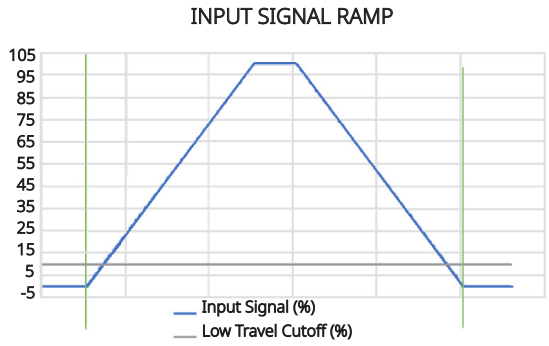
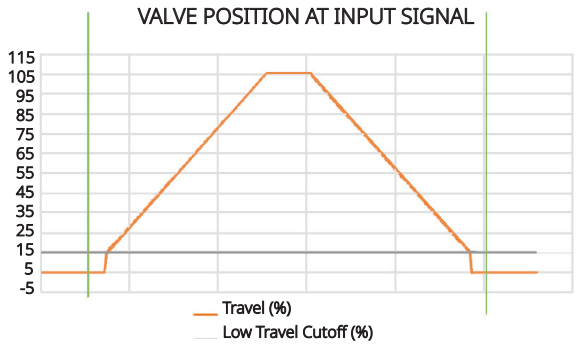
Using Minimum Travel Cutoffs with Fisher™ FIELDVUE™ Digital Valve Controllers

Minimum Travel Cutoffs

Minimum travel cutoffs limit the range of throttling directed to an actuator. If the input signal goes below the minimum travel cutoff, the valve will be directed to go to 0% travel. This feature is available on FIELDVUE digital valve controllers and can be set from the Device Description (DD) or ValveLink™ software.





Advantages of Using Minimum Travel Cutoffs

For Fisher severe service trims, the minimum throttling capacity (Cv) is published. The use of the minimum throttling Cv is to ensure trim parts are operating at their full potential, minimizing trim and body erosion, vibration, and noise potential.

With noise abatement and cavitation trims, any throttling below the minimum throttling Cv could result in damage to the throttling area of the trim. Such damage is not exclusive to only Fisher control valves.

Specific to the multi-pressure stage Cavitrol™ III trim designs, operating below the minimum throttling Cv will cause the pressure staging to become ineffective. As a result, your inlet pressure (P1) will build to the point that the full pressure drop occurs at the seating surfaces of the valve plug and seat ring. Damaging cavitation will occur across these surfaces and will quickly destroy the shutoff function of the valve.

Utilizing a minimum travel cutoff in conjunction with a Fisher severe service trim could help prevent throttling below the minimum Cv ensuring trim parts operate at their full potential.

Setting Minimum Travel Cutoffs

DVC7K Digital Valve Controller

Cutoff Low Trip Point defines the low cutoff point for the travel in percent (%) set point. Below this cutoff, the travel target is set to -25%. The Cutoff Low Trip Point default of 0.5% is recommended for general service valves to help ensure maximum shutoff seat loading. For severe service valves, Cutoff Low Trip Point should be above the minimum throttling range to increase service life. Cutoff Low Trip Point is deactivated by setting the Travel Limit / Cutoff Low to Disabled or by setting the Cutoff Low Trip Point to -25.0%.

The Cutoff Rate Low default of 0.0%/sec is recommended to close the valve as quickly as possible, prevent damage to the valve, and prevent trim damage associated with operation below the minimum throttling point. Refer to the Configuration section of the DVC7K digital valve controller instruction manual, D104767X012, for setting Cutoff Low Trip Point.

Refer to the DVC7K quick start guide, D104766X012, for installation, connection, and initial configuration information and instruction manual, D104767X012, for all other information pertaining to the digital valve controller, including product specifications, reference materials, custom setup information, maintenance procedures, and replacement part details. Documents are available from your Emerson sales office or at Fisher.com.

DVC6200 Series Digital Valve Controllers

Travel Cutoff Lo defines the low cutoff point for the travel in percent (%) of pre-characterized set point. Below this cutoff, the travel target is set to -23%. The Travel Cutoff Lo default of 0.5% is recommended for general service valves to help ensure maximum shutoff seat loading. For severe service valves, Travel Cutoff Lo should be above the minimum throttling range to increase service life. Travel Cutoff Lo is deactivated by setting it to -25.0%. Refer to the Configuration section of the appropriate instruction manual (see below) for setting Travel Cutoff Lo.

Refer to the DVC6200 Series digital valve controller quick start guide, D103556X012, for installation, connection, and initial configuration information. Refer to the appropriate instruction manual, listed below, for all other information pertaining to the digital valve controller, including product specifications, reference materials, custom setup information, maintenance procedures, and replacement part details.

- DVC6200 HW2 Digital Valve Controller Instruction Manual, D103605X012
- DVC6200 SIS Digital Valve Controller Instruction Manual, D103557X012
- DVC6200f Digital Valve Controller Instruction Manual, D103412X012
- DVC6200p Digital Valve Controller Instruction Manual, D103563X012

Documents are available from your Emerson sales office or at Fisher.com.

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