Setpoint management logic

# Initialization on reset

On reset, the positioner setpoint is initialized to the current valve position, and it will be valid for 25 s or the receipt of setpoint (whether GOOD or not), whichever comes first.

NOTE: This means that unless CUTOFF is configured (LOW for ATO, HIGH for ATC), the valve will no longer be fully deenergized on power-up.

# Normal operation

Under normal conditions, the setpoint comes from TB.FINAL\_VALUE\_x depending on TB.SETPOINT\_SOURCE. In MAN, it is written manually, in AUTO, it comes from the controlling function block (AO or DO)

## FINAL\_VALUE\_x status is not GOOD

This can happen for a number of reasons and TB.XD\_FSTATE takes over after a configured timeout expires. Until timeout expiration, the positioner will maintain the last-known setpoint as long as inter-processor communications are working properly (See below).

# Failed to receive setpoint in APP (positioner proper)

Between receipts of setpoint, APP keeps the previous setpoint. That’s normal operation, unless the setpoint is not received within 3 s (25 s on reset).

**NEW**: It doesn’t matter whether received setpoint is GOOD or not. If it is not GOOD, it will simply be ignored, and the last good value will be used. In other words, only IPC itself will be monitored. The rest is controlled by XD\_FSTATE.

When APP has not received a setpoint within the timeout threshold, the positioner will deenergize but remain in Normal mode. “SP TMOUT” fault will be registered. When setpoint is received again, the fault will be cleared, and the setpoint will be the received setpoint (if GOOD) or current valve position (otherwise).

However, if no IPC messaging is received for 3 minutes, APP will enter Failsafe mode, and TB, in OOS. “IPC LOST” fault will be registered.

NOTE: THIS IS NOT A FIRMWARE DEFAULT!!! By default, last known setpoint will be kept forever!

The behavior is controlled by SA commands 170.220 (read) and 171.220 (write). The desired value of “TB SP Failure Target Mode” must be written at final manufacturing.

