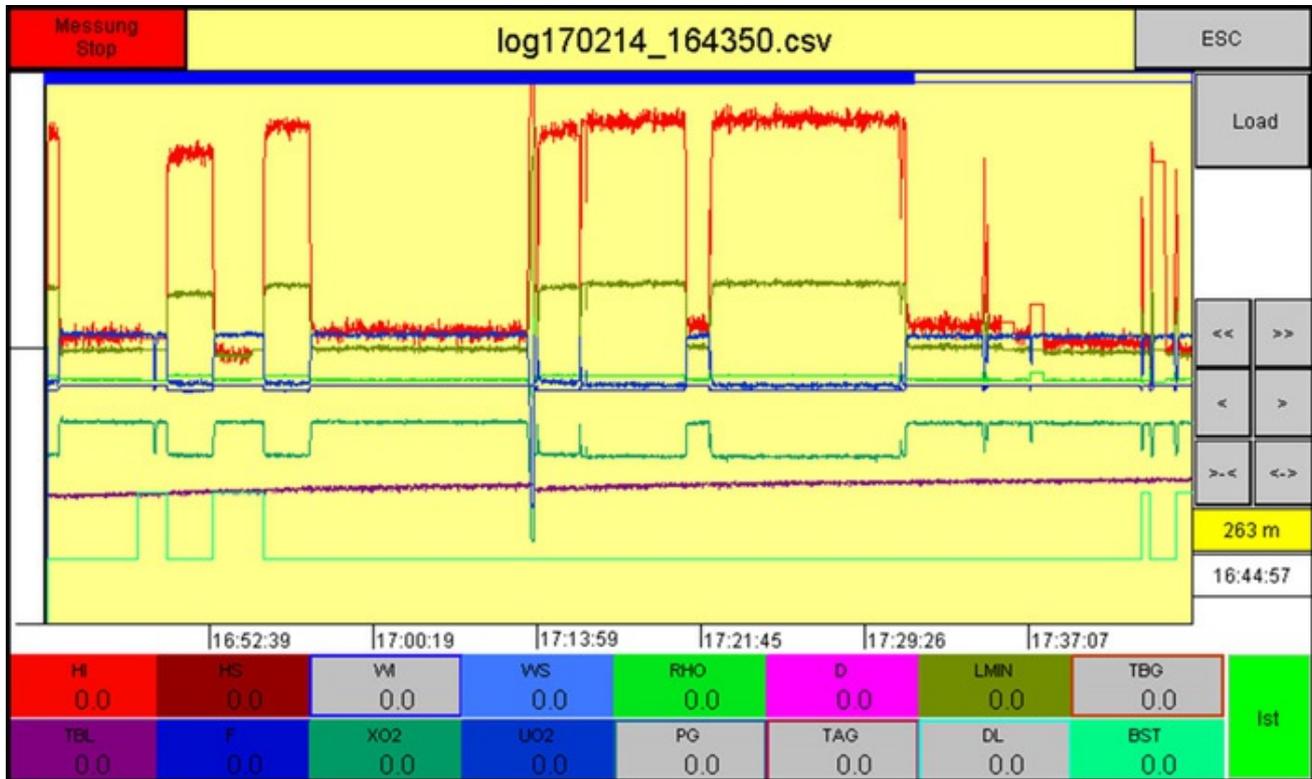SPS 2019

Master terminals and systems for closed- and open-loop control

With the PLM 800 master terminals, Sabo Elektronik introduced a further generation of its master terminals and systems to the market. The devices feature an ARM Quad Core processor, a touchscreen for target visualization, and programming in Codesys.

The above figure shows a data-logger programmed in Codesys. In this application, the measurements are graphically displayed in a time–temperature diagram. Analysis of the measurements, even in the history, is possible on the controller or, thanks to CSV export, in a table calculation. The acquired measurement data are archived in the controller's internal memory, on a USB stick, or on an SD card. The data can also be made available via a network share. (Source: Sabo Elektronik)

With a PLC (programmable logic controller), users receive elements for operation and monitoring of automated closed-loop control and open-loop control tasks in systems. The company develops and manufactures PLC controllers, web terminals, and master terminals with PLC functionality and CAN master function. They are used for front panel mounting, modular control systems for DIN rail mounting, systems with web technology, and universal fieldbus devices for measurement, closed-loop control, and open-loop control technology. The company develops its own system families and PLC controllers as well as OEM (original equipment manufacturer) products according to customer-specific specifications.

The complete assembly of the systems PLM 807-F and PLM 807-S with an application example (Source: Sabo Elektronik)

The application range of the PLM 800 master terminals covers industrial automation and building services. The target group is accordingly diverse, extending from projects in car manufacturing, beverage, aerospace, and textile industries, medical technology, and traffic engineering to shipbuilding and mechanical engineering. In the building automation sector, the electronics company realizes tasks for municipal facilities such as schools and hospitals as well as for shopping centers, office complexes, and industrial building operators all the way to airports and energy supply companies.

Examples include closed-loop control in HVAC (heating, ventilation, and air conditioning) and lighting technologies, setup of remote maintenance systems, and control of combined heat and power (CHP), photovoltaic (PV), and heat pump (HP) systems. The master terminals and micro-processor and fieldbus modules used by Sabo are designed for open- and closed-loop control systems with decentralized I/O nodes. They realize communication via diverse interface standards such as CAN in automation technology and building services as well as modern web technology. The terminals are suitable for web-based operation and monitoring according to HMI interfaces.

PCs, tablets, and smartphones can also be integrated. Thus, a PC with web browser can be used, e.g., to visualize a complete plant. The master terminals and micro-processor modules can be programmed with Codesys version 2 or version 3 according to ICE 61131-3 and are capable of assuming all functions for open- and closed-loop control in the applications. Due to use of the CAN protocol, the systems are open and can communicate with CANopen

devices. The CAN technology permits all devices to be combined and extended. The backs of the master terminals can be equipped with multiple expansion modules, which in turn are connected via CAN, for I/O expansion according to requirements. These modules are available in three different sizes with a wide range of functions. They can provide up to 54 I/Os, with 16 digital inputs and 16 digital outputs as well as 16 analog inputs and 6 analog outputs.

Another possibility is expansion or extension of a Sabo PLC CAN master with the company's in-house CANopen I/O modules. The product portfolio includes digital and analog inputs and outputs, motor control modules, and diverse measurement amplifiers for applications in industrial and building automation. Interface extensions are used for communication with standardized fieldbus protocols such as Profibus, Profinet, Ethernet/IP, Modbus, and Bacnet. The PLM system components are designed for applications in consideration of Industry 4.0 aspects. Safe communications for remote maintenance and cloud connection are ensured through a combination of integrated VPN and firewall, explained the company. Due to the modularity of the PLM system, later 5G integration is already planned for.

cw