Remote maintenance of machines and systems as if directly on-site – something the web and cloud-based »Remote Access Platform« from SIGMATEK makes particularly easy and secure.

So Close
Although So Far

The Salzburg manufacturer, SIGMATEK, has expanded its integrated automation portfolio with a web and cloud-based option that is exceptionally flexible for remotely accessing machines and systems via browsers, as well as a secure VPN connection. At the core of this modern, easily installed solution is the »Remote Access Platform«. This platform is used to comfortably collect and analyze all relevant data. Via the cloud platform, updates, debugging maintenance as well as alarms, monitoring and reporting can be performed easily and centrally. Combined with »Remote Access Routers« or the operating system expansion »Remote Access Embedded«, various monitoring options are opened for machine manufacturers as well as operators. For remote access via smartphone or tablet, a separate app is available.

With its new remote-access options, SIGMATEK offers a complete solution for secure web-based access using modern cloud computing. Machine operators can increase the availability of their machines and systems, machine manufacturers are provided with potential for new business models. The system is built on a cloud platform, which is browser-based, easy to configure and intuitive to use. Since data is transferred from the machine to the »Remote Access Platform« – »RAP« in short – and to the

user over a VPN network (Virtual Private Network) with SSL encryption, opening the company network is unnecessary – this avoids discussions with the IT manager on the risks of port openings. The integrated user management enables the flexible assignment of various and extensive access rights. Via complete logging of all accesses, additional security is achieved.

Practical Implementation

The complete platform is browser-based, therefore without extra software to install, it is accessible on nearly all end devices.

The »Cloud Logging« function provides deep insights into the machine, automatically calls data, backs it up in the cloud and displays it as clearly organized dashboards.

The data communication between the »RAP« and SIGMATEK controls is established over a separate router – optionally as the hardware variant »Remote Access Router« (»RAR«) or as software solution »Remote Access Embedded« (»RAE«) directly embedded in the operating system of the controller. The »RAR« is a DIN rail device, which can be built directly into the machine. They are easy to install and communicate with the connected control via the system bus. Various »RAR« configurations for LAN, WLAN and mobile communication from the machine are available, such as Ethernet only, 3G/4G, Wi-Fi + 4G LTE, among others. With the USB stick included, the applicable configuration is loaded and the unique assignment of the router to the platform segment is implemented. In addition, all »RARs« provide multiple interfaces, so that further remote maintenance devices can be connected without having to access the machine. The alternative, pure software solution »RAE«, expands the operating system as an Add-On and can be directly installed in the SIGMATEK CPU. The router, completely integrated into the software, is of particular interest for serial machine

Perform remote maintenance, machine monitoring, debugging and updates – with the »Remote Access Platform« from SIGMATEK, secure VPN connections to machines and systems can be made over a central browser-based interface.

manufacturing customers. They can provide the Add-On with the control as a standard feature and can immediately activate the re-mote maintenance server if the end customer orders it at a later time. For the SIGMATEK controls, there are clever Add-ons such as the E-mail client Add-On for sending alarms, maintenance notifications and process data, as well as the MQTT Add-On for telemetry data like temperature and pressure – all desi-gned to make data handling easier.

Preprocessing Data in Edge

In view of increasingly larger data volumes in the machine, data preprocessing using an Edge controller has proven helpful.


Not only are the data volumes thereby reduced, but also the costs. A further ad-vantage can be achieved in security, since data are only usable if the user knows the preprocessing algorithm. Data, therefore, are protected from unauthorized use. SIG-MATEK also offers products for these pre-processing methods, such as the industri-al PC »521«. With the PC 521, information can be actively requested and locally buf-fered – which makes it ideally suited for this task. For machine builders who don't want to store their data in the cloud, it is used as an on-premise solution.

The »Remote Access Router« is available as a DIN rail device in various models for LAN, WLAN and mobile wireless communication (3G and 4G LTE).

TEK's »LASAL« automation software can also be accessed through a VPN connection. In addition, the all-in-one engineering system supports the OPC UA communications pro-tocol. A wide range of remote maintenance

Smarter Data Access

Over the central user interface of the brows-er-based cloud platform, application techni-cians can access data via Internet browser regardless of the device or location. The di-rect VPN connection to the machine enables the operation of the machine or system vi-sualization through Virtual Network Compu-ting (VNC). In regard to customer support, secure remote access provides many advan-tages. Manufacturers can remotely provide fast support to machine operators through various means. This not only has a positive effect on customer satisfaction but also the manufacturer, as long cost-intensive travel for maintenance technicians can be elimina-ted. The Service Tools available in SIGMA-
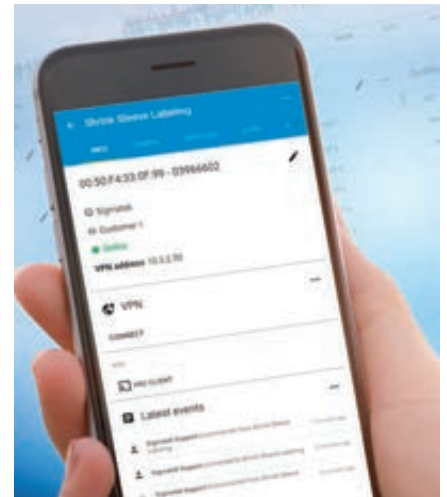
In view anytime, anywhere: With the app, available for »Android« and »iOS«, machines and systems can be comfortably monitored via smart-phone and tablet.

options can therewith be conveniently hand-led, since data can be exchanged regardless of the manufacturer. With »PLC Trace View« the task characteristics can be analyzed in real time using recordings of the project's time response.

Forward-looking Tools

In addition to extensive remote maintenance possibilities, the »Remote Access Platform« enables continuous monitoring of system and machine statuses so that service intervals can be planned early for example. A detailed insight into the machine data is provided by the particularly interesting »Cloud Logging« function. This function enables the collection of data in the cloud over a very long time peri-od. The user thereby defines the data tags in the cloud and can comfortably access them via dashboards. The data are called from the PLC automatically and stored securely in the cloud or edge computer. Thanks to precon-structed templates and widgets, the dash-boards can be easily configured in user-spe-cific designs. Different values such as the number of good and defective components produced and the total system effectiveness

Fotos: Sigmatek;

Inquiry with Karl Baldauf, IoT Product Manager at SIGMATEK

Remote Access and Cloud – the Perfect Match?

Austromatisierung: *Mr. Baldauf, there are diverse neutral remote access products on the market that can be used with various control brands. What advantages does using the remote access solution directly from the control manufacturer bring to SIGMATEK customers?*

Karl Baldauf: Our secure remote access solution is fully integrated into the automation system, that naturally creates efficiency. With the „Remote Access Routers", we wanted to implement a plug-and-play solution and thereby offer customers easy access to their machines. The »Remote Access Platform« is completely browser-based and intuitive to operate. A further significant advantage lies in the option to install the software-based variant »Remote Access Embedded» into the control as an additional package. Particularly interesting for machine builders, is that the »RAE100« package can be included with delivery to provide extensive remote maintenance. The customer however, must first pay for activation. A VPN connection can be created with both solutions and the toolset from our automation software »LASAL« can be used for monitoring or further analysis.

Austromatisierung: *Is storing data in the cloud an option or requirement for web-based remote access a part of your solution?*

Baldauf: We distinguish between remote access and data logging in the cloud. If the customer uses our »Remote Access Router« or the »RAE100« solution, remote maintenance/access over VPN, VNC or web server is included. The »Remote Access Platform« can be completely utilized with »Cloud Logging« and »Cloud Notify«. The cloud packages can be optionally included, they differ according to the number of data points/hr. The data in the control can be stored in the cloud via OPC UA or Modbus TCP. In addition, the option is available to generate dashboards and reports. With their help, insights into production-relevant data can be gained. For this purpose, connectors to data analysis tools such as

»Tableau Public« are available.

Austromatisierung: Can the »Remote Access Platform« be combined with other cloud concepts or other existing data collection systems?

Baldauf: *Using our »Remote Access Platform« in combination with our controls offers more benefits than just remote maintenance. It provides – in conjunctions with our object-oriented engineering tool »LASAL« – access to many services. There is an E-mail Add-On, which is a full-featured E-mail client that the customer uses to send relevant data such as alarms, maintenance notifications and various process data via e-mail to selected recipients – this can be very easily configured through the interface. With the »MQTT-Add-On« it is also possible to send and receive process data. Our controllers can therewith, also deliver data to external cloud platforms such as „Microsoft Azure" or „Amazon Web Services". However, an on-premise solution is also conceivable, in which MQTT is used to communicate with our IPC „521" and collect data there. Customers can first collect their data locally to gain an overview and then transfer the data to the cloud.*

Austromatisierung: *Am I correct to assume that the new remote access solution can also be used for existing SIGMATEK control applications?*

Baldauf: Yes, the router service works with all our devices and the software solution can also be installed in the control at a later time.

Austromatisierung: *Thank you for the interview*

Karl Baldauf was interviewed by Austromatisierung Chief Editor Thomas Reznicek.

can also be calculated. Data collected with »Cloud Logging« can be exported for further processing. Connectors for analysis platforms such as »Tableau« or an API are also available. This allows the comparison of data from different production lines or locations. The data can also be transferred to an SQL data bank. The smart »Cloud Notify« function can send important machine information as an E-Mail or Push notification. In the »RAP«, data tags with different triggers are defined. If the temperature rises above a specific threshold value for example, the alarm system – also managed on the platform – triggers a corresponding alarm. For comfortable remote access via smartphone and tablet, the »SIGMATEK – Remote Access« app can be downloaded from the respective app store for »Android« and »iOS« operating systems free of charge.

Potential for New Service Offers

With »RAP«, SIGMATEK opens new and interesting possibilities for predictive maintenance services to machine manufacturers. These include for example, continuous maintenance, regular updates or data storage. The integrated user-role management allows different rights to be assigned to different users, for example, access to the visualization over VNC in read mode or for software updates over VPN in another mode. »Cloud Logging« enables access to process-relevant data, whereby the full potential of foreseeable maintenance can be exploited – all the way up to analyses of total effectiveness.