

# WT news

## WEARABLE TECHNOLOGIES

February 1<sup>st</sup>, 2009 – No. 1/2009

Trade Journal for Wearable Technologies – [www.wearable-technologies.de](http://www.wearable-technologies.de)

hall A3 booth 106/207  
with Desperados Bar



**> Long Term Monitoring System**  
CSEM was commissioned by ESA to design, manufacture, and test a prototype for multi-variable physiological ambulatory monitoring. **page 2**



**> Motion Capture Suit**  
Accelerometers and gyroscopes from Analog Devices enable a suit to measure full-body motion. **page 3**



**> Wearable Motion**  
Video streaming, data recording and mobile television integrated in a jacket – only one of Teksys' numerous wearable solutions. **page 3**



**> Electronic Boxing Panel**  
The essential feature compared to a regular punching bag is the electronic data acquisition of executed punches. **page 4**

# Low Energy – High Impact

## Bluetooth SIG launches Innovation World Cup

technology fans worldwide to submit their new ideas for using *Bluetooth* low energy technology in the world of sports, fitness, and healthcare. ispo as well as the World Federation of the Sporting Goods Industry (WFSGI) believe their industry offers enormous potential for the use of *Bluetooth* low energy technology, a new *Bluetooth* standard. With more than 2 billion *Bluetooth* devices shipped, including more than 50% of mobile phones worldwide, *Bluetooth* wireless technology is the solution of choice for connecting consumer electronic devices. "Things like wireless pulse oximeters, glucose meters, and a range of sensors and monitors are already an exciting reality. *Bluetooth* low energy technology will set the stage for a healthy and fit future," says Mike Foley, Ph.D., Executive Director of the Bluetooth SIG. Even today, a sports industry without electronic components is virtually inconceivable – particularly with regard to the integration of different devices and how they provide data and performance profiles. An elaborate daily program of product demonstrations will bring you closer to these revolutionary ideas and lead to direct dialogues for potential business dealings. We are pleased to be at an exciting ispo winter 2009 with you and wish you an exciting and successful trade fair visit.

*Christian Stammel*  
CEO, Navispace AG

Dear ispo sports community,  
The world of sports is driven by ground breaking technologies and innovative materials – from the thriving market for *Bluetooth* devices that can track our daily activities to heatable clothing and smart textiles which increase our performance. Since 2006 Wearable Technologies, or WT, has established itself at the ispo and we are pleased to present you the latest technologies and materials in hall A3, booth 106/207.

The WT platform has become the market place for networking and experience exchange for specialist sport trades and the sports industry. This year we are proud to be featuring the Bluetooth Special Interest Group (SIG) who will be presenting the latest developments in low energy transmission standards and launching the first *Bluetooth* Innovation World Cup, a competition which will call upon innovators, athletes, and other

RS800CX – the ultimate multisport training tool – now with route mapping

See you in hall C3 booth 424

**POLAR**

### Get Your Heart Racing

Nokia N79 Active meets wireless heart monitor from Polar

© Nokia

The Nokia N79 Active ships with the wireless Polar *Bluetooth* WearLink heart rate belt from Polar. This healthy addition to the Nokia Nseries range is the perfect running companion. A-GPS tracking and a new version of the popular Nokia Sports Tracker application – available simultaneously with first shipments of the device – spur you to record and publish your favorite routes and fitness data on the web. You can also share the tracks you listened to while working out, as well as upload and geotag route images taken with the Nokia N79 Active's built-in 5 Megapixel camera with Carl Zeiss optics. This handset keeps you entertained on those long workouts as you get in shape for next summer, while the Polar heart rate belt lets you know exactly how you're doing. And with the Nokia Sports Tracker you can add a new social dimension to your fitness program by building up and sharing a great record of all your workouts. This is an inspiring way to track your progress and to challenge yourself and fellow workout partners.

[www.nokia.com](http://www.nokia.com)  
[www.polar.fi](http://www.polar.fi)

# csem

technologies for innovation  
wearable technologies – anytime, anyplace, anywhere

see you at ispo winter'09  
wearable technologies show'09, hall A3 booth 106/207

[www.csem.ch](http://www.csem.ch) [info@csem.ch](mailto:info@csem.ch)

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**HALL A3 STAND 106/207**

# Smart Health and Fitness Monitoring

While it is common to monitor medical parameters at rest, obtaining reliable measurements in mobile conditions is much more difficult. This is particularly the case for non-invasive methods, where monitoring techniques are very sensitive to artefacts such as motion, ambient light and body contact. CSEM's multi-parameter sensor technology now provides an innovative way to assess the user's health status continuously around the clock.

LTMS records several variables in a modular and comfortable way, synchronously and for up to 24 hours.

Under contract from the European Space Agency (ESA), the Swiss Center for Electronics and Microtechnology (CSEM) designed and developed a Long Term Monitoring System (LTMS), which is currently being used at the Concordia Base in Antarctica to study the physiological adaptation of manned crews in remote, isolated, and extreme environments. The heart of the system – an "intelligent T-shirt" – enables the monitoring of the wearer's physical condition.

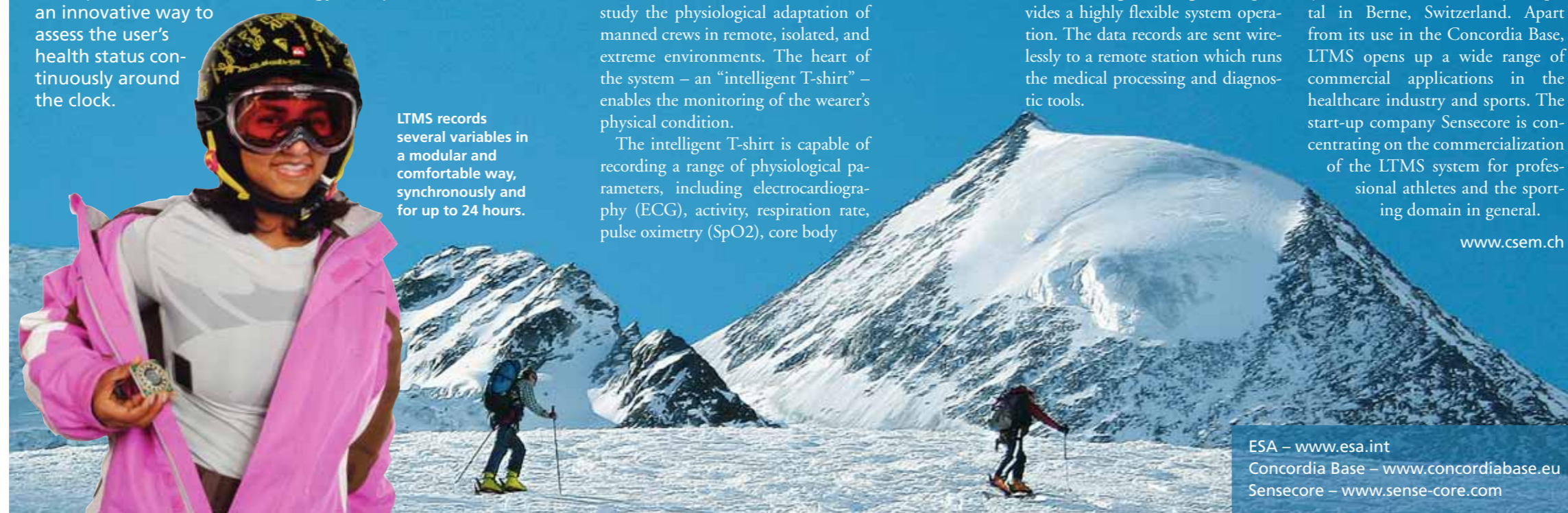
The intelligent T-shirt is capable of recording a range of physiological parameters, including electrocardiography (ECG), activity, respiration rate, pulse oximetry (SpO2), core body

temperature and non-invasive blood pressure (NIBP). It consists of a customized double-layer garment, allowing the correct positioning of the probes, while safely conducting all the interconnecting cables. The modular design of the garment provides a highly flexible system operation. The data records are sent wirelessly to a remote station which runs the medical processing and diagnostic tools.

The LTMS system was designed and tested according to the European directive #93/42/ECC and follows the relevant medical standards. The system has received authorization from Swissmedic to be clinically validated at the University Hospital in Berne, Switzerland. Apart from its use in the Concordia Base, LTMS opens up a wide range of commercial applications in the healthcare industry and sports. The start-up company Sensecore is concentrating on the commercialization of the LTMS system for professional athletes and the sporting domain in general.

www.csem.ch

ESA – www.esa.int  
Concordia Base – www.concordiabase.eu  
Sensecore – www.sense-core.com



# Fine Tune Your Fitness the Smart Way

Polar Electro, market leader and pioneer of heart rate technology has introduced route positioning functionality to its RS800CX and a body workout feature to its FT80 to optimize strength training.

In addition to speed and distance information, the RS800CX records positioning information with the G3 GPS sensor and enables users to download route information to their PC after the training session. Routes are shown in ProTrainer 5, the software included with the RS800CX, and can also be easily exported to other mapping and positioning software such as Google Earth.

The user also benefits from the ability to combine different sport sessions into one training file. Whatever the terrain or sport, from running and cycling to Nordic skiing and kayaking, the RS800CX is an essential tool for the multi-discipline and endurance athletes looking for an accurate way to measure, plan, monitor and analyze their training.

## FT80 – maximum efficiency

The FT80 is the most dedicated training partner for the most devoted fitness enthusiasts. Besides a fitness test, relaxation test and the ability to show calories burned, the FT80 has a body workout feature designed to optimize strength training. By reading the user's

heart rate, the computer can give guidance on how long to rest between sets for optimal impact, delivering the information via easy-to-use digital graphic displays. In addition the FT80 provides personalization, adaptability and guidance in the crucial areas of cardio and strength training.



Innovative strength training guidance feature helps you have a fitter body.

**WTnewsflash**

Free your hands – free yourself

QIO Systems has just launched the brand PANIQ – representing controllers for iPod, iPhone and Bluetooth cell phones. By connecting PANIQ controllers to PANIQmode interactive clothing, iPods and other electronics can be controlled with PANIQ's integrated smart fabric buttons: Play, pause, and adjust the volume on your iPod while freeing up your hands and keeping your electronics safely stored in your pocket.

www.paniqzone.com

## Multisport training tool

Polar has recently launched a training system to create the most advanced and flexible training management tool for the multisport market, the RS800CX.



The RS800CX is available in different sets according to the preferred sport and compatible with a multitude of Polar sensors.

# Heat Wear – Phone Wear

The BAYBOX mediaJACKET is a light (700 gram) piece of clothing, developed for different temperature demands. Detachable sleeves and a removable lining make it a temperature controlled garment. An optionally insertable layer of novonic heating textile completes this philosophy. The heating textiles cover large exposed areas in the back and in the front. The heating capacity is approx. 2.3 Ah from three Lithium cells and the system is fully washable.

due to the cold (which often happens at a temperature below 3 degrees). In the left breast pocket, a novonic e-blocker, capable of radiation blocking, equivalent to a 2-meter concrete wall protects the wearer from mobile radiation. The collar provides openings for wired headsets for mobile phones or music players.

www.baybox.de

The heating textile consists of four heating modules providing a temperature of 38 degrees in the back and 30 degrees in the front. In the front the heating textile also covers a pocket designed for mobile phones or cameras providing 28 degrees to protect the electronic devices from malfunctioning and failure



The mediaJACKET – a temperature controlled garment.

# Polar Launches the Next Generation Team Training Tool

Polar has developed the Team<sup>2</sup> system, a comprehensive team and group training management tool that will give every coach, team and player a competitive edge by providing a unique insight into their fitness capabilities.

www.polar.fi



Team<sup>2</sup> allows you to gain a unique insight into the fitness capabilities of your team – on the field or from the sidelines.

Team<sup>2</sup> will provide team coaches with invaluable, real-time physiological data that can be analyzed instantly to allow them to adjust training intensity at that time, or collected and shared with other players for post-session analysis. This information can also be used to build insightful team fitness programs that will help improve fitness performance, morale and ultimately match performance. More than most, team coaches understand that team fitness and stamina is essential to team performance, and could even be the difference between winning or losing if they go in to extra time. Team<sup>2</sup> can record and study fitness data for up to 28 players in real-time, providing the information on a laptop, PDA and the system's wrist units, allowing the coach to analyze each player's performance on the field or from the sidelines. Team<sup>2</sup> is easy to implement and has been designed to provide coaches with the physiological data that will help them build effective fitness programs to achieve group and individual performance targets.

# You Decide how Warm the Winter will be ...

Adjustable climate system with heated clothing

ProGression® products are specially designed for active sports. In addition to the multifunctional features the ProGression® softshell jackets and vests have an integrated heated hybrid fabric and a micro-processor for temperature control.

Using convenient single switch controls the temperature of the heated garment can be regulated fully automatically. The wearer, however, is still able to intervene manually at any time to adjust the level of heat.

The softshell vests and jackets have been comprehensively certified, are even washable and available now.

www.progression.info

**WTnewsflash**

SOAP – Wear the Audio

The Korean company Apet has developed a line of modern urban style headwear with an ingeniously integrated wireless sound system. Using Bluetooth the SOAP beanie acts as a wireless headset, transferring music from mobile phones, PCs or MP3 players with style. There are no cables or awkward mechanical headsets to curb your fashion.

www.livinggood.kr

# High Tech Wearable Fashion Solutions

Breakthrough technologies for assisted living

Texsys offers solutions for comfortable living in textiles and electronics as today's new methods of combining spun rayon and electronic wires can help provide comfort in everyday life – from electronic architectures, over system, industrial and product designs to turnkey solutions in the field of wireless communication, video imaging and power heating devices.

## Comfort and confidence

You feel cold? Just integrate a special heating pad (with wires you will not feel) in your clothes together with a small electronic control, and you can get warm whenever you want.

You are suffering from a heart condition and don't want to stay in a hospital or near your doctor? Just integrate the necessary touch pads for an

electrocardiogram in a tight shirt, an electronic device to transmit your state of health to your doctor, and you might live at home with the medical staff remotely supervising your condition.

## Wireless communication and power management

You go skiing but you are waiting for an important telephone call? Just inte-

grate a Bluetooth system in a glove, leave your mobile phone in your jacket and make your telephone call with your glove.

You are working for a security service? Just integrate a little video camera into your jacket and you have both hands to protect yourself and other people. Either video recording on memory cards or live video transfer from and to your 3G handset are possible.

You are on the move, the battery of your mobile phone is very low and no socket anywhere? Just integrate a solar cell in the back of a jacket, and you can charge your mobile phone – provided that the sun is shining! Texsys uses one of the thinnest high efficient solar panels.

www.texsys.de



Swany G-Cell: free motion communication



Electronic control for heating on demand



For live video transfer from and to a 3G handset

# Motion Capture Suit – the Epitome of Wearable Technology

16 motion trackers equipped with Analog Devices Technology at the heart of Moven's full-body suit

The Moven motion capture suit measures full-body motion and transfers data wirelessly to a computer. Advanced biomechanical models and sensor fusion algorithms allow a real-time recording and display in 3D.

No additional equipment like external cameras, emitters or markers is needed. The suit is based on unique inertial sensing technology using accelerometers and gyroscopes to measure motions in all directions. It captures any type of motion including running, jumping, crawling and cartwheels.

16 motion trackers are distributed across the suit to get the most accurate information about the body's motion. Trackers at feet, lower and upper legs, pelvis, trunk, chest, head, upper and lower arms, and hands feed their information into a biomechanical body model of 23 segments. Each of these trackers contains sensors to detect motion along as well as rotations around its x, y and z axis. The signals are processed digitally to get information about velocity, position, and motion of the tracker. Advanced algorithms combine the data from all 16 motion trackers and generate a digital 3D model of the moving body in real-time.

Of course each single tracker or even each single sensor in the tracker is a useful tool for innovative Wearable Technology. For example:

- ▶ A single accelerometer can be put into helmets to detect shocks from a drop event to eventually indicate excess of a critical level that might have seriously damaged the helmet.
- ▶ Multiple accelerometers can be used to make an accurate pedometer.
- ▶ The same kind of sensors can be used as activity monitor with the option to realize a calorimeter.
- ▶ Motion Tracker assembled in gloves can be used as pointing device in gaming consoles, virtual reality tools, sports simulators and trainers, or similar applications.

www.analog.com  
www.moven.com

The movements of the dancer is being digitally projected through a suit with integrated motion sensors and visualized in real-time on display screens.



## Heated Garment with Recycled Carbon Fibre



Fotos: © Simone Hörmann

Pensonic Technology, based in Hong Kong, has continued its leading position in carbon fibre research by launching its heatable garment with recycled fibres. These recycled fibres retain many of the superior heating and electrical properties of its virgin counterparts but gives new life to disposed resources.

In close collaboration with the University of Nottingham, Pensonic Technology has developed a new series of heated apparels including heated vests, heated gloves, heated insoles and a fabric control for your iPod or mobile navigation system (GPS). All these products are on display at the Wearable Technologies showcase area at ispo winter 09.



Lithium battery powered heating glove

### Patented heating technology meets nano-materials

The state-of-the-art patented technology has already proven itself to be an excellent surrogate to traditional heater by being ultra-flexible, safe, energy-saving, environmental-friendly, reliable and machine-washable.

Moreover the latest versions of the lithium battery powered apparels feature a thin layer of special nano-materials fabric which makes the garment waterproof, anti-odor, anti-bacterial, and stain-resistant.

### Fabric control

Another innovative feature found in the showcase is the fabric control. The fabric control comes naturally from the carbon fibre technology and the control acquires all superior characteristics from the heated garment.

This paves the way of a fully-integrated electronic garment where each fibre can be in control of a certain functionality. The control is water-resistant and can withstand a fatigue-test of over one million cycles.

[www.heatedgarment.com](http://www.heatedgarment.com)

## ePunch – the Unique Boxing Experience

The world's first electronic boxing panel

Atlantik Elektronik GmbH presents the world's first electronic boxing panel at ispo winter 2009 – the so called "ePunch".

Boxing is one of the most popular sports worldwide. Also in Germany boxing has reached a top position on the popularity scale: Today more than 65,000 active boxers perform this sport as a profession or as a hobby.

Based upon these facts Atlantik Elektronik GmbH developed an electronic boxing panel, mainly designed for endurance training, enhanced muscle formation and coordination improvement. The primary difference to a traditional punching bag is the electronic data acquisition of executed punches: The number of hits as well as the impact power will be recorded and transferred wirelessly to a PC, notebook or display wherefrom the data will be illustrated. The additionally provided software offers

several different training-modes and many applications to customize work-out programs. All personal data will be saved and can be recalled at any time in order to make a comparison to other former training-rounds.

### For competitive sports and personal fitness

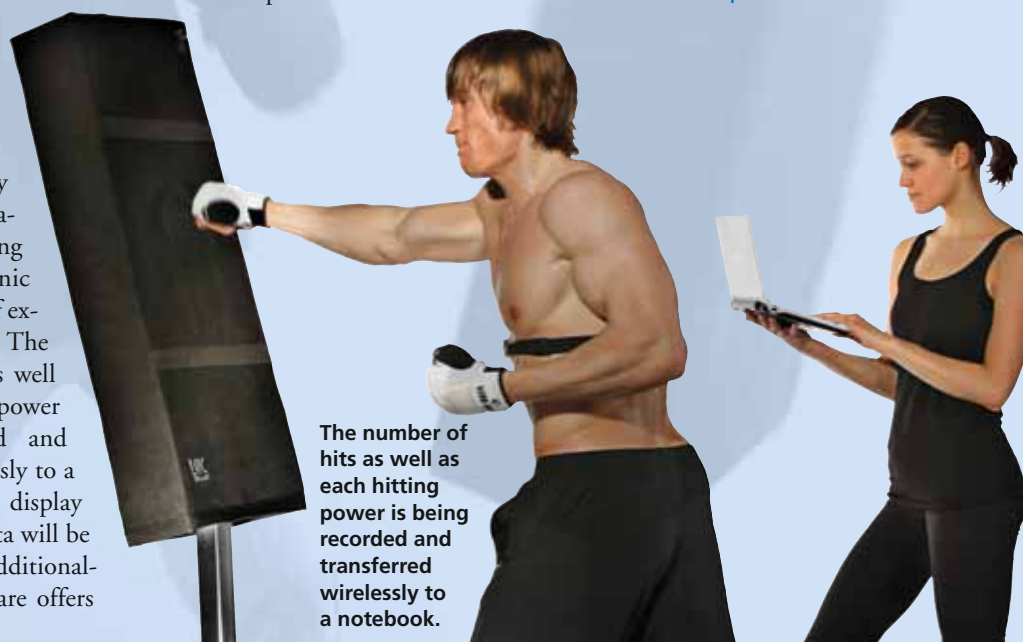
The ePunch is the result of many years of development, from engineers, top athletes, coaches, therapists and medicals. The product targets both the professional sports and the personal fitness sector.

Currently the entry-version called "Rebell" as well as a luxury version are available. This year an optional control unit with an 8.9 inch display will follow which will replace the PC or notebook to run the ePunch software.

The professional ePunch-version named "Pro", includes a 26 inch display, is scheduled to be available by the end of this year.

Visit us at ispo 2009, hall A3, booth 106/207 to see and test the world's first electronic boxing panel. You can even win one!

[www.e-punch.de](http://www.e-punch.de)



The number of hits as well as each hitting power is being recorded and transferred wirelessly to a notebook.

© Simone Hörmann

Snake-jacket

Check out our top partners' new collections!

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Hall A5 Stand 126

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**Sympatex**  
If nature had a choice

## WTnewsflash

### Freeway-Jacket

The cutting edge innovation this season, is the "freeway jacket" by Zegna Sport, designed to improve safety in urban outdoor travel situations. Integrated into the collar is a LED light safety system for maximum night time visibility. The LEDs, two levels of intensity, on the back of the collar considerably improve visibility in non-optimal lighting conditions. The internal lithium battery guarantees a reserve of electric energy that can be used in any type of situation, e.g. to recharge and keep charged cell phones, mp3 players and all other electronic devices powered at five or six Volts via USB outlet.

[www.zegnasport.com](http://www.zegnasport.com)

### Impressum

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 Project management: Navispace AG, Ulrike Daniels, Madeleine-Ruff-Str. 26, 82211 Herrsching, Germany  
 Phone: +49 (0)8152-9099047, E-mail: u.daniels@navispace.de  
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