

HEAVY-DUTY PRECISION LIMIT SWITCHES FOR MACHINE CONTROL APPLICATIONS

Design Features

NAMCO Series EA510 STANDARD Miniature Mechanical FLEX-LOCK Limit Switches provide compact, highly dependable units for modern control systems. The simple flex leaf spring mechanism is designed for millions of fast, trouble-free operations and requires light operating forces.

CONTACTS . . . are BUTT TYPE, QUICK MAKE, QUICK BREAK . . . are silver with special arc extinguishing properties and housed in a self-contained miniature cartridge . . . cartridges are available with 1NO-1NC or 2NO-2NC contact configurations.

ENCLOSURES . . . are water, oil and dust tight with high quality gaskets and "O" Ring protection . . . made of rugged die-cast aluminum . . . available with two mounting arrangements (front or back) . . . ample wiring space for maximum convenience . . . all switches have ground screws . . . meet NEMA type requirements 1, 4, 13.

OPERATING HEADS . . . many individual variations with simple unique operating mechanisms are available . . . they can be interchanged and rotated in 90° increments.

CAM OPERATIONS . . . available are clockwise, counter-clockwise, or both directions of operation.

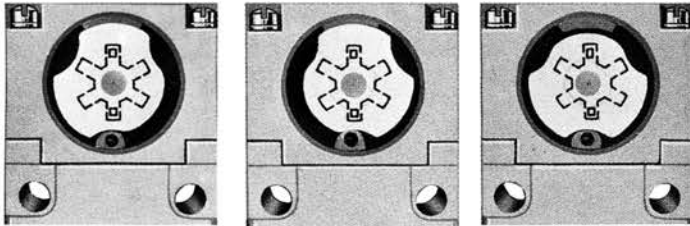
Design Features

- Enclosure meets NEMA Type 1, 4, 13 Requirements.
- 90°C Maximum Continuous Use Temperature.
- -20°C Minimum Continuous Use Temperature.
- Shipping Weight: One lb.
- UL & NEMA 600 Volt Spacings.
- Universal Mounting.
- Anti-Rotation Interlock between Head and Body.
- Adequate Wiring Space for Four No. 12 AWG Conductors (1NO-1NC).
- Adequate Wiring Space for Eight No. 16 AWG Conductors (2NO-2NC).

Changing Direction of Operating Cam

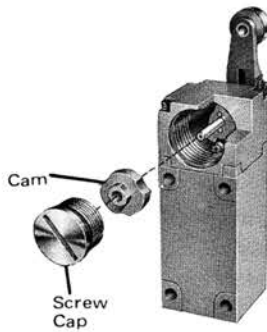
The lever actuates the contacts through a cam that can be arranged for clockwise, counterclockwise, or both directions of operation.

Operations:

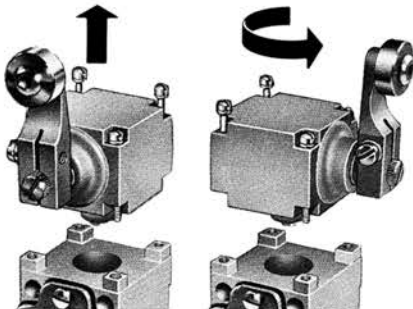


Clockwise Counterclockwise Clockwise and Counterclockwise

1. Remove Screw Cap.
2. Drop out Cam.
3. Reinsert cam in desired position. Depress actuating plunger to seat cam slots on locking key.
4. Replace Screw Cap.



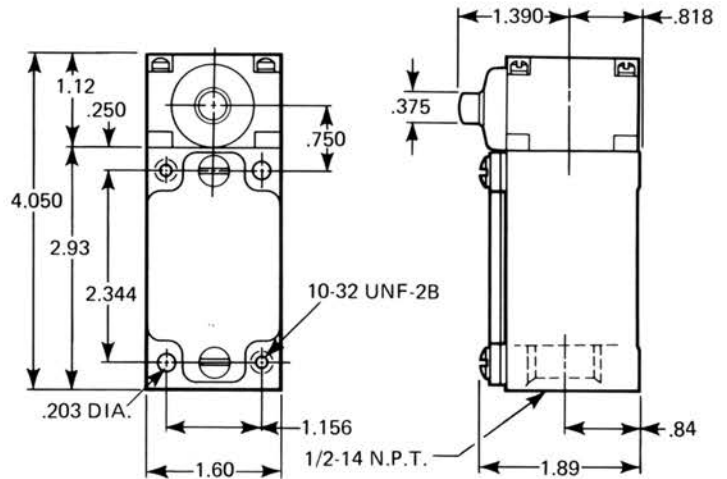
Changing Direction of Indexing Head



1. Loosen Four Screws.
2. Lift Indexing Head and return to desired position.
3. Reassemble.

Side Rod Plunger Head

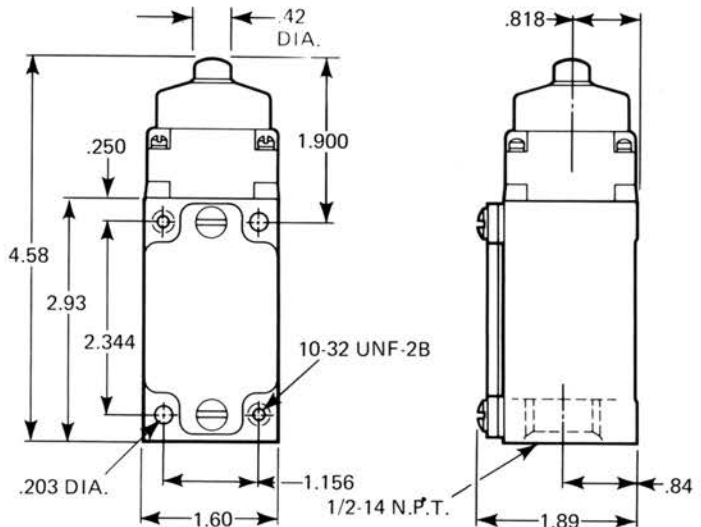
PART NUMBER	CONTACTS
EA510-12700	1NO-1NC
EA510-22700	2NO-2NC



Operating Characteristics (Inches)	Pretravel	.090
Differential Travel	.039/.031	
Recommended Travel	.15	
Total Travel	.260/.240	
Lbs. Force Req'd to Trip	5.2	
Lbs. Force at .25 Stroke	5.5	

Top Rod Plunger Head

PART NUMBER	CONTACTS
EA510-14700	1NO-1NC
EA510-24700	2NO-2NC

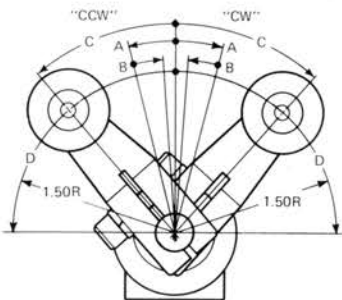
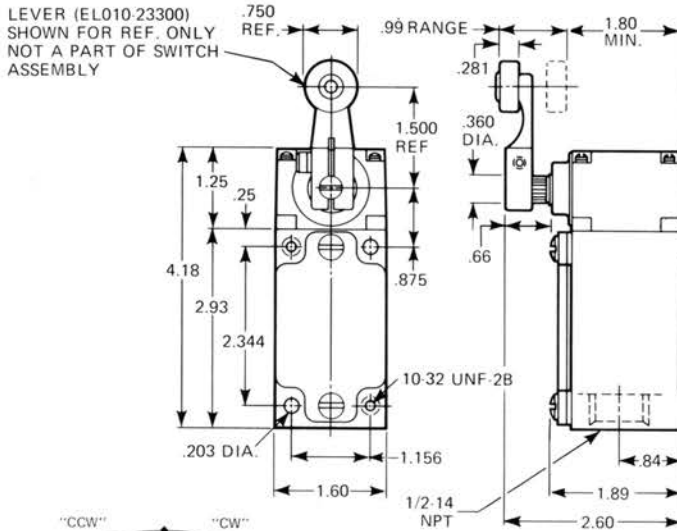


Operating Characteristics (Inches)	Pretravel	.050/.046
Differential Travel	.027/.023	
Recommended Travel	.15	
Total Travel	.260/.240	
Lbs. Force Req'd to Trip	2.8	
Lbs. Force at .25 Stroke	7.3	

Lever Operated Switch

ORDERING NUMBERS		
1NO-1NC	OPERATION	2NO-2NC
EA510-17700	C.W.	EA510-27700
EA510-17701	C.C.W.	EA510-27701
EA510-17702	BOTH	EA510-27702

Lever not Included



LEVER
ORDERING NO.
EL010-23300

Operating Characteristics (Inches)

A. Pretravel	12°
B. Differential Travel	5°
C. Recommended Travel	40°
D. Total Travel	90°
E. Operating Torque	1.5 in.-lbs

Ratings

For 1NO-1NC; 2NO-2NC Switches

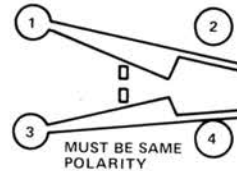
MAX. RATINGS FOR A.C. CIRCUIT AT 50 OR 60 HZ NEMA A600								
CONT. CARRYING CURRENT AMPS	CURRENT IN AMPERES						VOLT - AMPERES	
	120 VOLTS		240 VOLTS		480 VOLTS		Make	Break
	Make	Break	Make	Break	Make	Break	7200	720
10	60	6.00	30	3.00	15	1.50		

MAX. RATINGS FOR D.C. NEMA Q600				
CONT. CARRYING CURRENT AMPS	MAKE OR BREAK CURRENT AMPERES			MAX. MAKE OR BREAK VOLT - AMPERES AT 300 VOLTS OR LESS
	125 VOLTS	250 VOLTS	480 VOLTS	
2.5	0.55	0.27	0.10	69

600 VOLT A.C. MAX. PILOT DUTY
AC INDUCTIVE LOAD LAGGING POWER FACTOR OF 0.35
DC INDUCTIVE LOAD PER NEMA ICS 2-125

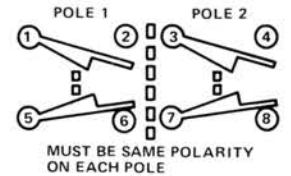
Contact Configurations

1NO-1NC



Contact Arrangement is NEMA Form Z Single Pole Double Throw Contacts With Four Terminals . . . Two for Normally Open (1-2) and Two For Normally Closed (3-4). (Quick Make-Quick Break)

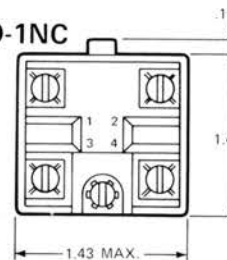
2NO-2NC



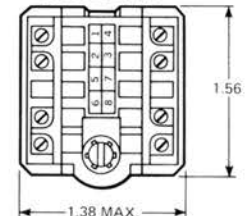
Contact Arrangement is double pole, double throw (Quick Make-Quick Break). There are eight terminals . . . four are normally open (1-2-3-4) and four are normally closed (5-6-7-8).

Snap-Action Cartridges

1NO-1NC



2NO-2NC



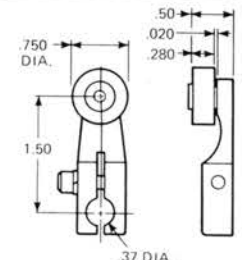
Ordering Numbers

1NO-1NC	EA511-11600	2NO-2NC	EA511-21600
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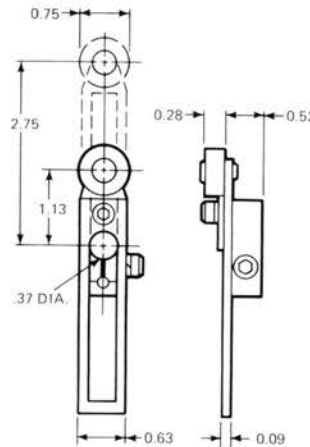
Operating Levers

Order as Separate Item

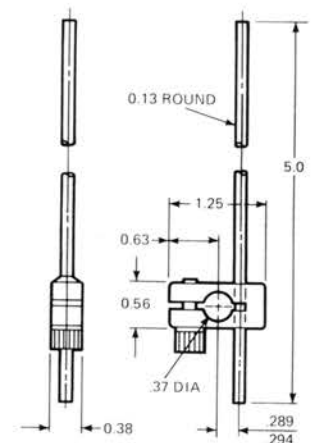
NOTE: See Series "EL" operating lever brochure for additional levers.



STANDARD "STR" LEVER
EL010-23300 (SA160)



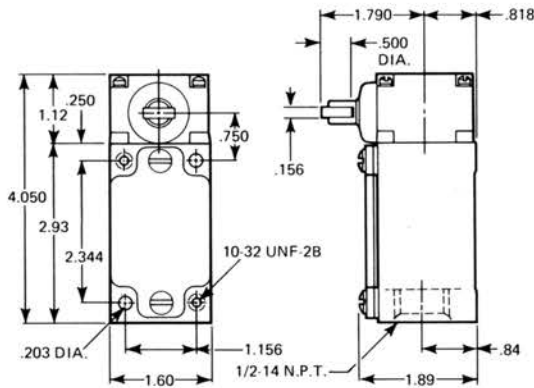
ADJUSTABLE LEVER
EL120-30302 (SA170)



ROD LEVER
EL140-28900 (SA170-1)

Side Roller Plunger Head Style "A"

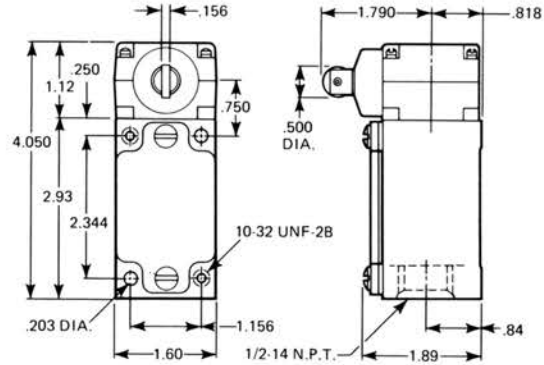
PART NUMBER	CONTACTS
EA510-13701	1NO-1NC
EA510-23701	2NO-2NC



Operating Characteristics (Inches)	Pretravel	.090
	Differential Travel	.039/.031
	Recommended Travel	.15
	Total Travel	.260/.240
	Lbs. Force Req'd to Trip	5.2
	Lbs. Force at .25 Stroke	5.5

Side Roller Plunger Head Style "B"

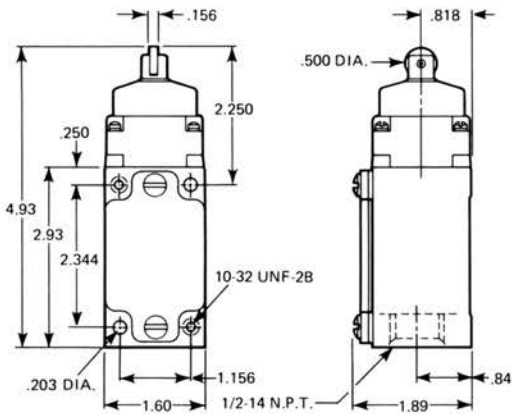
PART NUMBER	CONTACTS
EA510-13700	1NO-1NC
EA510-23700	2NO-2NC



Operating Characteristics (Inches)	Pretravel	.090
	Differential Travel	.039/.031
	Recommended Travel	.15
	Total Travel	.260/.240
	Lbs. Force Req'd to Trip	5.2
	Lbs. Force at .25 Stroke	5.5

Top Roller Plunger Head Style "A"

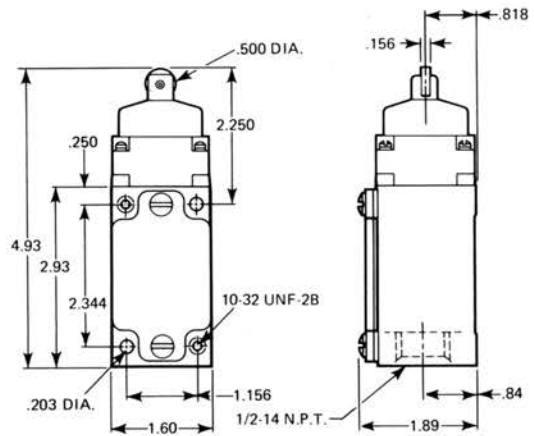
PART NUMBER	CONTACTS
EA510-15701	1NO-1NC
EA510-25701	2NO-2NC



Operating Characteristics (Inches)	Pretravel	.050/.046
	Differential Travel	.027/.023
	Recommended Travel	.15
	Total Travel	.260/.240
	Lbs. Force Req'd to Trip	2.8
	Lbs. Force at .25 Stroke	7.3

Top Roller Plunger Head Style "B"

PART NUMBER	CONTACTS
EA510-15700	1NO-1NC
EA510-25700	2NO-2NC

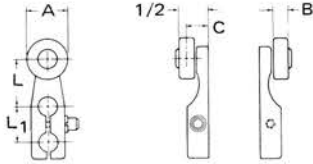


Operating Characteristics (Inches)	Pretravel	.050/.046
	Differential Travel	.027/.023
	Recommended Travel	.15
	Total Travel	.260/.240
	Lbs. Force Req'd to Trip	2.8
	Lbs. Force at .25 Stroke	7.3

Operating Levers

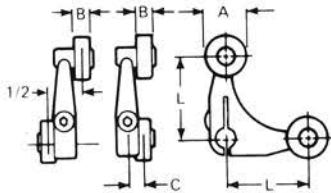
For Series EA220 (M2), EA280 (M8), EA330 (MV2), EA390 (MV8), EA510 Switches with .375 dia. Lever Shafts.

STANDARD STR LEVER



Ordering Numbers		A	B	C	L	L ₁	Material	
New	Reference						Lever	Roller
EL010-23901	SA 160-26	1-1/2	9/32	23/64	1-1/2	—	Alum.	Nylon
EL010-23300	SA 160	3/4	9/32	23/64	1-1/2	—	Alum.	Nylon
EL010-23302	SA 160-16	3/4	9/32	23/64	1-1/2	—	Alum.	Alum.
EL010-23303	SA 160-21	3/4	3/4	19/32	1-1/2	—	Alum.	Alum.
EL010-23305	SA 160-27	3/4	1/4	11/32	1-1/2	—	Alum.	B.B.
EL010-23301	SA 160-25	3/4	9/32	23/64	1-1/2	—	Alum.	Steel
EL010-23900	—	1-1/2	9/32	23/64	1-1/2	—	Alum.	Nylon
EL010-23306	SA 160-12	3/4	9/32	23/64	1-1/2	—	Alum.	Nylon
EL010-23309	—	3/4	9/32	23/64	7/8	5/8	Alum.	Nylon
EL010-23310	—	3/4	9/32	23/64	7/8	5/8	Alum.	Steel

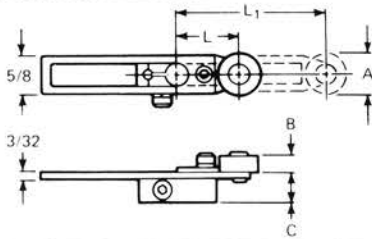
MAINTAINED CONTACT TYPES



Rollers on opposite sides—SA-160-18
Rollers on same side—SA-160-17

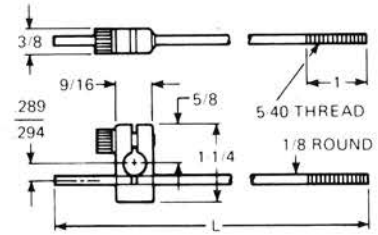
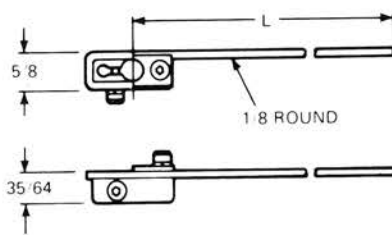
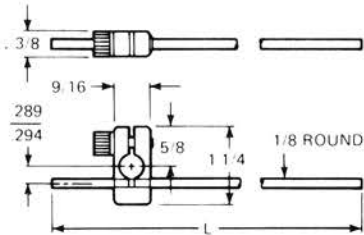
EL040-33300	SA 160-17	3/4	1/4	11/32	1-1/2	—	Alum.	Nylon
EL030-33301	SA 160-18	3/4	1/4	11/32	1-1/2	—	Alum.	Nylon
EL040-33301	SA 160-19	3/4	1/4	11/32	1-1/2	—	Alum.	Steel
EL030-33300	SA 160-20	3/4	1/4	11/32	1-1/2	—	Alum.	Steel

ADJUSTABLE LEVER



EL120-30302	SA 170	3/4	9/32	33/64	1-1/8	2-3/4	Steel	Nylon
EL120-30900	SA 170-4	1-1/2	9/32	33/64	1-5/16	2-3/4	Steel	Nylon
EL120-30301	SA 170-5	3/4	9/32	33/64	1-1/8	2-3/4	Steel	Steel
EL120-30300	SA 170-7	3/4	9/32	33/64	1-1/8	2-3/4	Steel	Alum.

ROD LEVERS



Ordering Numbers		L	Lever Mat'l.	Ordering Numbers		L	Lever Mat'l.	Ordering Numbers		L	Lever Mat'l.
New	Ref.			New	Ref.			New	Ref.		
EL140-28900	SA170-1	5	Steel	EL140-29900	SA170-3	5-1/2	Steel	EL140-28902	SA170-10	36	Steel
EL140-28901	SA170-2	10	Steel								