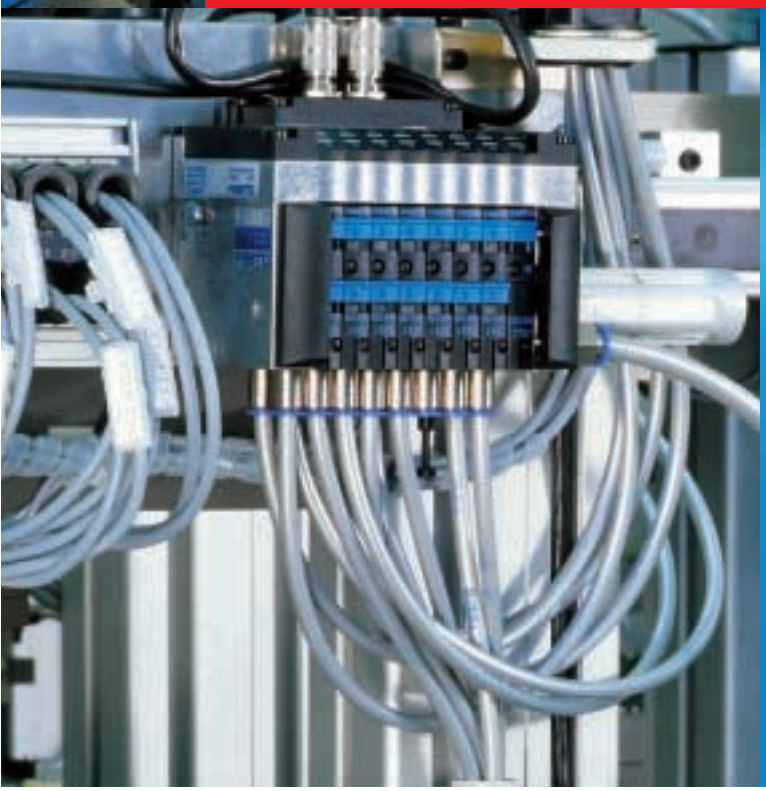
IP-Link interface connects Festo CPV valve terminal to the I/O environment

A great leap to system diversity

Usually, combining and integrating valve terminals with I/O modules requires a lot of work. Thanks to the new Festo CPV valve terminal from Beckhoff with its integrated IP-Link interface, the task is no longer a problem. The CPV valve terminal allows merging of pneumatics and electronics in less space, is easily programmed and requires minimal installation work thus saving money.

The CPV valve terminals are optionally available in 10 mm (CPV10-VI-IP-8) and 14 mm (CPV14-VI-IP-8) sizes



The professions of electronics engineer and fitter used to involve quite different kinds of work. Today the two professions work seamlessly hand in hand, forming the basis for machine design, and indeed providing the conditions in which machines and plant can be constructed successfully. The new profession of the "mechatronics engineer", combining electronics and mechanics, underlines this trend, and is closing the gap. A comparable synergy is arising from the combination of pneumatics and intelligent fieldbus electronics.

In the past, valves were almost exclusively connected directly. Nowadays many valve manufacturers are offering what are called "valve terminals", often already being fitted with directly integrated fieldbus connections. Nevertheless, typical applications still face the constructor and designer with the difficult task of fitting together distributed peripherals, including the pneumatics and a wide range of I/Os, in a way that is compact, economical, easily serviced and provides facilities for extension. Flexibility in the choice of fieldbus is a further requirement.

Pneumatics and I/O technology united

With the new CPV valve terminal with IP-Link interface, Festo AG & Co. and Beckhoff have together pursued these system considerations all the way to a conclusion. The integration of the valve terminals in the Beckhoff Fieldbus Box system offers the user several hundred different I/O combinations, capable of handling almost any application.

The Festo CPV Direct Valve Terminal (Compact Performance) offers everything that the user of modern valve systems expects: It is extremely compact, robust, optimized for cost and has been tested a thousand times. Up to 8 bistable valves can be controlled. Even applications that necessitate short switching times can be implemented, thanks to the small distance between the valve and the actuator. The low weight, furthermore, means that they can be fitted in almost any location. The long service life and short down-times complement the other features. The mature I/O and fieldbus technology, meeting protection class IP 65,

Dipl.-Ing. Rudi Menrad,
Member of the Board, Sales Management
at Festo AG & Co.

"Success factors for the development of a small mechanical workshop to a world leader in technology"

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Over more than 75 years of the company's history, Festo AG & Co., whose headquarters are in Esslingen, Germany, has developed into one of the leading suppliers of pneumatic components and systems. In 176 countries around the world more than 10,000 employees look after more than 300,000 customers. 2,800 patents underline Festo's claim to be technological leaders in the valve terminal and system sector.

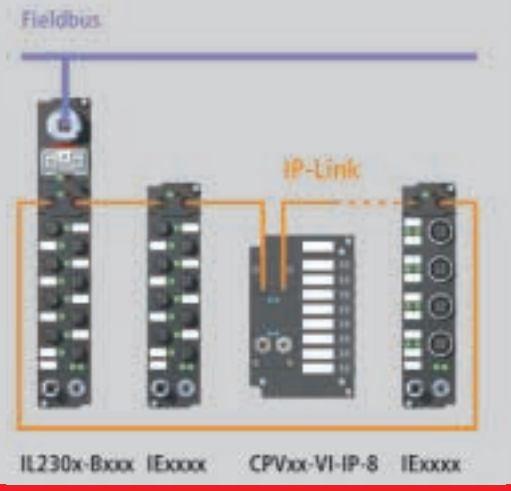
We asked Dipl.-Ing. Rudi Menrad, Member of the Board, Sales Management at Festo AG, Esslingen, to comment:
Every company once had a small beginning. But in Festo's case there are few special points. Both the owners recognized at an early stage that pneumatics, which in those days was a new field of technology, needed to be made more accessible to their customers, and formed Festo Didactic in order to have the capacity to train their customers.

In contrast to its competitors, the company has continued to reinvest its financial yield, not just into further development but also into the 52 direct marketing companies that are now operating around the world.

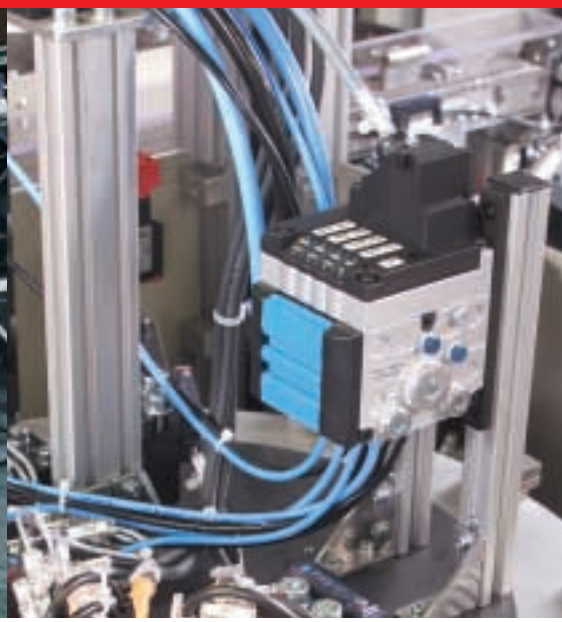
Our philosophy of presenting ourselves to customers as complete suppliers is a further important point. The focus here is placed on technology, quality and innovation. This means that the company must embody a great deal of knowledge. Nearly all our field service staff, and more than 25 % of the entire workforce are engineers. On top of this, we invested very early in electronic data processing, and standardized the most important systems around the world.

Emphasis is furthermore placed on high production depth and competence in our production departments. And, last but not least, we handle 75 % of our customers' orders on the day they arrive. For this purpose we have a most effectively functioning logistics center at Rohrbach, in the Saarland region.

(Reprinted from KEM, dated 08/2002)



Typical circuit diagram of the CPV with IExxxx Extension Box modules



is integrated in the CPV Direct over the IP-Link interface. The direct integration of IP-Link is thus an extension of the existing valve terminals. This compact interface contains the IP-Link inputs and outputs, as well as the power supply and downstream power feed. The development, which involved a close co-operation between Festo and Beckhoff, was carried out in response to the demands of the market. The full extent of the Fieldbus Box range is available to the user: 9 different fieldbusses, 25 different signal types and up to 3 different methods of connection provide the appropriate solution for almost any application.

Conceived as an I/O system for distributed use, the robust Fieldbus Box modules can be used directly on the machine or plant in wet, dirty or dusty environments. With the Coupler Box as a fieldbus station, up to 120 extension modules can be connected via IP-Link. The IP-Link system is an internal communication connection, transporting the data for individual devices quickly and reliably over optical fibers at a transmission rate of 2 Mbit/s.

Full integration in TwinCAT

The valve terminal from the CPV Direct series is easily inserted into the Fieldbus Box system, like an analog Extension Box. It is integrated into the TwinCAT automation software, and behaves like an analog module with 16 output bits in compact mode, or with 24 input and output bits in complex mode.

Just like the Extension Boxes, the valve terminals can be located up to 5 m apart. Both the IP-Link signal and the electrical power supply can conveniently be wired as a ring. No special configuration is required in the system integration, because the Coupler Box automatically recognizes the modules. The Coupler Box appears, from the fieldbus point of view, along with all of the networked extensions, as a single participating bus device with a corresponding number of I/O signals.

The direct combination of pneumatics with fieldbus and I/O diversity opens previously undreamed-of benefits and applications to the user. Reduced cost and wiring radically decreases installation time and other downtime. Distributed machine units can be implemented quickly and reliably. The wide range of I/O components ensures high modularity, so permitting cost-optimized plant construction. Because the number of fieldbus nodes decreases, programming and commissioning are greatly simplified. For all these reasons, the use of the CPV Direct Valve Terminals with IP-Link interface increases the competitiveness of machines and of plant.

Product announcement

Estimated market release 1st quarter 2003.
Valve terminals obtained from Festo AG & Co.
Fieldbus Box modules obtained from Beckhoff.
We reserve the right to make technical changes.