

# Force sensor for pedal force electrical bikes / bicycles

## 力传感器在电动自行车/自行车脚踏板上的应用

Together with the EBCC ( E-Bike competence center) of the Accell Group, European marketleader of e-bikes (brandnames Batavus, Koga, Sparta), Zemic has developed a force sensor to measure the pedal force on electrical bikes.

- ① Proto typing of force sensors
- ② Mass production of force sensors for pedal force measurement.
- ③ Custom made products.
- ④ More than 250 engineers at Zemic.

ZEMIC 与欧洲电动自行车市场领导者 ACCELL 集团旗下的 EBCC (电动自行车动能中心) 合作，为其研发提供了一款测量电动自行车脚踏板上的力传感器

- ① 基础款力传感器
- ② 量产用于踏板力测量的传感器
- ③ 定制产品
- ④ ZEMIC 拥有超过 250 人的工程师团队



- **Force of Cyclist detected**

- **检测骑行时产生的力**

The sensor detects how much force the user puts on the pedal. On basis of this measured force, the speed and the software settings the amount of support will be determined. The more force the user will put on the pedal, the more support the motor will deliver. The bicycle motor and software follows the user behavior on the pedals so an automatic support will be given.

传感器能够测出使用者施加在踏板上的力有多大。根据所测量到的力量、速度和软件设置，能够确定所需要多大的支持力。使用者施加在踏板上的力道越大，马达所提供的支持力就越大。自行车的动力马达和软件将会根据使用者在踏板上施加的力，自动提供所需要的支撑。

- **Youngsters discover electrical bikes.**

- **年轻人关注电动自行车**

The electric bicycle has not been the exclusive domain of the elderly for some time now. Youngsters have also discovered the e-bike. More and more people are using the electric bicycle for the home/work run. It is a sustainable alternative to the car. No problems with congestion; you don't need to fill up with petrol; no excessive parking charges. It is also good for your health and helps reduce CO2 emissions.

一段时间以来，电动自行车已经不是老年人的专属产品了。年轻人也关注到了电动自行车。越来越多的人在上下班路上使用电动自行车。它是一种符合可持续发展理念的汽车替代品。不存在拥堵的问题，不需要加满汽油，没有过多的停车费。它不仅有利于您的健康，而且有助于减少二氧化碳的排放。

The electric bicycle is becoming more important in terms of bicycle shop turnover too. In 2006 just 1 in 35 bicycles sold were fitted with a battery. In 2014 around 1 in 5 bicycles that left the shop were electric bicycles. In total over 1.05 million new bicycles were sold in 2014. This included 223,000 e-bikes.

电动自行车在自行车店营业额方面所占比重也越来越大。2006年，每卖出35辆自行车中就有1辆装有电池。2014年，每5辆售出的自行车中就有约1辆是电动自行车。2014年共售出超过105万辆新自行车。其中包括223,000辆电动自行车。

- **Force sensors by Zemic Europe**

- **Zemic Europe 的力传感器**

Zemic Europe is a center of competence in the area of designing and manufacturing of straingages, force sensors and miniature sensors. We have the production facility to accommodate small batches of sample pieces or to mass produce millions of miniature sensors.

Zemic Europe 以设计和制造应变计、力传感器和微型传感器为主。我们的生产设施可以提供小批量样品或大规模生产数百万个微型传感器。

Our miniature force sensors are used for measuring force or weight in many applications ranging from the medical industry to the leisure industry.

我们的微型力传感器可用于测量力或重量，应用范围横跨医疗行业到休闲行业。

