SIS Locked In Safety Position Behavior During Power Interruption

Supplement to Fisher® FIELDVUE™ DVC6200 SIS Digital Valve Controller Instruction Manual

This supplement applies only to DVC6200 SIS De-energize to Trip (DETT), Point-to-Point (4-20 mA) operation.

⚠ WARNING

This instruction manual supplement is not intended to be used as a stand-alone document. It must be used in conjunction with the following documents:
Safety manual for DVC6200 SIS Digital Valve Controller (D103601X012)
Fisher FIELDVUE DVC6200 SIS Instruction Manual (D103557X012)

Failure to use this instruction manual supplement in conjunction with the above referenced manuals could result in personal injury or property damage. If you have any questions regarding these instructions or need assistance in obtaining either of these documents, contact your Emerson Process Management sales office.

Introduction

The DVC6200 SIS digital valve controller has ride-through capability which allows it to withstand short interruptions in loop current during a logic solver card redundant switchover or proof test.

This is part of the DVC6200 SIS digital valve controller design and requires no configuration.

Description of SIS Locked In Safety Position

SIS Locked in Safety Position is an alert used to describe when the device is in its safety position and ready for manual reset.

If a power interruption occurs when the DVC Power Up parameter is set for Manual Reset, it will result in the device tripping and latching in the safety position, even after power is restored. The SIS Locked in Safety Position alert will appear. To resume normal operation, the device may be manually reset by shorting the AUX terminals or depressing the green button on the LCP100.

A power interruption can consist of any of the following:
a.) loop current less than 3.5 mA for greater than 40 ms
b.) loop current between 4 and 12 mA for greater than 325 ms
c.) loop current between 4 and 16 mA for greater than 325 ms if a loop powered LCP100 is also present

Ride-through during a de-energization below 3.5 mA

In the case of a card switchover or card proof test, redundant Safety Logic Solver cards may interrupt electrical power, driving the loop current to the DVC6200 SIS below 3.5 mA. If this interruption is longer than 40 ms, the DVC6200 SIS instrument will restart. Upon restart, the DVC6200 SIS will latch in the Locked in Safety Position. If the interruption is less than 40 ms the instrument will not reset. The pneumatics to the final control element may begin to move during this time in response to the de-energization, however the valve will not latch in its safety position if the signal is restored above the 12 mA cutoff in 40 ms or less.

Ride-through during a de-energization to between 4 and 12 mA (16 mA)

Some safety logic solvers perform their card switchovers or proof tests without fully de-energizing the card, which results in a signal change below the cutoff of the DVC6200 SIS DETT. Cutoff will occur at 12 mA (or 16 mA if a loop powered LCP100 is present). The instrument will begin to respond to the de-energization, however the DVC6200 SIS instrument will not Lock in Safety position if the signal is restored above cutoff in 325 ms or less.

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