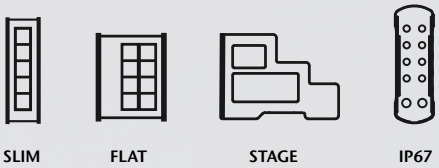

15 YEAR ANNIVERSARY FLEXtra®

RELIABLE COMMUNICATION FOR SECURE SYSTEMS

15 years of FLEXtra – From the PROFIBUS Repeater to industrial Ethernet switches with extra operating comfort.

How can communication be distributed, prioritized, and managed in the simplest way possible? For 15 years now, Helmholz has been providing reliable answers to this question with its FLEXtra switches. Then as now, the focus has been on simple and pragmatic operation.

Fifteen years ago, a product with the FLEXtra label left the production of the Central Franconian automation specialist Helmholz for the first time. Since then, the technology has in fact shifted in the direction of SPS control systems with network technology like PROFINET or ModbusTCP, but the requirements for switches as the foundation for networks have remained the same, because the data traffic of all machine networks runs through them.

A look back

It pays to take a brief look back at the communications technology of that time. PROFIBUS was the predominant fieldbus in Europe, and the linear topology for participants was broadly available. This sometimes resulted in an unfortunate situation. Longer lengths of cable were necessary, which impaired the signal quality. This usually took place at the cost of PROFIBUS speed, meaning that the machine or system also could not react as quickly as desired.

The first PROFIBUS Repeaters were available, but users wanted more functionality, flexibility, and extra operating comfort. This included easily accessible interfaces, and it should be possible to shut down the PROFIBUS segments, for example, for maintenance purposes.

The first PROFIBUS Repeater leaves Helmholz production in 2009.

The FLEXtra product series arose from these requirements. The first product was the FLEXtra PROFIBUS Repeater, which has since carved out a permanent place for itself as a central distributor of machine communication in the control cabinet. This was shortly followed by additional variants that supported PROFIBUS segments.

FLEXtra: a broad portfolio of industrial Ethernet switches

Today, 15 years later, Helmholz offers a broad portfolio of industrial Ethernet switches with the FLEXtra family. It encompasses managed and unmanaged switches, solutions for PROFINET, industrial Ethernet and IP67 variants, and fiber optic connections. A total of eight model series thus cover the current technological possibilities and most application scenarios in the automation of machines and systems. What they all

have in common is that they offer reliable and flexible communication with extra operating comfort and functionality for machines and systems.

Small and flat

There is, for example, the small, flat switches for network and PROFINET applications of the FLEXtra FLAT series. This unmanaged Ethernet switch convinces with its light, but nonetheless robust design. It is extremely flat and compact, so that it is also suitable for control cabinets with less depth, as they are found in expansive conveyor belt systems in the field. When even less space is available, the extra-slim FLEXtra SLIM Ethernet switches are suitable for especially narrow control cabinets. The switch is suitable for installation on the DIN rail and can be very easily integrated into the network. Once plugged in, it is immediately ready for operation with the simple plug&play installation.

Prioritizing of data flows

The use of conventional Ethernet switches in connection with PROFINET networks is technically possible, but should be viewed with caution due to the absence of frame prioritizing and the related data load in many machine networks. In contrast, the FLEXtra STAGE PROFINET switch connects the control system world with PROFINET according to Conformance Class B and the IT world with up to 1 GBit Ethernet.

Because, besides at the field bus level with PROFINET, communication also takes place at the higher level with industrial Ethernet, both communication possibilities are available with the FLEXtra STAGE PROFINET switch. Depending upon the application and project, customers can themselves decide which ports should be used for Gigabit Ethernet and which for PROFINET. The switch is thus suitable for both PROFINET traffic and for Gigabit Ethernet communication between operating elements and various machines.

The managed switch can differentiate whether the frame is a web query, an FTP file transmission, a media stream, or a PROFINET frame. In the case of a high transmission load, the important frames can thus be prioritized in order to prevent frame losses of the machine components. The supported PROFINET protocols, such as LLPD, DCP, or even diagnosis alarms, can be easily configured and administered. In addition to PROFINET, functions like SNMP, NTP, VLAN, port mirroring, QoS/CoS mapping and extensive statistics are also available for the management of the Ethernet network. When necessary, the configuration can be backed up on an SD card or be loaded for order picking.

The innovative FLEXtra product series, with its various STAGE, SLIM, FLAT, and IP67 models, offers reliable communication with state-of-the-art technology.

When special protection is called for

Robust Ethernet and PROFINET switches in protection class IP67 round off the Helmholz portfolio. The corresponding components are dust- and waterproof, thus also ensuring reliable networking under the most extreme conditions of use.

And where machine networks are expanded over long distances or when other exceptional requirements, such as electrically isolated system components or operation under extreme environmental conditions, must be met, glass fiber cables are the right alternative. Corresponding fiber optic switches with slots for SFP modules connect control system units over long distances of several kilometers. Via the SFP slots, corresponding modules can be plugged for both single or multi modes. Effective protection mechanisms also increase the security of data communication. In addition to this, glass fiber-based networks are distinguished by short reaction times and the very rapid transmission of large quantities of data.

Prospect

The requirements for the network infrastructure remain high in the face of increasing amounts of data and the demand for more efficiency. Switches assume a vital role in the networking of industrial systems. They are ultimately responsible for the varied communications tasks in the machine network. The FLEXtra product family from Helmholz is growing all the time and will thus remain on a course for success as a future-proof network solution. Together with the fieldbus couplers, gateways, and routers from Helmholz, all components required for a reliable and efficient machine network are thus available.

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