



Flexible Solutions in Control and Load Switches

 **Allen-Bradley**

Bulletins 194C, 194E, 194L

LISTEN.
THINK.
SOLVE.®

 **Allen-Bradley** • Rockwell Software

**Rockwell
Automation**



EXPAND THE RANGE OF YOUR CONTROL



Bulletin 194C

Control Switch
• Available in 10 ampere rating



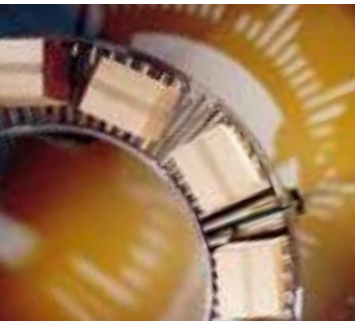
Bulletin 194E

Load Switch
• Available in 25, 32, 40, 63,
80, 100, 125, 160, 250,
315 ampere ratings



Bulletin 194L

Control and Load Switch
• Available in 12, 16, 20,
25 ampere ratings



Easy Solutions with a Variety of Benefits

Many of your applications require control and load switches capable of handling inductive energy levels — higher than those seen by a typical selector switch and with lower interrupting ratings than UL 98/1087 fusible disconnects. Allen-Bradley offers a full line of control and load switches as part of its high quality family of motor management solutions for these demanding requirements.

Flexible and adaptable devices feature:

- 10 - 100A switch sizes
- improved horsepower ratings (0.75 to 100 HP)
- compact switch package to save space
- reduced installation time
- world-class approvals — UL/CSA/CE

Control Switch — device used for carrying low voltage and current but has low HP and kW ratings for use in inductive load applications.

Load Switch — device used for high current/power applications for switching and isolating motor loads, often with moderate to high short circuit withstand ratings up to 25,000 A.



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Gain Immediate Benefits

From reducing installation time to increasing operator safety, control and load switches offer a wide range of features with immediate benefits.

Feature	Benefit
Extended range up to 100 HP	Save panel space by using smaller switch for same load
Positive-guided actuation	Add safety by breaking contact welds after high fault current
Bulletin 194E snap-on poles and auxiliaries up to 100 amperes	Field modifiable/ease of installation
Bulletin 194L gold-flashed power poles	Low energy fidelity on control switches to 17V DC 5ma
Universal handle mountings	Reduces installation time with simple conversion from competitive switches
Captive terminal screws/ self-lifting pressure plates	Ease of wiring saves time
Pad-lockable handles	Complies with OSHA and IEC lock-out/tag-out rules
Handles can mount in 22.5 mm openings	Time saving installation with single-hole to five-hole installation
Similar handles for Bulletins 194C, 194E, 194L	Family appearance across product range
Total insulation/IP2X finger safe design	Prevent shock hazard from personal contact with high voltage
UL approved/CSA Certified/CE compliant	Global acceptability





Meeting Your Application with Selection Ease

The Bulletin 194 series offers you state-of-the-art solutions for virtually all applications, including inductive loads like solenoids, actuators, valves, magnetic starters, manual motor controllers and relays. Plus, you may use Bulletin 194E Load Switches and Bulletin 194L Control/Load Switches as “at-motor disconnecting means” per article 430-J of the National Electrical Code.

Bulletin 194 Product Overview:

OFF-ON



This two-position switch connects, disconnects and isolates motor load for emergency stop or maintenance functions. Positive-actuation of power poles provides added reliability to break tack welds during high current faults, and can safely disconnect motor up to 100 HP loads during operation.

Typical application: Direct On Line (DOL) motor starting, power switching, emergency stop and motor isolating/disconnecting applications.



Bulletin 194C



Bulletin 194E



Bulletin 194L

CHANGEOVER



Two- and three-position switches used in power applications to change between alternate power supplies. Safely switching a primary power supply “OFF” before energizing a secondary supply can be accomplished with Bulletin 194 Changeover Switches — without damaging equipment.

Typical application: Switching main power supply to a back-up generator or emergency power supply.



Bulletin 194C



Bulletin 194E



Bulletin 194L

How to Choose a Switch

A complete switch includes:

- Switch body (with operating shaft)
- Operating handle
- Optional accessories or enclosure

Mounting style, installation and load requirements determine switch body choice. Application requirements dictate your choice of handles.



Meeting your Application with Selection Ease *continued*

Bulletin 194 Product Overview: *continued*

STEP SWITCH



Multi-position switch permits selection and connection to varied loads into a circuit.

Typical application: Temperature control of an oven or furnace, 4, 5, or 6 position selector switch for control applications.



Bulletin 194L

STAR-DELTA (WYE-DELTA)



Three position switch for manual control of motor starting of reduced voltage applications. This switch changes wire configuration from STAR(WYE) configuration to DELTA configuration after the operator has determined that the motor has reached proper speed. A STAR-DELTA switch can be a cost-effective alternative to STAR-DELTA Starters — offering significant energy savings for starting large horsepower motors with DOL Starters.

Typical application: Manual starting of large HP motors.

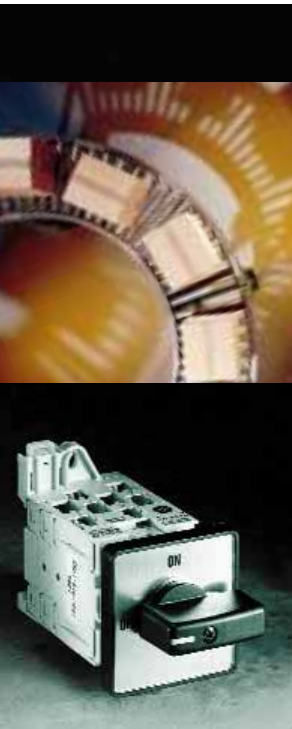


Bulletin 194C



Bulletin 194L





REVERSING SWITCH



Three-position switch (Forward - OFF - Reverse) for control of motor rotation. Engaging the switch safely changes the wiring configuration to reverse a motor's direction — without causing damage to the motor.

Typical application: Conveyor and material handling.



Bulletin 194C



Bulletin 194L

AMMETER SWITCH



Multi-position switch manually connects one customer-supplied ammeter into each phase of a 3-phase system without causing a phase loss condition due to introduction of a meter into the motor circuit. This promotes cost savings by not requiring an ammeter for each motor circuit.

Typical application: Instrumentation/diagnostics of motor phase current.



Bulletin 194C



Bulletin 194L

VOLTMETER SWITCH



Multi-position switch connects a customer-supplied voltmeter across motor phases or from a single phase to ground to permit safe measurement of motor voltages during operation. Promotes cost savings by not requiring a voltmeter for each motor circuit.

Typical application: Instrumentation/diagnostics of motor phase voltage.



Bulletin 194C



Bulletin 194L



Material handling and other environment conditions can be very demanding for load switches. Particularly in food processing applications where washdown requirements are just as important as electrical reliability and personnel safety. Here are typical at-motor disconnect requirements, per Article 430-J 1999 of the National Electrical Code:

- located “At the Motor”
- located in the line of sight
- lockable in the “OFF” position
- HP rated to break locked rotor current
- poles open simultaneously
- fusing not required if upstream branch is fused



Bulletin 194E Load Switch and Bulletin 194L Control and Load Switch

Bulletins 194L/194E Handles:

- Same actuator used for Bulletin 194E/194L Switches for uniform panel appearance
- Available in Red/Yellow or Black/Gray color combinations
- Variety of bezel styles and sizes for maximum application flexibility
- Pad-lockable versions comply with OSHA lock-out/tag-out requirements
- IP65/Type 1/3/3R/12 rated



BULLETIN 194E LOAD SWITCH BODY

- 25, 32, 40, 63, 80, 100A
- 125, 160, 250, 315A switches available
- Accepts Add-on Blocks
- Base/DIN or front/door mounting
- Includes standard shaft



Front/Door Mounting



Base/DIN Rail Mounting



Selector-type Actuator (Type A, I, E, L):

- Feature 5-hole, screw mounting
- Available in Black/Gray (Type A) or Red/Yellow (Type I)
- Lockable versions come in Black/Gray (Type E) or Red/Yellow (Type L)



Rectangular Actuator: (Type R)

- Snap-on to Base/DIN style switches
- Permit a free-standing configuration that doesn't require through-the-door mounting
- Feature a special size 4 (45 x 54mm) bezel



Key Operated Actuator: (Type D)

- Require key to operate
- Feature various configurations for key removal: horizontal, vertical, 4-way and 6-way
- Mount into single 22.5 mm panel opening
- Include latch to install onto a door/front mounted switch

ALL ACTUATORS SHOWN ARE COMPATIBLE



Disk-style Actuator (Type G, N):

- For use as “at-motor disconnecting means”
- Available in Gray/Black (Type G) and Red/Yellow (Type N) handles
- Special size: 6 (67 x 67mm)
- Feature three-padlock lockout capability/meets North American and IEC Lock-Out requirements
- Require 5-hole screw mounting
- Single-hole mounting versions



Knob-lever Actuator: (Type B)

- Mount into a single 22.5mm panel opening
- Feature a latch that snaps on to door (front) mounted switch bodies
- May specify optional push-button-style legend plate accessories



Selector Actuator with Extra Legend Area: (Type S)

- Include additional small blank legend plate for customer-supplied marking
- Feature special size 4 (48 x 64mm) and special size 6 (64 x 78mm) bezels
- Lockable versions are not available



Base/DIN Rail Mounting



Front/Door Mounting



Front (door) installed Bulletin 194E as an Off-On switch and Bulletin 194L as a reversing, step, voltmeter and ammeter switch in typical panel installation.

BULLETIN 194L CONTROL AND LOAD SWITCH BODY

- 12, 16, 20, 25A
- Factory-configured pole complement
- Base/DIN front/door mounting
- Includes standard shaft

WITH ALL SWITCH BODIES DISPLAYED



Bulletin 194C Control Switch

Rugged functionality and a range of possible combinations make Bulletin 194C control switches adaptable to most applications.

Bulletin 194C

- Mount into a single 22.5 mm, center-punched panel opening
- Square bezel (Type A) styling
- Gray legend plate; bezel, knob and marking are black
- Factory-marked legend plates conform to IEC and NEC standards

BULLETIN 194C SWITCH BODY

- 10A
- Factory-configured pole complement
- Central mounting



Know Your Options

A variety of accessories are available for the entire Bulletin 194 line to customize the installation for your application.



Bulletin 194E may be factory assembled in painted steel, stainless steel and non-metallic enclosures with Type 4/4X/12 (IP66) rated operating handles for use in food processing and material handling applications.



Replacement Knobs



Blank Legend Plate



Single Pole Auxiliary Contact Block



Double Pole Auxiliary Contact Block



Terminal Covers



Metal Shaft Extension





**IEC
Control Switch
Bulletin 194C**

- 10A

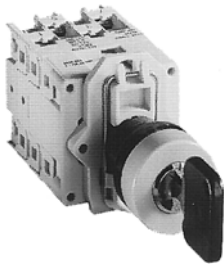
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**IEC
Load Switch
Bulletin 194E**

- 25A, 32A, 40A, 63A, 80A, 100A
- 125A, 160A, 250A, 315A

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**IEC
Control and Load Switch
Bulletin 194L**

- 12A, 16A, 20A, 25A

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Bulletin 194C

- 10A, Inductive Load-Rated Switch
- Mounts to 16mm or 22.5mm Panel Opening
- IP65 Water Spray and Dustproof Actuators
- IP20 Finger-Safe Terminals
- 1-...6-Pole Versions
- Switches Available for OFF-ON, Changeover, Star-Delta (Wye-Delta), Reversing, Ammeter and Voltmeter Configurations

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Description

Bulletin 194C control switches are flexible, adaptable, time- and space-saving devices. Switches are front/door-mounted to fit into a 16mm or 22.5mm pilot hole. Control switches are also capable of switching 1 hp/240V AC/3Ø or 0.75 hp/277V AC/1Ø loads and satisfy a broad range of applications.

Conformity to Standards:

UL 508: Industrial Control Equipment

CSA C22.2 No. 14: Industrial Control Equipment

IEC 947-5: Low-voltage switchgear and controlgear, Part 5: Control Circuit Devices and Switching Elements

Approvals:

UL Recognized (File No. E 35541)

CSA Certified (LR 13002)

Meets IEC, VDE and BS Standard Requirements

IEC/CE Marked (Per EN 60947-5)

SEV

SETI

DEMKO

NEMKO

SEMKO

OVE

Your order must include:

- Cat. No. of switch body.
- Cat. No. of actuator.
- If required, Cat. No. of accessories.



OFF-ON Switch

OFF-ON Switch — see page 14

Two-position switch used to connect or disconnect a variety of inductive loads including: solenoids, actuators, valves, magnetic starters, and relays.



Changeover Switch

Changeover Switch — see page 15

Two-position switch used in control applications to change between alternate power supplies. This device can typically be used to manually switch power supplies from a primary source to a stand-by/emergency supply in the event of a power outage.



Star-Delta (Wye-Delta) Switch

Star-Delta Switch (Wye-Delta) — see page 16

Three-position (Off-Star-Delta) switch used to manually control reduced-voltage motor starting. Operating the switch manually changes the wiring configuration of the motor from a star configuration to delta configuration after the controller operator has determined that the motor is up to operating speed.



Reversing Switch

Reversing Switch — see page 16

Three-position (Forward-Off-Reverse) switch used to manually control a motor's direction of rotation. Operating the switch changes the wiring configuration of the motor to operate in the forward or reverse direction.



Ammeter Switch

Ammeter Switch — see page 17

Multi-position switch used to connect one or more phases of an electrical supply to an ammeter so that the current in each phase can be displayed on one ammeter.








Voltmeter Switch

Voltmeter Switch — see page 18

Multi-position switch used to connect two lines of the electrical supply system to a voltmeter so that the voltage between the lines (phase-to-phase or phase-to-neutral) can be displayed on one voltmeter.



Bulletin 194C
IEC Control Switches
 Product Selection


OFF-ON Switch

Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating	No. of Poles	Contact Target Configuration X = Contact Closed O = Contact Open			Mounting Style	Cat. No.	*					
				No. of Circuits	Control Knob Position									
					OFF/0 	ON/1 								
		10A	1	1	O	X	Front/ Door	194C-C10-1751						
			2	1	O	X		194C-C10-1752						
				2	O	X		3	1	O	X	194C-C10-1753		
			2	O	X	2			O	X	4	194C-C10-1754		
			3	O	X	3			O	X		5	194C-C10-1755	
			4	1	O	X		1	O	X			6	194C-C10-1756
				2	O	X		2	O	X				
				3	O	X		3	O	X				
			5	4	O	X		4	O	X				
				5	O	X		5	O	X				
				6	O	X		6	O	X				
			Actuator — Type A (Includes Legend Plate and Control Knob)	Legend Marking	Mounting	Color		Legend Plate Size	Cat. No.	*				
														
			Legend Plate Black Front Frame, Silver-Gray With Black Control Knob	0-1	16mm or 22.5mm Panel Opening	Gray/Black		30mm x 30mm (1-3/16 in. x 1-3/16 in.)	194C-HC3A-175					
				OFF-ON					194C-HC3A-175I					



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Changeover Switch — 2-Position

Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating	No. of Poles	Contact Target Configuration X = Contact Closed O = Contact Open			Mounting Style	Cat. No.	*
				No. of Circuits	Control Knob Position				
					1	2			
		10A	6	1	X	O	Front/ Door	194C-C10-2503	*
				2	X	O			
				3	X	O			
				4	O	X			
				5	O	X			
				6	O	X			

Actuator — Type A (Includes Legend Plate and Control Knob)	Legend Marking	Mounting	Color	Legend Plate Size	Cat. No.	*
 <i>Black Front Frame, Silver-Gray Legend Plate With Black Control Knob</i>	1-2	16mm or 22.5mm Panel Opening	Gray/Black	30mm x 30mm (1-3/16 in. x 1-3/16 in.)	194C-HC3A-250	*

Changeover Switch — 3-Position

Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating	No. of Poles	Contact Target Configuration X = Contact Closed O = Contact Open			Mounting Style	Cat. No.	*	
				No. of Circuits	Control Knob Position					
					1	0				2
		10A	3	Left 1	X	O	O	Front/ Door	194C-C10-3503	*
				Left 2	X	O	O			
				Left 3	X	O	O			
				Right 1	O	O	X			
				Right 2	O	O	X			
				Right 3	O	O	X			
		10A	4	Left 1	X	O	O	Front/ Door	194C-C10-3504	*
				Left 2	X	O	O			
				Left 3	X	O	O			
				Left 4	X	O	O			
Right 1	O	O	X							
Right 2	O	O	X							
Right 3	O	O	X							
Right 4	O	O	X							



Actuator — Type A (Includes Legend Plate and Control Knob)	Legend Marking	Mounting	Color	Legend Plate Size	Cat. No.	*
 <i>Black Front Frame, Silver-Gray Legend Plate With Black Control Knob</i>	1-0-2	16mm or 22.5mm Panel Opening	Gray/Black	30mm x 30mm (1-3/16 in. x 1-3/16 in.)	194C-HC3A-350	*


Continued on next page.

IEC Control Switches



Product Selection, Continued


Star-Delta Switch (Wye-Delta)

Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating	Contact Target Configuration X = Contact Closed O = Contact Open			Mounting Style	Cat. No.	*	
			No. of Circuits	Control Knob Position					
				0	Y				Δ
		10A	1	O	X	X	Front/ Door	194C-C10-7503	
			2	O	O	X			
			3	O	X	O			
			4	O	X	O			
			5	O	O	X			
			6	O	O	X			
			7	O	X	X			
			8	O	X	X			

Actuator — Type A (Includes Legend Plate and Control Knob)	Legend Marking	Mounting	Color	Legend Plate Size	Cat. No.	*
 <i>Black Front Frame, Silver-Gray Legend Plate With Black Control Knob</i>	0-Y-Δ	16mm or 22.5mm Panel Opening	Gray/Black	30mm x 30mm (1-3/16 in. x 1-3/16 in.)	194C-HC3A-750	







Reversing Switch

Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating	Contact Target Configuration X = Contact Closed O = Contact Open			Mounting Style	Cat. No.	*	
			No. of Circuits	Control Knob Position					
				1	0				2
		10A	1	O	O	X	Front/ Door	194C-C10-7543	
			2	X	O	O			
			3	X	O	O			
			4	O	O	X			
			5	X	O	X			







Actuator — Type A (Includes Legend Plate and Control Knob)	Legend Marking	Mounting	Color	Legend Plate Size	Cat. No.	*
 <i>Black Front Frame, Silver-Gray Legend Plate With Black Control Knob</i>	1-0-2	16mm or 22.5mm Panel Opening	Gray/Black	30mm x 30mm (1-3/16 in. x 1-3/16 in.)	194C-HC3A-350	


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Ammeter Switch — 3Ø with Ground

Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating	Contact Target Configuration X = Contact Closed O = Contact Open				Mounting Style	Cat. No.	*	
			No. of Circuits	Control Knob Position						
				0 	1 	2 				3 
		10A	1	O	X	O	O	Front/ Door	194C-C10-8751	
			2	O	O	O	X			
			3	X	O	O	X			
			4	X	O	X	O			
			5	O	O	O	O			
			6	O	O	X	O			
			7	X	X	O	X			
		10A	1	X	X	O	X	Front/ Door	194C-C10-8752	
			2	O	O	X	O			
			3	O	X	O	O			
			4	O	O	O	X			
			5	X	O	X	X			
			6	X	X	X	O			
			7	O	X	O	O			
8	O	O	O	X						
9	O	O	X	O						

Ammeter Switch — 3Ø with Neutral

Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating	Contact Target Configuration X = Contact Closed O = Contact Open				Mounting Style	Cat. No.	*	
			No. of Circuits	Control Knob Position						
				1 	2 	3 				4 
		10A	1	X	O	O	O	Front/ Door	194C-C10-8761	
			2	O	O	X	O			
			3	O	X	O	O			
			4	O	O	O	X			
			5	X	O	X	X			
			6	X	X	X	O			
			7	O	X	X	X			
			8	X	X	O	X			



Actuator — Type A (Includes Legend Plate and Control Knob)	Legend Marking	Mounting	Color	Legend Plate Size	Cat. No.	*
 <i>Black Front Frame, Silver-Gray Legend Plate With Black Control Knob</i>	0-1-2-3	16mm or 22.5mm Panel Opening	Gray/Black	30mm x 30mm (1-3/16 in. x 1-3/16 in.)	194C-HC3A-875	
	1-2-3-4	16mm or 22.5mm Panel Opening	Gray/Black	30mm x 30mm (1-3/16 in. x 1-3/16 in.)	194C-HC3A-876	


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
Bulletin 194C
IEC Control Switches
 Product Selection, Continued


Voltmeter Switch — 3∅ with Neutral, 45°

Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating	Contact Target Configuration X = Contact Closed O = Contact Open								Mounting Style	Cat. No.	*
			No. of Circuits	Control Knob Position									
				TR	ST	RS	O	RO	SO	TO			
		10A	1	X	X	O	O	O	O	X	Front/ Door	194C-C10-8251	*
			2	O	O	O	O	X	X	X			
			3	O	O	O	O	O	X	O			
			4	O	X	X	O	O	O	O			
			5	O	O	X	O	X	O	O			
			6	X	O	O	O	O	O	O			


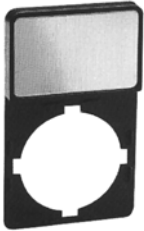

Actuator — Type A (Includes Legend Plate and Control Knob)	Legend Marking	Mounting	Color	Legend Plate Size	Cat. No.	*
 <i>Black Front Frame, Silver-Gray Legend Plate With Black Control Knob</i>	TR-ST-RS-O-RO-SO-TO	16mm or 22.5mm Panel Opening	Gray/Black	30mm x 30mm (1-3/16 in. x 1-3/16 in.)	194C-HC3A-825	*

Voltmeter Switch — 3∅, 45°

Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating	Contact Target Configuration X = Contact Closed O = Contact Open				Mounting Style	Cat. No.	*	
			No. of Circuits	Control Knob Position						
				O	RS	ST				TR
		10A	1	O	O	O	X	Front/ Door	194C-C10-8271	*
			2	O	X	X	O			
			3	O	X	O	O			
			4	O	O	X	X			

Actuator — Type A (Includes Legend Plate and Control Knob)	Legend Marking	Mounting	Color	Legend Plate Size	Cat. No.	*
 <i>Black Front Frame, Silver-Gray Legend Plate With Black Control Knob</i>	O-RS-ST-TR	16mm or 22.5mm Panel Opening	Gray/Black	30mm x 30mm (1-3/16 in. x 1-3/16 in.)	194C-HC3A-827	*

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	Switch Size	Description	Pkg. Qty.	Cat. No.	*
	10A	Replacement Black Control Knob	10	194C-G3381	
		Use Bulletin 800E Legends, page 11-299 in the Industrial Controls catalog.	-	-	
		-	Locking Ring Wrench	1	800E-AW2

Electrical Ratings

Performance Data				10A
IEC Applications				
Rated voltage U_e ①		IEC 947-5 VDE/BS SEV max. CEE 24/NEMKO	[V] [V] [V]	440 380 380
Principal switching characteristics Isolating conditions acc. to VDE fulfilled up to Rated impulse voltage U_{imp}			[V] [kV]	250 4
Thermal rated current I_{th} ①	40°C	IEC 947-5 VDE/BS SEV	[A] [A]	10 10
AC-21	Switching resistive loads with slight overload	IEC 947-5 VDE/BS CEE24 NEMKO	[A] [A] [A]	10 4 6
AC-1	Non-inductive or slightly inductive loads	SEV	[A]	10
AC-22	Switching mixed resistive and inductive loads with slight overload	IEC 947-5 VDE/BS	[A]	10
AC-15	Switching of inductive drives, motors, valves and electromagnets	IEC 947-5	[A] [A]	2.5 1.5

① See conformity to standards listed on page 12.

Bulletin 194C
IEC Control Switches
Specifications, Continued

Electrical Ratings, Continued

Performance Data										10A
IEC Applications, Continued										
DC switching capacity	Contacts in series									
Rated current I_e		1	2	3	4	5	6	8		
DC-21A	Rated voltage [V]	24	48	72	96	120	144	192	[A]	10
		48	96	144	192	240	288	384	[A]	6
	Resistive loads, $T \leq 1$ ms	60	120	180	240	300	360	450	[A]	2.5
	U_e max = 600V	110	220	330	440	550	660	–	[A]	0.7
		220	440	660	–	–	–	–	[A]	0.3
		440	–	–	–	–	–	–	[A]	0.2
Rated current I_e	Rated voltage [V]	24	48	72	96	120	144	190	[A]	6
		30	60	90	120	150	180	240	[A]	3
	Inductive loads $T = 50$ ms	48	95	140	190	240	290	384	[A]	1
	U_e max = 600V	60	120	180	240	300	360	450	[A]	0.7
		110	220	330	440	550	660	–	[A]	0.3
Rated breaking capacity		220V							[A]	60
									cos ϕ	0.65
		400V							[A]	55
									cos ϕ	0.65
Rated power P_e ❶	IEC 947-5 VDE/BS									
AC-2	Slip-ring motors: Starting, reversing and electric braking; star/delta starting	3 \emptyset ,			240V			[kW]	2.5	
		3-pole			380V			[kW]	4.5	
					415V			[kW]	4.5	
					440V			[kW]	4.5	
					500V			[kW]	5.5	
AC-3	Squirrel-cage motors: Starting and stopping of running motors	IEC 947-5 VDE/BS								
		3 \emptyset ,			220...240V			[kW]	1.5	
		3-pole			380...440V			[kW]	2.2	
		IEC 947-5 VDE/BS								
		1 \emptyset ,			110V			[kW]	0.3	
		2-pole			220...240V			[kW]	0.55	
					380...440V			[kW]	0.75	
AC-4	Squirrel-cage motors: Starting, reversing, electric braking, inching	IEC 947-5 VDE/BS								
		3 \emptyset ,			220...240V			[kW]	0.37	
		3-pole			380...415V			[kW]	0.55	
					440...500V			[kW]	0.55	
		IEC 947-5 VDE/BS								
		1 \emptyset ,			110V			[kW]	0.15	
		2-pole			240V			[kW]	0.25	
					380V			[kW]	0.5	
					440V			[kW]	0.5	
AC-23A	Periodic switching of motors or other highly inductive loads (criterion for selecting main switches)	IEC 947-5 VDE/BS								
		3 \emptyset ,			220...240V			[kW]	1.8	
		3-pole			380...440V			[kW]	3	
		IEC 947-5 VDE/BS								
		1 \emptyset ,			110V			[kW]	0.37	
		2-pole			220...240V			[kW]	0.75	
					380...440V			[kW]	1.1	
Short-circuit ratings	Rated short-time current (1s)								[kArms]	–
	Strongest series fuse, not in enclosure	(gL characteristic)							[A]	10
	Conditional rated short-circuit								[kA]	3
Switching rate		electrical							[ops/h]	150

❶ See conformity to standards listed on page 12.

Electrical Ratings, Continued

Performance Data			10A
UL/CSA Applications			
Rated Voltage U_e		[V AC]	300
Heavy Pilot Duty Ampere Rating	Contact class		A300
	Non-inductive or slightly inductive load ❶	[A]	10
Rated power P_e ❷	UL/CSA		
	3 \emptyset , 120V	[HP]	0.75
Standard motor DOL rating (similar to AC-3)	3-pole, 240V	[HP]	1
	UL/CSA		
	1 \emptyset , 120V	[HP]	0.33
	2-pole, 240V	[HP]	0.75
Heavy motor load, reversing rating (similar to AC-4)	2-pole, 277V	[HP]	0.75
	3 \emptyset , 120V	[HP]	0.33
	3-pole, 240V	[HP]	0.75
Max. back-up fuse	(gG characteristic)	[A]	25
Short-circuit Ratings			
Maximum Short Circuit Prospective Fault Current		[kA]	1
Maximum Fuse Size		[A]	25
Switching Rate	electrical	[ops/h]	150
Maximum Wire Gauges	single wire or stranded	[mm ²]	2 x 1.5
	single wire or stranded	[AWG]	14
	fine strands (with ferrule)	[mm ²]	1.5
	fine strands (without ferrule)	[AWG]	16

Mechanical Data

Performance Data			10A
Degree of Protection	Actuators	IEC 529	IP65
	Switch Bodies	IEC 529	IP20
Mechanical Endurance		[mil. ops]	10
Switching Rate	mechanical	[ops/h]	2000
Terminal Capacity	single or multi-core	[mm ²]	2 x 1.5
	single or multi-core	[AWG]	14
	fine strands (without ferrule)	[mm ²]	1.5
	fine strands (with ferrule)	[AWG]	16
Maximum Wire Gauges	single wire or stranded	[mm ²]	2 x 1.5
	single wire or stranded	[AWG]	14
	fine strands (without ferrule)	[mm ²]	1.5
	fine strands (with ferrule)	[AWG]	16

Environmental Data

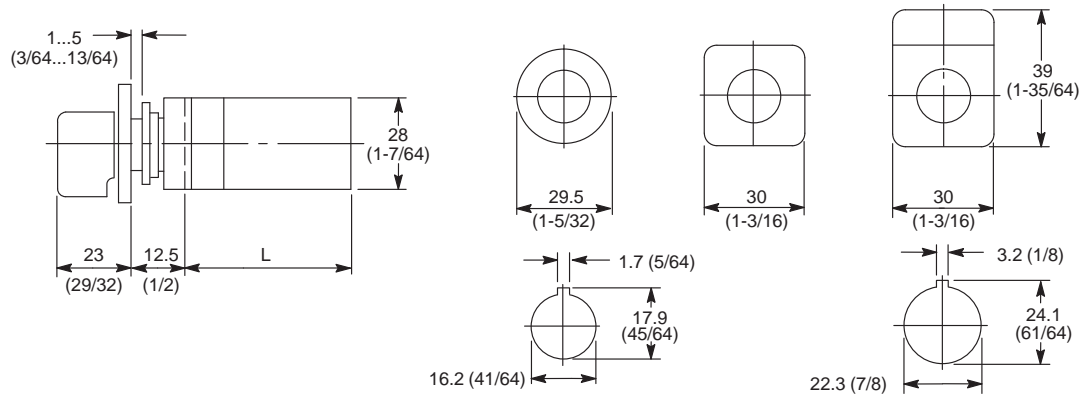
Performance Data		10A
Ambient Temperature	Operation	-20°C...+55°C (-4°F...+131°F)
	Storage	-30°C...+100°C (-22°F...+212°F)

- ❶ Suitable for off-load switching (AC-20) above 600V (max. 600V with fixing screws at the rear).
 ❷ See conformity to standards listed on page 12.

Bulletin 194C
IEC Control Switches
Approximate Dimensions

Bulletin 194C Control Switch

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.



Length of Switch

L				
1/2 Contacts	3/4 Contacts	5/6 Contacts	7/8 Contacts	9 Contacts
38.5 (1-33/64)	50.5 (2)	62.5 (2-15/32)	74.5 (2-15/16)	86.5 (3-13/32)



Bulletin 194E

- At-Motor Disconnect Switch
- 25, 32, 40, 63, 80, 100A Inductive Load-Rated Switches
- IP65/Type 1/3/3R/12 Operating Handles
- IP2LX Finger-Safe Terminals
- 3- and 6-Pole Versions; Add-on Accessory Poles to Make 4-, 5-, 7- and 8-Pole Units
- Front/Door or DIN/Base Mounting Configurations
- Changeover Switches
- OFF-ON Configurations
- 3- and 6-Pole Enclosed Switches
- Optional Thermoplastic Enclosures
- Positive-Guided Actuation

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Description	Page	Description	Page
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Description

Bulletin 194E load switches are designed for use as local motor isolation and IEC disconnect switch applications outside North America. Available with 3- and 6-pole versions with add-on additional poles, grounding and neutral terminals and auxiliary contacts, Bulletin 194Es share the same operating handles as the Bulletin 194L Control and Load Switches.

Bulletin 194E switches are offered in two mounting styles, Front/Door and Base/DIN configurations for a variety of installations. Switch body styles for Bulletin 194E base-mounted switches include standard interlock shaft; Bulletin 194E front-mounted switches include standard shaft.

Two-position OFF-ON switch is used to connect or disconnect a variety of inductive loads, including solenoids, actuators, valves, magnetic starters, relays, and motors.

Actuators featuring marked legend plates are available in Selector-Knob, Disk-Style, Rectangular-Style and Key-Operated versions. Selector-Knob versions are available in three sizes. Most actuators are available in colors of Gray/Black or Red/Yellow and have padlockable versions.

Conformity to Standards:

IEC 207

IEC 947-1

IEC 947-3 Low-voltage switchgear and control gear part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units. CE

UL 508: Industrial Control Equipment. UL

CSA: C22.2 No. 14: Industrial Control Equipment

Approvals:

UL Listed (File No. E54612 NLRV)

CSA Certified (LR 13002)

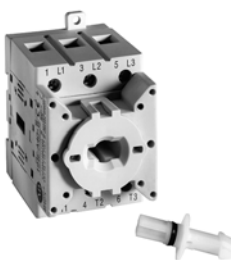
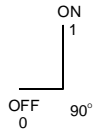


Meets IEC, VDE and BS Standard requirements

IEC/CE-Marked (Per EN60947-3)


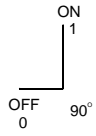


Your order must include:

- Cat. No. of switch body.
- Cat. No. of actuator.
- If required, Cat. No. of accessories.


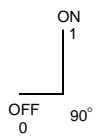


OFF-ON Base-Mounted 3-Pole Switch (includes operating shaft) (Actuators listed on pages 26 and 27)

Switch Body (Includes Shaft)	Function Switching Angle	Contact Target Configuration X = Contact Closed O = Contact Open		Maximum Load Rating (A)	AC23A Rated Power [kW] at 690V AC 50 Hz	HP @ 480V AC 60 Hz 3 ∅	Cat. No.	*	
		No. of Circuits	Handle Position						
			OFF/0						ON/1
		1 2 3			25	11	10	194E-A25-1753	
					32	15	15	194E-A32-1753	
					40	18.5	20	194E-A40-1753	
					63	22	25	194E-A63-1753	
					80	37	50	194E-A80-1753	
					100	45	60	194E-A100-1753	


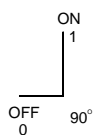


OFF-ON Front-Mounted 3-Pole Switch (includes operating shaft) (Actuators listed on pages 26 and 27)

		1 2 3			25	11	10	194E-E25-1753	
					32	15	15	194E-E32-1753	
					40	18.5	20	194E-E40-1753	
					63	22	25	194E-E63-1753	
					80	37	50	194E-E80-1753	
					100	45	60	194E-E100-1753	

OFF-ON Base-Mounted 6-Pole Switch (includes operating shaft) (Actuators listed on pages 26 and 27)








		1 2 3 4 5 6			25	11	10	194E-A25-1756	
					32	15	15	194E-A32-1756	
					40	18.5	20	194E-A40-1756	
					63	22	25	194E-A63-1756	
					80	37	50	194E-A80-1756	
					100	45	60	194E-A100-1756	

OFF-ON Front-Mounted 6-Pole Switch (includes operating shaft) (Actuators listed on pages 26 and 27)

		1 2 3 4 5 6			25	11	10	194E-E25-1756	
					32	15	15	194E-E32-1756	
					40	18.5	20	194E-E40-1756	
					63	22	25	194E-E63-1756	
					80	37	50	194E-E80-1756	
					100	45	60	194E-E100-1756	

Bulletin 194E
IEC Load Switches
Product Selection, Continued

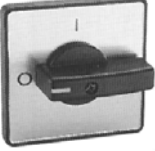



OFF-ON Base/Front-Mounted 3- and 6-Pole Switches, Continued (Switch Body listed on page 25)

Actuators with Screw Fixing (Includes Legend Plate and Control Knob)	Rating	Color	Legend Plate Size	Use With Cat. No.	Legend Marking	Cat. No.	*
 Type A	IP65	Black/Gray	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	194E-25...63A	0-1	194L-HE4A-175	
					OFF-ON	194L-HE4A-175I	
			64mm x 64mm (2-33/64 in. x 2-33/64 in.)	194E-25...100A	0-1	194L-HE6A-175	
					OFF-ON	194L-HE6A-175I	
			88mm x 88mm (3-15/32 in. x 3-15/32 in.)	194E-40...100A	0-1	194L-HE8A-175	
					OFF-ON	194L-HE8A-175I	
 Type I	IP65	Red/Yellow	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	194E-25...63A	0-1	194L-HE4I-175	
					OFF-ON	194L-HE4I-175I	
			64mm x 64mm (2-33/64 in. x 2-33/64 in.)	194E-25...100A	0-1	194L-HE6I-175	
					OFF-ON	194L-HE6I-175I	
			88mm x 88mm (3-15/32 in. x 3-15/32 in.)	194E-40...100A	0-1	194L-HE8I-175	
					OFF-ON	194L-HE8I-175I	
 Type E With Locking For One Padlock (Padlock Not Included)	IP65	Black/Gray	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	194E-25...63A	0-1	194L-HE4E-175	
					OFF-ON	194L-HE4E-175I	
			64mm x 64mm (2-33/64 in. x 2-33/64 in.)	194E-25...100A	0-1	194L-HE6E-175	
					OFF-ON	194L-HE6E-175I	
 Type L With Locking For One Padlock (Padlock Not Included)	IP65	Red/Yellow	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	194E-25...63A	0-1	194L-HE4L-175	
					OFF-ON	194L-HE4L-175I	
			64mm x 64mm (2-33/64 in. x 2-33/64 in.)	194E-25...100A	0-1	194L-HE6L-175	
					OFF-ON	194L-HE6L-175I	
 Type G	IP65 Type 3/3R/12	Black/Gray	67mm x 67mm (2-41/64 in. x 2-41/64 in.)	194E-25...100A	0-1 OFF-ON	194L-HE6G-175	
			88mm x 88mm (3-15/32 in. x 3-15/32 in.)	194E-40...100A	0-1 OFF-ON	194L-HE8G-175	
 Type N	IP65 Type 3/3R/12	Red/Yellow	67mm x 67mm (2-41/64 in. x 2-41/64 in.)	194E-25...100A	0-1 OFF-ON	194L-HE6N-175	
			90mm x 90mm (3-35/64 in. x 3-35/64 in.)	194E-40...100A	0-1 OFF-ON	194L-HE8N-175	
 Type S	IP65	Black/Gray	48mm x 62mm (1-57/64 in. x 2-7/16 in.)	194E-25...63A	0-1	194L-HE4S-175	
					OFF-ON	194L-HE4S-175I	
			64mm x 78mm (2-33/64 in. x 3-5/64 in.)	194E-25...100A	0-1	194L-HE6S-175	
					OFF-ON	194L-HE6S-175I	

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Continued on next page.

OFF-ON Front-Mounted 3- and 6-Pole Switches, Continued (Switch Body listed on page 25)

Actuators with Central Fixing (Includes Legend Plate and Control Knob) ❶	Rating	Color	Legend Plate Size	Use With Cat. No.	Legend Marking	Cat. No.	*
 Type A	IP65	Black/Gray	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	194E-E25...63A	0-1	194L-HC4A-175	
					OFF-ON	194L-HC4A-175I	
 Type I	IP65	Red/Yellow	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	194E-E25...63A	0-1	194L-HC4I-175	
					OFF-ON	194L-HC4I-175I	
 Type E With Locking (Padlock not included)	IP65	Black/Gray	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	194E-E25...63A	0-1	194L-HC4E-175	
					OFF-ON	194L-HC4E-175I	
 Type L With Locking (Padlock not included)	IP65	Red/Yellow	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	194E-E25...63A	0-1	194L-HC4L-175	
					OFF-ON	194L-HC4L-175I	


❶ Use central-mounted handles with **Cat. No. 194E...**switches.

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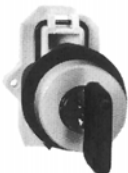




Bulletin 194E
IEC Load Switches
 Product Selection, Continued

OFF-ON Front-Mounted 3- and 6-Pole Switches, Continued (Switch Body listed on page 25)



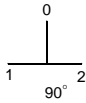
194L/194E Disk Actuators with Central Fixing (Type G, N) — Size 6

 Type G,N	Rating	Color	Legend Plate Size	Use With Cat. No.	Legend Marking	Cat. No.	*
	IP65 Type 3/3R/12	Black/ Gray	67mm x 67mm (2-33/64 in. x 2-33/64 in.)	194L-E25...100	0-1 OFF-ON	194E-HC6G-175	
Red/ Yellow	0-1 OFF-ON	194E-HC6N-175					

194L/194E Central Fixing Actuators (Type B, D)

 Type B	Description		Pkg. Qty.	Cat. No.	*
	Central-Mounting Actuators (IP65) Handle Style: Knob Lever with Latch (Use with Cat. No. 194E-E25-100-1753)		1	194L-HCB-001	
 Type D	Key Removal Position (Includes Latch) — Central Fixing Use with Cat. No. 194L-E25-100-1753		1	194L-HCDC-001	
	Key Removal Position (Includes Latch) — Central Fixing Use with Cat. No. 194L-E25-100-1753			194L-HCDD-001	
	Key Removal Position (Includes Latch) — Central Fixing Use with Cat. No. 194L-E25-100-1753			194L-HCDG-001	
	Key Removal Position (Includes Latch) — Central Fixing Use with Cat. No. 194L-E25-100-1753			194L-HCDH-001	

3-Position Front-Mounted Changeover Switch (Includes Shaft)


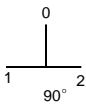
 Switch Body (Includes Shaft)	Function Switching Angle	Contact Target Configuration X=Contact Closed O=Contact Open				Maximum Load Rating (A)	AC23A Rated Power [kW] at 690V AC 50 Hz.	HP @ 480V AC 60 Hz, 3 ∅	Cat. No.	*
		No. of Circuits	Handle Position							
			1	0	2					
		1	X	O	O	25	11	10	194E-A25-3753	
		2	X	O	O	32	15	15	194E-A32-3753	
		3	X	O	O	40	18.5	20	194E-A40-3753	
		4	O	O	X	63	22	25	194E-A63-3753	
		5	O	O	X	80	37	50	194E-A80-3753	
		6	O	O	X	100	45	60	194E-A100-3753	

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Continued on next page.

OFF-ON Front-Mounted 3- and 6-Pole Switches, Continued (Switch Body listed on page 25)

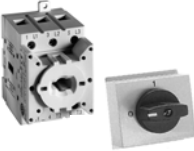

3-Position Changeover Switch, Door Mount (includes operating shaft)

Switch Body (Includes Shaft)	Function Switching Angle	Contact Target Configuration X=Contact Closed O=Contact Open			Maximum Load Rating (A)	AC23A Rated Power [kW] at 690V AC 50 Hz.	HP @ 480V AC 60 Hz, 3 Ø	Cat. No.	*	
		Handle Position								
		No. of Circuits	1	0						2
		1	X	O	O	25	11	10	194E-E25-3753	
		2	X	O	O	32	15	15	194E-E32-3753	
		3	X	O	O	40	18.5	20	194E-E40-3753	
		4	O	O	X	63	22	25	194E-E63-3753	
		5	O	O	X	80	37	50	194E-E80-3753	
		6	O	O	X	100	45	60	194E-E100-3753	


Actuators for Changeover Switches

Actuators with Screw Fixing (Includes Legend Plate and Control Knob)	Rating	Color	Legend Plate Size	Use With Cat. No.	Legend Marking	Cat. No.	*
	IP65	Black/Gray	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	194E-25...63-3753	I - O - II	194L-HE4A-375	
			64mm x 64mm (2-33/64 in. x 2-33/64 in.)	194E-25...100-3753	I - O - II	194L-HE6A-375	

Base-Mounting Distribution Switches


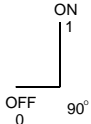
	Function Switching Angle	No. of Circuits	Contact Target		Color	Marking	Lockable (one padlock)	I _{max} [A]	AC23A Rated Power [kW] at 690V AC	HP @ 480V AC 60 Hz, 3 Ø	Cat. No.	*
			OFF/0	ON/1								
		1	O	X	Red/ Yellow	O-1	No	25	11	10	194E-A25-1753-R	
		2	O	X	Black/ Gray	O-1	Yes				194E-A25-1753-Q	
		3	O	X	Red/ Yellow	O-1	No	32	15	15	194E-A32-1753-R	
					Black/ Gray	O-1	Yes				194E-A32-1753-Q	

194L/194E Rectangular Snap-On Handles (Type Q, R)



	Color	Frame Size	Lockable	Use With Cat. No.	Legend Marking	Cat. No.	*
	Black/Gray	20mm x 52mm (25/32 in. x 2 in.)	No	194L-A**, 194E-A25/32	0-1	194L-HE4Q-175	
			No		OFF-ON	194L-HE4Q-175I	
		23mm x 52mm (25/32 in. x 2 in.)	Yes		0-1	194L-HE4R-175	
			Yes		OFF-ON	194L-HE4R-175I	

Bulletin 194E
IEC Load Switches
Product Selection, Continued


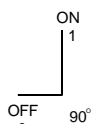
Enclosed Switch With Cat. No. 194L-HE6N-175 Operating Handle and Thermoplastic Enclosure

	No. of Poles	Function Switching Angle	Maximum Load Rating (A)	Color	Cat. No.	*	
	<i>Uses Base-Mounted Switches</i>	3		25	Red/Yellow	194E-Y25-1753-6N	
32				194E-Y32-1753-6N			
40				194E-Y40-1753-6N			
63				194E-Y63-1753-6N			
80				194E-Y80-1753-6N			
100				194E-Y100-1753-6N			
6				25	Red/Yellow	194E-Y25-1756-6N	
				32		194E-Y32-1756-6N	
				40		194E-Y40-1756-6N	
				63		194E-Y63-1756-6N	

OFF-ON Base-Mounted 3-Pole Switch With Cat. No. 194L-HE6N-175 Red/Yellow Actuator Kits

	Function Switching Angle	Maximum Load Rating (A)	AC23A Rated Power [kW] at 690V AC	HP @ 480V AC 60 Hz, 3 ∅	Cat. No.	*
		25	7.5	10	194E-A25-1753-6N	
32		11	15	194E-A32-1753-6N		
40		15	20	194E-A40-1753-6N		
63		18.5	25	194E-A63-1753-6N		
80		30	50	194E-A80-1753-6N		
100		37	60	194E-A100-1753-6N		

OFF-ON Front-Mounted 3-Pole Switch With Cat. No. 194L-HE6N-175 Red/Yellow Actuator Kits


	Function Switching Angle	Maximum Load Rating (A)	AC23A Rated Power [kW] at 690V AC	HP @ 480V AC 60 Hz, 3 ∅	Cat. No.	*
		25	7.5	10	194E-E25-1753-6N	
32		11	15	194E-E32-1753-6N		
40		15	20	194E-E40-1753-6N		
63		18.5	25	194E-E63-1753-6N		
80		30	50	194E-E80-1753-6N		
100		37	60	194E-E100-1753-6N		

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Continued on next page.

Enclosed Disconnect Load Switches — 3-Pole Base-Mounted


Stainless Steel Enclosures IP66/Type 4/4X

	Maximum Load Rating (A)	Ref. Dim. Page	Handle Color	Cat. No. ❶	*
	25	A1	A1	Black	194E-CA20
Red/Yellow				194E-CA20E	
32	A1	A1	Black	194E-CA32	
			Red/Yellow	194E-CA32E	
40	A1	A1	Black	194E-CA40	
			Red/Yellow	194E-CA40E	
63	A1	A1	Black	194E-CA63	
			Red/Yellow	194E-CA63E	
80	B1	B1	Black	194E-CA80	
			Red/Yellow	194E-CA80E	
100	B1	B1	Black	194E-CA00	
			Red/Yellow	194E-CA00E	

Painted Steel Enclosures IP66/Type 3/4/12 — 3-Pole Base-Mounted

	Maximum Load Rating (A)	Ref. Dim. Page	Handle Color	Cat. No. ❶	*
	25	A1	A1	Black	194E-FA20
Red/Yellow				194E-FA20E	
32	A1	A1	Black	194E-FA32	
			Red/Yellow	194E-FA32E	
40	A1	A1	Black	194E-FA40	
			Red/Yellow	194E-FA40E	
63	A1	A1	Black	194E-FA63	
			Red/Yellow	194E-FA63E	
80	B1	B1	Black	194E-FA80	
			Red/Yellow	194E-FA80E	
100	B1	B1	Black	194E-FA00	
			Red/Yellow	194E-FA00E	

Non-Metallic Enclosures IP66/Type 3/4/4X — 3-Pole Base-Mounted


	Maximum Load Rating (A)	Ref. Dim. Page	Handle Color	Cat. No. ❶	*
	25	C1	C1	Black	194E-KA20
Red/Yellow				194E-KA20E	
32	C1	C1	Black	194E-KA32	
			Red/Yellow	194E-KA32E	
40	C1	C1	Black	194E-KA40	
			Red/Yellow	194E-KA40E	
63	C1	C1	Black	194E-KA63	
			Red/Yellow	194E-KA63E	
80	D1	D1	Black	194E-KA80	
			Red/Yellow	194E-KA80E	
100	D1	D1	Black	194E-KA00	
			Red/Yellow	194E-KA00E	


❶ Modifications: Up to two suffix codes may be added to an enclosed disconnect load switch. Example: **Cat. No. 194E-CA20-NP** is a disconnect load switch with a power pole in a stainless steel enclosure. See page 36.


Bulletin 194E
IEC Load Switches
 Product Selection, Continued

Enclosed Disconnect Load Switches — 3-Pole Base-Mounted, Continued

Metallic Enclosures IP54/Type 1 — 3-Pole

	Maximum Load Rating (A)	Ref. Dim. Page	Handle Color	Cat. No. ❶	*
	25	A1	Black	194E-AA20	
Red/Yellow			194E-AA20E		
32	A1	Black	194E-AA32		
		Red/Yellow	194E-AA32E		
40	A1	Black	194E-AA40		
		Red/Yellow	194E-AA40E		
63	A1	Black	194E-AA63		
		Red/Yellow	194E-AA63E		
80	B1	Black	194E-AA80		
		Red/Yellow	194E-AA80E		
100	B1	Black	194E-AA00		
		Red/Yellow	194E-AA00E		


ABS Thermoplastic Enclosure — For High-Impact Applications	No. of Poles	Use With Cat. No.	Cat. No.	*
	3...4	194E-25/32	194L-G3572	
	3...4	194E-40/63	194L-G3663	
	3...4	194E-80/100	194E-G3665	
	6	194E-25/32	194E-G3663	
	6	194E-40/63	194E-G3665	


Noryl Thermoplastic Enclosures — For Corrosion-Prone Applications	No. of Poles	Switch Usage for Cat. No.	Cat. No.	*
	3...4	194E-25/32	194L-G3576	
	3...4	194E-40/63	194L-G3664	
	3...4	194E-80/100	194E-G3666	
	6	194E-25/32	194E-G3664	
	6	194E-40/63	194E-G3666	


Description	Use With Enclosures Cat. No.	Cat. No.	*
Additional Earth/Ground and Neutral Terminals — For Thermoplastic Enclosure	194L-G3663, G3664, G3665, G3666 (5 per package)	194L-G3673	
	194L-G3572 and G3676 (5 per package)	194L-G3653	


❶ Modifications: Up to two suffix codes may be added to an enclosed disconnect load switch. Example: **Cat. No. 194E-CA20-NP** is a disconnect load switch with a power pole in a stainless steel enclosure. See page 36.

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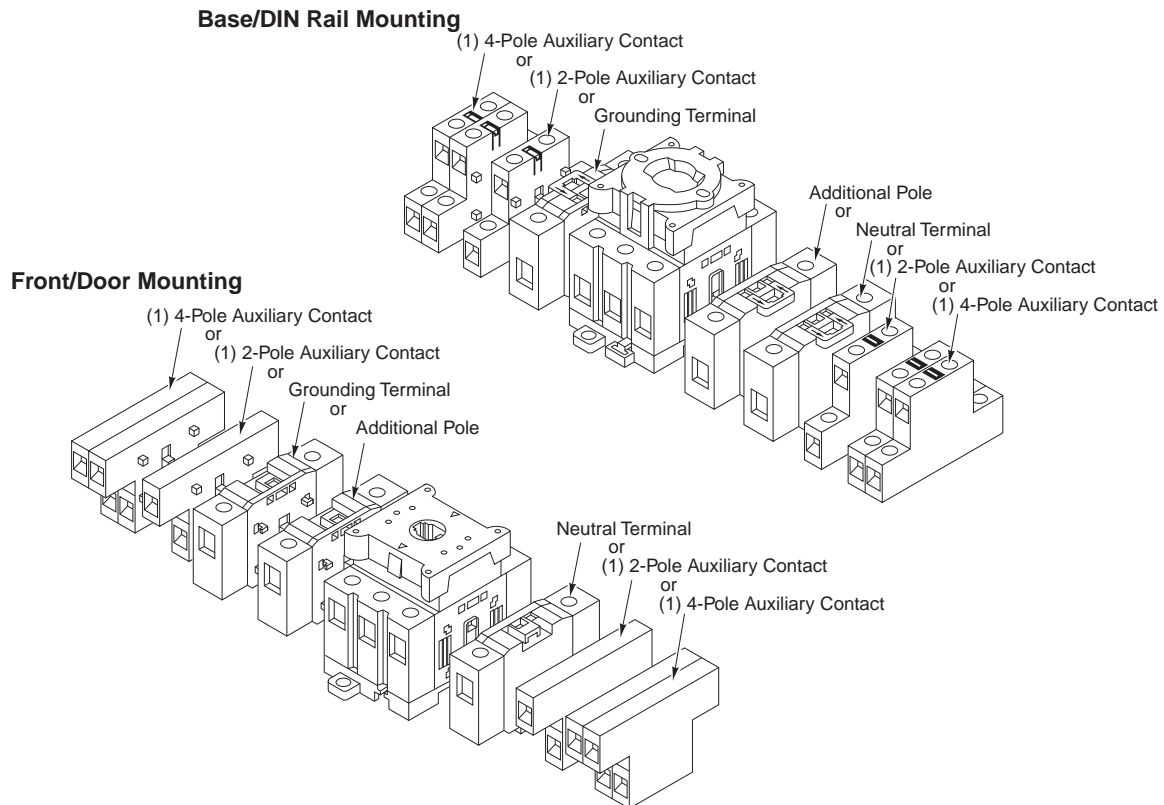
Auxiliary Contacts	Type	Use With Cat. No.	Cat. No.	*
	1 N.O. + 1 N.C.	194E-A25...100	194E-A-P11	
		194E-E25...100	194E-E-P11	
	1 N.O. + 1 N.C.L.B.	194E-A25...100	194E-A-PL11	
		194E-E25...100	194E-E-PL11	
	2 N.O. + 2 N.C.	194E-A25...100	194E-A-P22	
		194E-E25...100	194E-E-P22	
	1 N.C. E.B.	194E-A25...100	194E-A-PD10	
		194E-E25...100	194E-E-PD10	

Additional Pole	Use With Cat. No.	Cat. No.	*
	194E-A25	194E-A25-NP	
	194E-A32	194E-A32-NP	
	194E-A40	194E-A40-NP	
	194E-A63	194E-A63-NP	
	194E-A80	194E-A80-NP	
	194E-A100	194E-A100-NP	
	194E-E25	194E-E25-NP	
	194E-E32	194E-E32-NP	
	194E-E40	194E-E40-NP	
	194E-E63	194E-E63-NP	
	194E-E80	194E-E80-NP	
194E-E100	194E-E100-NP		

Earthing/Grounding Terminal	Use With Cat. No.	Cat. No.	*
	194E-A25/32	194E-A32-PE	
	194E-A40/63	194E-A63-PE	
	194E-A80/100	194E-A100-PE	
	194E-E25/32	194E-E32-PE	
	194E-E40/63	194E-E63-PE	
	194E-E80/100	194E-E100-PE	




Neutral Terminal	Use With Cat. No.	Cat. No.	*
	194E-A25/32	194E-A32-TN	
	194E-A40/63	194E-A63-TN	
	194E-A80/100	194E-A100-TN	
	194E-E25/32	194E-E32-TN	
	194E-E40/63	194E-E63-TN	
	194E-E80/100	194E-E100-TN	

Bulletin 194E
IEC Load Switches
Accessories, Continued




Terminal Covers	No. of Poles	Use With Cat. No.	Cat. No.	*
	3	194E-25/32	194E-25-C3	
		194E-40/63	194E-40-C3	
		194E-80/100	194E-80-C3	
	4	194E-25/32	194E-25-C4	
		194E-40/63	194E-40-C4	
		194E-80/100	194E-80-C4	
6-Pole Mechanical Coupling		Use With Cat. No.	Cat. No.	*
		194E-25/32	194E-G3660	
		194E-40/63	194E-G3661	
		194E-80/100	194E-G3662	

Note: User must order (2) Bulletin 194E 3-Pole Switches separately.

Blank Legend Plate with Bezel	Cat. No.	Pkg. Qty.	*
	194L-A4-000	10	
	194L-A6-000		
	194L-A8-000		
	194L-I4-000		
	194L-I6-000		
	194L-I8-000		
0-1 Marked Legend Plates with Bezel	Cat. No.	Pkg. Qty.	*
	194L-A4-175	10	
	194L-A6-175		
	194L-A8-175		
	194L-I4-175		
	194L-I6-175		
	194L-I8-175		
OFF-ON Marked Legend Plate with Bezel	Cat. No.	Pkg. Qty.	*
	194L-A4-175I	10	
	194L-A6-175I		
	194L-A8-175I		
	194L-I4-175I		
	194L-I6-175I		
	194L-I8-175I		

Additional Legend Plates/Frames



	Color	Legend Size	Use With	Legend Marking	Cat. No.	*
 10 per package	Gray/Black	19.2mm x 49mm 3/4 in. x 1-59/64 in.	Size 6 Type G and N Style Actuators 194L-HE6G/N	(Blank)	194L-G3515	
				MAIN SWITCH	194L-G3515A	
				HAUPTSCHALTER	194L-G3515B	
				INTERR. PRINCIPALE	194L-G3515C	
				INTERR. PRINCIPAUX	194L-G3515D	
				INTERR. PRINCIPAL	194L-G3515E	
				HUVUDBRYTARE	194L-G3515F	
				WAHLSCHALTER	194L-G3515G	
	EMERGENCY OFF	194L-G3515H				
	Gray/Black	18mm x 84mm 11/16 in. x 3-5/16 in.	Size 8 Type G and N Style Actuators 194L-HE8G/N	(Blank)	194L-G3667	
				MAIN SWITCH	194L-G3667A	
				HAUPTSCHALTER	194L-G3667B	
				INTERR. PRINCIPALE	194L-G3667C	
				INTERR. PRINCIPAUX	194L-G3667D	
INTERR. PRINCIPAL				194L-G3667E		
HUVUDBRYTARE				194L-G3667F		
WAHLSCHALTER	194L-G3667G					
EMERGENCY OFF	194L-G3667H					
Red/Yellow						

Bulletin 194E
IEC Load Switches
Accessories, Continued

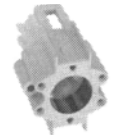
Modifications for Enclosed Switches (see pages 31 & 32)

Description	Maximum Load Rating (A)	Suffix	*
Power Pole	25	-NP	
	32		
	40		
	63		
	80		
	100		
Auxiliary Contact (1 N.O. + 1 N.C.)	25/32	-P11	
	40/63		
	80/100		
Auxiliary Contact (1 N.C.E.B.)	25/32	-PD10	
	40/63		
	80/100		
Auxiliary Contact (1 N.O.E.M. + 1 N.C.L.B.)	25/32	-PL11	
	40/63		
	80/100		
Earthing Terminal (Ground)	25/32	-PE	
	40/63		
	80/100		
Neutral Terminal (Unswitched)	25/32	-TN	
	40/63		
	80/100		


Operating Shafts

	Lengths	Construction	Use With Cat. No.	Cat. No. ①	*
 Standard Shaft	34mm (1-11/32 in.)	Plastic	194E-E...	194L-G3380	
		Metal		194E-G3688	
 Interlock Shaft	44mm (1-47/64 in.)	Plastic	194E-A...	194L-G2830	
		Metal		194E-G3687	
	52mm (2-3/64 in.)	Plastic		194L-G3194	
		Metal		194E-G3707	
	57mm (2-15/64 in.)	Plastic		194L-G3195	


Shaft Extension Kits

	Lengths	Use With Cat. No.	Cat. No.	*
 Shaft Extension	24mm (15/16 in.) Per Extension Sold in Qty. of 10 Per Pkg.	194E-A...	194L-G2853	

Metal Shaft Extensions — With Padlock Provision in OFF Position

	Lengths	Use With Cat. No.	Cat. No.	*
	110mm...235mm (4-21/64 in. ...9-1/4 in.)	194E-A...	194L-G3393	
	230mm...350mm (9-3/64 in....13-51/64 in.)		194L-G3394	







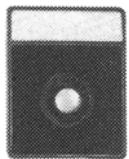

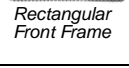

Metal Shaft Adaptor Kits — For use with 194R Type 4/4X Handles

		Use With Cat. No.	Cat. No.	*
	Kit includes bezel adapter and 194R-R1 operating shaft. Operating handle (Cat. No. 194R-HS4) must be ordered separately.	194E-A	194E-G3675	

① Order in Quantities of 100 (50 shafts per package).

Product Selection — Page 25

Continued on next page.

Accessory Description	Pkg. Qty.	Cat. No.	*
	1	800E-AW1	
	10	194L-G2864N	
	10	194L-G2864R	
	50	194L-G2888N	
	50	194L-G2888R	
  <i>Standard Black Control Knob</i> <i>Rectangular Front Frame</i>	50	194L-G3154N	
	50	194L-G3155N	
	50	194L-G3154R	
	50	194L-G3155R	
	10	194L-G3196	
	10	194L-G3197	
	10	194L-G3399	

Bulletin 194E
IEC Load Switches
Accessories, Continued

Shaft for Enclosures

Enclosure Type	Suitable For			Suitable For		
	194L (Base-Mounted Switches)	No. of Contacts	Shaft	Use with 194E Switch	No. of Poles	Shaft Required
194L-G3572 194L-G3576 (95 x 150 x 86mm)	194L-A12(16) 194L-A12(16) 194L-A20(25) 194L-A20(25)	1/2 3/4 1/2 3/4	194L-G3195 Standard 194L-G3194 Standard	194E-A25(32)	3 and 4	194L-G3194
194L-G3573 194L-G3577 (95 x 150 x 111mm)	194L-A12(16) 194L-A12(16) 194L-A12(16) 194L-A20(25) 194L-A20(25)	5/6 7/8 9/10 5/6 7/8	194L-G3195 194L-G3194 Standard 194L-G3194 Standard			
194E-G3663 194E-G3664 (125 x 180 x 105mm)				194E-A40(63) 194E-A25(32)	3 and 4 6	194L-G3194 Standard
194E-G3665 194E-G3666 (175 x 230 x 120mm)				194E-A80(100) 194E-A40(63)	3 and 4 6	194E-G3707 Standard

Possible Accessory Combinations in Enclosure

Enclosure Type	Switch	No. of Poles	Shaft	Aux. Contacts (single or double)	Additional Pole Block	On Switch		On Enclosure	
						Neutral Terminal Block	Ground Terminal Block	Neutral Terminal Block	Ground Terminal Block
194L-G3572 194L-G3576 (95 x 150 x 86mm)	194E-A25(32)	3	194L-G3194	X	X				
				X		X			
				X			X		
					X		X		
				X				X	
				X					X
194E-G3663 194E-G3664 (125 x 180 x 105mm)	194E-A40(63)	3	194L-G3194	X	X			X	X
				X		X		X	X
				X			X	X	X
					X		X	X	X
					X		X	X	X
					X		X	X	X
194E-G3665 194E-G3666 (175 x 230 x 120mm)	194E-A80(100)	3	194E-G3707	X	X			X	X
				X		X		X	X
				X			X	X	X
					X		X	X	X
					X		X	X	X
	194E-A40(63)	6	Standard	1L+1R			X	X	

Electrical Ratings

Performance Data			25A	32A	40A	63A	80A	100A	Aux. Contacts		
IEC Applications											
Rated operational voltage (U_e): IEC ①			[V]	690	690	690	690	690	690	690	
Rated operational voltage (U_e): UL, CSA			[V]	600	600	600	600	600	600	600	
Rated insulation voltage (U_i): IEC/UL, CSA			[V]	690/600	690/600	690/600	690/600	690/600	690/600	690/600	
Rated impulse voltage (U_{imp}): UL, CSA			[kV]	8	8	8	8	8	8	8	
Test voltage, (U_i) 1 minute			[kV]	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Rated frequency			[Hz]	50/60	50/60	50/60	50/60	50/60	50/60	50/60	
Conventional free air thermal current I_{th} ①			[A]	30	40	50	75	100	120	10 ②	
Conventional enclosed thermal current I_{th} ①			[A]	25	32	40	63	80	100	6	
Rated current I_e ①											
AC-1/	Non-inductive or only slightly inductive loads		[A]	25	32	40	63	80	100	10	
AC-21A	Switching of resistive loads with slight overload										
Rated power P_e											
AC-23A	Occasional switching of 3Ø motors and other highly inductive loads (criterion for selecting main switches)	230V	[kW]	7.5	11	15	18.5	22	30	–	
		400V	[kW]	11	15	18.5	22	37	45	–	
		690V	[kW]	11	15	18.5	22	37	45	–	
AC-3	Squirrel-cage motors; starting and stopping of running motors	230V	[kW]	5.5	7.5	11	15	18.5	22	–	
		400V	[kW]	7.5	11	15	18.5	30	37	–	
		690V	[kW]	7.5	11	15	18.5	22	22	–	
Short circuit current (co-ordination type 2)											
Rated conditional short-circuit current			400/415V [kA]	15	15	20	15	–	–	–	
Maximum fuse rating of circuit (type g,G)			[A]	25	25	50	63	80	100	–	
Rated short-time current 1cw, 1s			[A]	430	500	600	1300	1850	2500	–	
Rated breaking capacity AC23A (cosφ 0.45)											
230V			[A]	204	296	400	484	580	780	–	
400V			[A]	172	232	280	336	544	680	–	
690V			[A]	100	136	164	196	316	376	–	
DC switching capacity											
Rated current I_e											
DC-21A	For resistive loads, $T \leq 1$ ms U_e max = 660V	1 Pole	24V	[A]	20	25	35	50	63	80	–
			48V	[A]	16	20	28	40	50	63	
			110V	[A]	6	8.5	12	15	20	23	
			220V	[A]	2	3	3.8	5	6.5	7.5	
			440V	[A]	0.55	0.75	1	1.2	1.5	1.8	
			600V	[A]	0.3	0.4	0.5	0.6	0.7	0.8	
		2-Poles in series	24V	[A]	25	32	40	63	80	100	–
			48V	[A]	20	25	35	50	63	80	
			110V	[A]	14	17	24	34	44	53	
			220V	[A]	5.5	7.5	12	14.5	18	22.5	
			440V	[A]	1.7	2.5	3.5	4.5	5.5	6.8	
			600V	[A]	1	1.5	2	2.5	3	3.5	
		3 Poles in series	24V	[A]	25	32	40	63	80	100	–
			48V	[A]	25	32	40	63	80	100	
			110V	[A]	18	23	32	45	56	70	
			220V	[A]	10.5	13	19	24	30	37	
			440V	[A]	3.8	5.5	7.5	9	11	13	
			600V	[A]	2.5	3.5	4.5	5.5	6	8	
Rated power P_e											
DC-23A, DC-3, DC-5	For inductive loads, $T \leq 15$ ms	3 Poles in series	24V	[kW]	0.384	0.48	0.672	0.96	1.2	1.512	–
			48V	[kW]	0.528	0.768	1.056	1.44	1.824	2.256	
			110V	[kW]	0.77	1.045	1.65	1.87	2.31	2.86	
			220V	[kW]	0.88	1.1	1.65	1.98	2.464	3.08	
			440V	[kW]	0.704	0.88	1.32	1.54	1.804	2.2	
			600V	[kW]	0.6	0.78	1.02	1.2	1.5	1.8	

① See conformity to standards listed on page 24.

② Suitable also for SEV 500.

Bulletin 194E
IEC Load Switches
 Specifications, Continued

Electrical Ratings, Continued

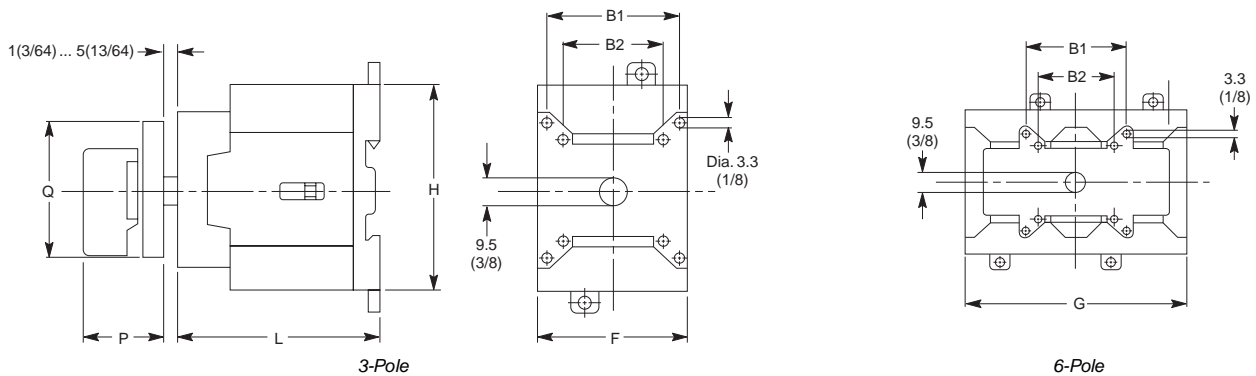
Performance Data			25A	32A	40A	63A	80A	100A	Aux. Contacts	
UL/CSA Applications										
Continuous current Heavy Pilot Duty Standard Duty Motor rating 60 Hz single-phase (2 poles)	120V, 1P	[A]	25	32	40	63	80	100	–	
		[AC]	A600	A600	–	–	–	–	A600	
	240V, 1P	[DC]	–	–	–	–	–	–	Q600	
		FLA	9.8	16	24	34	56	80		
	480V, 1P	HP	0.5	1	2	3	5	7.5		
		FLA	10	12	17	28	50	68		
	600V, 1P	HP	1.5	2	3	5	10	15	–	
		FLA	8.5	14	21	26	34	55		
	three-phase	120V, 3P	HP	3	5	7.5	10	15	25	
			FLA	6.8	11.2	16	20	27	44	
		240V, 3P	HP	3	5	7.5	10	15	25	
			FLA	13.6	19.2	28	40	56	84	
	600V, 3P	480V, 3P	HP	2	3	5	7.5	10	15	
			FLA	15.2	22	28	42	68	80	
600V, 3P		HP	5	7.5	10	15	25	30	–	
		FLA	14	21	27	34	52	65		
600V, 3P	600V, 3P	HP	10	15	20	25	40	50		
		FLA	11	17	22	27	52	52		
600V, 3P	600V, 3P	HP	10	15	20	25	50	50		
		FLA	10	15	20	25	50	50		

Mechanical Data

Performance Data			25A	32A	40A	63A	80A	100A	Aux. Contacts
Protection class according to IEC 529									
Motor rating 60 Hz									
actuators		IP65	IP65	IP65	IP65	IP65	IP65	IP65	IP65
switch bodies		IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20
Mechanical life	[million operations]	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Max wire gauges									
Terminal size per IEC 947-1		A5	A5	A7	A7	A9	A9		2xA2
fine strands 1 conductor	mm ²	1...10	1...10	2.5...16	2.5...16	4...35	4...35		0.5...2.5
rigid wire 1 conductor	mm ²	1.5...16	1.5...16	2.5...25	2.5...25	4...50	4...50		0.75...2.5
Wire gauges according to UL/CSA	[AWG]	14/8	14/8	12/4	12/4	10/1	10/1		18/14

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

Front Installation Cat. No. 194E-E...

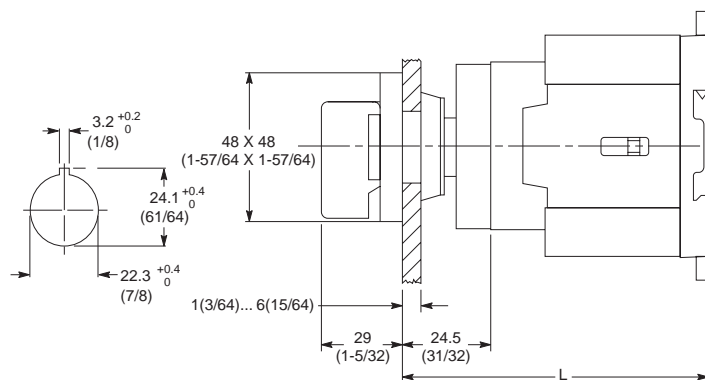


Actuators		
Cat. No.	P	Q
194L-HE4A	28 (1-7/64)	48 x 48 (1-57/64 x 1-57/64)
194L-HE4I	28 (1-7/64)	48 x 48 (1-57/64 x 1-57/64)
194L-HE4S	28 (1-7/64)	48 x 62 (1-57/64 x 2-7/16)
194L-HE6A	28 (1-7/64)	64 x 64 (2-33/64 x 3-5/64)
194L-HE6I	28 (1-7/64)	64 x 64 (2-33/64 x 3-5/64)
194L-HE6S	28 (1-7/64)	64 x 78 (2-33/64 x 3-5/64)
194L-HE6N	34 (1-11/32)	67 x 67 (2-41/64 x 2-41/64)
194L-HE6G	34 (1-11/32)	67 x 67 (2-41/64 x 2-41/64)

Switch Body						
Use with Cat. No.	B1 ^①	B2	F	H	L	G
194E-E25/32	—	36 (1-27/64)	45 (1-25/32)	64 (2-33/64)	60 (2-3/8)	90 (2-1/2)
194E-E40/63	48 (1-57/64)	36 (1-27/64)	54 (2-1/8)	72 (2-27/32)	74 (2-29/32)	108 (4-1/4)
194E-E80/100	48 (1-57/64)	36 (1-27/64)	72 (2-27/32)	90 (3-35/64)	90 (3-35/64)	144 (5-11/16)

① Does not apply to 194E-40/63A, 6-Pole Switches

Cat. No. 194E-E Switch Body with Cat. No. 194L-HCA Actuator for Central Mounting



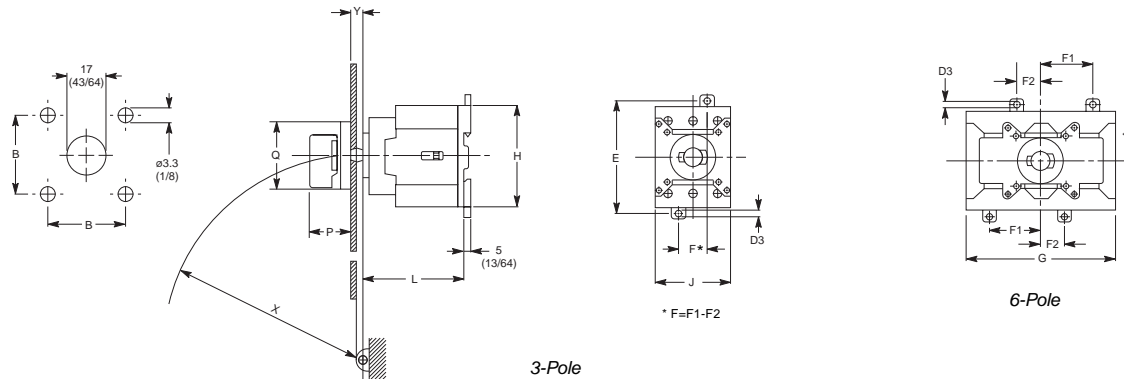
Type	L
194E-E25/32	84.5 (3-21/64)
194E-E40/63	98.5 (3-7/8)
194E-E80/100	114.5 (4-33/64)

Bulletin 194E
IEC Load Switches

Approximate Dimensions, Continued

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

Base Mounting Cat. No. 194E-A...



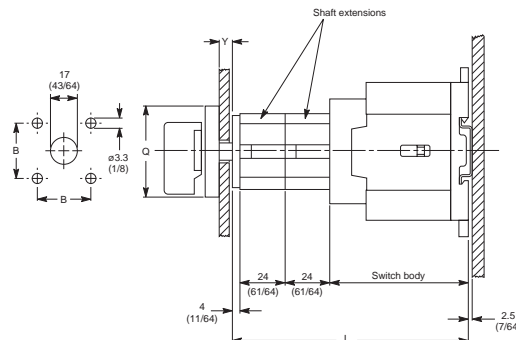
Actuators		
Cat. No.	P	Q
194L-HE4A	28 (1-7/64)	48 x 48 (1-57/64 x 1-57/64)
194L-HE4I	28 (1-7/64)	48 x 48 (1-57/64 x 1-57/64)
194L-HE4S	28 (1-7/64)	48 x 62 (1-57/64 x 2-7/16)
194L-HE6A	28 (1-7/64)	64 x 64 (2-33/64 x 3-5/64)
194L-HE6I	28 (1-7/64)	64 x 64 (2-33/64 x 3-5/64)
194L-HE6S	28 (1-7/64)	64 x 78 (2-33/64 x 3-5/64)
194L-HE6N	34 (1-11/32)	67 x 67 (2-41/64 x 2-41/64)
194L-HE6G	34 (1-11/32)	67 x 67 (2-41/64 x 2-41/64)

Cover Requirements					
Use With Cat. No.	Y min.	X ≥	Y max.	X ≥	
194E-A25/32	5 (13/64)	142 (5-19/32)	9.5 (3/8)	90 (3-35/64)	
194E-A40/63	2.5 (7/64)	150 (5-29/32)	9.5 (3/8)	90 (3-35/64)	
194E-A80/100	2.5 (7/64)	150 (5-29/32)	9.5 (3/8)	90 (3-35/64)	

Switch Body								
Use With Cat. No.	D3	E	F1	F2	G	H	L	J
194E-A25/32	4.5 (3/16)	70 (2-49/64)	30 (1-3/16)	15 (19/32)	90 (3-1/2)	64 (2-33/64)	84 (3-5/16)	45 (1-25/32)
194E-A40/63	4.5 (3/16)	80 (3-5/32)	37 (1-15/32)	17 (43/64)	108 (4-1/4)	72 (2-27/32)	98 (3-55/64)	54 (2-1/8)
194E-A80/100	5.6 (7/32)	95 (3-3/4)	48.5 (1-29/32)	23.5 (59/64)	144 (5-11/16)	90 (3-35/64)	114 (4-1/2)	72 (2-27/32)

Base Mounting Cat. No. 194E-A...

Cat. No. 194E-A... Switch Body with Cat. No. 194L-G2853 Shaft Extension



L	Switch Body		
	194E-A 25/32	194E-A 40/63	194E-A 80/100
With 1 shaft extension	88 (3-15/32)	102 (4-1/32)	118 (4-21/32)
With 2 shaft extensions	112 (4-27/64)	126 (4-31/32)	142 (15-19/32)
With 3 shaft extensions	136 (5-23/64)	150 (5-29/32)	166 (6-35/64)
With 4 shaft extensions	160 (6-5/16)	174 (6-55/64)	190 (7-31/64)
With 5 shaft extensions	184 (7-1/4)	198 (7-51/64)	214 (8-7/16)
With 6 shaft extensions	208 (8-13/64)	222 (8-3/4)	238 (9-3/8)

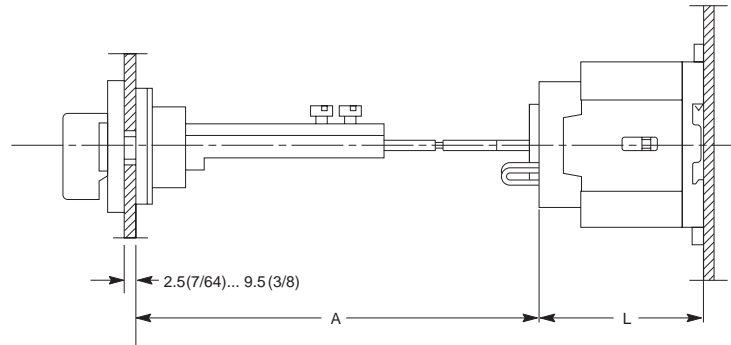
Shaft	Y
194L-G2830	2.5...9.5 (7/64...3/8)
194L-G3194	9...18 (23/64...23/32)
194L-G3195	14...23 (9/16)...(29/32)

Actuators		
Type	B	Q
194L-HE4A	36 (1-27/64)	48 x 48 (1-57/64 x 1-57/64)
194L-HE4I	36 (1-27/64)	48 x 48 (1-57/64 x 1-57/64)
194L-HE6A	48 (1-57/64)	64 x 64 (2-33/64 x 2-33/64)
194L-HE6I	48 (1-57/64)	64 x 64 (2-33/64 x 2-33/64)
194L-HE6N	48 (1-57/64)	67 x 67 (2-41/64 x 2-41/64)
194L-HE6G	48 (1-57/64)	67 x 67 (2-41/64 x 2-41/64)

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

Front Installation Cat. No. 194E-E...

Cat. No. 194E-E Switch Body with Metal Shaft Extension



Cat. No.	A
194L-G3393	110...235 (4-11/32...9-1/4)
194L-G3394	230...350 (9-1/16...13-25/32)

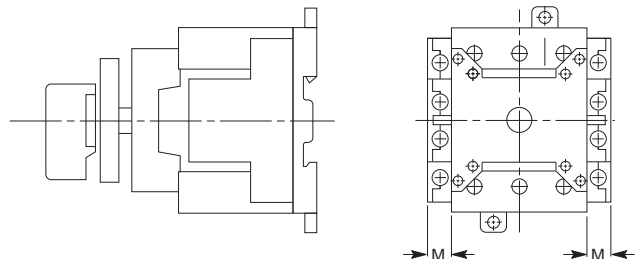
Cat. No.	L ①
194E-A25/32	60 (2-3/8)
194E-A40/63	74 (2-59/64)
194E-A80/100	90 (3-35/64)

① +2.5 (7/64) [DIN 46 277] 35 (1-3/8) Rails.

Base and Front Installation

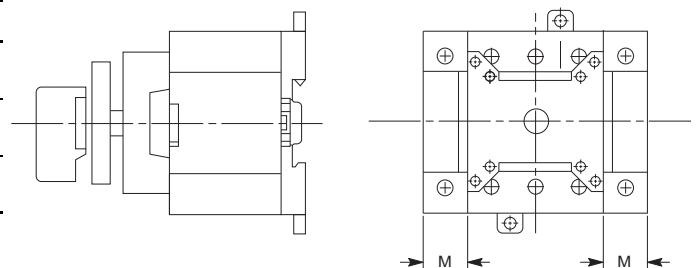
Cat. No. 194E... with Auxiliary Contact Block Installed

Contacts	M
1 N.O. + 1 N.C.	9 (23/64)
2 N.O. + 2 N.C.	18 (23/32)



Cat. No. 194E... with 4-Pole, Ground and Neutral Terminals

Cat. No.	M
194E-25/32	14 (9/16)
194E-40/63	17.5 (11/16)
194E-80/100	22 (7/8)



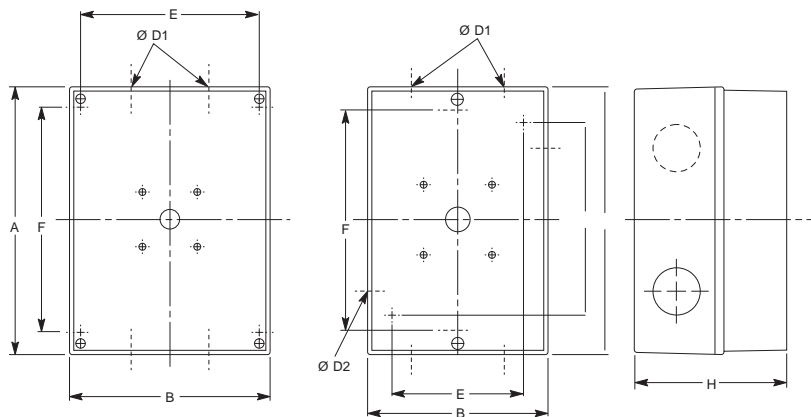
Bulletin 194E
IEC Load Switches

Approximate Dimensions, Continued

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

Base Mounting Cat. No. 194E-A...

Thermoplastic Enclosures



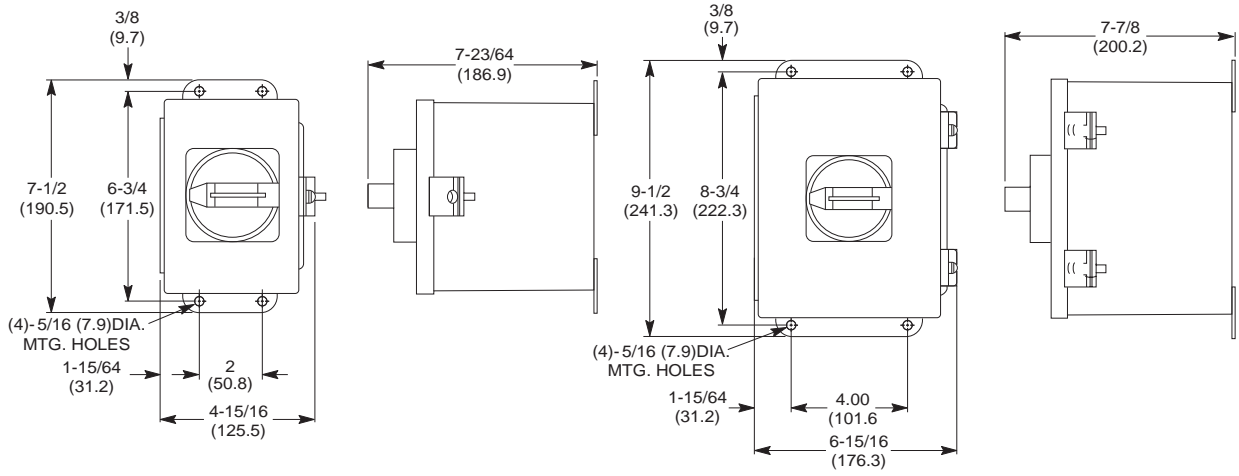
Complete Switches		Enclosures		A	B	ØD1	ØD2	E	F	H
Cat. No.	Poles	ABS	Noryl							
		Cat. No.								
194E-Y25/32	3 and 4	194L-G3572	194L-G3576	150 (5-29/32)	95 (3-3/4)	22.5 (57/64)	22.5 (57/64)	60 (2-3/8)	115 (4-17/32)	86 (3-3/8)
	6	194E-G3663	194E-G3664	180 (7-3/32)	125 (4-59/64)	37.5 (1-31/64)	-	-	145 (5-23/32)	105 (4-1/8)
194E-Y40/63	3 and 4	194E-G3663	194E-G3664	180 (7-3/32)	125 (4-59/64)	37.5 (1-31/64)	-	-	145 (5-23/32)	105 (4-1/8)
	6	194E-G3665	194E-G3666	230 (9-1/16)	175 (6-57/64)	47.5 (1-7/8)	-	155 (6-3/32)	195 (4-11/16)	120 (4-47/64)
194E-Y80/100	3 and 4	194E-G3665	194E-G3666	230 (9-1/16)	175 (6-57/64)	47.5 (1-7/8)	-	155 (6-3/32)	195 (4-11/16)	120 (4-47/64)

No. of Extensions	Cat. No. 194E-A 20/32...	Cat. No. 194E-A 40/63...	Cat. No. 194E-A 80/00...
	Inside Enclosure Depth		
With 1 extension	96 (3-25/32)	107 (4-7/32)	114 (4-31/64)
With 2 extensions	120 (4-23/32)	131 (5-5/32)	138 (5-7/16)
With 3 extensions	144 (5-43/64)	155 (6-7/64)	162 (6-3/8)
With 4 ⓘ extensions	168 (6-39/64)	179 (7-3/64)	186 (7-21/64)
With 5 ⓘ extensions	192 (7-9/16)	203 (8)	210 (8-17/64)
With 6 ⓘ extensions	216 (8-1/2)	227 (8-15/16)	234 (9-7/32)

ⓘ When more than 4 modules are used, attach the first one to the switch body using the screws supplied with the extension (Cat. No. 194L-G2853).

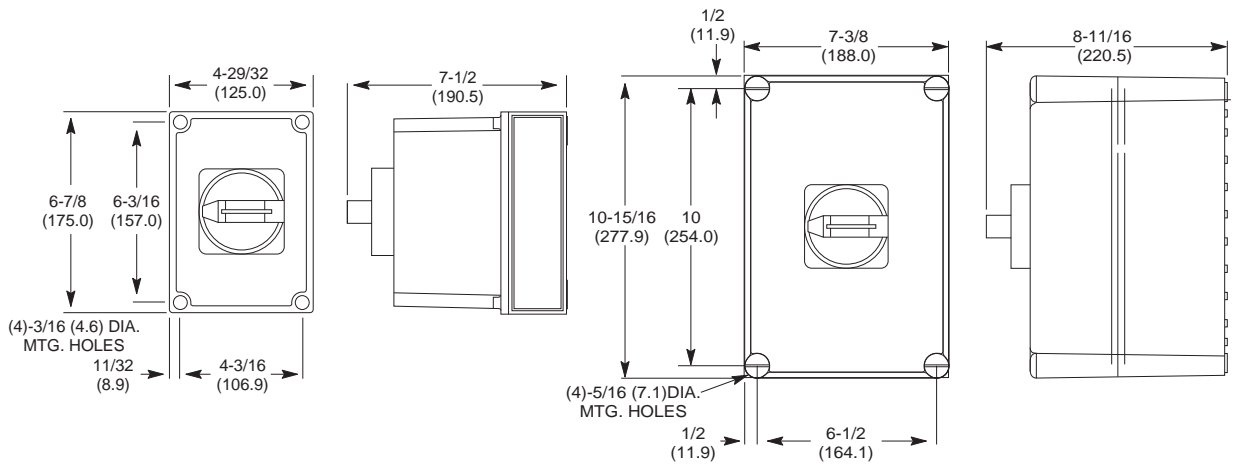
Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

Enclosed Switches



Dim Ref. A1
Cat. Nos. 194E-CA20...63, 194E-FA20...63, 194E-AA20...63

Dim Ref. B1
Cat. Nos. 194E-CA80...00, 194E-FA80...00, 194E-AA80...00



Dim Ref. C1
Cat. No. 194E-KA20...63

Dim Ref. B1
Cat. No. 194E-KA80...00



Bulletin 194E

- At-Motor Disconnect Switch
- 125, 160, 250, 315A Versions of Inductive Load-Rated Switches
- IP65/Type 1/3/3R/12 Operating Handles
- IP2LX Finger-Safe Terminals
- 3- and 4-Pole Versions
- Front/Door or DIN/Base Mounting Configurations
- OFF-ON Configurations
- Box Lug and Bolt-on Terminals Available
- Switches Include Operating Shaft

TABLE OF CONTENTS

Description	Page	Description	Page
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Accessories	48	Approximate Dimensions	53

Description

Bulletin 194E load switches are designed for use in North America as local motor isolation and for IEC disconnect switch applications outside of North America. Available in 3- and 4-pole versions with add-on grounding and neutral terminals and auxiliary contacts, Bulletin 194Es use similar operating handles as the Bulletin 194L Control and Load Switches.

Bulletin 194E switches are offered in two mounting styles, Front/Door and Base/DIN configurations, for a variety of installations. Switch body styles for Bulletin 194E base-mounted switches include standard interlock shaft; Bulletin 194E front-mounted switches include standard shaft.

Two-position OFF-ON switch is used to connect or disconnect a variety of inductive loads, including solenoids, actuators, valves, magnetic starters, relays, and motors up to 100 HP.

Conformity to Standards:

IEC 207
IEC 947-1
IEC 947-3 Low-voltage switchgear and control gear part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units. CE
UL 508: Industrial Control Equipment. UL
CSA: C22.2 No. 14: Industrial Control Equipment





Approvals:

UL Listed (Box Lug Version)
UR Recognized (Bolt-on Version)
CUL Listed (Box Lug Version)
CUR Recognized (Bolt-on Version)
Meets IEC, VDE and BS Standard requirements
IEC/CE-Marked (Per EN60947-3)





Your order must include:

- Cat. No. of switch body.
- Cat. No. of actuator.
- If required, Cat. No. of accessories.





OFF-ON Base-Mounted Switch — with Box Lugs — UL Listed

Switch Body	Function Sw. Angle	No. of Poles	OFF/0	ON/1	Max. Load (Amps)	AC23 Rated kw 690V AC 50hz	Hp @ 480V AC 60hz 3 ph.	Catalog Number	*
		3	0 0 0	X X X	125	37	60	194E-A125-1753	
					160	37	60	194E-A160-1753	
					250	45	75	194E-A250-1753	
					315	45	100	194E-A315-1753	
		4	0 0 0 0	X X X X	125	37	60	194E-A125-1754	
					160	37	60	194E-A160-1754	
					250	45	75	194E-A250-1754	
					315	45	100	194E-A315-1754	

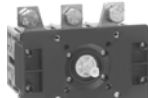

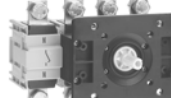

OFF-ON Base-Mounted Switch — with Bolt-on Wiring — UR Recognized

Switch Body	Function Sw. Angle	No. of Poles	OFF/0	ON/1	Max. Load (Amps)	AC23 Rated kw 690V AC 50hz	Hp @ 480V AC 60hz 3 ph.	Catalog Number	*
		3	0 0 0	X X X	125	37	60	194E-B125-1753	
					160	37	60	194E-B160-1753	
					250	45	75	194E-B250-1753	
					315	45	100	194E-B315-1753	
		4	0 0 0 0	X X X X	125	37	60	194E-B125-1754	
					160	37	60	194E-B160-1754	
					250	45	75	194E-B250-1754	
					315	45	100	194E-B315-1754	

OFF-ON Front-Mounted Switch — with Box Lugs — UL-Listed

Switch Body	Function Sw. Angle	No. of Poles	OFF/0	ON/1	Max. Load (Amps)	AC23 Rated kw 690V AC 50hz	Hp @ 480V AC 60hz 3 ph.	Catalog Number	*
		1	0	X	125	37	60	194E-E125-1753	
		2	0	X	160	37	60	194E-E160-1753	
		3	0	X	250	45	75	194E-E250-1753	
		315	45	100	194E-E315-1753				
		1	0	X	125	37	60	194E-E125-1754	
		2	0	X	160	37	60	194E-E160-1754	
		3	0	X	250	45	75	194E-E250-1754	
		4	0	X	315	45	100	194E-E315-1754	


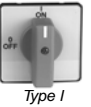


OFF-ON Front-Mounted Switch — with Bolt-on Wiring — UR-Recognized

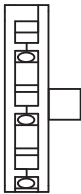
Switch Body	Function Sw. Angle	No. of Poles	OFF/0	ON/1	Max. Load (Amps)	AC23 Rated kw 690V AC 50hz	Hp @ 480V AC 60hz 3 ph.	Catalog Number	*
		1	0	X	125	37	60	194F-F125-1753	
		2	0	X	160	37	60	194F-F160-1753	
		3	0	X	250	45	75	194F-F250-1753	
		315	45	100	194F-F315-1753				
		1	0	X	125	37	60	194F-F125-1754	
		2	0	X	160	37	60	194F-F160-1754	
		3	0	X	250	45	75	194F-F250-1754	
		4	0	X	315	45	100	194F-F315-1754	

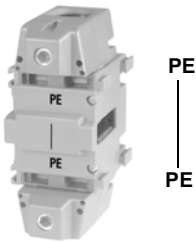
Bulletin 194E
IEC Load Switches
 Accessories

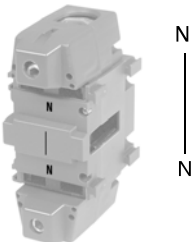
Handles

Actuators 194E — 125 ... 315A


Actuators with Screw Fixing (Includes Legend Plate and Control Knob)	Rating	Color	Legend Plate Size	Use with Cat. Number	Legend Marking	Catalog Number	*
 Type A	IP65 Type 3/3R/12	Black	88mm x 88mm 3-15/32 in. x 3-15/32 in.	194E-125...315A		194E-HE8A-175	
			130mm x 130mm 5-1/8 in. x 5-1/8 in.			194E-HE13A-175	
Red/Yellow		88mm x 88mm 3-15/32 in. x 3-15/32 in.	194E-HE8I-175				
		130mm x 130mm 5-1/8 in. x 5-1/8 in.	194E-HE13I-175				
 Type I		Black	90mm x 90mm 3-35/64 in. x 3-35/64 in.	194E-125...315A		194E-HE8G-175	
			135mm x 135mm 5-5/16 in. x 5-5/16 in.			194E-HE13G-175	
 Type G		Red/Yellow	90mm x 90mm 3-35/64 in. x 3-35/64 in.			194E-HE8N-175	
			135mm x 135mm 5-5/16 in. x 5-5/16 in.			194E-HE13N-175	
 Type N							

Auxiliary Contacts	Use With	Catalog Number	*
	194E-A135-160 194E-B135-160	194E-AB-P21-160	
	194E-A250-315 194E-B250-315	194E-AB-P21-315	
	194E-E135-160 194E-F135-160	194E-EF-P21-160	
	194E-E250-315 194E-F250-315	194E-EF-P21-315	

Earthing/Grounding Terminal	Use With	Catalog Number	*
	194E-A135-160 194E-E135-160	194E-AE160-PE	
	194E-A250-315 194E-E250-315	194E-AE315-PE	
	194E-B135-160 194E-F135-160	194E-BF160-PE	
	194E-B250 194E-F250	194E-BF250-PE	
	194E-B315 194E-F315	194E-BF315-PE	

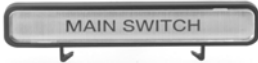
Neutral Terminal	Use With	Catalog Number	*
	194E-A125-160 194E-E125-160	194E-AE160-TN	
	194E-A250-315 194E-E250-315	194E-AE315-TN	
	194E-B125-160 194E-F125-160	194E-BF160-TN	
	194E-B250 194E-F250	194E-BF250-TN	
	194E-B315 194E-F315	194E-BF315-TN	

Handles, Continued

Terminal Cover	Use With	Catalog Number	*	
	194E-A125-160 194E-E125-160	2 covers per pole required	194E-AE125-C1	
	194E-A250-315 194E-E250-315	2 covers per pole required	194E-AE250-C1	
	194E-B125-160 194E-F125-160	2 covers per pole required	194E-BF125-C1	
	194E-B250-315 194E-F250-315	2 covers per pole required	194E-BF250-C1	

Legend

Additional Name Plate and Frame

	Color	Legend Size	Use With	Legend Marking	Catalog Number	*
 <p>10 per package</p>	Gray/ Black	19.2mm x 49mm 3/4 in. x 1-59/64 in.	88mm x 88mm 90mm x 90mm 130mm x 130mm 135mm x 135mm legend frames (Size 8,13)	MAIN SWITCH	194L-G3515A	
				HAUPTSCHALTER	194L-G3515B	
				INTERR. PRINCIPALE	194L-G3515C	
				INTERR. PRINCIPAUX	194L-G3515D	
				INTERR. PRINCIPAL	194L-G3515E	
				HUVUDBRYTARE	194L-G3515F	
				WAHLSCHALTER	194L-G3515G	
	EMERGENCY OFF			194L-G3515H		

Bulletin 194E
IEC Load Switches
Specifications

Technical Information

IEC Performance Data for 194E

			194E-125	194E-160	194E-250	194-315
Rated insulation voltage U_i : ❶	[V]		1000	1000	1000	1000
Rated impulse withstand voltage U_{imp}	[kV]		8	8	8	8
Test voltage 1 min	[kV]		3.5	3.5	3.5	3.5
Rated voltage U_e ❶❷	[V]		1000	1000	1000	1000
Rated frequency	[Hz]		50/60	50/60	50/60	50/60
Rated thermal current I_{th} open	[A]		125	160	250	315
Rated thermal current I_{the} enclosed	[A]		125	160	250	315
Rated current I_e						
AC-1 / Non-inductive or slightly induc. load						
AC-21A Switching of resistive loads with slight overload	[A]		125	160	250	315
Rated power P_e						
AC-23A Occasional switching of motor and other highly inductive loads	230V	[kW]	30	30	37	55
	400V	[kW]	45	55	90	110
	690V	[kW]	37	37	45	45
AC-3 Squirrel-cage motors: starting and stopping of running motors	230V	[kW]	22	30	37	45
	400V	[kW]	37	45	55	75
	690V	[kW]	30	37	45	45
Conditional rated short-circuit current	400/415V	[kA]	30	30	30	30
Max. fuse rating of circuit (type gG)		[A]	125	160	250	315
Rated short-time current I_{CW} 1S		[A]	2500	3000	4600	5800
Rated breaking capacity AC-23A ($\cos \varphi$ 0.45)	230V	[A]	800	900	1600	1800
	400V	[A]	750	850	1380	1650
	690V	[A]	340	340	400	400

❶ Valid for line with grounded common neutral termination, overvoltage category III, pollution degree 3. Other values on request.

❷ Not suitable for load-switching applications (AC-20A) above 690V.

Technical Information, Continued

IEC Performance Data for 194E, Continued

DC Switching Capacity					194E-125	194E-160	194E-250	194E-315
Rated current I_e								
	Rated voltage [V]	No. Poles in series						
DC-21A	60	3	[A]	125	160	250	315	
For resistive loads $T \leq 1$ ms	110	3	[A]	110	140	220	280	
	220	3	[A]	45	55	85	110	
	Rated voltage [V]	No. Poles in series						
	110	4	[A]	125	160	250	315	
	220	4	[A]	80	100	150	200	
	440	4	[A]	16	20	32	40	
Rated power P_e								
	Rated voltage [V]	No. Poles in series						
DC-22A, DC-3	24	4	[kW]	3	3.8	6	7.5	
For Inductive loads $T \leq 2.5$ ms	48	4	[kW]	6	7.5	12	15	
	60	4	[kW]	7.5	9.5	15	19	
	110	4	[kW]	10	12.5	20	25	
	220	4	[kW]	4.5	5.5	8	10	
Rated Power P_e								
	Rated voltage [V]	No. Poles in series						
DC-23A, DC-5	24	4	[kW]	3	3.8	6	7.5	
For Inductive loads $T \leq 15$ ms	48	4	[kW]	6	7.5	12	15	
	60	4	[kW]	7.5	9.5	15	19	
	110	4	[kW]	8.8	11	17.5	22	
	220	4	[kW]	2.5	3.5	5.5	7	

UL CSA Performance Data for 194E

				194E-125	194E-160	194E-250	194E-315	
Rated Insulation Voltage [V]				600	600	600	600	
Rated voltage [V]				600	600	600	600	
Continuous current [A]				150	200	250	300	
Ampere rating for general use [A]				150	200	250	300	
Heavy Pilot Duty [AC]								
Standard Duty [DC]								
Motor rating 60Hz								
1-phase (2 poles)	120V, 1 P	[FLA]		80	100	135	180	
		[HP]		7.5	10	15	20	
	240V, 1 P	[FLA]		88	110	136	155	
		[HP]		20	25	30	35	
	480V, 1 P	[FLA]		78	88	99	108	
		[HP]		35	40	45	50	
	600V, 1 P	[FLA]		62	70	86	104	
		[HP]		35	40	50	60	
	3-Phase	120V, 3 P	[FLA]		84	108	160	208
			[HP]		15	20	30	40
240V, 3 P		[FLA]		8	104	154	192	
		[HP]		30	40	60	75	
480V, 3 P		[FLA]		77	77	96	124	
		[HP]		60	60	75	100	
600V, 3 P		[FLA]		62	62	77	99	
		[HP]		60	60	75	100	

Bulletin 194E
IEC Load Switches
Specifications, Continued

Technical Information, Continued

Mechanical Data

			194E-125	194E-160	194E-250	194E-315
Actuators			IP65	IP65	IP65	IP65
Protection class according to IEC 529						
Front side Front unit			IP65	IP65	IP65	IP65
Box lugs ❶			IP20	IP20	IP20	IP20
Bolt-on straight version ❶			IP20	IP20	IP20	IP20
bent version						
Mechanical life [Million operations]			0.1	0.1	0.075	0.075
Box lugs — max. wire gauges						
Terminal sizes according to IEC 947-1	Gauge	No.	B11	B11	B14	B14
Fine strands, 1 conductor	Max.	mm ²	70	70	150	150
	Min.	mm ²	16	16	25	25
Rigid wire, 1 conductor	Max.	mm ²	95	95	185	185
	Min.	mm ²	10	10	16	16
Wire gauges according to UL / CSA	Max.	AWG	3/0	3/0		
		MCM			350	350
	Min.	AWG	8	8	4	4

❶ When provided with terminal covers.

Approvals

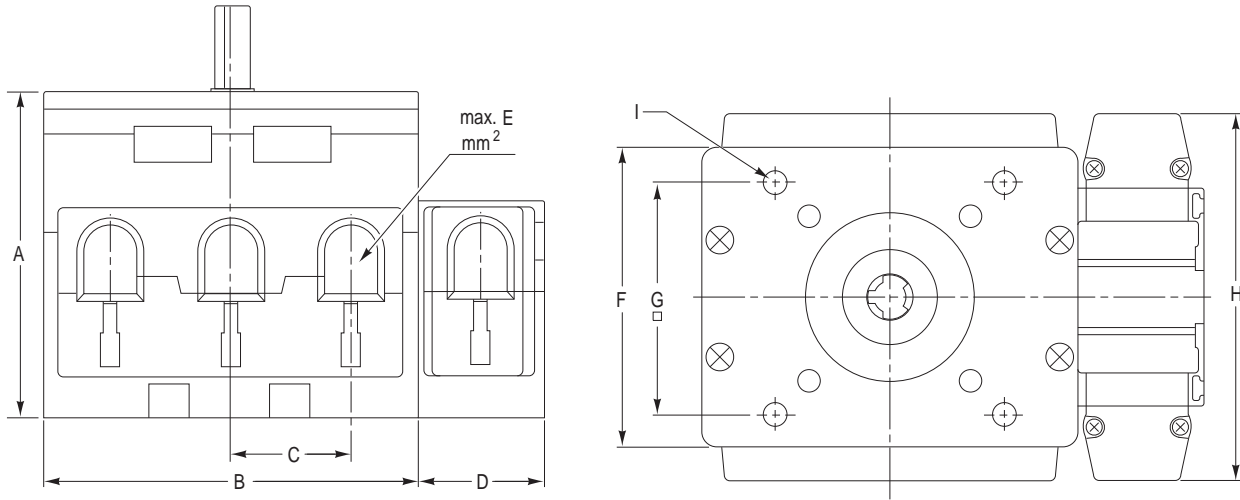
Catalog No. or Designation		UL-Listed (marked with UL)	UR-Recognized (marked with UR)	UL-Listed for Canada (marked with cUL)	UR-Recognized for Canada (marked with cUR)	CE
194E-A125	194E-E125	A		A		A
194E-A160	194E-E160	A		A		A
194E-A250	194E-E250	A		A		A
194E-A315	194E-E315	A		A		A
194E-B125	194E-F125		A		A	A
194E-B160	194E-F160		A		A	A
194E-B250	194E-F250		A		A	A
194E-B315	194E-F315		A		A	A
Aux. switch blocks		Z	Z	Z	Z	Z
Ground terminal		Z	Z	Z	Z	Z
Neutral terminal		Z	Z	Z	Z	Z

A = approved or test passed

Z = accessories are covered by the approval for the switch

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

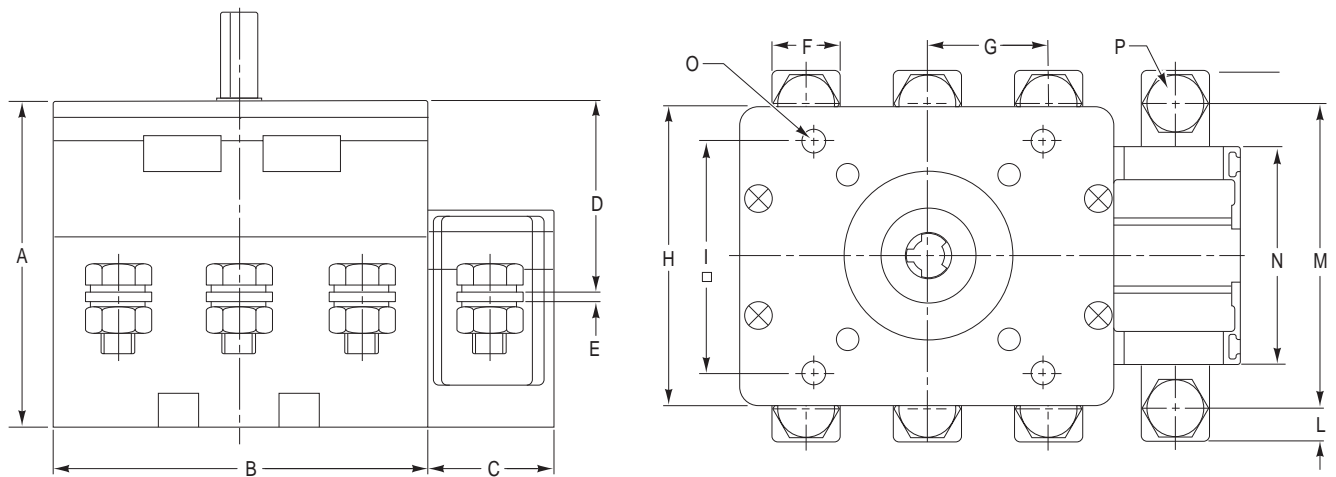
Front-Installation Box Lugs, 3- and 4-Pole



Switch Body 194E-E

	A	B	C	D	E	F	G	H	I
125	91 (3-19/32)	112 (4-13/32)	36 (1-13/32)	38 (1-1/2)	95 (3-23/64)	88 (3-7/16)	68 (2-5/8)	108 (4-1/4)	M5 (3/16)
160	91 (3-19/32)	112 (4-13/32)	36 (1-13/32)	38 (1-1/2)	95 (3-23/64)	88 (3-7/16)	68 (2-5/8)	108 (4-1/4)	M5 (3/16)
250	103 (4-3/64)	145 (5-23/32)	44 (1-23/32)	52.5 (2-1/16)	185 (7-9/32)	88 (3-7/16)	68 (2-5/8)	120 (4-11/16)	M5 (3/16)
315	103 (4-3/64)	145 (5-23/32)	44 (1-23/32)	52.5 (2-1/16)	185 (7-9/32)	88 (3-7/16)	68 (2-5/8)	120 (4-11/16)	M5 (3/16)

Front-Installation Bolt-on Terminals, 3- and 4-Pole



Switch Body 194E-F

	A	B	C	D	E	F	G	H	I	L	M	N	O	P
125	91 (3-19/32)	112 (4-3/32)	38 (1-1/2)	65.5 (2-9/16)	3 (1/8)	2 (3/32)	36 (1-13/32)	88 (3-7/16)	68 (2-5/8)	10 (13/32)	90 (3-17/32)	64 (2-17/32)	M5 (3/16)	M10 (3/8)
160	91 (3-19/32)	112 (4-3/32)	38 (1-1/2)	65.5 (2-9/16)	3 (1/8)	2 (3/32)	36 (1-13/32)	88 (3-7/16)	68 (2-5/8)	10 (13/32)	90 (3-17/32)	64 (2-17/32)	M5 (3/16)	M10 (3/8)
250	103 (4-3/64)	145 (5-23/32)	52.5 (1-22/32)	60.4 (2-3/8)	4 (5/32)	2 (3/32)	44 (1-23/32)	88 (3-7/16)	68 (2-5/8)	13 (1/2)	100 (3-15/16)	70 (2-3/4)	M5 (3/16)	M12 (15/32)
315	103 (4-3/64)	145 (5-23/32)	52.5 (1-22/32)	60.4 (2-3/8)	4 (5/32)	2 (3/32)	52 (2-1/16)	88 (3-7/16)	68 (2-5/8)	13 (1/2)	100 (3-15/16)	70 (2-3/4)	M5 (3/16)	M12 (15/32)

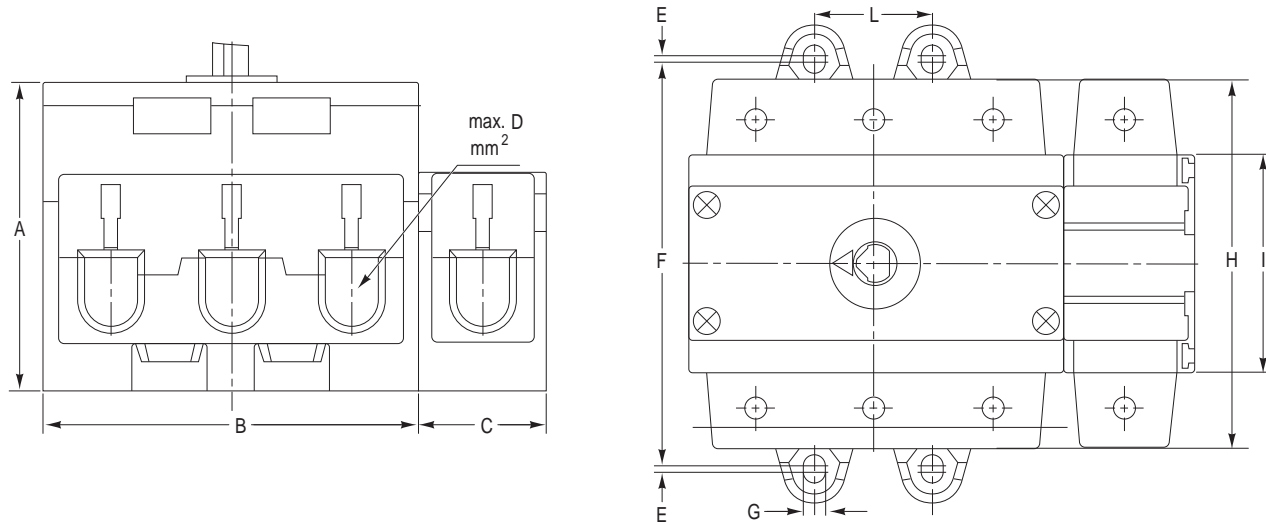
Bulletin 194E

IEC Load Switches

Approximate Dimensions, Continued

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

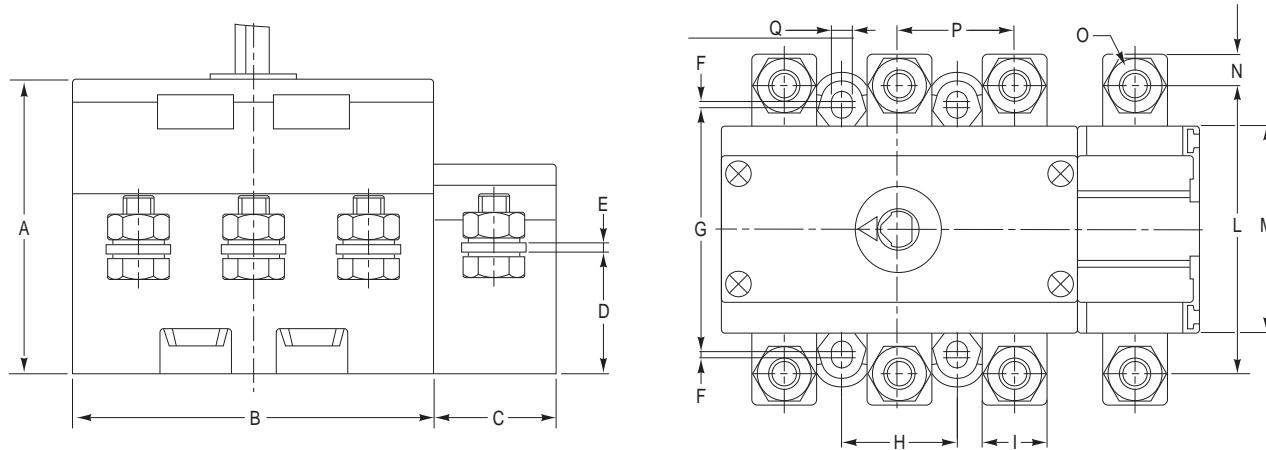
Base-Mounting Box Lugs, 3- and 4-Pole



Switch Body 194E-A

	A	B	C	D	E	F	G	H	I	L
125	91 (3-19/32)	112 (4-13/32)	38 (1-1/2)	95 (3-23/64)	2 (3/32)	118 (4-5/8)	6.4 (1/4)	108 (4-1/4)	64 (2-17/32)	36 (1-13/32)
160	91 (3-19/32)	112 (4-13/32)	38 (1-1/2)	95 (3-23/64)	2 (3/32)	118 (4-5/8)	6.4 (1/4)	108 (4-1/4)	64 (2-17/32)	36 (1-13/32)
250	98 (3-27/32)	145 (5-23/32)	52.5 (1-23/32)	185 (7-9/32)	2 (3/32)	140 (5-1/2)	6.4 (1/4)	126 (4-15/16)	70 (2-3/4)	44 (2-1/16)
315	98 (3-27/32)	145 (5-23/32)	52.5 (1-23/32)	185 (7-9/32)	2 (3/32)	140 (5-1/2)	6.4 (1/4)	126 (4-15/16)	70 (2-3/4)	44 (2-1/16)

Base-Mounting Bolt-on Terminals, 3- and 4-Pole

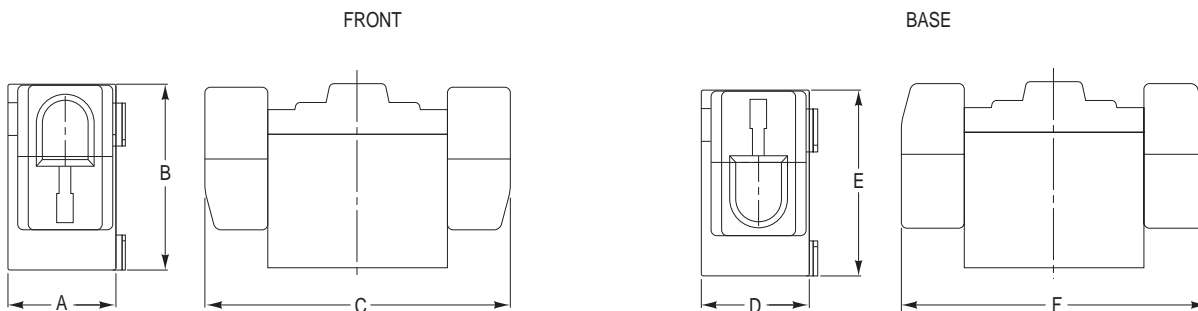


Switch Body 194E-B

	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q
125	91 (3-19/32)	112 (4-13/32)	38 (1-1/2)	36.5 (1-7/16)	3 (1/8)	2 (3/32)	76 (3)	36 (1-13/32)	20 (3/4)	90 (3-17/32)	64 (2-17/32)	10 (13/32)	M10 (3/8)	36 (1-13/32)	6.4 (1/4)
160	91 (3-19/32)	112 (4-13/32)	38 (1-1/2)	36.5 (1-7/16)	3 (1/8)	2 (3/32)	76 (3)	36 (1-13/32)	20 (3/4)	90 (3-17/32)	64 (2-17/32)	10 (13/32)	M10 (3/8)	36 (1-13/32)	6.4 (1/4)
250	98 (3-27/64)	145 (5-23/32)	52.5 (1-23/32)	38.6 (1-1/2)	4 (5/32)	2 (3/32)	80 (3-1/8)	44 (1-23/32)	26 (1-1/64)	100 (3-15/16)	70 (2-3/4)	13 (1/2)	M12 (15/32)	44 (1-23/32)	6.4 (1/4)
315	98 (3-27/64)	145 (5-23/32)	52.5 (1-23/32)	38.6 (1-1/2)	4 (5/32)	2 (3/32)	80 (3-1/8)	44 (1-23/32)	26 (1-1/64)	100 (3-15/16)	70 (2-3/4)	13 (1/2)	M12 (15/32)	52 (2-1/16)	6.4 (1/4)

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

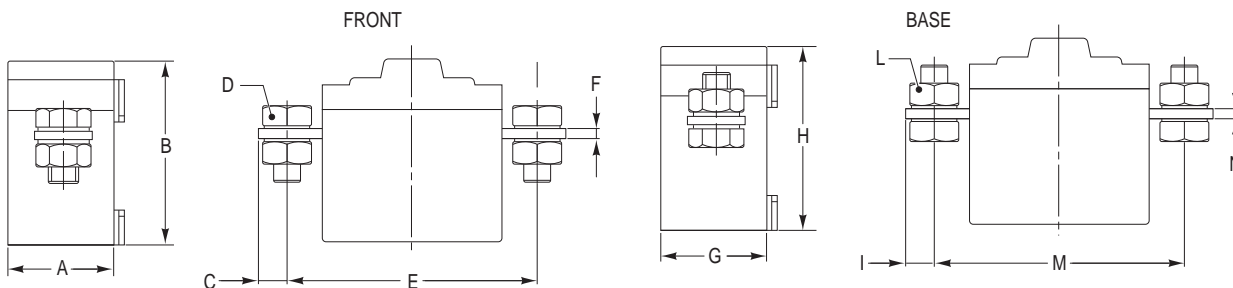
Box Ground and Neutral Terminal



Switch Body 194E-F

	A	B	C	D	E	F
125	37.8 (1-1/2)	64 (2-17/32)	108 (4-1/4)	37.8 (1-1/2)	64 (2-17/32)	108 (4-1/4)
160	37.8 (1-1/2)	64 (2-17/32)	108 (4-1/4)	37.8 (1-1/2)	64 (2-17/32)	108 (4-1/4)
250	52.3 (2-1/16)	71.1 (2-25/32)	126 (4-15/16)	52.3 (2-1/16)	80.6 (3-1/8)	126 (4-15/16)
315	52.3 (2-1/16)	71.1 (2-25/32)	126 (4-15/16)	52.3 (2-1/16)	80.6 (3-1/8)	126 (4-15/16)

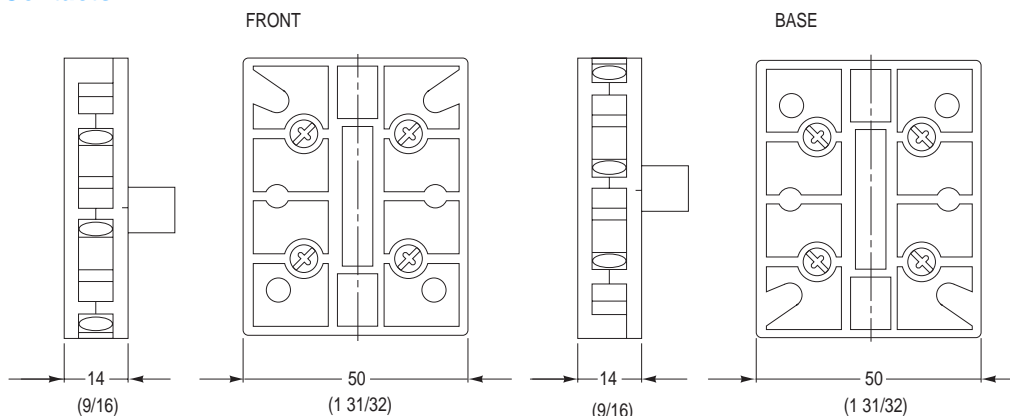
Bolt Ground and Neutral Terminal



Switch Body 194E-F

	A	B	C	D	E	F	G	H	I	L	M	N
125	37.8 (1-1/2)	64 (2-17/32)	10 (13/32)	M10 (13/32)	90 (3-17/32)	3 (1/8)	37.8 (1-1/2)	64 (2-17/32)	10 (13/32)	M10 (13/32)	90 (3-17/32)	3 (1/8)
160	37.8 (1-1/2)	64 (2-17/32)	10 (13/32)	M10 (13/32)	90 (3-17/32)	3 (1/8)	37.8 (1-1/2)	64 (2-17/32)	10 (13/32)	M10 (13/32)	90 (3-17/32)	3 (1/8)
250	52.3 (2-1/16)	68 (2-21/32)	13 (1/2)	M12 (15/32)	100 (3-15/16)	4 (5/32)	52.3 (2-1/16)	68 (2-21/32)	13 (1/2)	M12 (15/32)	100 (3-15/16)	4 (5/32)
315	52.3 (2-1/16)	68 (2-21/32)	13 (1/2)	M12 (15/32)	100 (3-15/16)	4 (5/32)	52.3 (2-1/16)	68 (2-21/32)	13 (1/2)	M12 (15/32)	100 (3-15/16)	4 (5/32)

Auxiliary Contacts

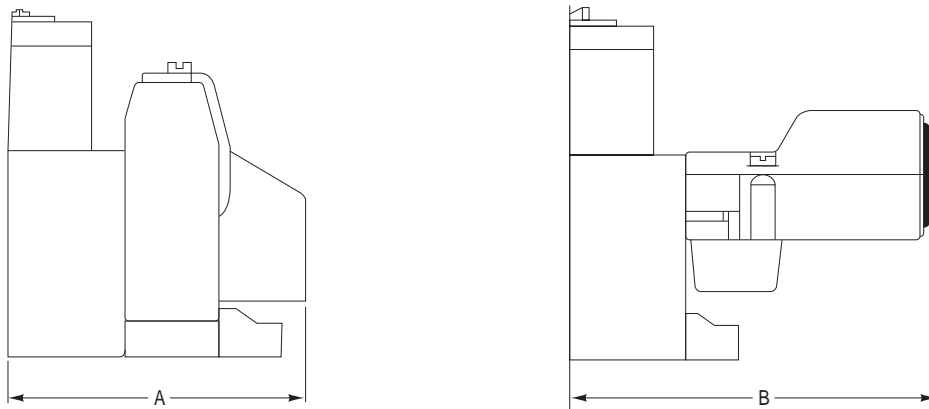


Bulletin 194E
IEC Load Switches

Approximate Dimensions, Continued

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

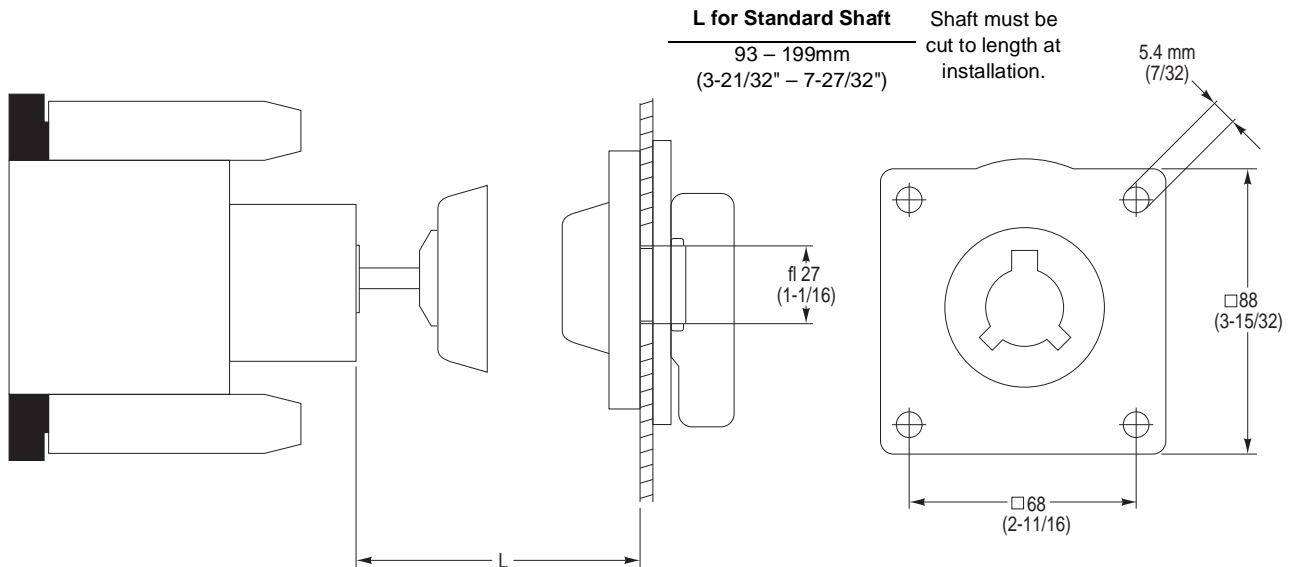
Terminal Cover



Switch Body 194E-F

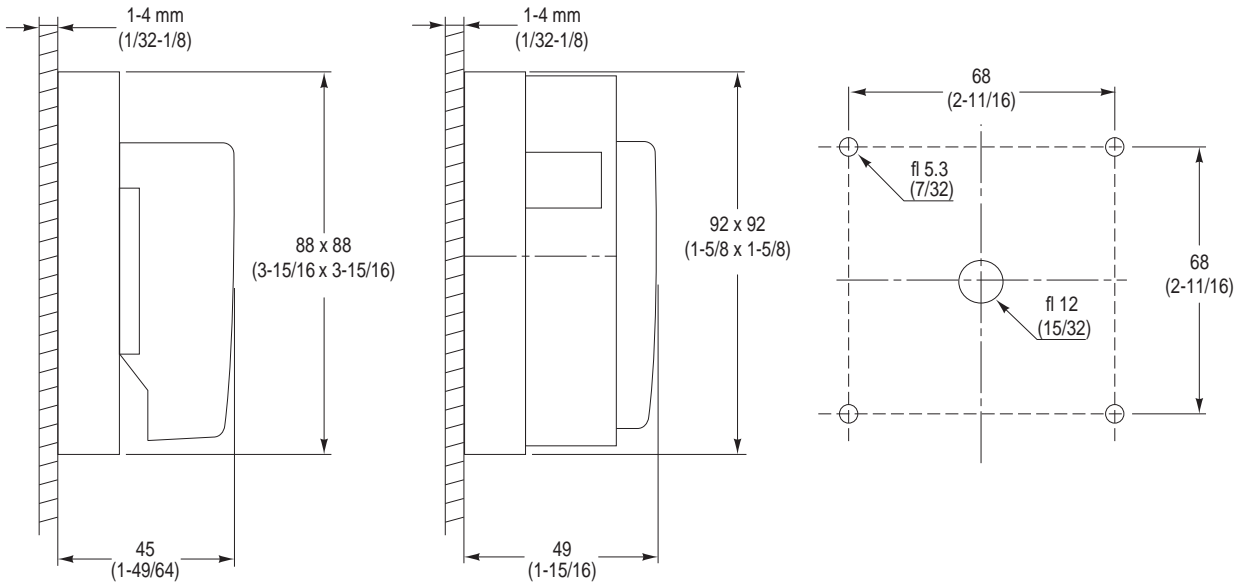
	A	B
125	76.2 (3)	95 (3-3/4)
160	76.2 (3)	95 (3-3/4)
250	88 (3-15/32)	109.5 (4-5/16)
315	88 (3-15/32)	109.5 (4-5/16)

Door Clutches

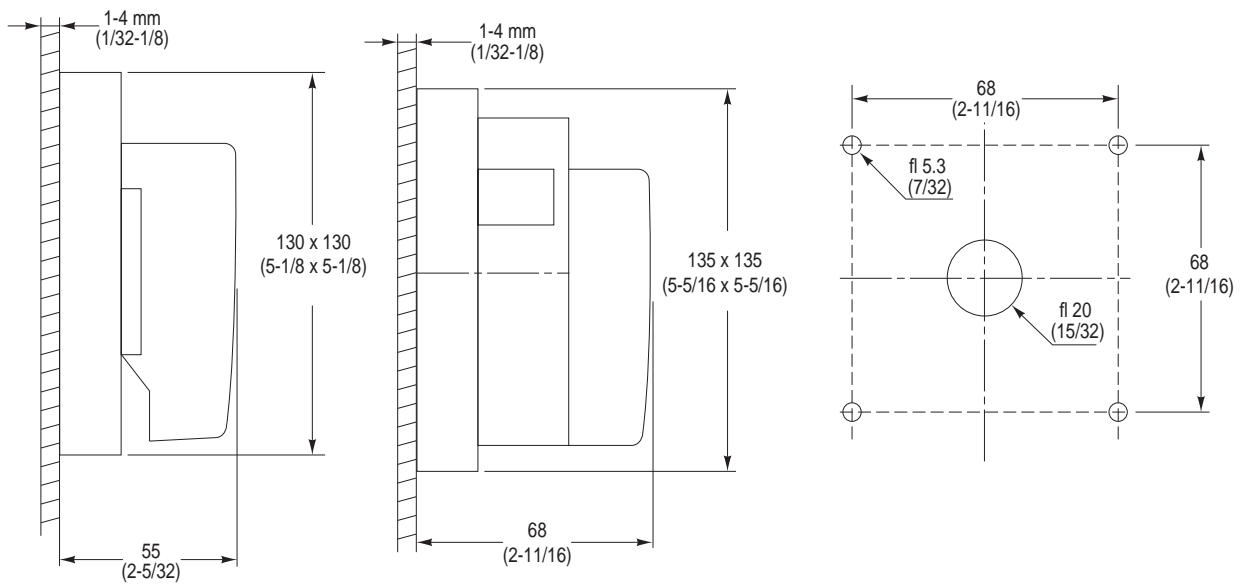


Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

Actuators (Type 194E-HE-8A-8I-8G-8N)

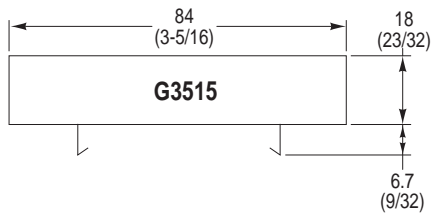


Actuators (Type 194E-HE-13A-13I-13G-13N)



Additional Name Plate

Frame and legend snaps on to actuator bezel. Fits size 8 and 13 actuators.





Bulletin 194L

- 12A, 16A, 20A and 25A Inductive Load-Rated Switch
- IP65 Water Spray and Dustproof Actuators
- IP20 Finger-Safe Terminals
- Switches Available for OFF-ON, Changeover, Star-Delta (Wye-Delta), Reversing, Ammeter, Voltmeter and Step Switch Configurations
- 1- ... 6-Pole Versions
- Front/Door- or Base/ DIN Rail-Mounting Configurations
- Thermoplastic Enclosures IP65

TABLE OF CONTENTS

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Description

Bulletin 194L control and load switches are flexible, adaptable, time- and space-saving devices. Switches are available as front/door- or Base/DIN rail-mounting versions.

Uniformly styled actuators, featuring marked legend plates, are available in Selector-Knob, Disk-Style, Rectangular-Style and Key-Operated versions. Selector-Knob versions are available in three sizes. Most actuators are available in Gray/Black or Red/Yellow and have padlockable versions.

A new thermoplastic enclosure features constructions of impact-resistant ABS or corrosion-resistant NORYL materials. Both shallow and deep versions include 35mm DIN mounting rail, grounding and neutral terminals, and captive cover screws. Enclosures may be ordered with or without cover openings for handle mounting. Enclosures are rated for use in IP65 (Type 1, 3, 3R, 12) environments.

Conformity to Standards:

IEC 947-3: Low-voltage switchgear and controlgear. Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination Units. CE

UL 508: Industrial Control Equipment UL

CSA C22.2 No. 14: Industrial Control Equipment. CSA

Approvals:

UL Listed
(File No. E54612; Guide No. NLRV)

CSA Certified (LR 13908)

Meets IEC, VDE and BS Standard requirements.

IEC/CE Marked (Per EN 60947-3)

Your order must include:

- Cat. No. of switch body.
- Cat. No. of actuator.
- If required, Cat. No. of accessories.



OFF-ON Switch

OFF-ON Switch — see page 61

Two-position switch used to connect or disconnect a variety of inductive loads including: solenoids, actuators, valves, magnetic starters and relays.



Changeover Switch

Changeover Switch — see page 65

Two-position switch used in control applications to change between alternate power supplies. This device can typically be used to manually switch power supplies from a primary source to a stand-by/emergency supply in the event of a power outage.



Star-Delta (Wye-Delta) Switch

Star-Delta (Wye-Delta) Switch — see page 66

Three-position (Off-Wye-Delta) switch used to manually control reduced-voltage motor starting. Operating the switch manually changes the wiring configuration of the motor from a star configuration to delta configuration after the controller operator has determined that the motor is up to operating speed.



Reversing Switch

Reversing Switch — see page 67

Three-position (Forward-Off-Reverse) switch used to manually control a motor's direction of rotation. Operating the switch changes the wiring configuration of the motor to operate in the forward or reverse direction.



Ammeter Switch

Ammeter Switch — see page 67

Multi-position switch used to connect one or more phases of an electrical supply to an ammeter, so that the current in each phase can be displayed on one ammeter.



Voltmeter Switch

Voltmeter Switch — see page 69

Multi-position switch used to connect two lines of the electrical supply system to a voltmeter so that the voltage between the lines (phase-to-phase or phase-to-neutral) can be displayed on one voltmeter.

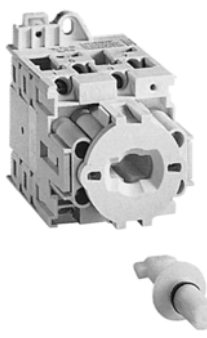



Step Switch

Step Switch — see page 70

Multi-position switch used to connect a variety of loads to an electrical supply in a pre-determined logical sequence. A typical application would be temperature control of a heating oven or furnace.









OFF-ON Switch (Actuators Listed on pages 62 to 64)

Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating (A)	No. of Poles	Contact Target Configuration X = Contact Closed O = Contact Open		Mounting Style	Cat. No.	*			
				No. of Circuits	Control Knob Position						
					OFF/0				ON/1		
 <p>Base/DIN Rail-Installed Screw Fixing</p>		12	1	1	O	X	Base/DIN	194L-A12-1751			
		16					Front/Door	194L-E12-1751			
		20					Base/DIN	194L-A16-1751			
		25					Front/Door	194L-E16-1751			
		12					Base/DIN	194L-A20-1751			
		16					Front/Door	194L-E20-1751			
		20	Base/DIN	194L-A25-1751							
		25	Front/Door	194L-E25-1751							
		12	2	2	1	2	O	X	Base/DIN	194L-A12-1752	
		16							Front/Door	194L-E12-1752	
		20							Base/DIN	194L-A16-1752	
		25							Front/Door	194L-E16-1752	
12	Base/DIN	194L-A20-1752									
16	Front/Door	194L-E20-1752									
20	Base/DIN	194L-A25-1752									
25	Front/Door	194L-E25-1752									
12	3	3	1	2	O	X	Base/DIN	194L-A12-1753			
16							Front/Door	194L-E12-1753			
20							Base/DIN	194L-A16-1753			
25							Front/Door	194L-E16-1753			
12							Base/DIN	194L-A20-1753			
16							Front/Door	194L-E20-1753			
20	Base/DIN	194L-A25-1753									
25	Front/Door	194L-E25-1753									
12	4	4	1	2	O	X	Base/DIN	194L-A12-1754			
16							Front/Door	194L-E12-1754			
20							Base/DIN	194L-A16-1754			
25							Front/Door	194L-E16-1754			
12							Base/DIN	194L-A20-1754			
16							Front/Door	194L-E20-1754			
20	Base/DIN	194L-A25-1754									
25	Front/Door	194L-E25-1754									
12	5	5	1	2	O	X	Base/DIN	194L-A12-1755			
16							Front/Door	194L-E12-1755			
20							Base/DIN	194L-A16-1755			
25							Front/Door	194L-E16-1755			
12							Base/DIN	194L-A20-1755			
16							Front/Door	194L-E20-1755			
20	Base/DIN	194L-A25-1755									
25	Front/Door	194L-E25-1755									
12	6	6	1	2	O	X	Base/DIN	194L-A12-1756			
16							Front/Door	194L-E12-1756			
20							Base/DIN	194L-A16-1756			
25							Front/Door	194L-E16-1756			
12							Base/DIN	194L-A20-1756			
16							Front/Door	194L-E20-1756			
20	Base/DIN	194L-A25-1756									
25	Front/Door	194L-E25-1756									

IEC Control and Load Switches

Product Selection, Continued




OFF-ON Switch, Continued (Switch Body listed on page 61)

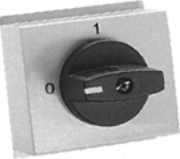
Selector-Knob Actuator With Screw Fixing (Includes Legend Plate and Control Knob)	Color	Locking Provision	Legend Plate Size	Legend Marking	Cat. No.	*		
 Type A	Gray/Black	None	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	0-1	194L-HE4A-175			
				OFF-ON	194L-HE4A-175I			
 Type E (Padlock Not Included)		Accepts 1 Padlock		0-1	194L-HE4E-175			
				OFF-ON	194L-HE4E-175I			
 Type I		Red/Yellow		None	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	0-1	194L-HE4I-175	
						OFF-ON	194L-HE4I-175I	
 Type L (Padlock Not Included)				Accepts 1 Padlock		0-1	194L-HE4L-175	
						OFF-ON	194L-HE4L-175I	
 Type A	Gray/Black		None	64mm x 64mm (2-33/64 in. x 2-33/64 in.)		0-1	194L-HE6A-175	
						OFF-ON	194L-HE6A-175I	
 Type E (Padlock Not Included)			Accepts 1 Padlock			0-1	194L-HE6E-175	
						OFF-ON	194L-HE6E-175I	
 Type I		Red/Yellow	None		64mm x 64mm (2-33/64 in. x 2-33/64 in.)	0-1	194L-HE6I-175	
						OFF-ON	194L-HE6I-175I	
 Type L (Padlock Not Included)			Accepts 1 Padlock			0-1	194L-HE6L-175	
						OFF-ON	194L-HE6L-175I	


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Continued on next page.

OFF-ON Switch, Continued (Switch Body listed on page 61)

Disk-Style Actuator With Screw Fixing (Includes Legend Plate and Control Knob)	Color	Locking Provision	Legend Plate Size	Legend Marking	Cat. No.	*
 Type G	Gray/Black	Accepts Up to 3 Padlocks	67mm x 67mm (2-41/64 in. x 2-41/64 in.)		194L-HE6G-175	
			88mm x 88mm (3-15/32 in. x 3-15/32 in.)		194L-HE8G-175	
 Type N	Red/Yellow	Accepts Up to 3 Padlocks	67mm x 67mm (2-41/64 in. x 2-41/64 in.)		194L-HE6N-175	
			90mm x 90mm (3-35/64 in. x 3-35/64 in.)		194L-HE8N-175	

Rectangular Knob Actuator ① With Screw Fixing (Includes Legend Plate and Control Knob)	Color	Locking Provision	Legend Plate Size	Legend Marking	Cat. No.	*
 Type P	Gray	None	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	0-1	194L-HE4P-175	
				OFF-ON	194L-HE4P-175I	

Selector-Knob Actuator With Screw Fixing (Includes Legend Plate With Additional Marking Area and Control Knob)	Color	Locking Provision	Legend Plate Size	Legend Marking	Cat. No.	*
 Type S	Gray/Black	None	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	0-1	194L-HE4S-175	
				OFF-ON	194L-HE4S-175I	
			64mm x 64mm (2-33/64 in. x 2-33/64 in.)	0-1	194L-HE6S-175	
				OFF-ON	194L-HE6S-175I	

① Use with Cat. No. 194L-A... Base-Mounted switches only.

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IEC Control and Load Switches

Product Selection, Continued


OFF-ON Switch, Continued (Switch Body listed on page 61)

Actuators with Central Fixing (Includes Legend Plate and Control Knob)	Rating	Color	Legend Plate Size	Legend Marking	Cat. No.	*
 Type A	IP65	Black/Gray	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	0-1	194L-HC4A-175	
				OFF-ON	194L-HC4A-175I	
 Type I	IP65	Red/Yellow	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	0-1	194L-HC4I-175	
				OFF-ON	194L-HC4I-175I	
 Type E With Locking (Padlock not included)	IP65	Black/Gray	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	0-1	194L-HC4E-175	
				OFF-ON	194L-HC4E-175I	
 Type L With Locking (Padlock not included)	IP65	Red/Yellow	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	0-1	194L-HC4L-175	
				OFF-ON	194L-HC4L-175I	
 Type G	IP65 Type 3/3R/12	Black/Gray	67mm x 67mm (2-41/64 in. x 2-41/64 in.)	0-1 OFF-ON	194L-HE6G-175	
			88mm x 88mm (3-15/32 in. x 3-15/32 in.)	0-1 OFF-ON	194L-HE8G-175	
 Type N	IP65 Type 3/3R/12	Red/Yellow	67mm x 67mm (2-41/64 in. x 2-41/64 in.)	0-1 OFF-ON	194L-HE6N-175	
			90mm x 90mm (3-35/64 in. x 3-35/64 in.)	0-1 OFF-ON	194L-HE8N-175	


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Continued on next page.

Changeover Switch, 2-Position (Actuator listed on page 64)

Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating (A)	No. of Poles	Contact Target Configuration X = Contact Closed O = Contact Open			Mounting Style	Cat. No.	*
				No. of Circuits	Control Knob Position				
					1	2			
	60°	12	3	1	X	O	Front/Door	194L-E12-2503	
		16		2	X	O		194L-E16-2503	
		20		3	X	O		194L-E20-2503	
		25		4	O	X		194L-E25-2503	
		12		5	O	X		194L-E12-2504	
		16		6	O	X		194L-E16-2504	
		20	4	1	X	O		194L-E20-2504	
		25		2	X	O		194L-E25-2504	
	60°	12	4	3	X	O	Front/Door	194L-E12-2504	
		16		4	X	O		194L-E16-2504	
		20		5	O	X		194L-E20-2504	
		25		6	O	X		194L-E25-2504	
		12		7	O	X		194L-E12-2504	
		16		8	O	X		194L-E16-2504	
20									
25									


Changeover Switch, 3-Position

Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating (A)	No. of Poles	Contact Target Configuration X = Contact Closed O = Contact Open				Mounting Style	Cat. No.	*
				No. of Circuits	Control Knob Position					
					1	0	2			
 <i>Base/DIN Rail-Installed Screw Fixing</i>	60°	12	3	1	X	O	O	Base/DIN	194L-A12-3503	
		16		2	X	O	O	Front/Door	194L-E12-3503	
		20		3	X	O	O	Base/DIN	194L-A16-3503	
		25		4	O	O	X	Front/Door	194L-E16-3503	
		12		5	O	O	X	Base/DIN	194L-A20-3503	
		16		6	O	O	X	Front/Door	194L-E20-3503	
		20	4	1	X	O	O	Base/DIN	194L-A12-3504	
		25		2	X	O	O	Front/Door	194L-E12-3504	
		12		3	X	O	O	Base/DIN	194L-A16-3504	
		16		4	X	O	O	Front/Door	194L-E16-3504	
		20		5	O	O	X	Base/DIN	194L-A20-3504	
		25		6	O	O	X	Front/Door	194L-E20-3504	
	90°	12	3	No. of Circuits	1	0	2	Front/Door	194L-E12-3753	
		16		1	X	O	O		194L-E16-3753	
		20		2	X	O	O		194L-E20-3753	
		25		3	X	O	O		194L-E25-3753	
		12		4	O	O	X		194L-E12-3753	
		16		5	O	O	X		194L-E16-3753	
20	6	O	O	X	194L-E20-3753					
25										






IEC Control and Load Switches


Product Selection, Continued

Changeover Switch, Continued (Switch Body listed on page 65)

Actuator (Includes Legend Plate and Control Knob)	Fixing	Color	Locking Provision	Legend Plate Size	Legend Marking	Cat. No.	*
 Type A	Central	Gray/Black	None	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	1-2 (60°)	194L-HC4A-250	
	Screw				1-0-2 (60°)	194L-HC4A-350	
					1-2 (60°)	194L-HE4A-250	
					1-0-2 (60°)	194L-HE4A-350	
				1-0-2 (90°)	194L-HE4A-375		
	Screw			64mm x 64mm (2-33/64 in. x 2-33/64 in.)	1-2 (60°)	194L-HE6A-250	
				1-0-2 (60°)	194L-HE6A-350		
				1-0-2 (90°)	194L-HE6A-375		

Star-Delta Switch (Wye-Delta)

Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating (A)	Contact Target Configuration X = Contact Closed O = Contact Open			Mounting Style	Cat. No.	*		
			No. of Circuits	Control Knob Position						
				0 	Y 				Δ 	
		12	1	O	X	X	Front/Door	194L-E12-7503		
		16	2	O	O	X			194L-E16-7503	
			3	O	X	O				
			4	O	X	O				
			5	O	O	X				
		20	6	O	O	X			194L-E20-7503	
			7	O	X	X				
		25	8	O	X	X			194L-E25-7503	

Actuator With Screw Mounting (Includes Legend Plate and Control Knob)	Color	Locking Provision	Legend Plate Size	Legend Marking	Cat. No.	*
 Type A	Gray/Black	None	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	0-Y-Δ	194L-HE4A-750	
			64mm x 64mm (2-33/64 in. x 2-33/64 in.)		194L-HE6A-750	

Reversing Switch

Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating (A)	Contact Target Configuration X = Contact Closed O = Contact Open			Mounting Style	Cat. No.	*	
			No. of Circuits	Control Knob Position					
				1 	0 				2
		12	1 2 3 4 5	O X X O X	O O O O O	X O O X X	Front/ Door	194L-E12-7543	
		16						194L-E16-7543	
		20						194L-E20-7543	
		25						194L-E25-7543	

Actuator (Includes Legend Plate and Control Knob)	Fixing	Color	Locking Provision	Legend Plate Size	Legend Marking	Cat. No.	*
 Type A	Central	Gray/Black	No	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	1-0-2	194L-HC4A-350	
	Screw					194L-HE4A-350	
						64mm x 64mm (2-33/64 in. x 2-33/64 in.)	194L-HE6A-350

Ammeter Switch, 3Ø With Ground (Actuator listed on page 68)


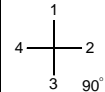
Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating (A)	Contact Target Configuration X = Contact Closed O = Contact Open				Mounting Style	Cat. No.	*	
			No. of Circuits	Control Knob Position						
				0 	1 	2 				3
		12	1	O	X	O	O	Base/DIN	194L-A12-8751	
			2	O	O	O	X			
			3	X	O	O	X			
			4	X	O	X	O			
			5	O	O	O	O			
			6	O	O	X	O			
			7	X	X	O	X			
							Front/Door	194L-E12-8751		

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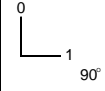
IEC Control and Load Switches

Product Selection, Continued


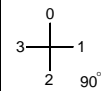
Ammeter Switch, 3Ø With Neutral


Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating (A)	Contact Target Configuration X = Contact Closed O = Contact Open				Mounting Style	Cat. No.	*	
			No. of Circuits	Control Knob Position						
				1	2	3				4
		12	1	X	O	O	O	Base/DIN	194L-A12-8761	
			2	O	O	X	O			
			3	O	X	O	O			
			4	O	O	O	X			
			5	X	O	X	X			
			6	X	X	X	O			
			7	O	X	X	X			
			8	X	X	O	X			
							Front/Door	194L-E12-8761		

Ammeter Switch, 1Ø

Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating (A)	Contact Target Configuration X = Contact Closed O = Contact Open		Mounting Style	Cat. No.	*	
			No. of Circuits	Control Knob Position				
				0				1
		12	1	O	X	Base/DIN	194L-A12-8771	
			2	X	O			
						Front/Door	194L-E12-8771	

Ammeter Switch, 3Ø


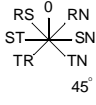
Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating (A)	Contact Target Configuration X = Contact Closed O = Contact Open				Mounting Style	Cat. No.	*	
			No. of Circuits	Control Knob Position						
				0	1	2				3
		12	1	X	X	O	X	Base/DIN	194L-A12-8752	
			2	O	O	X	O			
			3	O	X	O	O			
			4	O	O	O	X			
			5	X	O	X	X			
			6	X	X	X	O			
			7	O	X	O	O			
			8	O	O	O	X			
			9	O	O	X	O			
							Front/Door	194L-E12-8752		

Actuator (Includes Legend Plate and Control Knob)	Fixing	Color	Locking Provision	Legend Plate Size	Legend Marking	Cat. No.	*
 Type A	Central	Gray/Black	None	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	0-1-2-3	194L-HC4A-875	
	Screw				0-1	194L-HE4A-178	
					0-1-2-3	194L-HE4A-875	
					1-2-3-4	194L-HE4A-876	
					0-1-2-3	194L-HE6A-875	
					1-2-3-4	194L-HE6A-876	



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Continued on next page.

Voltmeter Switch, 3Ø With Neutral — 45 Degree

Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating (A)	Contact Target Configuration X = Contact Closed O = Contact Open								Mounting Style	Cat. No.	*	
			No. of Circuits	Control Knob Position										
				TR	ST	RS	0	RN	SN	TN				
		12	1	X	X	O	O	O	O	X	Base/DIN	194L-A12-8251		
			2	O	O	O	O	X	X	X				
			3	O	O	O	O	O	X	O	O	Front/Door	194L-E12-8251	
			4	O	X	X	O	O	O	O				
			5	O	O	X	O	X	O	O				
			6	X	O	O	O	O	O	O				

Voltmeter Switch, 3Ø — 45 Degree

Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating (A)	No. of Circuits	Contact Target Configuration X = Contact Closed O = Contact Open				Mounting Style	Cat. No.	*
				Control Knob Position						
				0	RS	ST	TR			
		12	1	O	O	O	X	Base/DIN	194L-A12-8271	
			2	O	X	X	O			
			3	O	X	O	O	Front/Door	194L-E12-8271	
			4	O	O	O	X			
			5	X	O	O	X			
			6	X	O	X	O			
			7	O	O	O	O			
			8	O	O	X	O			
			9	X	X	O	X			




Actuator (Includes Legend Plate and Control Knob)	Fixing	Color	Locking Provision	Legend Plate Size	Legend Marking	Cat. No.	*
 Type A	Central	Gray/ Black	None	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	TR-ST-RS-0- RN-SN-TN	194L-HC4A-825	
	Screw				0-RS-ST-TR	194L-HE4A-827	
				TR-ST-RS-0- RN-SN-TN	194L-HE6A-825		
				0-RS-ST-TR	194L-HE6A-827		

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

IEC Control and Load Switches

Product Selection, Continued

Step Switch, 3-Position (Actuator listed on page 73)

Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating (A)	No. of Poles per Position	Contact Target Configuration X = Contact Closed O = Contact Open			Mounting Style	Cat. No.	*	
				No. of Circuits	Control Knob Position					
					1	2				3
		12	1	1	X	O	O	Front/Door	194L-E12-4501	
				2	O	X	O			
				3	O	O	X			
			2	1	x	O	O	Front/Door	194L-E12-4502	
				2	O	X	O			
				3	O	O	X			
				4	X	O	O			
				5	O	X	O			
				6	O	O	X			
3	1	X	O	O	Front/Door	194L-E12-4503				
	2	O	X	O						
	3	O	O	X						
	4	X	O	O						
	5	O	X	O						
	6	O	O	X						
	7	X	O	O						
	8	O	X	O						
	9	O	O	X						
	12	1	No. of Circuits	0	1	2	Front/Door	194L-E12-5501		
			1	O	X	O				
		2	2	O	O	X				
		2	1	O	X	O	Front/Door	194L-E12-5502		
			2	O	O	X				
			3	O	X	O				
			4	O	O	X				
		3	1	O	X	O	Front/Door	194L-E12-5503		
			2	O	O	X				
			3	O	X	O				
			4	O	O	X				
			5	O	X	O				
6	O		O	X						

Step Switch, 4-Position (Actuator listed on page 73)




Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating (A)	No. of Poles per Position	Contact Target Configuration X = Contact Closed O = Contact Open				Mounting Style	Cat. No.	*	
				No. of Circuits	Control Knob Position						
					1	2	3				4
		12	1	1	X	O	O	O	Front/Door	194L-E12-4511	
				2	O	X	O	O			
				3	O	O	X	O			
				4	O	O	O	X			
			2	1	X	O	O	O	Front/Door	194L-E12-4512	
				2	O	X	O	O			
				3	O	O	X	O			
				4	O	O	O	X			
			3	1	X	O	O	O	Front/Door	194L-E12-4513	
	2	O		X	O	O					
	3	O		O	X	O					
	4	O		O	O	X					
5	X	O		O	O						
6	O	X		O	O						
7	O	O		X	O						
8	O	O		O	X						
	12	1	No. of Circuits	0	1	2	3	Front/Door	194L-E12-5511		
			1	O	X	O	O				
			2	O	O	X	O				
		2	1	O	X	O	O	Front/Door	194L-E12-5512		
			2	O	O	X	O				
			3	O	O	O	X				
	3	1	O	X	O	O	Front/Door	194L-E12-5513			
		2	O	O	X	O					
		3	O	O	O	X					
		4	O	X	O	O					
		5	O	O	X	O					
		6	O	O	O	X					

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
IEC Control and Load Switches


Product Selection, Continued

Step Switch, 5-Position (Actuator listed on page 73)

Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating (A)	No. of Poles per Position	Contact Target Configuration X = Contact Closed O = Contact Open					Mounting Style	Cat. No.	*	
				No. of Circuits	Control Knob Position							
					1	2	3	4				5
		12	1	1	X	O	O	O	O	Front/Door	194L-E12-4521	
				2	O	X	O	O	O			
				3	O	O	X	O	O			
				4	O	O	O	X	O			
				5	O	O	O	O	X			
		12	1	No. of Circuits	0	1	2	3	4	Front/Door	194L-E12-5521	
				1	O	X	O	O	O			
				2	O	O	X	O	O			
				3	O	O	O	X	O			
			2	4	O	O	O	O	X			
				5	O	X	O	O	O			
				6	O	O	X	O	O			
7				O	O	O	X	O				
3			8	O	O	O	O	X				
			1	O	X	O	O	O				
			2	O	O	X	O	O				
			3	O	O	O	X	O				
	4	O	O	O	O	X						
	5	O	X	O	O	O						
	6	O	O	X	O	X						
	7	O	O	O	X	O						
8	O	O	O	O	X							
9	O	X	O	O	O							
10	O	O	X	O	O							
11	O	O	O	X	O							
12	O	O	O	O	X							


Step Switch, 6-Position





Switch Body (Includes Shaft)	Function Switch Angle	Maximum Load Rating (A)	No. of Poles per Position	Contact Target Configuration X = Contact Closed O = Contact Open						Mounting Style	Cat. No.	*	
				No. of Circuits	Control Knob Position								
					1	2	3	4	5				6
		12	1	1	X	O	O	O	O	O	Front/ Door	194L-E12-4531	
				2	O	X	O	O	O	O			
				3	O	O	X	O	O	O			
				4	O	O	O	X	O	O			
				5	O	O	O	O	X	O			
				6	O	O	O	O	O	X			
				1	O	X	O	O	O	O	Front/ Door	194L-E12-5531	
				2	O	O	X	O	O	O			
				3	O	O	O	X	O	O			
				4	O	O	O	O	X	O			
				5	O	O	O	O	O	X			

Actuator (Includes Legend Plate and Control Knob)	Fixing	Color	Locking Provision	Legend Plate Size	Legend Marking	Cat. No.	*
 <p style="text-align: center;">Type A</p>	Central	Gray/ Black	No	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	1-2-3	194L-HC4A-450	
	Screw				0-1-2	194L-HC4A-550	
					1-2-3	194L-HE4A-450	
					0-1-2	194L-HE4A-550	
		1-2-3	194L-HE6A-450				
	Screw	0-1-2	194L-HE6A-550				
		1-2-3-4	194L-HC4A-451				
		0-1-2-3	194L-HC4A-551				
		1-2-3-4	194L-HE4A-451				
	Screw	0-1-2-3	194L-HE4A-551				
		1-2-3-4	194L-HE6A-451				
		0-1-2-3	194L-HE6A-551				
		1-2-3-4-5	194L-HC4A-452				
	Central	Gray/ Black	No	48mm x 48mm (1-57/64 in. x 1-57/64 in.)	1-2-3-4-5-6	194L-HC4A-453	
					0-1-2-3-4	194L-HC4A-552	
					0-1-2-3-4-5	194L-HC4A-553	
					1-2-3-4-5	194L-HE4A-452	
					1-2-3-4-5-6	194L-HE4A-453	
					0-1-2-3-4	194L-HE4A-552	
					0-1-2-3-4-5	194L-HE4A-553	
1-2-3-4-5					194L-HE6A-452		
1-2-3-4-5-6					194L-HE6A-453		
0-1-2-3-4					194L-HE6A-552		
0-1-2-3-4-5					194L-HE6A-553		
Screw					Gray/ Black	No	64mm x 64mm (2-33/64 in. x 2-33/64 in.)
	1-2-3-4-5-6	194L-HE6A-453					
	0-1-2-3-4	194L-HE6A-552					
	0-1-2-3-4-5	194L-HE6A-553					

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Bulletin 194L
IEC Control and Load Switches
Accessories

	Use With Switch	Number of Contacts	ABS	Required Shaft	*	Noryl Material	Required Shaft	*
			Cat. No.			Cat. No.		
 <i>Use With Size 6 Handles</i>	194L-A12/16	1, 2	194L-G3572	194L-G3195		194L-G3576	194L-G3195	
		3, 4	194L-G3572	194L-G2830		194L-G3576	194L-G2830	
		5, 6	194L-G3573	194L-G3195		194L-G3577	194L-G3195	
	194L-A20/25	1, 2	194L-G3572	194L-G3194		194L-G3576	194L-G3194	
		3, 4	194L-G3572	194L-G2830		194L-G3576	194L-G2830	
		5, 6	194L-G3573	194L-G3194		194L-G3577	194L-G3194	
	194E-E12/16	1, 4	194L-G3574 ①	194L-G3380		194L-G3578 ①	194L-G3380	
		5, 6	194L-G3575 ①	194L-G3380		194L-G3579 ①	194L-G3380	
	194E-E20/25	1, 4	194L-G3574 ①	194L-G3380		194L-G3578 ①	194L-G3380	
5, 6, 7, 8		194L-G3575 ①	194L-G3380		194L-G3579 ①	194L-G3380		




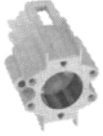

	Accessory Description	Pkg. Qty.	Cat. No.	*
	Use 800E Legend Frames and Inserts See page 11-170 of A112 Catalog	—		
				
	Blank Legend Plate, 48mm x 48mm (1-57/64 in. x 1-57/64 in.)	10	194L-B4	
	Blank Legend Plate, 64mm x 64mm (2-33/64 in. x 2-33/64 in.)		194L-B6	

① Covers must be drilled for operating handle by user.


	Accessory Description	Pkg. Qty.	Cat. No.	*
 Standard Black Control Knob	Control Knob, Black, L = 37.5mm (1-31/64 in.)	50	194L-G3154N	
	Control Knob, Black, L = 48mm (1-57/64 in.)	50	194L-G3155N	
	Control Knob, Black, L = 37.5mm (1-31/64 in.)	50	194L-G3154R	
	Control Knob, Black, L = 48mm (1-57/64 in.)	50	194L-G3155R	
 Rectangular Front Frame	Rectangular Front Frame with Blank Nameplate L = 48mm x 62mm (1-57/64 in. x 2-7/16 in.)	10	194L-G3196	
	Rectangular Front Frame and Blank Nameplate L = 64mm x 78mm (2-33/64 in. x 3-5/64 in.)	10	194L-G3197	
 Control Knob, With Locking Facility	Control Knob, Black, with Locking Facility	10	194L-G2864N	
	Control Knob, Red, with Locking Facility		194L-G2864R	
 Control Knob, Type P	Control Knob, Black, 31mm (1-7/32 in.) Diameter	50	194L-G2888N	
	Control Knob, Red, 31mm (1-7/32 in.) Diameter		194L-G2888R	
 Large Control Knob	Large Control Knob, 41mm (1-5/8 in.) Diameter; IP40, Black	50	194L-G2851N	
 Control Knob	Control Knob, 41mm (1-5/8 in.) Diameter; IP65, Black	10	194L-G2854N	
 Locking Ring Wrench	Locking Ring Wrench	1	800E-AW1	
 Terminal Cover	Terminal Cover — Base/DIN For Cat. No. 194L-A12...16	10	194L-A12-C34	
	Terminal Cover — Front (Door) For Cat. No. 194L-E12...16		194L-E12-C34	
	Terminal Cover — Base/DIN For Cat. No. 194L-A20...25	10	194L-A20-C34	
	Terminal Cover — Front (Door) For Cat. No. 194L-E20...25		194L-E20-C34	
 Type B	Central-Mounting Actuators (IP65) Handle Style Knob Lever with Latch (Use with Cat. No. 194L-E ...)	1	194L-HCB-001	
 Type D	Key Removal Position (Includes Latch) — Central Fixing Use with Cat. No. 194L-E...	1	194L-HCDC-001	
	Key Removal Position (Includes Latch) — Central Fixing Use with Cat. No. 194L-E...		194L-HCDD-001	
	Key Removal Position (Includes Latch) — Central Fixing Use with Cat. No. 194L-E...		194L-HCDG-001	
	Key Removal Position (Includes Latch) — Central Fixing Use with Cat. No. 194L-E...		194L-HCDH-001	

IEC Control and Load Switches

Accessories, Continued

	Accessory Description	Pkg. Qty.	Cat. No.	*
	Metal Shaft Extension with Padlock Provision ON Switch in OFF Position ❶ L = 110mm...235mm (4-21/64 in....9-1/4 in.)	1	194L-G3393	
	Metal Shaft Extension with Padlock Provision ON Switch in OFF Position ❶ L = 230mm...350mm (9-3/64 in....13-51/64 in.)	1	194L-G3394	
	Metal Shaft Extension Insert for Modification of Cat. No. 194L-G3393/G3394	10	194L-G3399	
	Standard Interlock Shaft Use with Cat. No. 194L-E12...25 L = 44mm (1-47/64 in.)	50	194L-G2830 ❷	
	Interlock Shaft ❶ Use with Cat. No. 194L-A12...25 L = 52mm (2-3/64 in.)		194L-G3194 ❷	
	Interlock Shaft ❶ Use with Cat. No. 194L-A12...25 L = 57mm (2-15/64 in.)		194L-G3195 ❷	
	Shaft Extension Including Coupling ❶ Use with Cat. No. 194L-A12...25 L = 24mm (15/16 in.)	10	194L-G2853	
	Standard Shaft ❶ Use with Cat. No. 194L-E12...25 L = 34mm (1-11/32 in.)	50	194L-G3380 ❷	

Central-Fixing Handle — for 194L-E, 12...25A

	Rating	Color	Legend Plate Size	Legend Marking	Cat. No.	*
	IP65 Type 3/3R/12	Black/ Gray	67mm x 67mm (2-33/64 in. x 2-33/64 in.)	0-1 OFF-ON	194E-HC6G-175	
		Red/ Yellow		0-1 OFF-ON	194E-HC6N-175	

❶ A standard-length shaft is provided with the switch body. To determine required shaft length for enclosure, see Approximate Dimensions, page 84.

❷ Order in quantities of 100 (50 shafts per package).

Electrical Ratings

Performance Data		12A	16A	20A	25A		
IEC Applications							
Rated voltage U_e ①	IEC-947 SEV max. CEE 24/NEMKO	[V] [V] [V]	690 660 500	690 660 500	690 660 500	690 660 500	
Principal switching characteristics Isolating conditions acc. to VDE fulfilled up to rated impulse voltage U_{imp}		[V] [kV]	660 6	690 6	660 6	660 6	
Thermal rated current I_{th} ①	40°C IEC-947	[A]	16	20	25	30	
Thermal rated current I_{the} ①	60°C IEC-947	[A]	12	16	20	25	
Rated current I_e ①							
AC-1/ AC-21A	Non-inductive or slightly inductive loads/ switching of resistive loads with slight overload	IEC-947	690V [A]	12	16	20	25
AC-1	Non-inductive or slightly inductive loads	SEV	660V [A]	12	16	20	25
AC22A	Switching of mixed resistive and inductive loads with slight overload	IEC-947	220...500V [A] 690V [A]	12 12	16 16	20 20	25 25
AC-15	Switching of inductive drives, motors, valves, and electromagnets.	IEC-947	220...240V [A] 380...415V [A] 500V [A]	5 3 2	6 4 2.5	7 5 3	8 6 4
DC switching capacity	Contacts in series						
Rated current I_e	1 2 3 4 5 6 8						
	Rated voltage [V]	24 48 72 96 120 144 192	[A]	12	16	20	22
		48 96 144 192 240 288 384	[A]	10	12	16	18
DC-21A	For resistive loads, $T \leq 1ms$ $U_e \text{ max} = 600V$	60 120 180 240 300 360 450	[A]	8	10	12	14
		110 220 330 440 550 660 –	[A]	2	2.5	4	5
		220 440 660 – – – –	[A]	0.5	0.6	0.7	0.8
		440 – – – – – –	[A]	0.35	0.4	0.45	0.6
Rated making/breaking capacity (= 1.5 x I_e)							
	1.05 x Rated voltage [V]	25.2 50.4 75.6 100.8 126 151.2 201.6	[A]	18	24	30	33
		50.4 100.8 151.2 201.6 252 302.4 403.2	[A]	15	21	24	27
	For resistive loads, $T \leq 1ms$ $U_e \text{ max} = 600V$	63 126 189 252 315 378 504	[A]	12	18	18	21
		115.5 231 346.5 462 577.5 – –	[A]	3	4.5	6	7.5
		231 462 – – – – –	[A]	0.75	1.12	1.05	1.2
		462 – – – – – –	[A]	0.52	0.78	0.47	0.75
Rated current I_e							
	Rated voltage [V]	24 48 72 96 120 144 192	[A]	8	10	12	14
		30 60 90 120 150 180 240	[A]	4.5	5.5	7	8
	For inductive loads $T = 50 ms$ $U_e \text{ max} = 600V$	48 96 144 192 240 288 384	[A]	1.5	2	2.5	3
		60 120 180 240 300 360 450	[A]	1	1.2	1.5	1.8
		110 220 330 440 550 660 –	[A]	0.4	0.5	0.6	0.7
Rated making/breaking capacity (= 1.1 x I_e)							
	1.1 x Rated voltage [V]	26.4 52.8 79.2 105.6 132 158.4 184.8	[A]	8.8	11	13.2	1.54
		33 66 99 132 165 198 231	[A]	4.95	6.05	7.7	8.8
	For inductive loads $T = 50 ms$ $U_e \text{ max} = 600V$	52.8 105.6 158.4 211.2 264 316.8 369.6	[A]	1.65	2.2	2.75	3.3
		66 132 198 264 330 396 462	[A]	1.1	1.32	1.65	1.98
		121 242 363 484 605 – –	[A]	0.44	0.55	0.66	0.77

① See conformity to standards listed on page 59.

Bulletin 194L
IEC Control and Load Switches
Specifications, Continued

Performance Data				12A	16A	20A	25A		
IEC Applications									
Rated power P_e DC-23A, DC-3, DC-5 For inductive loads, $T \leq 1$ ms	Rated voltage [V]	Contacts in series							
		24	1	[kW]	0.12	0.15	0.20	0.25	
		24	2	[kW]	0.20	0.25	0.30	0.37	
		48	2	[kW]	0.25	0.30	0.37	0.50	
		48	3	[kW]	0.30	0.37	0.50	0.75	
		60	2	[kW]	0.25	0.30	0.37	0.50	
		60	4	[kW]	0.37	0.50	0.75	1.00	
		110	4	[kW]	0.50	0.75	1.00	1.20	
		110	6	[kW]	1.00	1.20	1.40	1.60	
		220	4	[kW]	0.37	0.50	0.75	1.00	
220	6	[kW]	1.00	1.20	1.40	1.50			
Rated making/breaking capacity ($= 4 \times I_e$) DC-23A, DC-3, DC-5 For inductive loads, $T \leq 15$ ms	Rated voltage [V]	Contacts in series							
		25.2	1	[A]	20.0	25.0	33.3	41.6	
		25.2	2	[A]	33.3	41.6	50.0	61.6	
		50.4	2	[A]	21.0	25.0	30.8	41.6	
		50.4	3	[A]	25.0	30.8	42.0	62.4	
		63	2	[A]	16.6	20.0	24.6	33.2	
		63	4	[A]	24.6	33.3	50.0	66.4	
		115.5	4	[A]	18.1	27.2	36.4	44.0	
		115.5	6	[A]	36.4	43.6	51.0	58.2	
		231	4	[A]	6.7	9.1	13.6	18.2	
231	6	[A]	18.1	21.8	25.2	27.2			
Rated breaking capacity		at 220V	[A]	72	96	128	176		
			[cos ϕ]	0.65	0.65	0.65	0.35		
		at 380V	[A]	72	96	128	176		
			[cos ϕ]	0.65	0.65	0.65	0.35		
Rated power P_e ① AC-2 Slip-ring motors: starting, reversing and electric braking; star/delta starting	IEC-947	3 \emptyset 3-pole	240V	[kW]	3	4	5.5	5.5	
			380V	[kW]	5.5	7.5	9	13	
			415V	[kW]	5.5	7.5	9	13	
			440V	[kW]	5.5	7.5	9	13	
			500V	[kW]	7.5	10	11	15	
			660V	[kW]	7.5	10	11	15	
				[kW]	7.5	10	11	15	
AC-3 Squirrel-cage motors: starting and stopping of running motors	IEC-947	3 \emptyset 3-pole	220...240V	[kW]	2.2	3	4.5	5.5	
			380...440V	[kW]	4	5.5	7.5	11	
			500V	[kW]	5.5	7.5	10	13	
			660V	[kW]	5.5	7.5	8	11	
	1 \emptyset 2-pole	IEC-947	220...240V	110V	[kW]	0.75	1.1	1.2	1.6
				220...240V	[kW]	1.3	2.2	2.5	3.2
				380...440V	[kW]	2.2	3.7	4.5	5.5
					[kW]	2.2	3.7	4.5	5.5
AC-4 Squirrel-cage motors: starting, reversing, electric braking, inching	IEC-947	3 \emptyset 3-pole	220...240V	[kW]	0.75	1.5	3	4	
			380...415V	[kW]	1.5	2.2	3.7	5.5	
			440...550V	[kW]	1.5	2.2	3.7	5.5	
				[kW]	1.5	2.2	3.7	5.5	
	1 \emptyset 2-pole	IEC-947	110V	110V	[kW]	0.18	0.37	0.55	0.75
				240V	[kW]	0.37	0.75	1.5	2.2
				380V	[kW]	0.75	1.1	1.8	3
				440V	[kW]	0.75	1.1	1.8	3

① See conformity to standards listed on page 59.

Performance Data				12A	16A	20A	25A	
IEC Applications								
AC-23A	Occasional switching of motors and other highly inductive loads (criterion for selecting main switches)	IEC-947	220...240V	[kW]	2.2	3	4.5	5.5
		3 ∅	380...440V	[kW]	4	5.5	7.5	11
		3-pole	500V	[kW]	5.5	7.5	10	13
			660V	[kW]	5.5	7.5	8	11
		1 ∅	110V	[kW]	0.75	1.1	1.2	1.6
2-pole	220...240V	[kW]	1.3	2.2	2.5	3.2		
	380...440V	[kW]	2.2	3.7	4.5	5.5		
Short-circuit ratings		(gL characteristic)		[kA _{rms}]	0.48	0.48	0.6	0.75
Rated short-time current (1s)				[A]	20 ❶	20 ❶	20 ❶	25 ❷
Strongest series fuse, not in enclosure				[kA]	6	6	5	5
Conditional rated short-circuit								
Switching Rate		electrical		[ops/h]	120	120	120	120
CSA and UL Applications								
Rated Voltage U_e				[V AC]	600	600	600	600
Ampere Rating	Pilot Duty	Contact class			A600	A600	–	–
	General Use	Non-inductive or slightly inductive load ❷		[A]	12	16	20	25
Rated power P_e ❸		UL/CSA					(FLA)	(FLA)
Standard motor DOL rating (similar to AC-3)	3 ∅	120V	[HP]	1	1.5	2 (13.6)	3 (19.2)	
		240V	[HP]	2	3	4 (12.4)	6 (18)	
		480V	[HP]	5	7.5	8 (11.6)	12 (17)	
		600V	[HP]	5	7.5	10 (11)	15 (17)	
	1 ∅	120V	[HP]	0.5	0.75	1 (16)	1.5 (20)	
		240V	[HP]	1	1.5	2 (12)	3 (17)	
	2-pole	277V	[HP]	–	–	–	–	
		480V	[HP]	2	3	4 (11.2)	6 (17)	
		600V	[HP]	3	3	5 (11.2)	7.5 (16)	
			[HP]					
Heavy motor load, reversing Rating (similar to AC-4)		3 ∅	120V	[HP]	–	–	–	–
Max. back-up fuse		3-pole	240V	[HP]	–	–	–	–
		(gG characteristic)		[A]	35	55	60	80
Short Circuit Ratings	Maximum Short Circuit Prospective Fault Current			[kA]	5	5	5	5
	Maximum Fuse Size			[A]	35	55	60	80
Switching Rate		electrical		[ops/h]	120	120	120	120
Max. wire gauges		single wire or stranded		[mm ²]	2 x 2.5	2 x 2.5	6	6
				[AWG]	2 x 12	2 x 12	2 x 10	2 x 10
		fine strands (with ferrule)		[mm ²]	2 x 2.5	2 x 2.5	2 x 4	2 x 4
				[AWG]	2 x 14	2 x 14	2 x 12	2 x 12

- ❶ Does not apply to switches in enclosure.
- ❷ Suitable for switching off-load (AC-20) above 660V, but only up to 660V for switches with screws at the rear.
- ❸ See conformity to standards listed on page 59.

Bulletin 194L
IEC Control and Load Switches
Specifications, Continued/Approximate Dimensions

Mechanical Data

Performance Data				12/16A	20/25A
Protection class acc. to IEC 529	Actuators			IP65	IP65
	Switch Bodies			IP20	IP20
Mechanical Endurance			[mil.ops]	1	10
Switching rate	mechanical		[ops/h]	1200	1200
Maximum Wire Gauges	single wire or multi-core	min.	[mm ²]/AWG	2 x 1/18	2 x 1.5/16
		max.	[mm ²]/AWG	2 x 2.5/12	6/10
	fine strands (with sleeve)	min.	[mm ²]/AWG	2 x 0.75/20	2 x 1.5/16
		max.	[mm ²]/AWG	2 x 2.5/14	2 x 4/12

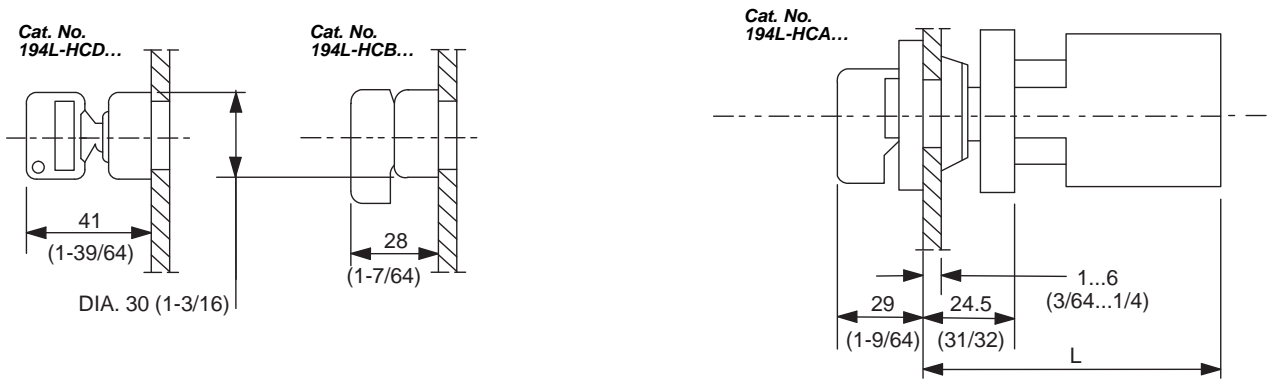
Environmental Data

Performance Data			12/16/20/25A
Ambient temperature	Operation	[°C] [°F]	-20°C...+60°C (-4°F...+140°F)
	Storage	[°C] [°F]	-30°C...+70°C (-22°F...+158°F)

Approximate Dimensions

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

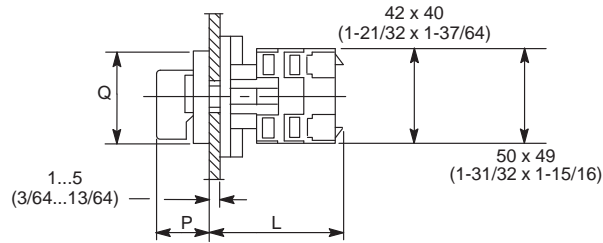
Cat. No. 194L-E... for Central Fixing (194L-HC...)



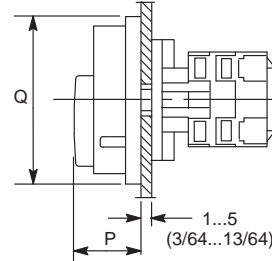
Cat. No.	L				
	No. of Contacts				
	1 – 2	3 – 4	5 – 6	7 – 8	9 – 10
194L-E12/16...	67.5 (2-21/32)	77.5 (3-3/64)	87.5 (3-7/16)	97.5 (3-27/32)	107.5 (4-15/64)
194L-E20/25...	69 (2-23/32)	81.5 (3-7/32)	94 (3-45/64)	106.5 (4-3/16)	119 (4-11/16)

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

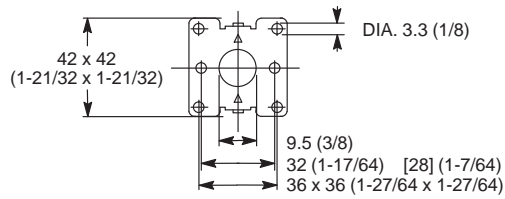
Cat. No. 194L... for Front (Door) Installation



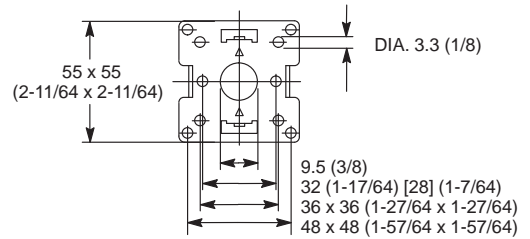
Cat. No.
194L-E 12/16...



Cat. No.
194L-E 20/25...



Cat. No. 194L-E 12/16...



Cat. No. 194L-E 20/25...

Cat. No.	L				
	No. of Contacts				
	1 – 2	3 – 4	5 – 6	7 – 8	9 – 10
194L-E12/16...	44 (1-47/64)	54 (2-1/8)	64 (2-33/64)	74 (2-29/32)	84 (3-5/16)
194L-E20/25...	44.5 (1-3/4)	57 (2-1/4)	69.5 (2-3/4)	82 (3-15/64)	94.5 (3-23/32)

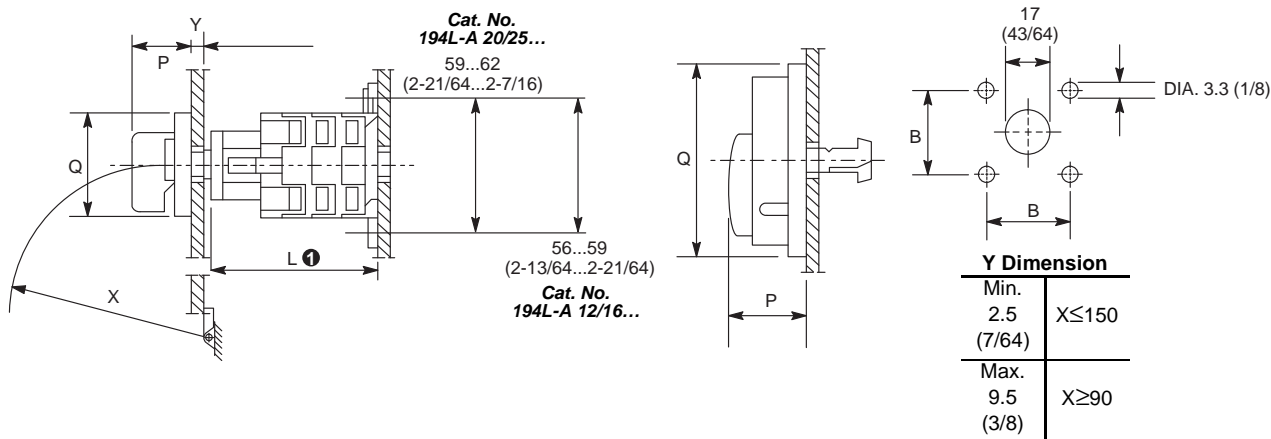
Control Knob

Cat. No.	P	Q
194L-HE4A...	28 (1-7/64)	48 (1-57/64) x 48 (1-57/64)
194L-HE4I...		48 (1-57/64) x 62 (2-7/16)
194L-HE4S...		64 (2-33/64) x 64 (2-33/64)
194L-HE6A...		64 (2-33/64) x 78 (3-5/64)
194L-HE6I...		67 (2-41/64) x 67 (2-41/64)
194L-HE6S...		
194L-HE6N...	34 (1-11/32)	
194L-HE6G...		

Bulletin 194L
IEC Control and Load Switches
Approximate Dimensions, Continued

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

Cat. No. 194L-A... for Base/DIN Rail Installation



Cat. No.	L ①			
	No. of Contacts			
	1 – 2	3 – 4	5 – 6	7 – 8
194L-A12/16...	58 (2-9/32)	68 (2-11/16)	78 (3-5/64)	88 (3-15/32)
194L-A20/25...	58 (2-9/32)	71.5 (2-13/16)	84 (3-5/16)	96.5 (3-51/64)

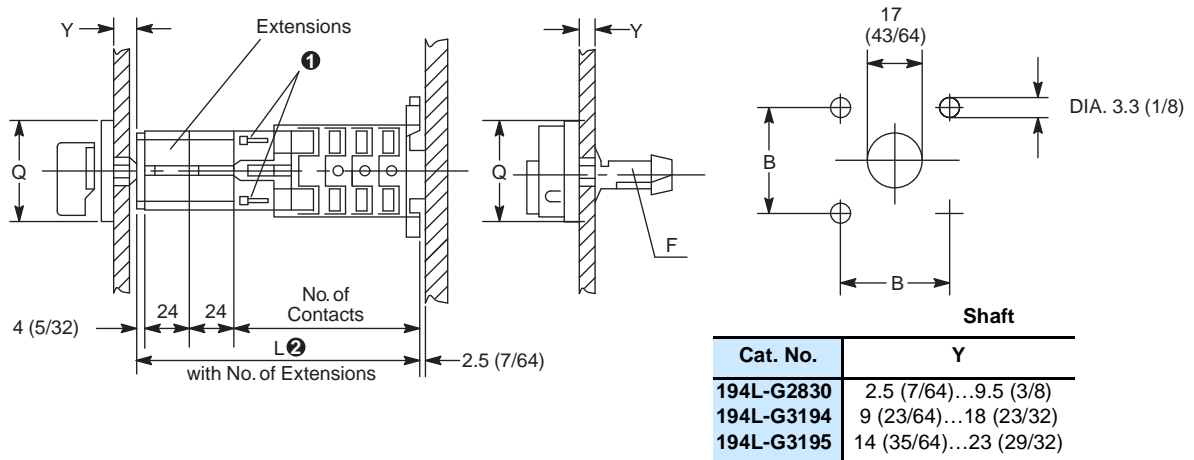
Control Knob

Cat. No.	P	B	Q
194L-HE4A...	28 (1-7/64)	36 (1-27/64)	48 (1-57/64) x 48 (1-57/64)
194L-HE4I...			48 (1-57/64) x 62 (2-7/16)
194L-HE4S...		34 (1-11/32)	48 (1-57/64)
194L-HE6A...	64 (2-33/64) x 78 (3-5/64)		
194L-HE6I...	67 (2-41/64) x 67 (2-41/64)		
194L-HE6S...			
194L-HE6N...			
194L-HE6G...			

① With DIN 46 277 (35) Rail + 2.5 mm (7/64)

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

Cat. No. 194L-A... With Shaft Extension **Cat. No. 194L-G2853**



	Cat. No. 194L-A12/16... 10 mm (0.39)				Cat. No. 194L-A20/25... 12.5 mm (0.49)			
	L							
	No. of Contacts							
	No. of Extensions	1 – 2	3 – 4	5 – 6	7 – 8	1 – 2	3 – 4	5 – 6
With 1 extension	82 (3-15/64)	92 (3-5/8)	102 (4-1/64)	112 (4-13/32)	83 (3-17/64)	95.5 (3-49/64)	108 (4-1/4)	120.5 (4-3/4)
With 2 extensions	106 (4-11/64)	116 (4-37/64)	126 (4-31/32)	136 (5-23/64)	107 (4-7/32)	119.5 (4-45/64)	132 (5-13/64)	144.5 (5-11/16)
With 3 extensions	130 (5-1/8)	140 (5-33/64)	150 (5-29/32)	160 (6-19/64)	131 (5-5/32)	143.5 (5-21/32)	156 (6-9/64)	168.5 (6-5/8)
With 4 ① extensions	154 (6-1/16)	164 (6-15/32)	174 (6-55/64)	184 (7-15/64)	155 (6-7/64)	167.5 (6-19/32)	180 (7-3/32)	192.5 (7-37/64)
With 5 ① extensions	178 (7-1/64)	188 (7-13/32)	198 (7-51/64)	208 (8-3/16)	179 (7-3/64)	191.5 (7-35/64)	204 (8-1/32)	216.5 (8-33/64)
With 6 ① extensions	202 (7-61/64)	212 (8-23/64)	222 (8-3/4)	232 (9-1/8)	203 (7-63/64)	215.5 (8-31/64)	228 (8-63/64)	240.5 (9-15/32)

Control Knob

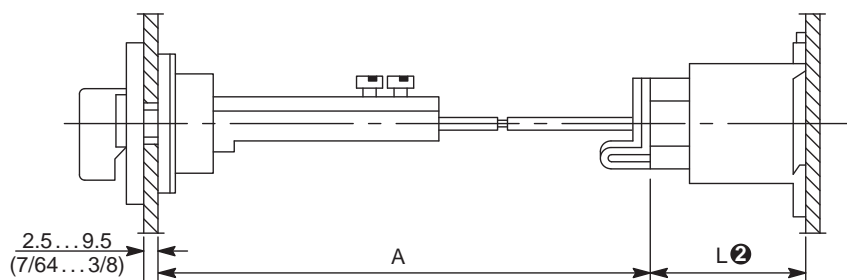
Cat. No.	Q	B
194L-HE4A...	48 (1-57/64) x 48 (1-57/64)	36 (1-27/64)
194L-HE4I...		
194L-HE6A...	64 (2-33/64) x 64 (2-33/64)	48 (1-57/64)
194L-HE6I...		
194L-HE6N...		
194L-HE6G...	67 (2-41/64) x 67 (2-41/64)	

- ① When more than 4 modules are used, attach the first one to the switch body using the screws supplied with the extension (**Cat. No. 194L-G2853**).
- ② Mounting on DIN 46 277 (35) Rails.

Bulletin 194L
IEC Control and Load Switches
Approximate Dimensions, Continued

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

Cat. No. 194L-A... With Metal Shafts



Cat. No.	A
194L-G3393...	110 (4-21/64)...235(9-1/4)
194L-G3394...	230 (9-1/16)...350 (13-25/32)

Cat. No.	L ①			
	No. of Contacts			
	1 – 2	3 – 4	5 – 6	7 – 8
194L-A12/16...	54 (2-1/8)	64 (2-33/64)	74 (2-29/32)	84 (3-5/16)
194L-A20/25...	55 (2-11/64)	67.5 (2-21/32)	80 (3-5/32)	92.5 (3-41/64)

Modular Shaft Extensions (Cat. No. 194L-G2853)

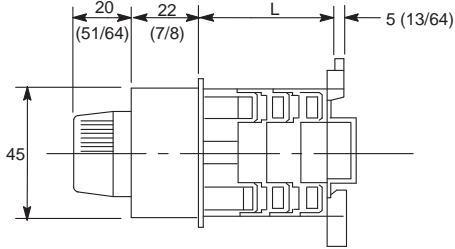
Note: Select No. of Extension Modules and Shaft for use with enclosures.

No. of Extension Modules	Required End Shaft	Enclosure Mounting Depth ②	
		Cat. No. 194L-A12/16...	Cat. No. 194L-A20/25...
0	44 (1-47/64) ④	71.5...77.5 (2-13/16...3-1/16)	75...80.5 (2-61/64...3-11/64)
	52 (2-3/64)	77...87 (3-1/32...3-27/64)	80...90 (3-5/32...3-35/64)
	57 (2-1/4)	82...92 (3-15/64...3-5/8)	85...95 (3-11/32...3-3/4)
1	44 (1-47/64) ④	95.5...101.5 (3-49/64...4)	99...105 (3-29/32...4-9/64)
	52 (2-3/64)	97.5...111 (3-27/32...4-3/8)	101...114.5 (3-63/64...4-33/64)
	57 (2-1/4)	102.5...116 (4-3/64...4-37/64)	106...119.5 (4-11/64...4-45/64)
2	44 (1-47/64) ④	119.5...125.5 (4-45/64...4-61/64)	123...129 (4-27/32...5-5/64)
	52 (2-3/64)	121.5...135 (4-51/64...5-5/16)	125...138.5 (4-59/64...5-29/64)
	57 (2-1/4)	126.5...140 (4-63/64...5-33/64)	130...143.5 (5-1/8...5-21/32)
3	44 (1-47/64) ④	143.5...149.5 (5-21/32...5-57/64)	147...153 (5-51/64...6-1/32)
	52 (2-3/64)	145.5...159 (5-47/64...6-17/64)	149...162.5 (5-7/8...6-13/32)
	57 (2-1/4)	150.5...164 (5-15/16...6-15/32)	154...167.5 (6-1/16...6-19/32)
4	44 (1-47/64) ④	167.5...173.5 (6-19/32...6-27/32)	171...177 (6-47/64...6-31/32)
	52 (2-3/64)	169.5...183 (6-43/64...7-13/64)	173...186.5 (6-13/16...7-11/32)
	57 (2-1/4)	174.5...188 (6-7/8...7-13/32)	178...191.5 (7-1/64...7-35/64)
5	44 (1-47/64) ④	191.5...197.5 (7-35/64...7-25/32)	195...201 (7-43/64...7-59/64)
	52 (2-3/64)	193.5...207 (7-5/8...8-5/32)	197...210.5 (7-49/64...8-19/64)
	57 (2-1/4)	198.5...212 (7-53/64...8-23/64)	202...215.5 (7-61/64...8-31/64)
6	44 (1-47/64) ④	215.5...221.5 (8-31/64...8-23/32)	219...225 (8-5/8...8-55/64)
	52 (2-3/64)	217.5...231 (8-37/64...9-3/32)	221...234.5 (8-45/64...9-15/64)
	57 (2-1/4)	222.5...236 (8-49/64...9-19/64)	226...239.5 (8-29/32...9-7/16)

- ① When more than 4 modules are used, attach the first one to the switch body using the screws supplied with the extension (Cat. No. 194L-G2853).
- ② With DIN 46 277 (35) Rail + 2.5 mm (7/64)
- ③ For DIN Rail-mounted devices, remember to deduct the offset distance provided by the rail. For example, deduct 2.5mm (7/64 in.) from the mounting depth for Bulletin 194L switch body mounted on DIN 46277 rail.
- ④ One 44mm (1-47/64 in.) end shaft is supplied with all Bulletin 194L Switch Bodies.

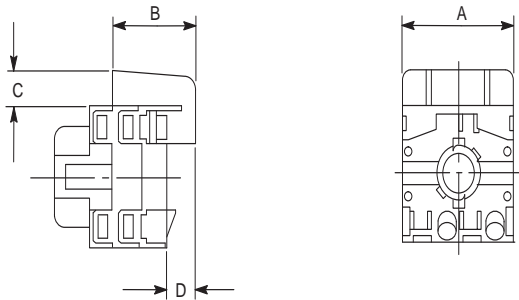
Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

Cat. No. 194L-A... With **Cat. No. 194L-HE4P...**
 Installation on DIN 46277 (35) Rails + 2.5 mm (7/64)



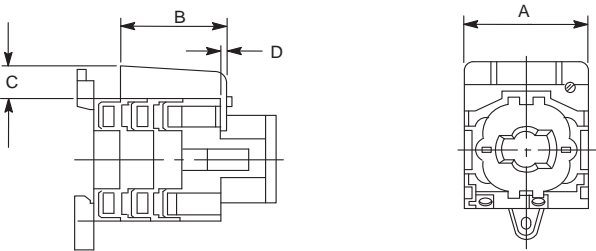
Cat. No.	L			
	No. of Contacts			
	1 – 2	3 – 4	5 – 6	7 – 8
194L-A12/16...	35 (1-3/8)	45 (1-49/64)	55 (2-11/64)	65 (2-9/16)
194L-A20/25...	33.5 (1-21/64)	48 (1-57/64)	60.5 (2-3/8)	73 (2-7/8)

Cat. No. 194L-E... With Terminal Cover



Cat. No.	A	B	C	D
194L-E12/16...	40 (1-37/64)	42.5 (1-43/64)	12 (15/32)	2.5 (7/64)
194L-E20/25...	49 (1-15/16)	37.5 (1-31/64)	12 (15/32)	2.5 (7/64)

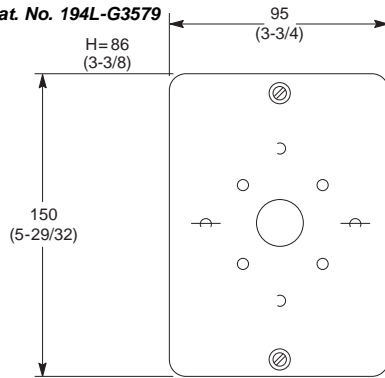
Cat. No. 194L-A... With Terminal Cover



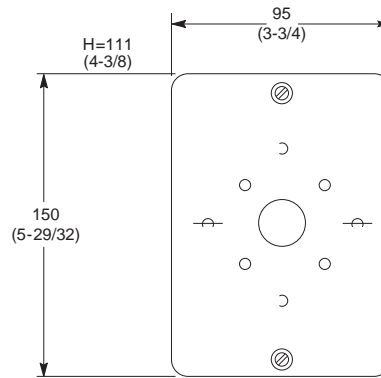
Cat. No.	A	B	C	D
194L-A12/16...	40 (1-37/64)	42.5 (1-43/64)	12 (15/32)	2.5 (7/64)
194L-A20/25...	49 (1-15/16)	37.5 (1-31/64)	12 (15/32)	2.5 (7/64)

Enclosure

Cat. No. 194L-G3572... **Cat. No. 194L-G3579**



Cat. No. 194L-G3572/G3576
 G3574/G357



Cat. No. 194L-G3573/G3577
 G3575/G3579

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