



# With miunske up to above the clouds

## Stemme AG control device



Miunske control device for the S10 retractable landing gear

Nothing is more fascinating to mankind like flying. The dream to soar freely through the air was already fulfilled in Greek mythology by Icarus. But it should take a small eternity until someone seriously gravitated into flying. The polymath Leonardo da Vinci (1452 - 1519) sketched flying machines in numerous studies which already resembled present helicopters a lot. In the year 1505, on the Italian Monte Ceceri not far from Florence, he laid the foundation stone for flying with his (failed) flight attempts. 400 years later, Otto Lilienthal took also to air from slopes using the methods of gliding. This was quite successful and up to 2,000 flights are ascribed to him. The 'first aviator of mankind' established with his experiments basis for the physical descriptions of wings which still apply today. The Wright brothers built on Lilienthal's results and extended the flying machines by engines, and, much more important: by 3-axis control.

Today, flying has long-since become part of normality. In countries, such as Australia or USA, aeroplanes are standard means of transport in order to cover large distances in reasonable time. The machines, too, keep getting bigger and bigger. Airbus A380-800, the biggest passenger aircraft in the world, can get airborne with more than 550 passengers on board. The maximum take-off weight (MTOW) is round about 596 tons.

The Stemme AG Peak Performer S10 weighs just a fraction of this. This motor glider with

its MTOW of 850 kg is a true lightweight. But he who gets airborne with this aircraft experiences the original fascination of flying in a pristine way. No wonder: This aircraft is the experience of aeronautical passion. In 1984, the passionate glider pilot and mechanical engineer Dr. Reiner Stemme founded a company in Berlin-Wedding in order to let his vision of a unique aircraft come true. His idea: An aircraft that unites powerful propulsion with outstanding glide characteristics. Today, Stemme AG manufactures ultra-modern sports aeroplanes in the Brandenburg town of Strausberg. The propulsion allows the pilot to take off independently from launching winches, such as cable winches or aeroplanes. Miunske, too, has played his vital part in that aeroplanes do not have optimal performances when airborne, but that they are also safe on their way on the ground. The reason: the control unit for retractable landing gears comes from the Saxony town of Großpostwitz. ByWire interviewed André Baum, avionics development engineer at Stemme about the 'Project E60' project title of which sound much less exciting than it actually has been.

**ByWire:** Mr. Baum, aeroplanes made by Stemme are in themselves true feats of German engineering skill. How easy or complicated was it to implement a control unit for retractable landing gears?

**André Baum:** As such, a control unit existed already. However, so far our aeroplanes were equipped with electromechanical relays for control of landing gears. The task for models S-6RT and ES-15 was to replace them with MOSFET-based circuitry.

**ByWire:** You have chosen Miunske as a partner, the portfolio of whom is mainly focused on electronics for commercial vehicles. How did this come about?

**André Baum:** The requirements on components used in mobile aircraft electrical systems of small aeroplanes are more similar to those in automobiles and commercial vehicles than one would assume at first glance. But with regards to robustness, temperatures, vibrations and moisture, to name only three characteristics, there are many similarities. In addition, with 14 V or 28 V we use the same voltages as in vehicles that stay on the ground.

**ByWire:** Did this influence your decision of teaming up with Miunske at the design bench?

**André Baum:** Yes, it did, because we appreciate Miunske's competence and experience in the realm of commercial vehicles' electronics as lot. A further factor was: We manufacture very exclusive products in small quantities. Therefore, we need partners who can also produce in small production runs.

**ByWire:** For that reason, a requirement which does not leave room for cheap mass products from Far East ...

**André Baum:** Particularly as this is our commitment to quality. One should bear in mind that an aircraft from Stemme AG



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