**Press Release SUNSTAR**20/08/2014

**Detachable bottom bracket motor
With VIRTUS, Sunstar presents the first modular E-Bike drive system**

* Maximum flexibility: E-Bike or normal bicycle
* Detachable mid-mounted motor, universal for all types of frames
* Ergobike: performance measurement even without assembled motor unit
* Modular system with combinable batteries and wireless data transfer to Smartphone
* Comprehensive range of accessories and individual design options
* World premiere at leading international EUROBIKE trade show (27-30/08/2014, A6-209)

**Etoy, Switzerland, 20/08/2014. Bicycle or E-Bike? "Both!" says Japanese-Swiss drive manufacturer Sunstar, who will present a modular system with detachable bottom bracket motor as a world first at the leading bicycle trade show Eurobike (27-30/08/2014). The core of the drive system, which will be introduced under the name VIRTUS as a prototype at the trade show, is a mid-mounted motor that fits on any conventional bicycle frame and can be detached within a few minutes and swapped between bikes. The only requirement is the installation of a special multi sensor controller which can also be obtained separately. This sensor not only measures torque, pedaling cadence and crank angle, but it also acts as the controller and transmits the data wirelessly to a Smartphone – even when no motor is fitted. In connection with various battery types and accessories for off-road use, any bike will become an E-Bike or ergometer.**

**E-Bike or bicycle? Both!**According to the representative study "Fahrrad-Monitor Deutschland 2013", 27 per cent of all Germans would choose an E-Bike when purchasing a bicycle. A further 20 per cent remain undecided. Sunstar provides the ideal solution precisely for this group of customers: An E-Bike or bicycle, the choice is theirs. "The VIRTUS system is ideal for the active cyclist who already owns several premium bikes and is a real additional asset for families, e.g. in connection with a bike trailer or as support for longer rides", states Shinji Okuda, Senior Executive Officer at Sunstar. "Moreover, our sensor unit, which is an integral part of the system and can be purchased separately for further bicycles, is ideally suited for performance measurement. Even without the motor."

**A combination of quality and state-of-the-art design**With its VIRTUS system, Sunstar draws on long-standing know-how as a manufacturer of E‑Bikes in Japan and of universal bottom bracket motors for the European market. VIRTUS is manufactured using Japanese technology under strict quality assurance. Our design staff work together with HYVE, a renowned Munich company whose international client base includes leading names as Adidas, Siemens, Uvex and Zimtstern. In collaboration with these design leaders, individual design solutions are developed to E-Bike manufacturers too.

**Added value for manufacturers, E-Bike specialists and end users**With the new VIRTUS system, virtually any bicycle type and any model can become a premium e-bike – in no time and with no additional development costs or specific frame shapes, as would be needed by other manufacturers of mid-mounted motors. This way, manufacturers can promptly offer their customers individual electric bicycles and a new product range with just minimal investments: “E-Bike ready” bicycles, ergobikes that are pre-equipped with a sensor unit or complete E-Bikes. On the part of the dealer, E-Bike specialists can transform standard bicycles in next to no time to a state-of-the-art E-Bike. End users benefit from the multiple advantages that are offered by the VIRTUS system.

**New safety in the purchase decision and in service**

With Sunstar VIRTUS, customers no longer have to make a decision between bicycle and E-Bike because conventional and special "E‑Bike ready" constructed bicycles can, in the future, be transformed in accordance with the customers' requirements at all times to an ultramodern E-Bike. Once the basic modules are fitted, the motor and battery can be moved within minutes from one bicycle to another – without special tools or the help of a workshop. The VIRTUS system also offers new possibilities in the service area: as it is possible to immediately exchange individual modules if damaged (even up to the replacement of the motor itself), cyclists can use their E-Bikes straight after the repair without the long waiting times usually involved.

**Technical specifications (extract)**

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| **Motor**  | 250 W, 55 Nm, DC brushless |
| **Max. design speed** | 25 km/h |
| **Weight** | 3,2 kg |
| **Support Mode** | 4 modes |
| **3 in 1 Sensor** | Integrated torque-, cadence- and crank angle sensor; external speed sensor |
| **Battery** | 3 different types (36 V): rear rack (11 Ah / 400 Wh); down tube upload (11 Ah /400 Wh); down tube bottom (8 Ah / 300 Wh) – combined 700 Wh for max. range |
| **LCD Interface** | Five button backlight LCD screen, battery status indicator (6 levels), four setting modes; (accumulated) odometer, (average) speed, (riding) timer, calorie consumption, error code |
| **Wireless Basic Interface** | For wireless local area network ANT+ and Bluetooth Smartphone connectivity |
| **Accessories** | Motor Protection, Mud Guards, Spiders |

**About SUNSTAR**

**More than 80 years experience in the two-wheeled vehicle industry**

With offices in 16 countries and over 4,000 employees worldwide, Sunstar offers products and services in over 90 countries. With Japanese roots and headquarter in Switzerland, Consumer Healthcare, Industrial and Chemical Products and Engineering are the cornerstones of our business. The activities of Sunstar in the two-wheeled vehicle industry go back to the year 1932, when the company started producing adhesives for the repair of bicycle tubes. High performance sprocket wheels and disk brake systems, under the brand Braking, are used worldwide by leading motorcycle manufacturers. Since 2003, the company has produced Pedelecs for the Japanese market. In Europe, Sunstar has concentrated on the development, production and sale of universal bottom bracket motors and fitting accessories since 2012.

**Contact und further Information**

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