



## All alarms at a glance

**Alarms in production systems are typically located at the machines themselves and not usually connected to an overall system of monitoring. Operators then need to simultaneously watch over multiple monitors or alarm notifications. This can quickly become confusing and some alarms may be overlooked. But help is on hand with an integrated monitoring system.**

In a clean room, alarm lamps on each of the machines are on and blinking. Other alarms are monitoring the environment. There are also fire alarms. When all the lamps are green, everything is ok. The situation becomes problematic only when there is an alarm.

Interdependency in downstream systems means that when an alarm occurs at one point, it then spreads. Procedures are then performed for each system which need documenting. FDA 21 CFR part 11 requires the deployment of certified monitoring systems for labs, warehousing and production lines. If the cause of an alarm/malfunction needs analysing, it starts to get difficult. The documents, tables and audit trails from different systems and products then require evaluation. This can be more complicated than it needs to be.

Delphin Technology provides a unified monitoring system that can be integrated into a range of areas such as warehousing and production. It has all the functions required for recording data in a central, redundant and server-based system.

Such integration is possible because Delphin systems – comprised of hardware, software, applications engineering and a range of different interfaces – are supplied from a single source. Delphin's range of products can be used to adapt existing monitoring systems or to create new systems. The products are equipped with all the functions required for FDA Part 11 compliance. Customers can create and certify their entire system in one go while at the same time establishing a homogeneous system structure.

### Acquiring sensor signals

A data logger from the Message range is used for the acquisition of sensor signals which measuring humidity, pressure, particulates etc. All measurement data is acquired, stored and monitored via the Message devices. The activation of sirens or alarm lamps takes place independently and is controlled via a Message device. This provides maximum security. Notification of limit value violations via email and text message takes place via the device without any need for PC support. To enable continuous recording of data, even in the event of server or network failure, the devices are equipped with data memories of up to 16 GB with capacities for one billion measurement values plus time stamps.

Data from existing control and regulating systems can be directly recorded to the data logger using a Profibus or Modbus connection. Data from climate chambers, weathering stations, refrigerators or other lab equipment can be acquired in Message devices via a direct serial interface. Connection to a server is also possible. Drivers are available for many standard items of equipment and are easy to implement. Alarms can be notified to a central security system via digital outputs or field bus interfaces if required. Users also benefit here because only one system needs to be linked.

Measurement data is also recorded to a server or PC in parallel to the Message devices. This uses the terminal/server compatible ProfiSignal software, a development system that is tailored exactly to requirements. The entire application (including viewing and reports) is generated using ProfiSignal. The DataService, a component of ProfiSignal, controls and manages user settings, databases, alarms and measurement data transmissions between devices and visualisations.

#### Delphin Technology AG

Lustheide 81 | 51427 Bergisch Gladbach · Germany | Phone +49 (0)2204 97685-0 | Fax +49 (0)2204 97685-85  
info@delphin.de | www.delphin.com

## **Visualisation via PC or thin client?**

Visualising signals or making system adjustments, e.g. to limit value or setpoint/actual values, are performed using a PC. An integrated system of user management provides security against unauthorized access. Authorized servicing interventions or attempts at unauthorized access are recorded to a manipulation-proof audit trail (e.g. the acknowledgement of alarms and the resetting of limit value).

Visualisations and user interfaces are individually generated using ProfiSignal. A main element of visualisations are the overviews that can be switched using navigation keys. The navigation keys can portray an alarm on the overviews, e.g. via a colour change. The visualisation overviews group all measurement points according to room or building. Arrows next to the measurement points indicate the alarm status.

Clicking a measuring point enables it to be displayed immediately as a trend diagram. The current value and alarms are displayed within the trend. The lines in a trend diagram also portray alarms and pre-alarms so that threshold violations can be easily identified for long historical periods. The continuous portrayal of data, even for extended periods, is especially useful. Users are able to navigate the data very quickly and easily.

## **Centralised alarms**

In addition to portraying alarms in trend diagrams, users can also switch between an alarm list and audit trail. The alarm list contains all threshold violations with values and times as well as alarm type and source. It therefore functions as an audit trail. Measuring points requiring user acknowledgement are also displayed here and can be acknowledged by the user depending on their rights. Acknowledgement details may require input depending on the alarm settings. Alarms can be transmitted to a main security system via digital outputs.

Delphin Technology has developed many applications including the monitoring of pharmaceuticals. Projects for large and small applications have been developed as software modules. The modules can then be easily and inexpensively adapted to the specific needs of the user. Delphin Technology also designs and constructs complete instrument cabinets, produces documentation and offers system installation and training courses.