SNAP-LOCK
Limit Switch

Type D 200 X-NP
Type D 1200 X
Type D 2400 X
Type SL- and SLS

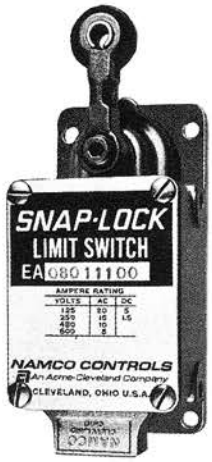
JÖRG DIENES ANWENDUNGSTECHNIK GMBH
für Elektro-, Chemie-, Metallindustrie
Hanauer Landstraße 102
D-63538 Großkrotzenburg - Germany
Telefon: 06186 / 7034
Telefax: 06186 / 8836
www.dienes-switches.de
E-Mail: info@dienes-switches.de

Table of Contents

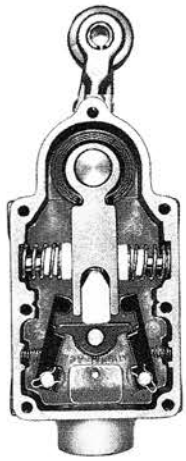
Limit Switches

Type D200X-NP/D1200X

D1200X
Standard

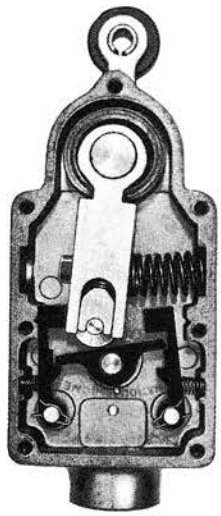


D200X-NP-B
Neutral Position



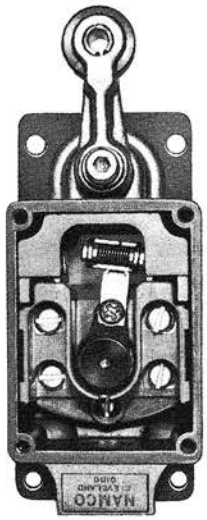
Provide Separate Enclosures for Mechanical and Electrical Sides

MECHANICAL SIDE



The contacts are positively maintained until the latch bar is disengaged by the return travel of the lever to reset the switch. Switches are normally assembled for clockwise operating lever movement; however, to obtain counter-clockwise operation, simply transfer the return spring to the opposite side of the internal lever. The return spring serves to reset the switch automatically to its original position when the force on the operating lever is removed, but with spring removed the operating lever will remain in either position as actuated.

ELECTRICAL SIDE



The electrical side, completely separated from the mechanical side, provides ample wiring space and readily accessible terminal screws in the molded contact blocks. The contact lever carries self-wiping silver-alloy contacts and is connected directly by a shaft to the latch bar on the mechanical side. Water and oil tight enclosures are assured by the use of proper gasket materials.

How to Order Switches and Replacement Parts

Always order Switch and Operating Lever as **SEPARATE ITEMS,** and use the Ordering Number listed. Refer to Series EL for Operating Levers.

EXAMPLE: To order a Standard Snap-Lock Switch and the operating lever considered as standard, use the catalog numbers as follows:

Snap-Lock Switch

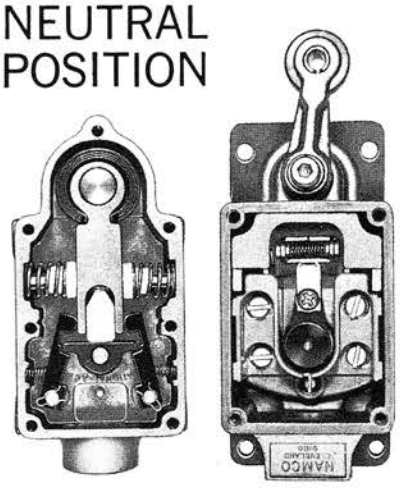
Operating Lever Assembly

Replacement parts and assemblies should also be ordered by catalog number, giving switch numbers for which the parts are desired.

Limit Switches

Type D200X-NP-B

NEUTRAL POSITION



Designed for applications where a neutral position is essential in operation. This series provides the same snap locking action of the other series of SNAP-LOCK Switches.

Can be furnished with standard and style 1 mountings.

SPECIFICATIONS

Heavy Duty, Machine Tool Type, Isolated Poles, Double Throw, Quick Make, Quick Break, Butt Type, Form "Z" Contacts.

Enclosure is Water, Oil and Dust Tight. Meets (NEMA) Type 1, 4, & 13 Requirements.

Torque Necessary for Operation of Switch 22 in.-lb.

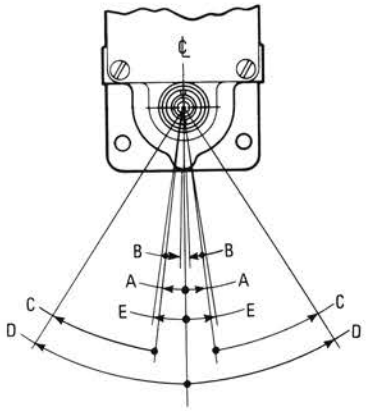
Ambient Temperature: −20°C to +90°C.

Ampere Rating

Volts	AC	DC
125	20	5
250	15	1.5
480	10	
600	5	

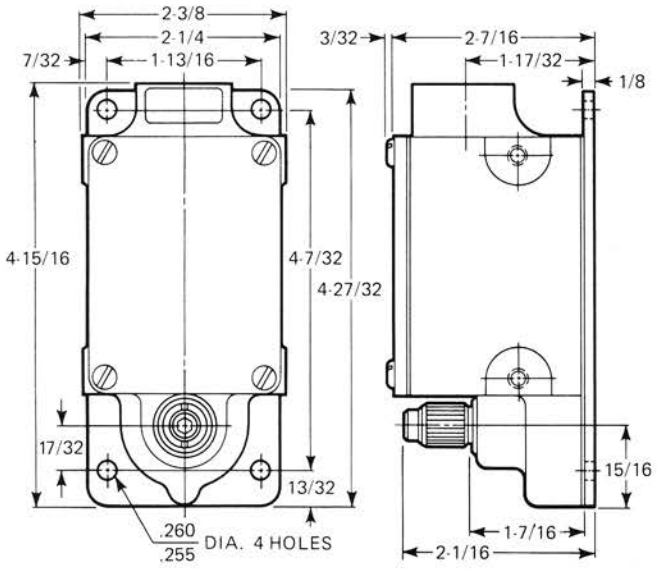
External Lever is Adjustable by 7°30′ Increments thru 180°.

OPERATIONAL DATA

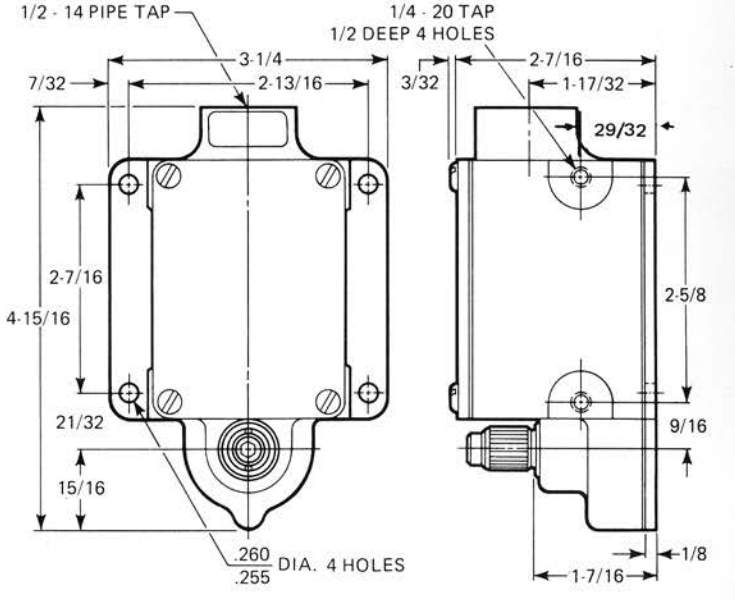


A. Trip Travel	7°
B. Reset Travel	6°
C. Overtravel	26°
D. Total Travel	33°
E. Recommended Travel	7°30′

DIMENSIONS and MOUNTINGS



STANDARD MOUNTING PLATE



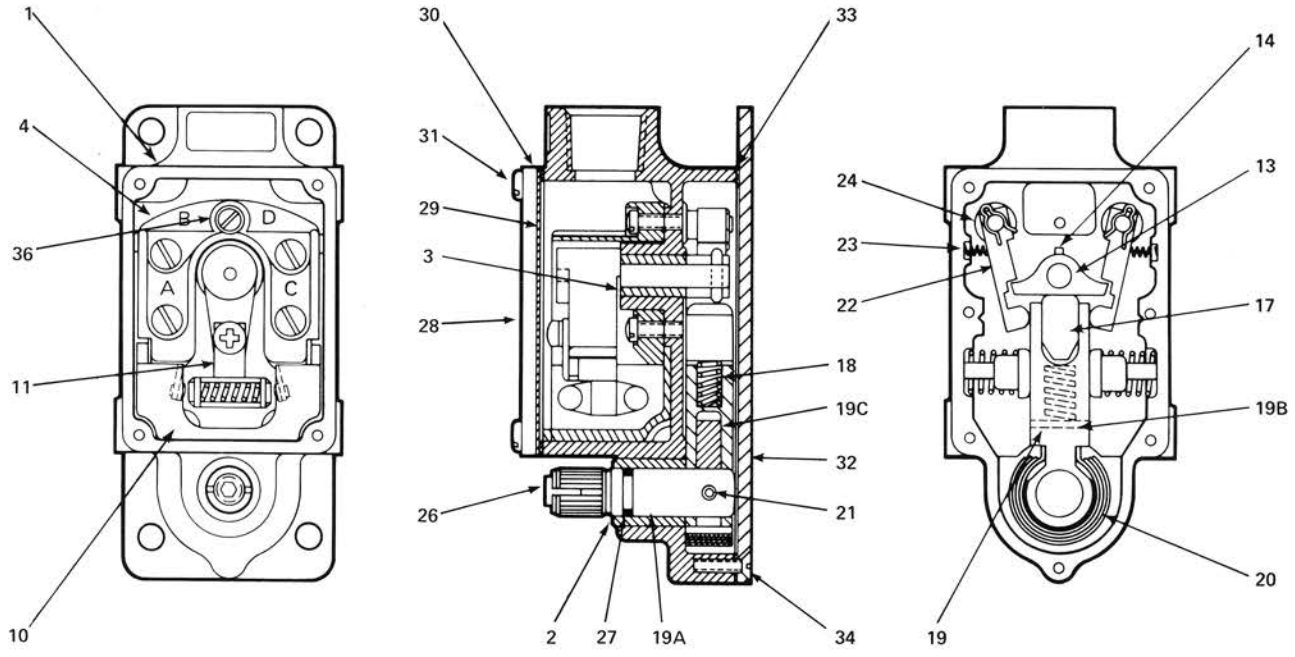
STYLE NO. 1 MOUNTING PLATE

ORDERING INFORMATION	ORDERING NUMBERS
Type Mounting	Switch Number
STANDARD MOUNTING	D200X-NP-B-2
STYLE NO. 1 MOUNTING	D200X-NP-B-1

Parts
List

Limit Switches

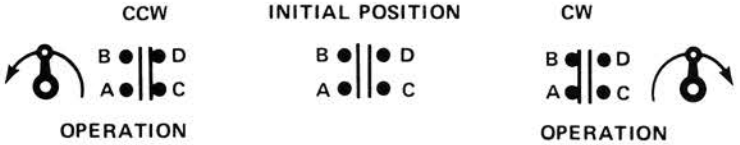
Type D200X-NP-B



Item No.	Ordering Numbers ①		Description	Qty.	Item No.	Ordering Numbers ①		Description	Qty.
	Reference	New				Reference	New		
1	D205GNP	**EA043-93003**	Housing Assy.	1	21	XRP-3/2-12	**EF270-62414**	Roll Pin	1
2	D1203	**EH110-00064**	Bushing	1	22	D242NP	**EA044-20014**	Latch	2
3	D1204	**EH110-00104**	Bushing	1	23	D1243	**EH160-03164**	Latch Spring	2
4	D1215G	**EA081-60023**	Contact Block	1	24	D1271	**EF460-00014**	Latch Retaining Ring	2
10	D1227G	**EA084-00073**	End Insulator	1	26	XPPS-1	**EH060-80024**	Pipe Plug	1
11	D230G-NP	**EA048-30004**	Contact Lever Assy.	1	27	XO-7	**EH080-00063**	"O"-Ring	1
13	D241NPA	**EA045-50014**	Rocker	1	28	–	**EA087-71078**	Top Cover (std.) SF	1
14	XRP-3/2-8	**EF270-60804**	Roll Pin	1	28A	–	**EA087-71047**	Top Cover - Plastic SF	1
17	D246NPA	**EA046-20014**	Roll Slide	1	29	D1212	**EA084-00094**	Top Cover - Insulator	1
18	D1249	**EH160-09024**	Roller Slide Spring	1	30		**EA087-90001**	Top Cover Gasket	1
19	–	**EA046-10105**	Lever Shaft Assy. (includes items 19A, 19B, 19C, 20 & 21)	1	31	SB-8-C-8	**EF089-80030**	Top Cover Screw	4
					31A	SB-8-C-10	**EF089-80060**	Top Cover Screw for Plastic	4
					32	D1209B3	**EA082-93014**	Bottom Cover (std.)	1
19A	D1251A	**EA085-93124**	Lever Shaft	1	32A	D1209A3	**EA082-93154**	Bottom Cover - Style 1	1
19B	–	**EA044-43045**	Lever	1	33		**EA083-10000**	Bottom Cover Gasket	1
19C	D1252A	**EA084-43054**	Spring Lever	1	34	–	**EF059-89991**	Bottom Cover Screw	7
20	D1254C	**EH160-03204**	Torsion Spring	1	36	SEM-R-6-C8	**EF429-60014**	Screw	2

① Reference numbers shown are from previous bulletin EC-B-65-R.

CONTACT CONFIGURATION



Limit Switches

Type D1200X

STANDARD

Single pole, double break, double throw, heavy duty limit switch having mechanical travel of 10° to trip and with one normally open and one normally closed circuit.

Can be furnished with standard and style 1 mountings.

SPECIFICATIONS

Heavy Duty, Machine Tool Type, Isolated Poles, Double Throw, Quick Make, Quick Break, Butt Type, Form "Z" Contacts.

Enclosure is Water, Oil and Dust Tight. Meets (NEMA) Type 1, 4, &13 Requirements.

Torque Necessary for Operation of Switch - 14 in.-lb. (Without Return Spring, Item 25, 5-in.-lb.)

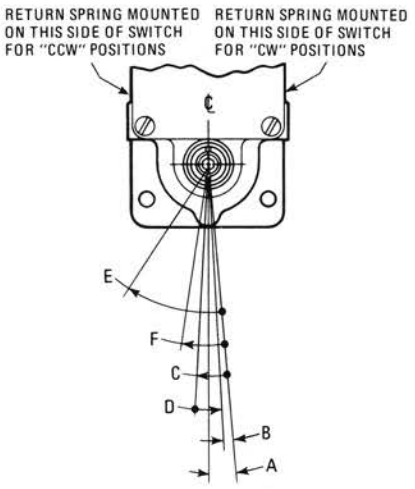
Ambient Temperature: −20°C to +90°C.

Ampere Rating

Volts	AC	DC
125	20	5
250	15	1.5
480	10	
600	5	

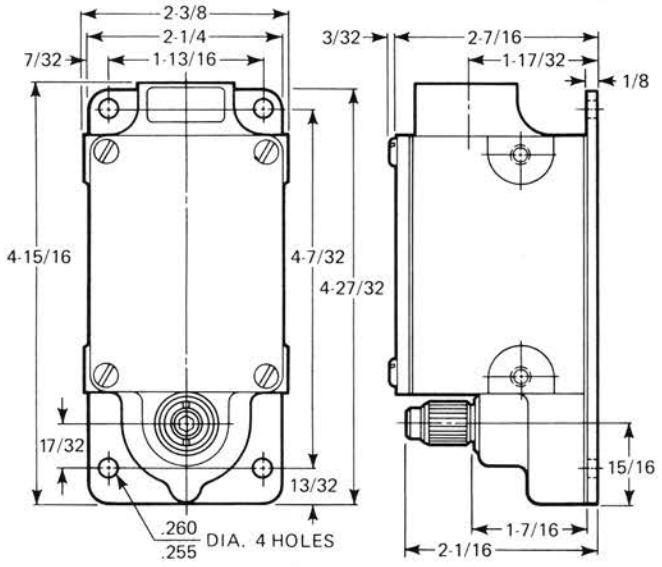
External Lever is Adjustable by 7°30' Increments Thru 180°.

OPERATIONAL DATA

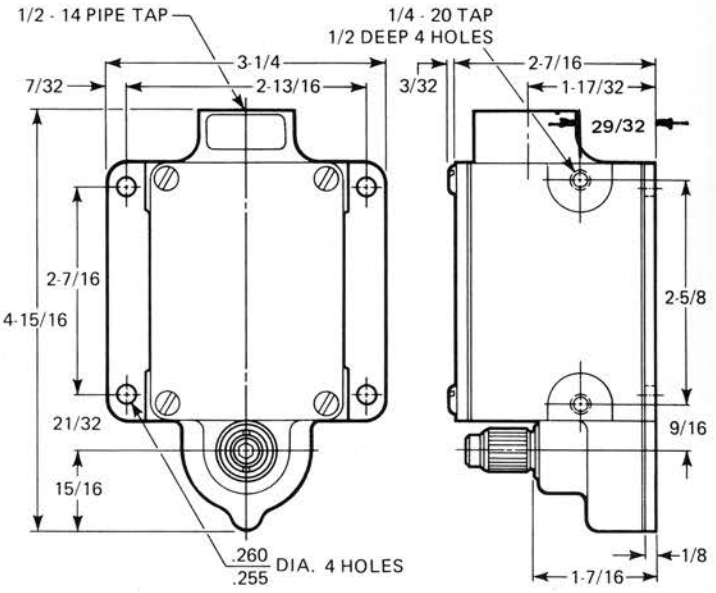


A. Initial Position From ℄ . . . . . 5°
B. Free Travel . . . . . 2°
C. Pre-Travel Trip Position . . . . . 10°
D. Reset Position . . . . . 8°
E. Maximum Travel . . . . . 38°
F. Recommended Travel . . . . . 13°

DIMENSIONS and MOUNTINGS



STANDARD MOUNTING PLATE

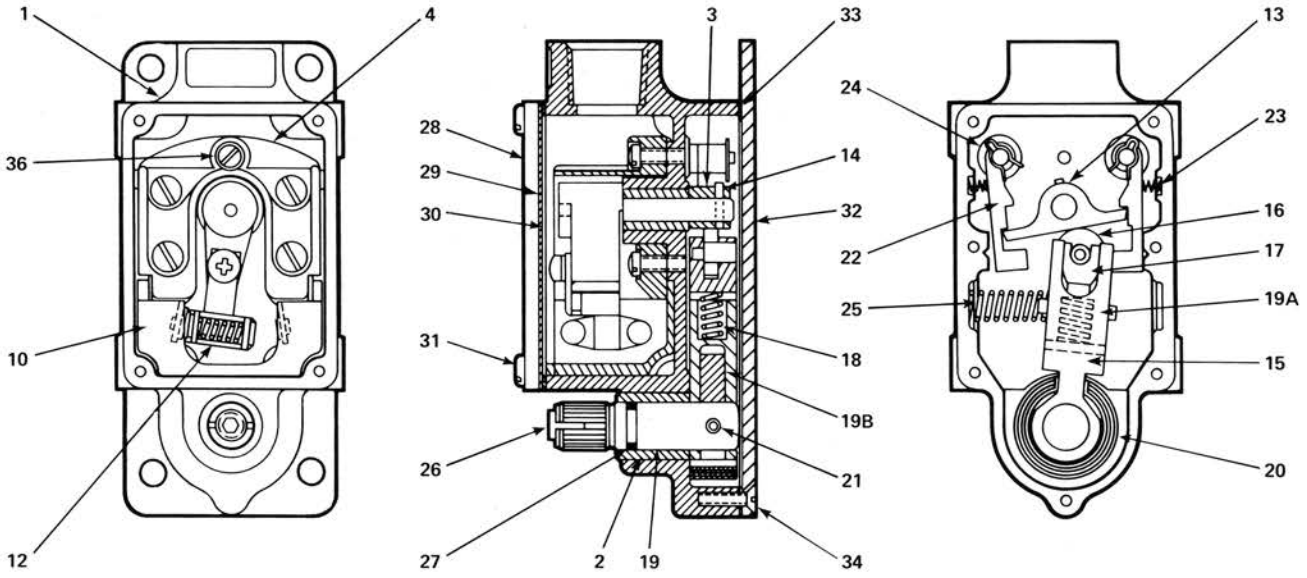


STYLE NO. 1 MOUNTING PLATE

ORDERING INFORMATION	ORDERING NUMBERS ①		
Type Mounting	Standard Rotation CW	Opposite Rotation CCW	Without Spring Return
STANDARD MOUNTING	D1200X-2	D1200X-2-SR	D1200X-2-WS
STYLE NO. 1 MOUNTING	D1200X-1	D1200X-1-SR	D1200X-1-WS

Limit Switches

Type D1200X

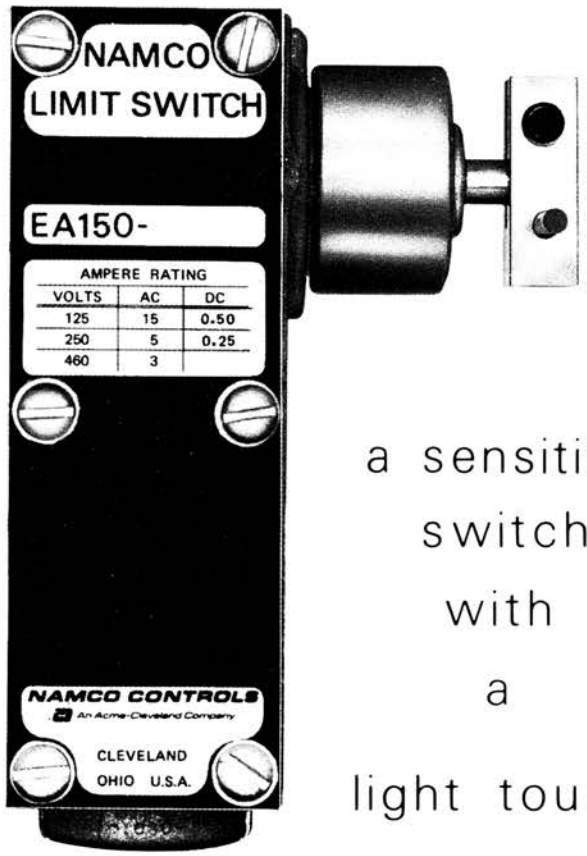


Item No.	Ordering Numbers ①		Description	Qty.	Item No.	Ordering Numbers ①		Description	Qty.
	Reference	New				Reference	New		
1	D1205G	**EA083-93003**	Housing Assy.	1	21	XRP-3/2-12	**EF270-62414**	Roll Pin	1
2	D1203	**EH110-00064**	Bushing	1	22	D1242G1	**EA084-23044**	Latch	2
3	D1204	**EH110-00104**	Bushing	1	23	D1243	**EH160-03164**	Latch Spring	2
4	D1215G	**EA081-60023**	Contact Block	1	24	D1271	**EF460-00014**	Latch Retaining Ring	2
10	D1227G	**EA084-00073**	End Insulator	1	25	–	**EH160-03666**	Return Spring	1
12	D1230G	**EA088-30004**	Contact Lever Assy.	1	26	XPPS-1	**EH060-80024**	Pipe Plug	1
13	D1241	**EA085-53004**	Rocker	1	27	XO-7	**EH080-00063**	"O"-Ring	1
14	XRP-3/2-8	**EF270-60804**	Roll Pin	1	28	–	**EA087-71078**	Top Cover (std.) SF	1
15	–	**EA086-10100**	Lever Shaft Assy. (includes items 19, 19A, 19B, 20 & 21)	1	28A	–	**EA087-71047**	Top Cover - Plastic SF	1
					29	D1212	**EA084-00094**	Top Cover - Insulator	1
					30		EA087-90001	Top Cover Gasket	1
16	D1247B	**EA085-73024**	Roller	1	31	SB-8-C-8	**EF089-80030**	Top Cover Screw	4
17	D1246C	**EA086-20014**	Roller Slide	1	31A	SB-8-C-10	**EF089-80060**	Top Cover Screw for Plastic	4
18	D1249	**EH160-09024**	Roller Slide Spring	1	32	D1209B3	**EA082-93014**	Bottom Cover (std.)	1
19	D1251A	**EA085-93124**	Lever Shaft	1	32A	D1209A3	**EA082-93154**	Bottom Cover - Style 1	1
19A	–	**EA084-43045**	Lever	1	33		EA083-10000	Bottom Cover Gasket	1
19B	D1252A	**EA084-43054**	Spring Lever	1	34	–	**EF059-89991**	Bottom Cover Screw	7
20	D1254B	**EH160-03194**	Torsion Spring	1	36	SEM-R-6-C8	**EF429-60014**	Screw	2

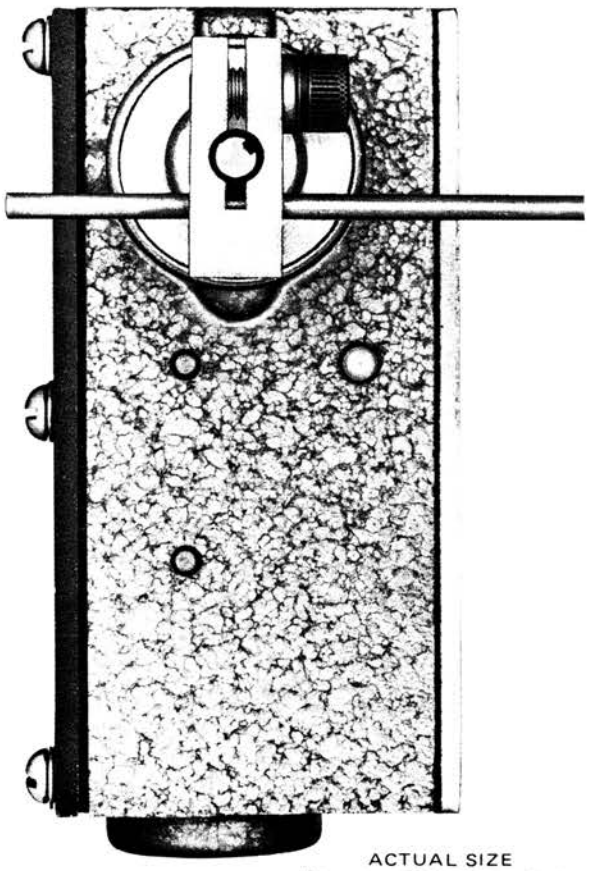
① Reference numbers shown are from previous bulletin EC-B-65-R.

CONTACT CONFIGURATION

Limit Switches



a sensitive switch with a light touch



ACTUAL SIZE
(Standard Right Hand Shaft Extension Shown)

Design Features and Performance:

Namco Series EA150 Super-Sensitive Limit Swtiches offer an outstanding combination of performance characteristics. They are ruggedly built to withstand normal vibration, yet sensitive to forces as low as 1½" ounces. While the housing and operating mechanism are standard, a number of features provide a wide range of operating flexibility.

Basic design of the Series EA150 switch housing provides controlled operation of the enclosed switch preventing overtravel within the switch itself and absorbing this overtravel in the mechanical operating control. The internal operating levers have an adjustable steel spring to insure correct pressure on the contact button. This "protective" operating mechanism greatly increases normal switch life and provides necessary sensitivity for rapid contacts and continuous operation.

The switch unit is fully enclosed for protection against dirt and the switch cartridges carry Underwriters Laboratories approval.

The adjustable operating cam on the Rotary and Oscillating type permits variable pre-travel settings. For example, a simple cam adjustment lets you set 90° pre-travel anywhere within a 180° arc. The steel trip rod, available in lengths to 10", can be adjusted by a simple set screw attachment and can be bent or welded for easy hook-up to other linkages.

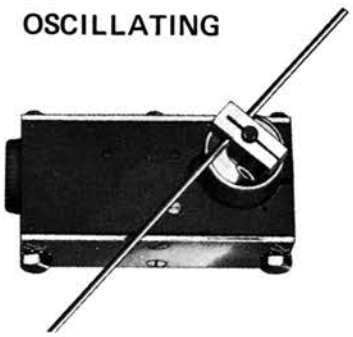
Single pole - double throw electrical contacts are made inside the fully enclosed switch unit, and screw type terminals permit wiring for normally open or normally closed circuits. Other contact arrangements are available upon request.

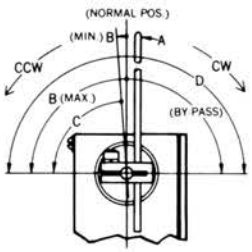
The "Designer's Choice" for: Limit Switch Applications/Counting Devices/Gauging Devices/Time Delay Mechanisms/Safety Switch Applications/Circuit Breakers/Liquid Level Controls/Relays/Governors/. . . and countless other applications requiring a durable switch that you can count on for dependable operation.

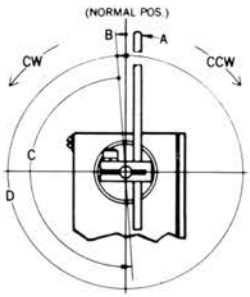
Limit Switches

EA150

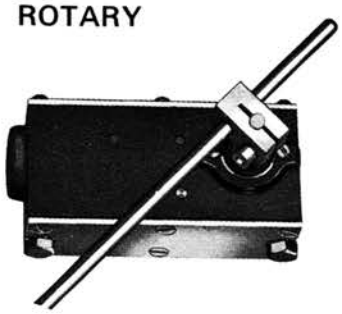
OSCILLATING







ROTARY



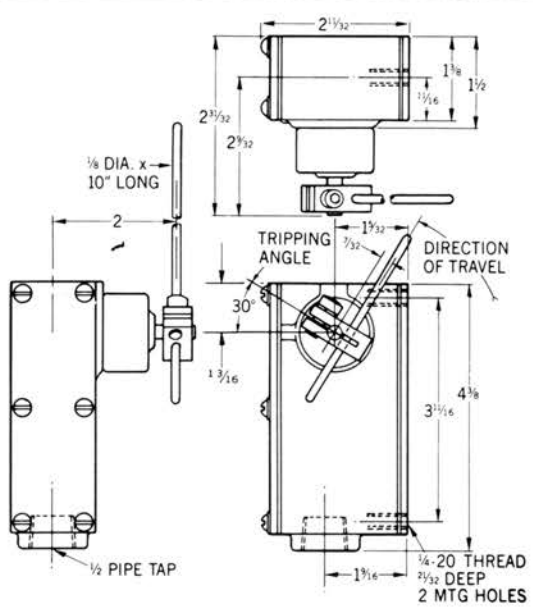
ORDERING AND OPERATING DATA			
EA150-10013 ① (D-900-1A)	ORDERING NUMBER	STEEL BALL BEARING	**EA150-30014** (D-900-1CC)
CW or CCW ②	DIRECTION OF OPERATION	CW or CCW ②	
15 Inch-ounces	(A) OPERATING PRESSURE	5 Inch-ounces	
ADJUSTABLE FROM 4° min. to 90° max.	(B) TRAVEL TO MAKE OR BREAK CONTACTS	4°	
ADJUSTABLE TO 86°	(C) OVERTRAVEL	TRAVEL TO RESET = 180°	
180°	(D) TOTAL LEVER TRAVEL	360°	
1 lb. 12 oz.	APPROXIMATE WEIGHT OF SWITCH	1 lb. 11 oz.	
1/8" STEEL ROD 10" LENGTH	OPERATING MECHANISM	1/4" STEEL ROD ③ 9" LENGTH	

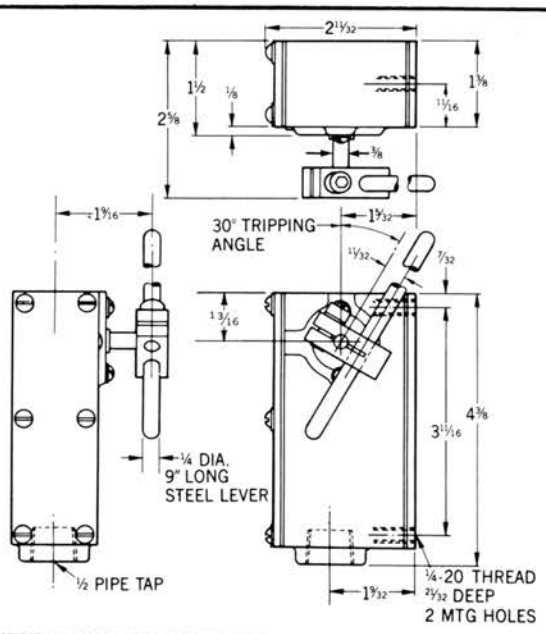
① Bold ordering numbers have replaced light numbers. Please order switches by bold number.

② Mechanism can be positioned to trip switch, in one direction only, either clockwise or counter-clockwise.

③ 1/4" Fibre Rod - 12" Length 1/8" Steel Rod - 10" Length Per Request.

DIMENSIONS
(IN INCHES)





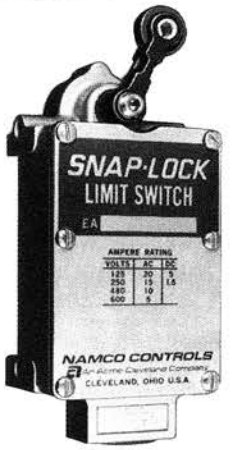
Limit Switches

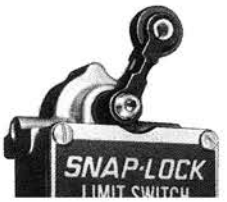
Type D2400X

TWO NO
TWO NC

Water-oil
Dusttight

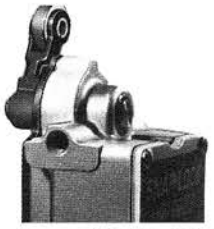
Series EA170-11100 Standard



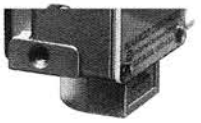


Series EA170-14100 Short Travel

Remark:
For Short Travel or Reverse Shaft Switches please contact Jörg Dienes GmbH

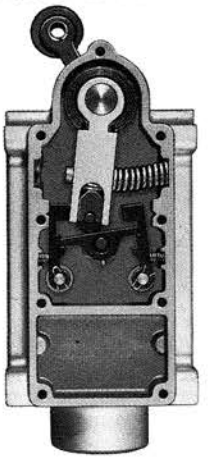


Series EA170-41100 Reverse Shaft



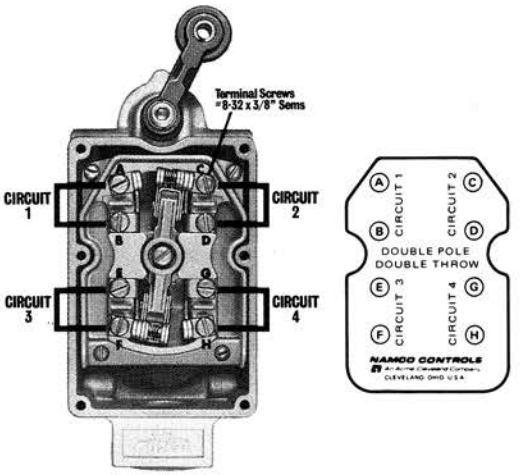
Provide Separate Enclosures for Mechanical and Electrical Sides

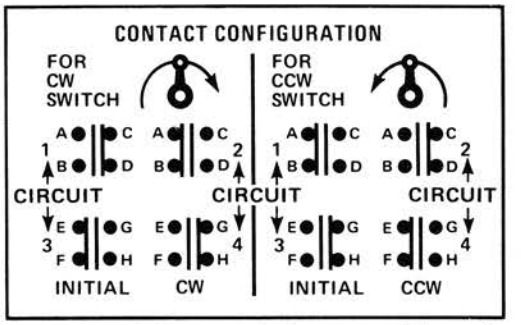
MECHANICAL SIDE



The contacts are positively maintained until the latch is disengaged by the return travel of the lever to reset the switch. Switches are normally assembled for clockwise operating lever movement; however, to obtain counter-clockwise operation, simply transfer the return spring to the opposite side of the internal lever. The return spring serves to reset the switch automatically to its original position when the force on the operating lever is removed, but with spring removed the operating lever will remain in either position as actuated.

ELECTRICAL SIDE





The electrical side, completely separated from the mechanical side, provides ample wiring space and readily accessible terminal screws in the molded contact blocks. The contact lever carries self-wiping silver-alloy contacts and is connected directly by a shaft to the latch bar on the mechanical side. Water, oil and dusttight enclosures are assured by the use of proper gasket materials.

How to Order Switches and Replacement Parts

Always order Switch and Operating Lever as **SEPARATE ITEMS,** and use the Ordering Number listed. Refer to Series EL for Operating Levers.

EXAMPLE: To order a Standard Snap-Lock Switch and the operating lever considered as standard, use the catalog numbers as follows:

1 No. EA170-11100 Snap Lock Switch

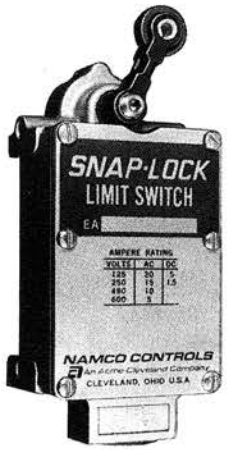
1 No. EL010-53420 Operating Lever Assembly

Replacement parts and assemblies should also be ordered by catalog number, giving switch numbers for which the parts are desired.

Snap-Lock Limit Switches

Type D2400X

STANDARD



Double pole, double break, double throw, heavy duty limit switch having mechanical travel of 10° to trip and with two normally open and two normally closed circuits.

Can be furnished with standard, style 1 or style 2 mounting.

SPECIFICATIONS

Heavy Duty, Machine Tool Type, Double Pole, Double Throw, Quick Make, Quick Break, Butt Type. Form "Z" Contacts.

U-L Listed/File No. E12967

Enclosure is Water, Oil and Dusttight. Meets (NEMA) Type 1, 4, & 13 Requirements.

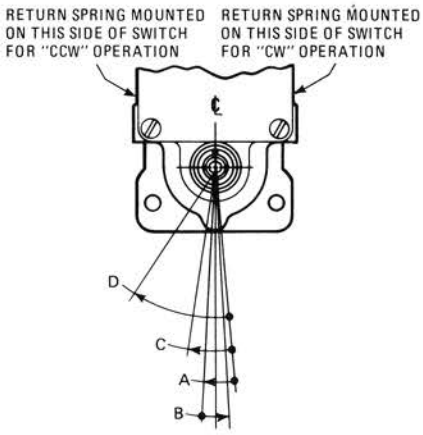
Torque Necessary for Operation of Switch - 23 in. -lb. (Without Return Spring, Item 23, 10 in. -lb.)

External Lever is Adjustable by 7°30' Increments Thru 180°.
Ambient Temperature: -20°C to +90°C.

Ampere Rating

Volts	AC	DC
125	20	5
250	15	1.5
480	10	
600	5	

OPERATIONAL DATA

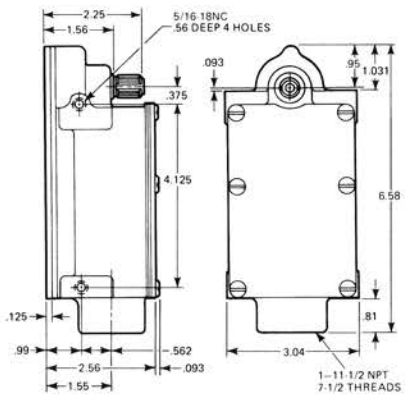


(CW OPERATION SHOWN)

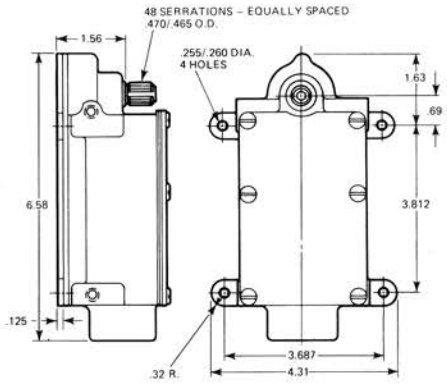
See Page 14 for Contact Configuration

A. Pre-Travel Trip Position . . . 10°
B. Reset Position . . . . . 8°
C. Total Travel . . . . . 37°
D. Recommended Travel . . . 13°

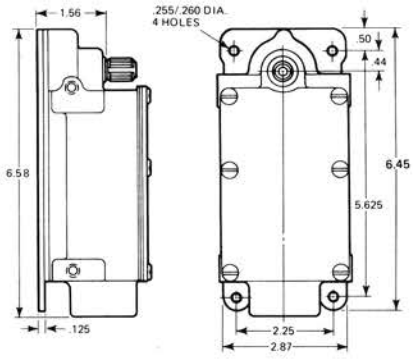
DIMENSIONS and MOUNTINGS



STANDARD MOUNTING



STYLE 1 MOUNTING



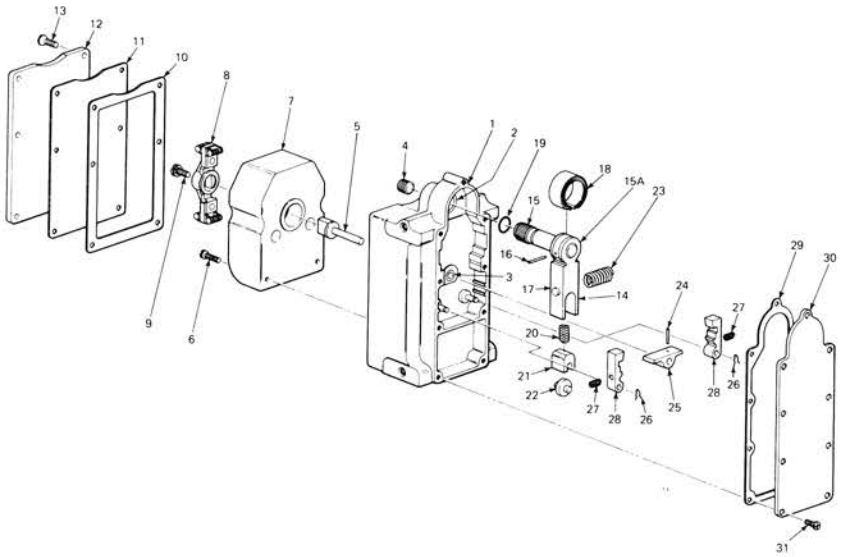
STYLE 2 MOUNTING

ORDERING INFORMATION	ORDERING NUMBERS ①		
Type Mounting	**Standard Rotation CW**	**Opposite Rotation CCW**	**Without Spring Return**
STANDARD MOUNTING	**EA170-11100** (D2400X)	**EA170-12100** (D2400X-SR)	**EA170-13100** (D2400X-WS)
STYLE NO. 1 MOUNTING	**EA170-21100** (D2400X-1)	**EA170-22100** (D2400X-1-SR)	**EA170-23100** (D2400X-1-WS)
STYLE NO. 2 MOUNTING	**EA170-31100** (D2400X-2)	**EA170-32100** (D2400X-2-SR)	**EA170-33100** (D2400X-2-WS)

① Order by New EA Series Numbers (Bold Type)
Old Numbers Shown In Parentheses For Reference Only

Snap-Lock Limit Switches

Type D2400X



Item No.	Ordering Numbers ①		Description	Qty.	Item No.	Ordering Numbers ①		Description	Qty.
	Reference	New				Reference	New		
1	D2405A	**EA173-93003**	Housing Assy.	1	16	XRP-3/2-12	**EF270-62414**	Roll Pin	1
2	D1203	**EH110-00064**	Bushing	1	17	–	**EA084-43045**	Lever (only)	1
3	D1204	**EH110-00104**	Bushing	1	18	D1254B	**EH160-03194**	Torsion Spring	1
4	XPP51	**EH060-80024**	Pipe Plug	1	19	XO-7	**EH080-00063**	"O" Ring	1
5	D1238E	**EA085-93024**	Contact Lever Shaft	1	20	D2449A	**EH160-03354**	Spring	1
6	SEM-R-6C8	**EF429-60014**	Contact Block Screw	4	21	D1246C	**EA086-20014**	Roller Slide	1
7	D2420	**EA171-60003**	Contact Block Assembly	1	22	D1247B	**EA085-73024**	Roller	1
8	D2430A	**EA178-30004**	Lever	1	23		**EH160-03296**	Return Spring	1
9	SEM-P-8C-6BC	**EF429-80034**	Sems Screw	1	24	XRP-3/2-8	**EF270-60804**	Roll Pin	1
10		**EA177-90003**	Top Cover Gasket	1	25	D1241	**EA085-53004**	Rocker	1
11	D2412	**EA174-00014**	Insulator	1	26	D1271	**EF460-00014**	Retaining Ring	1
12	–	**EA177-71027**	Top Cover	1	27	D1243	**EH160-03164**	Latch Spring	2
13	SB-8-C-8	**EF089-80030**	Top Cover Screw	6	28	D1242G1	**EA084-23044**	Latch	2
14	–	**EA086-10100**	Lever Shaft Assembly (includes items 15, 15A, 16, 17 & 18)	1	29		**EA173-10003**	Bottom Cover Gasket	1
					30	D2409-3	**EA172-93004**	Bottom Cover (std. mtg.)	1
						D2409A-3	**EA172-93034**	Bottom Cover (style 1 mtg.)	1
15	D1251A	**EA085-93124**	Lever Shaft	1		D2409B-3	**EA172-93054**	Bottom Cover (style 2 mtg.)	1
15A	D1252A	**EA084-43054**	Spring Lever	1	31	–	**EF059-89991**	Bottom Cover Screw	9

① Reference numbers shown are from previous bulletin EA-1700.

CONTACT CONFIGURATION

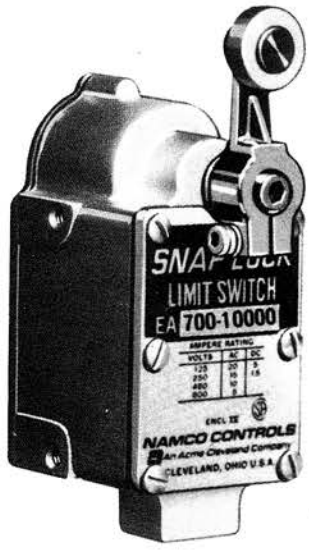
REPLACEMENT PARTS KITS

ELECTRICAL REPAIR KIT	**EA171-12100**	INCLUDES ITEMS 6, 7, 8, 9, 10, 11, & 13
MECHANICAL REPAIR KIT	**EA171-11109**	INCLUDES ITEMS 5, 24, 25, 26, 27, & 28
LEVER SHAFT KIT	**EA171-10109**	INCLUDES ITEMS 4, 14, 19, 20, 21, 22, 23, 29, & 31

for light
and heavy duty
applications

Snap-Lock Limit Switches

Type SL



Design Features

WIDE RANGE OF OPERATION. . .MODULAR CONSTRUCTION. . .PRACTICAL FLEXIBILITY

In every respect these Snap-Lock Limit Switches are the "ultimate" of the industry. The scope of Models is tailored to meet today's rugged requirements . . . there is a Model of size and type to meet virtually all demands.

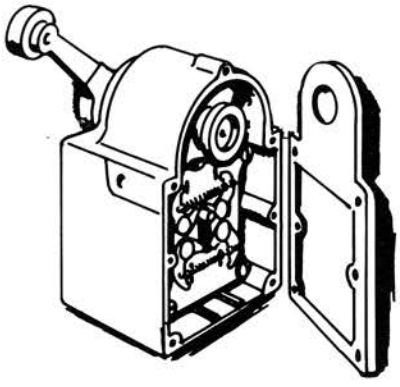
Besides covering all functional requirements this line is designed to meet practically every condition of installation. These Snap-Lock Switches provide reliable "machine-life" service and have the stamina to operate under unusual conditions . . . at the same time giving millions of consistently fast, accurate contacts.

Here are a few of the outstanding features built into the switch for maximum performance.

- Generous overtravel and by-pass.
- Flexibility of motion, clockwise and counter-clockwise.
- Simplicity and interchangeability of cams.
- Light operating torque.
- Fast contact action.
- Form Z contact arrangement.

OPTIONS AVAILABLE

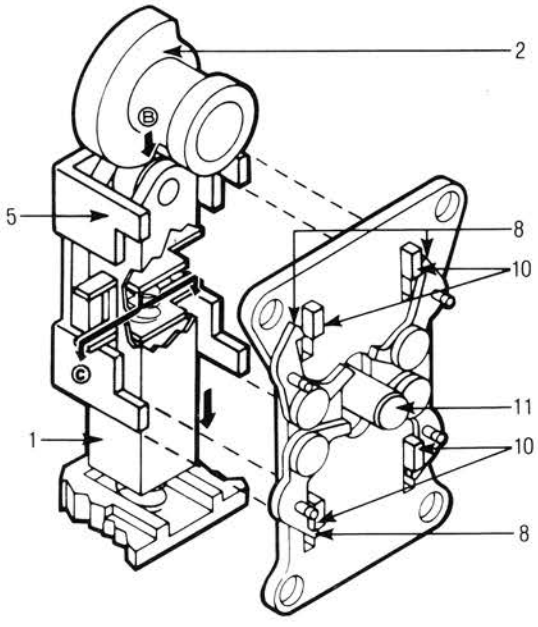
- Precious metal contacts.
- High temperature (0° C to +150° C) components and lubricants. Aluminum housing.
- Low temperature (−40° C to +90° C) components and lubricants.
- Sliding contacts (for Hi-Shock).
- Sealed switches



a look inside reveals that

NAMCO / DIENES Series-SL Switches are designet to

Snap-Lock Mechanism



Parts Nomenclature

1. Cam Follower
2. Cam
3. Return Spring
4. Fixed Base
5. Shuttle
6. Floating Arms
7. Compression Spring
8. Latches
9. Latch Plate
10. Ears, Shuttle
11. Operating Pin
12. Movable Contacts
13. Stationary Contacts
14. Contact Block
15 Contact Spring

SNAP-ACTION . . . Reliable Operation Even in Adverse Environments

The Snap-Lock Mechanism is responsible for quickly and positively snapping the contacts open and closed and then locking them in either position. Here's how it works:

Lets Start the Snap-Lock Mechanism Moving

As the lever arm is moved the Cam (2) starts to rotate, this causes the cam follower to move in direction **B**. The Shuttle (5) is locked in place by Latches (8) which are engaged with the lower fingers (10) of the shuttle. This in turn causes the Floating Arm (6) to compress Spring (7) with resultant force in direction **C**. Operating Pin (11), an integral part of Cam Follower (1), moves downward as the cam continues to rotate; first releasing the upper Latches (8), they remain open and resting against the shuttle fingers, secondly the Operating Pin engages the lower latches. At a predetermined point the latches are forced open and disengage the shuttle fingers. At this point force **C** goes into action and snaps Shuttle (5) to the down position, contact transfer now takes place.

Simplicity in Design . . . Functional Interchangeability

In most cases these switches are operated by some type of auxiliary lever (1). Namco Controls supplies a series of these, see Product Information Sheets Series EL. Most Namco Controls supplied levers have serrated holes that match the switch operating shafts. The levers are locked in place by simply turning in the screw (2) in the end of the switch operating shaft with an Allen wrench. (3/16'')
When the switch is operated by a force against the lever, clockwise or counterclockwise return torque is supplied by

Limit Switches

Type SL

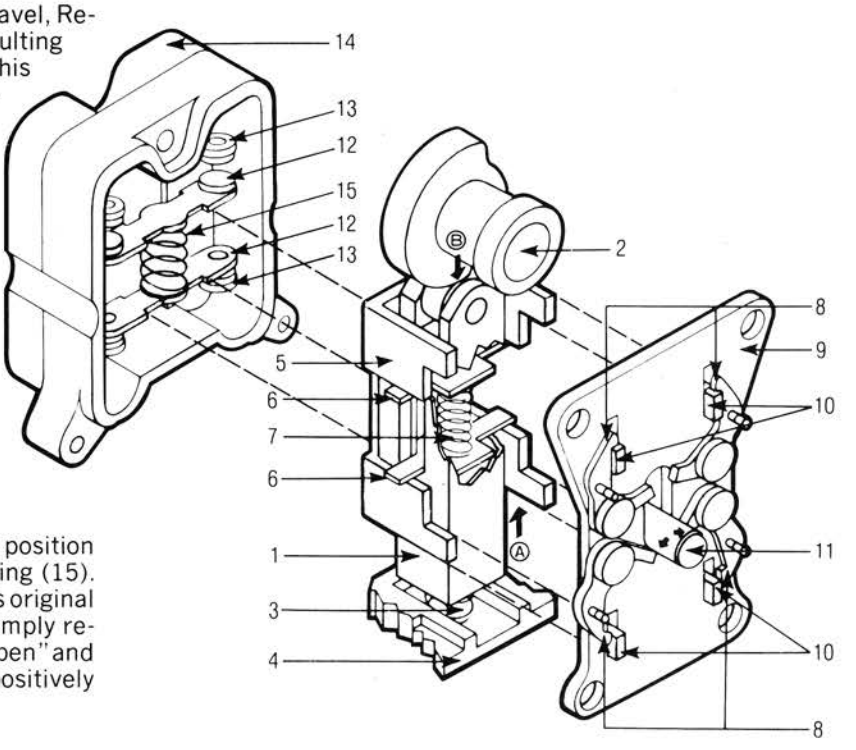
perform better . . . constructed to last longer

Here the Snap-Lock Action is Completed

The Cam Follower is at the extreme end of its' travel, Return Spring (3) has been compressed with resulting force in direction **A**. The Cam Follower is held in this position by the cam rise. Shuttle (5) is locked into position by the upper Latches (8).

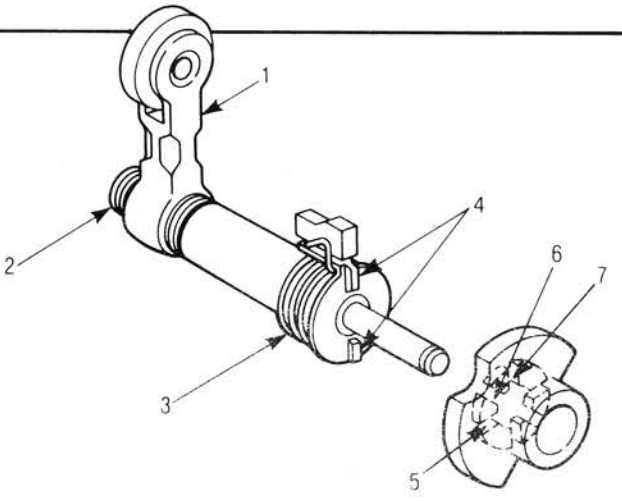
To put the positive Snap-Lock Mechanism into use in our switch, we added a pair of movable contact carriers (12) and two pairs of Stationary Contacts (13). The movable contact carriers are connected to the Shuttle (5) by means of a molded plastic carrier (not shown here for clarity). Thus the movable contact carriers are moved from one set of stationary contacts to the other as the shuttle moves. The movable contact carriers are free to "float" and "self align" with the Stationary Contacts for positive wiping action. The Stationary Contacts (13) are an integral part of the molded plastic Contact Block (14).

In the sketch the lower contacts are closed a little before the Shuttle (5) reaches the locked position and are held firmly together by the Contact Spring (15). When the lever arm allows the cam to return to its original position force **A** takes over and the process is simply reversed with the lower contacts being snapped "open" and the upper contacts then snapped "closed" and positively locked.



the self contained torsion spring (3). This motion is transmitted to the cam by two clutch projections (4) that engage the cam slots (either 5, 6 or 7).

No tools are needed to change the operation of the switch from clockwise to counterclockwise or both CW/CCW. To change the rotation you simply remove the back cover, lift cam to disengage and rotate to the proper slot (either 5, 6 or 7).



Limit Switches

Type SL

Specifications

1. Enclosure is water, oil and dust tight.
2. Enclosure meets NEMA Type 1, 4 and 13 requirements.
3. Contacts made of corrosion resistant silver alloy. Contact shifting mechanism is locked in position by the latches until switch lever is actuated.
4. Standard Temperature Range: −20° C TO +90° C
5. Operating lever is adjustable to any required position.
6. Operating Lever Angles (travel either clockwise or counter-clockwise) maximum degrees of trip travel, reset travel, as well as total lever travel, are determined by the cam selected.
7. Operating Torques — With 1½" operating lever, force to trip switch varies from 5 to 14 lbs. and overtravel force varies from 4 to 7 lbs. depending on cam selected.
8. Underwriters' Laboratories, Inc. Listed. File No. E12967.
9. Current ratings:

Voltage	
125V - A.C.	20.0 Amps*
250V - A.C.	15.0 Amps*
480V - A.C.	10.0 Amps*
600V - A.C.	5.0 Amps*
125V - D.C.	5.0 Amps
250V - D.C.	1.5 Amps

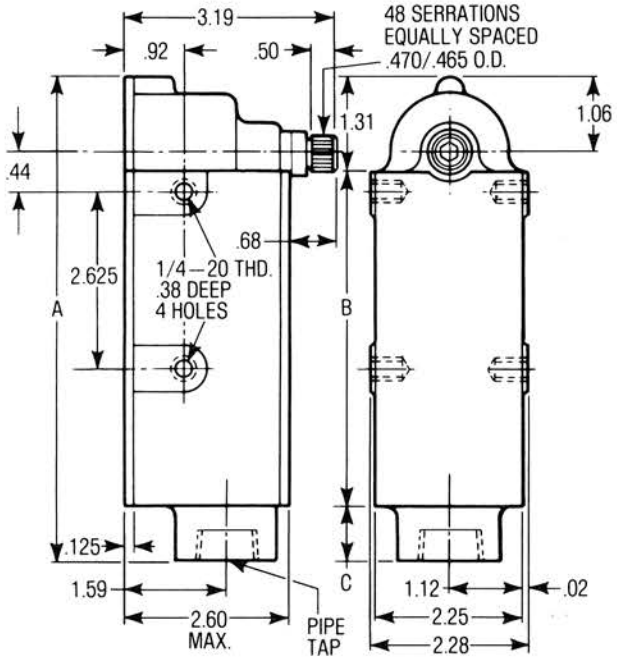
*75-100% Power Factor.

Mounting Styles and Dimensions

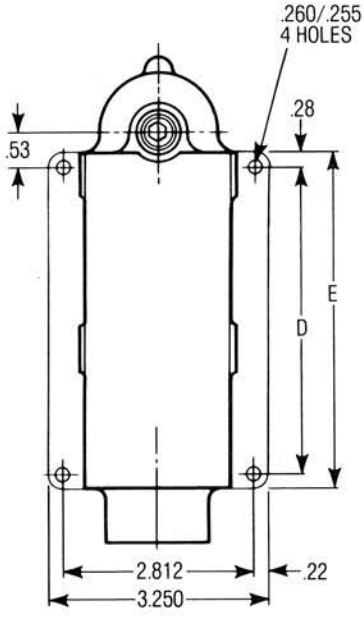
Series SL Snap-Lock Limit Switches are designed for flexibility in mounting arrangements. Basic design permits mounting for either side or back. Shown here are the (1) STANDARD for side mounting; (2) W (wide for back mounting); (3) L (long for back mounting). Style W or L mounting plates for back mounting, are available at no extra cost.

CONTACT SEQUENCE	STANDARD SWITCH				MOUNTING STYLE			
	PIPE TAP SIZE	A	B	C	"W" D	"W" E	"L" F	"L" G
1NO-1NC	1/2-14NPT	4.94	3.00	.62	2.44	3.00	4.22	4.84
2NO-2NC	1-11½NPT	7.06	4.94	.81	4.38	4.94	6.41	7.06
3NO-3NC	1-11½NPT	9.62	7.50	.81	6.94	7.50	8.97	9.62

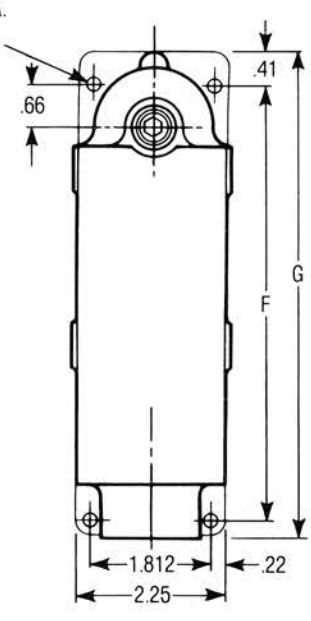
Standard Mounting



W Mounting



L Mounting



Cams Unlimited . . .
Operating Sequence Unlimited

The versatility of the Snap-Lock mechanism is gained thru the use of a series of uniquely designed cams. A standard EA700 series switch, supplied with a combination B1/B2 cam can be made to perform several switch sequences by simply rotating the cam.
Namco Controls offers a wide variety of cams which can be used in all EA700 series switches.
Five typical functions are described here, contact your local distributor, sales office or Namco Controls with your special sequence requirements, we may have a cam to meet your needs.

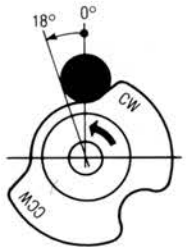
Typical Cams

COMBINATION B1/B2 CAM

The following three operating sequences are built into the combination cam used in the standard EA700 switches; B1 Single Action CW, B1 Single Action CCW and B2 Double Action CW & CCW.

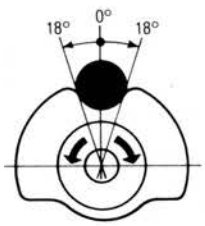
1. The contacts function when the lever is operated clockwise. The lever can be operated counterclockwise but the contacts will not operate.
2. The contacts function when the lever is operated counterclockwise. The lever can be operated clockwise but the contacts will not operate.
3. The contacts function when the lever is operated clockwise or counterclockwise.

B1 Single Action



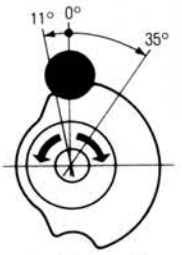
Normally open to make (normally closed to break) IN ONE DIRECTION ONLY. Lever and cam are spring returned to starting position. Used on Single Action Switches only.

B2 Double Action



Normally open to make (normally closed to break) IN EITHER DIRECTION. Lever and cam are spring returned to starting position.

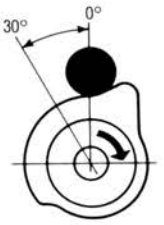
NEUTRAL POSITION N CAM



The neutral position cam is designed for applications requiring a neutral position in the contact arrangement. Both the operating lever and cam are spring returned to starting position. The maximum lever travel in either direction is 90°.
This is the contact action of neutral switches:

- As the lever is moved clockwise the lower contact transfers. As the lever is spring returned to starting position the lower contact is returned to its original position.
- As the lever is moved counterclockwise from starting position the upper contact transfers. As the lever is spring returned to starting position the upper contact returns.

MAINTAINED POSITION CAM



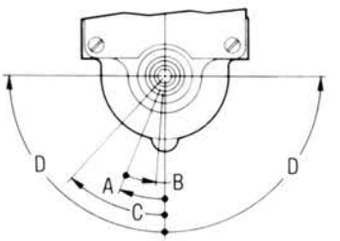
The maintained cam is designed for those applications requiring maintained contacts. The action from normally open to make or normally closed to break is maintained until the operating lever is mechanically returned to starting position. The lever and cam will not return to the starting position unless activated by external force.
Maintained Switches are available with two contact operations:

1. When the lever is moved clockwise the normally open contacts close and the normally closed contacts open. The lever is maintained in tripped position. As the lever is activated counterclockwise to starting position, normally open contacts open and normally closed contacts close.
2. When the lever is moved clockwise the normally open contacts close and the normally closed contacts open. This contact arrangement is maintained as the lever is spring returned to starting position and until the lever is moved counterclockwise when the normally open contacts open and the normally closed contacts close.

STANDARD SWITCHES

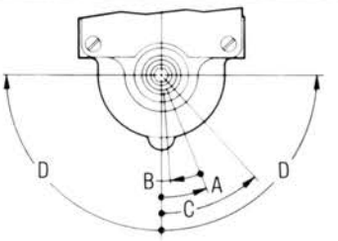
CW OPERATION ONLY (Combination B-1/B-2 Cam)

Contacts transfer when lever is operated CW. Lever can be operated CCW but contacts will not transfer.

Contacts	Circuits	Mounting			Operational Data
		Standard	"W"	"L"	
1 N.O. 1 N.C.	CW INITIAL CCW D C B A	**EA700-10000** (SL2C)	**EA700-40000** (SL2C-W)	**EA700-70000** (SL2C-L)	
2 N.O. 2 N.C.	CW INITIAL CCW H G F E D C B A	**EA700-20000** (SL3C)	**EA700-50000** (SL3C-W)	**EA700-80000** (SL3C-L)	
3 N.O. 3 N.C.	CW INITIAL CCW M L K J H G F E D C B A	**EA700-30000** (SL4C)	**EA700-60000** (SL4C-W)	**EA700-90000** (SL4C-L)	A. Trip Travel . . . . . 18° B. Reset Travel . . . . . 14° C. Recommended Travel . . . . . 30° D. Total Travel Available . . . . . 90° Torque (Inch Lbs.): 1 N.O. - 1 N.C. . . . . 15 2 N.O. - 2 N.C. . . . . 24 3 N.O. - 3 N.C. 33

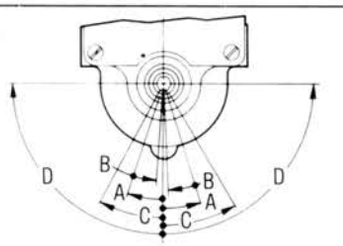
CCW OPERATION ONLY (Combination B-1/B-2 Cam)

Contacts transfer when lever is operated CCW. Lever can be operated CW but contacts will not transfer.

1 N.O. 1 N.C.	CW INITIAL CCW D C B A	**EA700-10001** (SL2C-Z)	**EA700-40001** (SL2C-W-Z)	**EA700-70001** (SL2C-L-Z)	
2 N.O. 2 N.C.	CW INITIAL CCW H G F E D C B A	**EA700-20001** (SL3C-Z)	**EA700-50001** (SL3C-W-Z)	**EA700-80001** (SL3C-L-Z)	
3 N.O. 3 N.C.	CW INITIAL CCW M L K J H G F E D C B A	**EA700-30001** (SL4C-Z)	**EA700-60001** (SL4C-W-Z)	**EA700-90001** (SL4C-L-Z)	A. Trip Travel . . . . . 18° B. Reset Travel . . . . . 14° C. Recommended Travel . . . . . 30° D. Total Travel Available . . . . . 90° Torque (Inch Lbs.): 1 N.O. - 1 N.C. . . . . 15 2 N.O. - 2 N.C. . . . . 24 3 N.O. - 3 N.C. 33

CW & CCW OPERATION (Combination B-1/B-2 Cam)

Contacts transfer when lever is operated CW or CCW.

1 N.O. 1 N.C.	CW INITIAL CCW D C B A	**EA700-10100** (SL2C-B-2)	**EA700-40100** (SL2C-B-2-W)	**EA700-70100** (SL2C-B-2-L)	
2 N.O. 2 N.C.	CW INITIAL CCW H G F E D C B A	**EA700-20100** (SL3C-B-2)	**EA700-50100** (SL3C-B-2-W)	**EA700-80100** (SL3C-B-2-L)	
3 N.O. 3 N.C.	CW INITIAL CCW M L K J H G F E D C B A	**EA700-30100** (SL4C-B-2)	**EA700-60100** (SL4C-B-2-W)	**EA700-90100** (SL4C-B-2-L)	A. Trip Travel . . . . . 18° B. Reset Travel . . . . . 14° C. Recommended Travel . . . . . 30° D. Total Travel Available . . . . . 90° Torque (Inch Lbs.): 1 N.O. - 1 N.C. . . . . 15 2 N.O. - 2 N.C. . . . . 24 3 N.O. - 3 N.C. 33

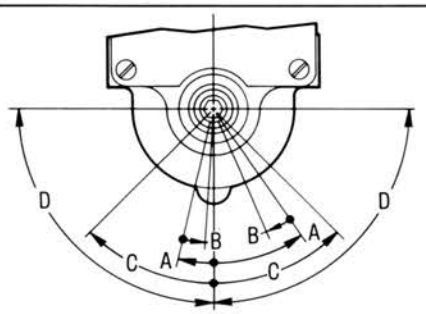
Order by new EA Series numbers (Bold Type). Numbers shown in Parentheses for reference only.

NEUTRAL POSITION SWITCHES

N CAM — NEUTRAL POSITION — ALL CONTACTS OPEN

As lever is moved CW upper contacts close. As lever is spring returned to starting position upper contacts open. As lever is moved CCW from starting position lower contacts close. As lever is spring returned to starting position lower contacts open.

Contacts	Circuits	Mounting			Operational Data
		Standard	"W"	"L"	
2 N.O.	CW INITIAL CCW D C B A	**EA700-15000** (SL2C-N)	**EA700-45000** (SL2C-N-W)	**EA700-75000** (SL2C-N-L)	
4 N.O.	CW INITIAL CCW H G F E D C B A	**EA700-25000** (SL3C-N)	**EA700-55000** (SL3C-N-W)	**EA700-85000** (SL3C-N-L)	



	CW	CCW
Direction of Rotation		
A. Trip Travel	13°	35°
B. Reset Travel	9°	11°
C. Recommended Travel	45°	45°
D. Total Travel	90°	90°

Torque:			(Inch Lbs.)
N Cam	2 N.O.	CW	18
	2 N.O.	CCW	13.5
	4 N.O.	CW	19.5
	4 N.O.	CCW	15
N1 Cam	2 N.C.	CW	18
	2 N.C.	CCW	13.5

N CAM — NEUTRAL POSITION — ALL CONTACTS CLOSED

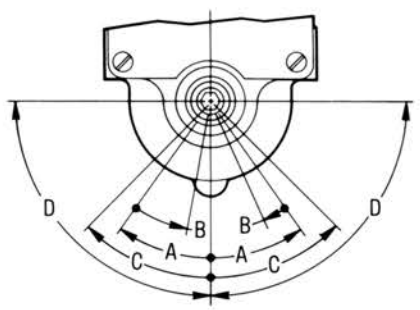
As lever is moved CW lower contacts open. As lever is spring returned to starting position lower contacts close. As lever is moved CCW from starting position upper contacts open. As lever is spring returned to starting position upper contacts close.

2 N.C.	CW INITIAL CCW D C B A	**EA700-15100** (SL2C-N-1)	**EA700-45100** (SL2C-N-1-W)	**EA700-75100** (SL2C-N-1-L)

N1 — NEUTRAL POSITION — ALL CONTACTS OPEN

As lever is moved CW lower contacts close. As lever is spring returned to starting position lower contacts open. As lever is moved CCW from starting position upper contacts close. As lever is spring returned to starting position upper contacts open.

2 N.O.	CW INITIAL CCW D C B A	**EA700-15700** (SL2C-N-7)	**EA700-45700** (SL2C-N-7-W)	**EA700-75700** (SL2C-N-7-L)
4 N.O.	CW INITIAL CCW H G F E D C B A	**EA700-25102** (SL3C-N-7)	**EA700-55102** (SL3C-N-7-W)	**EA700-85102** (SL3C-N-7-L)



	CW	CCW
Direction of Rotation		
A. Trip Travel	31°	31°
B. Reset Travel	22°	22°
C. Recommended Travel	45°	45°
D. Total Travel	90°	90°

Torque:			(Inch Lbs.)
N7 Cam	2 N.O.	CW	15
	2 N.O.	CCW	19.5
	4 N.O.	CW	16.5
	4 N.O.	CCW	20.5
N8 Cam	2 N.C.	CW	15
	2 N.C.	CCW	19.5
	4 N.C.	CW	16.5
	4 N.C.	CCW	20.5

N1 CAM — NEUTRAL POSITION — ALL CONTACTS CLOSED

As lever is moved CW upper contacts open. As lever is spring returned to starting position upper contacts close. As lever is moved CCW from starting position lower contacts open. As lever is spring returned to starting position lower contacts close.

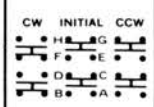
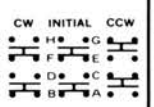
2 N.C.	CW INITIAL CCW D C B A	**EA700-15800** (SL2C-N-8)	**EA700-45800** (SL2C-N-8-W)	**EA700-75800** (SL2C-N-8-L)
4 N.C.	CW INITIAL CCW H G F E D C B A	**EA700-25108** (SL3C-N-8)	**EA700-55108** (SL3C-N-8-W)	**EA700-85108** (SL3C-N-8-L)

Order by new EA Series numbers (Bold Type). Numbers shown in Parentheses for reference only.

MAINTAINED SWITCHES

M CAM — MAINTAINED CONTACTS & LEVER POSITION

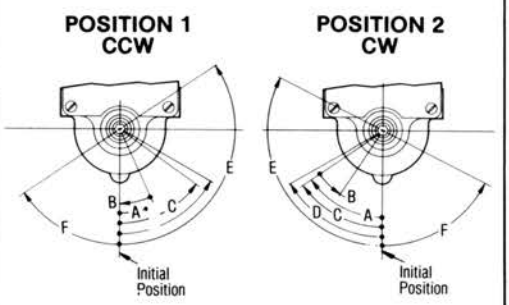
Lever and contacts are maintained in tripped position. When lever is moved CCW the N.C. contacts open and the N.O. contacts close. Starting at this position rotating the lever CW the N.O. contacts open and the N.C. close.

Contacts	Circuits		Mounting		
	Position 1	Position 2	Standard	"W"	"L"
1 N.O. 1 N.C.			**EA700-16000** (SL2C-M)	**EA700-46000** (SL2C-M-W)	**EA700-76000** (SL2C-M-L)
2 N.O. 2 N.C.			**EA700-26000** (SL3C-M)	**EA700-56000** (SL3C-M-W)	**EA700-86000** (SL3C-M-L)

Order by new EA Series numbers (Bold Type).

Numbers shown in Parentheses for reference only.

Operational Data



Position	1 (CCW)	2 (CW)
A. Trip Travel	25°	55°
B. Reset Travel	25°	22°
C. Min. Travel to Maintain	54°	55°
D. Recommended Travel	60°	60°
E. Total Travel	124°	116°
F. Overall Travel	56°	64°

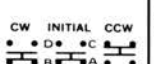
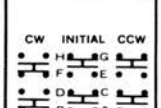
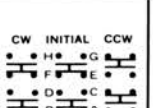
Torque (Inch Lbs.)

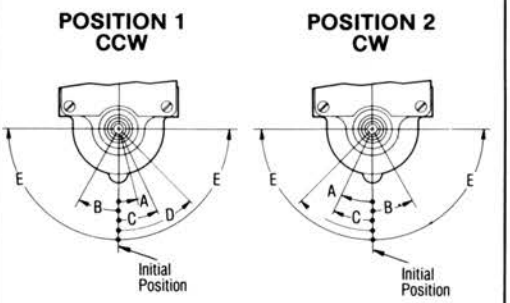
M Cam	1 N.O.	CW	6
	1 N.C.	CCW	9
	2 N.O.	CW	6
	2 N.C.	CCW	12

To change Switch Operation from Cam Position 1 to Position 2, Operate Switch thru Angle C, Remove Lever and Reset at Initial Position.

M7 CAM — MAINTAINED CONTACTS — LEVER RETURNED

Contacts are maintained in tripped position, torsion spring will return lever to initial position when released. When lever is moved CCW the N.C. contacts open and the N.O. contacts close. The lever must then be returned to the initial position and be operated in the CW direction to reset the contacts.

1 N.O. 1 N.C.			**EA700-16700** (SL2C-M7)	**EA700-46700** (SL2C-M7-W)	**EA700-76700** (SL2C-M7-L)
2 N.O. 2 N.C.			**EA700-26700** (SL3C-M7)	**EA700-56700** (SL3C-M7-W)	**EA700-86700** (SL3C-M7-L)



Position	1 (CCW)	2 (CW)
A. Trip Travel	16°	30°
B. Reset Travel	30°	26°
C. Min. Travel to Maintain	26°	30°
D. Recommended Travel	45°	45°
E. Total Travel	90°	90°

Torque (Inch Lbs.)

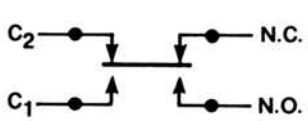
M7 Cam	1 N.O.	CW	12
	1 N.C.	CCW	13.5
	2 N.O.	CW	15
	2 N.C.	CCW	16 5

To change Switch Operation from Cam Position 1 to Position 2, Operate Switch thru Angle B, Remove Lever and Reset at Initial Position.

FORM Z

A Form Z contact arrangement is one which has single-pole double-throw contacts with four terminals—two for normally open and two for normally closed. The function of this arrangement is to open one circuit and close the other.

NEMA Standard 11-12-1970.

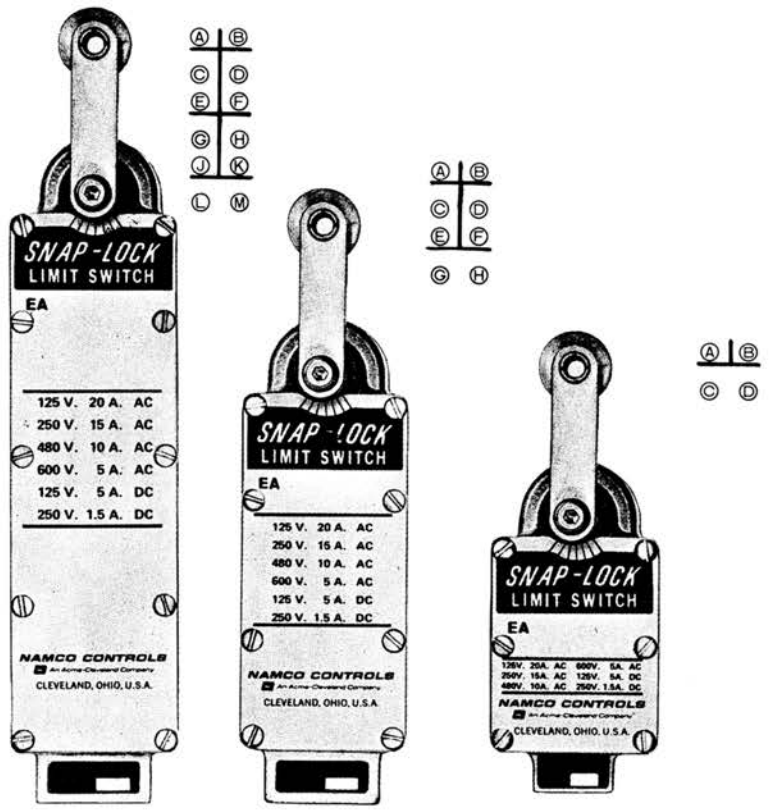


High-shock marine
severe environment

Limit Switches

Type SL

EA780
EA790



TRIPLE POLE DOUBLE THROW

DOUBLE POLE DOUBLE THROW

SINGLE POLE DOUBLE THROW

This New Namco Limit Switch is rugged, compact and versatile. Ideally suited for marine and other corrosive environments.

CURRENT RATINGS

VOLTAGE	AMPS
125V-A.C.	20.0*
250V-A.C.	15.0*
480V-A.C.	10.0*
600V-A.C.	5.0
125V-D.C.	5.0
250V-D.C.	1.5

* 75-100% Power Factor

Design Features — EA780

CONSTRUCTION. . . . .Completely fabricated from non-corrosive materials, its bronze housing and high quality stainless steel shaft insure against external damage to the switch from salt spray or corrosive elements. Sealing against leakage is achieved through the use of high quality PVC gaskets on machined surfaces and "O" Ring protection, plus close tolerance between the shaft and bushing.

DURABILITY. . . . .All internal components are of beryllium copper or high grade stainless steel, chrome plated when required, to protect against bearing surface wear and to provide millions of operations. Heavy-duty electrical contacts are of the SLS sliding, double break type, the same as used in the Navy approved type N-SLS switch series, built to meet high shock requirements as outlined in MIL-C-2212 D

SLIDING CONTACTS — HIGH-SHOCK

CONTACTS. . . . .The Marine Switch is available in three basic contact arrangements: 1NO-1NC; 2NO-2NC; or 3NO-3NC contacts. The standard B1 cam provides for either CW or CCW operation; B2 cam for operation in both directions (CW and CCW) is also available. Sliding contacts wipe clean with each operation.

ENCLOSURE. . . . . .meets MIL Spec. C-2212 D
Submersible (15 ft. - 30 min.)

A variety of corrosion-resistant levers are available to meet specific actuating requirements.

Design Features — EA790

CONSTRUCTION. . . . .Completely fabricated from non-corrosive materials, its bronze housing and high quality stainless steel shaft insure against external damage to the switch from salt spray or corrosive elements. Sealing against leakage is achieved through the use of high quality PVC gaskets on machined surfaces and "O" Ring protection, plus close tolerance between the shaft and bushing.

DURABILITY. . . . .All internal components are of beryllium copper or high grade stainless steel, chrome plated when required, to protect against bearing surface wear and to provide millions of operations. Heavy-duty electrical contacts are of the butt double break type.

BUTT CONTACTS — STANDARD

CONTACTS. . . . .This Limit Switch is available in three basic contact arrangements: 1NO-1NC; 2NO-2NC; or 3NO-3NC contacts. The standard B1 cam provides for either CW or CCW operation; B2 cam for operation in both directions (CW and CCW) is also available.

ENCLOSURE . . . . . meets MIL Spec. C-2212 D
Submersible (15 ft. - 30 min.)

A variety of corrosion-resistant levers are available to meet specific actuating requirements.

EA780
EA790

Limit Switches

Type SL

High-shock marine
severe environment

SPECIFICATIONS

ENCLOSURE is water, oil, dust and spray tight.
Meets: NEMA requirement, type 1 thru 6
Conforms to MIL Spec. C-2212 D
Submersible (15 ft. for 30 min.)

CONTACTS made of corrosion resistant silver alloy. Contact shifting mechanism is locked in position by latches until switch lever is actuated.

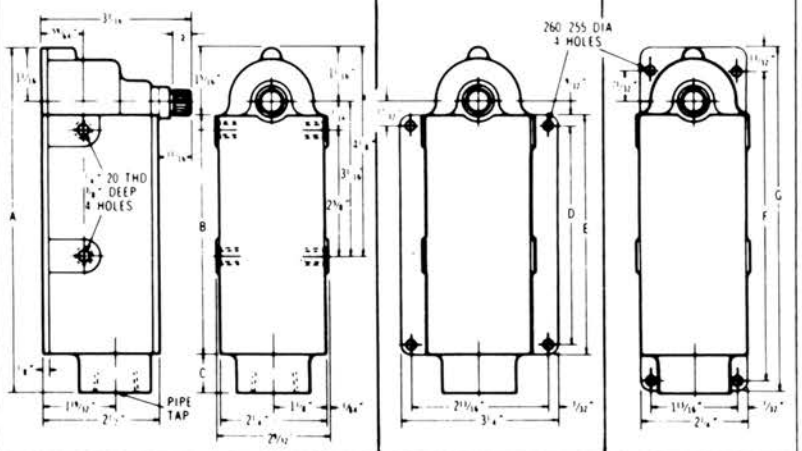
TEMPERATURE RANGE -20°C to 90°C.
Modifications available for high temperature or low temperature applications.

For detailed operational information, request Bulletin EA 700.

Standard or corrosion resistant lever specifications on request.

OPERATING DATA - CAM MOVEMENT					
CAM		TRAVEL - DEGREES			
ACTION	TYPE	TRIP	RESET	RECOM'D	TOTAL
CW or CCW	B1	18	14	30	90
CW and CCW	B2	18	14	30	90

TYPE CONTACT	MOUNTING STYLES		
	STANDARD	WIDE MOUNTING	LONG MOUNTING
1NO-1NC	1	4	7
2NO-2NC	2	5	8
3NO-3NC	3	6	9



DIMENSIONS

TYPE CONTACT	A	B	C	D	E	F	G
1NO-1NC	4.15/16"	3"	5/8"	2.7/16"	3"	4.7/32"	4.27/32"
2NO-2NC	7.1/16"	4.15/16"	13/16"	4.3/8"	4.15/16"	6.13/16"	7.1/16"
3NO-3NC	9.5/8"	7.1/2"	13/16"	6.15/16"	7.1/2"	8.31/32"	9.5/8"

ORDERING DATA				ORDERING NUMBERS			
				SLIDING CONTACTS		BUTT CONTACTS	
TYPE CONTACT	CONDUIT OPENING NPT	MT'G. STYLE	CAM ACTION	B1 CAM	B2 CAM	B1 CAM	B2 CAM
1NO-1NC	3/4" - 14	1	CW	EA780-10000	EA780-10100	EA790-10000	EA790-10100
			CCW	EA780-10001		EA790-10001	
		4	CW	EA780-40000	EA780-40100	EA790-40000	EA790-40100
			CCW	EA780-40001		EA790-40001	
		7	CW	EA780-70000	EA780-70100	EA790-70000	EA790-70100
			CCW	EA780-70001		EA790-70001	
2NO-2NC	1" - 11-1/2	2	CW	EA780-20000	EA780-20100	EA790-20000	EA790-20100
			CCW	EA780-20001		EA790-20001	
		5	CW	EA780-50000	EA780-50100	EA790-50000	EA790-50100
			CCW	EA780-50001		EA790-50001	
		8	CW	EA780-80000	EA780-80100	EA790-80000	EA790-80100
			CCW	EA780-80001		EA790-80001	
3NO-3NC	1" - 11-1/2	3	CW	NOT AVAILABLE		EA790-30000	EA790-30100
			CCW			EA790-30001	
		6	CW			EA790-60000	EA790-60100
			CCW			EA790-60001	
		9	CW			EA790-90000	EA790-90100
			CCW			EA790-90001	

Limit Switches

AMPERE RATINGS
(75 – 100% power factor)

V	AC	DC
125	20	5.0
250	15	1.5
480	10	–
600	5	–

NEMA type enclosure listed and approved by the Underwriters Laboratories and Canadian Standards Association.
Heavy-duty, 600-volt EXPLOSION-PROOF LIMIT SWITCH is available with Snap-Lock contacts 1 NO – 1 NC, 2 NO – 2 NC, 3 NO – 3 NC. Maximum ambient temperature is 200 F for continuous use. Torques are 15, 27, and 33 inch-pounds, respectively, with any of the many switching cams and operating levers available at Namco Controls.

Design features and performance

SERVICE CONDITIONS – The Series EA-800-UL explosion-proof limit switches operate dependably where gases, vapors, and dusts are potential explosion hazards. The switch bodies resist corrosion.

RUGGED CONSTRUCTION – Approved spark-proof bronze, aluminum, or cast-iron housings can withstand internal and external gas explosions. In addition to the standard silver alloy butt contact arrangement, special approved switches are available with sliding contacts for resistance to abnormal shock and vibration. Wiring space is ample. Enclosures meet NEMA classifications Type 7, Class I, Groups C and D; and Type 9, Class II, Groups E, F, and G.

PROVEN PERFORMANCE – *Cycle life is in the millions,* when operated at rated current, voltage, and temperature. Standard switches have maximum ambient temperature ratings 90°C continuous. Switches can be specially ordered with either –40°C or +180°C capabilities.

CAM SELECTION – Interchangeable cams offer a variety of contact sequences including standard, maintained and neutral positions.

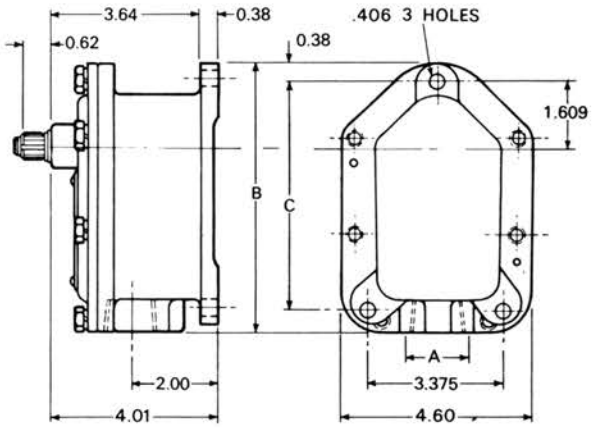
LEVERS AVAILABLE – A variety of levers for explosion-proof limit switches can be ordered from Namco Controls Bulletin EL.

Limit Switches

Operating Data — Cam Movement

CAM		TRAVEL (deg)				TYPE CONTACT AND TORQUE REQUIRED (in.-lb.)		
ACTION	TYPE	Trip	Reset	Recm[1]	Total	1 NO - 1 NC	2 NO - 2 NC	3 NO - NC
CW or CCW	B1	18	14	30	90	15	27	33
CW and CCW	B2	18	14	30	90	15	27	33
CW and CCW, short travel	B9	13	10	30	90	16.5	19.5	33

1. Recommended



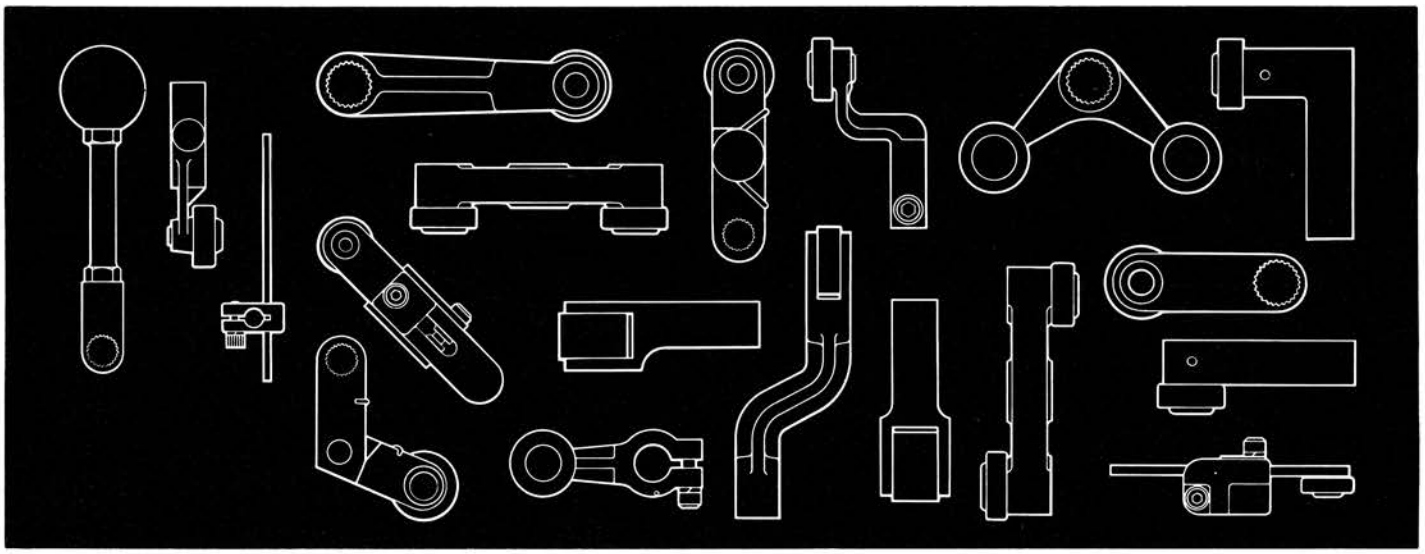
Ordering Data

TYPE CONTACT	DIMENSIONS (in.)			HOUSING MATERIALS (Shipping wt. lb.)	ORDERING NUMBERS[1]			
	CONDUIT OPENING NPT	TOTAL HEIGHT (in.)	MOUNT HEIGHT (in.)		CAM ACTION	B1	B2	B9
	A	B	C					
1 NO — 1 NC	¾" 14	6.47	5.422	BRONZE (12)	CW	EA800-10040 (SL2XC)	EA800-10140 (SL2XC-B2)	EA800-10940 (SL2XC-B9)
					CCW	EA800-10041 (SL2XC-Z)		
				ALUMINUM (6)	CW	EA800-10050 (SL2XC1)	EA800-10150 (SL2XC1-B2)	EA800-10950 (SL2XC1-B9)
					CCW	EA800-10051 (SL2XC1-Z)		
				CAST IRON (12)	CW	EA800-10060 (SL2XC2)	EA800-10160 (SL2XC2-B2)	EA800-10960 (SL2XC2-B9)
					CCW	EA800-10061 (SL2XC2-Z)		
2 NO — 2 NC	1" 11½	8.50	7.578	BRONZE (16)	CW	EA800-20040 (SL3XC)	EA800-20140 (SL3XC-B2)	EA800-20940 (SL3XC-B9)
					CCW	EA800-20041 (SL3XC-Z)		
				ALUMINUM (7)	CW	EA800-20050 (SL3XC1)	EA800-20150 (SL3XC1-B2)	EA800-20950 (SL3XC1-B9)
					CCW	EA800-20051 (SL3XC1-Z)		
				CAST IRON (16)	CW	EA800-20060 (SL3XC2)	EA800-20160 (SL3XC2-B2)	EA800-20960 (SL3XC2-B9)
					CCW	EA800-20061 (SL3XC2-Z)		
3 NO — 3 NC	1¼" 11½	10.56	9.672	BRONZE (19)	CW	EA800-30040 (SL4XC)	EA800-30140 (SL4XC-B2)	EA800-30940 (SL4XC-B9)
					CCW	EA800-30041 (SL4XC-Z)		
				ALUMINUM (8)	CW	EA800-30050 (SL4XC1)	EA800-30150 (SL4XC1-B2)	EA800-30950 (SL4XC1-B9)
					CCW	EA800-30051 (SL4XC1-Z)		
				CAST IRON (19)	NOT AVAILABLE			

1. *Bold ordering numbers have replaced light numbers. Please order switches by bold number.*

for NAMCO
limit switches

Operating Levers



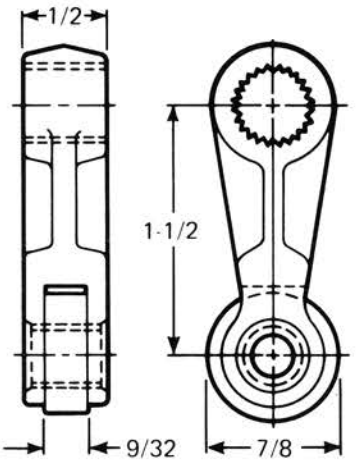
For Series

D200X-NP-B,
D1200X,
SL-Series

Switches with .500 dia. Lever Shafts.

Select the operating lever for your application with regards to dimensions and materials required.
Requests for operating levers not shown should include lever style and all pertinent information as to limit switch number, dimensions, materials, etc. All levers standard and special, are 1/2" thick at mounting end with 1/2" diameter serrated shaft hole.
Depending upon your application, levers are available in cold rolled steel, stainless steel, or bronze. Rollers are available in steel, nylon, Bryl. Cop., stainless steel or steel ball bearings. Please consult materials column of the selected lever of your choice.

STANDARD OPERATING LEVER
D-1260



This style and size operating lever is considered standard for the majority of snap-lock switch installations.

The D1260 lever is forged steel with a nylon roller and a stainless steel roller pin. Like all snap-lock levers, the serrated mounting hole matches the serrated lever shaft of the switches to provide fixed adjustment of the lever in 7.5° increments.

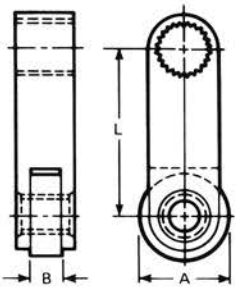
Operating Levers

D200X-NP-B, D1200X, SL-Series

Switches with .500 dia. Lever Shafts.

STYLE R

Regular Straight Type



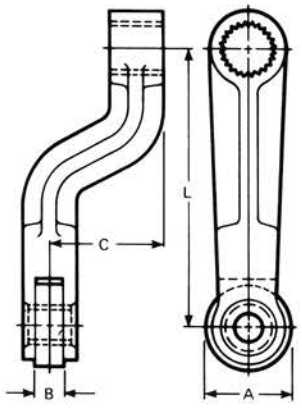
Machined lever with straight sides and straddle-type roll support. Roller is located directly in line with the serrated mounting hole.

Ordering Numbers		L	A	B	Material	
New	Reference				Lever	Roller
EL060-50320	D1260BA	3/4	3/4	1/4	C.R.S.	C.R.S.
EL060-51319	–	1	3/4	1/4	C.R.S.	Bryl. Cop.
EL060-52321	D1260GQ	1-1/4	3/4	1/4	C.R.S.	C.R.S.
EL010-53338	DS1260	1-1/2	3/4	1/4	C.R.S.	C.R.S.
EL060-53300	–	1-1/2	3/4	1/4	Brass	Bryl. Cop.
EL010-53336	–	1-1/2	3/4	1/4	C.R.S.	Bryl. Cop.
EL060-53401	D1260RF	1-1/2	7/8	9/32	Brass	Nylon
EL010-53420	D1260	1-1/2	7/8	9/32	C.R.S.	Nylon
EL010-53429	D1260Y	1-1/2	7/8	9/32	C.R.S.	B.B.
EL060-53536	D1260Z	1-1/2	1	1/4	C.R.S.	C.R.S.
EL060-53923	D1260BH	1-1/2	1-1/4	1/4	C.R.S.	C.R.S.
EL060-53926	D1260CL	1-1/2	1-3/8	1/4	C.R.S.	C.R.S.
EL060-55327	D1260E	2	3/4	1/4	C.R.S.	C.R.S.
EL060-55300	–	2	3/4	1/4	C.R.S.	Bryl. Cop.
EL060-55520	D1260AC	2	1	1/4	C.R.S.	C.R.S.
EL060-55601	–	2	1	1/4	C.R.S.	Bryl. Cop.
EL060-55530	D1260RT	2	1	1/4	Brass	Bryl. Cop.
EL060-55927	D1260GT	2	1-1/2	1/4	C.R.S.	C.R.S.
EL060-50321	D1260BC	2-1/8	3/4	1/4	C.R.S.	C.R.S.
EL060-50501	D1260B	2-1/8	1	1/4	C.R.S.	C.R.S.
EL060-50334	D1260M	2-1/4	3/4	1/4	C.R.S.	C.R.S.
EL060-59300	D1260KC	2-3/8	3/4	1/4	C.R.S.	C.R.S.
EL010-56427	D1260K	2-1/2	7/8	9/32	C.R.S.	Nylon
EL010-56334	DS1260K	2-1/2	3/4	1/4	C.R.S.	C.R.S.
EL010-55421	D1260DF	2-1/2	1	1/4	C.R.S.	C.R.S.
EL060-56920	D1260CP	2-1/2	1-1/2	1/4	C.R.S.	C.R.S.
EL060-50322	D1260BD	2-3/4	3/4	1/4	C.R.S.	C.R.S.
EL060-57300	–	2-3/4	3/4	1/4	C.R.S.	Bryl. Cop.
EL010-58300	–	3	3/4	1/4	C.R.S.	Bryl. Cop.
EL010-58337	DS1260L	3	3/4	1/4	C.R.S.	C.R.S.
EL060-58305	–	3	3/4	1/4	Bronze	Bryl. Cop.
EL010-58400	–	3	7/8	9/32	C.R.S.	Bryl. Cop.
EL010-58423	D1260L	3	7/8	9/32	C.R.S.	Nylon
EL010-58451	–	3	7/8	9/32	C.R.S.	C.R.S.
EL060-58401	–	3	7/8	9/32	Brass	Nylon
EL060-58403	D1260VQ	3	7/8	9/32	S.S.	Bryl. Cop.
EL010-58521	D1260CJ	3	1	1/4	C.R.S.	C.R.S.
EL010-58923	D1260CN	3	1-1/4	1/4	C.R.S.	C.R.S.
EL010-58900	D1260VR	3	1-1/2	1/4	C.R.S.	Nylon
EL010-58920	D1260AE	3	1-1/2	1/4	C.R.S.	C.R.S.
EL060-58320	D1260BB	3-1/2	3/4	1/4	C.R.S.	C.R.S.
EL060-58431	D1260AP	3-1/2	1	1/4	C.R.S.	C.R.S.
EL060-58326	D1260C	4	3/4	1/4	C.R.S.	C.R.S.
EL060-50523	D1260BL	4	1	1/4	C.R.S.	C.R.S.
EL060-58920	D1260AB	4	1-1/2	1/4	C.R.S.	C.R.S.
EL060-58901	–	4	1-1/2	9/32	C.R.S.	Bryl. Cop.
EL060-50335	D1260N	5	3/4	1/4	C.R.S.	C.R.S.
EL060-50925	D1260BW	5	1-1/2	1/4	C.R.S.	C.R.S.
EL060-50305	D1260CQ	6	3/4	1/4	C.R.S.	C.R.S.
EL060-50338	–	6	3/4	1/4	C.R.S.	Bryl. Cop.
EL060-50930	D1260JE	6	1-1/4	1/4	C.R.S.	C.R.S.
EL060-50703	D1260KD	6	3	1/4	C.R.S.	C.R.S.
EL060-18701	–	6	3	1/4	C.R.S.	Nylon

Operating Levers

STYLE RLO

Regular Lever Offset Type

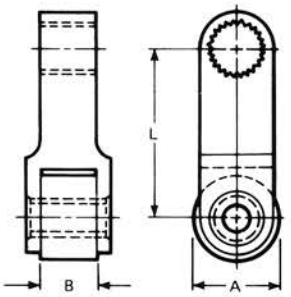


Offset lever with straddle-supported roller.

Ordering Numbers		L	A	B	C	Material	
New	Reference					Lever	Roller
EL020-53322	D1260DK	1-1/2	3/4	1/4	3/4	Mang. Br.	Steel
EL020-53320	D1260AT	1-1/2	3/4	1/4	7/8	Mang. Br.	Steel
EL020-53326	D1260GX	1-1/2	3/4	1/4	1-1/4	Mang. Br.	Steel
EL020-53325	D1260GU	1-1/2	3/4	1/4	1-3/16	Mang. Br.	Steel
EL020-53336	D1260S	1-1/2	3/4	1/4	2-1/16	Mang. Br.	Steel
EL020-55327	D1260HZ	2	3/4	1/4	1-1/8	Mang. Br.	Steel
EL020-55300	D1260JD	2	3/4	1/4	1-1/2	Mang. Br.	Steel
EL020-56320	D1260BT	2-1/2	3/4	1/4	1	Mang. Br.	Steel
EL020-56321	D1260DW	2-1/2	3/4	1/4	2-1/4	Mang. Br.	Steel
EL020-56421	D1260DG	2-1/2	1	1/4	1	Mang. Br.	Steel
EL020-58922	D1260FT	3	1-1/4	1/4	1-1/4	Bronze	Steel
EL020-58923	–	3	1-1/4	1/4	1-1/4	Bronze	
EL020-59900	D1260AY	5-1/2	1-1/2	1/4	1-3/4	C.R.S.	Steel

STYLE RW

Wide Roller Regular Type

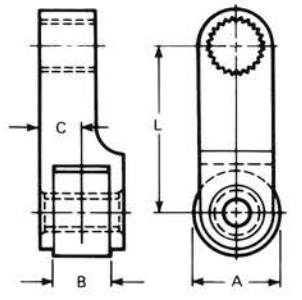


Machined lever with wide roller straddle-supported directly in line with the serrated mounting hole.

Ordering Numbers		L	A	B	Material	
New	Reference				Lever	Roller
EL070-53501	D1260AJ	1-1/2	1	1/2	C.R.S.	Bryl. Cop.
EL070-50507	D1260CY	1-5/8	1	1/2	C.R.S.	Bryl. Cop.
EL070-56921	D1260DY	2-1/2	1-1/4	1/2	C.R.S.	C.R.S.
EL060-00024	D1260AL	3	1-1/2	1/2	C.R.S.	C.R.S.
EL070-50921	D1260BE	4	1-1/4	1/2	C.R.S.	C.R.S.

STYLE RWO

Wide Roller Offset Type



Lever provides straddle-type support for wide roller, which is offset from serrated lever hub. Side toward switch is machined straight.

Ordering Numbers		L	A	B	C	Material	
New						Lever	Roller
EL080-53329	D1260R	1-1/2	3/4	1/2	3/8	Mang. Br.	Steel
EL080-53321	D1260CS	1-1/2	3/4	1-1/8	3/4	Mang. Br.	Steel
EL080-53932	D1260P	1-1/2	1-1/2	1/2	3/8	C.R.S.	Steel
EL080-55323	D1260FR	2	3/4	1/2	3/8	C.R.S.	Steel
EL080-54905	D1260DD	2	1-1/2	1/2	3/8	C.R.S.	Steel
EL080-56301	D1260AH	2-1/2	3/4	1/2	3/8	C.R.S.	Steel
EL080-56305	–	2-1/2	3/4	1/2	3/8	C.R.S.	Bryl. Cop.
EL080-58322	D1260GN	3	3/4	1/2	3/8	C.R.S.	Steel
EL080-58901	D1260DE	3	1-1/2	1/2	3/8	C.R.S.	Steel
EL080-58906	D1260DZ	3-1/2	1-1/2	1/2	3/8	C.R.S.	Steel
EL080-58909	D1260HA	4	1-1/2	1/2	3/8	C.R.S.	Steel
EL080-50924	D1260BS	6	1-1/2	1/2	3/8	C.R.S.	Steel

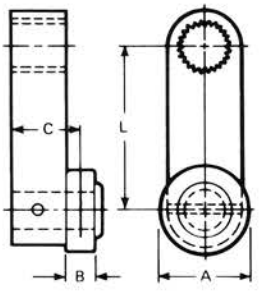
Operating Levers

D200X-NP-B, D1200X, SL-Series

Switches with .500 dia. Lever Shafts.

STYLE S

Side Roller Type

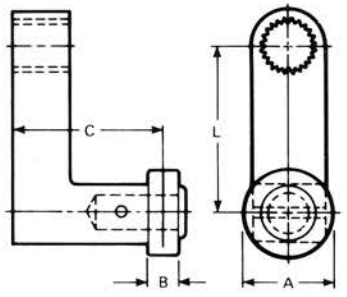


Side supported roller offset on front side of lever machined with straight sides.

Ordering Numbers		L	A	B	C	Material	
New	Reference					Lever	Roller
EL150-53301	D1260A	1-1/2	3/4	1/4	5/8	C.R.S.	C.R.S.
EL150-53300	D1260DU	1-1/2	3/4	3/4	7/8	C.R.S.	C.R.S.
EL150-53901	D1260HV	1-1/2	1-1/4	1/4	5/8	C.R.S.	C.R.S.
EL150-55300	–	2	3/4	1/2	3/4	C.R.S.	Bryl. Cop.
EL150-55303	D1260DT	2	3/4	1/4	5/8	C.R.S.	C.R.S.
EL150-55301	D1260JJ	2	3/4	1/2	3/4	C.R.S.	C.R.S.
EL150-56300	D1260DX	2-1/2	3/4	1/4	5/8	C.R.S.	C.R.S.
EL150-57300	D1260DO	2-3/4	3/4	1/4	5/8	C.R.S.	C.R.S.
EL150-58901	–	4	1-1/4	1/4	5/8	Brass	Nylon

STYLE SLO

Side Roller Lever Offset Type

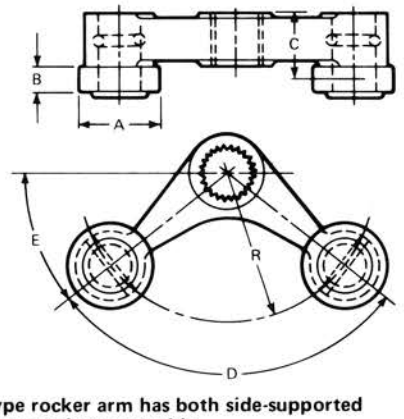


Right angle offset lever has side-supported roller mounted on end.

Ordering Numbers		L	A	B	C	Material	
New	Reference					Lever	Roller
EL090-53324	D1260GZ	1-1/2	3/4	1/4	1	Bronze	Steel
EL090-53336	–	1-1/2	3/4	1/4	1-3/8	Bronze	Nylon
EL090-53321	D1260CT	1-1/2	3/4	1/4	1-3/8	Bronze	Steel
EL090-53328	D1260GV	1-1/2	3/4	1/4	2	Bronze	Steel

STYLE TS

Two Roller Same Side



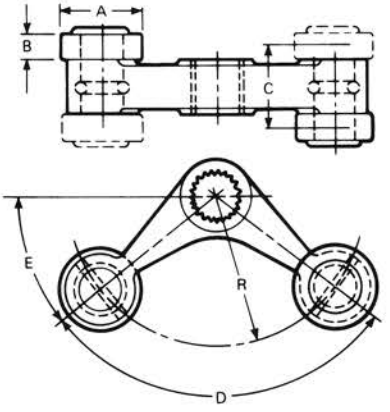
Angle type rocker arm has both side-supported rollers mounted on same side.

Ordering Numbers		R	A	B	C	D	E	Material	
New	Reference							Lever	Roller
EL040-50327	D1260CM	1-3/8	3/4	1/4	5/8	107°34′	36°	Bronze	Steel
EL040-50328	D1260JQ	1-3/8	3/4	1/2	3/4	107°34′	36°	Bronze	Steel
EL040-58904	D1260JH	3	1-1/2	1/2	3/4	150°	15°	Bronze	Steel

Operating Levers

STYLE TSO

Two Roller Opposite Side

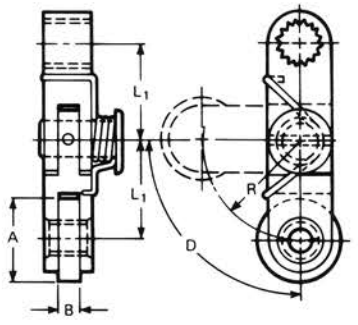


Angle type rocker lever has side-supported rollers mounted on opposite sides.

Ordering Numbers		R	A	B	C	D	E	Material	
New	Reference							Lever	Roller
EL030-50301	D1260AA	1-3/8	3/4	1/4	3/4	107°34′	36°13′	Bronze	Steel
EL030-50302	D1260DH	1-3/8	3/4	1/2	1	107°34′	36°13′	Bronze	Steel
EL030-52322	D1260DQ	1-1/2	3/4	3/4	1-1/4	90°	45°	Bronze	Steel

STYLE KR

Knee Action Straight Type

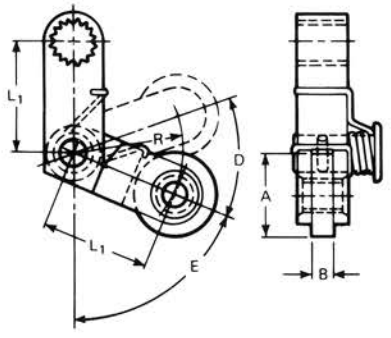


Single-loaded lever with straddle-supported roller. Used where switch action is required in one direction only—return movement of actuating mechanism does not operate the switch.

Ordering Numbers		R	A	B	D	L_1	Material	
New	Reference						Lever	Roller
EL100-55401	D1260JM	1	7/8	1/4	90°	1	C.R.S.	Steel
EL100-55402	–	1	7/8	1/4	90°	1	Bronze	Bryl. Cop

STYLE KRO

Knee Action Offset Type



Spring-loaded offset lever with straddle-supported roller. Used where switch action is required in one direction only—return movement of actuating mechanism does not operate switch.

Ordering Numbers		R	A	B	D	E	L_1	Material	
New	Reference							Lever	Roller
EL110-50401	D1260JV	1-1/8	7/8	1/4	41°30′	67°30′	1-1/8	Steel	Steel

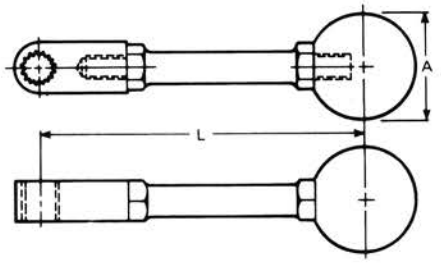
Operating Levers

D200X-NP-B, D1200X, SL-Series

Switches with .500 dia. Lever Shafts.

STYLE M

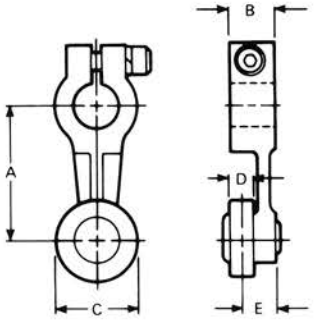
Manual Type



Ordering Numbers		L	A	Material	
New	Reference			Lever	Knob
EL050-58900	D1260EP-3	3	1-3/8	Steel	Bakelite
EL050-59901	D1260EP-1	4-1/16	1-3/8	Steel	Bakelite
EL050-59900	D1260EP	6-5/16	1-3/8	Steel	Bakelite

Steel shaft with bakelite knob.

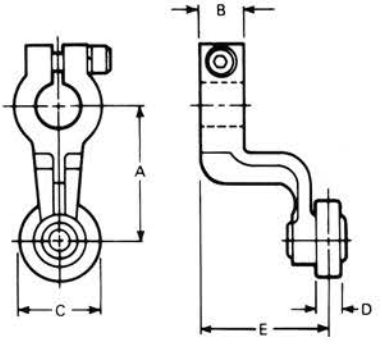
STRAIGHT



Ordering Numbers		A	B	C	D	E	Material	
New	Reference						Lever	Roller
* EL010-62401	SL-160	1-1/2	1/2	7/8	9/32	25/64	Zinc	Steel
* EL010-63414	SL-160K	1-1/2	1/2	7/8	9/32	25/64	Zinc	S.S.
* EL010-63415	SL-160N	1-1/2	1/2	7/8	9/32	25/64	Zinc	Nylon

Nickel Plate Steel (N.P.S.) Lever Nickel Plated

OFFSET



Ordering Numbers		A	B	C	D	E	Material	
New	Reference						Lever	Roller
* EL020-63412	SL-160C	1-1/2	1/2	7/8	9/32	1-7/16	Zinc	Steel
* EL020-63414	SL-160L	1-1/2	1/2	7/8	9/32	1-7/16	Zinc	Nylon
* EL020-63415	SL-160S	1-1/2	1/2	7/8	9/32	1-7/16	Zinc	S.S.

Lever Nickel Plated

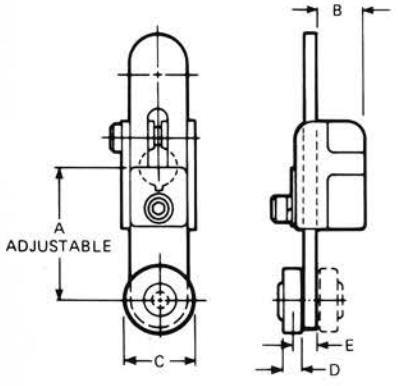
*For Series EA700 Switches with .500 dia. Lever Shaft.

For SL-Series

Switches with .500 dia. Lever Shafts.

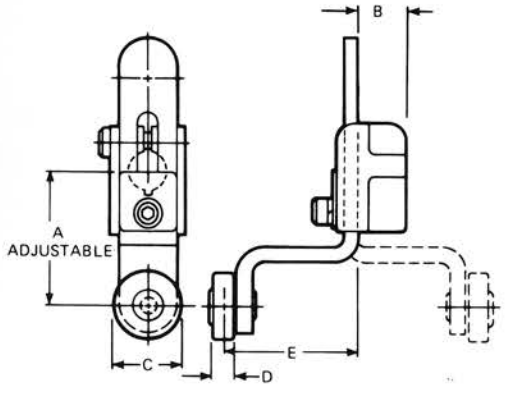
Operating Levers

ADJUSTABLE STRAIGHT



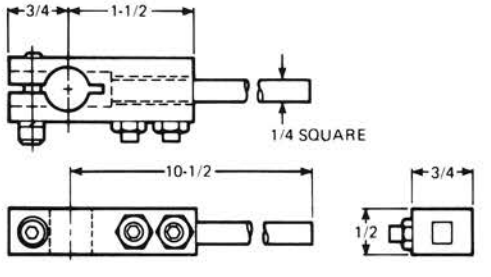
Ordering Numbers		A	B	C	D	E	Material	
New	Reference						Lever	Roller
EL120-60400	SL-170A	1-3/4–3	21/32	7/8	9/32	11/32	Steel	Steel
EL120-60600	SL-170C	1-7/8–3	21/32	2	9/32	11/32	Steel	Steel
EL120-69415	SL-170K	1-3/4–3	21/32	7/8	9/32	11/32	Steel	Nylon
EL120-69421	SL-170R	3-3/4–5	21/32	7/8	9/32	11/32	Steel	Steel

ADJUSTABLE OFFSET



Ordering Numbers		A	B	C	D	E	Material	
New	Reference						Lever	Roller
EL130-64410	SL-170	1-3/4–3	21/32	7/8	9/32	1-25/32	Steel	Steel
EL130-69410	SL-170D	1-3/4–3	21/32	7/8	9/32	1-25/32	Steel	Nylon
EL130-69412	SL-170F	1-3/4–3	21/32	7/8	9/32	2-3/8	Steel	Steel
EL130-69413	SL-170G	1-3/4–3	21/32	7/8	9/321	3-1/2	Steel	Steel
EL130-69414	SL-170J	1-3/4–3	21/32	7/8	9/32	15/16	Steel	Steel
EL130-69411	SL-170E	1-3/4–3	21/32	7/8	9/32	1-9/32	Steel	Steel
EL130-20401	–	1-3/4–3	21/32	7/8	17/64	3-1/2	Steel	Nylon

ROD LEVER

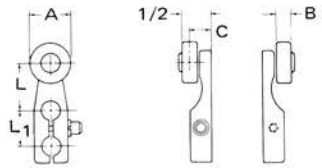


Ordering Numbers		Dimensions	Material
New	Reference		
EL140-69917	SL170 M-1	OTHER ROD LENGTHS AVAILABLE TO SUIT REQUIREMENTS	Steel Rod

Operating Levers

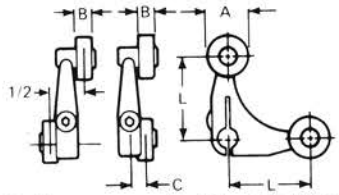
For Series **EA220** (M2), **EA280** (M8), **EA330** (MV2), **EA390** (MV8), **EA510** Switches with .375 dia. Lever Shafts.

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

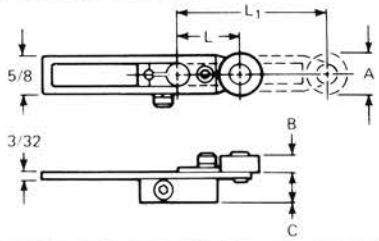
MAINTAINED CONTACT TYPES



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

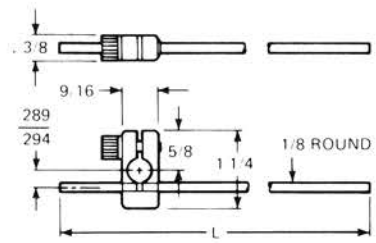
EL040-33300	SA160-17	3/4	1/4	11/32	1-1/2	–	Alum.	Nylon
EL030-33301	SA160-18	3/4	1/4	11/32	1-1/2	–	Alum.	Nylon
EL040-33301	SA160-19	3/4	1/4	11/32	1-1/2	–	Alum.	Steel
EL030-33300	SA160-20	3/4	1/4	11/32	1-1/2	–	Alum.	Steel

ADJUSTABLE LEVER

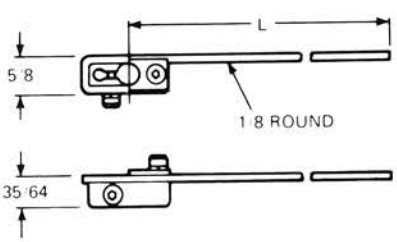


EL120-30302	SA170	3/4	9/32	33/64	1-1/8	2-3/4	Steel	Nylon
EL120-30900	SA170-4	1-1/2	9/32	33/64	1-5/16	2-3/4	Steel	Nylon
EL120-30301	SA170-5	3/4	9/32	33/64	1-1/8	2-3/4	Steel	Steel
EL120-30300	SA170-7	3/4	9/32	33/64	1-1/8	2-3/4	Steel	Alum.

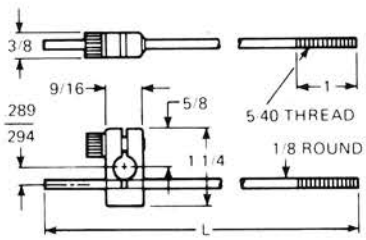
ROD LEVERS



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



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



Ordering Numbers		L	Lever Mat'l.
New	Ref.		
EL140-28902	SA170-10	36	Steel