# DrX Application Note

**DrX** All variants of DrX

**Subject** Interfacing digital outputs

**Note Ref.** **AN270.10**

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### Standalone or system component

Any DrX module can be used as a simple standalone change detector: the user knows when a change has occurred by the colour of the LED on its body. GREEN = no change; RED = change. However, many systems require some level of integration with other equipment so that reporting can be automatic and more profound than a light changing colour, as well as occasions where the detection of change might be needed as an alarm or control signal.

DrX modules achieve this by supplying a pair of volt-free contacts which can be wired into various systems. The contacts are normally open (N.O.) when the green light is on and the system is running as it should. When the process starts to wear or degrade the red light illuminates and the contacts become closed.

These contacts can be wired into a local alarm system, a cut-off control, or more commonly into a programmable logic controller (plc). Whatever the system, open contacts are ok; closed contacts means the process has changed for the worse.

### Interfacing volt-free contacts

Volt-free contacts, as the name suggest do not have any electrical charge on them. They can be viewed as nothing more than a switch, and their use is universal. Interfacing equipment to volt-free contacts is extremely simple and all major plc manufacturers (such as Allen-Bradley, Siemens, Crouzet, Mitsubishi, Telemecanique, etc) cater for this type of input. In order for a plc to sense that the switch is open or closed then the contacts have to be wired up with an available potential.

To illustrate this, consider a typical bank of inputs on a plc (the one shown is similar to an Allen-Bradley I/O module).

To ensure that the volt-free switch provides a signal to the inputs then one end of the switch connects to the input, the other connects to the common positive supply. When wired like this the normal operation returns a logic 0, and an alarm condition returns a logic 1. The signals will be see on input channels 4 and 9.