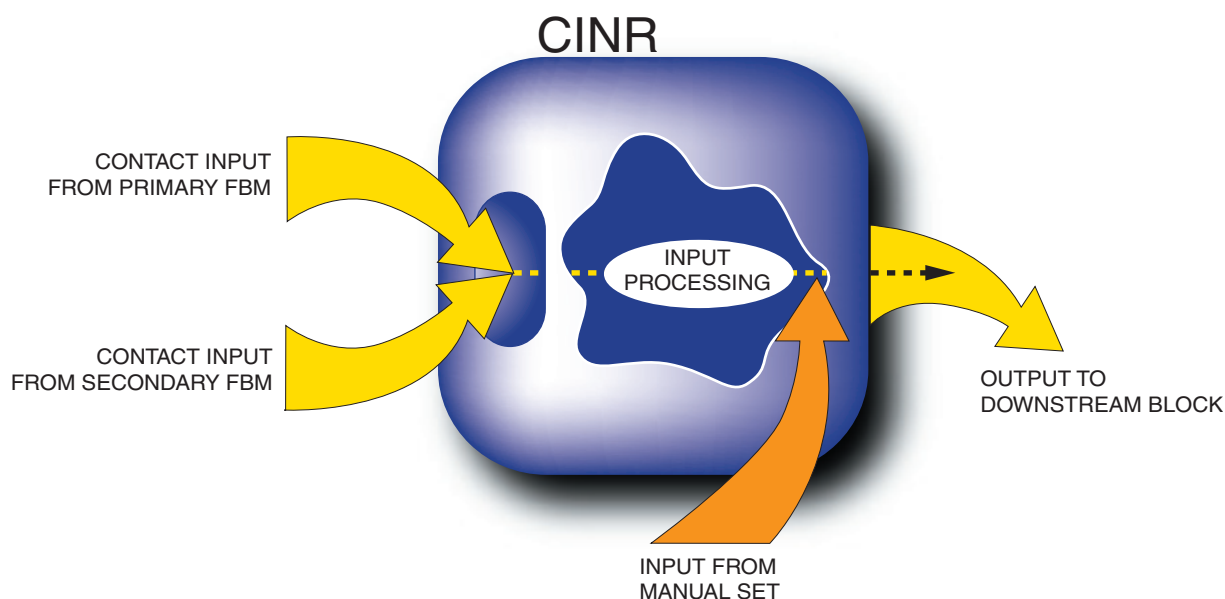


Redundant Contact Input (CINR) Block



The Redundant Contact Input (CINR) block scans redundant contact inputs from a pair of Fieldbus Modules to select and alarm a single digital input for the control strategy.

OVERVIEW

The CINR block accepts two digital input values for one input point from redundant FBMs (see Figure 1). The block selects one of these input values for use in the I/A Series® control strategy, depending on a specified input selection option and the quality of the inputs.

The CINR block can optionally be configured to:

- ▶ Receive redundant inputs from two other blocks instead of the FBMs for simulation purpose
- ▶ Invert the block's input, regardless of the source
- ▶ Generate a State Alarm indication and message on any transition of the output
- ▶ Invert the meaning of "into alarm" and "return to normal" for State Alarm messages. "Into alarm" comprises a false-to-true transition of the output, and "return-to-normal" is the opposite
- ▶ Generate state change messages on only false-to-true or only true-to-false transitions of the output, or on both
- ▶ Generate a Bad I/O indication and message when both FBMs or input points have bad status

- ▶ Enable configured alarm options to function in the Manual mode
- ▶ Suppress nuisance/flutter alarming of all contact input alarms until the alarm deadband timer expires
- ▶ Use the last good value or the fallback value for the block contact output when both FBMs or input points are bad or out-of-service
- ▶ Re-arm the active block alarms when the re-arm timer expires.

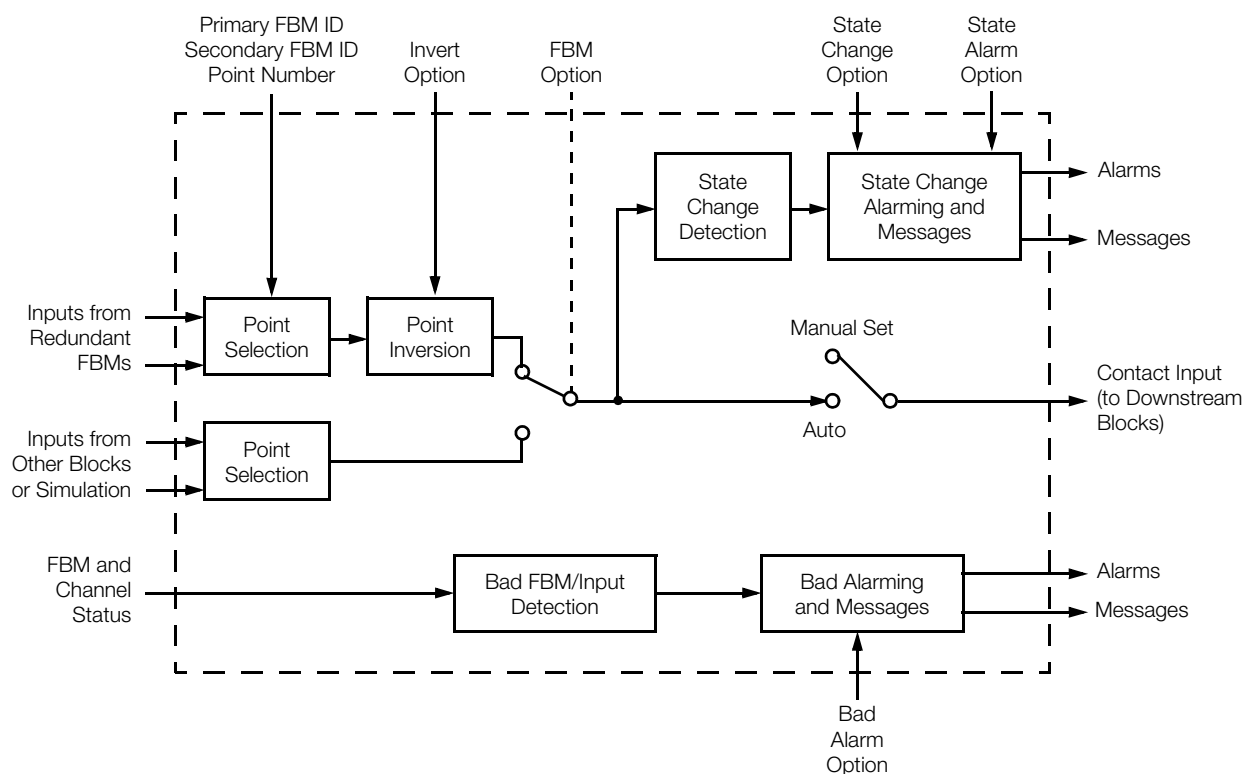


Figure 1. CINR Block Functional Diagram

FEATURES

Key features of the CINR block are:

- ▶ Redundant digital inputs from a pair of Fieldbus Modules (FBMs)
- ▶ Automatic switchover to the secondary input if the primary input is bad
- ▶ Manual/Auto transfer, which can be initiated by an operator, a host process, or another block
- ▶ Inhibiting of specific types of alarm messages similar to other I/O block types
- ▶ Identification of the highest priority among current alarms, indicating alarm type and priority level
- ▶ Re-arming of active block alarms when the alarm priority is changed
- ▶ Loop identifier for identifying the loop or process unit that contains the block

- ▶ Workstation lock for allowing write access to the block parameters only by the FoxView™ session that has locked the block
- ▶ Owner identifier for allocating control blocks to applications
- ▶ Continuous FBM input monitoring during Manual mode and last good value retention.

BLOCK OPERATION

The CINR block receives redundant input values for a single digital input process point from redundant FBMs (see Figure 1). Based on the quality of the two inputs and the user specification of a default selection, one of the inputs is chosen for use in the I/A Series control strategy. The state of the selected input is provided to the control strategy as output parameter Contact Input (CIN). It may represent any process contact or discrete logic input. The block also provides alarm handling features relating to the input.

The CINR block offers two basic modes of operation:

- ▶ With the FBM Option configured true, block inputs are taken from the Fieldbus Modules (FBMs) and point number specified by the user
- ▶ When the FBM Option is false, the CINR block input is selected from one of two control strategy sources or for simulation.

The block optionally generates bad point alarm messages based on the quality of the two block inputs and state change messages based on transitions of the selected block input.

MESSAGES AND ALARMS

The CINR block generates the following messages and alarms:

- ▶ State Alarm messages contain a user-specified “into alarm” or “return-to-normal” identifying string, and a user-specified Alarm Name as a point descriptor.
- ▶ Bad Alarm messages contain the user-specified Bad Alarm Text string.
- ▶ State Change messages contain one of two user-specified strings to indicate the direction of transition.

PRINCIPAL PARAMETERS

Inputs

- ▶ FBM point number (String)
- ▶ Primary FBM name (String)
- ▶ Secondary FBM name (String)
- ▶ Manual/Auto control mode switching (Boolean)
- ▶ Redundant inputs from blocks (Boolean).

Outputs

- ▶ Contact input (Boolean)
- ▶ Bad I/O alarm indicator (Boolean).

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.
- ▶ Quality Status output parameter provides a single source for the block's value record status, block status, and alarm status.



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