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In addition to analog I/O cards, four-channel digital modules are available for the IMB

## Compact Class

Unmatched channel density of the Interface Module Backplane (IMB) ensures order in the control cabinet



### ▶ Quick read

The new Interface Module Backplane combines small space with high channel density – up to 32 I/O channels – with galvanic separation and redundant power supply, thereby creating space in the control cabinet. Hart-compatible analog cards and DTM-configurable temperature amplifier complete the new I/O solution and facilitate consistent asset management concepts for the physical layer.

**S**eparating, remodeling, adapting, and processing – the tasks in the physical layer, which is the interface between field devices and the process control system, are just as versatile as the interface solutions used. Regardless of whether in the expansion housing for the DIN rails, as a Europe card for the 19-inch racks or as IMC cartridges in IP67 construction, two features are influencing the decision in favor of interface technology more strongly than ever: The space required in the control cabinet and the total costs per channel.

With the new Interface Module Backplane (IMB), Turck is now expanding its comprehensive portfolio with the addition of a rugged and extremely compact I/O solution for the physical layer. In a compact footprint of only 175 x 210 mm, the new module racks, which Turck will be introducing at Achema, offer space for up to eight interface modules – and, depending on the customer's needs, up to 32 digital inputs/outputs or up to 16 analog I/O channels. Users are therefore able to install control cabinets with an enormous channel density of up to 1,152 input/outputs.

The new module racks have more on the box than pure interface shafts: Using standardized analog and digital system couplings for the most common process system manufacturers, redundant voltage supply and high temperature resistance, IMBs provide a new level of flexibility in the control cabinet. Thanks to their lower channel price compared to DIN rail installations, the easy-to-handle IMB point-to-point solution is ideal both for fully expanded control cabinets with several hundred inputs and outputs, as well as for simple applications with only a few I/Os.

### Minimal engineering expenditure

The highlight of the station: Because the Backplane unites the complete connection level, and the I/O channels can be galvanically separated simply by inserting the interface cards, the engineering time and effort is reduced enormously for the entire interface level – both in the case of maintenance, as well as scheduled expansions. The easily accessible,

intrinsically-safe screw or spring terminal connections, as well as the system connections separated by color or space, prevent connection errors effectively and offer “hot swap” functionality for the control cabinet.

Because the pin assignment for the system connections is adapted directly to the respective process control system, users can dispense with special connection modules and, instead, use ready-made, cost-effective, and highly available 1:1 cables – a considerable advantage with regard to the supply of the electronic components used, as well as the installation and maintenance costs of the interface level.

### Safety on board

The Backplane is a purely passive component as a shunting level of the entire I/O solution. In contrast to similar systems, there is no active component on the hardware that would be able to bring the entire parting plane to a stop in case of an outage. Since each individual interface card is secured, the availability of the parting plane is ensured in case of individual channel outages.

Thanks to the IMBs, Turck is additionally including a simple redundancy concept for the connection level to the process control system. In traditional point-to-point wiring, interrupted connections were able to be compensated for only by an artificial doubling of the input-side signals, however, the redundant connections for the I/O cards in the process control systems now facilitate separate safety concepts for electronics and wiring.

The energy expended in the entire plant plays an increasingly important role for plant operators. Ultimately, the efficiency of a process rises and falls in relation to its total cost of ownership – which the energy balance produced by 4 to 20 mA transmitters can make a considerable contribution. In this case, the Turck developers have achieved a reduction in

energy consumption for the transmitter menus (AIA) without impairing transmitter performance. Even the loop-fed analog input/output cards are working with enormous efficiency.

### Asset Management enabled

According to its claim of not just providing products but rather comprehensive automation solutions, Turck also relies on consistent asset management strategies with its new interface module rack: Both dual-channel analog input/output interfaces, as well as the available transducer/isolating amplifiers, are Hart-compatible and facilitate the transmission of additional measurement and diagnostic data via the modulated digital signal. Based on proprietary device drivers – DTMs for short – users can parameterize the temperature amplifiers used in this way.

They can also configure the field instrumentation underneath the parting plane with the aid of a single manufacturer-independent engineering tool, like the cost-free project planning software, PACTware. The parameterizing tool can be used to easily manage DTMs independent from the bus protocol, visualize features and settings in different basic applications (frames), and parameterize the connected device to be user-friendly in just a few mouse clicks.

Above and beyond remote maintenance and central asset management, the interface cards for the new Interface Module Backplane also come with diagnostic LEDs for monitoring the respective operating statuses. Up to two colored LEDs (digital input/output cards) display the switching statuses of the monitored outputs in yellow. In case of an error in the input circuits – for actuated input circuit monitoring – the corresponding LED changes to red whereupon the relevant output relay and the alarm relay signal are de-energized. Thus, the Backplane interfaces make possible the simple function control of the I/O level directly on site in the control cabinet.





The comprehensive Turck interface product line offers the right design for any application, from cartridges to DIN rails to the 19-inch card and the brand new Interface Module Backplane

### High temperature specification

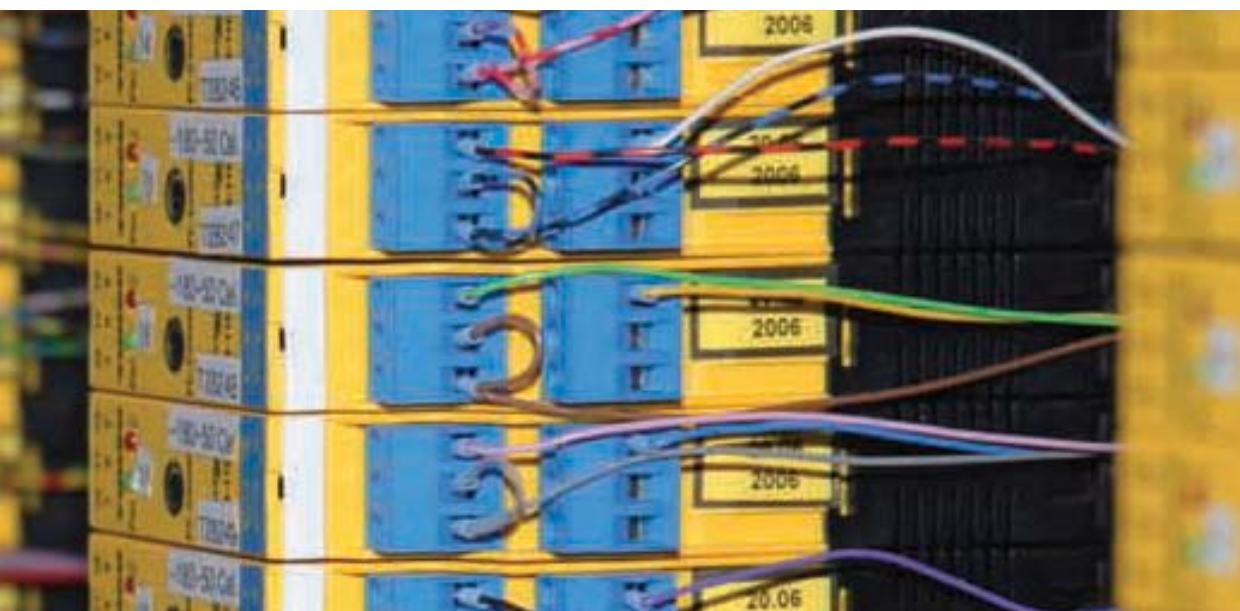
Like the DIN rail interface devices, the Backplane interfaces stand out due to their high temperature specification. With an operating temperature range of -20 to +70 °C, the assembled Backplanes are suitable for installation in non-climate-controlled cabinets or in control cabinets that are heavily impacted by warm air circulation.

The design of the passive Backplane ensures efficient heat dissipation – regardless of whether the new point-to-point solution is set up horizontally or vertically. This is one benefit that not only increases flexibility in dealing with the interface solution, but also raises its average working life between outag-

es (MTBF), and thereby its reliability as well as the capacity of all connected field devices.

### Summary

With the new Interface Module Backplane and the appropriate two and four channel interface cards for up to 32 digital or 16 analog I/O channels, Turck provides a channel density in the control cabinet that is not feasible with DIN rail interfaces. Particularly in highly automated processing plants with several thousand I/O channels, the compact interface stations offer a major advantage. Integrated into a consistent asset management concept, the Interface Module Backplanes pay off even for smaller connectivity solutions. ■



Primarily for installations with a high channel density, the IMB is a true alternative to classic interface solutions