



Application Note

Valve Temperature Monitoring on Reciprocating Compressors

Fully automatic, EEx compliant monitoring solution

Reciprocating compressors play a vital role in the petrochemical industry, such as in gas treating facilities, refineries and chemical plants. Therefore uptime is a critical issue for these machines.

This Application Note describes the Brüel & Kjær Vibro solution for monitoring valve problems using temperature measurements and alarm relays. The monitoring system as described below consists of the front-end, the SIMScm monitor and display options, and the intrinsically safe housing options.

Front-end

The part of the monitoring system consists of PT100 sensors mounted in thermowells on the reciprocating compressor. These sensors are normally supplied and installed by the machine vendor as they may require machine modifications. Since most installations require an intrinsically safe design, the sensors are wired via junction boxes to isolators mounted on DIN rails (see Fig. 1). The isolators receive the required power via the DIN rail.

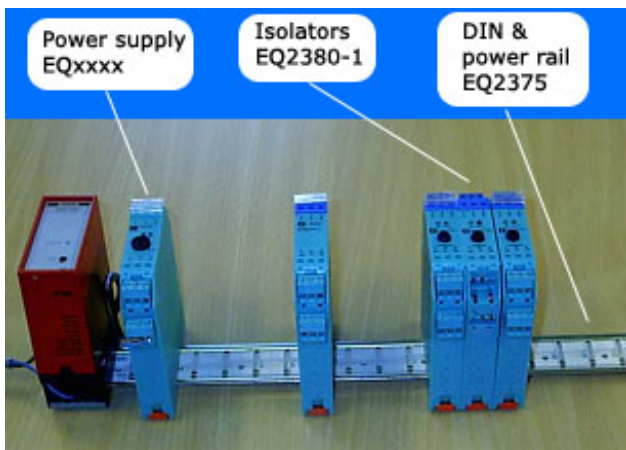


Fig. 1 Isolator configuration assembly

Valve Temperature Monitoring

The SIMScm compares the measured temperature values to the user-defined Alert and Danger levels. If the limits are exceeded, the corresponding Alert and/or Danger relays are activated (two relays for each sensor), as shown in Fig. 2.

The measurements and alarm limits are configured in the SIMScm using a computer connected to the SIMScm serial port.

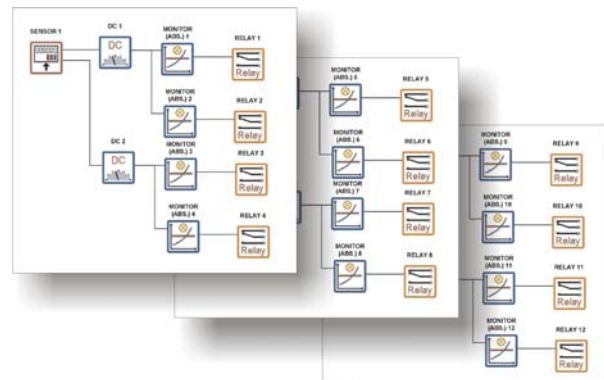


Fig. 2 Measurement configuration

No standard display of valve temperatures is available on the SIMScm, but it is possible to use an OPC interface for sending measurement values to a DCS or PLC for display. Media converters, gateways and OPC server software are available on request at Brüel & Kjær Vibro.

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SIMScm Housing Options

Two options exist for mounting the SIMScm:

1. **Intrinsic safety installation** - This configuration is normally used if there is no field cabling between the compressor and the safe areas (e.g. a typical situation when revamping an existing compressor). See Fig. 3.

2. **Safe area installation (e.g. Instrument Room)** -

This configuration is normally used if there is already field cabling between the compressor and safe area (e.g. a typical situation for a new compressor where all cabling can still be installed). Isolators are still required in order to ensure safe power to the sensors on the machine.

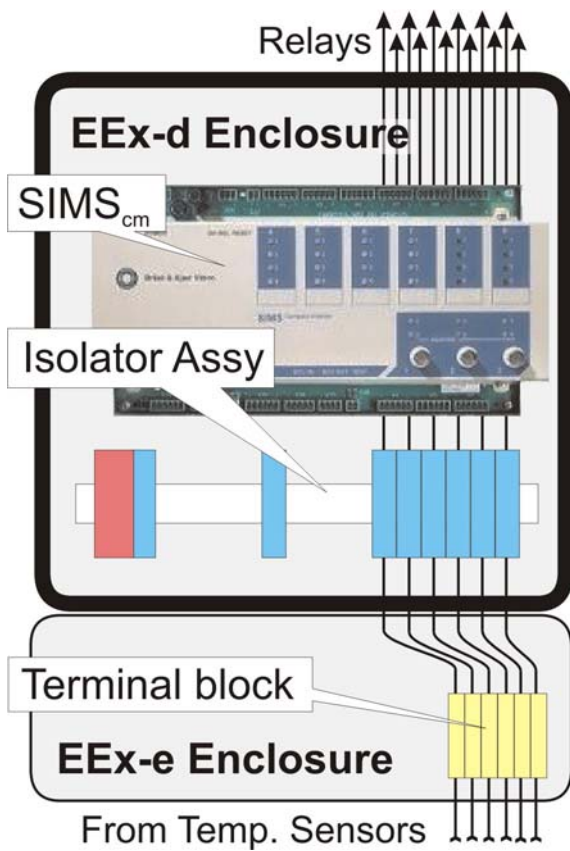


Fig. 3 Intrinsic safety enclosure configuration



Fig. 4 Cabinet installation in a safe area

Product Description

EQ2xxx	Power supply for isolators (230VAC)
EQ2380-1	Isolators for PT100
EQ2375	Power rail
UT-100	User terminal
UD-112-6-AC	SIMScm, 6 temp channel (230 VAC)
xxxxxx	(24 VDC)
TPS-EXD2	EEx-d housing with EEx-e compartment

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