WAGO Provides a Safe Harbor for IT Security on the Binary Seas with “IT Security by Design”

From the PLC to the cloud – securing the path that data takes

As the degree of digitization and networking aboard ships increases, so also does the risk for data abuse and cyber crime. As a result, existing protection zone concepts (defense-in-depth models), which start with access restriction, network segmentation and monitoring systems at the various levels of ship automation are now increasingly running up against their limits. The demand now is for IT security that functions independently of the time or place of remote access – IT security by design: IT security that is integrated from the very start into the configuration of a layer-based security architecture in the controllers. WAGO offers just this solution with its Linux®-based PFC100/200 Controllers.

WAGO’s PFC200 sets up a VPN tunnel for transmitting encrypted data directly via OpenVPN or IPsec from the controller.

Regardless of the application in which the WAGO PFC Controller is used, it records all relevant and sensitive measurement and control data, encrypts the data directly in the control system using SSL/TLS 1.2 encryption (Secure Sockets Layer/Transport Layer Security) and transmits the data via VPN (Virtual Private Network). The VPN tunnel required for this is set up via OpenVPN or IPsec directly from the WAGO PFC100/200 Controller. This means that no additional VPN tunnels have to be established by modems or routers, and, what may be more decisive, the line between the controller and modem is then directly encrypted as well.

Besides its layer-based security architecture, WAGO‘s PFC also comes with other security features such as password protection and user management, secure shell access, a firewall and a MAC white list. Because it is also Linux® based, the PFC from WAGO also has integrated services such as Syslog, FTPs, SFTP, SCP and an SD card reader.

Security on board is also provided by WAGO‘s Managed Industrial Ethernet Switches, which can be used anywhere on the bridge down to the machine room, thanks to their robust temperature range of -40 to +70 °C. The Ethernet switches from WAGO are optimally compatible to both WAGO‘s standard I/O-System 750 and the XTR version of the I/O-System developed for extreme applications. They support standardized redundancy protocols such as STP, RSTP, MSTP, ERPSv2 and the Xpress-Ring fast ring redundancy protocol. For IT security the WAGO Managed Industrial Ethernet Switches offer password protection and user management along with SSL/TLS 1.2 encryption, broadband limitation and monitoring, MAC limitation, ARP inspection, DHCP snooping, L2/L3 access control list and 802.1x port access control. Services such as SysLog, Alarm (by Mail), SNMP v2, v3 and Back-up/Restore are also integrated.