



## Packaged with ETHERNET Powerlink

**Is Ethernet, the dominant communication protocol for IT systems, also suitable for machine and system manufacturing? This is one of the most heated debates in automation technology today! However, the answer has been available for some time now: ETHERNET Powerlink, already available for a year as an open, manufacturer-independent, high-speed bus, has proven that it can stand up to real-world applications. More than 7.000 Powerlink devices are already in series operation all over the globe. Lemo Maschinenbau GmbH in Niederkassel-Mondorf is one of the more than 100 Powerlink users worldwide. The world leader for plastic film welding machines has decided to use ETHERNET Powerlink for their newly developed smaller systems.**

In the Mondorf district of the city of Niederkassel, you can see a perfect example of how this has been working smoothly for some time now. The current world leader for plastic film welding machines has been in business for 50 years now: Lemo Maschinenbau GmbH, a company that belongs to Jagenberg AG, is located on the right bank of the Rhein where they develop and manufacture – in addition to other products – heavy duty, multifunction and specialized systems for plastic bags, pouches and sacks of all types. The machines are manufactured and distributed for all current trends in film technology.


The latest Lemo innovation, which has just become ready for series production, is the DKT/CT packaging system with 19 positioning axes for welding plastic carrying bags in various formats. Powerlink controls all axes synchronously using the electronic cam profile function as well as the electronic gear function for two axes. The cycle time is 800µs and the jitter is less than 1µs.

This innovation, which was developed as a prototype for a German customer, is now ready for series production and has been marketed worldwide since the beginning of the year. All drives in the system, which allows various timing values, must move precisely in time with each other. This requires the highest degree of synchronism, angular precision and speed rigidity for all servo motors. They are controlled by 19 servo drives from B&R's Acopos product line.

Dieter Baudach, assistant manager for development and responsible for electrical construction, described why Lemo has decided to use Powerlink for their brand new system: "We like the excepti-

onally low jitter and the extremely high data transfer speeds." This makes it possible to guarantee the highest film quality as well as extremely fast data exchange throughout the system.

Most important, the synchronization of the axes can take place in true real-time. Dieter Baudach on this topic: "The machine can even be configured while it is running." In other words, a drive can be reconfigured by the operator relative to another drive even when a drive is turning – the electronic gear function is used for this operation. The speed of all servo motors can be controlled synchronously so that production speed can be adjusted. Baudach once again: "When processing plastic film, it is absolutely critical that the material transport takes place simultaneously and consistently for all drives. This is the only way to ensure that the form of film is not affected and that excessive stretching or straining does not occur."

It is also important that the operation of the machine is kept "as simple as possible" and that the "possibility of errors is ruled out". This is done using B&R's Provit industrial PC system with a touch screen monitor. For example, as soon as the operator confirms an entry, the drives immediately move to the desired position. In general, a long list of advantages explains why Lemo has decided to use B&R and ETHERNET Powerlink not only for their largest systems, but also for their smaller designs. 

ETHERNET Powerlink, which has become the most frequently installed local network worldwide, is being used in the showcased application from Lemo Maschinenbau. In the meantime, over 7,000 ETHERNET Powerlink nodes have been put into action by approximately 100 OEM users. Ethernet (IEEE 802.3) has established itself as a transfer medium in automation technology for several reasons. One of these reasons is that this fully developed technology provides high-speed data transfer rates with low installation costs.

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