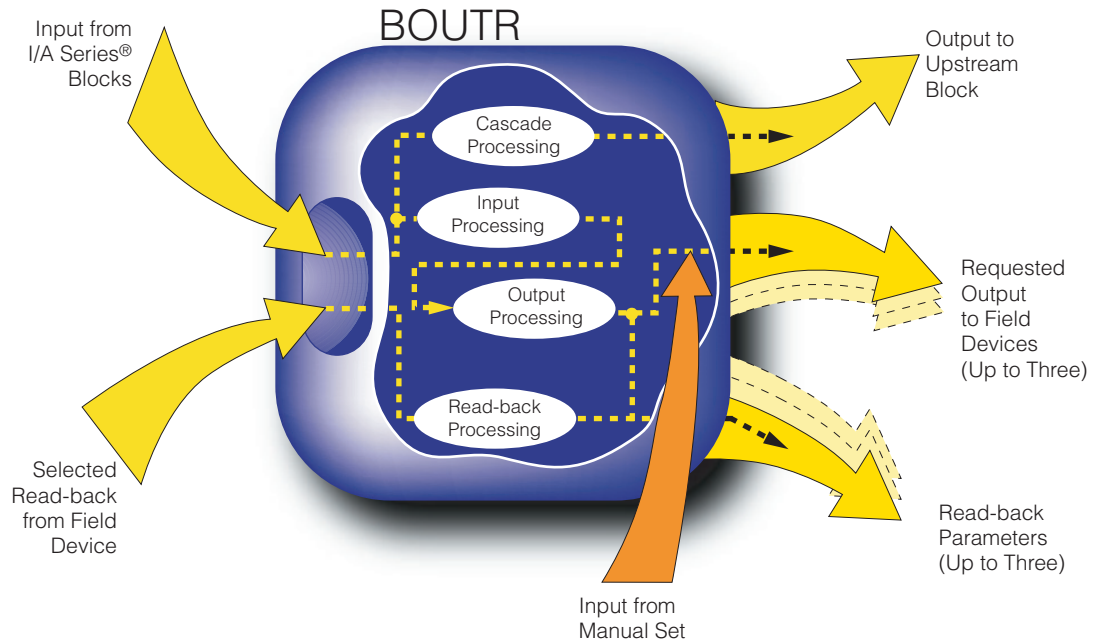


I/A Series® Software

PSS 21S-3N13 B4

Redundant Binary Output (BOUTr) Block



The Redundant Binary Output (BOUTr) block provides the control strategy with output capability for a single binary point directed to up to three separate external field devices.

FEATURES

Key features of the BOUTr block are:

- ▶ Capability to send a digital output to up to three external field devices
- ▶ Separate input parameters for use in Auto and Manual mode
- ▶ Outputs written to devices on a change-driven basis, along with additional optional periodic outputs
- ▶ Displayable output values for request and readback values to aid in diagnostic testing
- ▶ Change timer assuring closed loop operation in both directions
- ▶ Fail-safe support
- ▶ Specific point reserved for tracking notification from external device
- ▶ Loop identifier for identifying the loop or process unit that contains the block
- ▶ Workstation lock for ensuring block integrity by restricting write access to block parameters
- ▶ Owner identifier for allocating control blocks to applications.

OVERVIEW

The Redundant Binary Output (BOUTR) block (Figure 1) receives a binary value from an upstream control strategy and sends the value to specific addresses in up to three external field devices. Two devices provide output redundancy, whereby three devices provide triple modular redundancy (TMR).

The BOUTR block can optionally be configured to:

- ▶ Run in simulation mode, which is accomplished by automatically writing the block output to readback parameters
- ▶ Transition from Automatic to Manual control or vice-versa by an operator, a host process, or another block
- ▶ Notify upstream blocks in the event of an open cascade
- ▶ Propagate errors, causing abnormal conditions of the block input from the control strategy to result in an error status of the BOUTR block output.

BLOCK OPERATION

In Auto mode, BOUTR accepts a binary input from an upstream control strategy, and in Manual mode, from an operator set, generally via an I/A Series® Display Manager or FoxView™ display.

Output from BOUTR is change-driven; the block only writes to the device when a change occurs in the value of the input. However, the BOUTR block offers an output timer, which, when configured, allows outputs to be written when no change-driven output has occurred for a specified number of seconds.

The confirmed structure of the block output consists of the following parameters:

- ▶ the requested output value (COUTQ)
- ▶ the output value of the block (COUT)
- ▶ up to three readback values (CRBK_1, 2, and 3)

The COUTQ block parameter represents the requested value sent to the FBM to be written to the field device(s). The COUT and CRBK_n parameters confirm that the requested value has been written to the device.

A change timer mechanism is used to keep the I/A Series system synchronized with the device. If the value of the COUTQ parameter is not accepted by the device within a pre-determined time, the current readback value CRBK_n (as arbitrated) is compared against the value of the COUTQ parameter. If the two values differ, the block does not send its output value to the device, and the readback value is set into the block's input parameters and the COUTQ parameter.

BOUTR provides a back calculated output to upstream blocks to aid in cascade handling, and to alert upstream block to any abnormal situation.

If so desired, the BOUTR block can force an I/A Series control station to track the state of the field device during initialization.

The BOUTR block can run in simulation mode, which allows you to test your control scheme without I/O hardware connections. In this mode, the block output is automatically written to all FBM readback parameters, simulating actual values read back from FBMs.

For a CP270 with I/A Series v8.4 or later system software, the BOUTR block provides alarming upon detection of a fault in the operational status of the Fieldbus Module or input channel.

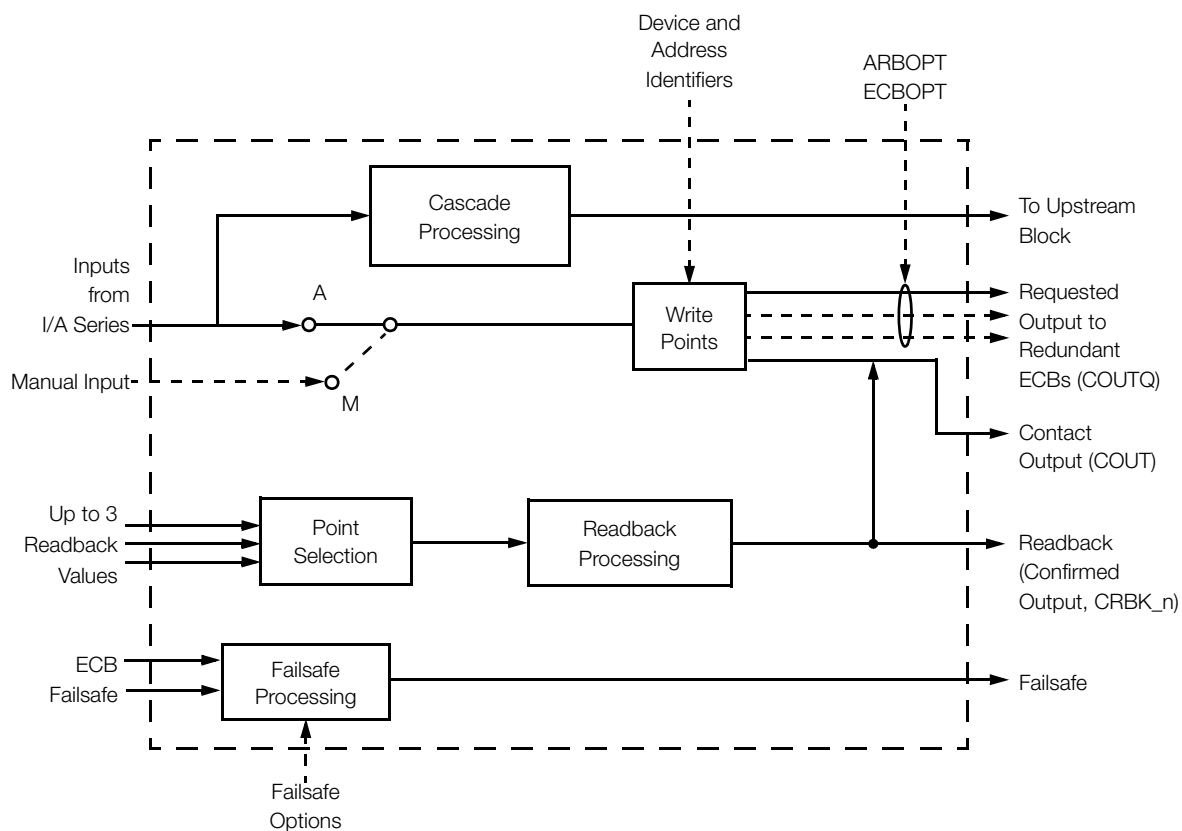


Figure 1. BOUTR Block Functional Diagram

PRINCIPAL PARAMETERS

Inputs

- ▶ 1 binary input, derived from strategy in Auto mode, or set by operator in Manual mode (Boolean)
- ▶ Primary, secondary, and tertiary external device point names (String).

Outputs

- ▶ 1 binary output (Boolean)
- ▶ Up to 3 readback outputs (Boolean)
- ▶ 1 binary back calculated output (Boolean).

CP270 (WITH I/A SERIES V8.4 OR LATER) ADDITIONAL FEATURES

- ▶ Bad-input-point alarming of the conditioned measurement output signal. The output includes alarm indicator signals and user-defined alarm messages.
- ▶ Inhibiting of block alarm messages.
- ▶ Indication of the alarm level (1 to 5) and alarm type of the highest-priority active alarm for the block.
- ▶ Manual-if-Bad option detects errors in the operational status of the Fieldbus Module or input channel. If found, the block switches its input from the FBM/channel to a user-selected source for safety.
- ▶ Detection of fail-safe mode in the FBM, during which the block switches its input to a user-selected source for safety.



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