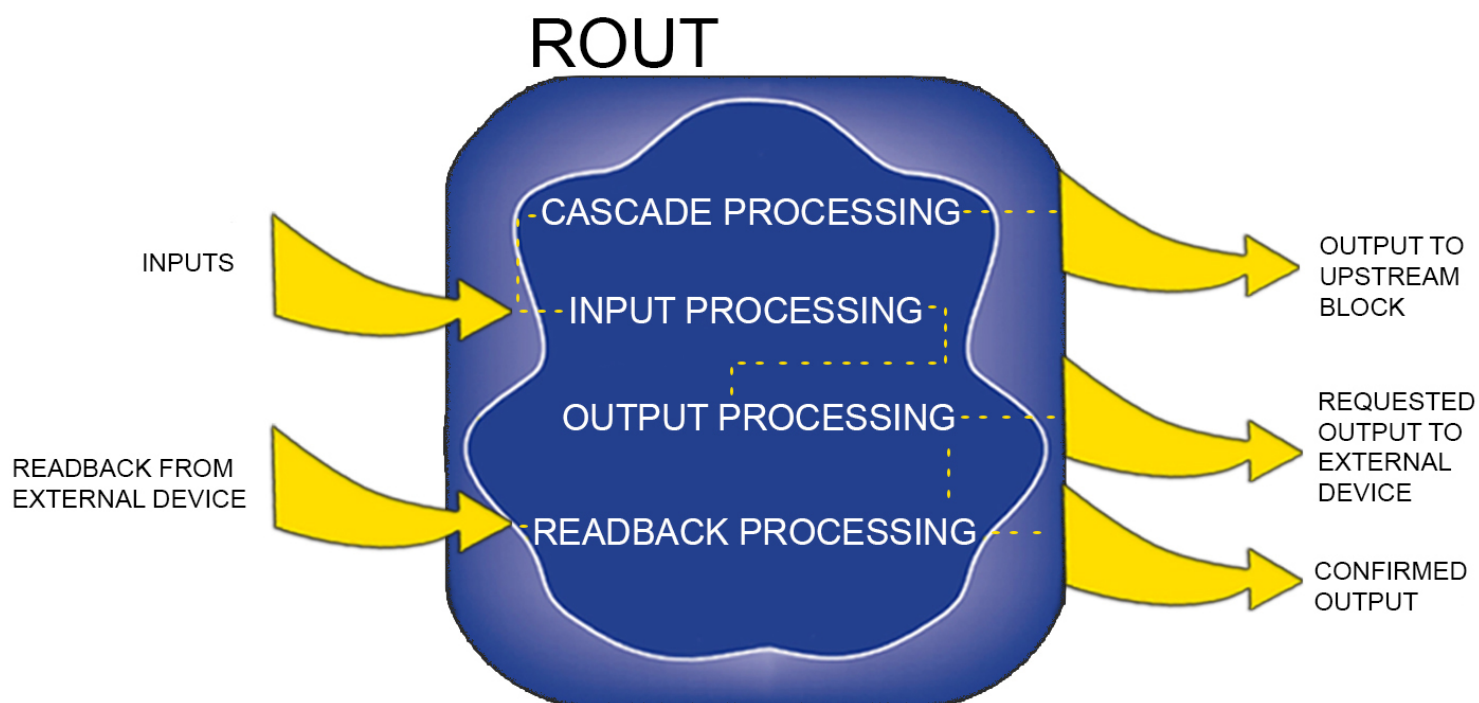


## Real Output (ROUT) Block

### PSS 41S-3ROUT

#### Product Specification

May 2019



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# Overview

*The Real Output (ROUT) block is a Distributed Control Interface (DCI) block (DCI blocks support connectivity of EcoStruxure™ Foxboro™ DCS control stations to various bus resident devices via a general purpose interface). The ROUT block sends one analog value to an address in an external device. It also continuously reports any changes made by the device to the value at this address. In the outbound direction, the block accepts a real value from the control strategy or an operator set and sends it to the addressed point. In the inbound direction, the block's confirmed output structure allows any change in value in the external device to be read back by the Foxboro DCS block. Therefore, the block logic permits changes to the point value to be made at either end with the two ends remaining in sync at all times.*

When in Auto, the ROUT block accepts a real input from an upstream control strategy at parameter Measurement (MEAS). In Manual, it accepts a real value from an operator set, generally from a Foxboro DCS operator interface, at the request component of parameter Output (OUT). It sends this value to the device's address specified at parameter Point Number (PNT\_NO).

Output from the ROUT block is change driven when you configure parameter Secondary Timer (SECTIM) as 0.0. The block only writes to the device when a change occurs in the value of MEAS (Auto) or the request component of OUT (Manual). If SECTIM is non-zero, an output is also forced when no change-driven output has occurred for SECTIM seconds.

The "confirmed" structure of parameter OUT allows the value sent to the external device address to be entered into the "request component", also known as the "shadow component", of OUT and the value read back from the external device to be reflected in the "confirmed component". The value of OUT shown in displays, or made available for connection to the control strategy, is always the confirmed component. This is the value which has reached and been accepted by the external device. The value which was sent to the external device as the request component of OUT is displayed at parameter Output Request (OUTQ) to aid in diagnostic testing.

A change timer mechanism is used to allow point changes to be made at either end, with the two ends remaining in sync at all times.

Any new output value is first limited by the configured engineering range limits or clamped by the output limits, and then converted to device raw count by inverse signal conditioning based on the parameter Signal Conditioning Output (SCO), GAIN, and BIAS.

Readback values from the external device are first scaled into the Foxboro DCS normalized raw count range. The resulting Foxboro DCS normalized raw count is then converted into engineering units by a proportionality calculation. Finally, it is limited to fall within the range specified by the high and low scale parameters or clamped by the output limits.

The block uses Initialization Output (INITO) and Back Calculated Output (BCALCO) parameters to alert upstream blocks to various abnormal situations and for cascade handling.

To force the Foxboro DCS station to Track during initialization procedures within the external device, a specific signal for this purpose is made available to the ROUT block at a configured Initialization Point Number (INI\_PT) within the external device.


The ROUT block provides alarming upon detection of a fault in the operational status of the fieldbus module (FBM) or input channel.

For previous processors, the ROUT block does not provide any alarm detection or reporting capability.

# Features

- Separate sources for inputs in Auto and Manual
- Specification of external device destination point as device-specific string
- Output optionally written to device only when output value changes
- Optional periodic outputs added to change-driven outputs
- Displayed output values for both request and readback values
- Inverse signal conditioning applied to limited or clamped output value
- Readback values scaled into Foxboro DCS normalized raw count range before further processing
- Change timer that helps assure closed loop operation in both directions
- Specific point reserved for Tracking notification from the external device
- Open cascade notification to upstream blocks
- Bad-input-point alarming of the conditioned measurement output signal. The output includes alarm indicator signals and user-defined alarm messages<sup>(1)</sup>
- Inhibiting of block alarm messages<sup>(1)</sup>
- Indication of the alarm level (1 to 5) and alarm type of the highest-priority active alarm for the block<sup>(1)</sup>
- Output is clamped within the range defined between the high and low output limits  $\pm$  output span variance
- Manual-if-Bad option detects errors in the operational status of the FBM or input channel. If found, the block switches its input from the FBM/channel to a user-selected source for safety<sup>(1)</sup>
- Detection of fail-safe mode in the FBM, during which the block switches its input to a user-selected source for safety<sup>(1)</sup>

<sup>(1)</sup> This feature is not available in blocks prior to version 8.4 or in control stations prior to the CP270.

 **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/](http://www.p65warnings.ca.gov/).

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