

MODULAR PLUG-IN LIMIT SWITCHES

E50 Series



- Easy to Install
- High Reliability
- Low Maintenance
- Modular to Reduced Inventory

E50 Modular Plug-In Limit Switch components are the industry standard with versatility of design and high reliability for low maintenance, installation and inventory costs. Standard FKM gaskets, seals and boots, and a zinc die cast enclosure provide exceptional chemical resistance to the common coolants, cleansing agents, and hydraulic fluids found in machine tool, automotive, waste water treatment and other heavy-duty industrial applications. Mounting dimensions accommodate both U.S. and DIN standards for easy retrofit installations. Super bright 24 to 120 Vac/dc LED indicating light versions simplify setup and troubleshooting operations.

SPECIFICATIONS

Environmental Ratings: NEMA 1, 3, 3S, 4, 4X, 6, 6P, 13, IP67

Material of Construction: Zinc die cast
Switch Gasket Material: FKM

Universal U.S./DIN Mounting Dimensions: 30 x 60 mm (1.16 x 2.34")

Conduit Entrance: ½ NPT or 20 mm threading

Contact Operation: Snap action over center mechanism

Contact Material: Fine silver

Maximum Frequency of Operation: 8000 operations per hour

Mechanical Life:

Side Rotary Side: 13,000,000 operations minimum

Top Push: 10,000,000 operations minimum

Electrical Life:

Single Pole: 1,000,000 operations typical at full load

Double Pole: 100,000 operations typical at full load

Available as assembled switches or components

E50ANR1 with E50KL200 Lever.



Rugged zinc die-cast housing

Conduit, cable and connector wiring options

FKM gasket seals

All models shown smaller than actual size.

Ambient Temperature Range—Standard

Standard without Cable:

-10 to 121°C (14 to 250°F)

Standard with Cable:

-10 to 105°C (14 to 221°F)

Low Temperature without Cable:

-40 to 121°C (-40 to 250°F)

Low Temperature with Cable:

-40 to 105°C (-40 to 221°F)

Repeat Accuracy—Standard

Side Operated: Within 0.0012"

Top Operated: Within 0.0003"

Side Rotary: Within 0.0014"

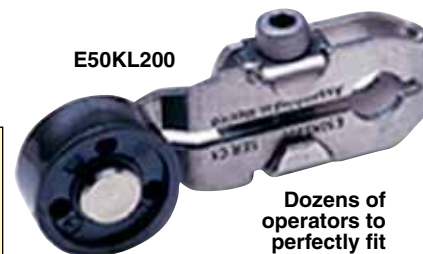
Torque Requirements:

Switch Body Screws: 25 to 30 lb/in

Operating Head Screws:

14 to 18 lb/in

Wire Size: Will accept AWG #22 to #12, single or stranded wire



E50KL200

Dozens of operators to perfectly fit your application

E50DR1



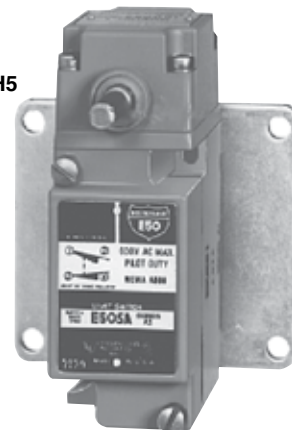
Rotary, top and side push, wobble and specialty operating heads

E50SA



Single- or double-pole switch bodies with optional indicating lights

E50KH5



A variety of mounting adapters

| ELECTRICAL DATA — MAXIMUM CONTACT RATINGS (SAME POLARITY EACH POLE) | | | | | | | | |
|-------------------------------------------------------------------------|-----------------|-------|--------|--------------|-------|------------------|-----------------------|--------|
| AC VOLTS | CURRENT AMPERES | | | VOLT AMPERES | | DC VOLTS | CURRENT AMPERES | |
| | MAKE | BREAK | CONT.* | MAKE | BREAK | | MAXIMUM MAKE OR BREAK | CONT.* |
| ALL SWITCHES EXCEPT GRAVITY RETURN AND INDICATING LIGHT VERSIONS | | | | | | | | |
| NEMA A600 RATING | | | | | | NEMA R300 | | |
| 120 | 60 | 6 | 10 | 7200 | 720 | 125 | 0.22 | 1 |
| 240 | 30 | 3 | | | | 250 | 0.11 | 1 |
| 480 | 15 | 1.5 | | | | | | |
| 600 | 12 | 1.2 | | | | | | |
| SWITCHES WITH INDICATING LIGHTS (LED OR NEON) | | | | | | | | |
| NEMA A150 RATING | | | | | | NEMA R150 | | |
| 120 | 60 | 6 | 10 | 7200 | 720 | 125 | 0.22 | 1 |
| GRAVITY RETURN SWITCHES — MAXIMUM CONTACT RATINGS | | | | | | | | |
| NEMA 6600 RATING — CONTACTS ON SAME POLARITY | | | | | | | | |
| 120 | 30 | 3 | 5 | 3600 | 360 | — | — | — |
| 240 | 15 | 1.5 | | | | | | |
| 480 | 7.5 | 0.75 | | | | | | |
| 600 | 6 | 0.6 | | | | | | |

*Thermal rating. Valid only if switch does not have to make or break.

OPERATING HEAD SPECIFICATIONS

| DESCRIPTION FOR OPERATING HEADS | MODEL NO. | TRAVEL TO OPERATE CONTACTS | TRAVEL TO RESET CONTACTS | TOTAL TRAVEL | FORCE TO OPERATE CONTACTS | MINIMUM RETURN FORCE | OPERATING TEMPERATURE °C (°F) (SEE NOTE 1) | |
|---------------------------------------------------|-----------|----------------------------|--------------------------|--------------|---------------------------|----------------------|-----------------------------------------------|------------------------------------------|
| | | | | | | | WITHOUT CABLE | WITH PRE-WIRED CABLE |
| Side Rotary Standard Spring Return (See Note 2) | E50DR1 | 5° | 2° | 90° | 3 in-lbs | 4.5 in-oz | -12 to 94 (10 to 200) (See Note 3) | -12 to 94 (10 to 200) (See Note 3) |
| Low Force Spring Return (See Note 2) | E50DL1 | 15° | 6° | 90° | 1.5 in-lbs | 2.5 in-oz | -12 to 94 (10 to 200) (See Note 3) | -12 to 94 (10 to 200) (See Note 3) |
| Maintained 2-Position | E50DM1 | 50° | 50° | 90° | 3 in-lbs | — | -10 to 94 (14 to 200) | -10 to 94 (14 to 200) |
| Side Pushbutton, Spring Return | E50DS1 | 0.065" | 0.030" | 0.250" | 4 lbs | 8 oz | -10 to 94 (14 to 200) | -10 to 94 (14 to 200) |
| Side Pushbutton, Adjustable Spring Return | E50DS2 | 0.065" | 0.030" | 0.250" | 4 lbs | 8 oz | -10 to 94 (14 to 200) | -10 to 94 (14 to 200) |
| Side Push Roller, Spring Return (See Note 4) | E50DS3 | 0.065" | 0.030" | 0.250" | 4 lbs | 8 oz | -10 to 94 (14 to 200) | -10 to 94 (14 to 200) |
| Side Pushbutton, Maintained | E50DH1 | 0.200" | 0.130" | 0.320" | 5 lbs | 5 lbs | -10 to 94 (14 to 200) | -10 to 94 (14 to 200) |
| Top Pushbutton, Spring Return | E50DT1 | 0.040" | 0.020" | 0.280" | 4 lbs | 8 oz | -10 to 121 (14 to 250) | -10 to 105 (14 to 221) |
| Top Pushbutton, Adjustable Spring Return | E50DT2 | 0.040" | 0.020" | 0.280" | 4 lbs | 8 oz | -10 to 121 (14 to 250) | -10 to 105 (14 to 221) |
| Top Push Roller, Spring Return | E50DT3 | 0.040" | 0.020" | 0.280" | 4 lbs | 8 oz | -10 to 121 (14 to 250) | -10 to 105 (14 to 221) |
| Wobble Head, Spring Return (req. wobble operator) | E50DW1 | 10° | 6° | 15° | 2 in-lbs | 2.4 in-oz | -10 to 121 (14 to 250) | -10 to 105 (14 to 221) |

Notes:

1 Temperature ranges below 0°C (32°F) are based on absence of freezing moisture or water.

2 CW (clockwise) and CCW (counterclockwise) operation, easily convertible to CW only or CCW only operation.

3 For CW and CCW operation. For CW only or CCW only operation, high temperature limit increases to 121°C (250°F) without cable, and 105°C (221°F) with pre-wired cable.

4 Roller can be converted in the field between horizontal and vertical.

5 Roller shaft is 9.5 mm (0.38")

LEVER SPECIFICATIONS

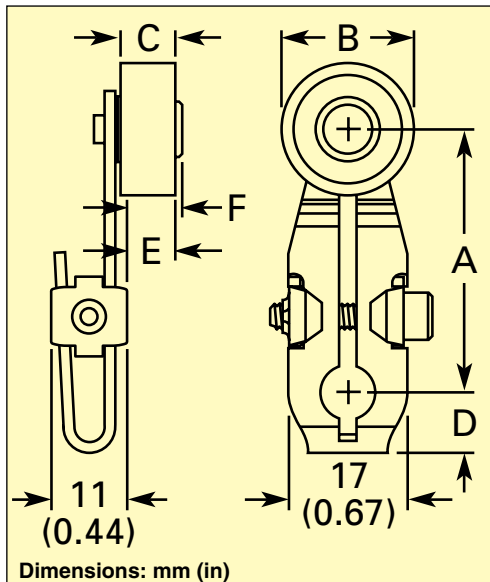
STANDARD ROLLER (STAINLESS STEEL)

| MODEL NO. | ROLLER TYPE | A LEVER LENGTH mm (in) | B ROLLER DIAMETER mm (in) | C ROLLER WIDTH mm (in) | D mm (in) | E mm (in) | F mm (in) | MIN. REQ RETURN TORQUE |
|-----------|-------------|------------------------------|---------------------------------|------------------------------|---------------|---------------|---------------|---------------------------|
| E50KL200 | Nylatron | 38.1 (1.5) | 19.0 (0.75) | 8.1 (0.32) | 8.6 (0.34) | 3.3 (0.13) | 4.3 (0.17) | 0.53 in-oz |
| E50KL355 | Metal | | | | | | | 1.10 in-oz |

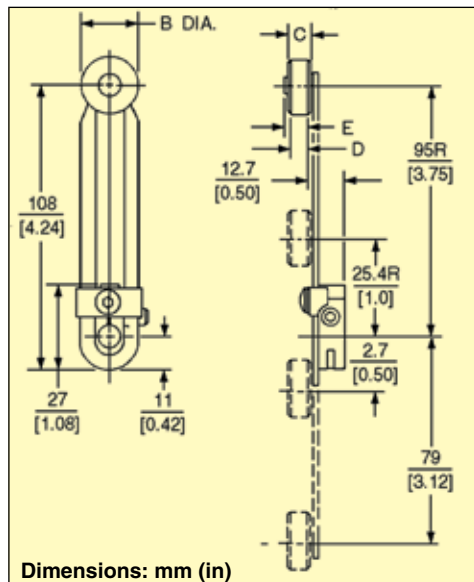
ADJUSTABLE ROLLER (STAINLESS STEEL)

| | | | | | | | | |
|----------|----------|-------------------------------------|----------------|----------------|----------------|----------------|---------------|------------|
| E50KL201 | Nylatron | 25.4 (1.0) to 95.2 (3.75) | 19.0 (0.75) | 8.1 (0.32) | 7.4 (0.29) | 8.4 (0.33) | 4.3 (0.17) | 1.90 in-oz |
| E50KL538 | Metal | | | 25.4 (1.00) | 22.9 (0.90) | 24.1 (0.95) | — | 3.40 in-oz |
| E50KL537 | Nylatron | | | — | — | — | — | 3.10 in-oz |
| E50KL443 | Nylatron | 41.3 (1.63) to 95.2 (3.75) | 38.1 (1.5) | 7.4 (0.29) | 6.6 (0.26) | 8.1 (0.32) | — | 2.50 in-oz |

Dimensions for
E50KL200
E50KL355
See lever specifications



Dimensions for Adjustable Roller
E50KL201
E50KL538
E50KL537
E50KL443



ADJUSTABLE ROD SPECIFICATIONS

ADJUSTABLE RODS APPROXIMATE DIMENSIONS

| MODEL NO. | A ROD LENGTH mm (in) | B ROD DIAMETER mm (in) | ROD TYPE | MIN. REQ. RETURN TORQUE |
|-----------|----------------------------|------------------------------|-----------------|----------------------------|
| E50KL202 | 140 (5.5) max | 3.2 (0.12) | Metal | 0.92 in-oz |
| E50KL220 | 229 (9.0) max | 4.8 (0.19) | Stainless Steel | 7.0 in-oz |
| E50KL226 | 305 (12.0) max | 3.2 (0.12) | Bendable Steel | 5.0 in-oz |

CLAMPS FOR ADJUSTABLE RODS

| | |
|---------|------------------------------------|
| E50KL35 | Clamp for 4.8 (0.19) diameter rods |
| E50KL36 | Clamp for 3.2 (0.12) diameter rods |

SPRING RODS

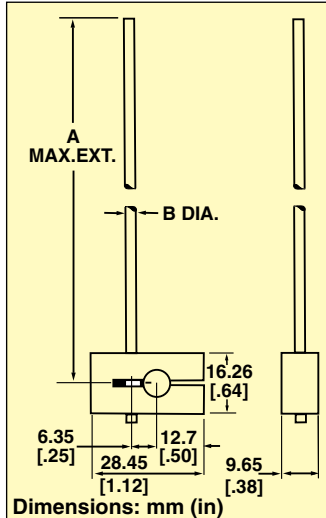
| | | | | |
|----------|-------------|------------|-----------------|-----------|
| E50KL556 | 308 (12.12) | 6.4 (0.25) | Nylon | 3.5 in-oz |
| E50KL421 | 295 (11.62) | 2.3 (0.09) | Stainless Steel | 2.8 in-oz |

NYLATRON LOOP

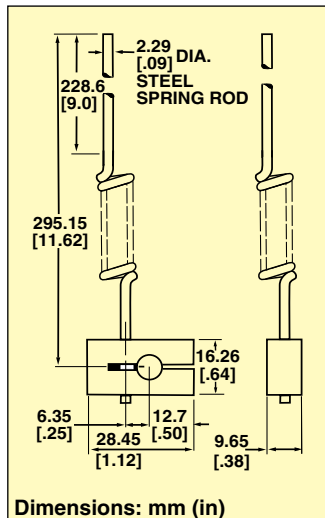
| | | | | |
|----------|---------|-----------|----------|------------|
| E50KL142 | 152 (6) | 4 (0.158) | Nylatron | 0.40 in-oz |
|----------|---------|-----------|----------|------------|

See next page for diagrams

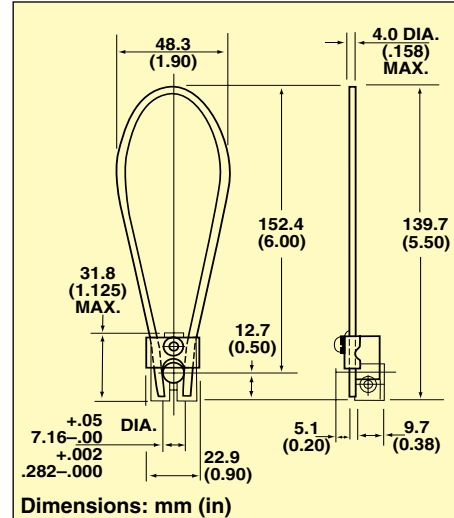
Dimensions for Adjustable Rods
 E50KL202
 E50KL220
 E50KL226
 (Visit us online to order)



Dimensions for Spring Rods
 E50KL556
 E50KL421
 (Visit us online to order)



Dimensions for Nylatron Loop
 E50KL142
 (Visit us online to order)



E50ANR1



E50NN1

All models shown smaller than actual size.

To Order

| MODEL NO. | DESCRIPTION - ASSEMBLED SWITCHES REQUIRES LEVER |
|-----------|------------------------------------------------------------------------------------------------------------------------------------|
| E50AL1 | E50SA body, pre-assembled, single pole, 1 N O/1 N C, side rotary head with low force spring return, no indicating light |
| E50AM1 | E50SA body, pre-assembled, single pole, 1 N O/1 N C, side rotary head with maintained 2-position, no indicating light |
| E50ANR1 | E50SAN body, pre-assembled, single pole, 1 N O/1 N C, side rotary head with standard spring return, neon indicating light (not CE) |
| E50AR1 | E50SA body, pre-assembled, single pole, 1 N O/1 N C, side rotary head with standard spring return, no indicating light |
| E50AT3 | E50SA body, pre-assembled, single pole, 1 N O/1 N C, top pushbutton head with adjustable spring return, no indicating light |
| E50BR1 | E50SB body, pre-assembled, double pole, 2 N O/2 N C, side rotary head with standard spring return, no indicating light |
| E50NN1 | E50SN body, pre-assembled, neutral position special purpose side rotary head, 5-degree operating travel |
| E50AR16P | E50 6P+ version, pre-assembled, single pole, side rotary head with standard spring return, no indicating light |

Comes complete with instruction sheet.

Ordering Example: E50AL1, pre-assembled, single pole, 1 N O/1 N C, Side rotary head with low force spring return, no indicating light, E50KL200, Nylatron roller.

All models shown smaller than actual size.



Components

To Order

| MODEL NO. | DESCRIPTION – HEADS |
|-----------|----------------------------------------------------------------|
| E50DH1 | Side pushbutton, maintained |
| E50DL1 | Side rotary, low force spring return (Photo similar to E50DR1) |
| E50DM1 | Side rotary, maintained 2-position (Photo similar to E50DR1) |
| E50DN1 | Side rotary, neutral position (Photo similar to E50DR1) |
| E50DR1 | Side rotary, standard spring return |
| E50DS1 | Side pushbutton, spring return |
| E50DS2 | Side pushbutton, adjustable spring return |
| E50DS3 | Side push roller, spring return |
| E50DT1 | Top pushbutton, spring return |
| E50DT2 | Top pushbutton, adjustable spring return |
| E50DT3 | Top push roller, spring return |
| E50DW1 | Standard duty wobble head, spring return |

Comes complete with instruction sheet.

Ordering Example: E50DH1, side pushbutton.

E50SA

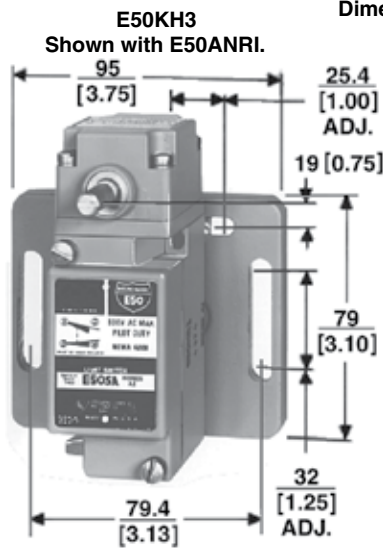
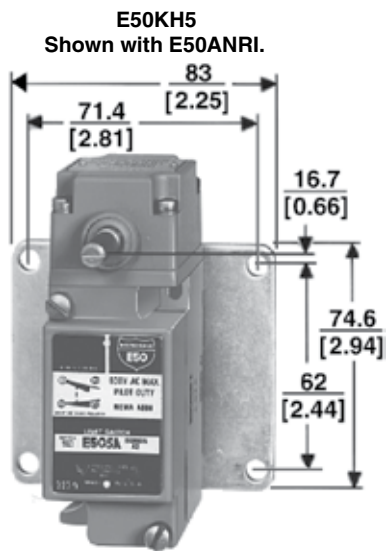
All models shown smaller than actual size.

Body

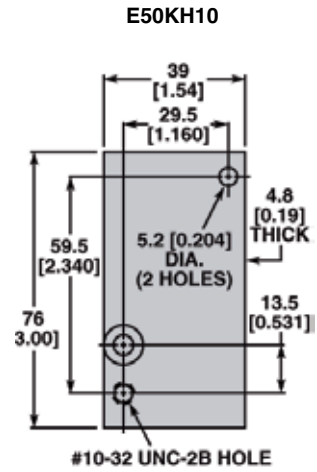
| MODEL NO. | DESCRIPTION |
|-----------|-------------------------------------------------------------------------------------|
| E50SA | Single pole, 1 NO/1 NC, no indicating light |
| E50SAL | Single pole, 1 NO/1 NC, LED indicating light |
| E50SAN | Single pole, 1 NO/1 NC, neon indicating light |
| E50SB | Double pole, 2 NO/2 NC, no indicating light |
| E50SN | Neutral position, 15° travel |
| E50SA6P | E50 6P+ version switch component, body, single pole, 1 NO/1 NC, no indicating light |

Comes complete with instruction sheet. Ordering Example: E50SA, single pole body.





Dimensions: mm (in)



Mounting Adaptor

| MODEL NO. | DESCRIPTION |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------|
| E50KH3 | E50 Mounting adaptor for horizontal and vertical adjustment |
| E50KH10 | E50 mounting adaptor allows E50 to easily replace AB 802M Series |
| E50KH5 | E50 mounting adaptor plate allows E50 to easily replace SqD 9007 type T, national Acme Type D-1200M, Denison LoxSwitch Model L-100W |

Comes complete with instruction sheet. **Ordering Example:** E50KH10, mounting adaptor.

E50KL200



E50KL142



E50KL556



E50KL355

All models shown smaller than actual size.

E50KL201



E50KL537

E50KL220

E50KL202



Lever Arms

| MODEL NO. | DESCRIPTION |
|-----------|-----------------------------------------------------------|
| E50KL200 | Standard nylatron roller |
| E50KL355 | Standard metal roller |
| E50KL201 | Adjustable nylatron roller |
| E50KL537 | Adjustable nylatron roller |
| E50KL538 | Adjustable metal roller |
| E50KL443 | Adjustable stainless steel roller |
| E50KL202 | Adjustable rod, 5.5" length, 0.12" diameter |
| E50KL220 | Adjustable rod, 9" length, 0.19" diameter |
| E50KL226 | Adjustable rod, 12" length, 0.12" diameter |
| E50KL36 | Clamps for adjustable diameter rods 3.2 mm (0.12") |
| E50KL421 | Stainless steel spring rod, 11.62" length, 0.09" diameter |
| E50KL556 | Spring rod, 12.12" length, 0.25" diameter, nylon |
| E50KL142 | Nylatron loop |

Comes complete with instruction sheet. **Ordering Example:** E50KL200, nylatron roller.