

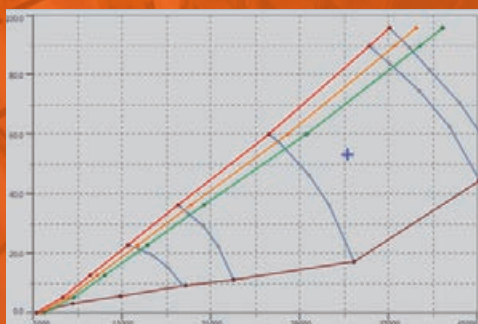


Renowned control solutions to the Energy, Chemical and Petrochemical industries world wide

Control-Care's Antisurge Control Application (ACA) protects multi-stage compressors from surge efficiently and reliably.

Control-Care's method of accurately defining the surge line over a wide range of changing process conditions allows setting of the control line for optimum surge protection without unnecessary recycling or blow-off.

The entire Control-Care compressor control scheme can include antisurge and performance control, load balancing optimization, compressor auxiliaries sequencing, parametric diagnostics and ESD system interfacing.



Two invariant coordinate systems

- Reduced head (h_r) versus reduced flow (q_r)
- Compression ratio (RC) versus reduced flow (q_r)

Four lines of protection

- Surge detect line
- Open loop response line
- Surge control line
- Predictive control line

Feed forward control

- Interactions between multiple antisurge control loops or between antisurge control loop and a performance control loop for increased stability at process disturbances

Sequencing

- Automatic loading and unloading of a compressor in conjunction with its companion performance controller

Fallback strategies

- Continued and stabilized compressor running when one or more of the measurements used for protection fail

Calculated variables

- Invariant coordinate values are meaningless to the operating party; the ACA foresees in calculation of the compressor engineering variables for display purposes

Alarms and events

- Time stamped alarm and event reporting for signaling and troubleshooting purposes

Graphical interfaces

- Hardware platform independent
- Compressor maps
- Faceplate
- Configurator including surge line testing and validation

Critical event (such as a compressor surge) back-up on control system platform

- High resolution recording of critical parameters, (x) minutes* prior and (y) minutes* after the event
- In parallel to HMI or stand-alone

Surge tester

- Straight forward surge validation and testing
- Fully automatic configuration of tested surge points
- Easy interfacing for surge line modifications
- Password protected user level access

Sequence of event history on control system hardware, time stamped

- Standard (x) points* history in parallel to HMI or stand alone

User friendly application configurator

- Upper screen provides for loop configuration settings
- Lower screen shows dedicated loop's contribution to overall output

Projected flow algorithm

- Enables running without a functioning flow transmitter or even without a flow measurement

Compressor performance deviation alarming

- Expected and actual performance are compared and alarmed in case diverging

Application control functions are selectable

- Customize each application individually by enabling or disabling site specific functionality (no programming)

*) Quantity is configurable