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The TSA Modules of the Center of Competence Imtron

Signal quality on the test stand.

Complex technical products and systems often develop an entirely unique dynamic during operation. Sensors are used increasingly to monitor them with good reason in order to recognize limit violations and react accordingly in good time. They are indispensable components, whether it involves recognition of dangerous recognition of dangerous resonance vibrations on wind power plants or quickly and reliably controlling a car during final acceptance in the factory. Equipped with purely analogue circuit technology, they provide powerful signals for a long service life in highly complex products.

A complete check of a car in just 12 minutes is not a long time to test such a complex product in final acceptance. The signal conditioners of the Center of Competence Imtron of the GHM GROUP provide stable conditions in order for all connected sensors to deliver their data reliably within this short time.

A strong signal for analogue conditioning

The TSA modules enable the best signal quality of nearly any analogue sensor signal with their process-independent technology. Adaptation of the signals takes place without delay. The flexible plug-in filter elements with high-low band pass characteristics up to the fourth order in the range 1Hz - 30kHz enable unique signal filtration and thus clean signals of the first order. With potential isolation, the modules are especially well-suited for suppression of interfering influences in measuring and control circuits, for galvanic isolation of power and signal circuits, as well as for prevention of earth loops. The mounting rail modules convert pulse and frequency signals into standard signals. Moreover, in addition to the preparation of signals, the TSA modules are simultaneously responsible for the feed to the sensor and the galvanic isolation between input and output signal and the voltage supply. With a ripple of < 2 mVpp and a precision of 0.1 %, the modules are also suited extremely well for technical measurement applications. The electronic components of the modules are protected from condensation in changing climatic conditions with a special coating on the printed circuit board.

Two important functions in one device

Because signal conditioning and galvanic isolation are combined in one device, a separate isolator is unnecessary. The devices also have a second output for integration into displays, for the PLC and for data recording. Limit frequencies of up to 30 kHz are possible in this signal conditioning. The standard supply voltage is 24 V DC. An optional 12 V version is also available. The modules have plug-in connections for simple connection. The standard module width is 22.5 mm.

The entire spectrum of individual filter functions

The entire bandwidth of performance is made especially clear in the filter functions. The TSA modules assure clean signal quality over the entire frequency band with a wide assortment of freely configurable plug-in filters. The low pass filters keep interfering frequencies out of the upper range. They filter out all interfering signals above a defined limit frequency and only permit frequencies below the limit to pass.

High pass filters ensure that low-range frequencies are quiet. All signals below the limit frequency are eliminated so that only signals with a frequency above the limit values can pass.

The band pass filter combines both characteristics. It blocks frequencies above and below a defined frequency band and keeps the range clean for signal transmission.

Together with band stops, which delete a defined frequency band within the entire transmission bandwidth and thus suppress interfering influences like the typical 50 Hz humming, the plug-in filters keep the frequency band clean for signal transmission in a defined range.

Modules that you can count on

The mathematical modules are a particular speciality within the TSA series. They are capable of linking measuring signals on multiple channels with simple mathematical functions. This enables, for example, generation of a mean signal value and functions like addition or subtraction. Even the division or multiplication of signals is possible. The key feature of all functions: Signal conditioning and mathematical preparation always take place synchronously in one and the same module.

Not lastly, the high precision and long-term stability make the TSA modules a reliable partner in signal conditioning, particularly in test stand design. Because the modules can also be adapted individually to customer-specific requirements, even in small batches, they offer reliable, tailored signal conditioning at an outstanding price/performance ratio.

About GHM Messtechnik GmbH

GHM Messtechnik GmbH is a pioneering specialist and complete provider for innovative measuring and regulation technology. With more than 330 employees in 15 locations, the company develops and produces a wide assortment of more than 2000 high-quality device types for all significant areas of industrial sensors and electronics in Germany and Italy.

Created out of the merger between the companies Greisinger, Honsberg, Martens, Imtron, DeltaOHM and Val.co, the GHM GROUP presents itself as a traditional company, which follows the vision of the founders and the requirement rigorously to consistently advance measurement and control technology with developments and application-specific solutions with the highest customer usage.

The central focus is the bundling of technological expertise for development of customer-oriented solutions that are appropriate for the market and tailored to the high demands of industry and producing industry. In addition to long-term expertise and state-of-the-art production methods, the GHM GROUP offers competent application consultation and comprehensive customer service, high flexibility even for small part quantities, quick device adaptations and short delivery times. This is all offered at an outstanding price-performance ratio.

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