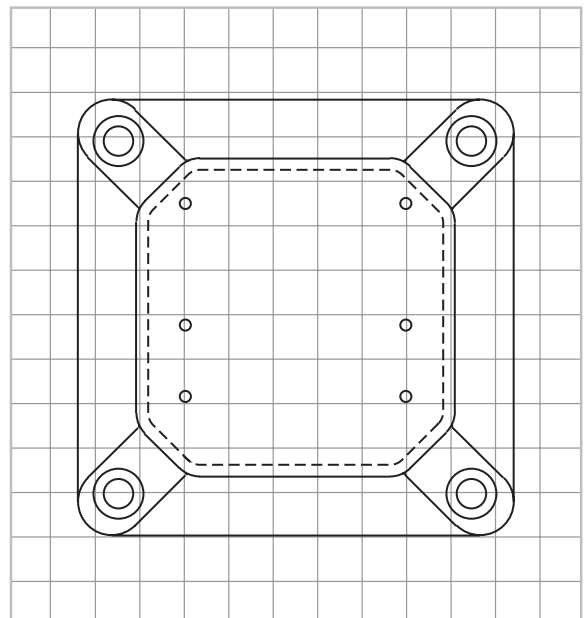




AN ISO 9001 REGISTERED COMPANY



***End-Mounted Mechanical and
Proximity Limit Switches***
for the Series 39 Actuator

Worcester Controls offers end-mounted proximity and mechanical limit switches to meet the needs of today's automated and computer-controlled process systems



Where a compact, automated valve installation is required, an end-mounted limit switch module is also available with the Series 39 actuator. This module comes in a standard combined Watertight TYPE 4 and Hazardous Location version TYPE 7 (Class I, Group C, D; Division 1, 2 and Class II, Group E, F, G; Division 1, 2) and TYPE 9 enclosure. The unit comes with 2 SPDT or two DPDT mechanical switches. It is also available with SPST AC or DC proximity switches. Small and compact, this one module fits onto the end cap of all sizes of the Series 39 actuator. It's totally enclosed and leaves the top of the actuator free for mounting an additional valve or other device, or for use as a manual override.

CSA & FM Approved

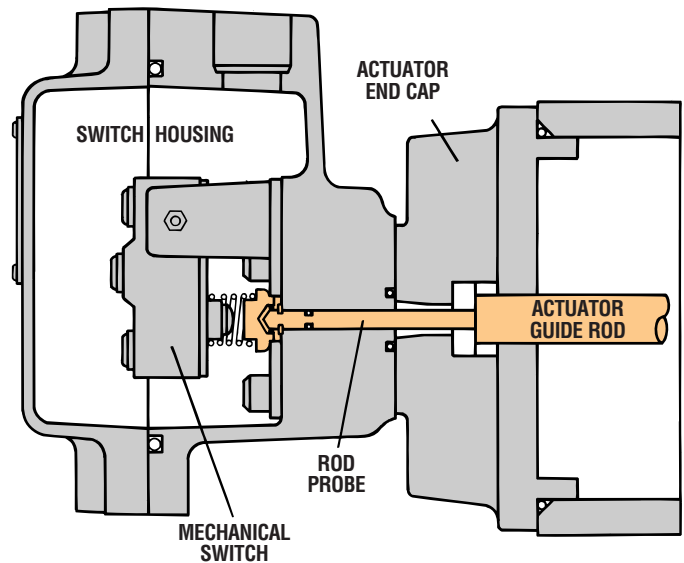
Worcester Controls end-mounted limit switch units are CSA approved. In addition, individual switches (micro switches) are UL and CSA listed.

Fire Safety: End-mounted limit switches are FM approved for use with FM approved Oil and Gas Safety Shut-off Valves and FM approved Firesafe Valves.

MECHANICAL SWITCH

The Advantages of End-Mounting

- End-mounted switches don't contribute to the overall height of the automated package.
- They leave the top of the actuator free for mounting an additional device such as a positioner.
- The actual switching mechanism can be specified as either a mechanical or "arcless" proximity.
- The switch housing is available in a combined TYPE 4, 4X, 7 and 9 enclosure.
- There is no exposed bracket or coupling to corrode and break.
- The end-mounted mechanical switch can be used as a relay device to switch actual current for pumps, actuators or any electrically operated device.
- It can be used to trigger alarms or indicator lights.



SPECIFICATIONS

Mechanical Switches

Switch Ratings: Switches are UL and CSA listed.

SPDT	DPDT
15 A 125, 250, 480 VAC (Resistive) 1/8" 1/8" H.P. 125 VAC; 1/4" H.P. 250 VAC 1/2" A 125 VDC; 1/4" A 250 VDC UL Code L 96	10 A 125 or 250 VAC 0.3 A 125 VDC; 0.15 A 250 VDC UL Code 59

PROXIMITY SWITCH

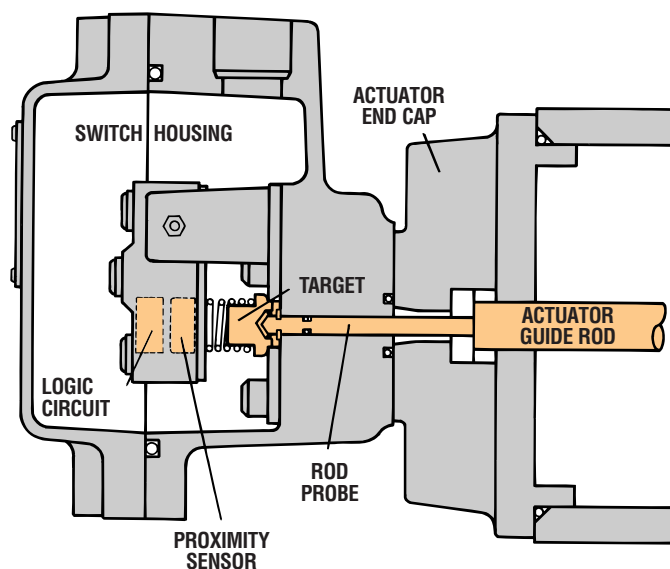
The Underlying Principle of a Proximity Switch

The primary difference between a mechanical switch and a proximity switch is that in a mechanical switch, the actual switching mechanism has moving parts and metal contact points. In a proximity switch, no physical contact occurs between moving parts. The proximity sensor works in this manner: The sensor has a coil through which current is induced. When the sensor coil is in the “proximity” of another metal

(the target), the magnetic field around the coil is attenuated by the target metal. This variance in the magnetic field changes the resistance across the coil. The change in resistance is then sensed by a circuit and amplified, and the amplified signal triggers a transistor output for DC switches or a triac output for AC switches.

The Advantages of a Solid State Proximity Switch

- **Longer life cycle** – Proximity switches have no moving parts to fail.
- **Simultaneous tripping** – There is an instantaneous switch reaction to a change in actuator position.
- **No arc drawing** – For “fire-safe” or hazardous environments, proximity switches offer the advantage of arcless switching. This eliminates the fire hazard inherent in mechanical switches. It also eliminates the possibility of a contact becoming welded in the closed position.
- **No oxidation or corrosion** – Since there are no contact points, pitting and corrosion do not occur.
- **Extreme low current power transmission capability** – The proximity switch requires very low current to operate. It can, therefore, be used with virtually any source of power, including photo cells.



SPECIFICATIONS

Proximity Switches

Electrical Rating	Two-Wire AC
Supply Voltage	20 to 140 VAC 10 to 140 VDC
Voltage Drop	≤ .5 VDC
Leakage Current	.8 mA maximum
Maximum Load Current	200 mA maximum continuous
Current Consumption (exclusive of load)	.8 mA
Circuit Protection	Reverse Polarity Protection
Switching Frequency	25 Hz
Temperature Range	-25 to 85°C
Sensing Range	2 mm

Ordering Information

End-Mounted Limit Switches – Factory-Assembled

If it is desired to order the end-mounted limit switch unit factory-assembled to a Series 39 actuator, refer to brochure WCABR1003 for the proper ordering code.

NOTE: If a combined integral solenoid and limit switch package is required, refer to ACCESS brochure WCABR1024.

End-Mounted Limit Switches – Ordered as a Kit

Ordering Code Example: 25 ELK39 Z3 R3

This code designates an end-mounted DC proximity switch module with a waterproof/hazardous housing. This module will fit onto a revision two or later 1039 pneumatic actuator.

Designates the size of the Series 39 actuator on which the switch module will be used.	Designates the item as an end-mounted limit switch module.	Designates the type of switching mechanism within the end-mounted limit switch module. Also designates the NEMA rating of the housing.	Designates the revision number of the actuator
10 15 20 25 30 33 35 40 42 45 50 Available through Custom Products Department	ELK39	Z - Waterproof/Hazardous Environment, SPDT Switches ZD - Waterproof/Hazardous Environment, DPDT Switches Z1 - Waterproof/Hazardous Environment, AC/DC Proximity Switches	R1 - Revision 1 and earlier R3 - Revision R2 and later

CAUTION: Always specify the actuator revision number when ordering end-mounted limit switches.

NOTE: Replacement switch assemblies are available. Mechanical switch assemblies are interchangeable with proximity switch assemblies. Modules can be interchanged from one size actuator to another by changing the rod and piston probes to fit the actuator.

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