EcoStruxure™

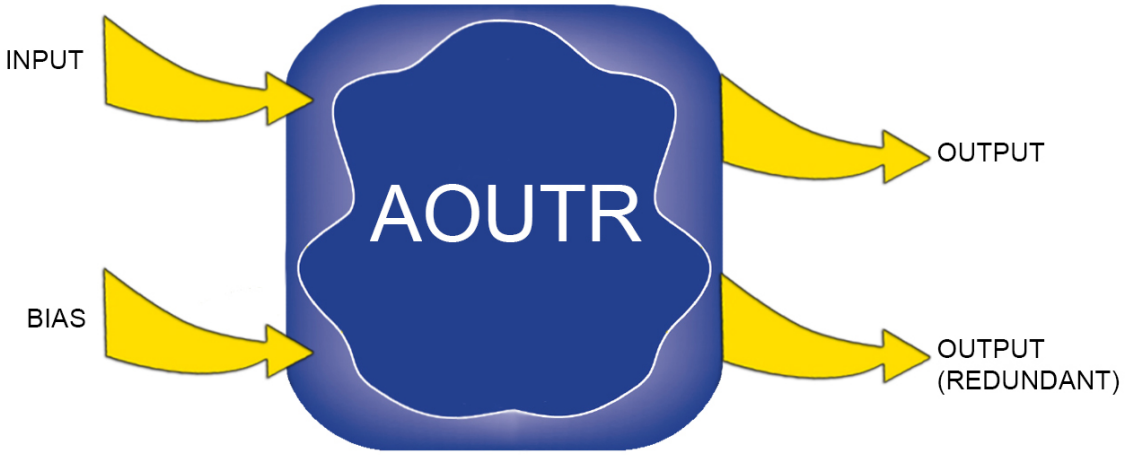
Foxboro™ DCS

Redundant Analog Output (AOUTR) Block

PSS 41S-3AOUTR

Product Specification

April 2019



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Legal Information

Overview

The Redundant Analog Output (AOUTR) block conditions and scales a selected analog output to field devices via redundant EcoStruxure™ Foxboro™ DCS Fieldbus Modules (FBMs).

The AOUTR block (Figure 1) conditions and scales the output to redundant FBMs helping to provide security of output conversion. The resultant value is converted to normalized counts according to the selected signal conditioning index. The block updates the redundant FBMs each control cycle and both FBMs convert the output count to an analog signal via a 12-bit digital-to-analog conversion.

The redundancy logic of the block automatically handles initialization and re-initialization. When the block is initialized, the normalized counts of the readback signal from the selected redundant FBM are converted back to engineering units, using the inverse conversion algorithm of the specified signal conditioning index. This readback signal is supplied by the primary module when healthy, otherwise by the secondary module.

The value of the converted readback signal is the back calculation output. It normally sources the connection to an upstream “back-calculation-input” parameter of a control block in a cascaded scheme. It provides bumpless transfer when necessary, e.g., maintenance issues require the restart of both FBMs.

An AOUTR detail display provides the output value as well as other block information for operator interface to the block.

Bad detection of a FBM output point is based on the status of the redundant FBMs. If both FBMs fall into the failed state, the quality tag of the output (bad point parameter) is set. Hardware occurrences result in system alarms; an unavailable output point results in a process alarm.

Supervisory Control

Supervisory Control (SSC) allows a user's application program to perform supervisory control over the AOUTR block's measurement. SSC can be enabled/disabled by an operator, or enabled by the supervisory application program at a control block group or control block level. If SSC is enabled in the control block, the back calculated value status requests the application program initialization. The application program must send the supervisory measurement to the block periodically. While SSC is enabled, the operator cannot set the control block parameters associated with local setpoint. If the operator asserts fallback or if a supervisory application program failure is detected, the control block falls back to a configured fallback mode (Manual or Auto).

Standard Features

- Auto/manual control of the output
- Bias and gain scaling of input
- Initialization and back-calculation parameters for proper coordination of cascaded schemes
- Bad output point detection and readback
- Outputs bounded between user-specified limits

Options

- Bias tracking when in manual
- Output clamping in manual
- Auto/manual override
- Bad point alarming
- Selectable signal conditioning:

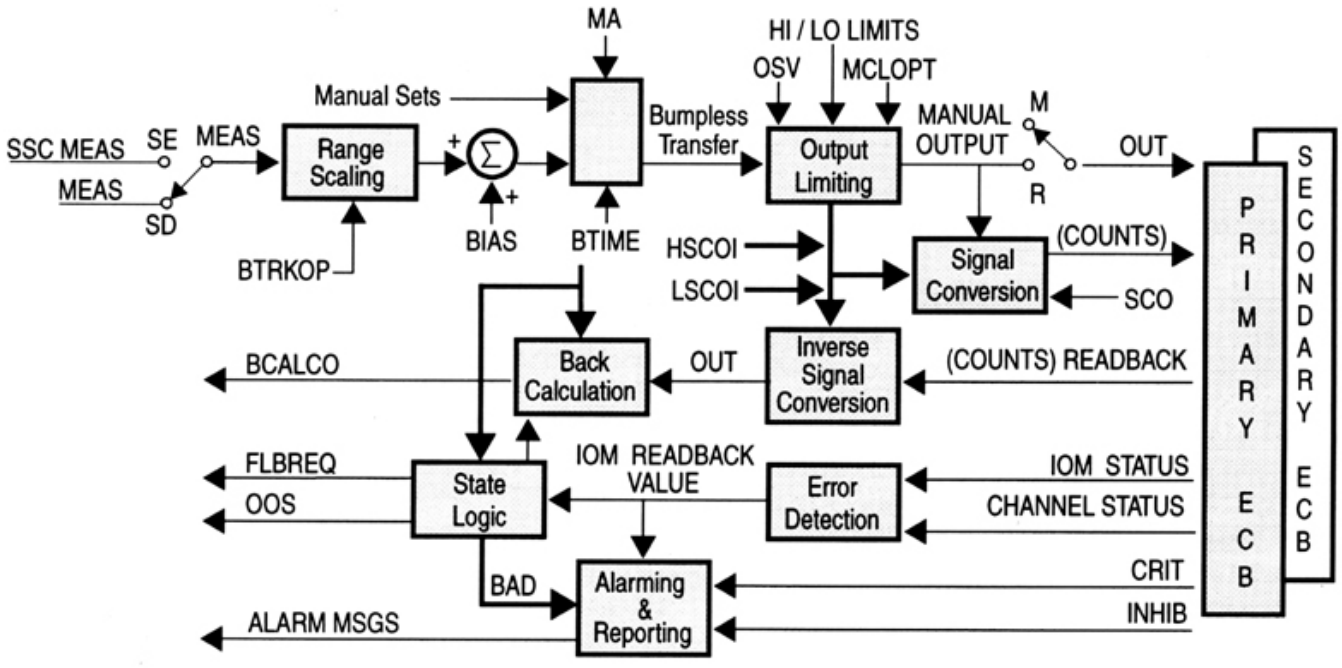
Conditioning Index	Signal Conditioning
0	No conditioning
1	0 to 64,000 counts linear
2	1,600 to 64,000 counts linear (0 to 10 V dc)
3	12,800 to 64,000 counts linear (4 to 20 mA)

- Workstation lock access allows write access to only the Display Manager which owns the lock.
- Loop identifier allows the user to identify the loop or process unit that contains the block.
- Supervisory Control (SSC) of the block's measurement

Additional Features

- Delayed alarming. A configurable timer delays alarm detection or return-to-normal messages for a specific alarm to reduce the number of alarm messages generated when a block parameter crosses back and forth over an alarm limit.
- Detection of fail-safe mode in the FBM, during which the block switches its input to a user-selected source for safety.

Figure 1. AOUTR Block Signal Flow Diagram



⚠ **WARNING**: This product can expose you to chemicals including lead and lead compounds, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to www.p65warnings.ca.gov/.

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