

Informing, Warning, Connecting – Safe cleanroom monitoring with touch panels

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Life-sciences companies must monitor their critical production processes with monitoring systems. This is about recording systems that have a high degree of data safety to display, transfer and save quality-relevant measuring data.

Professional providers of monitoring systems, as well as validation service providers offer systems that are aligned with GAMP 5 for this task. GAMP means Good Automated Manufacturing Practice; GAMP 5 is a quasi-standard that describes the requirements to setup and validation of computer-aided systems in a regulated pharmaceuticals environment as a “guideline”.

One important task of monitoring is making measured data visible in the locations where local decisions depend on them. The following examples are to make this clear:

Example 1: Only if the storage climate data is in an “OK range” may the staff perform refilling (otherwise, the quality of the product to be refilled may suffer).

Example 2: Only if the cleanroom has sufficient overpressure may the manlock be opened (otherwise, there would be the danger of contaminated air flowing in).

Example 3: Only if the particle concentration undercuts a threshold may the staff start a mixing process (otherwise, the product may be contaminated).

The current information (measured values and alarm situations) must be provided on site well visibly and unmistakably. At the same time, it must be avoided that the unauthorised user can change the monitoring system. Not least, the relevant measured values and alarm situations are not only to be displayed, but also connected to the superordinate system.

Measuring technology and cleanroom specialist halstrup-walcher now has put the perfect solution on the market for these requirements. Specifically, this is the multi-channel process panel PUC44, which has a touch panel in the stainless steel frame. Several transmitters can be connected and supervised, both on site with the help of the display, and centrally in the monitoring system or building management system (BMS) thanks to the integrated bus connection.

The cleanroom panel PUC44 can (if desired) monitor and display more than just the classic climate data (pressure, temperature, humidity). Rather, it is possible to connect one to four analogue values per device. This may be, e.g., an oxygen concentration, a compressed air flow rate or a particle concentration – in the different processes, many different sensors may, after all, be of central importance.

On the other hand, the presentation of measured values does not have to be limited to alphanumeric information



Fig. 1: The cleanroom panel PUC44 for monitoring of all relevant measured values of your cleanroom

(value+unit). Where desired, the PUC44 may also be parameterised with switchable views so that, e.g., pointer charts, bar charts and even curves (display of value development during the last minutes, hours or days) is possible.

In case of alarm, it must be shown at first glance what a measured value looks like. In the pharmaceuticals environment, alarms in the sense of a traffic light function have become established for this:

- If the signal of a sensor is in the forbidden range (below the alarm “LoLo” or above the alarm “HiHi”), a background colour that can be chosen by the customer (e.g. red) will be displayed.

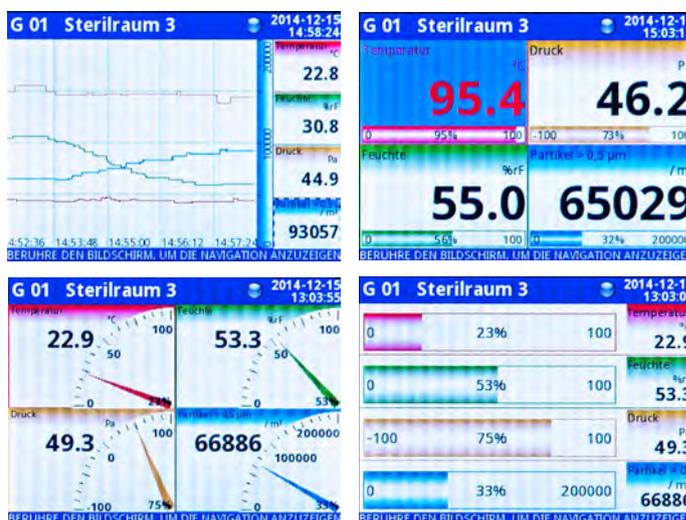


Fig. 2: Always keep the measured values well in sight – with the four PUC44 views that can be selected via touch panel.

- For a warning, due to the sensor signal threatening to run out of the permitted range (i.e. signals below “Lo” or above “Hi”), a background colour that can be chosen by the customer will be displayed (e.g. yellow).
- If the sensor value is OK, the background colour is not noticeable. A small bar chart in addition to the alphanumeric value shows how many percent of the defined measured range are currently utilised.

At the same time, it is often desired that the local staff will be informed of present problems by an acoustic alarm. The viewer is able to switch this warning sound off – confirmation in the monitoring system must, however, be reserved to the monitoring officer, who can solve the problem and at the same time is obliged to comment the event in the audit trail of the system. There deliberately is no confirmation option for the local user.

The connection to the superordinate system (monitoring system or building management system) takes place via the integrated Modbus coupling. A BACnet coupling is already being prepared. In this respect, the cleanroom panel PUC44 has the function of a gateway at the same time; this is an important contribution to low system costs and easy integration.

Thanks to the GAMP 5-compliant password, the user is kept from any intervention on site apart from the brows-



Fig. 3: The PUC44-2 shows the measured data of up to four connectable measuring inputs well-structured and can be operated via a touch panel with intuitive menu navigation.



Fig. 4: The PUC44-3 has been specifically developed for high-end cleanroom applications. The magnetic attachment has given it a smooth, easy-to-clean surface.

ing between released value views and deactivation of the acoustic alarm. The plant constructor or monitoring provider, in contrast, will be enabled to adjust each cleanroom panel PUC44 to the respective application situation via a comfortable menu, without needing to attach a PC.

For best integration into the cleanroom wall, the cleanroom panel PUC44 is delivered with two different stainless steel fronts. Both are installed easily thanks to their low construction depth. Alternatively, a standard model (PUC44-2) and a high-quality very easy-to-clean model with magnetic attachment (PUC44-3) are available. For installation sites outside of the cleanroom environment and the control cabinet fronts, a simple aluminium front version (PUC44-3) can be used as well.