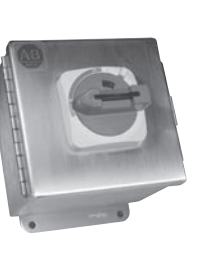


Bulletin 194E Enclosed Disconnect Load Switches with 194R Handles (with Defeater, suitable for 3 padlocks)

194E-FA Painted Steel Enclosure UL Type 3/4/12, IP66	194E-CA Stainless Steel Enclosure UL Type 4/4X, IP66	194E-KA Non-Metallic Enclosure UL Type 3/4/4X, IP66	194E-AA Metallic Enclosure UL Type 1, IP54	194E-GA Painted Steel Enclosure UL Type 3/4/12, IP66	194E-DA Stainless Steel Enclosure UL Type 4/4X, IP66
					

Cat. No. Explanation *❖

194E – FA 32 E – P11 – P11 – 6
 a b c d d e

Code	Enclosure Type
FA	UL Type 3/4/12, IP66 Painted Steel, Hinged, for 16...100 A switches
GA	UL Type 3/4/12, IP66 Painted Steel, Hinged, in 6 x 6 x 4 in. size, for 16...32 A 3-pole switches ‡
CA	UL Type 4/4X, IP66 Stainless Steel, Hinged, for 16...100 A switches
DA	UL Type 4/4X, IP66 Stainless Steel, Hinged, in 6 x 6 x 4 in. size, for 16...32 A 3-pole switches ‡
KA	UL Type 3/4/4X, IP66 Non-Metallic, for 16...100 A switches
AA	UL Type 1, IP54 Painted Steel, Hinged, for 16...100 A switches (Same enclosure as FA without gasketing)

Code	Load Size
16	16 A
20	25 A
32	32 A
40	40 A
63	63 A
80	80 A
00	100 A

Code	Handle Color (194R-HS _ _)
Blank	Grey/Black
E	Red/Yellow

Code	Left Side + Right Side Modifications*
Blank	No Option
-P11	1 N.O. + 1 N.C. Auxiliary Contacts
-PL11	1 N.O. + 1 N.C.L.B. Auxiliary Contacts
-P22	2 N.O. + 2 N.C. Auxiliary Contacts
-PD10	1 N.O. E.B.
-NP	Additional Pole
-PE	Grounding Pole
-TN	Neutral Pole

Code	Switch Type
Blank	3-pole switch
-6	6 Pole switch§

* Modifications: Up to two suffix codes may be added to an enclosed disconnect load switch. See Guidelines, page 2-409. If only one accessory is chosen, it is mounted on the left side of the switch.

❖ To order the cat. no. 194E-FA40/FA63 or 194E-CA40/CA63 in the larger 80/100A sized enclosure, add an "X" after the handle color. For example, Cat. No. **194E-FA40E** becomes Cat. No. **194E-FA40EX**.

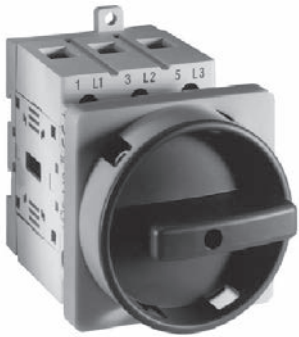
‡ GA and DA type enclosures: use with 3-pole 16...32 A switches only.

§ Special order; allow for longer delivery time.

Frequently Ordered Bulletin 194E Enclosed Switches with Bulletin 194R Handle

Description	Rated Current (A)	Dimension Reference	Handle Color	Cat. No.*
Stainless steel enclosure, IP66/Type 4/4X	25	A1	Black	194E-CA20
			Red/Yellow	194E-CA20E
	32	A1	Black	194E-CA32
			Red/Yellow	194E-CA32E
	63	A1	Black	194E-CA63
			Red/Yellow	194E-CA63E
Painted steel enclosure, IP66/Type 3/4/12	25	A1	Black	194E-FA20
			Red/Yellow	194E-FA20E
	32	A1	Black	194E-FA32
			Red/Yellow	194E-FA32E
	40	A1	Black	194E-FA40
			Red/Yellow	194E-FA40E
Non-metallic enclosure, IP66/Type 4/4X	25	C1	Black	194E-KA20
			Red/Yellow	194E-KA20E

* Modifications: Up to two suffix codes may be added to an enclosed disconnect load switch. See Guidelines, page 2-409. If only one accessory is chosen, it is mounted on the left side of the switch.



Bulletin 194E IEC Load Switches

- Suitable as At-Motor Disconnect Switch (UL508)
- 16, 25, 32, 40, 63, 80, 100 A Inductive Load-Rated Switches
- IP66/ UL 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
- Available in OFF-ON and Changeover Configurations
- 3- and 6-Pole Enclosed Switches
- Optional Thermoplastic Enclosures
- Positive-Guided Actuation
- Padlockable Handles Available (up to 3 padlocks)

Table of Contents

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Dimensions..... 2-417

Standards Compliance

IEC 60947-1
IEC 60947-3 Low-voltage
switchgear and control gear
part 3
UL 508
CSA: C22.2 No. 14

Certifications

UL Listed (File No. E14841, Guide NLRV)
CSA Certified (LR 13908)
IEC, VDE and BS
CE
RINA — Italian Naval Registry
CCC

Description

Bulletin 194E load switches are designed for use as local motor isolation and disconnect switch applications. 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, valves, magnetic starters, relays, and motors. Handles 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 handles are available in colors of Grey/Black or Red/Yellow and have padlockable versions.

Electrical Ratings

Performance Data				16 A	25 A	32 A	40 A	63 A	80 A	100 A	Aux. Contacts	
IEC Applications												
Rated operational voltage (U_e): IEC*				[V]	690	690	690	690	690	690	690	
Rated operational voltage (U_e): UL, CSA				[V]	600	600	600	600	600	600	600	
Rated isolation 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	
Lost power per pole				[W]	0.58	1.0	1.5	1.6	2.4	3.6	5.5	0.4
Rated frequency				[Hz]	50/60	50/60	50/60	50/60	50/60	50/60	50/60	
Conventional free air thermal current I_{th} *				[A]	25	40	50	63	75	100	120	12
Conventional enclosed thermal current I_e *				[A]	20	32	40	50	63	80	100	10
Rated current I_e *												
AC-1/	Non-inductive or only slightly inductive loads		[A]	16	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]	5.5	7.5	7.5	15	18.5	22	30	—	
		400V	[kW]	7.5	11	15	22	30	37	55	—	
		690V	[kW]	7.5	11	15	18.5	22	37	45	—	
AC-3	Squirrel-cage motors; starting and stopping of running motors	230V	[kW]	4	5.5	7.5	11	15	18.5	22	—	
		400V	[kW]	5.5	7.5	11	15	18.5	30	37	—	
		690V	[kW]	5.5	7.5	11	15	18.5	30	22	—	
Short circuit current (co-ordination type 2)			[kA]	20	20	15	20	15	30	25	—	
Rated conditional short-circuit current		400/415V	[A]	20	25	35	50	63	80	100	—	
Maximum fuse rating of circuit (type g,G)			[A]	800	900	900	1300	1300	2500	2500	—	
Rated short-time current I_{cw} (1 s)												
Rated breaking capacity AC23A (cosφ 0.45)		230V	[A]	156	296	296	484	484	780	780	—	
		400V	[A]	120	256	256	504	504	800	800	—	
		690V	[A]	70	136	136	196	196	376	376	—	
DC switching capacity		1 pole	24/48V	[A]	20	25	32	40	63	80	100	—
Rated current I_e	110V		[A]	5	5	6	8	10	16	20		
	220V		[A]	1	1	1	1.5	15	3	3		
	440V		[A]	0.5	0.5	0.5	0.6	0.6	0.7	0.7		
	DC-21A		For resistive loads, T ≤ 1 ms U_e max = 660V	2 poles in series	96V	[A]	20	25	32	40	63	
110V		[A]			20	23	25	32	50	70	80	
220V		[A]			5	5	6	8	10	16	20	
440V		[A]			1	1	1	1.5	1.5	3	3	
3 poles in series		600V	[A]	0.6	0.6	0.6	0.8	0.8	1	1	—	
	110V	[A]	20	25	32	40	63	80	100			
	220V	[A]	13	13	15	20	28	50	63			
	440V	[A]	2.2	2.2	2.2	3.6	3.6	6.5	6.5			
Rated power P_e		3 poles in series	600V	[A]	1.3	1.5	1.5	2	2	3	3	
DC-23A, DC-3, DC-5	For inductive loads, T ≤ 15 ms		90V	[kW]	1	1.3	1.5	2.9	4.1	5.1	7.2	—
			110V	[kW]	1	1.1	1.3	2.2	3.3	5.5	7	
			220V	[kW]	0.8	0.9	1.1	1.7	2	3.5	4.4	
			440V	[kW]	0.6	0.6	0.6	0.9	0.9	1.1	1.1	
		600V	[kW]	0.4	0.4	0.4	0.5	0.5	0.9	0.9		

* See standards compliance listed on page 2-404.

* Suitable also for SEV 500.

Bulletin 194E
IEC Load Switches, 16...100 A
 Specifications

Electrical Ratings, Continued

Performance Data			16 A	25 A	32 A	40 A	63 A	80 A	100 A	Aux. Contacts
UL/CSA Applications										
Continuous current		[A]	16	25	32	40	63	80	100	—
Heavy Pilot Duty		[AC]	A600	A600	A600	—	—	—	—	A600
Standard Duty		[DC]	—	—	—	—	—	—	—	Q600
Motor rating 60 Hz	120V, 1P	FLA	16	16	16	24	34	56	80	—
		Hp	1	1	1	2	3	5	7.5	
	240V, 1P	FLA	12	12	17	17	28	50	68	
		Hp	2	2	3	3	5	10	15	
	480V, 1P	FLA	8.5	8.5	14	21	26	34	68	
		Hp	3	3	5	7.5	10	15	30	
	600V, 1P	FLA	11.2	11.2	11.2	16	20	27	44	
		Hp	5	5	5	7.5	10	15	25	
	Single-phase (2 poles)	120V, 3P	FLA	13.6	13.6	19.2	30.4	40	56	
Hp			2	2	3	5	7.5	10	15	
240V, 3P		FLA	9.6	15.2	22	28	42	68	80	
		Hp	3	5	7.5	10	15	25	30	
480V, 3P		FLA	11	14	21	27	34	52	65	
		Hp	7.5	10	15	20	25	40	50	
600V, 3P		FLA	11	11	17	22	27	52	52	
		Hp	10	10	15	20	25	50	50	

Mechanical Data

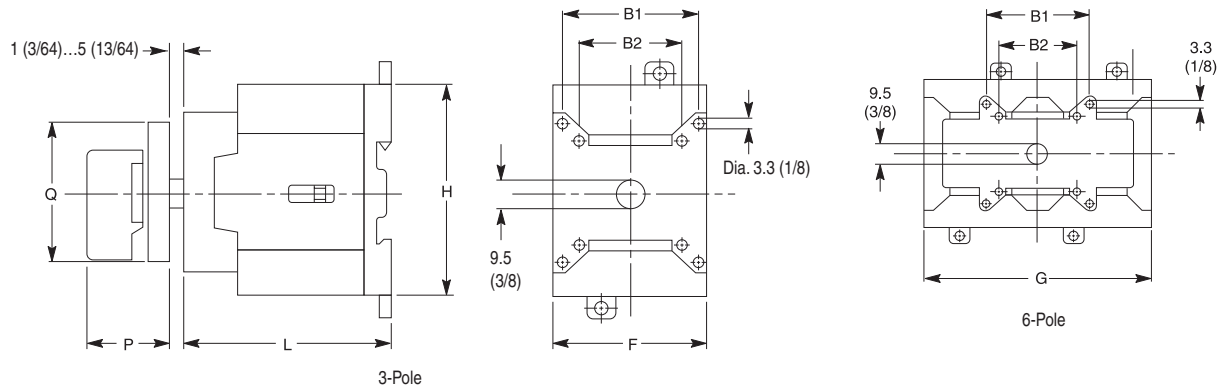
Performance Data			16 A	25...32 A	40...63 A	80...100 A	Aux. Contacts
Protection class according to IEC 529							
Motor rating 60 Hz							
handles			IP66	IP66	IP66	IP66	IP66
switch bodies			IP20	IP20	IP20	IP20	IP20
Mechanical life			[million operations]	0.2	0.2	0.2	0.2
Max wire gauges							
Terminal size per IEC 947-1			A4	A6	A7	A9	2xA2
rigid wire	1/2 conductor	AWG mm ²	(1)16...10/(2)16...12	(1)14...8/(2)14...10	(1)12...4/(2)12...8	(1)10...1/(2)10...4	18...14 0.75...2.5
			(1)1...10/(2)1...4	(1)1.5...16/(2)1.5...6	(1)2.5...25/(2)2.5...16	(1)4...50/(2)4...25	
fine strands	1/2 conductor	AWG mm ²	(1)16...8/(2)16...12	(1)14...8/(2)14...10	(1)12...4/(2)12...8	(1)10...1/(2)10...6	18...14 0.5...2.5
			(1)1.5...6/(2)1.5...4	(1)1.5...10/(2)1...6	(1)2.5...16/(2)2.5...10	(1)4...35/(2)4...16	

Environmental Data

Storage	−40...+80 °C (−40...+176 °F)
Operation	−25...+60 °C (−13...+140 °F)

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

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



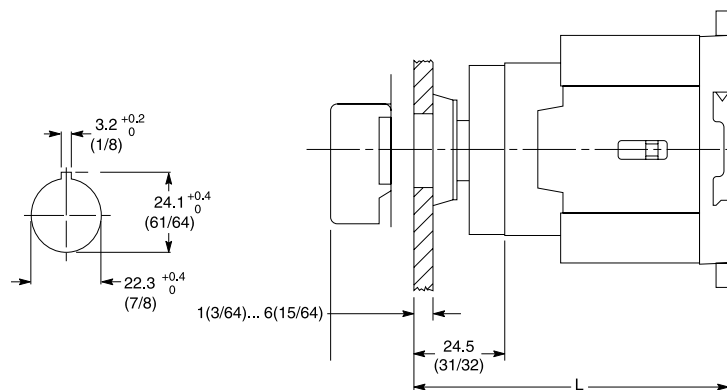
Handles		
Cat. No.	P	Q
194L-HE4A	28 (1-7/64)	48 x 48 (1-57/64 x 1-57/64)
194L-HE4I	28 (1-7/64)	48 x 48 (1-57/64 x 1-57/64)
194L-HE4S	28 (1-7/64)	48 x 62 (1-57/64 x 2-7/16)
194E-HE4N	34 (1-11/32)	54 x 54 (2-1/8 x 2-1/8)
194E-HE4G	34 (1-11/32)	54 x 54 (2-1/8 x 2-1/8)
194L-HE6A	28 (1-7/64)	64 x 64 (2-33/64 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*	B2	F	H	L*	G
194E-E16	28 (1-7/64)	N/A	36 (1-37/64)	63 (2-31/64)	51 (2)	90 (3-35/64)
194E-E25/32	36 (1-27/64)	N/A	45 (1-25/32)	64 (2-33/64)	60 (2-3/8)	90 (3-1/2)
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)

* Does not apply to 194E-40/63A, 6-Pole Switches. Use B2 dimensions for 6-pole devices.

* For 6-pole switches, add 1 in. to the "L" dimension.

Cat. No. 194E-E Switch Body with Cat. No. 194L-HC4A Handle for 22.5 mm Hole Mounting Style



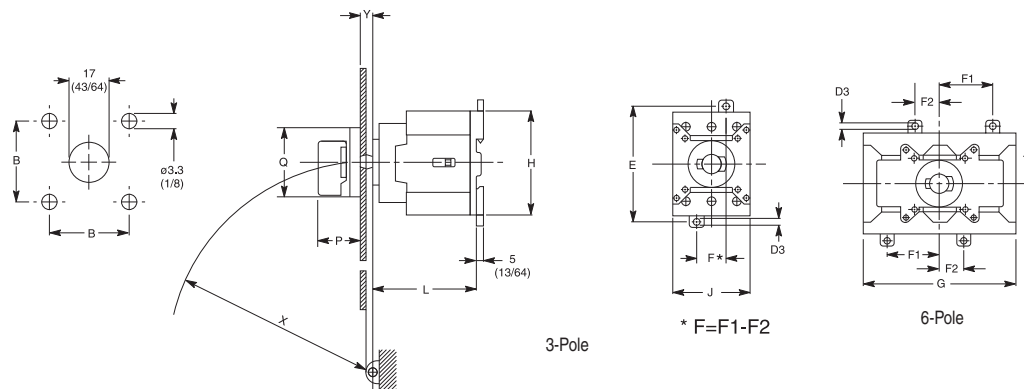
Type	L
194E-E16	76 (3)
194E-E25/32	84.5 (3-21/64)
194E-E40/63	98.5 (3-7/8)
194E-E80/100	114.5 (4-33/64)

Bulletin 194E
IEC Load Switches, 16...100 A
 Appropriate Dimensions

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

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

2



Handles		
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)
194E-HE4N	34 (1-11/32)	54 x 54 (2-1/8 x 2-1/8)
194E-HE4G	34 (1-11/32)	54 x 54 (2-1/8 x 2-1/8)
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				
For Use With	Y min.	X ≥	Y max.	X ≥
194E-A16	5 (13/64)	142 (5-19/32)	9.5 (3/8)	90 (3-35/64)
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-A16	4.5 (3/16)	70 (2-49/64)	45 (1-25/32)	12.5 (31/64)	90 (3-35/64)	63 (2-31/64)	80 (3-5/32)	36 (1-27/64)
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)	59 (2-5/16)	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)	73 (2-55/64)	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)	89 (3-1/2)	72 (2-27/32)

* For 6-pole switches, add 1 in. to the "L" dimension.

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

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



* For 6-pole switches, add 1 in. to the "L" dimension.

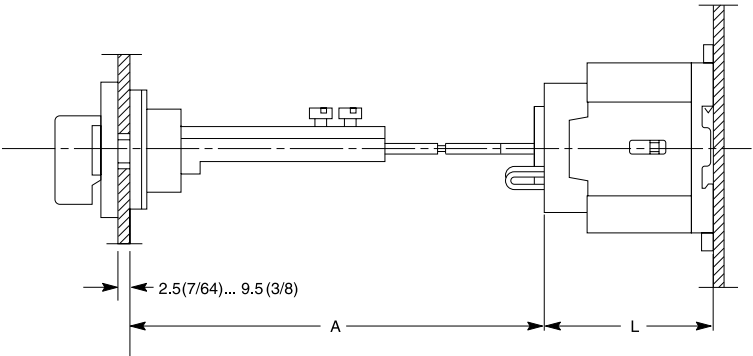
Handles			
Type	B	Q	P
194L-HE4A	36 (1-27/64)	48 x 48 (1-57/64 x 1-57/64)	28 (1-7/64)
194L-HE4I	36 (1-27/64)	48 x 48 (1-57/64 x 1-57/64)	28 (1-7/64)
194E-HE4G	28 (1-7/64)	54 x 54 (2-1/8 x 2-1/8)	34 (1-11/32)
194E-HE4N	28 (1-7/64)	54 x 54 (2-1/8 x 2-1/8)	34 (1-11/32)
194L-HE6A	48 (1-57/64)	64 x 64 (2-33/64 x 2-33/64)	28 (1-7/64)
194L-HE6I	48 (1-57/64)	64 x 64 (2-33/64 x 2-33/64)	28 (1-7/64)
194L-HE6N	48 (1-57/64)	67 x 67 (2-41/64 x 2-41/64)	34 (1-11/32)
194L-HE6G	48 (1-57/64)	67 x 67 (2-41/64 x 2-41/64)	34 (1-11/32)

Bulletin 194E
IEC Load Switches, 16...100 A
Appropriate Dimensions

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

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

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



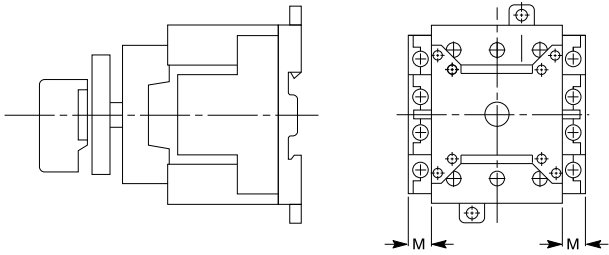
Cat. No.	A
194L-G3393	110...235 (4-11/32...9-1/4)
194L-G3394	230...350 (9-1/16...13-25/32)

Cat. No.	L*
194E-A16	51 (2)
194E-A25/32	60 (2-3/8)
194E-A40/63	74 (2-59/64)
194E-A80/100	90 (3-35/64)

* For 6-pole switches, add 1 in. to the "L" dimension.

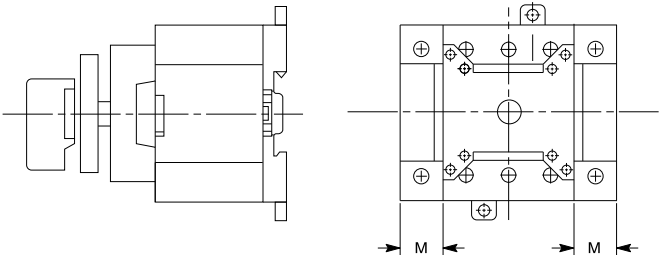
Base and Front Installation

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

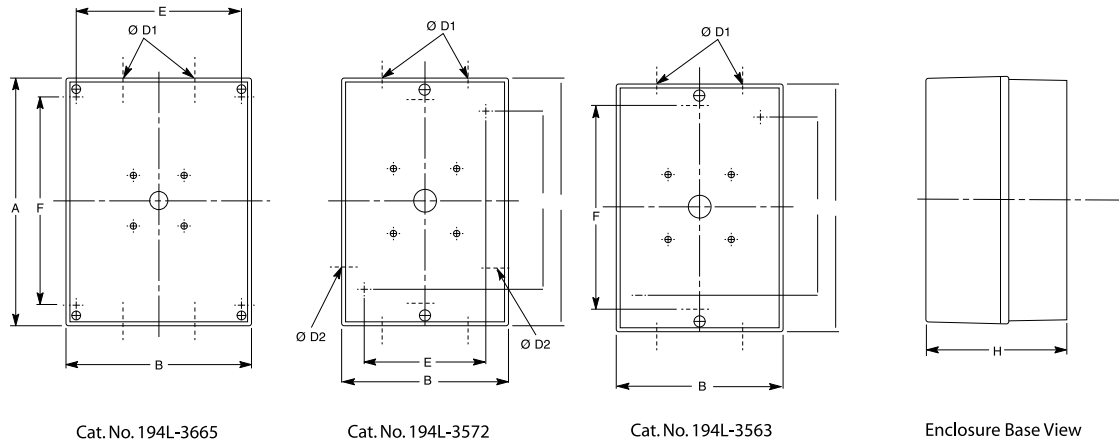


Cat. No.	M
194E-16	12.5 (31/64)
194E-25/32	14 (9/16)
194E-40/63	17.5 (11/16)
194E-80/100	22 (7/8)

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

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

Thermoplastic Enclosures



2

Complete Switches		Enclosures		Height A	Width B	Knockouts* ØD1		Mounting Holes†		Depth H
Cat. No.	Poles	ABS Cat. No.	Noryl Cat. No.					E	F	
194E-Y16	3 and 4	*	*	120 (4-23/32)	70 (2-3/4)	M16/M20 16/20 mm	PG11/PG16 18.5/22.5 mm	50 (1-31/32)	105 (4-9/64)	70 (2-49/65)
	6	194E-G3663	194E-G3664	180 (7-3/32)	125 (4-59/64)	M25/M30 25/30 mm	PG21/PG29 28.5/37.5 mm	On Center	145 (5-23/32)	105 (4-1/8)
194E-Y25/32	3 and 4	194L-G3572	194L-G3576	150 (5-29/32)	95 (3-3/4)	PG16/PG21 22.5/28.5 mm		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)	PG21/PG29 28.5/37.5 mm		On Center	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)	PG21/PG29 28.5/37.5 mm		On Center	145 (5-23/32)	105 (4-1/8)
	6	194E-G3665	194E-G3666	230 (9-1/16)	175 (6-57/64)	PG29/PG36 37.5/47.5 mm		155 (6-3/32)	195 (7-43/64)	120 (4-47/64)
194E-Y80/100	3 and 4	194E-G3665	194E-G3666	230 (9-1/16)	175 (6-57/64)	PG29/PG36 37.5/47.5 mm		155 (6-3/32)	195 (7-43/64)	120 (4-47/64)

* Empty enclosures not available for purchase.

* Cat. No. 194E-A16 units have 1 knockout on each end. all others have 2 knockouts on each end. A letter "M" in the catalog number indicates metric knockouts; the unit is otherwise supplied with PG knockouts.

† All mounting holes have a 4.2 mm (5/32 in.) diameter.

No. of Extensions	Cat. No. 194E-A 20/32...	Cat. No. 194E-A 40/63...	Cat. No. 194E-A 80/00...
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)

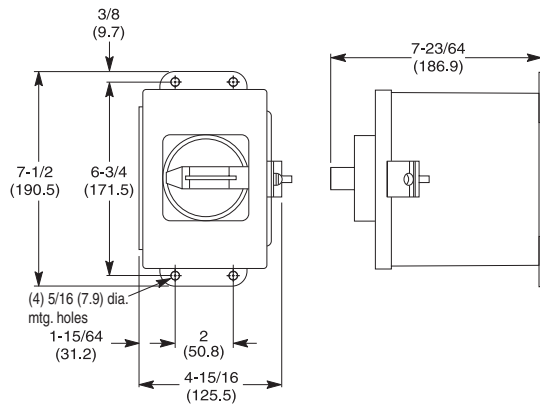
* When more than 4 modules are used, attach the first one to the switch body using the screws supplied with the extension (Cat. No. 194L-G2853).

Bulletin 194E
IEC Load Switches, 16...100 A
 Appropriate Dimensions

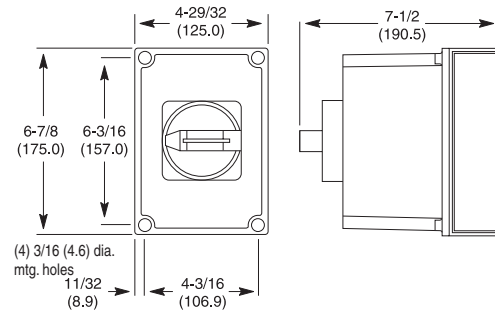
Dimensions are shown in millimeters (inches). Dimensions are not intended to be used for manufacturing purposes.

194E Enclosed Switches with 194R Handles

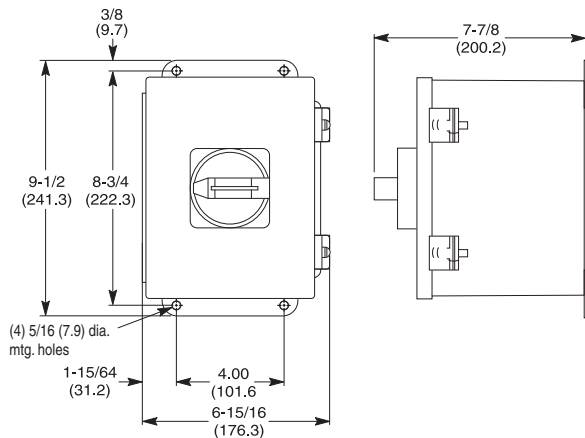
2



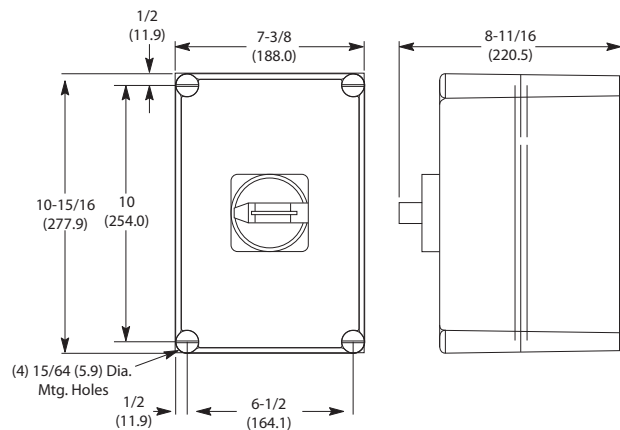
Cat. Nos. 194E-CA16...63, 194E-FA16...63, 194E-AA16...63



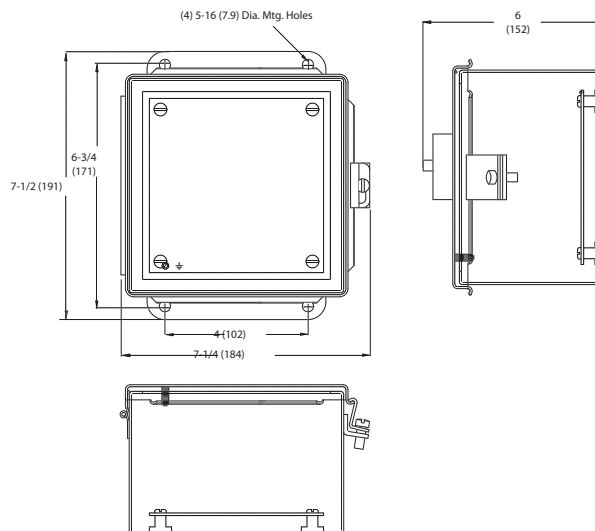
Cat. No. 194E-KA16...63



Cat. Nos. 194E-CA80...00, 194E-FA80...00, 194E-AA80...00
Cat. Nos. 194E-CA40X...63X, 194E-FA40X...63X, 194E-AA40X...63X



Cat. No. 194E-KA80...00



Cat. No. 194E-DA16...32, 194E-GA16...32