

**Whoever constantly gives their own opinion on everything, arouses the suspicion that they actually know nothing.**

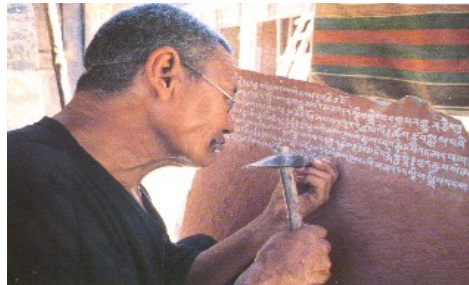
(unknown)

## The Pitiful Editorial Writer

First off, I would like to personally apologize in advance for all the little opinions I always give in my editorials. That said, let me vent my frustration at the decision by a large, honorable, but unfortunately in the meantime, bankrupt Swiss airline to enlist a large, well-known consultancy company to develop a strategy for the airline (a decision of the executive board and management body). What a load of hogwash: just imagine if a normal worker needed a consultant just to do their job. These people don't earn millions and yet one is entitled to expect that they can actually do their job!

Or when I explain the difference between entrepreneurs and managers.

There are obviously still some newcomers to Earth who haven't yet grasped that the entrepreneur puts everything on the line - his own assets and thus his financial well-being, his future and that of his family, should anything go wrong and the company go bankrupt. However, in the very same scenario, the manager still receives a juicy settlement. How nice!



But let's leave that aside. This is the second editorial that you, dear readers, have had to put up with from me. When I read the columns in the daily and weekly newspapers, I often think; "Great"! And other times I have to say; "Complete nonsense"! And I'm sure it is the same with you. More often than

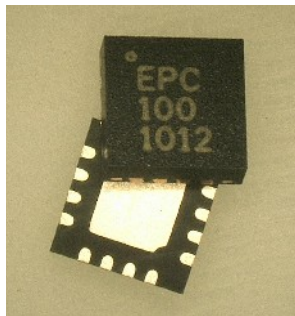
not, you probably get to the end of the article and come to the conclusion it wasn't worth the paper it was written on. Thus, I feel compelled to press on in order to prove (and improve!) the value of what I have to say. You can all draw your own conclusions from the small slice that is merely my opinion.

Your positive feedback encourages me to unearth something new to write about next month. I am already looking forward to the next editions of the CHIPS Newsletter. It really is a privilege to be allowed to write for you every month.

Beat De Coi

## epc10x Production started

Recently, the production of the epc10x family has been started. The epc10x family consists of a two wire bus connected receiver chip (epc100), its companion as a transmitter chip (epc101), and a fully integrated light barrier chip (epc110). These chips are highly integrated mixed signal devices containing a high speed two-wire bus interface for power and data, serial bus address controller and address memory. A high sensitive photo diode amplifier with background light suppression is also integrated as well as an LED timing controller, together with the complete house-keeping circuitry. Everything on one single chip! It contains no less than the equivalent of 150'000 gates to run its functions. However, the complete functionality on one chip makes it extremely easy to design a light barrier or a light curtain.



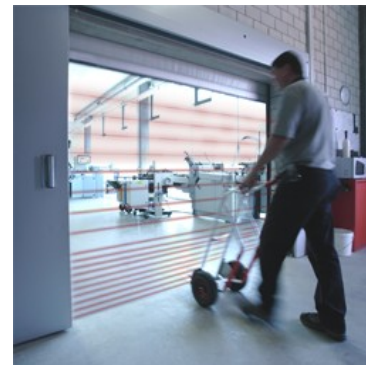
*epc100 chips in a QFN16 package. It is also available in CSP10 package with a size of 1.3 x 1.8 x 0.6 mm only.*

Thus, it is ideally suited to build up light curtains, where multiple receivers in a receiver edge and multiple transmitters in a transmitter edge are operated to scan the area between the

two edges. If an object enters the protected area, an output signal is generated.

The chips are built on a fail-safe concept to be used in safety critical applications. Such applications are light curtains for the protection of the workers on dangerous machines like punching presses and the like, as well as heavy automatic vertical doors.

Samples are available from stock, an evaluation board with a complete light curtain hardware and software example is available soon.

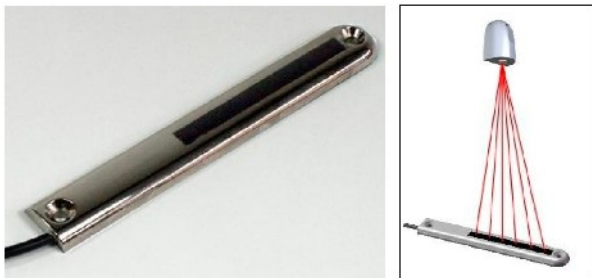


*High speed industrial door protected with a safety light curtain. The use of epc10x-family chips make it extremely easy to design such light curtains.*

*Pricing information and data sheets are available upon request at sales@espros.ch.*

## MicroRay Safety Sensor using epc Chips

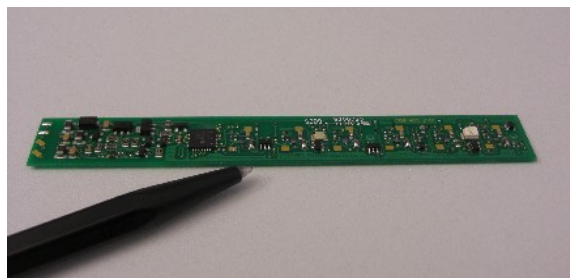
The new safety sensor MicroRay from CEDES was possible only with the extensive use of ESPROS chips. No less than 14 chips from epc are on the MicroRay printed circuit board. MicroRay is a safety sensor to protect the hinge edge of automatic swing doors. This part of an automatic swing door



*MicroRay receiver in a sturdy Zinc alloy housing which is available with Chrome, black Zinc, and Gold plating. The whole device is as thin as 6 mm, fully IP67 waterproof to be mounted directly in the entranceway of an automatic swing door.*

is extremely dangerous because the closing force is so big, that a finger can easily cut off, broken or crunched. Permanent damage of humans extremities may occur. It is the first sensor which provides a safe solution to this specific application. It is interesting that the European Standards require a protection of the hinge edge on automatic swing doors since

many years. But no safety device manufacturer was able to produce such a device. The crucial point is the space where the sensor has to be installed. Without highly integrated



*The PCB of the MicroRay receiver unit has a size of 115 by 15 mm only containing six channels of a safety light curtain. This PCB is built into a die casted housing made by Zinc alloy. Without the availability of the epc chips, the design and production of such a sensor would not be possible.*

chips for light barrier and light curtain applications, a sensor with such a small size would not possible. MicroRay consists of six epc300 photo diodes, six epc137 high sensitivity photo diode amplifiers forming six light barrier channels which are able to detect even the finger tip of a child. It also contains an epc700 and epc701 output driver pair which are controlled by a small microprocessor.

## Teamwork counts!

Having designed a new chip and evaluated the correct function of first silicon there is another crucial task to be done towards mass production. Complex semiconductor manufac-



*Design-, manufacturing- and test engineers teamed-up to achieve a fast turnaround of epc10x into volume production. Back row from left to right: Peter Oertig, Pascal Ferrat, Tomislav Cvetic, Alen Celemen, Paola Tortori, Tamas Kiss. Front Row: Felix Bürgin, Michel Schaller (Project Manager), Ralf Brügger, Daniel Gugelmann, Ralph Potztl.*

turing always generates a partition of defective parts. Testing is required to identify good and sort out defective parts.

Interface hardware connecting chips to test equipment and preparation of test programs need experts combining deep knowledge of the chip functions as well as the test equipment capabilities and requirements. Today test engineers are a scarce resource at ESPROS challenging the Time-to-Market of epc10x. In a joint effort epc10x design engineers strongly supported test program implementation and thus bridged the resource gap. Test & Assembly together with Design managed to meet the tough time schedule to provide the complete testing environment for epc10x in time.

The epc10x-family is based on a quite complex design. To design such a chip and do all the necessary engineering is a lot of work. Many departments and disciplines have to collaborate together, working hand in hand. A unbelievable amount of 11,000 engineering hours came together in this development. 11,000 hours means approximately six man years. However, the whole process was performed within one year only. What an achievement!

*ESPROS is continuously looking for electronics and microelectronics engineers for hardware and software development for characterization and test environment. Have a look at [www.espros.ch](http://www.espros.ch)!*

+++ test engineer, IP manager, sales engineer, etc. +++ interesting job opportunities on [www.espros.ch](http://www.espros.ch) +++ have a look! +++