

IEC61508 specifies that ESD valves are included in the assessment of the process protection systems. Due to blockage, corrosion and/ or sticking of their moving parts, valve actuator packages are the cause of most dangerous failures in process plants. Calculations show that partial stroke tests performed quarterly with an annual full closure test will improve the valve's Safety Integrity Level, as defined by IEC61508, approximately 30-fold.

The Westlock 7345-ESD Partial Stroke device is designed to perform the tasks of an ESD valve controller as part of the SIS while providing a safe and simple method of partial stroke testing.

Testing can be performed automatically and/or remotely. This enables users to perform more frequent, flexible valve mechanical movement tests. These tests increase system availability and reduce the probability of failure.

The 7345-ESD is designed for conducting test operations at actual valve speed, therefore all potential failure modes, overt and covert, are checked in the valve actuator package. The design allows this testing to be accomplished without any interruption to the running process or availability to the SIS.

During the Partial Stroke testing the 7345-ESD measures the opening and closing times of the valve with millisecond accuracy.



This timing data, as well as diagnostic data, are provided with a time and date stamp to aid in the documentation requirements of IEC 61508. Time and date stamping also allow the user to compare and interpret data generated by the 7345-ESD, improving predictive maintenance. In addition the timing data create a valve signature for each ESD valve which can identify increasing friction and/or leakage in the pneumatics of the actuator. These features of the 7345-ESD provide a fast and simple means for testing ESD valves allowing them to be checked more frequently. A valve that is exercised periodically is less likely to stick improving the performance of the safety system

## Features

<b>Current Consumption</b> .....	24 mA w/piezo, 32 mA w/XP Falcon
<b>Input Voltage (from bus)</b> .....	Non-polarized 9-32 Vdc
<b>Temperature Range</b> .....	-40°C to +85°C w/XP Falcon
<b>Physical I/O</b> .....	2 Hall Effect inputs (Close and Open Limit Switches) 2 Dry Contact Inputs (Auxiliary Inputs) 2 Open Drain Outputs (Solenoid Outputs)
<b>Visual Indication</b> .....	Closed Limit Switch (CLSD, Red LED) Open Limit Switch (OPEN, Green LED) Aux Input 1 (IN 1, Yellow LED) Aux Input 2 (IN 2, Yellow LED) Output 1 (Out 0, Yellow LED) Output 2 (Out 1, Yellow LED)
<b>Function Blocks</b>	6 Discrete Input Blocks (DI) 4 Discrete Output Blocks (DO)
<b>Diagnostic Features</b>	Partial Stroke Breakaway and cycle time Partial Stroke cycle counter Partial stroke failure alarm (valve fails to move) Trend of time values Valve breakaway and cycle time and associated alarms Valve cycle counter

