Gateways: Secure, flexible and safe data transfer on customizable platforms

Nuremberg, 11 March 2021 – While gateways are generally used to interconnect different communication technologies such as networks or protocols, in railway environments they can enable a multi-service communication platform. The duagon AG gateways D517 and D532 are designed for the harsh rolling stock environment and provide a product availability without redesign of more than 20 years.

Modern rail vehicles have control, monitoring and information systems for a variety of essential functions ranging from condition-based monitoring and maintenance to air conditioning and heating and the control of traction, brake and door. Vehicle gateways are thus designed to enable a common communication platform between co-existing networks with different protocols or critical systems. Due to cost efficiency and short project scheduling, gateways are most typically used in applications like network interconnections, monitoring and diagnostics for maintenance purposes in train operator or IT networks, and the retrofitting of existing train communication networks.

Since rail environments are often harsh and narrow, devices in transportation applications must be robust and compact. They are typically networked by fieldbuses increasingly also by Ethernet variants. As for the gateways D517 and D532, they are EN 50155 certified to meet corresponding vibration and emission requirements and offer an extended operating temperature range.

D517: Secure Ethernet-to-Ethernet firewall

The D517 acts as a secure Ethernet-to-Ethernet firewall between vital and non-vital networks. It consists of two M12 Ethernet interfaces, a serial interface and a JTAG interface for software update and debugging purposes. The integrated firewall implements a configurable packet filter, together with IP mapping. Most settings can be managed by a configuration file, which is stored in the internal flash memory. The packet filter configuration may be frozen for series production.

When integrated in on-board services, the D517 significantly reduces the risk of attacks via non-vital networks such as PIS/ CCTV on the train communication network. Designed for the harsh rolling stock environment, the gateway is integrated in a stainless-steel housing and can be mounted on a DIN rail.

D532: MVB-to-HDLC and CAN/Current Loop gateway

The D532 is a compact multi-purpose communication module, designed for the harsh traction environment. It supports a set of communication interfaces, including MVB, RS485, RS422, CAN and Current Loop. A powerful 32-bit CPU enables customer specific communication protocols and applications. The combination of fieldbus interfaces can be configured according to the application specific requirements. A wide range of applications can thus be flexibly covered with one module, such as the cost-efficient connection of several subsystems to an MVB network or the integration of CAN/RS485-based sensors. The module supports line redundant EMD and ESD+ physical layer. The MVB interface complies to the TCN standard IEC 61375 and supports devices up-to class 4 including process and message data and can act as bus administrator.

In addition, a configuration input allows the selection of one up to 16 applications or configurations, for instance all modules for one project are identical in stock but perform different functions on the vehicle. Additionally, a command-line interface and an Ethernet interface are available for maintenance and diagnostic purposes. duagon AG offers a webserver to access basic diagnostic data and to configure the device remotely.

Product web session on several topics

Since December 2020, duagon AG offers live web sessions for several product groups in Europe, the USA and Australia, including gateways. More information about the product web sessions and registration options are on the duagon website: https://www.duagon.com/product-web-sessions/#c3704

You can also find this press release and pictures at: www.duagon.com/company/news-and-press/press-releases/.

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Your leading global partner for reliable, sophisticated embedded products used in regulated critical applications

duagon AG, a rapidly expanding Swiss technology company, is a leading supplier for communication, computing and control technology as well as project planning and development services for system critical applications in the rail, medical and critical automation market. The superior software and hardware IP create innovative, highly reliable and safe products, enabling customers to shape and realize their technology roadmap. Moreover, customers benefit from a shorter time to market and lower total cost of ownership.

For the rail sector, duagon AG develops and manufactures communication solutions for train networks, control, monitoring and information systems, both as standard products and as customized solutions. The extensive portfolio is complemented by engineering services and high-quality application software for rail signaling and train information systems. For the medical industry, the technology company develops and manufactures reliable, compact and long-term available COMs, carrier boards and systems including the required software adaptions. The core competencies include power-optimized designs, high-performance embedded computing platforms and highly compact modules for use in applications such as patient monitoring, ventilators and medical imaging.

duagon AG's development and production facilities are located at the headquarters in Dietikon near Zurich, in Nuremberg, Blue Bell (Pennsylvania) and Sydney. Through a global sales and support organization with offices in Australia, China, Germany, France, India, Spain, Switzerland and USA the company offers its customers a fast and competent service worldwide. In total, duagon AG employs more than 700 workers across eight countries, with about 420 engineers for product development and maintenance.

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