

Automation in Laboratory and Pharmaceutical Technology



The requirements placed on the equipment of laboratories for testing pharmaceutical products are increasing continuously, whilst maintaining the safety of all laboratory users remains a major importance. Ehret GmbH & Co. KG Labor- und Pharma- Technik has developed the „Biological Air System Bio.A.S“ product series that fully meets these demanding requirements.



MFD-Titan: control, regulation and visualization in one

The Air System Bio.A.S. requires a highly flexible closed-loop controller, for which Ehret chose Moeller's MFD-Titan. The multi-function display from the easy series is a very cost-efficient solution. Open-loop control, closed-loop control and visualization are combined here in one compact device. The range of options provided by MFD-Titan appealed to Ehret immediately. The device is able to handle all the functions that are important for Bio.A.S.:

- Complete open-loop control
- Display of alarms and messages
- Operating hours counters (device, filter, maintenance)
- Display of air changes, air volume, temperature and humidity
- Complete parameter assignment of the Bio.A.S
- PID controller for regulating the air change/h

Messages that require an immediate response for the protection of persons and animals are relayed as alarms via the building services management system. Information messages that are not time-critical, which, for example, draw attention to maintenance intervals are only displayed on the MFD-Titan. The limit values that trigger alarms or information messages are password protected from unauthorised access: only the specialist personnel is able to modify values, parameters and display conventions. The normal operator level can be accessed on the other hand without a password. The patented Bio.A.S. is also available in other languages for international use.

The full-featured graphic display meets the demanding industrial protection requirements of IP65. Two freely programmable status LEDs are used to display additional operating states and signal alarms. A user-friendly graphic editor considerably simplifies parameter entry and the on/off switching of auxiliary units,

THE COMPANY

Ehret GmbH & Co. KG Labor- und Pharmatechnik is based in Emmendingen, and specialises in the manufacture and sale of laboratory and pharmaceutical equipment for science, research and industry. The product range consists of laboratory and pharmaceutical equipment, clean room and isolator technology, as well technology for animal protection, husbandry and research.

and allows the creation of up to 255 screens, each of which can be assigned with their own key functions.

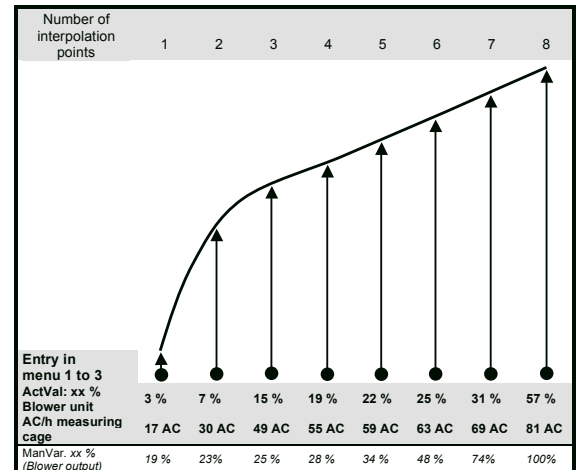
MFD-Titan can be integrated easily in larger automation solutions since the compact controller can handle all the relevant standards from Profibus DP, AS-Interface, CANopen, DeviceNet, OPC up to Windows DLLs. All maintenance-free and vibration-proof spring-loaded terminals ensure a high level of operational reliability.

The highlight: the highly flexible PID controller

The possibility of the integrated PID controller was of particular importance to Ehret. It comes as a fixed function block element in the MFD and is highly flexible so that all the individual closed-loop control components can be activated and deactivated individually. The closed-loop control parameters can be defined as constants or using variables.

Freely configurable nonlinear conversion table for PI control

The air change/h is a key factor in the regulation process, and varies according to the conditions of the system. For this reason, every system must be calibrated individually. The relationship between pressure and air change/h is nonlinear. The service technician decides how many interpolation points (3 to 8) are to be used, depending on the quality of the system. Commissioning is child's play since the pressure can be set as a percentage and the air change/h can be set as required at every support point. The MFD-Titan performs the conversion in both directions.



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CONCLUSION

Günter Unmüßig, R & D: "The MFD-Titan combines open-loop control, closed-loop control and visualization functions in one device. The ability to adapt texts and symbols in the graphic display to the needs of laboratory customers and offer them in any language required are good reasons for using MFD-Titan in this price segment. A modern industrial controller had previously been used for the same closed-loop control task. This had performed the regulation function very well; however, it did not provide laboratory customers with the desired transparency in terms of operating and information options. The four basic features that attracted us to the MFD-Titan are the PID control, the multi-lingual option, the alarm and information messages, as well as the key feature of storing a nonlinear curve in the MFD from a calibration measurement at the installation. Higher-level process control systems are increasingly being used in the laboratory and pharmaceutical sector. For this the MFD provides an open OPC interface so that it can be integrated in any monitoring or control system."

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