Features

The product is designed in a metal waterproof case with plugs for antennas and external equipment connection. The case is equipped with mounting hardware to install video transmitter CORDON Tx4 into customer's equipment.

Due to small size and high performance, digital video transmitter CORDON Tx4 can be successfully used in compact video surveillance systems.

Due to COFDM-modulation, the video transmitter CORDON Tx4 provides high-quality stable picture during movements and in the absence of direct visibility. MPEG2 compression is used in the video transmitter that enables transfer of high resolution video image without delay.

Output power of the video transmitter CORDON Tx4 is not less than 800mW. The device can continuously operate with video receivers from the CORDON series (CORDON Rx2, CORDON Rx3, CORDON Rx4) of the corresponding frequency range.



Video transmitter has capability to transmit data via telemetering channel with the speed up to 115 kbit/s simultaneously with video stream. The product is capable to transmit signal in wideband mode of 8 MHz DVB-T as well as in a special narrowband modes: 2.5 MHz, 1.25 MHz and 625 kHz.

Unique COFDM modulation offers unprecedented spectral efficiency, while also increasing the system sensitivity and, therefore, transmitting distance and allows simultaneous work of several transmitters in the narrow frequency range.

CORDON Tx4 video transmitter is designed to work from external 12V power supply, which provides load current of not less than 1500mA. Equipped with intelligent power protection system.

The video transmitter can work with video camera with supply voltage of 12V. Video camera is connected with 4-pin Binder.

CORDON Tx4 has ability to be connected with external programmer CORDON Tx/Rx which allows to switch frequency channels and to load the pre-programmed configurations in the field and with no need to use of a computer.

#### Main programmable parameters

- ▶ Operating frequency.
- ▶ Bandwidth of the transmitted signal.
- ▶ Modulation.
- ▶ Video signal compression type.
- ▶ Amount of transmitted frames per second.
- ▶ Processing and encoding parameters of audio signal.
- ▶ Data transmission speed via telemetry channel.

Configuration parameters of video transmitter CORDON Tx4 and video receiver from series CORDON significantly affect the signal's transmission range, video image quality and signal delay. If settings are optimized, it can significantly improve work of the system. For example, if ultra-narrow band is activated, it can increase transmitting distance several times without transmitter output power increase. Additional configurations are optional and not included in standard set. If the additional configurations are required, delivery time and price might increase.

The transmitter is designed to operate jointly with different antenna types according to certain frequency range including antennas manufactured in line with customer requirements.



## SPECIFICATIONS

## HF-Parameters

Output Power, mW .....	not less than 800
Tuning Range (Standard), GHz .....	1.30-1.40
Tuning Step, kHz .....	250

## Modulation

## Narrow Band Mode

Bandwidth:	
- Standard, MHz .....	2.5
- Optional, MHz .....	1.25
- Optional, kHz .....	625
Error Correction .....	2/3, 1/3
Modulation .....	QPSK, 16QAM

## Wide Band Mode

DVB-T Band, MHz .....	8/7/6
Error Correction .....	1/2, 2/3, 3/4, 5/6
Modulation .....	QPSK, 16QAM, 64QAM

## Video

Signal Format .....	PAL, NTSC,
.....	SDI (Optional)
Video Signal Compression:	
- Narrow Band Mode .....	MPEG2
- Wide Band Mode .....	MPEG2
MPEG2 Frame Frequency .....	Full-Frame Mode
Delay .....	43-500ms Depends on the Mode

## Audio

Standard .....	Linear Input, Stereo
Compression:	
- MPEG Layer 1 .....	32kHz 384-64kbit/s
- NICAM Style .....	32kHz, 16kHz, 8kHz
Digits .....	12 and 8bits

## Data Interface (Telemetry)

RS232 Data Input (optional) .....	1.2-115.2kbit/s
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## Data encryption

Format .....	ABS Encryption 32 bit
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## Remote Control

RS232 Remote Control Input	
(Optional) .....	Control via PC, and GUI Application

## Power Supply

External DC, V .....	12 +/-10%
Current Consumption, mA .....	Not more than 1500

## VIDEO SYSTEMS

### Video Transmitters from CORDON Series. Recommended Additional Equipment For The Standard Version

- ▶ Planar dipole antenna 1/2 wave SDA1100 REPLICA.
- ▶ Directional antenna SA1100 GRID.
- ▶ Outdoor planar directional antenna.
- ▶ 1/2 Wave dipole flexible antenna with spring insert.
- ▶ Video cameras PAL CCD/CMOS.
- ▶ Autonomous power supply ABPZ (Li-Po battery with voltage of 11.1V, and capacity 2.5A\*h).



Planar dipole antenna 1/2 wave  
SDA1100 REPLICA



Directional antenna  
SA1100 GRID



Outdoor Planar Directional Antenna



1/2 Wave Dipole Flexible Antenna with  
Spring Insert



Video cameras PAL CCD/CMOS



Power Supply ABPZ

### Video Transmitters from CORDON Series. Compatible Equipment

- ▶ Video receivers from COFDM series CORDON Rx2, CORDON Rx3, CORDON Rx4.
- ▶ Remote control:
  - remote control command receiver with high load capacity KDK003;
  - multi-channel remote control DPK010.
- ▶ 4-channel video selector with remote control SELECTOR AV4.
- ▶ Programmer CORDON Tx/Rx (only for video receivers and video transmitters from CORDON series with programming function (RS232 control)).



Video receivers COFDM  
CORDON Rx2



Video receivers COFDM  
CORDON Rx3



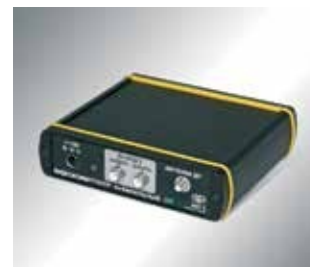
Video receivers COFDM  
CORDON Rx4



Programmer CORDON Tx/Rx



Multi-channel remote control



4-channel video selector with remote  
control SELECTOR AV4



Remote control command receiver  
with high load capacity KDK003

## Video Transmitters from CORDON Series. Comparison Of Video Transmitters

Video transmitters from CORDON series have similar specifications, but they are intended for different use. Design and some specifications may vary. All video transmitters are compatible with video receivers from CORDON series.

### ► CORDON Tx1

Compact video transmitter with low output power. Designed to work within 200-500m distance.

### ► CORDON Tx2

Compact video transmitter with 500mW output power. Designed to work within 500-1000m distance.

### ► CORDON Tx2R






Compact video transmitter with 500mW output power. Designed to work within 500-1000m distance. Device has built-in video recorder.

### ► CORDON Tx3

Water proof video transmitter with high output power and directional antenna. Intended for outside use in remote video surveillance systems up to 5km.

### ► CORDON Tx4

Water proof video transmitter with high output power. It is intended for use in mobile robotic and unmanned aerial vehicle video surveillance systems. Device has transmission range up to 1000m on ground and up to 25km in the air.

					
	CORDON Tx1	CORDON Tx2	CORDON Tx2R	CORDON Tx3	CORDON Tx4
Output power, mW	100	500	500	800	800
Audio channel:					
- Microphone input, mono	●	●	●	–	–
- Linear input, stereo	–	–	–	●	●
Video camera connector 12V	●	●	●	●	●
Programming connector RS 232	optional	optional	optional	optional	●
Data transmission connector	optional	optional	optional	–	●
Channel switch (configuration)	optional	optional	optional	● (built-in)	● (external)
Built-in recorder <b>NEW</b>	–	–	●	–	–
Types:					
- Portable	●	●	●	–	–
- Outside installation	–	–	–	●	–
- In-device installation	–	–	–	–	●
Antenna:					
- External (SMA)	●	●	●	–	●
- Built-in directional (SMA)	–	–	–	●	–

## VIDEO SYSTEMS

### CORDON Rx2 Video Receiver COFDM

Digital video receiver CORDON Rx2 with diversity reception is designed to set up high quality video transmission systems.

High picture stability is provided with COFDM-modulation and digital diverse reception under conditions of multi-beam distribution and signal fading. The CORDON receiver allows to create video monitoring systems that are superior under harsh conditions, including constant movement of the transmitter, urban area and out-of-sight exploitation.

Video receiver CORDON Rx2 can be used with video transmitters from CORDON series (CORDON Tx1, CORDON Tx2, CORDON Tx2R, CORDON Tx3, CORDON Rx4) of corresponding frequency range.

MPEG2 compression method is used in radio lines from CORDON series. This method allows to transmit video image with high resolution and without significant delay which is especially important when deployed in mobile and robotic systems.

The video receiver is able to transfer telemetric data with high speed up to

115Kbit/s during the video transmission. The CORDON Rx2 video receiver works well in both broadband mode (8MHz DVB-t) and the unique 2.5MHz, 1.25MHz and 625kHz narrow band modes proprietary to the CORDON system. Unique COFDM modulation offers unprecedented spectral efficiency, while also increasing the system sensitivity and, therefore, transmitting distance and allows simultaneous work of several transmitters in the narrow frequency range.

The CORDON voice channel uses MPEG modulation and has flexible parameters allowing optimization of audio signal. The wider is the selected band of the audio signal the higher is the quality of the audio information transmitted.

Standard versions of the receiver CORDON Rx include CORDON Rx2-034047 (340÷470MHz, without conversion) and CORDON Rx3-100150 (1000÷1500MHz, to work in other frequencies, down converter can be purchased separately if required). If the external antennas are used, converters can be installed directly onto the antennas, it will compensate cable loss and the converters won't require additional power.

### List of Basic Programmable Parameters

- ▶ Operating frequency.
- ▶ Received signal band.
- ▶ Modulation parameters.
- ▶ Video signal compression type.
- ▶ Amount of frame rate per second.
- ▶ Audio channel modulation and settings.
- ▶ Data transmission rate on telemetry channel.

CORDON receiver and transmitter settings can significantly change video quality, transmission distance and delay. If settings are optimized, it can significantly improve work of the system. For example, if ultra-narrow band is activated, it can increase transmitting distance several times without transmitter output power increase. Additional configurations are optional and not included in standard set.

\* – options, which are not included into standard package, should be purchased/manufactured additionally. This might increase price and delivery time.



CORDON Rx2 Video Receiver COFDM

## SPECIFICATIONS

## HF-parameters

Tuning Range:

- Standard	1.0-1.5GHz
- Standard (without Converter)	0.34-0.47GHz
Step	250kHz

## Modulation

Bandwidth:

- Standard	2.5MHz
- Optional	1.25MHz
- Optional	625kHz
Errors Correction	2/3, 1/3
Modulation	QPSK, 16QAM
Protective Interval	1/16, 1/8

## Video

Signal Format	PAL, NTSC
Resolution	704, 528, 480, 352
Video Signal Compression	MPEG2
MPEG2 Frame Frequency	full-motion mode
MPEG4 Frame Frequency	full-motion mode 1/2, 1/4, 1/8
Delay	43-120ms (depends on mode)

## Audio

Linear Output	2xRCA stereo
	Compression
- MPEG Layer 1	32kHz, 16kHz, 8kHz
- MPEG Layer 2	64kHz
Bits per Sample	12 and 8bit switchable

## Data Interface

RS232 Data Output	1.2-115.2kbit/s
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## Data Protection

Format	ABS Encryption 32bit
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## Remote Control

RS232 Remote Control Input (optional)	Control via Special Software
---------------------------------------	------------------------------

## Supply

External DC	9-12V
Current Consumption	not more than 1000mA

## VIDEO SYSTEMS

### CORDON Rx4 Digital Video Receiver COFDM

Digital video receiver CORDON Rx4 is designed to organize high quality video transmission systems.

#### Features

- ▶ COFDM modulation.
- ▶ High quality stable image while moving, at urban conditions, with no line of sight.
- ▶ Reception of audio, video and telemetry data.
- ▶ Simultaneous reception of information from several video transmitters in a narrow frequency range.
- ▶ Reception of information in a narrow band mode: 2.5MHz, 1.25MHz and 625kHz.
- ▶ Switching of frequency channels.
- ▶ Pre-programming of the parameters.
- ▶ Waterproof design.
- ▶ Temperature range from -50 to +60 °C.
- ▶ Compact size.
- ▶ User friendly.

The product is designed in a metal waterproof case with plugs for antennas and external equipment connection. The case is equipped with mounting hardware to install video receiver CORDON Rx4 into customer's equipment.

High picture stability is provided due to use of COFDM-modulation and digital diverse reception under conditions of multi-beam distribution and signal fading. The CORDON receiver allows to create video monitoring systems that are superior under harsh conditions including constant movement of the transmitter, urban area and out-of-sight exploitation.

MPEG2 compression method is used in radio lines from CORDON series. This method allows to transmit video image with high resolution and without significant delay which is especially important when deployed in mobile and robotic systems.

Video receiver CORDON Rx4 can be used with video transmitters from CORDON series (CORDON Tx1, CORDON Tx2, CORDON Tx2R, CORDON Tx3, CORDON Rx4) of corresponding frequency range.

The video receiver is able to transfer telemetric data with high speed up to 115 Kbit/s during the video transmission. The CORDON Rx4 video receiver works well in both broadband mode (8 MHz DVB-t) and the unique 2.5MHz, 1.25MHz and 625kHz narrow band modes proprietary to the CORDON



system. Unique COFDM modulation offers unprecedented spectral efficiency, while also increasing the system sensitivity and, therefore, transmitting distance and allows simultaneous work of several transmitters in the narrow frequency range.

Standard versions of the receiver CORDON Rx include CORDON Rx4-034047 (340÷470 MHz, without conversion) and CORDON Rx4-100150 (1000÷1500 MHz, to work in other frequencies, down converter can be purchased separately if required). If the external antennas are used, converters can be installed directly onto the antennas, it will compensate cable loss and the converters won't require additional power.

CORDON Rx4 has ability to be connected with external programmer CORDON Tx/Rx which allows to switch frequency channels and to load the pre-programmed configurations in the field and with no need to use of a computer.

#### Main programmable parameters

- ▶ Operating frequency.
- ▶ Bandwidth of the transmitted signal.
- ▶ Modulation.
- ▶ Video signal compression type.
- ▶ Amount of transmitted frames per second.
- ▶ Processing and encoding parameters of audio signal.
- ▶ Data transmission speed via telemetry channel.

Configuration parameters of video receiver CORDON Rx4 and video transmitter from series CORDON significantly affect the signal's transmission range, video image quality and signal delay. If settings are optimized, it can significantly improve work of the system. For example, if ultra-narrow band is activated, it can increase transmitting distance several times without transmitter output power increase. Additional configurations are optional and not included in standard set. If the additional configurations are required, delivery time and price might increase.



## SPECIFICATIONS

## HF-parameters

Tuning Range:

- Standard	1365, 1370, 1375, 1380,
	1385, 1390, 1395MHz
- Standard (without Converter)	0.34-0.47
- optional	1.5-2.0GHz
- optional	2.0-2.5GHz
Step	250kHz

## Modulation

## Narrow Band Mode

Bandwidth:

- Standard	2.5MHz
- Optional	1.25MHz
- Optional	625kHz
Error Correction	2/3, 1/3
Modulation	QPSK, 16QAM
Guard interval	1/16, 1/8

## Wide Band Mode

DVB-T Band	8/7/6MHz
Error Correction	1/2, 2/3, 3/4, 5/6, 7/8
Modulation	QPSK, 16QAM, 64QAM
Guard interval	1/32, 1/16, 1/8, 1/4
Sensitivity	from -95 to -104dB

## Video

Signal Format	PAL, NTSC
Resolution	704, 528, 480, 352
Video Signal Compression:	
- Narrow Band Mode	MPEG2
	MPEG4*
- Wide Band Mode	MPEG2
MPEG2 Frame Frequency	Full-Frame Mode
MPEG4 Frame Frequency	Full-Frame Mode
	1/2, 1/4, 1/8
Delay	43-120 ms (Depends on the Mode)

## Audio

Linear Output	2xRCA stereo
---------------	--------------

## Compression

- MPEG Layer 1	32kHz, 16kHz, 8kHz
- MPEG Layer 2	64kHz
Digits	12, 8 bit

## Data Interface (Telemetry)

RS232 Data Output	1.2-115.2kbit/s
-------------------	-----------------

## Data Encryption

Format	ABS Encryption 32bit
--------	----------------------

## Remote Control

RS232 Remote Control

Input (Optional)	Control via PC, and GUI Application
------------------	-------------------------------------

## Power Supply

External DC	9-12V
Current Consumption	not more than 1200mA

## Operating Conditions

Operating temperature range	from -50 to +600 C
Atmospheric Moisture Capacity	98%
Mechanical strength	impact testing 15g
	vibration 3g

## VIDEO SYSTEMS

### Video Receiver from CORDON Series. Recommended Antennas

- ▶ Planar dipole antenna 1/2 wave EN-SDA1100 REPLICATION.
- ▶ Directional antenna EN-SA1100 GRID.
- ▶ Magnetic based antenna EN-MA1100.
- ▶ Magnetic based Antenna SHARK.
- ▶ Outdoor planar directional antenna.



Planar dipole antenna 1/2 wave EN-SDA1100  
REPLICATION



Directional antenna EN-SA1100 GRID



Magnetic-base antenna EN-MA1100



Magnetic based Antenna SHARK



Outdoor planar directional antenna

## Video Receiver from CORDON Series. Compatible Equipment

► Digital video transmitters COFDM (for standard version):

- CORDON Tx1;
- CORDON Tx2;
- CORDON Tx2R;
- CORDON Tx3;
- CORDON Tx4.

► Programmer CORDON Tx/Rx (only for video receivers and video transmitters from CORDON series with programming function (RS232 control)).



Digital video transmitters  
CORDON Tx1, CORDON Tx2



Digital video transmitters  
CORDON Tx2R



Digital video transmitters  
CORDON Tx3



Digital video transmitters  
CORDON Tx4



Programmer CORDON Tx/Rx

## Video Receiver from CORDON Series. Comparison Of Video Receivers

Video transmitters from CORDON series have similar basic technical specifications. However, the application, design and some specifications may vary.

► CORDON Rx2


Standard version of video receiver for use under stationary conditions.

► CORDON Rx3

Water proof version of video receive with directional antenna. Device has switching channels function. It is designed to be used outside, in robotic, unmanned aerial vehicle and remote video surveillance systems.

► CORDON Rx4

Water proof OEM version of video receiver. Intended for installation into the robotic, unmanned aerial vehicle and remote video surveillance systems.

			
	CORDON Rx2	CORDON Rx3	CORDON Rx4
Linear audio output, stereo	●	●	●
Input programming device RS 232	optional	optional	●
Data transmission	optional	●	●
Connector channel switch (configurations)	—	● (built-in)	● (external)
Types:			
- Stationary use	●	—	—
- Outside installation	—	●	—
- Installation into other equipment	—	—	●
Antenna Type:			
- External (SMA)	●	—	●
- Built-in directional (SMA)	—	●	—

## VIDEO SYSTEMS



### SHARK Magnetic Based Antenna

Antenna is designed for joint usage with receivers and transmitters of CORDON line products operating in 1365-1395 MHz frequency range.



Programmer CORDON Tx/Rx (OEM model)

Antenna is designed as a standard vehicle antenna in the “shark fin” style. Has an elegant appearance without the hallmarks of a special antenna.

Connection to the equipment is provided via a flexible cable with SMA-connector. Magnetic mount makes it easy to install the antenna on the trunk or on the car roof.

#### SPECIFICATIONS

Operating frequency	1365-1395MHz
Antenna gain	3dB
The length of transmitting element	1/2 or 1/4 $\lambda$
VSWR at antenna resonant frequency	2.0
Pass band at VSWR level =1.5	
Maximum output power	5W
Connection cable length	3m
Connector type	SMA
Directional pattern	Torus in horizontal plane

### Programmer CORDON Tx/Rx

Programmer CORDON Tx/Rx is universal device designed to setup parameters of the video transmitters and video receivers from the CORDON series.

The device provides switching of the frequency channels for the receiving devices with programming function operating in 1365–1395MHz frequency range. Programmer is manufactured in two models:

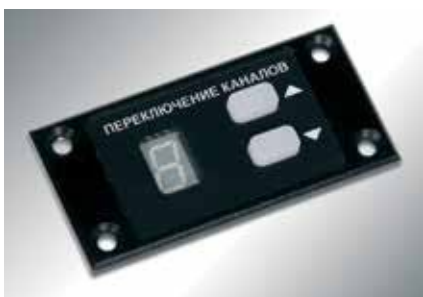
OEM and standard model. OEM model has front panel with buttons and channel indicators and is designed to be built-in in technical video surveillance systems.



Programmer CORDON Tx/Rx (OEM model)



Programmer CORDON Tx/Rx



Programmer CORDON Tx/Rx (OEM model)

#### SPECIFICATIONS

Number of Transmission Channels	8
Frequency Range	1365-1395MHz
Tuning Step	5MHz
Power Supply	from 9 to 16V
Current Consumption	not more than 30 mA

## FLUGER Compact Video System with Pan&Tilt Mechanism

Compact video surveillance systems from FLUGER series are used as a part of the wireless video surveillance hardware. They include small pan&tilt unit (from MARSHALL or CORNET series), video camera with lens, wireless remote control unit and DOUBLET remote control device.

MTR DRV mini universal remote control unit based on DOUBLET remote control with feedback function is used in systems from FLUGER series. High speed and command execution reliability at a low power consumption is possible due to unique protocol of batch data transmission. The remote control unit provides horizontal and vertical camera movement, camera's lens control, switching on and off the devices (video transmitter, video recorder, highlighting, etc.).

Depending on the model, FLUGER system may include pan&tilt units of different sizes and purpose. Special design of pan&tilt units enables video surveillance via compact, 1-3mm pinhole (except for FLUGER 4) along the camera movement.

### ▶ FLUGER

The product has double-coordinate pan&tilt unit Marshall along with long-focus lens of fixed or variable focal length of 60-22mm or 10-50mm (CS). Colored or black-and-white cameras can be provided depending on the requirements. Pinhole size is from 1 to 3 mm (depending on the lens).

### ▶ FLUGER MINI-1

Device has single-coordinate pan&tilt mechanism Korne-1 with fixed focal length 25mm lens, 12x0.5mm screw, and 25x25mm board camera with Day/Night function. Pinhole size is 1 or 2mm (depends on the amount of light).

### ▶ FLUGER MINI-2

Device has double-coordinate pan&tilt mechanism Korne-2 with fixed long-focus 25mm lens, 12x0.5mm screw, and 25x25mm board camera with Day/Night function. Pinhole size is 1 or 2mm (depends on the amount of light).



### ▶ FLUGER MINI-3

Device has pan&tilt unit KORNET-3 with optical zoom lens (x22) with auto focus allowing surveillance within 50-100m. Compact size of pan&tilt unit allows to camouflage it in different objects like vehicle headrests, toys etc. with the use of shielding photo-filters and decorative grid.



MTR DRV mini universal remote control unit



DOUBLET remote control

## VIDEO SYSTEMS

### MASTER Multifunctional Wireless Self-tuning COFDM IP- system

Multifunctional wireless self-tuning COFDM IP-system is based on IP Mesh wireless modules. The device can be used as a base unit of the remote video surveillance systems. The MASTER system provides rapid deployment of independent wireless data transmission network. The device allows to perform video surveillance from various remote locations, including mobile or portable ones. It is also possible to set up remote access and data transfer via Internet. The network, based on MASTER, is highly reliable - data transmission will remain uninterrupted even if connection with remote units is lost. Pre-configured modules of the MASTER automatically form network within few seconds after being turned on (without the user intervention). MASTER system can be used in urban areas. The coverage area can be up to 10km<sup>2</sup> if IP Mesh radio modules are installed according to the STAR scheme with central retransmitter, being set at a maximum gradient. Firm waterproof frames of the modules withstand continuous exploitation under harsh climatic conditions. Compact design, special signal transmission technology and universal 12/220V power supply enable location of radio modules in the vehicles and their use during movement.

### Features

- ▶ Does not require tuning and special training.
- ▶ Wireless data transmission in urban areas.
- ▶ All modules operate within same frequency range.
- ▶ Frequency can be chosen.
- ▶ Compatibility with any IP-devices:
  - IP-video cameras;
  - IP swivel unit;
  - IP-video recorders etc.
- ▶ Can be connected to analog video cameras.
- ▶ RS232, RS485 telemetry transmission.
- ▶ Compatibility with both GLONASS and GPS.
- ▶ Built-in video recorder.



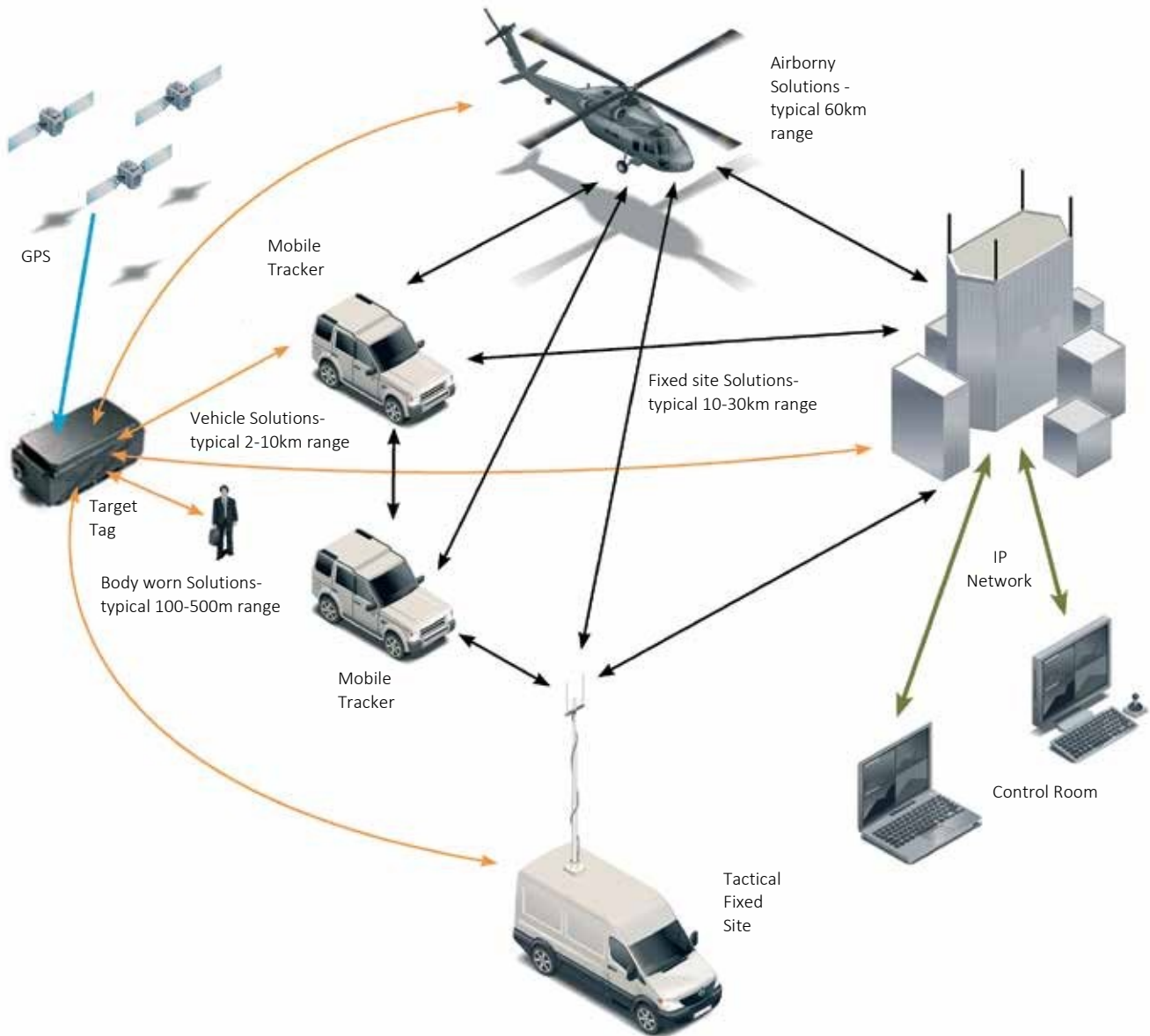
IP Mesh wireless modules

### SPECIFICATIONS

Transmitting Frequencies	340-470MHz
	1000-1500MHz
	Optional:
	2170-2500MHz
	4500-5000MHz
	5500-6000MHz
Tuning Interval	125kHz
Controlled Output Power	from +30 to 0dBm; pitch 0.25dB
Bandwidth	2.5; 3; 3.5MHz
Data Flow Rate	up to 3.5Mb/s
Modulation	COFDM, 360 carrier frequencies
Carrier Modulation	BPSK, QPSK or 16QAM (adaptive)
Transmission Diversity	Summation of Differential Weighted Signals of Each Channel
Receiver Sensitivity	-98dBm for the Most Stable Mode
IP-Interface:	
- Network Connection	10/100 Base-TX Ethernet
- IP-Address Assignment	DHCP Dynamic Multi Subscriber IP-Addressing
- Video and Audio Stream Format	Compatible With VLC and RTSP Standards



## VIDEO SYSTEMS



## VIDEO SYSTEMS

### **RADAR Digital System for Recording Audio, Video Data and Transmission to the Remote Checkpoint**

The set is designed for the remote video surveillance and recording inside the vehicle and beyond. The set allows quick installation of the equipment in the vehicle.

Audio and video data comes from 4 signal sources and are recorded at the same time. Simultaneously transmission via radio channel to the remote checkpoint is carried out.

The system allows to switch between video cameras remotely via radio channel and control the positioning and zooming of the lens of each video cameras.

#### Basic Content

- ▶ Recording and transmitting equipment set.
- ▶ Receiving equipment and remote checkpoint set.
- ▶ Set of video cameras, designed for covert installation.

#### Available Camouflages of Video Cameras

Camouflages and video cameras should be agreed upon order placement.

#### The System Provides

- ▶ Simultaneous recording from 4 video signal sources and 4 audio sources.
- ▶ Wired remote control of recording and transmitting equipment when it is in autonomous mode (without receiving system and radio remote control) as well as during equipment setup and servicing.
- ▶ Remote control via radio channel of horizontal and vertical video camera positioning as well as focal distance settings of the lens.
- ▶ Remote switching and transmission of video and audio signals via encrypted digital radio channel from 1 out of 4 sources.



Recording and transmitting equipment set



Receiving equipment and remote checkpoint set

- ▶ Remote on and off switching.
- ▶ Continuous control within surveillance zones of 4 video cameras via 4-channel with motion detector with subsequent alarm signal transmission to the receiver.
- ▶ Power supply from battery to the receiving and transmitting equipment.

## Main Operating Modes of the System

- ▶ Autonomous mode: audio and video recording to the built-in video recorder without transmission via radio channel.
- ▶ Video surveillance mode: audio and video recording, remote control of video cameras, audio and video transmission via digital radio channel CORDON.
- ▶ Remote video surveillance mode: audio and video recording, remote control of video recorder, access to video archive via GSM channel (3G, 4G).



## VIDEO SYSTEMS

### HEAD-REST Set for Hidden Video Surveillance

Video surveillance set HEAD-REST is designed for panoramic video surveillance from vehicle, recording of captured video data and transmission via radio channel.

Set includes two head-rests installed into the vehicle instead of standard head-rests of front seats.

Panoramic video surveillance is done via decorative removable thick grid head-rest protector. Head-rest protector excludes possibility of discovering optic module installed into the head-rest during the visual vehicle inspection.

Head-rest has universal adjustable design that allows its installation to the different types of car seats. Fixing adjustment is done

by the height, tilt, and distance between rack mounts.

The device is equipped with adjustable connection cable for external 12V power supply.

The set includes remotely controlled color video camera, installed to the tilting platform CORNET 3. Head-rest has MTR DRV mini block with remote control with feedback function. Wireless remote control DOUBLET TRX controls optical module and external devices. It operates within frequency range of 917MHz.

Video recording is done to the video recorder STYER.

The video transmitter CORDON Tx2 installed in 2nd head-rest performs video data transmission via radio channel.

Reception and recording of captured audio/video data is done to the checkpoint. Checkpoint is located in the bag and consists of receiving monoblock and laptop.

### Following Features Can be Controlled via RC

- ▶ Switching on/off the device.
- ▶ Choosing control mode (video camera/pan-tilting device).
- ▶ Control speed adjustment.
- ▶ Control of external devices.







DOUBLET remote control TRX



Checkpoint of Audio and Video Data Reception

SPECIFICATIONS

Video Camera and Lens

Camera type	color, CCD, day/night
Image sensor	1/4" Sony Super HAD II Dual Scan CCD
Horizontal resolution, TVL	700
Minimal sensitivity, lux	0.001
Optic ZOOM	x22

Pan&Tilt Device

Horizontal/Vertical motion, degrees	100/40
Motion speed, degrees/sec:	
- High	30
- Medium	20
- Low	10

Remote Control Module MTR DRV Mini

RC channel frequency, MHz	917
RC transmitter sensitivity, dB	115
Output power of RC transmitter, mW	430, not less than
Voltage supply, V	9-14
Current consumption at 12V without video camera, mA:	
- in Standby mode	1, not more than
- in Operating mode	140, not more than

DOUBLET remote control TRX

Frequency, MHz	917
Power, mW	430, not less than
Modulation	FSK
Internal power supply	Li-Ion 3.7V; 1020mA

## VIDEO CAMERAS

### Miniature High Quality CMOS Video Cameras

Miniature video cameras developed on the basis of third generation CMOS-sensors demonstrate optimal combination of quality and size. They significantly reduce energy consumption while maintaining high video quality.

Camcorders are designed by using of common components and have similar characteristics. They are produced in various

designs and one may choose the best option for a particular purpose.

In combination with different types of special lenses of small diameters M7, M8 miniature CMOS video cameras significantly expand the variety of camouflage solutions to be produced for them.

### Video Cameras. Cylindrical Housing


			
	EN-SE-RX5510	EN-SE-R5910C	EN-SE-R5710SC
Design features	cone lens	hard to detect lens, moisture-proof	hard to detect lens, moisture-proof
Camera type	color PAL	BW CCIR	BW CCIR
Image Sensor Size	1/3.7"	1/3"	1/4"
Sensitivity (F1.2), lx	0.05	0.006	0.006
Resolution, TVL	480	550	550
Power Supply, V	5-12	5-12	5-12
Current Consumption (at 12V), mA	80, not more than	80, not more than	80, not more than
Lens	f=3.7mm (F2.5)	f=3.6mm (F2.0)	f=3.9mm (F2.8)
Dimensions, mm	diameter 10x30	diameter 10x30	diameter 10x8,4



## Video Cameras. Flat Housing

				
	EN-SE-S9700U	EN-SE-S5707UA	EN-SE-S5708U	EN-SE-S8651
Design features	flat case, infrared LED highlights	flat case, built-in microphone	flat miniature case	flat case, possible to replace the lens
Camera type	BW CCIR	BW CCIR	BW CCIR	color PAL 960H
Image Sensor Size	1/4"	1/4"	1/4"	1/3"
Sensitivity (F1.2), lx	0.006	0.006	0.006	0.05
Resolution, TVL	550	550	550	740
Power Supply, V	5-12	5-12	5-12	5-12
Current Consumption (at 12V), mA	80, not more than	80, not more than	80, not more than	80, not more than
Lens	f=3.9mm (F2.8)	f =3.9mm (F2.8)	f =3.9mm (F2.8)	f =4.3mm (F2.0) M10x0.5
Dimensions, mm	9.6x18x9.4	9.1x23x6.4	8x13x5.1	diameter 23x7.2 (without lens)

## Video Cameras. Square-Profile Housing

				
	EN-SE-S5788	EN-SE-S7588-EZ	EN-SE-S4910-EZ	EN-SE-S8510
Design features	possible to replace the lens and option for cable out direction	magnetic fastening	magnetic fastening	possible to replace the lens and option for cable out direction
Camera type	BW CCIR	color PAL	BW CCIR	color PAL 960
Image Sensor Size	1/4"	1/4"	1/3"	1/3"
Sensitivity (F1.2), lx	0.006	0.05	0.01	0.05
Resolution, TVL	550	560	550	740
Power Supply, V	5-12	5-12	5-12	5-12
Current Consumption (at 12V), mA	80, not more than	80, not more than	80, not more than	80, not more than
Lens	f =4.3mm (F2.0) M7x0.5	f =4.3mm (F2.0)	f =4.3mm (F2.0)	f =3.7mm (F2.0) M10x0.5
Dimensions, mm	8.6x8.6x5.4 (without lens)	8.6x8.6x15	11x11x16	11x11 (without lens)

### Video Cameras RIBBON Series

Special video cameras from RIBBON series provide covert installation inside of different objects, clothes and etc. Video cameras from RIBBON series are based on CCD-sensors. Video cameras are equipped with compact cone or flat pin-hole lenses, allowing video surveillance via small pin-hole (0.6-2,5mm) with different angles of view varying from 15 up to 110.



Video cameras from RIBBON series are manufactured in three different ways

Black-and-white CCD-video camera	high resolution
	high sensitivity
Color CCD-video camera	high resolution
	medium sensitivity
Day/night CCD-video camera	high resolution
	good sensitivity
pre-installation of parameters is possible	

MAIN SPECIFICATIONS OF CCD-VIDEO CAMERAS			
Video Camera Type	Color CCD	Black-and-White CCD	Day/night CCD
Image Sensor Size	1/3"	1/3"	1/3"
Resolution, TVL	560	600	650
Sensitivity (F2.0), lx	0.1	0.001	0.05
Power Supply, V	9-12	9-12	9-12
Current Consumption (at 12V), mA	80	110	90
Video Output	1 Vpp, 75Ohm composite		

Video cameras from RIBBON series have elastic thin cable with standard compact Binder connector to connect to the receiving or recording equipment.

## Video Cameras RIBBON-MINI Series

Special video cameras from RIBBON-MINI series provide covert installation inside of different objects, clothes and etc.

Video cameras from RIBBON-MINI series are based on CMOS-sensors.

They are featuring to be of low weight and size and to produce slight heat while operating, which is especially important in case of bodyworn applications.

The RIBBON-MINI line cameras are equipped with miniature Pin-Hole Lenses with M8x0.5 or M7x0.5 mount thread.

All video cameras are equipped with highly effective voltage converter which allows decrease heat release and use of different power sources with voltage from 5 to 12V. The converter is equipped with a filter that reduces the noise level.



Video cameras from RIBBON-MINI series are manufactured in two different ways

Black-and-white CMOS-video camera	.....	high resolution high sensitivity low energy consumption
Color CMOS-video camera	.....	high resolution high sensitivity low energy consumption

### MAIN SPECIFICATIONS OF CMOS -VIDEO CAMERAS

Video Camera Type	Black-and-White CMOS	Color CMOS
Image Sensor Size	1/4"	1/4"
Resolution, TVL	520	480
Sensitivity (F2.0), lx	0.006	0.05
Power Supply, V	5-12	5-12
Current Consumption (at 12V), mA	30	30
Video Output	1 Vpp, 75Ohm composite	

Video cameras from RIBBON-MINI series have elastic thin cable with standard compact Binder connector to connect to the receiving or recording equipment.

## VIDEO CAMERAS

### DECOR

#### Video Cameras Set with Interchangeable Camouflage and Special Set of Tools for Fast Installation

Set is used in hidden surveillance systems.

#### Set includes:

- ▶ video camera from RIBBON-DECOR series;
- ▶ set of interchangeable camouflage elements;
- ▶ set of tools and equipment.

User can choose and install camouflage elements with tools and adjustable devices included in the supply kit.



Set of Interchangeable Camouflage Elements



Package



Set of Tools and Equipment

### PACKAGE TYPES

Name of the Kit	Video camera RIBBON-DECOR	Video camera RIBBON-DECOR MINI	Camouflage Elements	Tools for camouflage installation	Kit for camouflage elements manufacturing	Package
DECOR set of buttons	1 pc.	-	3 pc. (M8)	V	-	V
DECOR	1 pc.	-	6 pc. (M8)	V	-	V
DECOR Optima	1 pc. BW	1 pc. Color 1 pc. BW	6 pc. (M8) 4 pc. (M7)	V	V	V
DECOR Mini	-	1 pc. Color 1 pc. BW	6 pc. (M7)	V	V	V

## Video Cameras RIBBON-DECOR Series

Main feature of RIBBON-DECOR series is mounting system of lens to the image sensor that allows to:

- ▶ remove lens for installation into camouflage element and subsequent attachment to the image sensor without defocusing the lens;
- ▶ choose position of the camouflage element and lens towards image sensor;
- ▶ set up lenses with other specifications (adjusted for work with particular video camera).

Standard DECOR kit includes CCD-video cameras with M8 thread and equipped with a lens. The advantages of this type of cameras are high quality images, a wide range of compatible optics for different purposes.

RIBBON-DECOR-MINI is a product based on ultra-compact CMOS-video camera, it has light weight and generates few heat while operating. This is especially important for body-worn application. Micro optics with M7 mounting allows use of light weight simplified camouflage elements.

By use of adaptor the cover elements with M8 mounting thread may be also assembled with RIBBON-DECOR-Mini products which makes them to be the most universal in the family of DECOR kit using cameras.

## Lenses For Video Cameras RIBBON-DECOR

To enhance the use of cameras of this type they may be equipped with lenses not intended for use with the elements of cover but designed to be camouflaged in some other way.

Nomenclature of lenses compatible with RIBBON-DECOR and RIBBON-DECOR-MINI products is constantly expanding and is being completed by models for different purposes.



Video camera RIBBON-DECOR



Video Cameras RIBBON-DECOR MINI



Lenses for video cameras RIBBON-DECOR

Focal Length	f=3.0mm	f=3.1mm	f=3.7mm	f=6.0mm
Horizontal Angle of View, degrees:				
- for 1/3"	-	90	70	46
- for 1/4"	80	62	48	30
Pinhole (without camouflage elements)	F2.5	F2.6	F2.0	F2.6
Thread	M7x0.5	M7/M8x0.5	M8x0.5	M8x0.5

## ADDITIONAL EQUIPMENT FOR VIDEO SYSTEMS

### EN-VM 010 Video Modem

Video modem transmits audio and video signals from color and black-and-white video cameras via radio channel.

The device has a metal frame. Modem has SMA-plug to connect the antenna and plugs for external devices connection. Antenna output of video modem is protected from short-circuit and off-load.

Video modem can be used under stationary conditions in remote video surveillance and video retranslation systems.

Device has output power control. Signal reception is done to the video receiver EN-PRM TV.



### SPECIFICATIONS

Frequency .....	1010-1200MHz
Frequency Forming .....	synthesizer
Relative Instability .....	not more than $100 \times 10^{-6}$
Modulation Type .....	FM
Frequency Carrier Deviation .....	6-7MHz
Supply Voltage .....	7.2-14V
Output Power (at $U_s = 12V$ , at load of 50 Ohm with $VSWR \leq 1,3$ ) .....	1/4W
Current Consumption (at $U_s = 12V$ ) .....	not more than 1000mA
Subcarrier Sound .....	7.5/5MHz



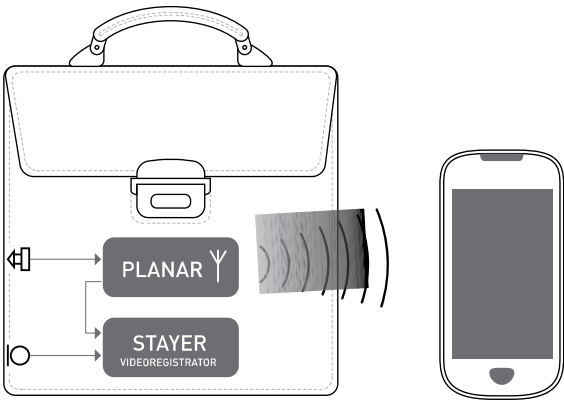
PLANAR  
TV-signal Modulator

TV-signal modulator PLANAR is designed to transmit audio and video signals to TV receiver within 5m radius.  
TV-signal modulator Planar is used in video surveillance systems for precise focus of video camera. Planar transmits camera image to the mobile phone with TV tuner.

Features

- ▶ Bypass video signal.
- ▶ Channel switching.
- ▶ Absence of external antenna.
- ▶ Compact size.

TV-signal modulator Planar has a plastic case. The device is compatible with video cameras from the Ribbon series and video recorder Styer. The device can be used with cameras produced by other manufacturers if they are equipped with 4-contact output for video signal reception/transmission and power supply.



SPECIFICATIONS

Frequency Range	600-855.25MHz
Number of Channels	16
Supply Voltage	5-12V
Current Consumption:	
- at 12V	50mA
- at 5V	100mA
Distance Range	not less than 5m
Antenna	built-in
Channel	A/V-in
Modulation	AM
TV standard	PAL/SECAM

## ADDITIONAL EQUIPMENT FOR VIDEO SYSTEMS

### MIRAGE-2 Encoding/Decoding Video System for PAL/NTSC Standard

System is designed to encrypt video image transmitted via analog radio channel.

#### Features

- ▶ Interchangeable devices (coder/decoder) in decryption mode.
- ▶ Automatic decoding in «smart decryption» mode.

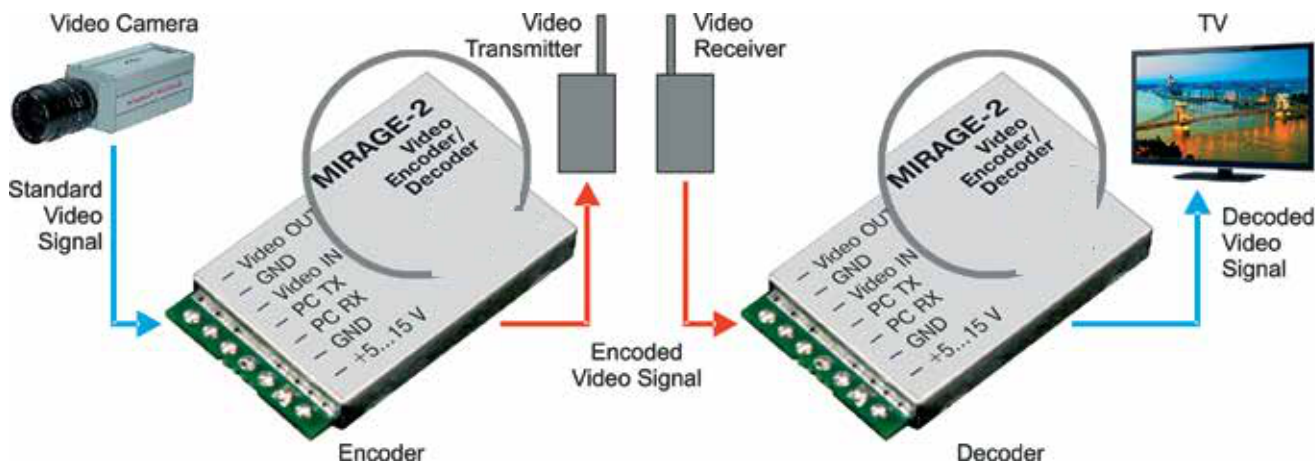
Usually, two devices are used in the one set: one on the transmitting side (encoder) and another on the receiving side (decoder).

MIRAGE-2 has analog video input and output. Device is manufactured in PAL and NTSC

versions.

The video encryptor is connected between analog video camera and video transmitter. The video decryptor is connected between video receiver and monitor. Individual encryption key is installed by the manufacturer. Devices with the same key are interchangeable because of the automatic algorithm of defining the signal and the device type (encoder and decoder). Reception-transmission equipment should be used to obtain high quality video image after encoding/decoding process. Encryption system is compatible with color and black-and-white video cameras. «Smart encoding» feature can be activated for automatic switching during between encoding/decoding modes. In this case, the device is installed only on the reception side and decodes the signal only when it is defined as encrypted one. Open or closed mode symbol will be shown on the screen during operation.

Encoding key consists of four hexadecimal digits. Mixing of picture lines will vary from frame to frame during dynamic encoding. However, such encoding needs high bandwidth capacity for decoding of the image. Device has the status indicator. Device has RS-232 buffer input and can be connected to the PC via COM-port. Software MIRAGE-2 CONTROL should be used to setup operating mode and encoding key of the device. Software is intended only for servicing. Most users do not need to use it because the device is configured by the manufacturer upon purchase.



### SPECIFICATIONS

Supply Voltage (on DC)	from 5 up to 15V
Energy Consumption	50mA at 12V
Operating Temperature	from 0° up to 60°C
Number of Analog Outputs	1 Video Input, 1 Video Output
Video Standard	PAL (50Hz), NTSC (60Hz)
Video Input/Video Output Parameters	1 Vpp at Load of 75Ohm
Scrambling Method	Cutting and Picture Flip
Number of Ways of Encoding	65280 for Static Encoding, 256 for Dynamic Encoding
Encoding Modes	Forced Encoding Mode, "Smart" Decoding Mode
Picture Quality at a Sequential	
Encoder-Decoder Connection	not less than 450TVL

SELECTOR-AV4  
4-Channel Video Selector

4-channel video selector is used with wireless video surveillance systems for remote switching of video/audio signal and power supply. Video selector significantly simplifies design of the wireless video surveillance systems. The device allows to perform remote switching of video cameras, microphones, power supply, executive relays in external additional devices such as highlighter, heater etc.

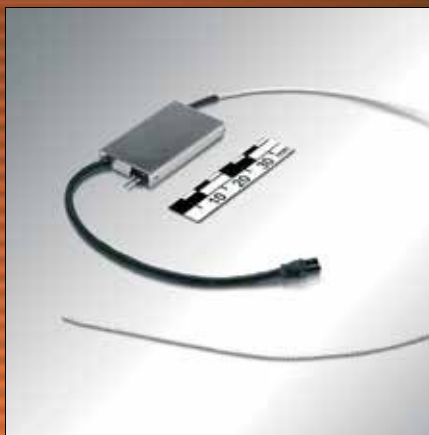
Features

- ▶ 4 channels.
- ▶ Synchronized audio/video commutation.
- ▶ Power supply commutation of video cameras.
- ▶ Low power consumption in operating mode.
- ▶ Control range up to 500m.
- ▶ Remote control with feedback function.
- ▶ Built-in video signal splitter.
- ▶ Four groups of switching relay contacts.
- ▶ Remote control (RC) with built-in accumulator.



SPECIFICATIONS

Number of AV channels	4
Number of input relays	4
Inputs:	
Video Signal Voltage	1V
Video Signal Resistance	75Ohm
Audio Signal Voltage	1V
Audio Signal Resistance	100kOhm
Control relay	220V; 1A
Video Camera Supply	12V; 500mA
Basic Parameters:	
RC Channel Frequency	917MHz
RC Receiver Sensitivity	115dB
RC Output Power	not less than 430mW
Supply Voltage	12V



# REMOTE CONTROL SYSTEM

## REMOTE CONTROL SYSTEMS

### EN-DPK 010 and EN-KDK 003 Remote Control System

Remote control system is designed to remotely control operation of transmitters. The system consists of remote control EN-DPK 010 and receiver of the remote control commands EN-KDK 003.

System is optimized to work with transmitters but it can also be used for remote control of other transmitters.

Using remote control system allows to control the operation of the transmitter as well as extend the operating time from the battery.

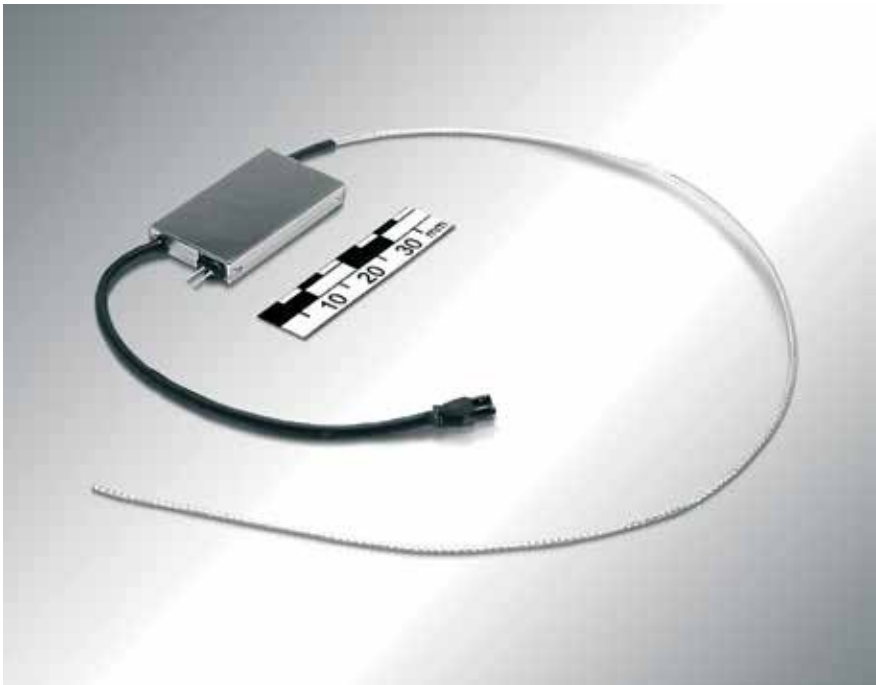
LED-indicator, located on the remote control, provides the information about the channel number, command transmission and state of the battery.

### Functions

- ▶ Switching on/off of the transmitter.
- ▶ Channel selection.



EN-DPK 010



EN-KDK 003

SPECIFICATIONS

EN-DPK 010 Remote Control

Frequency (preset by manufacturer), MHz	151 +/-5
Modulation	FM
Output power, mW	600
Power supply	4 x AAA 1.5V

EN-KDK 003 Receiver of Remote Control Commands

Frequency (defined by crystal oscillator), MHz	145-155
Sensitivity, mcV	0.2, not less than
Bandwidth, kHz	15
Power supply, V	2.5-15
Current consumption (3V):	
- Standby mode, mcA	120, not more than
- Operating mode, mA	4, not more than
Current load (standard package), mA	1000



## REMOTE CONTROL SYSTEMS

### DOUBLET Remote Control Radio Link with Feedback Function

Remote control radio link with feedback function is designed to be used in the surveillance systems to control operating devices (data transmitters, tilting devices, video cameras, lenses, commutators, data recorders and etc.).

Radio link consists of remote control DUPLER TRX and receiving-transmitting module DUPLER RTX, designed for mounting into control equipment.

Doublet is ideal for robotic systems. It controls the engine and gear via data channel.

High execution speed of control commands, high reliability and as well as significant decrease in energy consumption is achieved due to unique protocol of the batch transmission of data.

### Features

- ▶ Operating distance range up to 1000m.
- ▶ Three operating modes: reception-transmission mode, standby mode, sleep mode.
- ▶ Low energy consumption.
- ▶ Feedback function.
- ▶ Remote control of battery.
- ▶ I2C Interface.

### Following Compatible Modules are Developed and Manufactured

- ▶ Pan&tilt mechanism control module MTR DRV mini.
- ▶ Multi-channel power circuits module and audio and video selector.





Pan&tilt mechanism control  
module MTR DRV mini



SELECTOR-AV4  
Multi-channel power circuits  
module and audio and video  
selector



# AUDIO RECORDING EQUIPMENT

## DIGITAL IC RECORDERS

### PAPYRUS III Digital Audio Recorder

Digital audio recorder PAPYRUS III is a professional voice recorder designed for high quality recording under harsh acoustic environment.

#### Two Versions

- ▶ PAPYRUS III has metal case.
- ▶ PAPYRUS III TITAN has reinforced titanic case that protects the device from electromagnetic fields and audio recorders jammers.

PAPYRUS III allows recording of meetings, negotiations and interviews inside building as well as outside using built-in or external microphone. Built-in microphone can record within 5m radius inside the building and within 1-2m radius outside under urban conditions.

PAPYRUS III has prolonged time of continuous recording (up to 153h) compared to other recorders from PAPYRUS series. PAPYRUS III has remote control function.

Digital audio recorder PAPYRUS III best suits to:

- ▶ law enforcement authorities for creating protocol during special operations, in police's cars and etc.;
- ▶ security services;
- ▶ emergency services (fire brigades, ambulance, rescue services) during rescue operations;
- ▶ professionals providing services (law, medical, business, journalism and etc.) for recording of meetings, consultations and interviews.

#### Features

- ▶ User-friendly.
- ▶ Up to 153h of continuous recording.
- ▶ Use of built-in or external microphone.
- ▶ Recording in noisy environment.
- ▶ VOX function.
- ▶ «Invisible» for the kinematic audio recorders locators.
- ▶ Protected against audio recorder's jammer.
- ▶ Protection against unauthorized download or interception.
- ▶ Built-in timer.
- ▶ Recording timer.
- ▶ Manual or automatic turning on/off of the audio recording (according to the sound level – VOX function or preset time – 8 independent timers).
- ▶ Wireless remote control of basic functions of digital audio recorder (only when external microphone is connected).
- ▶ Cyclic audio recording.
- ▶ User PIN-code.
- ▶ Color indicator of the battery condition and operating mode.
- ▶ High quality audio recording.
- ▶ Ultra low energy consumption.
- ▶ Recordings authentication **NEW**

PAPYRUS III is user-friendly. The recording is switched on with one switch. Front panel contains the control button, which allows to check the operating mode and battery charge level.

Wireless remote control is used to check the charging process of the battery and set up the operation modes.

Audio data are recorded to the built-in memory. Wide dynamic range of the recorded signals allows recording even in the noisy environment.

Digital audio recorder PAPYRUS III has two recording modes:

- ▶ Until the memory is full – recording is done until the memory of audio recorder is full. Once memory is full recording stops automatically;
- ▶ Cyclic recording mode – Once the memory is full recording continues overwriting previously recorded files.

Audio recorder has two quality levels of recording:

- ▶ high (sampling rate of 32kHz, recording time up to 76h);
- ▶ medium (sampling rate of 16kHz, recording time up to 153 h).

Built-in Li-Ion battery provides more than 153 hours of continuous recording. Charging of built-in battery is done automatically when connected to PC or charger. LED-indicator shows charging state.

Recorded data can be downloaded and played back only via PAPYRUS TOOL software. In this case, digital audio recorder PAPYRUS III has to be connected to the PC and the memory files have to be downloaded to the hard drive (audio files are saved in the «wav» format). Recorded files are downloaded to the hard disk drive of PC via USB-USB-micro cable. Files in the memory of audio recorder can be protected against unauthorized downloading with PIN-code.

Configuration of the recording quality, VOX-function, recording timers and remote control function can be configured from the PC.

Software has capability to provide the records authentication with confirmation of absence of any changes made to the audio file and confirmation that the recording was made by the selected audio recorder.

Digital audio recorder PAPYRUS III is delivered in plastic case for easy transportation and convenient storing.



PAPYRUS III TITAN



PAPYRUS III



SPECIFICATION

Size of built-in memory, GB	32
Sampling rate, kHz	32/16
Recording time, h	76/153
Time of continuous operation in recording mode from fully charged battery, h	153, not less than
ADC, Bit	12
Dynamic range, dB	82
Power supply	built-in Li-Ion battery
Current consumption in recording mode (with fully charged battery), mA	10, not more than
Downloading time of recording from full memory, min	80, not more than

## DIGITAL IC RECORDERS

### PAPYRUS-MICRO Compact Digital Audio Recorder

Compact digital audio recorder provides high-quality audio recording.

PAPYRUS-MICRO has metal case. PAPYRUS-MICRO TITAN has reinforced titanic case that protects the device from electromagnetic fields and audio recorders jammers.

Audio recorder has built-in microphone. The PAPYRUS records to the built-in memory. Downloading of the recorded data to PC is done via USB-cable.

#### Features

- ▶ User-friendly.
- ▶ Miniature design.
- ▶ Wide dynamic range of recording signals.
- ▶ VOX function.
- ▶ «Invisible» for the audio recorders locators.
- ▶ Protection against unauthorized download or interception.
- ▶ Protected against audio recorder's jammer.
- ▶ Built-in timer.
- ▶ Recording timer.
- ▶ Cyclic audio recording.
- ▶ User PIN-code.
- ▶ Color indicator of battery state.
- ▶ Configuration of the recording parameters from PC.
- ▶ Built-in Li-PO battery.
- ▶ Recording authentication. **NEW**
- ▶ Can be easily camouflaged device.

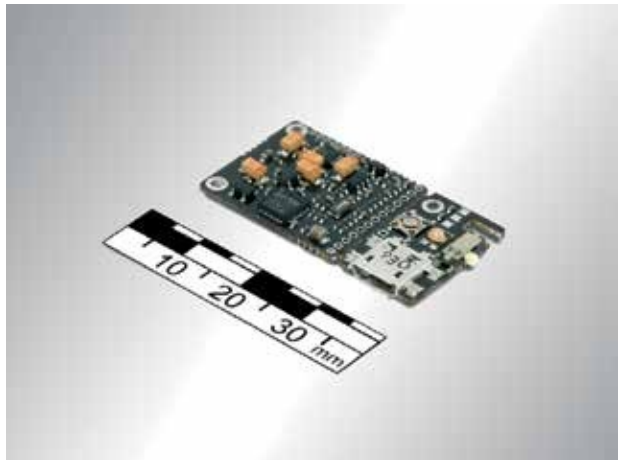
Digital Audio Recorder  
PAPYRUS-MICRO TITAN



Digital Audio Recorder  
PAPYRUS-MICRO



Digital Audio Recorder  
PAPYRUS  
(OEM Model)





## DIGITAL IC RECORDERS



Audio Recorder WALLET



Audio Recorder BELT



Audio Recorder CIGARETTE PACK



Audio Recorder FLASH DRIVE



Audio Recorder  
VEHICLE USB-ADAPTER

### SPECIFICATIONS

Built-in memory size, MB	512	1024
Recording time (depend on the recording quality), h:		
- 32kHz	9,5	19
- 16kHz	19	38
Dynamic range, dB	82	82
Battery	Li-PO	Li-PO
Current consumption (recording mode), mA	6	10
Operating time, h	20	15
Time of data downloading to the PC, min.	40	80



## TACTICAL EQUIPMENT FOR SURVEILLANCE

## TACTICAL EQUIPMENT FOR SURVEILLANCE

### SCARAB Universal Exploration Platform

The SCARAB is designed to collect audio-, video data in hard to reach or dangerous zones. The system transmits the data by wireless to the video surveillance and remote control unit.

Video and audio information received by the device is transmitted via digital (SCARAB Version 2.0) or analog wireless.

Digital radio link is designed on the basis of CORDON series video transmitters and video receivers with COFDM modulation and provides high-quality stable image and sound. It is developed for use under poor wireless propagation conditions: during move or at urban environment.

The SCARAB set consists of controllable exploration platform and remote control unit with integrated 7" display.

The exploration platform is a wheelbase with built-in high resolution cameras, microphone and audio-, video transmitter. Compact dimensions and weight allow the product to be placed behind operator's back via a special tactical pack.

Remote control of SCARAB product, information receive and its monitoring is executed by wireless with the help of remote control and video surveillance unit.

The device is stored and transported in the dust-proof/water-proof PELICAN case.



Changeable tracks



Changeable rotating camera

### Optional

- ▶ Changeable front panel:
  - Front camera with white/IR highlights
  - Thermal imager
  - Rotating camera (-90/+90 degrees around horizontal line)
- ▶ Changeable wheels/tracks.
- ▶ Possibility to reduce platform's height (for search under the vehicle).
- ▶ Possibility to climb up stairs (with extended track).

- ▶ Driving angle up to 30 degrees.
- ▶ Selecting of frequency channels.
- ▶ «Overdrive» mode.
- ▶ Battery level indication.

### Features

- ▶ System enabling by use of the locking pin.
- ▶ All-terrain-vehicle.
- ▶ 4WD.
- ▶ High resolution video cameras.
- ▶ Powerful white and infrared LED highlights.
- ▶ Automatic flip function of displayed image when the platform overturns.
- ▶ Shock absorption in case of falls and throwing (not high than 1m).
- ▶ Increased speed up to 15km/h.
- ▶ Improved ability to overcome obstacles (up to 120mm).

### SPECIFICATIONS

Video data transmission range to the video surveillance and remote control unit (on Ground), m	250, not less than
Frequency range, MHz:	
- Video image transmission (digital)	1300–1400
- Video image transmission (analog)	1010–1230
Power supply	built-in Li-PO
Time of continuous operation (from built-in battery), min.	120, not less than
Dimensions, mm:	
- with wheels	355x348x155
- with track	330x300x110
Weight, kg	5.5, not more
Operating temperature range, °C	from -20 up to +40
Moisture (at +25°C), %	98

## SPHERE Wireless Exploration Device (360 °)

The SPHERE is designed to collect audio-, video data in hard to reach or dangerous zones. The system transmits the data by wireless to the video surveillance and remote control unit.

Reconnaissance and exploration device SPHERE is designed as a ball containing 4 video cameras with LED highlights, microphone and data transmitter.

The device is supplied with positioning feature - it automatically comes to vertical positioning.

Reconnaissance and exploration device SPHERE has an extraordinary function to provide simultaneous video data transmission from 4 video cameras without any loss of image quality.

Remote control of SPHERE product, information receive and its monitoring is executed by wireless with the help of remote control and video surveillance unit.

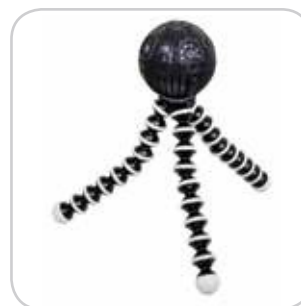
The device is stored and transported in the dust-proof/water-proof PELICAN case.



Power Supply Unit (rechargeable) and Transmission Unit

## Features

- ▶ Simultaneous image transfer from 4 video cameras.
- ▶ Panoramic 360 ° view.
- ▶ Highly durable.
- ▶ Maintains multiple throwing and drop from 5m height.
- ▶ Powerful white and infrared LED highlights.
- ▶ Ultra sensitive microphone.
- ▶ Vertical positioning of the device.
- ▶ Rechargeable battery.



## SPECIFICATIONS

Video data transmission range to the video surveillance and remote control unit, m	50, not less than
Frequency range, MHz	1110–1230
Video sameras (in-house development) (x4)	CMOS, B/W
Lens (x4)	Bordlens 2.8
Highlights	4x6 LEDs
Angle of view, degrees	360
Power supply	Li-PO Battery ( rechargeable)
Operating time (depends on operating mode), min.	60, not less than
Diameter, mm	90
Weight, kg	0.61
Operating temperature range, °C	from -20 up to +45



## TACTICAL EQUIPMENT FOR SURVEILLANCE

### Remote Control and Video Surveillance Unit

Remote control of SCARAB and SPHERE products, information receive and its monitoring is executed by wireless with the help of remote control and video surveillance unit.

The following items are located on the housing of the Remote Control Unit:

- Joystick.
- Display.
- Device control buttons.
- Audio/video output for external monitor connecting.
- SCARAB/SPHERE mode switch button.
- Frequency channel switch.
- Battery level indicator of SCARAB/SPHERE systems and of the Remote Control Unit.
- Highlights ON/OFF button.
- Selection of highlights - LED (white) or infrared.
- Flexible spring antennas.



### Remote Control Commands (for SCARAB)

- ▶ The exploration platform movement control.
- ▶ Reception of the video data.
- ▶ Listening to the audio data received from the exploration platform's microphone via headphones or built-in speaker.
- ▶ Control of the equipment installed into the platform.
- ▶ Highlights control.
- ▶ Battery level indication.
- ▶ Selecting of frequency channels.

### Remote Control Commands (for SPHERE)

- ▶ Turning on/off the device.
- ▶ Changing of video display mode.
- ▶ Reception of the video data.
- ▶ Listening to the audio data received from the exploration platform's microphone via headphones or built-in speaker.
- ▶ Highlights control.
- ▶ Battery level indication.
- ▶ Selecting of frequency channels.



Displaying information from 4 cameras (for SPHERE)

### SPECIFICATIONS

Frequency range, MHz:	
- Video image reception (digital)	1300–1400
- Video image reception (analog)	1010–1230
Frequency of the Remote Control, MHz	917
Power Supply:	
- digital wireless (only for SCARAB Version 2.0)	Li-PO
- analog wireless	Li-Ion
Dimensions, mm	271x163x77
Weight, kg	1.8

## TACTICAL EQUIPMENT FOR SURVEILLANCE

### Storing and transportation case

The devices are stored and transported in the dust-proof/water-proof PELICAN case.



Storing and transportation case (complete package)



Storing and transportation case (for SCARAB complex)



Storing and transportation case (for SPHERE complex)



## TACTICAL EQUIPMENT FOR SURVEILLANCE

### SECTOR-AK Small Arms Visor

SECTOR-AK is small arms lighting multifunctional device designed to enhance small arms capabilities. The device is made of two basic units (video unit and display unit) connected by a flexible spiral cable.

#### The Device Features

- ▶ Video camera.
- ▶ White LED flashlight.
- ▶ Infrared (IR) highlight.
- ▶ Laser pointer.
- ▶ 3.5" TFT display.
- ▶ Two Li-ON batteries.

SECTOR-AK is designed as two basic modules (optic module and monitor module), which are connected by flexible spiral cable.

Optical module includes video camera, white LED flashlight, IR-highlight and laser pointer. The device is easily mounted to the Picatinny rail of the small arms. Installation of the module can be done through 3 ways mount (left, right and bottom). Laser pointer, located in the video module, can be adjusted in horizontal and vertical directions.

Optical module has three independent buttons for switching on: white LED flashlight, IR-highlight and laser pointer. Independent switching of any highlight or laser pointer enables to use SECTOR-AK as multi-functional under-barrel highlight without video camera. The use without video camera significantly increases continuous operating time.

Monitor module has universal mount to the hand as well as to the rifle's shoulder stock. Monitor has overturning function and regulation of the image brightness. Monitor module is equipped with powerful Li-ON

battery, which provides up to 4 hours of continuous operation without highlight and up to 2 hours with one of the highlights.

Monitor module includes switches of the monitor's power supply and video camera, monitor controls, battery indicator, charging indicator and plug to connect to the charger.

Both modules of SECTOR-AK have metallic dust proof casing. Display has additional protective glass.



# TACTICAL EQUIPMENT FOR SURVEILLANCE

## SPECIFICATIONS

Display .....	TFT 3.5" 640x480
Video Camera Parameters	
Camera type .....	B/W
PZS image sensor .....	1/3" Sony Super HAD CCD
Resolution, TVL .....	600
Sensitivity (pin-hole of F 2.0) (exview 0,0003lk/on PZS image sensor), lux .....	0.1
Lens Parameters	
Lens type .....	Board
Focal length, mm .....	12
Horizontal angle of view, degrees .....	70
Relative pin-hole (max) .....	F2.0
LED-Light Parameters	
LED .....	Cold White
Light stream, lm .....	114
Divergence angle of emission, degrees .....	8
IR-Light Parameters	
Power, W .....	1.2
Emission wavelength, nM .....	850
Divergence angle of emission, degrees .....	20
Laser Pointer Parameters	
Laser type .....	red, point
Power, mW .....	5
Emission wavelength, nM .....	650
Power Supply	
Built-in battery .....	Li-ON 2x2400mA*h; 3.6V
Continuous operating time, h:	
- Video Camera .....	4, not less than
- LED-light .....	4, not less than
- IR-light .....	5, not less than
- Laser Pointer .....	200, not less than
Full charging time of built-in accumulator, h .....	5, not more than
Dimensions	
Video module (without bolting), mm .....	53.5x60x84
Monitor Module, mm .....	47x88.5x141.5
Weight	
Video Module, g .....	310
Monitor Module, g .....	580



## TACTICAL EQUIPMENT FOR SURVEILLANCE

### BADGE

#### Audio and Video Recording Equipment with the Location Tracking

Audio and video recording equipment provides continuous recording while officer is on-duty (up to 12 hours of continuous recording). It tracks the location of the officer via built-in GLONASS/GPS-receiver and has built-in transmitter of coordinates to control location of the officer from the control checkpoint via GSM channel.

The BADGE is designed for body-worn application. The device can be used as individual device as well as within multi-functional systems to help to solve problems encountered by police's subdivisions and other authorities.

### Features

- ▶ Up to 12 hours of continuous recording (if fully charged).
- ▶ Built-in GSM module (location reception from GLONASS/GPS satellites, transmission of "SOS messages").
- ▶ Saving of date, time and coordinates with overlay text onto the image.
- ▶ Possibility to track the root on the regional map.
- ▶ Recordings are saved in special format.
- ▶ Downloading of the selected recordings to the hard disc via software and card reader.
- ▶ Color video camera with automatic switching of the day and night modes, viewing camera angle is 70°.
- ▶ High quality and high sensitive microphone.
- ▶ Vandalism, heat, water and dust proof casing.
- ▶ User-friendly, does not require training.

- ▶ Convenient and secure attachment of the device to the employee's uniform.
- ▶ Device weights not more than 700g including battery.



## SPECIFICATIONS

Compression type:

- Video ..... 720x576i @ 25fps, H.264, up to 4Mbit/s
- Audio ..... AAC (Advanced Audio Coding),  
48kHz, stereo, 16-bit, stream 56-130kbit/s

Video standard ..... PAL B/G/H/I, 50 Hz

Recording time to memory card 32GB, h:

- High quality ..... 20, not less than
- Medium quality ..... 37, not less than
- Low quality ..... 75, not less than

Voltage power supply of external camera, V ..... 9

Recording time from fully charged built-in battery, h ..... 12, not less than

Type and capacity of removable and built-in battery ..... Li-PO (8.1A\*h and 0.95A\*h)

Sensitivity of the navigator, dBm:

- Navigation mode ..... up to -160
- "Cold Start" mode ..... up to -147

Operating temperature range, degrees C ..... from -25 up to +40

Dimensions, mm:

- Belt Module ..... 110x60x37

- External Module ..... 90x60x40

Weight with installed removable battery, g ..... 700, not more than