

ICS TRIPLEX LEGACY PRODUCTS

+ SurgeGard™ Incipient Surge Protection

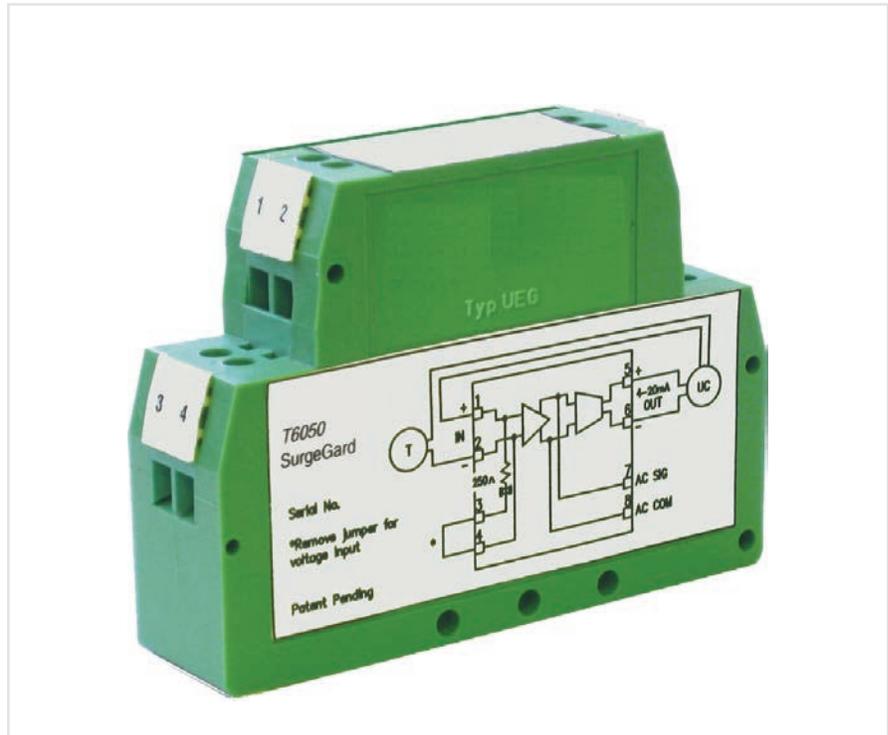
KEY BENEFITS

As part of an anti-surge system, incipient surge protection provides an advanced method to avoid surge spike conditions.

The ICS Triplex SurgeGard system from Sensia uses incipient surge detection to preempt the actual surge spike and act before the spike occurs. It provides a fast-anti-surge response and high operational efficiency.

In addition, the SurgeGard system

- + Helps increase energy savings
- + Provides surge protection independent of the compressor map
- + Identifies and corrects for shifts in the actual surge curve
- + Prevents compressor trips
- + Facilitates compressor remapping
- + Provides an easy method for implementing surge control
- + Offers an advantage over digital sampling



OVERVIEW

Turbomachinery represents a major capital investment and is an important part of the successful operation of the process or pipeline. The Sensia rotating machinery control system incorporates the features that support safe, energy-efficient turbomachinery operation. The system includes sophisticated functions for anti-surge, load sharing, capacity control, and overload protection. The combination of advanced surge control and incipient surge protection reduces energy consumption and increases compressor availability for additional cost benefits.

The addition of the SurgeGard system to traditional head-based surge control provides enhanced compressor control. The SurgeGard system enables a wider compressor operation window, energy savings, and trip prevention.

The SurgeGard system monitors the oscillations of flow, pressure, or current (if the compressor is motor driven) that occur as a precursor to surge. The incipient surge detection is independent of the compressor performance map. SurgeGard includes special signal filtering and signal output conditioning to distinguish between impending surge and other unusual operating conditions.

The Sensia turbomachinery range of controllers can combine integrated advanced compressor control technology with incipient surge protection with the SurgeGard system. The addition of the SurgeGard system results in better control and asset management.

COMBINED SURGE AND INCIPIENT SURGE PROTECTION

Increased Energy Savings

The addition of incipient protection permits closer operation to the actual surge curve, thus providing a wider operating window and saving energy by minimizing recycle/blow-off conditions.

Surge Protection Independent of the Compressor Map

The SurgeGard system does not rely on the traditional head-against-flow compressor map to determine whether a compressor is close to surge.

Identifies and Corrects for Shifts in the Surge Curve

Incipient surge detection continuously monitors the compressor's operating point behavior in relation to symptoms of impending surge and allows for automatic correction of surge curve shifts.

Prevents Compressor Trips

The SurgeGard system minimizes the impact of primary surge control and field instrument malfunction by providing incipient fallback and override control. Even in the event of key transmitter failures, the compressor will stay on-line, increasing plant availability.

Facilitates Compressor Remapping

In addition to surge monitoring and override control, the incipient surge protection module facilitates testing of actual surge points, minimizing operation interference.

Easy-to-Use Method of Implementing Surge Control

The incipient surge test equipment in conjunction with the SurgeGard conditioning module provides such a clear indication of surge test onset that incipient surge control can be safely implemented by engineers with less compressor control experience than would otherwise be required. The use of a pre-amplified signal in conjunction with the oscillographic verification greatly reduces subjective judgment requirements.

Advantage Over Digital Sampling

The continuous analog peak-detector circuit is more efficient (less than 1 ms) and reliable than the digital sampling (2- to 10-ms sample rate) for both incipient surge control and for surge spike detection.

Part number	Description
T6050	SurgeGard Incipient Surge Detector
T6051	SurgeGard Incipient Surge Detector, CE Marked

For More Information and Global Support

Spares Support Team

Phone: +44 (0) 1621 879527

Email: OilandGasLegacySparesRepairs@sensiaglobal.com

System Support Team

Phone: +44 (0) 1621 879500

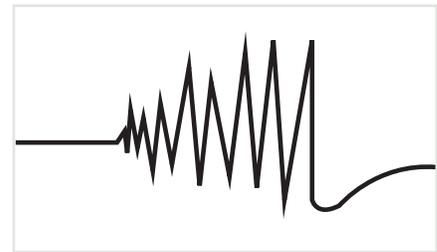
Email: RTS@sensiaglobal.com

The above email addresses are dedicated to Sensia ICS Triplex legacy support and are actively monitored by the technical support and spares and repairs teams, ensuring your inquiry will be responded to in a timely manner.

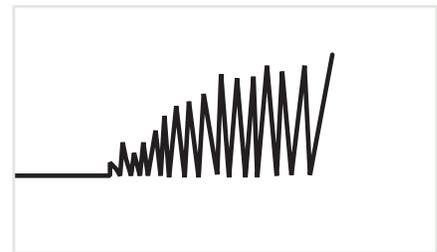
This document is based on the best available information at the time of issue. Sensia reserves the right to modify product lifecycle phase and phase review dates in the event of circumstances beyond our control.



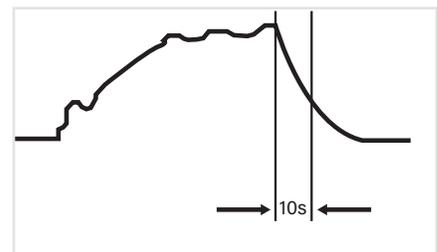
Input



Filter output



Absolute value



Peak detector/decav