DrX Application Note

DrX	All DrX variants
Subject	An integrated alarm system using third party alarm panels
Note Ref.	**AN270.05**

Background

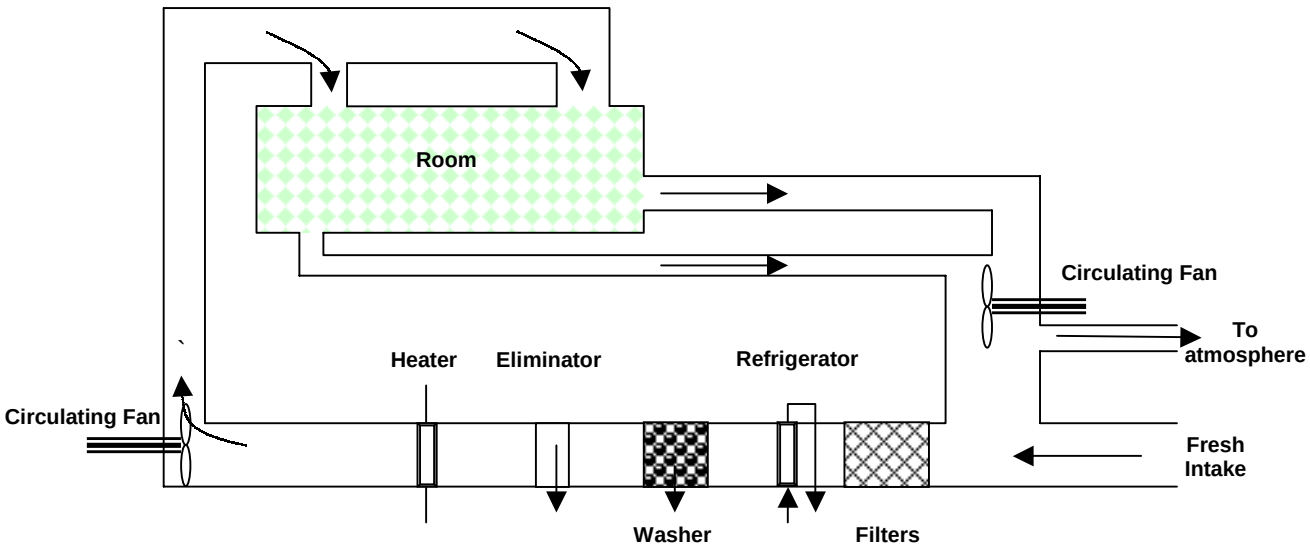
All DrX modules embrace two simple concepts: Combining sensor, signal conditioning and set-point detector into a single package, and eliminating quantitative information since this is usually both meaningless to most operators, and varies from application to application. Wear isn't an absolute quantity!

In essence the DrX range can be viewed as a series of condition monitoring switches. The purpose of this application note is to illustrate how a full monitoring system could be implemented using this concept with proprietary alarm panels or annunciators.

There are many alarm panels throughout the world. One range of units often used with the DrX modules are the Universal Alarm Panels from IMSAB in Sweden (Details below). These are OEM panels used by machine manufacturers and process system builders and a wide range of variants are available. For the purpose of this note we are using an LLE10 10-channel unit.

System

Consider an air-conditioning system which uses standard re-circulation:



Various DrX modules can be used constructively to provide a total HVAC monitor in conjunction with the IMSAB LLE alarm panel.

The system consists of a cooling coil which helps regulate the re-circulating air temperature, as well as preparing it for cleaning. The washer sprays fine water mist in the air to clean it and maintain the humidity content. Any free moisture in the air is then caught by the eliminator. Finally the heater brings the air to the required temperature. Air is circulated by means of two fans at the input and output. Some air is rejected to the atmosphere whereas the bulk of it is re-circulated.

Applying DrX to this systems results in the following modules being used:

FAN1	DrVibe or DrRumble (failure in fans is normally due to bearings however, physical blockages could also be measured here by the absence of noise)
FAN2	Ditto
Cooler	DrHeat – if the cooler fails the heat will rise here.
Heater	DrCool – detects loss in steady state heating
Washer	DrHiss – washers vary in design but most have spray nozzles which give of ultrasonic noise. Alternatively DrFlow can be used on the inlet pipes.
Pump	The washer pump can be monitored by DrVibe or DrFlow. An effective temperature trip can be added using DrHeat.
Trip1 & Trip2	These are electrical trips which the IMSAB LLE can accommodate

Using a combination of DrX's and other sensors and then wiring directly to the IMSAB panel now provides an easy to use, clear condition alarm system for this high bulk air conditioner.

The IMSAB LLE 10 provides ten input channels which can all be programmed to be normally open or normally closed alarms, as well as adding time delays prior to any alarm being given. This latter feature can eliminate false alarms due to impulse noise in the system. The panel can interface with larger supervisory systems with serial communications as well as having two local relays for local control.

Further information on the LLE 10 and other IMSAB panels are available from www.imsab.se or mailing info@imsab.se