

After a requirements analysis and subsequent concept planning Turck supplies tailored 19-inch racks with the latest interface technology

Replacement Partners

Turck is expanding its range of I/O solutions for the process industry with a 19 inch replacement concept based on the new IMX12 interface series

Manufacturers of measurement and control technology in the process industry are faced with different challenges to automation manufacturers in the factory automation sector. For example, modification cycles in process automation tend to be longer. A new process engineering plant or even the general overhaul of a plant are much less frequent than new production lines or new plants in factory automation. In the mean time, however, developments in the technology continue incessantly. The control technology manufacturers will thus continue to offer devices for a long time, at least in their spare parts program. Manufacturers in the automation sector develop new product lines every ten to 20 years in order to drive innovation and keep up with the state of the art.

The customer normally wants to use proven technology that represents the latest state of the art. The devices they buy today are also expected to retain all the necessary approvals in ten years. However, the older a series becomes, the more the components it contains are discontinued. Manufacturers are thus forced to redesign their devices. These completely new devices must in turn be approved for all markets.

In the field of interface technology, new devices are already better because they use newer components which stay available in the long term. The international approvals can therefore be guaranteed considerably

more easily in the long term. These were some of the reasons why Turck presented its completely new IMX interface technology series in 2015. The device series has been continuously growing since then. The central features include the narrow housing of only 12.5 millimeters and the flexible use of the devices. With operating temperatures up to 70 °C and operating voltages of 10 to 30 VDC, the entire IMX series offers particularly versatile use. This allows installation in mobile applications with an onboard power supply, emergency power supply or other battery-fed applications.

IMX12-TI temperature measuring amplifier

The latest member of the IMX series is the IMX12-TI temperature measuring amplifier for direct use in Zone 2. Besides a single-channel variant, which directly signals overshoots of the temperature limit value to the control system via an additional relay changeover contact, Turck is offering two dual-channel versions: One for resistance thermometers or thermocouples with a 2- or 3-wire connection, or another for 4-wire resistance thermometers. All standard thermocouples can be connected as well as resistance sensors. Like the entire device series, the IMX12-TI can also be optionally fed with power from the DIN rails via a Power Rail system, and also redundantly as well as with group fault messages for high availability applications.





The new IMX series is a market leader when it comes to its technical specifications for flexibility and channel density. However, the basic features and specifications are only one factor among many when choosing an interface technology system. They are the first filter in the search for a solution. Even if the products of different manufacturers vary in detail, there are normally still some vendors who meet the set requirements.

Products – consulting – mechanical solution – implementation

Besides products, Turck therefore offers a number of services by which the automation specialist aims to supply its customers with an all-round package. Turck advises its customer in the concept design and selection of the right system for signal transmission from the field up to the connection of the signals to the control system. Starting with an analysis of the required and actual situation, the required functions are determined and the best solution designed on this basis. This does not have to be an interface technology solution in all cases. If, for example, the entire control system of a plant is updated, it may be worthwhile investing in a system I/O solution. Turck's excom I/O system for Zone 2 can be used directly in the control room. It is connected to the control system via Profibus and thus replaces the I/O level of the control system. The signal

isolation from the Ex area is already integrated in the excom system. In other cases, an interface technology solution is more suitable – for technical, financial or other reasons.

Once the optimum solution is identified, Turck also provides support with the mechanical tasks and commissioning. This includes the prewiring on terminals, the customer-specific labeling of cables, wires or terminals, as well as the assembly of connectors. Although the customer only has to deal with one

QUICK READ

Understanding the problems of one's customers is one of the ingredients for a good partnership to be successful. One of these problems that currently concern customers in the process industry is the replacement of the interface technology in the 19-inch card format. More than 30 years since their introduction, the discontinued interface cards can still be found today in many 19-inch racks. Together with the customer, Turck is developing a cost and time optimized replacement concept with the state-of-the-art interface technology of the new IMX series, which comes already pre-mounted on 19-inch racks.

With its offering for the process industry, Turck is showing that outdated plant sections can be made fit for the future quickly and economically with the right concepts.

contact from Turck sales, these tasks are handled by Turck mechatec, Turck's own specialist company for panel building and custom solutions.

The fourth section of the complete solution consists of the offering of additional services, such as the calculation of Ex circuits or the creation of comprehensive project documentation. Customers particularly benefit from this complete offering when having to replace 19-inch card systems. Virtually all manufacturers have now withdrawn from this segment. Furthermore, whoever has still not discontinued their products has considerably increased the prices for 19-inch cards – without developing the technology any further. Even with new cards, only the status quo can therefore be maintained and a real modernization of the plant does not take place.

State-of-the-art interface technology in a 19-inch rack

Turck is now offering a solution that combines established standards with innovative technology and fits special 19-inch racks with devices of the IMX interface technology series in order to replace obsolete 19-inch installations. For customers only a minimum of effort is thus required to modernize their 19-inch racks. The current configuration of cards and signals is discussed with Turck sales. Turck then fits a 19-inch rack with

suitable devices and creates a one-to-one equivalent of the original signal combination. The interface devices are prewired on terminals at the back of the rack. Customers just have to fit the rack in the control cabinet and connect their cables to these terminals.

CCM for control cabinet diagnostics

What 19-inch cards like interface technology lack are the modern diagnostic systems, which are normally provided on board in the fieldbus systems for process automation. Turck has thus developed the IMX12-CCM cabinet guard particularly for older systems without diagnostics or control cabinets with simple terminals. The device can be retrofitted in virtually any control cabinets or protective enclosure. A simple teach-in process enables them to be configured for the specific local conditions. The IMX12-CCM (Cabinet Condition Monitoring) cabinet guard indicates the degree of protection of the control cabinet with a single switch signal. The 12 mm wide device comes with an intrinsically safe 2-wire isolating transducer interface, thus enabling it to be used also in explosion hazardous areas. This means that only a maximum of four wires and available space on a DIN rail are required to install and commission the IMX12-CCM. The teach-in process can be carried out without the need for a computer or an additional tool. The standard HART interface is provided for additional diagnostic options, such as for reading out the absolute measured values.

Besides the interface technology, Turck's control cabinet guard offers a range of sensors which monitor the actual status of the environment: a temperature sensor, a relative humidity sensor and a triangulation sensor were integrated in the IMX12-CCM. This last sensor measures the precise distance to the cover or door. If the door is not closed correctly, the device indicates this and the operator can rectify the fault directly.

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The IMX2-CCM monitors control cabinets and boxes, and enables predictive maintenance

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