vampire RF

Vampire RF

Miniature digital video recorder
with wireless communication capability

Functions for remote control
and real time audio transmission

CRYPTO firmware version for encryption,
digital signature, watermark

Specifications

File system:	MS-DOS®/Windows® FAT-16/32 compatible
Max. filesize	4 GB (1 GB recommended), bigger files divided
Operating frequency	2.402 – 2.480 GHz (ISM band)
HF output:	max. 100 mW (+20 dBm)
Modulation:	FHSS (Frequency Hopping Spread Spectrum)
Aerial	removable 50 Ω (default λ/4)
Power supply	built-in Lithium-Polymer battery, 3.7 V 1.8 Ah
Ext. power source, charging	4.8 to 6 V, 1.2 A, 3 A max.
Number of transmitter units	1 to 10

Recorder/transmitter unit

Recording medium	removable SD/SDHC/SDXC flash cards, min. Class 6, 128 GB max.
File format	AVI MJPEG 2000, WAV audio (direct playback on PC)
Recording mode	until filling-up of card, or replacing oldest files
Activation options	manual, real time clock timer, signal voltage (and combinations)
External trigger	contact to ground or 3 V voltage, level or edge (pulse), selectable active state
Security functions	data encryption, support of cryptographic integrity check, watermark
Video resolution	PAL/CCIR 720 x 576 pixels, NTSC/EIA 720 x 486 pixels, interleaved/progressive
Frame rate	1 to 25 resp. 30 per second
Data flow	adjustable 3 to 16 Mbit/s max.
Audio converter	16 bit @ max. 44.1 kHz, stereo, optional automatic level control (ALC)
Microphone type	3 wire Knowles FG electret, internal or external stereo
Ext. Mic phantom power	DC 1.4 V / 0.1 mA max., stabilized
Ext. Camera power supply	adjustable 3 V – 11 V, max. 1 W
Operation time from accu	up to 4 hours (depending on camera used, card or setting
Current consumption	0.1 mA sleep / switched off, 0.4 to 1.2 A recording, 4 A peak
Connectors	Jack 3.5 mm 4-pole gold plated for camera and external controller
	Jack 2.5 mm 4-pole gold plated for external microphones
	MMCX gold plated connector for aerial
	miniUSB for PC and charging
Controls	microswitch, two LEDs, optional external controller, radio control unit
Additional functions	real time clock, adding date and time to each recording, firmware update
Mechanical design	metal housing with matte black finish, laser signature
Dimensions	74 x 53 x 13 mm (incl. housing and battery, excl. memory card)
Weight	90 g (incl. housing and battery, excl. memory card)

Receiver/control/recorder unit

Recording medium	removable Micro SD / Micro SDHC memory cards
File format	WAV IMA ADPCM to 32 kHz (directly playable on PC)
Output	headphones stereo, line
Current consumption	0.1 mA sleep / switched off, 50 to 250 mA in operation
Connectors	1x stereo Jack 3.5 mm gold plated for audio output
	reverse SMA gold plated connector for aerial
	mini USB for charging and communication
Controls	5 buttons and 5 LED indicators, optionally bluetooth cell phone
Mechanical design	aluminum compound casing with matte black finish, laser signature, membrane keyboard
Dimensions	max. 55 x 105 x 20 mm (excl. aerial)
Weight	156 g

Recording capacity in hours for selected typical applications

Video Audio Application	300 kB/s 1 fps 8 kHz ADPCM Maximum time	500 kB/s 12 fps 16 kHz mono CCTV quality	700 kB/s 25 fps 32 kHz mono VHS quality	1.6 MB/s 25 fps 44 kHz stereo DVD quality	– 44 kHz stereo CD audio
8 GB	105	7.5	2.7	1.1	12
16 GB	220	16	5.5	2.3	24
32 GB	450	32	11	4.7	48
64 GB	920	65	22	9.5	96
128 GB	1850	130	44	19	193

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The Art of Development

Vampire RF

Vampire RF is a highly miniaturized digital video recorder with a function of high quality digital stereo audio transmission. The kit includes an audio-video recorder/transmitter unit with a two-way radio module and a compact portable control/receiver unit. Its characteristics make it an unparallelled device designed for unique applications in the field of real time audio transmission. Vampire RF also offers a wide range of setup options for versatility of use and intuitive controls.

Compact size...

The housing of Vampire RF is manufactured of high-quality aluminum based compound (CERTAL) with matte black finish. Its dimensions in millimeters are 74 x 53 x 13, the weight including the built in battery is 90 grams.

Video recording...

Video signal is processed with a high quality codec in Motion JPEG 2000 standard, which creates recordings with great richness of detail that allow for easy editing or capture of individual frames. Recordings are stored as individual AVI files provided with date and time information. Recordings can be played back directly on a standard PC without the need to copy the data from the memory card or to convert the data format.

Wireless audio transmission...

Vampire RF provides a secure wireless audio transmission in real time. The receiver unit can perform remote monitoring and/or record audio on both transmitter and receiver units. The remote controller with panic button combined with a wireless communication gives full control over the situation while maintaining safety in the field.

Excellent audio quality...

Sampling frequency of up to 44 kHz together with high-end miniature microphones create recordings of unprecedented clarity. Audio can be recorded using either the built-in high-quality Knowles FG series microphone or external mono/stereo microphones.

Wide range of accessories...

The device is supplied in several different configurations. There is a wide selection of additional cameras in plastic or metal housing, including specialized infrared illumination miniature cameras operating in complete darkness and various camouflage accessories. The unit can also be built into various objects of daily use. All these options destine Vampire RF for application in a wide range of situations.

Communication interface, control with cell phone...

Vampire RF uses removable SD/SDHC/SDXC memory cards. Connection with PC is realized using the standard USB interface. Settings of both units can be easily changed remotely, using a cell phone with Bluetooth interface and Java support. The setup software for PC and the cell phone are both intuitive to use and are part of the standard kit.

Wide setup options...

The transmitter unit can also operate independently as a miniature stereo audio-video recorder. The setup software offers a wide range of recorder settings such as audio and video quality, level of compression, use of external accessories, external camera power supply, activation with timer, "File Manager" module for management of encrypted or digitally signed recordings etc.

Encryption, digital signature, watermark...

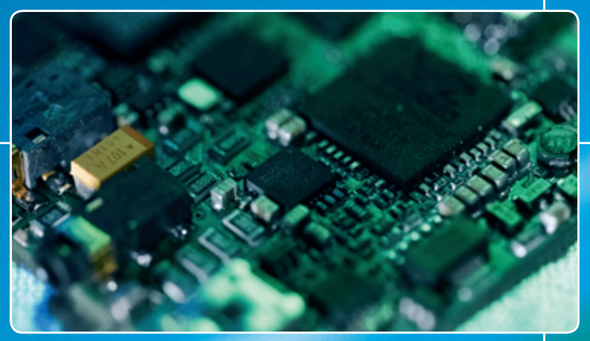
The CRYPTO version of the firmware brings the possibility to encrypt data on the memory card and a password protection against unauthorized use. These functions also allow to insert a cryptographic checksum into a recording to guarantee its authenticity. Every recording can be provided with a watermark including date, time and an alternative text containing information about the circumstances of the particular recording.

HW modifications of Vampire RF recorder

- **ALU,** high-quality compound housing with matte black finish
- **Module,** assembled and tested printed circuit board

CRYPTO version

Kit version including recorder with security functions. It allows the user to encrypt recorded data using a 256-bit key (and prevent their misuse) or provide the data with control checksum to give the recording a guarantee of authenticity. The basic version of the recorder can also be upgraded to cryptographic capabilities.



Kit contents

Version	Basic	Full	Mega	Giga
Basic recorder/transmitter unit	•	•	•	•
SDHC memory card >= 16 GB	•	2	•	•
SDXC memory card >= 64 GB			•	•
Miniature wire aerial λ/4 for the recorder	•	•	•	•
Omnidirectional flat aerial 5dBi with cable		•	•	•
SMA-MMCX adapter		•	•	•
External microphone		•		
External stereo microphone			•	•
External controller / Panic button			•	•
Jack 3,5 mm 4-pole gold plated	•	2	2	3
Jack 2,5 mm 4-pole gold plated		•	•	2
Video-out 2-way splitter		•	•	•
Video cable cinch-cinch				•
ColorCam 3 V		•	•	
HighresCam 5V			•	
HQcam Alu+kevlar (optionally PAL or CCIR, pinhole or interchangeable optics) Lens kit for HQcam (tele + fish-eye, B&W or color), camouflages				•
Control/receiver/recorder unit	•	•	•	•
Omnidirectional rod aerial 5 dBi	•	•	•	•
High-performance directional flat panel aerial 18dBi				•
Whip antenna 9 dBi with a stand			•	•
MicroSD memory card for the receiver >= 2 GB		•	•	2
Audio cable		•	•	•
Audio 2-way splitter			•	•
Cinch-jack adaptor				•
Jack 6mm adaptor				•
Foldable headphones		•	•	•
Earphones	•			
SD/MicroSD memory card reader with USB 2.0 interface	•	•	•	•
Cell phone with control software		•	•	•
AC/DC switched-mode power supply	•	2	2	2
Car lighter power adapter		•	•	•
Charging/power/communication USB cable	•	2	2	2
CD-ROM with setup software	•	•	•	•
Printed documentation	•	•	•	•
Transport case	•	•	•	•