SERIES ZSD

3-Position Hand-Held Enabling Device

Features & Benefits

- **Redundant contacts** ... allows use in up to safety control category 4 systems.
- **Auxiliary contact** ... for status signalling.
- P**ositive-break contacts from position 2 to position 3** ... enhances safety.
- **3-position (OFF-ON-OFF) design** ... provides for machine stop control when operator squeezes or releases actuator from center “on” position.
- **Rugged IP65 rating** ... withstands harsh industrial environments.
- **Optional normally-open top-mounted pushbutton** ... enables machine jog/start control.
- **Meets ANSI/RIA R15.06 safety standards** ... to satisfy enabling device requirements.

Description

The ZSD is a hand-held “dead man” switch with 3 operating positions — OFF-ON-OFF. The machine/robot can be operated in the “on” position. It provides safety based on normal human behavior of either releasing or squeezing the actuator in an emergency situation.

Operation

Machine/robot operation is only allowed when the enabling device is held in the middle (“on”) position. Releasing the switch (position 1) or squeezing the switch (position 3) shuts down the equipment.

Typical Applications

Used in robotic cells and automated manufacturing systems to provide operator safety during set-up, maintenance, or troubleshooting.

SWITCHING DIAGRAM

Operating Characteristics

Position	1	2	3
Normally open contact 1–2*		■	
Normally open contact 3–4*		■	
Auxiliary contact 5–6	■	■	

Open: □, Closed: ■

* Positive-break contacts from position 2 to position 3

AVAILABLE STANDARD MODELS (INCLUDES M20 STRAIN RELIEF)

Part Number	Description
ZSD5	3-Position Enabling Switch (OFF-ON-OFF)
ZSD6	3-Position Enabling Switch (but with top-mounted pushbutton - 1NO contact)
ZSD-H	Metal Holding Bracket

Note: For factory installed cable, add length in meters, e.g. ZSD5-5m.

Use of a SCHMERSAL safety controller with cross short monitoring is required (SCHMERSAL models SRB301ST-24 or SRB301SQ).

ZSD TECHNICAL DATA

MECHANICAL SPECIFICATIONS

Operating Temperature		–25°C to +60°C (no freezing)
Operating Humidity		45% to 85% RH maximum (no condensation)
Storage Temperature		–40°C to +80°C (no freezing)
Operating Frequency		1,200 operations/hour
Mechanical Life		Position 1•2•1: 1,000,000 minimum Position 1•2•3•1: 100,000 minimum
Shock Resistance	Operating Extremes	100m/s^2
	Damage Limits	1000m/s^2
Vibration Resistance	Operating Extremes	5 to 55Hz, amplitude 0.5mm minimum
	Damage Limits	16.7Hz, amplitude 1.5mm minimum
Terminal Pulling Strength		20N minimum
Terminal Screw Torque		0.5 to 0.6Nm
Degree of Protection		IP65
Weight		Approx. 240g (ZSD6) Approx. 210g (ZSD5)
Conforming to Standards		IEC60947-5-1, EN60947-5-1, JIS C8201-5-1, ANSI/RIA R15.6
Approvals		UL, CSA, BG

ELECTRICAL SPECIFICATIONS

Contact Resistance	100mΩ maximum
Insulation Resistance	Between live & dead metal parts: 100MΩ maximum (at 500VDC)
	Between positive & negative live parts: 100MΩ minimum (at 500VDC)
Impulse Withstand Voltage	2.5kV
Electrical Life	100,000 cycles (min.) @max. load
Recommended Wire Size	16 - 26 AWG
Recommended Cable	.275 - .512 inch diameter
Conditional Short Circuit Current	50A (250V)
Recommended Short Circuit Protection	250V/10A fast-blow fuse (IEC 60127-1)
Contact Rating	2A @ 30V, 4A @ 125V

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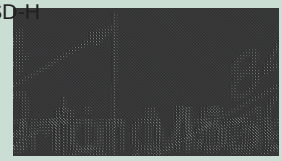
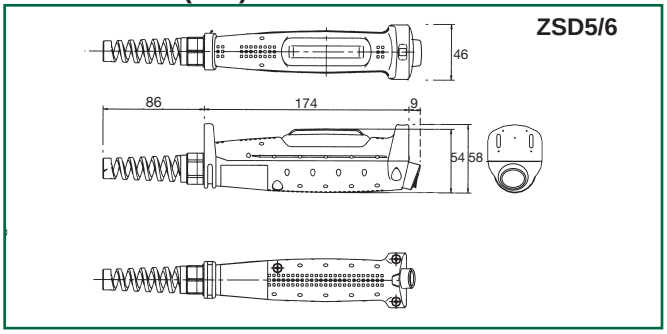
ACCESSORIES

Part Number	Description
ZSD-H 	Metal holding bracket (for mounting/holding a ZSD enabling device)

DIMENSIONS (mm)



Note: Model with top-mounted pushbutton shown.