

**DTC**

# Beowulf II

Solid state audio recorder surveillance system



Spectronic – Covert Audio and Video

## Beowulf II in brief

### **The Beowulf II digital audio recorders are of high quality, easy to use, and engineered for specific deployment scenarios.**

The six different models and a wide range of accessories and power options make the Beowulf II family suitable for almost all surveillance operations.

The software enables you to access an extensive number of trigger options, and specify your own settings for the given operation.

### **Key features**

- High reliability and flexibility for maximum officer safety
- Low probability of detection
- Simple to use
- Long operational time
- Close to the scene audio recordings
- Flexible for different operation scenarios
- 5 different sample rates
- Different trigger options (timer, VOX, external)
- Various gain settings (AGC, 0-40dB)

The small, lightweight and robust Beowulf II audio recorder intercepts all ambient audio making it extremely suitable for close proximity operations and well suited for body-worn applications.

The audio is stored, as Microsoft® wave audio files, on the internal 16GB flash drive using the FAT32 file system, which provides a storage capacity of 46 hours in highest audio quality to 737 hours in lowest audio quality. Evidence verification is included with the bundled WaveChecker II utility which detects if the audio files have been modified after the audio was recorded.

The supplied PC software handles all downloads to CD / DVD and configures options such as real-time clock, sample frequency, recording format, compression, input gain and triggers options.

### **Covert mode**

Covert mode is a built-in feature, which makes the contents invisible and prevents the recorded evidence from being accessed or falling into the wrong hands. Covert mode is easily activated or deactivated via the bundled PC set-up utility, When the Beowulf II recorder is set to covert mode, it does not show up as a removable drive when connected to a PC, and all LED's are

The Beowulf II Family of products are standalone recording devices consisting of seven models divided into two classes: cased and uncased audio recorders.

### **Beowulf II cased audio recorders**

The Beowulf II cased audio recorders are designed for rapid deployment and body-worn applications. The Beowulf II cased versions are very small light-weight recorders enclosed in a robust aluminium housing. The hassle-free design with integrated batteries and connection wires make these recorders easy to conceal in any environment for operation by anyone. The recorders are operated easily using just a single button, and feedback on the device's operational state is secured from the three integrated LEDs.

The cased versions of the Beowulf II audio recorder consist of the following four models:

- Beowulf II Miniature
- Beowulf II Standard
- Beowulf II Standard LEMO
- Beowulf II LEMO Extended

You can read more about the individual models on the following pages.

### **Beowulf II uncased audio recorders**

The uncased versions of the Beowulf II audio recorder are designed for custom installations and concealments. The increased flexibility makes these devices a perfect choice for investigators working in a challenging operational environment; however, once deployed, the devices have the same ease of use characteristics as the Beowulf II cased versions.

The uncased versions of the Beowulf II audio recorder consist of the following three models:

- Beowulf II
- Beowulf II board
- Beowulf II bubblegum

The Beowulf II and Beowulf II board can be configured with different power options, custom microphone lengths and a slide switch.

## Deployment scenarios



Body worn Beowulf II Miniature



Body worn Beowulf II LEMO with external microphone



Quick drop-and-walk deployment of Beowulf II bubblegum



Concealed Beowulf II

## System specifications

System	Recorder memory	16GB
	Audio gain	Fixed or automatic (AGC)
	Input frequency response	20Hz - 12KHz
	Sample rates	6KHz, 8KHz, 12KHz, 16KHz or 24KHz
	Compression	None / A law
	Audio format	WAV, mono / stereo
	AD converter resolution	16 bit
	Signal to Noise Ratio (SNR)	Typical 91dB
	File system	FAT 32
	Supported operating system	Microsoft Windows XP, Windows Vista, Windows 7
	Watermark	AES encrypted SHA-1 checksum
	Evidence verification	WaveChecker II
	Real-time clock precision	+/- 2min. per month
	Communication interface	USB 2.0
	Transfer time via USB	20MB per second
Environment	Operation temperature	0°C to 50°C / 32°F to 140°F
	Storage temperature	-20°C to 70°C / -4°F to 158°F
	Humidity	Max 90% humidity (RH)

## Beowulf II cased audio recorders

### Beowulf II Miniature

The Beowulf II Miniature is a 16GB solid state recorder with internal lithium battery; rechargeable through the USB port. Additionally, the device can be powered via USB or by mains power using a Micro Mains Module (MMM). Even with its small size, the device contains the same trigger options as the larger models: manual, timed, voice activation (VOX) or external trigger.



### Beowulf II Standard

The Beowulf II contains all the same features as the Beowulf II Miniature; however, the device also includes a single AAA battery, extending the operational time of the device to up to 16 hours.



### Beowulf II LEMO

The Beowulf II LEMO contains a programmable input for external microphones or line level recording. The external stereo microphones allow users to record in two separate areas by separating the microphone heads and then isolating the channels using the WaveChecker II software.



### Beowulf II LEMO Extended

The Beowulf II LEMO Extended contains the same features as the Beowulf II LEMO, but provides more than twice the operational time with an AA battery installed. This allows for up to 30 hours of operation when recording in 24kHz stereo.



		Beowulf II Miniature	Beowulf II Standard	Beowulf II LEMO	Beowulf II LEMO Ext.
Specifications	Operating time @ 24kHz, stereo	Up to 4 hours	Up to 16 hours		Up to 30 hours
	Battery	Internal rechargeable Lithium (120mAh)	Internal rechargeable Lithium (120mAh) and Energizer L92 AAA cell		Internal rechargeable Lithium (120mAh) and Energizer L91 AA cell
	Dimensions (H x W x D)	10 x 51.1 x 18.7mm 0.4 x 2.0 x 0.7in	12 x 51.4 x 30mm 0.5 x 2.0 x 1.2in	12 x 54.1 x 41.1mm 0.5 x 2.1 x 1.6in	16.2 x 59 x 35mm 0.64 x 2.32 x 1.4in
	Weight	15g / 0.53oz	18.5g / 0.65oz	28g / 0.98oz	26g / 0.92oz
		Recorder only	N/A	26g / 0.92oz	40g / 1.41oz
	Microphones	20cm / 7.87in	20cm / 7.87in	20cm / 7.87in	20cm / 7.87in
	Line-In voltage range	2 pcs, internal			2 pcs, internal / optional external
	Recharge time, internal battery	N/A			1.5Vpp
	Connector / voltage range	Mini USB / 5V ± 0.25V			
	Triggers	Manual, timer, VOX, external			

## Beowulf II uncased audio recorders

### Beowulf II

The hassle-free design, with battery and microphone wires pre-configured, makes the Beowulf II audio recorder easy to conceal in any environment. The recorder is easily operated using either a single button or the external wired slide switch to turn the recorder on or off.



### Beowulf II board

The Beowulf II board is a flexible, printed circuit board version of the Beowulf II, which is ideal for custom installation and concealments. The Beowulf II board version provides thermal solder pads for users to custom configure the integral microphones, power options, and activation switches.



### Beowulf II bubblegum

This is a simplified version of the Beowulf II with an integrated battery and pull pin design for very easy activation. Simply pull the activation pin, drop in a handy location such as a trash can, and then retrieve later. This design makes this device suitable for ad-hoc / opportune operations.



	Beowulf II	Beowulf II Board	Beowulf II bubblegum	
Specifications	Operating time @ 24kHz, stereo	Up to 11 hours 40 minutes (420mAh external battery option)		
	Battery	External (130mAh, 210mAh or 420mAh battery back)		
	Dimensions (H x W x D)	27 x 15.5 x 5.5mm 1.16 x 0.61 x 0.22in	Non-folded 46.5 x 13.8 x 4.8mm 1.79 x 0.54 x 0.19in  Folded 27.2 x 14.4 x 4.8mm 1.07 x 0.57 x 0.19in	With activation pin 67.3 x 18 x 8mm 2.65 x 0.71 x 0.33in  Without activation pin 51.5 x 18 x 8mm 2 x 0.71 x 0.33in
	Weight	9.5g / 0.33oz	9g / 0.32oz	With activation pin 12g / 0.42oz  Without activation pin 1.5g / 0.05oz
	Microphones	2 pcs, external, wired	2 pcs, wired	2 pcs, internal
	Triggers	Manual, timer, VOX		Activation pin, timer, VOX
	External power requirement	3.3 to 4.2VDC		N/A
	Connector / voltage range	Micro USB / 5 V ± 0.25 V		
	Current consumption, max / min	36mA @ 4.2VDC (24kHz, stereo) / 22mA @ 4.2VDC (6kHz, mono)		
	Current consumption, VOX mode	< 1mA @ 4.2VDC (24kHz, stereo)		



## Accessories

### USB wall charger and car charger

All Beowulf II audio recorders and attached batteries can be charged via the USB connector, by using either the wall charger, 12V car charger or by connecting the recorder to a PC via the bundled USB cable.



### External microphones (LEMO or bare wire)

Use the external microphones in conjunction with the Beowulf II LEMO or Beowulf II board for better audio quality. The external microphones also provide the ability to record two separate areas by separating the microphone heads and then isolating the channels using the WaveChecker II PC software.



### USB Mini - bare wire

The USB Mini - bare wire can be used as an external Normally Open / Normally Closed trigger to start and stop recordings on the enclosed Beowulf II audio recorders. Furthermore, it allows you to connect an Micro Mains Module (MMM) to the recorders for more permanent installations.



### Slide switch

Use the Slide switch in conjunction with the Beowulf II and Beowulf II board to remotely arm the device or to start and stop audio recordings.



### Power connector - bare wire

The bare wire to power connector cable is used to connect one of the three external battery options to the Beowulf II board by attaching the bare leads to the Beowulf II solder pads.



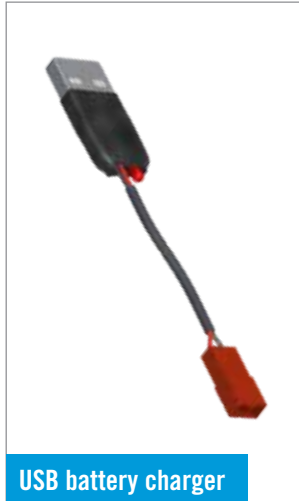
### Battery extension cable

Use the battery extension cable to increase battery placement options in custom installations with the Beowulf II or Beowulf II board. The battery extension cable is delivered in the length of 30cm / 11.8in.



## External battery options

The following battery options are available for the Beowulf II and Beowulf II board audio recorders. The batteries can be charged via the USB battery charger, either by connecting it to a PC or by using it in conjunction with the USB wall charger.



USB battery charger



420mAh battery



210mAh battery



130mAh battery

		420mAh battery	210mAh battery	130mAh battery
Specifications	Recharge time	2 h 30 min	1 h 15 min	45 min
	Dimensions (H x W x D)	51 x 20 x 5.5mm 2.0 x 0.79 x 0.22in	41 x 17 x 4.5mm 1.61 x 0.67 x 0.18in	32 x 15 x 4.6mm 1.26 x 0.59 x 0.18in
	Weight	9.5g / 0.33oz	5g / 0.18oz	4g / 0.14oz

Sample rate	Compression	420mAh battery	210mAh battery	130mAh battery
6 kHz	Mono / Mono, A-law	19h / 20h	9h 30min / 10h	5h 50min / 6h 10min
	Stereo / Stereo, A-law	16h 40 min / 19h	8h 20min / 9h 30min	5h 10min / 5h 50min
8 kHz	Mono / Mono, A-law	18h 10min / 19h 4 min	9h 5min / 9h 5min	5h 35min / 6h
	Stereo / Stereo, A-law	16h 10min / 18h 10min	8h 5min / 9h 5min	5h / 5h 40min
12 kHz	Mono / Mono, A-law	16h 40min / 19h	8h 20min / 9h 30min	5h 10min / 5h 50min
	Stereo / Stereo, A-law	15h / 17h 30min	7h 30min / 8h 45min	4h 35min / 5h 25min
16 kHz	Mono / Mono, A-law	15h 30min / 17h 30min	7h 45min / 8h 45min	4h 45min / 5h 25min
	Stereo / Stereo, A-law	13h 30min / 15h 30min	6h 45min / 7h 45min	4h 10min / 4h 25min
24 kHz	Mono / Mono, A-law	14h 20min / 16 h 10min	7h 10min / 8h 6min	4h 25min / 5h
	Stereo / Stereo, A-law	11h 40 min / 14h	5h 50min / 7h	3h 35min / 4h 20min

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# DTC

## Solid state audio recorder surveillance system



### About Spectronic Denmark A/S

A world leading provider of high-quality covert audio and video surveillance solutions, our products are exclusively used by law enforcement, intelligence and military operations to combat terrorism and crime.

Our mission is to deliver reliable products to those people who risk their lives in their efforts to make our everyday more secure.

For over 30 years, we have dealt professionally with governments and government approved agencies worldwide. Today we're considered as one of the industry leading manufacturers of covert audio and video surveillance equipment.

We are part of DTC (Domo Tactical Communications) which engineers and manufactures high performance surveillance, communications and broadcast systems, enabling our customers to securely monitor, communicate and share information in complex and demanding environments. Our passion for innovation keeps us one step ahead in rapidly changing and increasingly challenging environments, whether on the battlefield, the streets of our cities or the world's largest sporting events.

**For further information on this or any other of our range of surveillance solutions contact  
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