Selecting switches per NEC

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Article 430 of the US National Electric Code includes two methods for properly sizing disconnect switches:

1. Single motor application

A properly sized disconnect switch for a single motor will:

a) have an ampere rating greater than or equal to 115 percent of the rated motor full load current; or,

b) have a HP rating greater than or equal to the rated motor HP (at applied voltage) if the disconnect switch under consideration is HP rated.

2. Combination load application

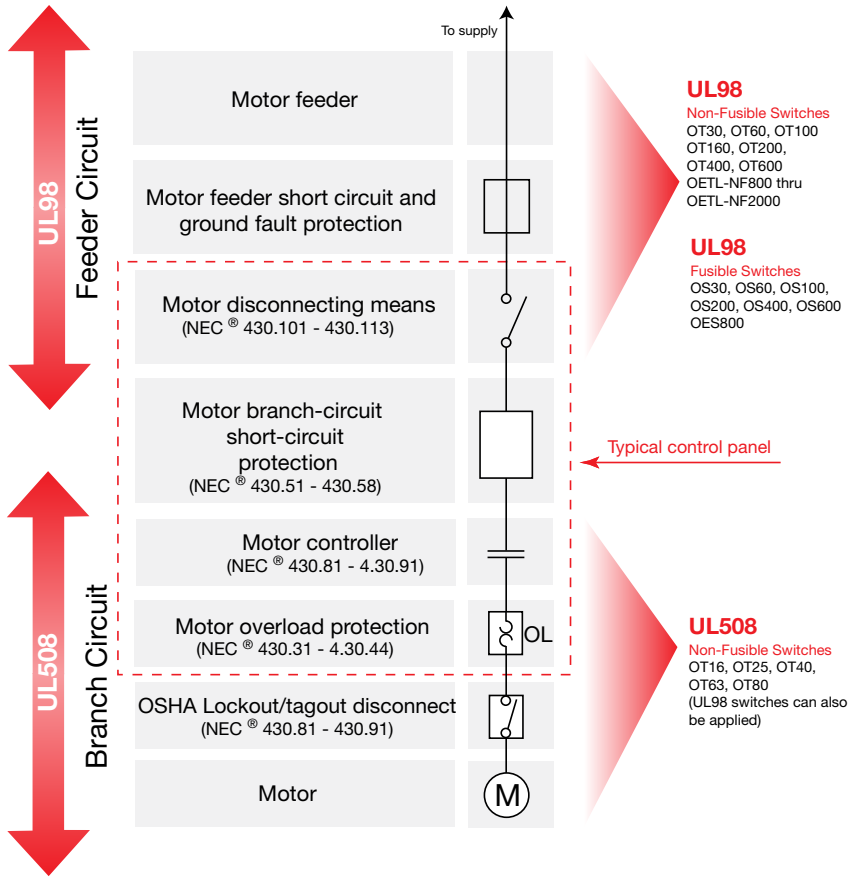
A properly sized disconnect switch for a combination load will be selected by adding all the simultaneous individual loads in the circuit under consideration.

Using motor nameplate information, load information, and tables from section 430 of the NEC, determine one equivalent full load current and one equivalent locked rotor current. The equivalent locked rotor current can be used with table 430-151 to determine an equivalent HP rating. Select a disconnect switch:

a) greater than or equal to 115 percent of the equivalent full load current; and,

b) greater than or equal to the equivalent HP rating.

Use of UL98 & UL508 Disconnects
According to *NEC ®* Article 430



Technical data
OT16F3 – OT160E3
UL & CSA

UL & CSA

Catalog number	3 pole	OT16F3	OT25F3	OT40F3	OT63F3	OT80F3	OT30F3	OT60F3	OT100F3	OT160E3
Approvals①	2 pole	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3 pole	UL508 & IEC	UL508 & IEC	UL508 & IEC	UL508 & IEC	UL508 & IEC	UL98 & IEC	UL98 & IEC	UL98 & IEC	UL98 & IEC
	4 pole	UL508 & IEC	UL508 & IEC	UL508 & IEC	UL508 & IEC	UL508 & IEC	UL98 & IEC	UL98 & IEC	UL98 & IEC	UL98 & IEC
General purpose amp rating	-40° to 40°C									
pf = 0.7 – 0.8	A	16	25	40	60	80	30	60	100	125
Max. operating voltage	V	600	600	600	600	600	600	600	600	600
Max. horsepower rating/motor FLA current,										
pf = 0.4 – 0.5										
Three phase										
240V	HP/A	5/15.2	7.5/22.0	10/28.0	15/42.0	20/54.0	10/28.0	20/54.0	30/80.0	40/104.0
480V	HP/A	10/14.0	15/21.0	20/27.0	30/40.0	40/52.0	20/27.0	40/52.0	50/65.0	75/96.0
600V	HP/A	10/11.0	20/22.0	25/27.0	30/32.0	40/41.0	30/32.0	40/41.0	50/52.0	100/99.0
Single phase 120V	HP/A	1/16	1.5/20	2/24	2/24.0	2/24.0	2/24.0	3/34.0	5/56.0	7.5/80
240V	HP/A	2/13.2	3/18.7	5/30.8	7.5/40.0	10/57.5	5/28.0	7.5/40.0	15/68.0	20/88.0
Short circuit rating with fuse										
Fuse type CC	kA	10 —	10 —-	10 —-	— —	— —	— —	— —	— —	—
Fuse type J	kA	10 10	10 10	10 10	100 —	100 —	50 —	50 —	50 —	100
Fuse type T	kA	10 10	10 10	10 10	100 —	100 —	50 —	50 —	50 —	—
Fuse type RK1	kA	10 —	10 —	10 —	— —	— —	— —	— —	— —	—
Fuse type RK5	kA	5 5	5 5	5 5	10 5	10 5	— —	— —	— —	—
Fuse type L	kA	— —	— —	— —	— —	— —	— —	— —	— —	—
Fuse type H	kA	— —	— —	— —	— 5	— 5	— —	— —	— —	—
Maximum fuse size	A	30 60 ④	30 60 ④	30 60 ④	100 150	100 150	60 —	150 —	150 —	200
3 cycle short circuit current withstand rating ⑤	kA	—	—	—	—	—	—	—	—	25
Endurances										
Min. Electrical endurance, pf = 0.75 – 0.80	operation cycles	6000	6000	6000	6000	6000	6000	6000	6000	6000
Min. Electrical endurance, pf = 0.40 – 0.50	operation cycles	1000	1000	1000	1000	1000	②	②	②	②
Mechanical endurance	operations	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	16,000
Physical characteristics										
Weight, switches 3 pole	lb	0.24	0.24	0.24	0.59	0.59	0.79	0.79	0.79	2.42
4 pole	lb	0.33	0.33	0.33	0.77	0.77	1.10	1.10	1.10	2.86
Dimension, switches 3 pole H	in	2.68	2.68	2.68	3.60	3.60	3.94	3.94	3.94	5.00
W	in	1.38	1.38	1.38	2.07	2.07	2.76	2.76	2.76	4.96
D	in	2.20	2.20	2.20	2.85	2.85	2.95	2.95	2.95	2.93
Shaft set screw tightening torque	lb. in.	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9
Shaft size — square □	in	.24 x .24	.24 x .24	.24 x .24	.24 x .24	.24 x .24	.24 x .24	.24 x .24	.24 x .24	.24 x .24
	mm	6 x 6	6 x 6	6 x 6	6 x 6	6 x 6	6 x 6	6 x 6	6 x 6	6 x 6
Switch operating torque for rotary 3 pole switches	lb. in.	8.8	8.8	8.8	10.5	10.5	17.5	17.5	17.5	52.5
Terminal lug kits		Not required	Not required	Not required	Not required	Not required	Not required	Not required	Not required	Not required
Wire range	AWG	#18 – 8	#18 – 8	#18 – 8	#14 – 4	#14 – 4	#14 – 4	#14 – 4	#8 – 1/0	#8 – 1/0
Torque:										
Wire tightening	lb. in.	7	7	7	18	18	55	55	55	70
Lug mounting	lb. in.	Integral	Integral	Integral	Integral	Integral	Integral	Integral	Integral	Integral
Auxiliary contacts		OA1G_ _	OA1G_ _	OA1G_ _	OA1G_ _	OA1G_ _	OA1G_ _	OA1G_ _	OA1G_ _	OBEA_ _
NEMA ratings, AC		A600	A600	A600	A600	A600	A600	A600	A600	A600
AC rated voltage	VAC	600	600	600	600	600	600	600	600	600
AC thermal rated current	A	10	10	10	10	10	10	10	10	10
AC maximum volt-ampere making	VA	7200	7200	7200	7200	7200	7200	7200	7200	7200
AC maximum volt-ampere breaking	VA	720	720	720	720	720	720	720	720	720
NEMA ratings, DC		R300	R300	R300	R300	R300	R300	R300	R300	P600
DC rated voltage	VDC	300	300	300	300	300	300	300	300	600
DC thermal rated current	A	1	1	1	1	1	1	1	1	5
DC maximum make-break	VA	28	28	28	28	28	28	28	28	138
Torque: Wire tightening	lb. in	7	7	7	7	7	7	7	7	7
Wire range	AWG	#18 – 14	#18 – 14	#18 – 14	#18 – 14	#18 – 14	#18 – 14	#18 – 14	#18 – 14	#22 – 14

① UL Listed switches are also CSA Approved.
② UL98 overload test, 50 operations, pf 0.40 – 0.50 at 2x FLA.
③ Multi-tap lug available, please see pg. 18.24 and 18.27.
④ Fuse size 70A for RK5
⑤ When protected by any Listed fuse or Listed circuit breaker whose current rating does not exceed the maximum thermal current rating of the switch.

UL & CSA

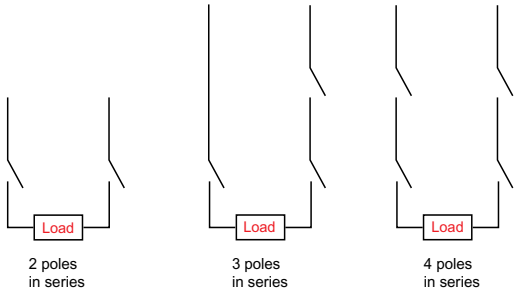
Catalog number	3 pole	OT200U03	OT400U03	OT600U03	OETL-NF800A	OETL-NF1200	OETL-NF1600	OETL-NF2000	OETL-NF3150 ⑤
Approvals①	2 pole	UL98 & IEC	UL98 & IEC	UL98 & IEC	UL98 & IEC	UL98 & IEC	UL98 & IEC	UL98 & IEC	IEC
	3 pole	UL98 & IEC	UL98 & IEC	UL98 & IEC	UL98 & IEC	UL98 & IEC	UL98 & IEC	UL98 & IEC	IEC
	4 pole	UL98 & IEC	UL98 & IEC	UL98 & IEC	IEC	IEC	IEC	IEC	IEC
General purpose amp rating -40° to 40°C									
pf = 0.7 – 0.8	**A**	**200**	**400**	**600**	**800**	**1200**	**1600**	**2000**	**3150**
Max. operating voltage	V	600	600	600	600	600	600	480	—
Max. horsepower rating/Max. motor FLA current,									
pf = 0.4 – 0.5									
Three phase									
240V	HP/A	75/192.0	125/312.0	200/480.0	250/602.0	—	—	—	—
480V	HP/A	150/180.0	250/302.0	400/515	500/590.0	—	—	—	—
600V	HP/A	200/192.0	350/336.0	500/472.0	600/576	—	—	—	—
Single phase 120V	HP/A	—	—	—	—	—	—	—	—
240V	HP/A	—	—	—	—	—	—	—	—
Short circuit rating with fuse									
Fuse type CC	kA	—	—	—	—	—	—	—	—
Fuse type J	kA	100	100	—/100	—	—	—	—	—
Fuse type T	kA	—	—	100/—	—	—	—	—	—
Fuse type RK1	kA	—	—	—	—	—	—	—	—
Fuse type RK5	kA	—	—	100	—	—	—	—	—
Fuse type L	kA	—	—	100/—	100	100	100	100	—
Fuse type H	kA	—	—	—/100	—	—	—	—	—
Maximum fuse size	A	350	600	600/800	1200	1200	2000	2000	—
3 cycle short circuit current withstand rating ⑥	kA	15	30	50	50	50	65	65	—
Endurances									
Min. Electrical endurance, pf = 0.75 – 0.80	operation cycles	6000	1000	1000	500	500	500	500	400
Min. Electrical endurance, pf = 0.40 – 0.50	operation cycles	②	②	②	②	②	②	②	②
Mechanical endurance	operations	20,000	20,000	10,000	10,000	10,000	6000	6000	6000
Physical characteristics									
Weight, switches 3 pole	lb	2.9	5.7	11.4	35.9	38.55	127.7	127.7	127.7
4 pole	lb	3.5	6.8	14.3	45.15	49.56	149.7	149.7	149.7
Dimension, switches 3 pole H	in	6.69	8.66	9.84	14.65	14.65	21.5	21.5	21.5
W	in	6.67	8.70	10.48	14.25	14.25	18.11	18.11	18.11
D	in	3.27	4.15	5.47	4.92	4.92	10.67	10.67	10.67
Shaft set screw tightening torque	lb. in.	14 - 17.7	—	—	—	—	—	—	—
Shaft size — square ☐	in	.24 x .24	.47 x .47	.47 x .47	.47 x .47	.47 x .47	.47 x .47	.47 x .47	.47 x .47
	mm	6 x 6	12 x 12	12 x 12	12 x 12	12 x 12	12 x 12	12 x 12	12 x 12
Switch operating torque for rotary 3 pole switches	lb. in.	62	142	184	184	184	438	438	438
Terminal lug kits		OZXA-200	OZXA-400	OZXA-800	OZXA-30	OZXA-28	OZXA-28	OZXA-28/2	OZXA-28/2
Wire range	AWG	#4-300kcmil③	#2-600kcmil③	(2)#2-600kcmil③	(2)#2-600kcmil③	(4)#2-600kcmil	(4)#2-600kcmil	(8)#2-600kcmil	(8)#2-600kcmil
Torque:									
Wire tightening	lb. in.	200	375	375	375	375	375	375	375
Lug mounting	lb. in.	72	240	240	230	230	230	230	230
Auxiliary contacts		OA_G_	OA_G_	OA_G_	OZXK-_ _	OZXK-_ _	OZXK-_ _	OZXK-_ _	OZXK-_ _
NEMA ratings, AC		A600	A600	A600	A600	A600	A600	A600	A600
AC rated voltage	VAC	600	600	600	600	600	600	600	600
AC thermal rated current	A	10	10	10	10	10	10	10	10
AC maximum volt-ampere making	VA	7200	7200	7200	7200	7200	7200	7200	7200
AC maximum volt-ampere breaking	VA	720	720	720	720	720	720	720	720
NEMA ratings, DC		P600	P600	P600	P600	P600	P600	P600	P600
DC rated voltage	VDC	600	600	600	600	600	600	600	600
DC thermal rated current	A	5	5	5	5	5	5	5	5
DC maximum make-break	VA	138	138	138	138	138	138	138	138
Torque: Wire tightening	lb. in	7	7	7	7	7	7	7	7
Wire range	AWG	#22 – #14	#22 – #14	#22 – #14	#22 – #14	#22 – #14	#22 – #14	#22 – #14	#22 – #14

① UL Listed switches are also CSA Approved.
② UL98 overload test, 50 operations, pf 0.40 – 0.50 at 2x FLA.
③ Multi-tap lug available, please see pg. 18.24 and 18.27.
④ Fuse size 70A for RK5
⑤ IEC rated only.
⑥ When protected by any Listed fuse or Listed circuit breaker whose current rating does not exceed the maximum thermal current rating of the switch.

Technical data
OT16F3 – OT160E3
IEC

IEC

Catalog number		3 pole	OT16F3	OT25F3	OT40F3	OT63F3	OT80F3	OT30F3	OT60F3	OT100F3	OT160E3
Rated insulation and operation		40°C									
voltage, AC20 and DC20		V	750	750	750	750	750	750	750	750	750
Rated impulse withstand voltage		kV	8	8	8	8	8	8	8	8	12
Rated thermal current, I_{th}											
AC 20/DC 20	open ①	A	25	32	40	63	80	40	63	115	200
	40°C enclosed	A	25	32	40	63	80	40	63	115	160
	60°C enclosed	A	25	32	40	63	80	40	63	115	160
Rated operational currents											
AC 21A	≤500V	A	**16**	**25**	**40**	**63**	**80**	**30**	**60**	**100**	**160**
	≤690V	A	16	25	40	63	80	40	63	100	160
	≤1000V	A	–	–	–	–	–	–	–	–	–
AC 22A	≤500V	A	16	25	40	63	80	40	63	100	160
	≤690V	A	16	25	40	63	80	40	63	100	160
	≤1000V	A	–	–	–	–	–	–	–	–	–
AC 23A	≤415V	A	16	20	23	45	75	40	63	80	135
	≤500V	A	16	20	23	45	58	40	60	60	125
	≤690V	A	10	11	12	20	20	40	40	40	80
	≤1000V	A	–	–	–	–	–	–	–	–	–
Rated operational currents/poles in series											
DC21A	48V	A	16/1	25/1	32/1	45/1	63/1	40/1	63/1	100/1	160/1
	110V	A	16/2	25/2	32/2	45/2	63/2	40/2	63/2	100/2	160/1
	220V	A	16/3	25/3	32/3	45/4	63/4	40/4	63/4	100/4	160/2
	440V	A	16/4	25/6	32/6	③	③	③	③	③	160/3
	750V	A	16/8	25/8	32/8	③	③	③	③	③	160/4
DC22A	48V	A	16/1	25/1	32/1	45/1	63/1	40/1	63/1	100/1	160/1
	110V	A	16/2	25/2	32/2	45/2	63/2	40/2	63/2	100/2	160/1
	220V	A	16/3	25/3	32/4	45/4	63/4	40/4	63/4	63/4	160/2
	440V	A	16/6	25/8	③	③	③	③	③	③	160/3
	750V	A	16/8	25/8	③	③	③	③	③	③	③
DC23A	48V	A	16/1	25/1	32/1	45/1	63/1	40/1	63/1	100/1	160/1
	110V	A	16/2	25/2	32/2	45/2	63/2	40/2	63/2	100/2	160/1
	220V	A	16/4	25/4	32/4	45/4	63/4	40/4	63/4	63/4	160/2
	440V	A	10/4	③	③	③	③	③	③	③	160/3
	750V	A	16/8	③	③	③	③	③	③	③	③
Rated operational power											
AC23A	230V	kW	3	4	5.5	11	22	7.5	11	22	45
	400/415V	kW	7.5	9	11	22	37	15	18.5	37	75
	500V	kW	7.5	9	11	22	37	15	18.5	37	75
	690V	kW	7.5	9	11	15	18.5	15	15	37	75
Short-circuit current		kA	50	50	50	50	50	50	50	50	100
with back-up fuses of size		A	25	32	40	63	80	100	100	100	200

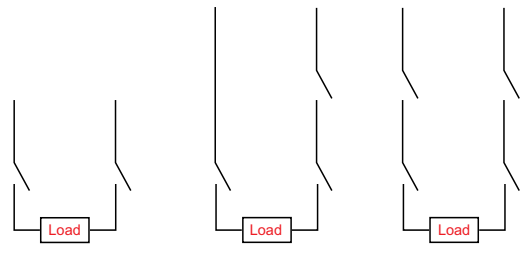


2 poles in series | 3 poles in series | 4 poles in series

① The ambient air temperature does not exceed +40°C and its average over a period of 24 hours does not exceed +35°C according to IEC 947.
② IEC 947-3, utilization category B, infrequent operation.
③ Not available at time of printing, please consult factory.

IEC

Catalog number	3 pole		OT200U03	OT400U03	OT600U03	OETL-NF800A	OETL-NF1200	OETL-NF1600	OETL-NF2000	OETL-NF3150
Rated insulation and operational	40°C									
voltage, AC20 and DC20		V	1000	1000	1000	1000	1000	1000	1000	1000
Rated impulse withstand voltage		kV	12	12	12	8	8	8	8	8
Rated thermal current, I_{th}										
AC 20/DC 20	open①	A	250	400	800	1250	1600	2500	3150	
	40°C enclosed	A	250	400	800	1250	1600	2300	2300	2600
	60°C enclosed	A	–	–	–	1000	1250	1950	1950	2300
Rated operational currents										
AC 21A	≤500V	A	**250**	**400**	**800**	**1250**	**1600**	**2500**②	**2500**②	**3150**②
	≤690V	A	250	400	800	1250	1600	2500②	2500②	3150②
	≤1000V	A	–	–	800	–	–	–	–	–
AC 22A	≤500V	A	250	400	800	1250	1600	1600②	1600②	1600②
	≤690V	A	250	400	800	–	–	–	–	–
	≤1000V	A	–	–	800	–	–	–	–	–
AC 23A	≤415V	A	250	400	800	800	800	800②	800②	800②
	≤500V	A	250	400	800	800	800	800②	800②	800②
	≤690V	A	250	400	800	–	–	–	–	–
	≤1000V	A	–	–	800	–	–	–	–	–
Rated operational currents/poles in series										
DC21A	48V	A	250/1	630/2	800/2	1250/2	1600/2	2500/2	2500/2	3150/2
	110V	A	250/2	630/2	800/2	1250/2	1600/2	2500/2	2500/2	3150/2
	220V	A	250/2	630/2	800/2	1250/2	1600/2	2500/2	2500/2	3150/2
	440V	A	250/3	630/3	800/3	1250/3	1600/3	2500/3	2500/3	3150/2
	750V	A	250/4	–	–	–	–	–	–	–
DC22A	48V	A	250/1	630/2	800/2	1250/2	1600/2	2500/2	2500/2	3150/2
	110V	A	250/2	630/2	800/2	1250/2	1600/2	2500/2	2500/2	3150/2
	220V	A	250/2	630/2	800/2	1250/2	1600/2	2500/2	2500/2	3150/2
	440V	A	250/3	630/3	800/3	–	–	–	–	–
	750V	A	250/4	–	–	–	–	–	–	–
DC23A	48V	A	250/1	630/2	–	–	–	–	–	–
	110V	A	250/2	630/2	–	–	–	–	–	–
	220V	A	250/2	630/2	–	–	–	–	–	–
	440V	A	250/3	–	–	–	–	–	–	–
	750V	A	250/4	–	–	–	–	–	–	–
Rated operational power										
AC23A	230V	kW	75	110	–	250	250	250	250	250
	400/415V	kW	132/140	220/230	450	400	400	400	400	400
	500V	kW	170	280	560	450	450	450	450	450
	690V	kW	240	355	800	–	–	–	–	–
Short-circuit current		kA	100	100	100	50/50④	50/50④	50/63④	50/63④	50/63④
with back-up fuses of size		A	400	800	800	–	–	–	–	–



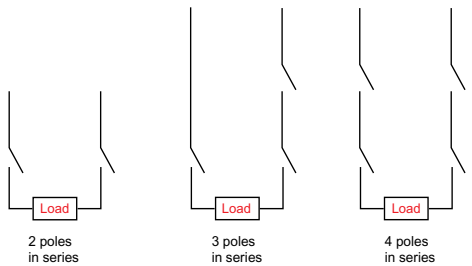
2 poles in series | 3 poles in series | 4 poles in series

① The ambient air temperature does not exceed +40°C and its average over a period of 24 hours does not exceed +35°C according to IEC 947.
② IEC 947-3, utilization category B, infrequent operation.
③ Not available at time of printing, please consult factory.
④ 690V / 500V

Technical data
OT16F3 – OT160E3
IEC

IEC

Catalog number	3 pole		OT16F3	OT25F3	OT40F3	OT63F3	OT80F3	OT30F3	OT60F3	OT100F3	OT160E3
Rated short-circuit making capacity, prospective peak value, I^{cm}		kA	0.7	0.7	0.7	1.4	1.4	3.6	3.6	3.6	12
Rated short time withstand current, RMS I^{cw}	0.2s	kA	–	–	–	–	–	–	–	–	7
RMS I^{cw}	1.0s	kA	0.5	0.5	0.5	1	1	2.5	2.5	2.5	4
AC breaking capacity											
pf = 0.35	≤415V	A	128	160	184	240	304	320	504	640	1080
	≤500V	A	128	160	184	240	256	320	480	480	1000
	≤690V	A	80	88	96	160	160	320	320	320	640
DC breaking capacity/poles in series											
L/R = 15ms											
	≤48V	A	64/1	100/1	128/1	180/1	252/1	160/1	252/1	400/1	640/1
	≤110V	A	64/2	100/2	128/2	180/2	252/2	160/2	252/2	400/2	640/1
	≤220V	A	64/3	100/4	128/4	180/4	180/4	160/4	252/4	252/4	640/2
	≤440V	A	①	①	①	①	①	①	①	①	640/3
	≤750V	A	①	①	①	①	①	①	①	①	①
Physical characteristics											
Electrical endurance at rated operational current, pf = 0.65		operation cycles	3000	3000	3000	3000	3000	3000	3000	3000	1000
Mechanical endurance		operations	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	16,000
Weight	3 pole	kg	0.11	0.11	0.11	0.27	0.27	0.36	0.36	0.36	1.1
	4 pole	kg	0.15	0.15	0.15	0.35	0.35	0.5	0.5	0.5	1.3
Dimension	3 pole	H mm	68	68	68	91.5	91.5	100	100	100	127
		W mm	35	35	35	52.5	52.5	70	70	70	126
		D mm	56	56	56	72.5	72.5	75	75	75	74.5
Power loss per pole		W	0.3	0.6	1	1.4	2.8	1	1.6	4	6.5
Shaft size — square □		mm	6 x 6	6 x 6	6 x 6	6 x 6	6 x 6	6 x 6	6 x 6	6 x 6	6 x 6
Switch operating torque for rotary 3 pole switches		Nm	1	1	1	1.2	1.2	2	2	2	6
Suitable conductor cross section Cu		mm2	0.75 – 10	0.75 – 10	0.75 – 10	1.5 – 25	1.5 – 25	1.5 – 25	1.5 – 25	10 – 70	10 – 70
Bolt size			–	–	–	–	–	–	–	–	–
Auxiliary contacts			OA1G_ _	OA1G_ _	OA1G_ _	OA1G_ _	OA1G_ _	OA1G_ _	OA1G_ _	OA1G_ _	OBEA_ _
Ratings according to IEC 947-5-1											
Rated voltage, U^i		VAC	690	690	690	690	690	690	690	690	690
Thermal current, I^{th}		A	16	16	16	16	16	16	16	16	10
AC12/DC12 I^e, A U^e =120V		A	–	–	–	–	–	–	–	–	8/–
125V		A	–	–	–	–	–	–	–	–	–/1.1
240V		A	6 ②	6 ②	6 ②	6 ②	6 ②	6 ②	6 ②	6 ②	6/–
250V		A	–	–	–	–	–	–	–	–	–/0.55
400V		A	4 ②	4 ②	4 ②	4 ②	4 ②	4 ②	4 ②	4 ②	4/–
415V		A	–	–	–	–	–	–	–	–	4/–
440V		A	–	–	–	–	–	–	–	–	–/0.31
480V		A	–	–	–	–	–	–	–	–	3/–
500V		A	–	–	–	–	–	–	–	–	3/0.27
600V		A	–	–	–	–	–	–	–	–	–/0.2
690V		A	2 ②	2 ②	2 ②	2 ②	2 ②	2 ②	2 ②	2 ②	2/–

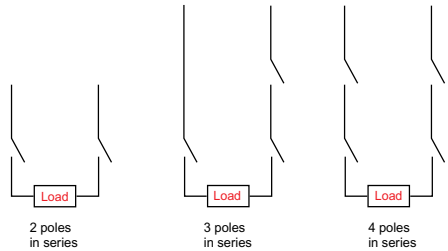


2 poles in series | 3 poles in series | 4 poles in series

① Not available at time of printing, please consult factory.
② AC15, according to IEC947-5-1.

IEC

Catalog number		3 pole	OT200U03	OT400U03	OT600U03	OETL-NF800A	OETL-NF1200	OETL-NF1600	OETL-NF2000	OETL-NF3150
Rated short-circuit making capacity,										
prospective peak value, I_{cm}500/690V		kA	30	65	80	105	105	140/105	140/105	140/105
Rated short time withstand current,										
RMS I_{cw}	0.2s	kA	15	28	36	—	—	—	—	—
RMS I_{cw}	1.0s	kA	8	15	20	50 ②	50 ②	80 ②	80 ②	80 ②
AC breaking capacity										
pf = 0.35	≤415V	A	2000	3200	5760	6400	6400	6400	6400	6400
	≤500V	A	2000	3200	5600	6400	6400	6400	6400	6400
	≤690V	A	2000	3200	5600	2500 ③	2500 ③	4800 ④	4800 ④	4800 ④
DC breaking capacity/poles in series										
L/R = 15ms, 3 pole in series										
	48V	A	1000/2	①	①	①	①	①	①	①
	110V	A	1000/2	①	①	①	①	①	①	①
	220V	A	1000/2	1600/2	2000/2	1900/2	2600/2	2600/2	2600/2	2600/2
	440V	A	1000/3	1600	2000/3	①	①	①	①	①
	750V	A	1000/4	①	①	①	①	①	①	①
Physical characteristics										
Electrical endurance at rated operational										
current, pf = 0.65	operation cycles		1000	1000	1000	500	500	100 ⑤	100 ⑤	100 ⑤
Mechanical endurance	operations		20,000	16,000	10,000	10,000	10,000	6000	6000	6000
Weight	3 pole	kg	1.2	2.2	5.2	16.3	17.5	37	37	37
	4 pole	kg	1.6	2.6	6.5	20.5	22.5	47	47	47
Dimension	3 pole	H mm	162	216	250	372	372	546	546	546
		W mm	219	260	266	363	363	468	468	468
		D mm	92.5	130	139	125	125	271	271	271
Power loss per one pole		W	6.5	10	40	40	67	90	90	140
Shaft size — square □		mm	6 x 6	12 x 12	12 x 12	12 x 12	12 x 12	12 x 12	12 x 12	12 x 12
Switch operating torque for										
rotary 3 pole switches		Nm	7	16	21	21	21	50	50	50
Suitable conductor cross section Cu		mm^2	—	—	—	—	—	—	—	—
Bolt size			8 x 25	10 x 30	12 x 40	12 x 60	12 x 60	12 x 60	12 x 60	12 x 60
Auxiliary contacts			OA_G_	OA_G_	OA_G_	OZXK-_ _	OZXK-_ _	OZXK-_ _	OZXK-_ _	OZXK-_ _
Ratings according to IEC 947-5-1										
Rated voltage, U_i		VAC	690	690	690	690	690	690	690	690
Thermal rated current, I_{th}		A	16	16	10	10	10	10	10	10
AC12/DC12 I_e, A U_e =	120V	A	—	—	8/—	8/—	8/—	8/—	8/—	8/—
	125V	A	—	—	—/1.1	—/1.1	—/1.1	—/1.1	—/1.1	—/1.1
	240V	A	6/—	6/—	6/—	6/—	6/—	6/—	6/—	6/—
	250V	A	—	—	—/0.55	—/0.55	—/0.55	—/0.55	—/0.55	—/0.55
	400V	A	4/—	4/—	4/—	4/—	4/—	4/—	4/—	4/—
	415V	A	—	—	4/—	4/—	4/—	4/—	4/—	4/—
	440V	A	—	—	—/0.31	—/0.31	—/0.31	—/0.31	—/0.31	—/0.31
	480V	A	—	—	3/—	3/—	3/—	3/—	3/—	3/—
	500V	A	—	—	3/0.27	3/0.27	3/0.27	3/0.27	3/0.27	3/0.27
	600V	A	—	—	—/0.2	—/0.2	—/0.2	—/0.2	—/0.	2—/0.2
	690V	A	2/—	2/—	2/—	2/—	2/—	2/—	2/—	2/—



2 poles in series | 3 poles in series | 4 poles in series

① Not available at time of printing, please consult factory.
② Maximum distance between busbar support and switch terminal 70mm.
③ pf 0.95.
④ pf 0.65.
⑤ IEC 947-3, utilization category B, infrequent operation.

Technical data
OS30AF_12 – OES800L3
UL & CSA

UL & CSA

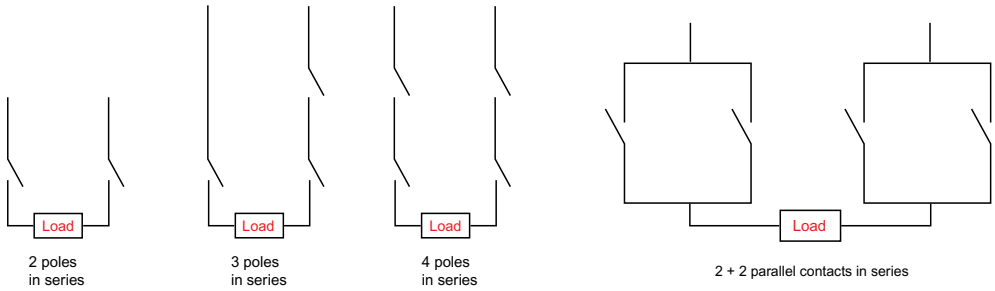
Catalog number	3 pole	OS30AF_12	OS60J12	OS100J03	OS200J03	OS400J03	OS600J03	OES800L3
Approvals ①	2 pole	N/A	N/A	IEC	UL98 & IEC	UL98 & IEC	UL98 & IEC	UL98 & IEC
	3 pole	UL98 & IEC	UL98 & IEC	UL98 & IEC	UL98 & IEC	UL98 & IEC	UL98 & IEC	UL98 & IEC
	4 pole	UL98 & IEC	UL98 & IEC	UL98 & IEC	UL98 & IEC	UL98 & IEC	UL98 & IEC	UL98 & IEC
Technical ratings	-40° to 40°C							
General purpose amp rating pf = 0.7 – 0.8	A	30	60	100	200	400	600	800
Max operating voltage	V	600	600	600	600	600	600	600
Max horsepower rating/ Max motor FLA current pf = 0.4 – 0.5 Three phase								
240V	HP/A	7.5/22.0	15/42.0	30/80.0	60/145.0	125/312.0	200/480.0	250/602.0
480V	HP/A	15/21.0	30/40.0	60/77.0	125/156.0	250/302.0	400/477.0	500/590.0
600V	HP/A	20/22.0	50/52.0	75/77.0	150/144.0	350/336.0	500/472.0	600/ —
Single phase								
120V	HP/A	2/24.0	—	—	—	—	—	—
240V	HP/A	3/17.0	—	—	—	—	—	—
Short circuit rating with fuse	kA	200	200	200	200	200	200	100
UL Fuse size	A	30	60	100	200	400	600	800
UL Fuse type		J/CC	J	J/T	J/T	J	J	L
Endurances								
Min. Electrical endurance, pf = 0.75 – 0.80	operation cycles	6000	6000	6000	6000	1000	1000	500
Mechanical endurance	operation	20,000	20,000	20,000	20,000	12,000	10,000	7000
Physical characteristics								
Weight	3 pole lb	1.54	2.86	3.30	5.9	12.56	28.66	37.44
	4 pole lb	1.98	3.52	3.96	7.5	15.21	37.48	46.26
Dimension	3 pole H in	3.66	3.94	5.67	6.5	9.29	12.04	10.10
	W in	4.15	5.63	7.07	7.1	10.04	13.50	14.80
	D in	4.10	5.04	5.10	5.2	6.93	9.17	9.17
Shaft size square □	in	.24 x .24	.24 x .24	.24 x .24	.24 x .24	.47 x .47	.47 x .47	.47 x .47
	mm	6 x 6	6 x 6	6 x 6	6 x 6	12 x 12	12 x 12	12 x 12
Switch operating torque for rotary 3 pole switches	lb. in.	26.6	35.5	70.9	195	195	248	248
Terminal lug kits		Integral	Integral	OZXA-24	OZXA-200	OZXA-400	OZXA-800	OZXA-27
Wire range	AWG	#18 – 8	#14 – 4	#14 – 2/0	#4 – 300kcmil	#2 – 600kcmil	(2) #2 – 600 kcmil	(2) #2 – 600 kcmil
Torque:								
Wire tightening	lb. in.	17	30	120	200	500	500	500
Lug mounting	lb. in.	N/A	N/A	50	72	480	480	480

Auxiliary contacts		OA4G_	OA1/3G_	OA_G_	OA_G_	OA_G_	OA_G_	OA_G_	OZXK-__
NEMA ratings, AC		—	A600	A600	A600	A600	A600	A600	A600
AC rated voltage	VAC	250	600	600	600	600	600	600	600
AC thermal rated current	A	6	10	10	10	10	10	10	10
AC maximum volt ampere making	VA	—	7200	7200	7200	7200	7200	7200	7200
AC maximum volt ampere breaking	VA	—	720	720	720	720	720	720	720
NEMA ratings, DC		—	P300	R300	R300	R300	P600	P600	P600
DC rated voltage	VDC	—	300	300	300	300	600	600	600
DC thermal rated current	A	—	1	1	1	1	1	7	5
DC maximum make break current	A	—	28	28	28	28	28	28	138
Torque:									
Wire tightening	lb. in.	7		7	7	7	7	7	7
Wire range	AWG	#22 – 14/#18 – 14		#18 – 14	#18 – 14	#18 – 14	#18 – 14	#18 – 14	#20 – 12

① The following UL Listed switches are also CSA approved.

IEC

Catalog number	3 pole	OS30AF_12	OS60J12	OS100J03	OS200J03	OS400J03	OS600J03	OES800L3
Technical ratings	-40° to 40°C							
Rated insulation voltage Pollution degree 3 ⑥	V	1000	1000	1000	1000	1000	1000	1000
Dielectric strength	50Hz/60Hz, 1 min kV	10	10	10	10	10	10	10
Rated impulse withstand voltage	kV	12	12	12	12	12	12	12
Rated thermal current, I_{th}/ max. fuse power dissipation ①								
AC 20/DC 20 open ②	A/W	32/3.5	63/7.5	160/12	200/17	400/45	630/60	800/65
40°C enclosed	A/W	32/3.5	63/7.5	160/10, 135/12	200/17	400/34, 360/37	600/45, 570/50	720/55
Enclosed with solid links	A/W	32	85	175	280	450	700	900
with minimum cable cross section Cu	mm²	6	16	70	95	240	2 x 185	2 x 240
Rated operational voltage AC 20 and DC 20V		1000	1000	1000	1000	1000	1000	1000
AC Rated operational currents								
AC 21A ≤500V	A	32	63	160	200	400	630	800
≤690V	A	32	63	160	200	400	630	800
AC 22A ≤500V	A	32	63	160	200	400	630	800
≤690V	A	32	63	160	200	400	630	800
AC 23A ≤500V	A	32	63 ⑤	160 ⑤	200	400	630	720
≤690V	A	32	63 ⑤	160 ⑤	200	400	630	720
DC Rated operational currents/poles in series								
DC21A 48V	A	32/2 ③	④	④	200/1	400/2	—	800/2
110V	A	32/2	④	④	200/1	400/2	—	800/2
220V	A	32/2	④	④	200/1	400/2	—	800/2
440V	A	32/4	63/4	160/3	200/2	400/2	—	800/2
750V	A	—	④	④	180/4	400/3	—	800/3
1000V	A	—	④	④	—	400/4	—	800/4
DC22A 48V	A	32/2 ③	④	④	200/1	400/2	—	800/2
110V	A	32/2	④	④	200/1	400/2	—	800/2
220V	A	32/2	④	④	200/1	400/2	—	800/2
440V	A	32/4	63/4	160/3	200/2	400/2	—	800/2
750V	A	—	④	④	180/4	400/3	—	800/3
1000V	A	—	④	④	—	400/4	—	800/4
DC23A 48V	A	32/2 ③	④	④	200/1	400/2	—	800/2
110V	A	32/2	④	④	200/1	400/2	—	800/2
220V	A	32/2	④	④	200/1	400/2	—	800/2
440V	A	32/4	63/4	160/3	200/2	400/2	—	800/2
750V	A	—	④	④	180/4	400/3	—	800/3
1000V	A	—	④	④	—	—	—	800/4
Rated operational power AC23A								
230V	kW	8	18.5	45	60	132	200	200
400V	kW	14	30	80	110	220	355	350
415V	kW	15	30	90	110	230	355	380
500V	kW	18	37	110	140	280	450	470
690V	kW	25	60	132	190	400	630	600



2 poles in series | 3 poles in series | 4 poles in series | 2 + 2 parallel contacts in series

① Ambient temperature 60°C: derating 20 percent. Mounting on ceiling: derating 10 percent. Mounting on wall, horizontal fuses: derating 8 percent.
② The ambient air temperature does not exceed +40°C and its average over a period of 24h does not exceed +35°C according to IEC 947.
③ For 30A switches, use 2 + 2 parallel contacts in series.
④ Available on request.
⑤ IEC 947-3, utilization category B, infrequent operation.
⑥ Pollution degree 3: Conductive pollution occurs, or dry, non-conductive pollution occurs, which becomes conductive due to condensation.

Technical data
OS30AF_12 – OES800L3
IEC

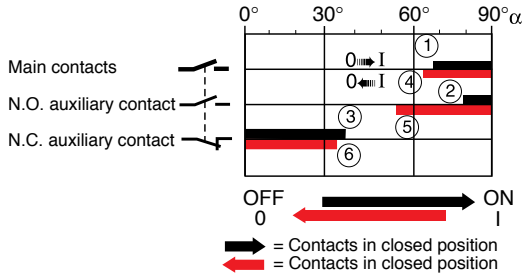
IEC

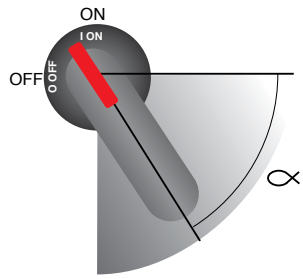
Catalog number	3 pole	OS30AF_12		OS60J12	OS100J03	OS200J03	OS400J03	OS600J03	OES800L3
Rated breaking capacity									
in category AC-23A 500V	A	256		504	1280	1600	3200	5760	5760
690V	A	256		504	1280	1600	3200	5760	5760
Rated breaking capacity/poles in series									
in category DC-23 <220V	A	128/2		—	—	1000/2	1600/2	3200/2	3200/2
440V	A	128/4		—	—	1000/2	1600/2	3200/2	3200/2
500 – 750V	A	—		—	—	1000/3	1600/3	3200/3	3200/3
1000V	A	—		—	—	—	—	3200/4	3200/4
Rated conditional short-circuit current r.m.s. ③									
80 kA, 415V	kA	9		17	22	35	40	75	75
100 kA, 500 V	kA	7.5		17	22	37.5	40	75	75
50 kA, 690 V	kA	6		13	15	35	35	60	60
Rated short time withstand current, 1s.	kA	1		2.5	5	8	10	16	16
Rated capacitor power									
The capacitor rating of the fusible									
disconnect switch is limited by the fuse link									
400 V	kVar	15		30	—	—	180	250	310
415V	kVar	15		32	—	—	200	270	340
690V	kVar	25		50	—	—	325	450	550
Power loss/pole									
with rated current, without fuse	W	2		4	9	8	30	46	77
Mechanical endurance	operations	20,000		20,000	20,000	20,000	16,000	10,000	10,000
Fuse types, IEC 269-2	DIN 43620	—		000, 00	000, 00	—	0 – 2	3	3
	NFC	10 x 38, 14 x 51		14 x 51, 22 x 58	22 x 58	—	0 – 2	3	—
	BS 88	A1, A2, F1		A2 – A3	A2 – A4	B1 – B2	B1 – B4	C1 – C2	C1 – C3
size/distance of link bolts		M4/44.5(A1) M5/73(A2)		M5/73	M5/73 M8/94	M6/111	M8/111	M10/133, 184	M10/133, 184
Physical characteristics									
Weight 3 pole	kg	0.7		1.3	1.5	2.6	5.7	13.0	17.0
4 pole	kg	0.9		1.6	1.8	7.9	6.9	17.0	21.0
Dimension 3 pole	H mm	93		100	144	198.5	236	306	282
	W mm	106		143	179	181.5	255	343	376
	D mm	104		120	129	132	176	233	233
Shaft size square □	mm	6 x 6		6 x 6	6 x 6	6 x 6	12 x 12	12 x 12	12 x 12
Terminals									
Built-in terminal size	mm^2	0.5 – 10		2.5 – 25	—	—	—	—	—
Terminal bolt size, metric thread									
diameter x length	mm	—		—	M6 x 20	M8 x 25	M10 x 40	M12 x 40	M12 x 40
Terminal bolt tightening torque	Nm	2		3.5	6 – 9	15 – 22	30 – 44	50 – 75	50 – 75
Fuse-links bolts tightening torque	Nm	2		3.5	3.5 – 5	4	15	40	40
Operating torque	Nm	3		4	8	7	22	28	28
Auxiliary contacts		OA4G_ ①	OA1/3G ②	OA_G_ ②	OA_G_ ②	OA_G_ ②	OA_G_	OA_G_	OZXK-_
Ratings according to IEC 947-5-1									
Rated voltage, U_i	VAC	690	690	690	690	690	690	690	690
Thermal current, I_{th}	A	10	16	16	16	16	16	16	10
AC12 / DC12, I_e U_e=24V	A	— / 6	—	—	—	—	—	—	—
120V	A	— / 6	—	—	—	—	—	—	8 / —
125V	A	—	—	—	—	—	—	—	— / 1.1
230V	A	—	6 / —	6 / —	6 / —	6 / —	—	—	6 / —
250V	A	3 / 0.1	—	—	—	—	—	—	— / 0.55
400V	A	—	4 / —	4 / —	4 / —	4 / —	—	—	4 / —
415V	A	—	—	—	—	—	—	—	4 / —
440V	A	2 / —	—	—	—	—	—	—	— / 0.31
480V	A	—	—	—	—	—	—	—	3 / —
500V	A	—	—	—	—	—	—	—	3 / 0.27
600V	A	—	—	—	—	—	—	—	— / 0.2
690V	A	—	2 / —	2 / —	2 / —	2 / —	2 / —	2 / —	2 / —

① AC15 / DC12, according to IEC 947-5-1
② AC15, according to IEC 947-5-1
③ Values shown are corresponding max. allowed cut-off current, peak-values per single phase fuse tests.

Auxiliary contact timing diagrams
OT16 – OT100

Legend





Contacts closing

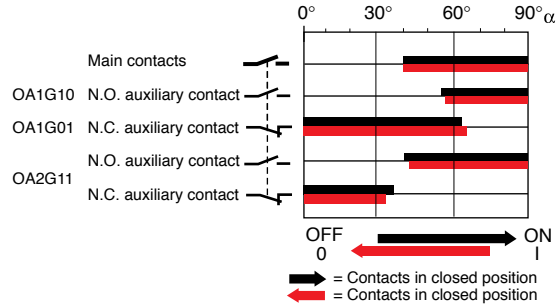
① Main contacts close
② N.O. auxiliary contacts close
③ N.C. auxiliary contacts open

Contacts opening

④ Main contacts open
⑤ N.O. auxiliary contacts open
⑥ N.C. auxiliary contacts close

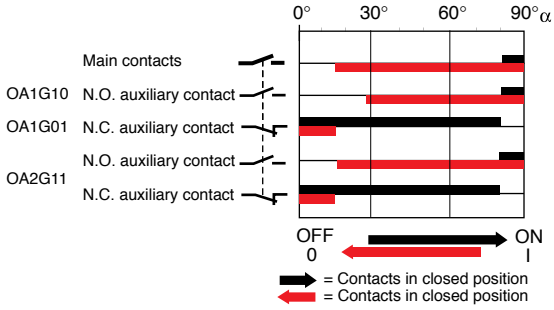
OT16, OT25, OT40

Catalog number	Auxiliary contact	Contact configuration
OT16, OT25, OT40	OA1G10 OA1G01 OA2G11	1 N.O. 1 N.C. 1 N.O. & 1 N.C.



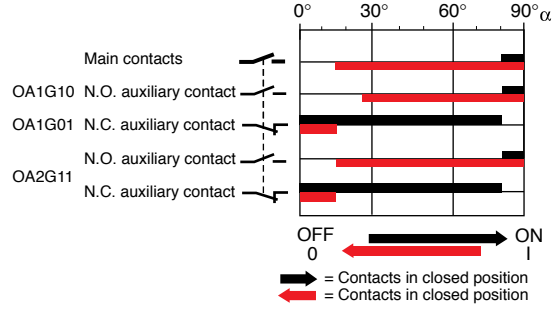
OT63, OT80

Catalog number	Auxiliary contact	Contact configuration
OT63, OT80	OA1G10 OA1G01 OA2G11	1 N.O. 1 N.C. 1 N.O. & 1 N.C.



OT30, OT60, OT100

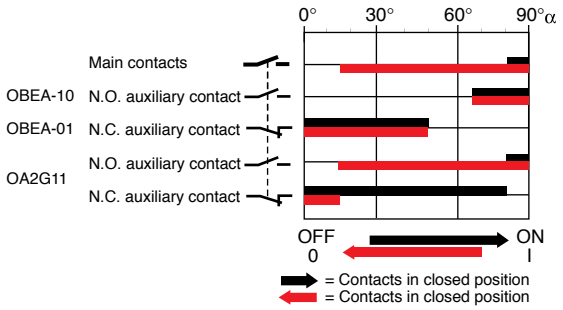
Catalog number	Auxiliary contact	Contact configuration
OT30, OT60, OT100	OA1G10 OA1G01 OA2G11	1 N.O. 1 N.C. 1 N.O. & 1 N.C.



Auxiliary contact timing diagrams
OT160 – OETL-NF3150

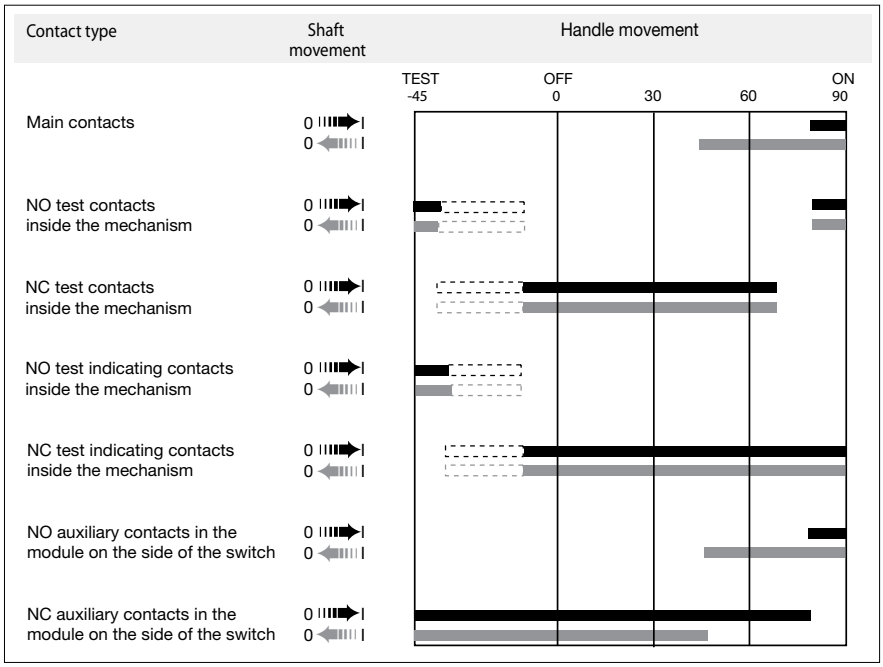
OT160E3

Catalog number	Auxiliary contact	Contact configuration
OT160E3	OBEA-10 OBEA-01 OA2G11	1 N.O. 1 N.C. 1 N.O. & 1 N.C.



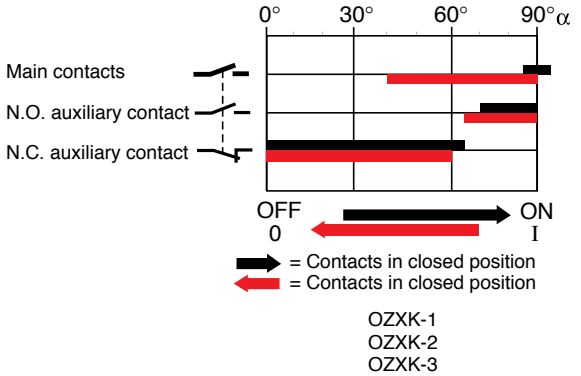
OT200U03 – OT600U03

Catalog number	Auxiliary contact	Contact configuration
OT200U03 – OT600U03	OA1G10 OA3G01	1 N.O. 1 N.C.



OETL-NF800A – OETL-NF3150

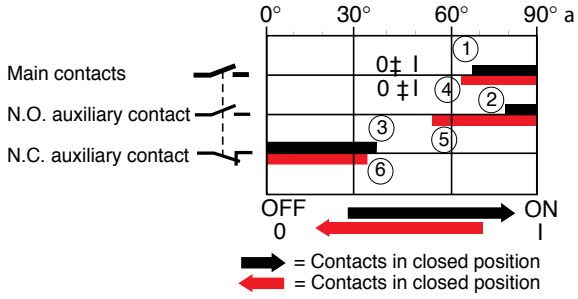
Catalog number	Auxiliary contact	Contact configuration
OETL-NF800A – OETL-NF3150	OZXK-1 OZXK-2 OZXK-3	1 N.O. & 1 N.C. 2 N.O. & 2 N.C. 4 N.O. & 4 N.C.

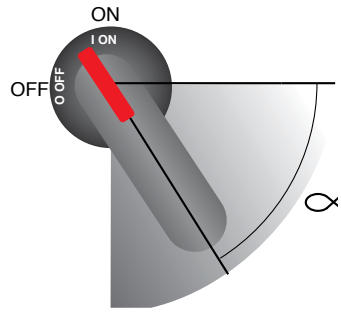


OZXK-1
OZXK-2
OZXK-3

Auxiliary contact timing diagrams
OS30_ – OS100

Legend



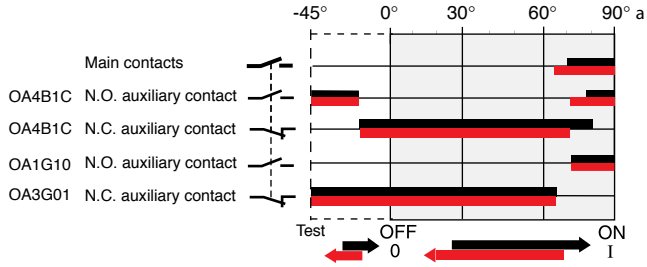


Contacts closing
① Main contacts close
② N.O. auxiliary contacts close
③ N.C. auxiliary contacts open

Contacts opening
④ Main contacts open
⑤ N.O. auxiliary contacts open
⑥ N.C. auxiliary contacts close

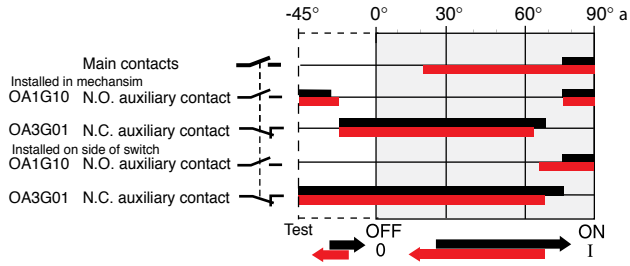
OS30_

Catalog number	Auxiliary contact	Contact configuration
OS30_	OA4B1C OA1G10 OA3G01	1 N.O. & 1 N.C. 1 N.O. 1 N.C.



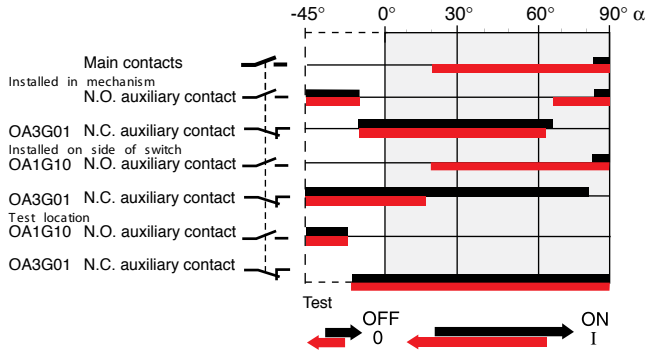
OS60

Catalog number	Auxiliary contact	Contact configuration
OS60	OA1G10 OA3G01	1 N.O. 1 N.C.



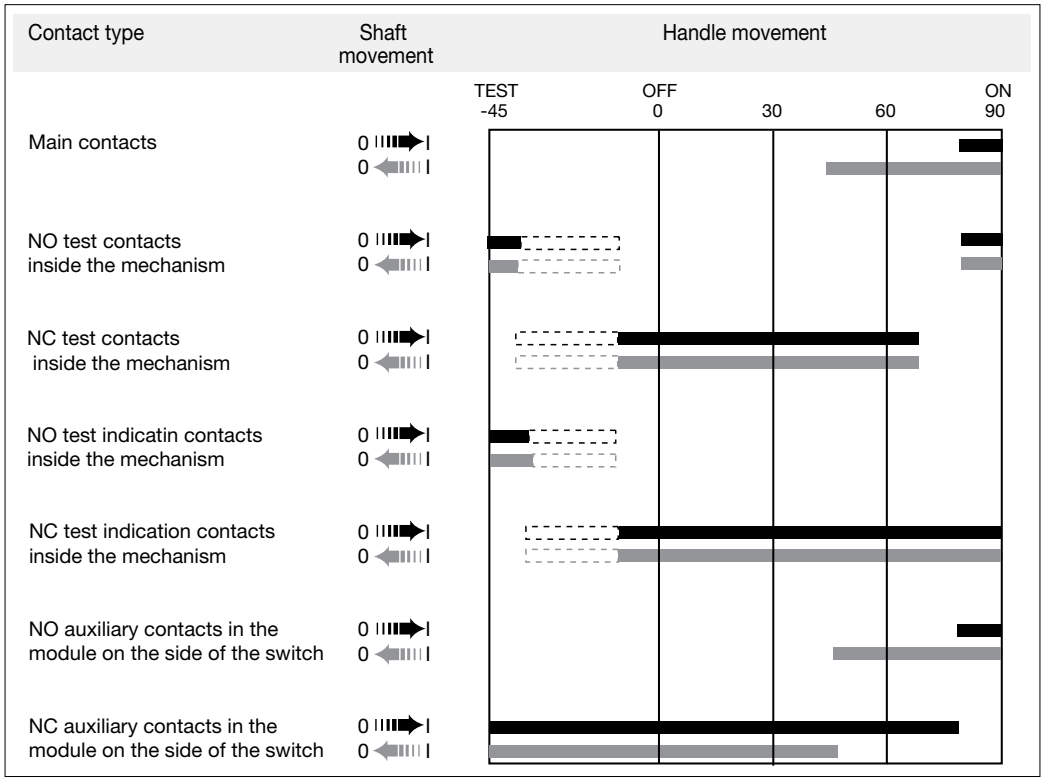
OS100

Catalog number	Auxiliary contact	Contact configuration
OS100	OA1G10 OA3G01	1 N.O. 1 N.C.



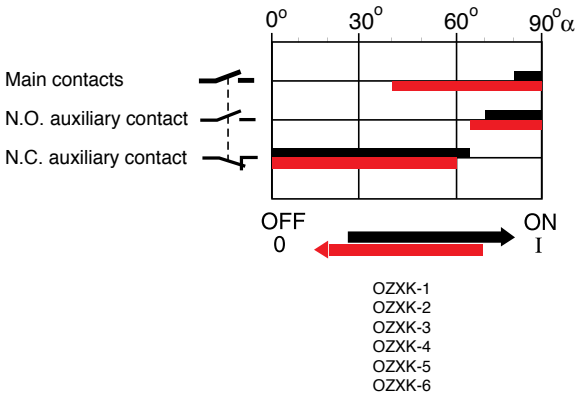
Auxiliary contact timing diagrams
OS200 – OES800

OS200 - OS600



OES800

Catalog number	Auxiliary contact	Contact configuration
OES800	OZXK-1	1 N.O. & 1 N.C.
	OZXK-2	2 N.O. & 2 N.C.
	OZXK-3	4 N.O. & 4 N.C.
	OZXK-4	2 N.O.
	OZXK-5	4 N.O.
	OZXK-6	8 N.O.

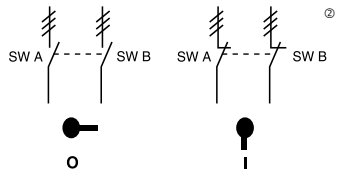


OZXK-1
OZXK-2
OZXK-3
OZXK-4
OZXK-5
OZXK-6

Conversion mechanisms

6 or 8 pole

6 (8) pole mechanism allows two switches controlled by one handle to open or close simultaneously.

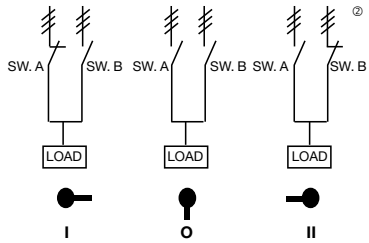


	POS. O	POS.I
SW. A	O	X
SW. B	O	X

X = Closed
O = Open

Double throw①

Transfer mechanism manually transfers between two power sources using two switches and a center "OFF" position.

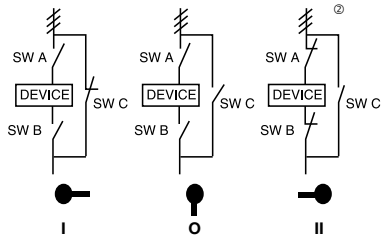


	POS. I	POS.O	POS.II
SW. A	X	O	O
SW. B	O	O	X

X = Closed
O = Open

Bypass①

Bypass mechanism operates three switches: Two switches in series and one changeover switch to allow power bypass.

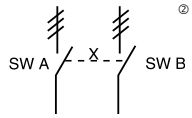


	POS. I	POS.O	POS.II
SW. A	O	O	X
SW. B	O	O	X
SW. C	X	O	O

X = Closed
O = Open

Mechanical interlock

Mechanical interlock mechanism prevents both switches from being in the ON position at the same time.



	SW. A POS. I	SW. B POS. O
SW. A	X	O
SW. B	O	X

X = Closed
O = Open

18

① Transfer and bypass enclosed switches include the load side bussed or cabled together and all switches come standard with ground lugs.
② = Three poles

NEMA Environmental ratings

Introduction

An enclosure is a surrounding case constructed to provide a degree of protection to personnel against accidental contact with the enclosed equipment and to provide a degree of protection to the enclosed equipment against specified environmental conditions.

A brief description of the more common types of enclosures used by the electrical industry relating to their environmental capabilities follows. Refer to NEMA Standards Publication for more information regarding applications, features and design tests.

Individual NEMA product Standards Publications or third party certification standards may contain additional requirements for product testing and performance.

Definitions pertaining to nonhazardous locations

Type 1

Enclosures are intended for indoor use primarily to provide a degree of protection against limited amounts of falling dirt. (NEMA Standard 7-15-1991.)

Type 3R

Enclosures are intended for outdoor use primarily to provide a degree of protection against rain, sleet and damage from external ice formation. (NEMA Standard 7-15-1991.)

Type 4

Enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against windblown dust and rain, splashing water, hose-directed water and damage from external ice formation. (NEMA Standard 1-10-1979.)

Type 4X

Enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water, hose-directed water and damage from external ice formation. (NEMA Standard 1-10-1979)

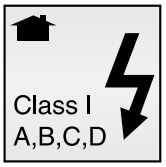
Type 12

Enclosures are intended for indoor use primarily to provide a degree of protection against circulating dust, falling dirt, and dripping noncorrosive liquids. (NEMA Standard 7-15-1991.)

Type 13

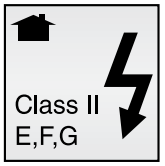
Enclosures are intended for indoor use primarily to provide a degree of protection against dust, spraying of water, oil and noncorrosive coolant. (NEMA Standard 1-10-1979.)

Definitions pertaining to hazardous locations



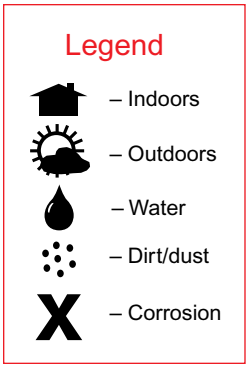
Type 7

Enclosures are intended for indoor use in locations classified as Class I, Groups, A, B, C, or D, as defined in the National Electrical Code. (NEMA Standard 7-15-1991.)



Type 9

Enclosures are intended for indoor use in locations classified as Class II, Groups E, F, or G, as defined in the National Electrical Code. (NEMA Standard 7-15-1991.)



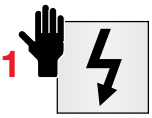
IEC Environmental ratings

IP ratings

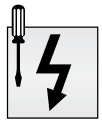
indicate the degree of protection against dust, liquids and impacts. The IP degrees of protection are defined by the French standard NFC 20-010. To rate a device's degrees of protection, the letters IP are followed by up to three numbers. These numbers are defined as follows:

first number
protection against solid objects

IP 0 — no protection

1 —  protected against solid objects over 50mm (e.g. accidental touch by hands.)

2 —  protected against solid objects over 12 mm (e.g. fingers)

3 —  protected against solid objects over 2.5 mm (tools & wires)

4 —  protected against solid objects over 1mm (small tools & small wires)

5 —  protected against dust (no harmful deposit)

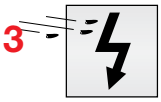
6 —  totally protected against dust

second number
protection against liquids

IP 0 — no protection

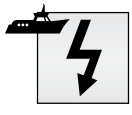
1 —  protected against vertically falling rain or condensation

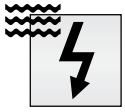
2 —  protected against direct sprays of water up to 15° from vertical

3 —  protected against sprays to 60° from vertical

4 —  protected against water sprayed from all directions

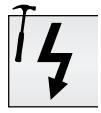
5 —  protected against low pressure jets of water from all directions

6 —  protected from strong jets of water (e.g. for use on ship decks)

7 —  protected against the effects of immersion between 15cm and 1m

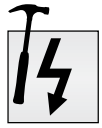
third number
protection against mechanical impacts

IP 0 — no protection

1 —  impact 0,225 joule 150g falling from 15 cm

2 —  impact 0,375 joule 250g falling from15 cm

3 —  impact 0,50 joule 250g falling from 20cm

5 —  impact 2,00 joule 500g falling from 40 cm

7 —  impact 6,00 joule 1.5kg falling from 40 cm

9 —  impact 20,00 joule 5 kg falling from 40 cm

Definitions

AC – Alternating current — Current that reverses its direction of flow twice per cycle.

Ambient temperature — Temperature of the air surrounding the unit.

Amp rating — The basic unit of measurement for electric current (columbs / seconds).

Conventional thermal current I_{th} — Value of the current the disconnect switch can withstand with poles in closed position, in free air for an eight hour duty, without the temperature rise of its various parts exceeding the limits specified by the standards.

Cycle duration — Total time of the on-load + off-load period.

DC – Direct current — Current that flows in only one direction.

Electrical endurance — Number of on-load operating cycles.

IEC environmental protection type — see page 18.48.

Full load amp current FLA — The current required by a motor to produce full-load torque at the motor's rated speed.

Inductive load — An electrical load characterized by having significant inrush (5 to 6 times FLA for typical design-B AC induction motors).

kW — Kilowatts (1000 watts)

Lockout/Tagout — Means of removing power from electrical equipment during inspection, service or repair.

Make / Break — ON / OFF

Mechanical endurance — Number of off-load operating cycles.

Poles in series — Means of connection poles using wires or bus bars to increase breaking capacity of load.

Power factor — The relationship between working power and total power consumed. Power factor measures how effectively electrical power is being used.

Rated insulation U_i — Voltage value which designates the unit and to which dielectric tests, clearance and creepage distances are referred.

Rated operating current I_e —Current value stated by the manufacturer and taking into account the rated operating voltage U_e, the rated frequency, the rated duty, the utilization category, the electrical contact life and the type of protective enclosure.

Rated operating voltage U_e — Voltage value to which utilization characteristics of the disconnect switch are referred, i.e. phase-to-phase voltage in 3 phase circuits.

Rated short circuit making capacity I_{cm}— The rated short-circuit making capacity of a disconnect switch, a disconnector or a switch-disconnector is the value assigned to equipment at the rated operational voltage, frequency (if any) and specified power-factor for AC or time constant for DC. It is expressed as the maximum prospective peak current under prescribed conditions.

Rated short time withstand current I_{cw} — The rated short-time withstand current of a disconnect switch, a disconnector or a switch-disconnector is the value that the equipment can carry without damage, under the test conditions specified in the relevant product standard. The value of the rated short-time withstand current shall be not less than twelve times the maximum rated operational current unless otherwise stated by manufacturer and the duration of the current shall be 1 s.

Resistive load — An electrical load characterized by not having any significant inrush current.

Short circuit protection coordination — Co-ordination types "1" and "2" are defined in IEC 947-4-1.
Type 1 coordination — There has to be no discharge of parts beyond the enclosure. Damage to the contactor and the overload is acceptable.
Type 2 coordination — No damage to the overload relay or other parts has occurred, except that welding of contactor or starter contacts is permitted, if they are easily separated.

Time constant — Ratio of inductance to the resistance: L/R = mH/Ohm = ms.

Torque — The force that produces rotation. It is commonly measured in pound-feet (lb-ft). Torque applies to such things as motor operations, handle rotations, wire tightening.

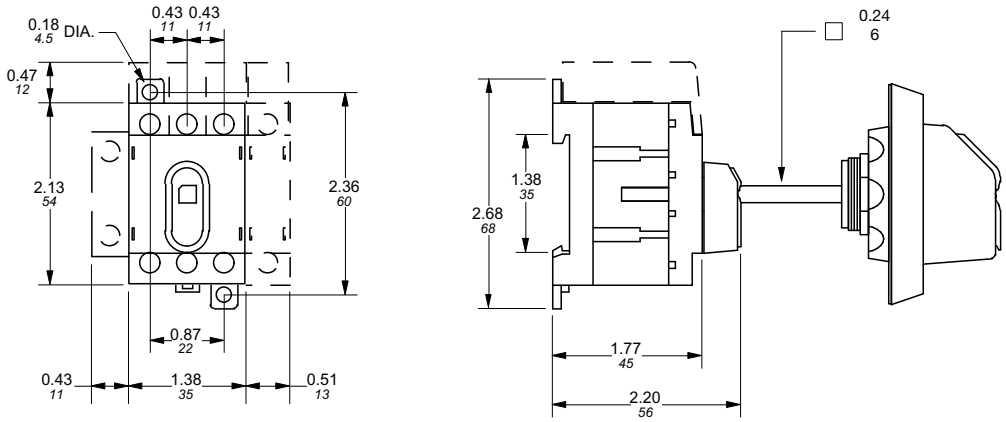
NEMA environmental protection type — see page 18.47.

Volt — The unit of electrical potential difference and electromotive force.

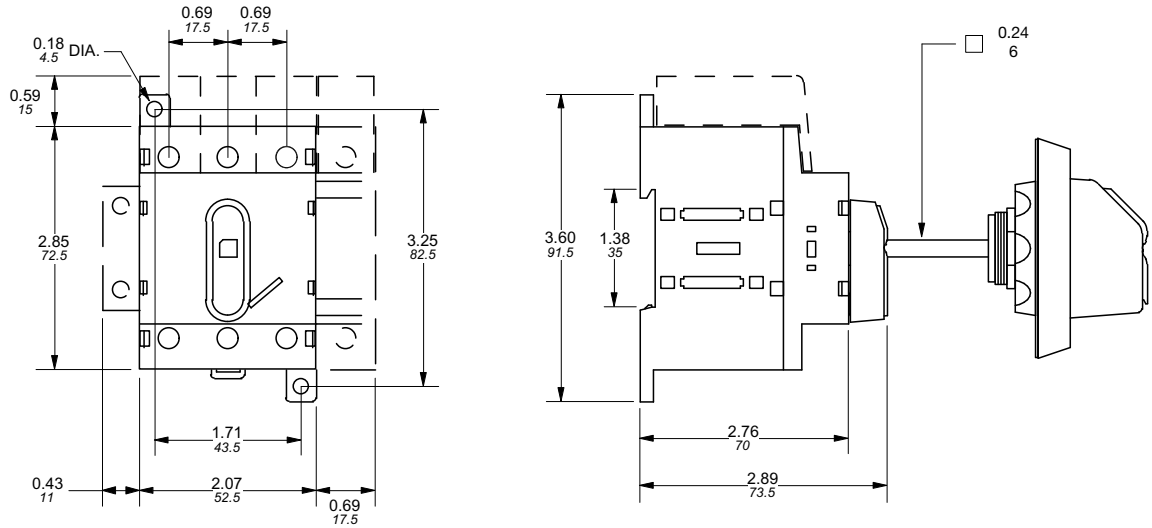
Approximate dimensions
OT16F3 – OT100F3
Base & DIN rail mounted switches

00.00 / 00.00 Inches [Millimeters]

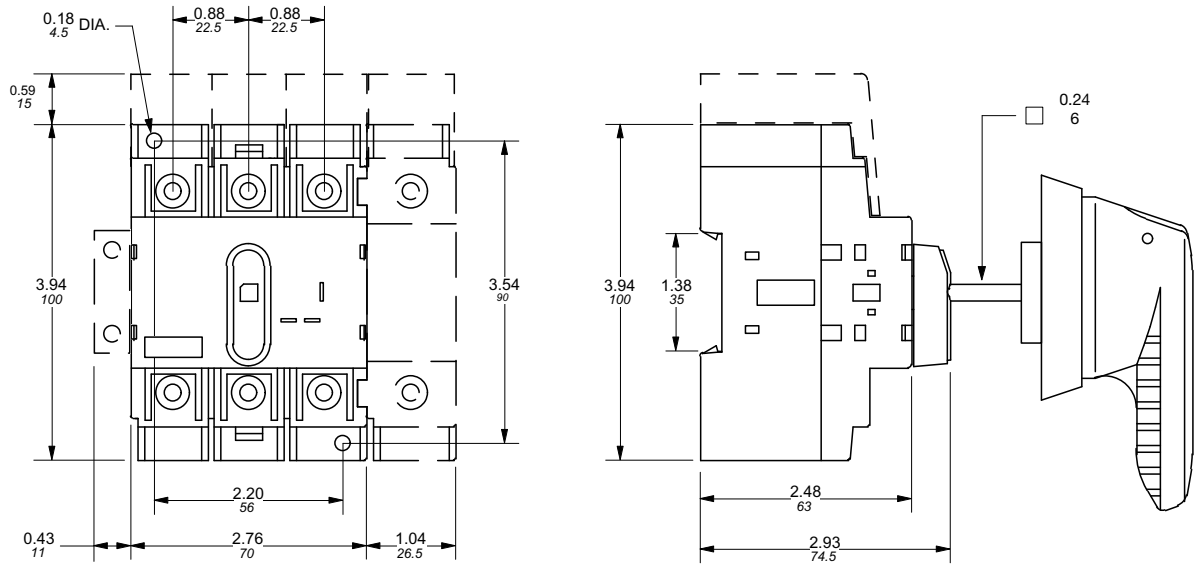
OT16F3, OT25F3, OT40F3 — base & DIN rail mounted switch



OT63F3, OT80F3 — base & DIN rail mounted switch



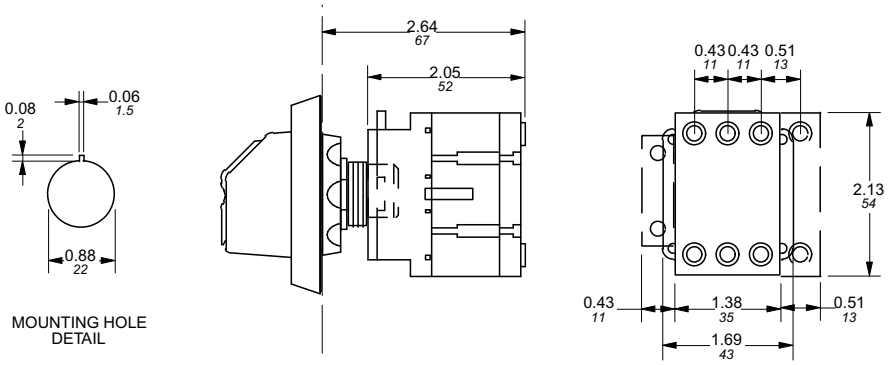
OT30F3, OT60F3, OT100F3 — base & DIN rail mounted switch



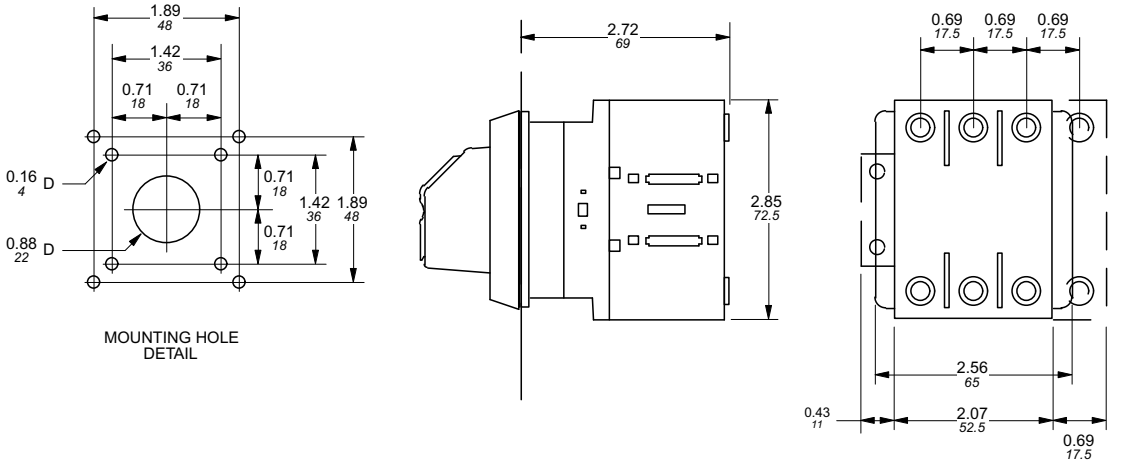
Approximate dimensions
OT16FT3 – OT100FT3
Door mounted switches

00.00 / 00.00 Inches [Millimeters]

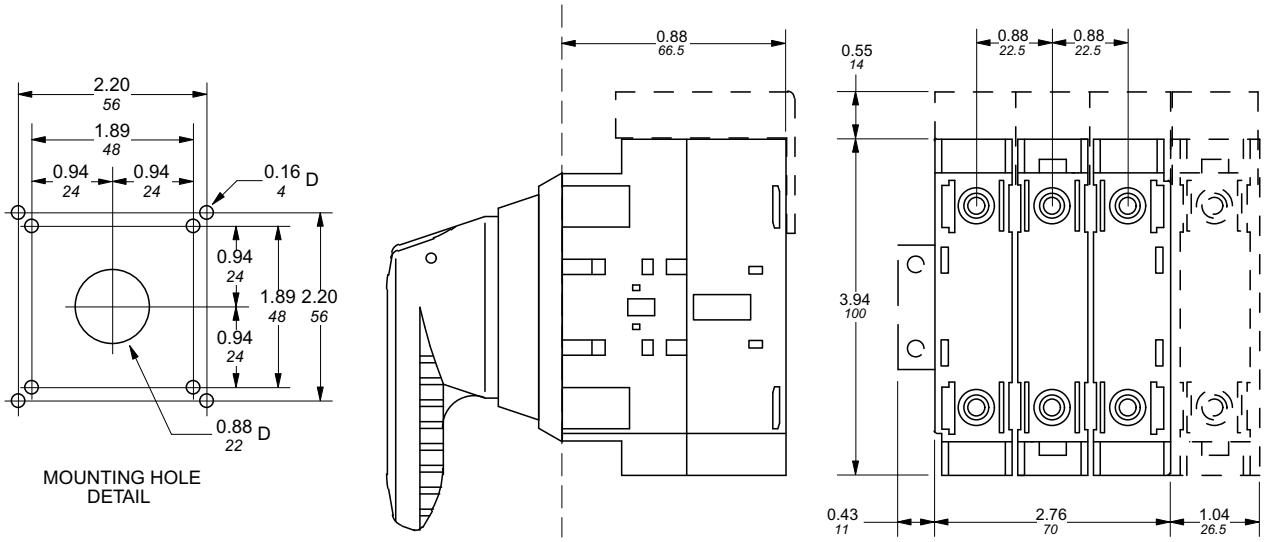
OT16FT3, OT25FT3, OT40FT3 — door mounted switch



OT63FT3, OT80FT3 — door mounted switch



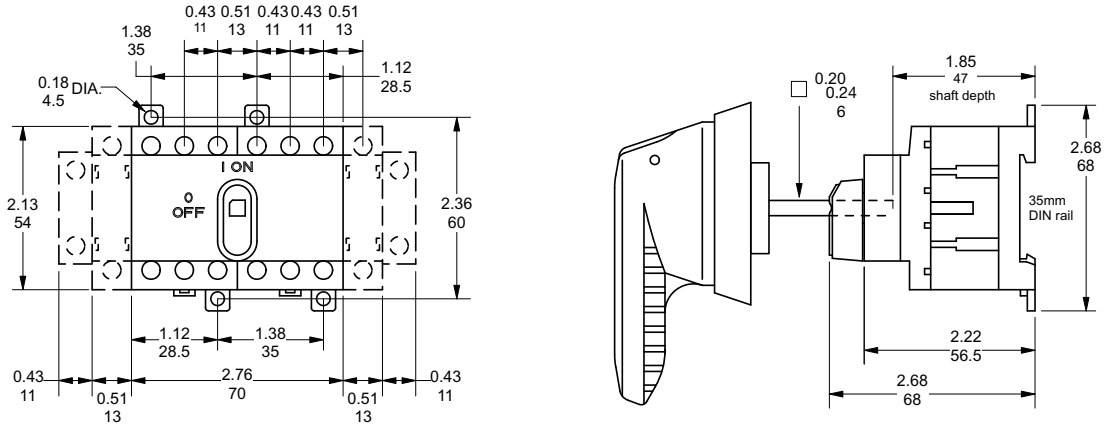
OT30FT3, OT60FT3, OT100FT3 — door mounted switch



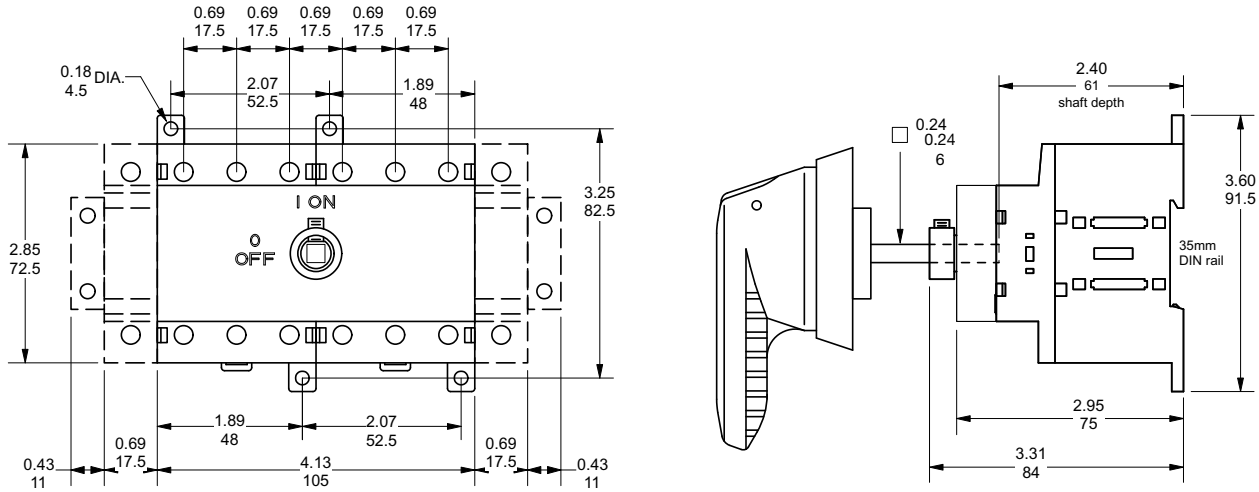
Approximate dimensions
OT16F6 – OT100F6
6-pole switches

00.00 Inches
00.00 [Millimeters]

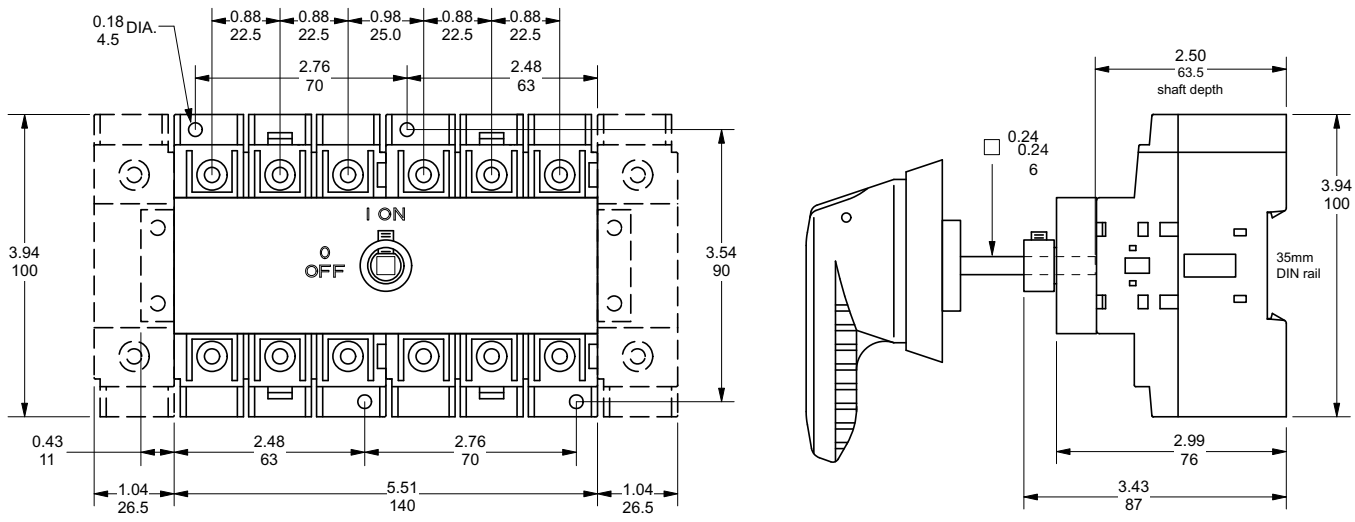
OT16, 25, 40F6 — 6 Pole switches



OT63, OT80F6 — 6 Pole switches



OT30, OT60, OT100F6 — 6 Pole switches

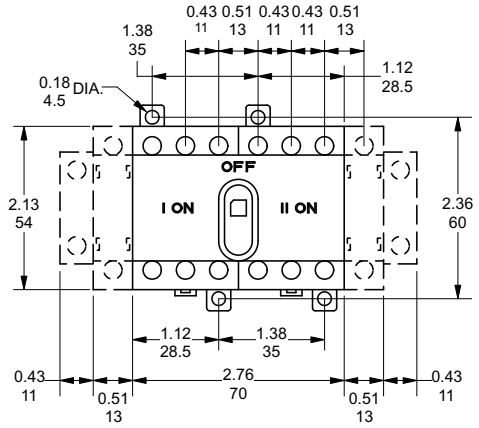


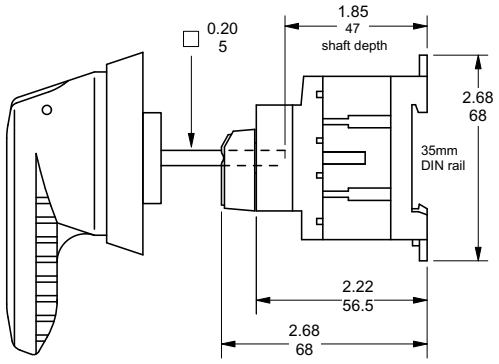
18

Approximate dimensions
OT16 – OT100F3C
Double throw switches

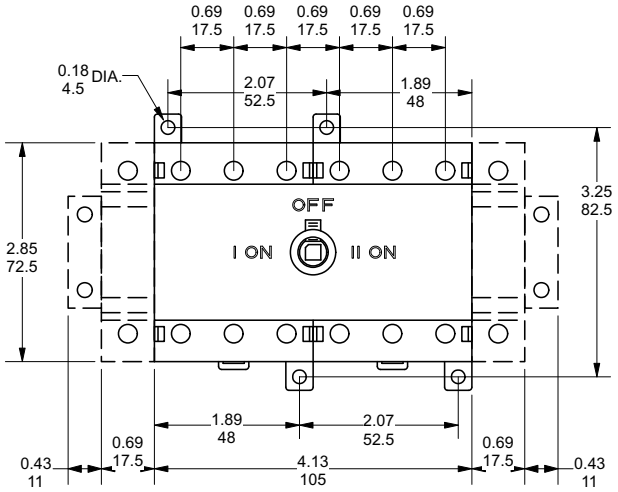
00.00 / 00.00 Inches [Millimeters]

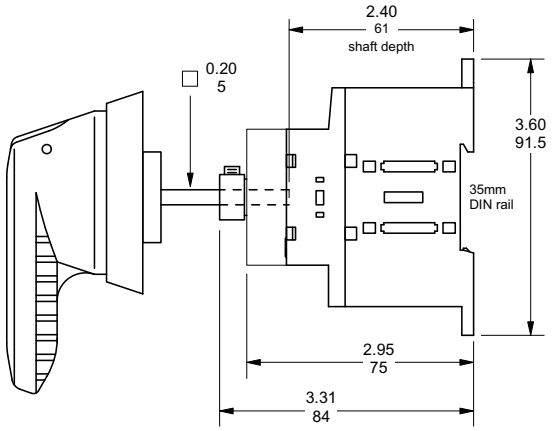
OT16, OT25, OT40F3C – Double throw switches



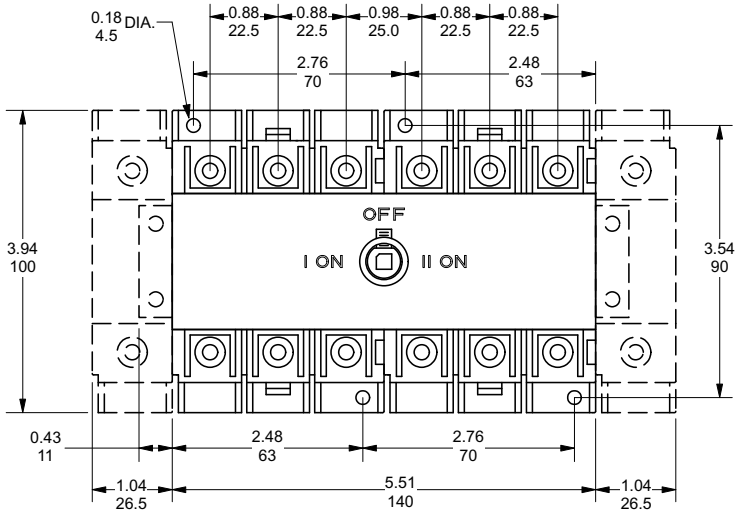


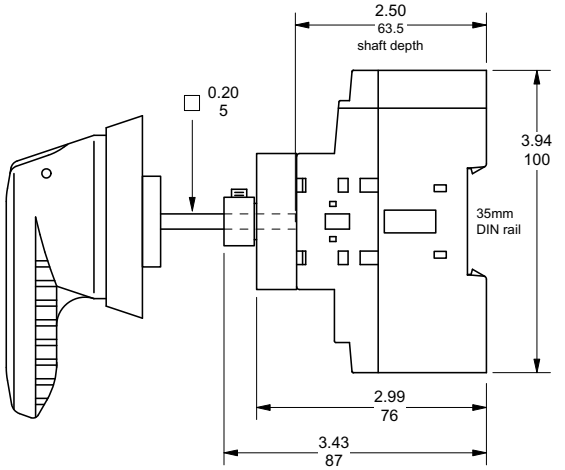
OT45, OT63, OT80F3C – Double throw switches





OT30, OT60, OT100F3C – Double throw switches

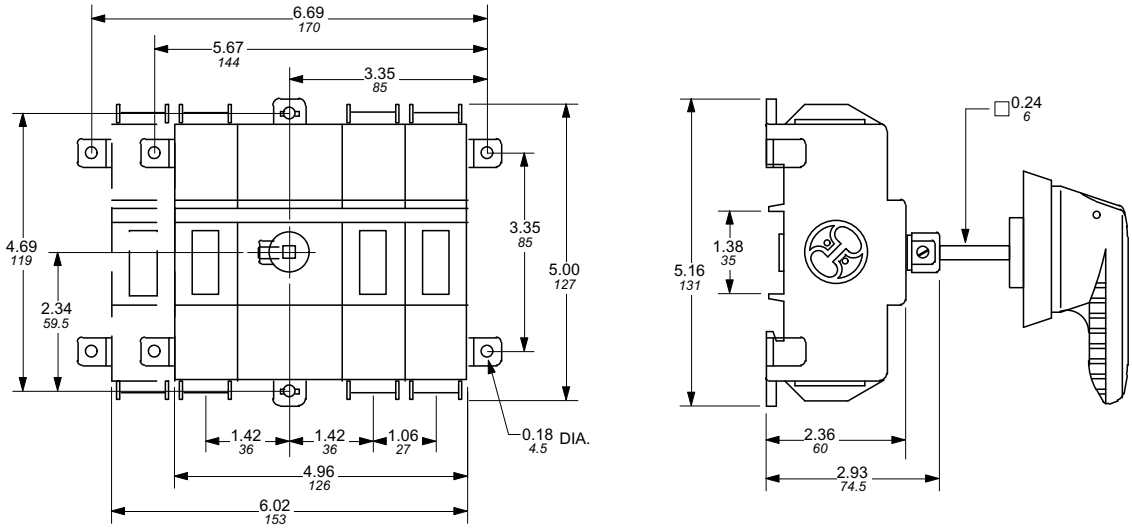




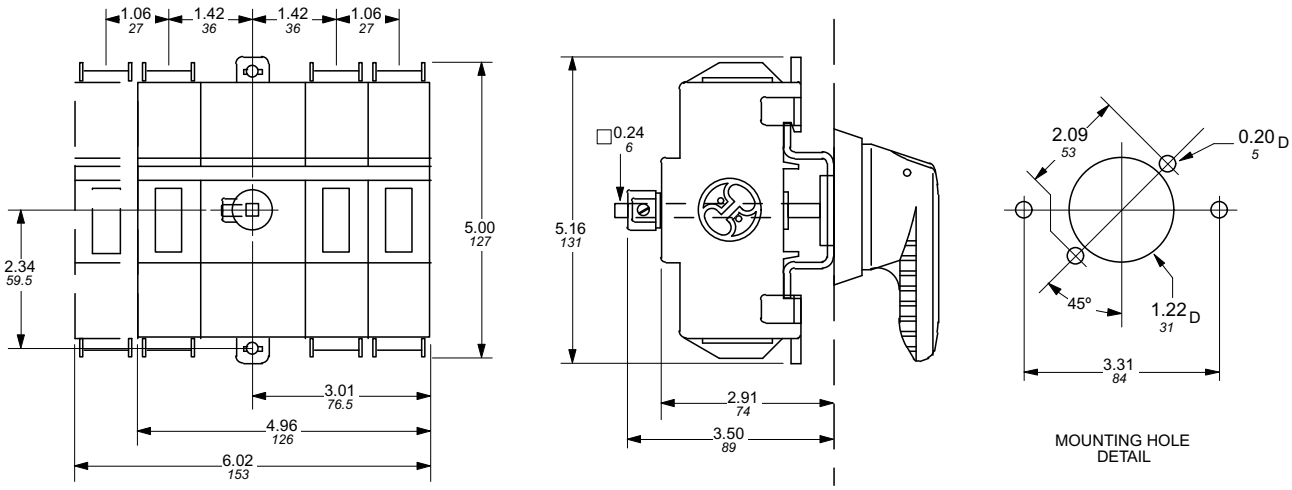
Approximate dimensions
OT160E3 & OT160ET3

00.00
00.00
Inches
[Millimeters]

OT160E3 — base & DIN rail mounted switch



OT160ET3 — Door mounted switch

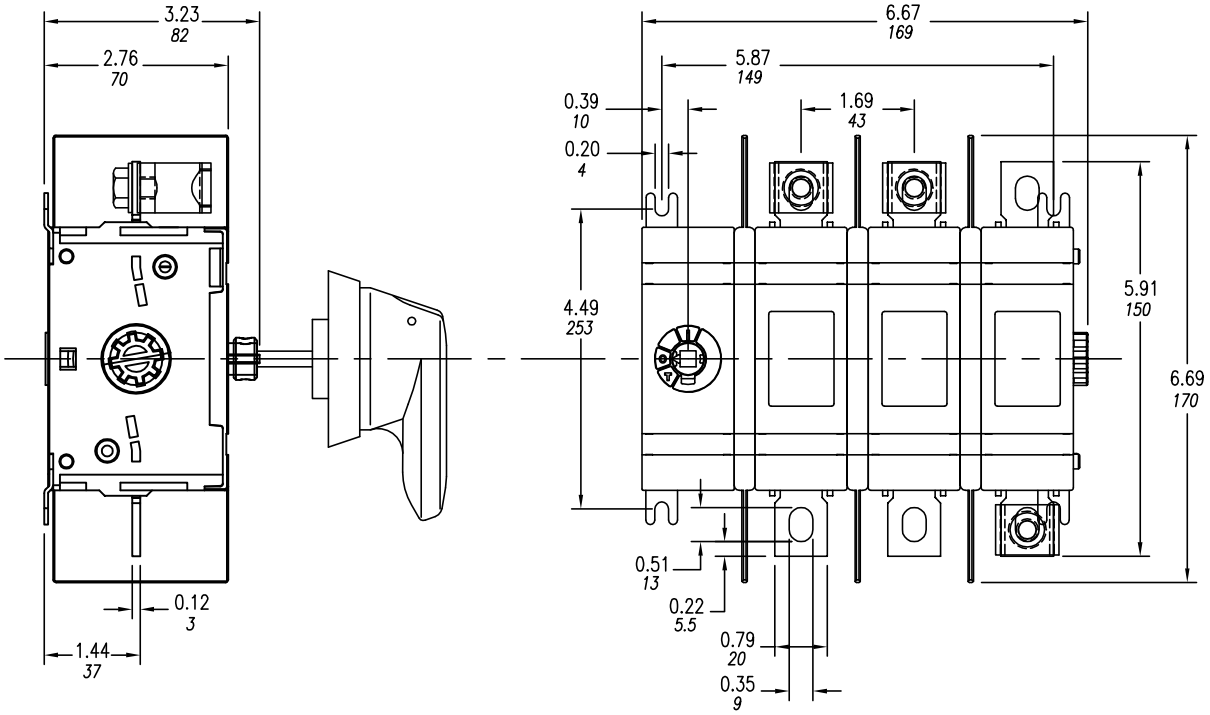


18

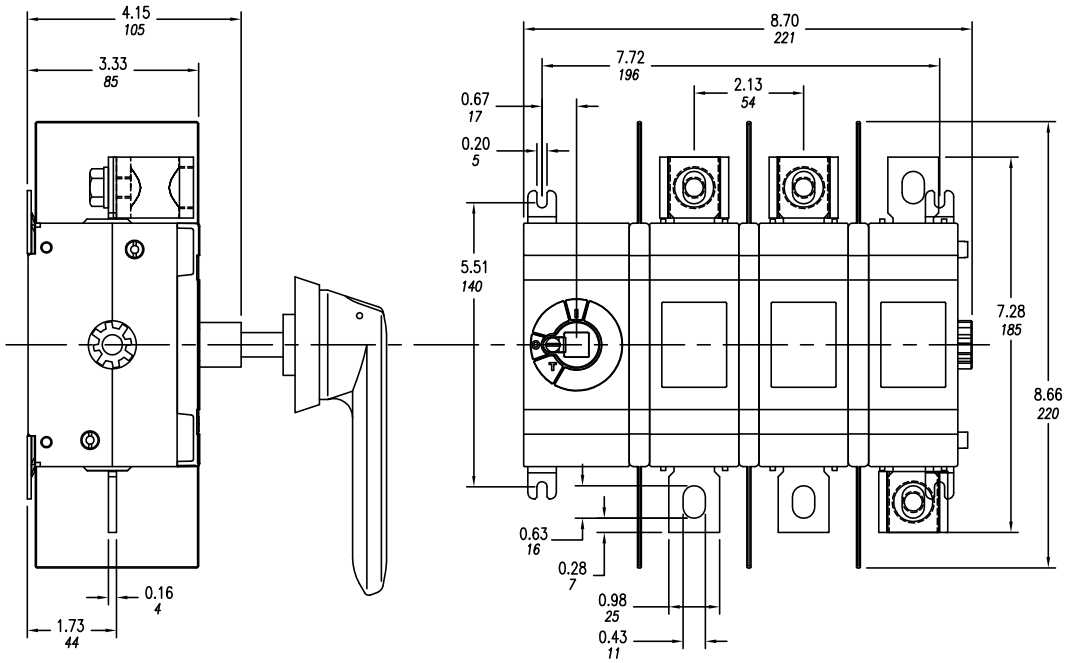
Approximate dimensions
OT200_ — OT400_

00.00 / 00.00 Inches [Millimeters]

OT200U03



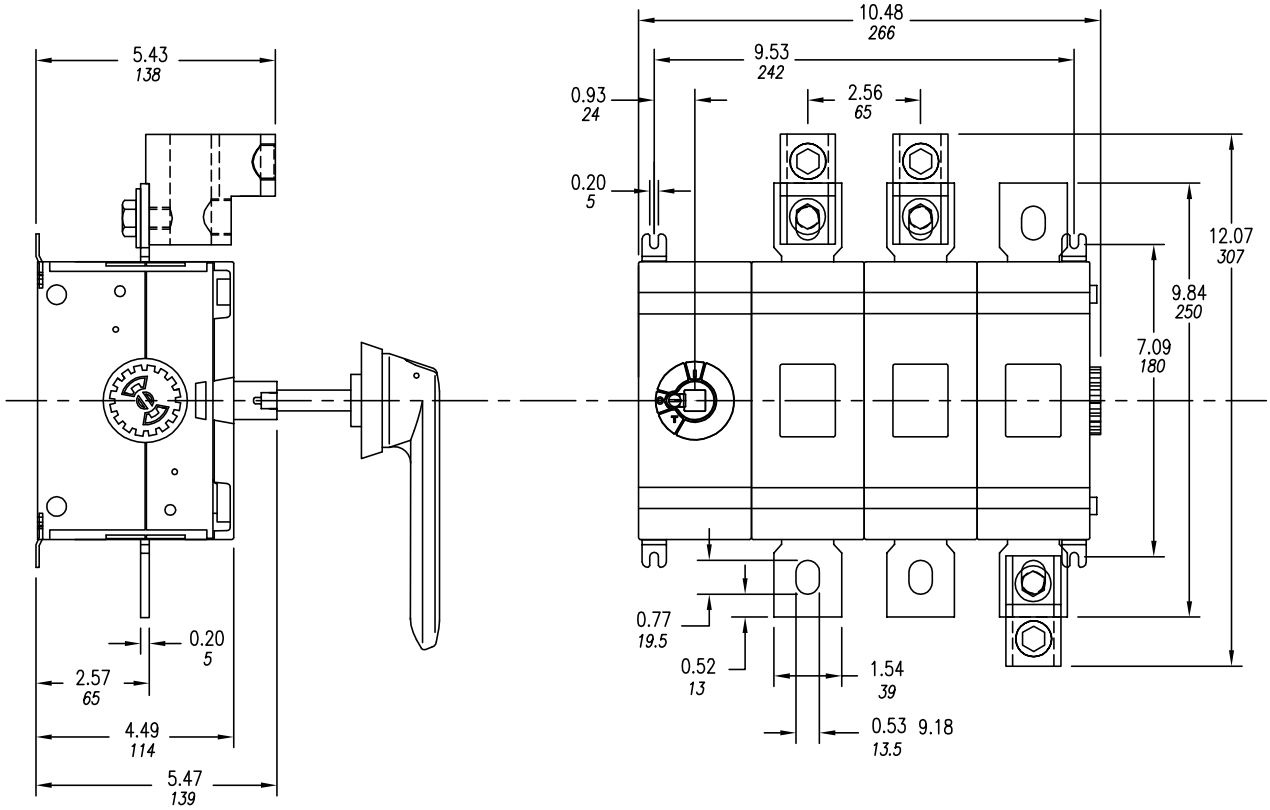
OT400U03



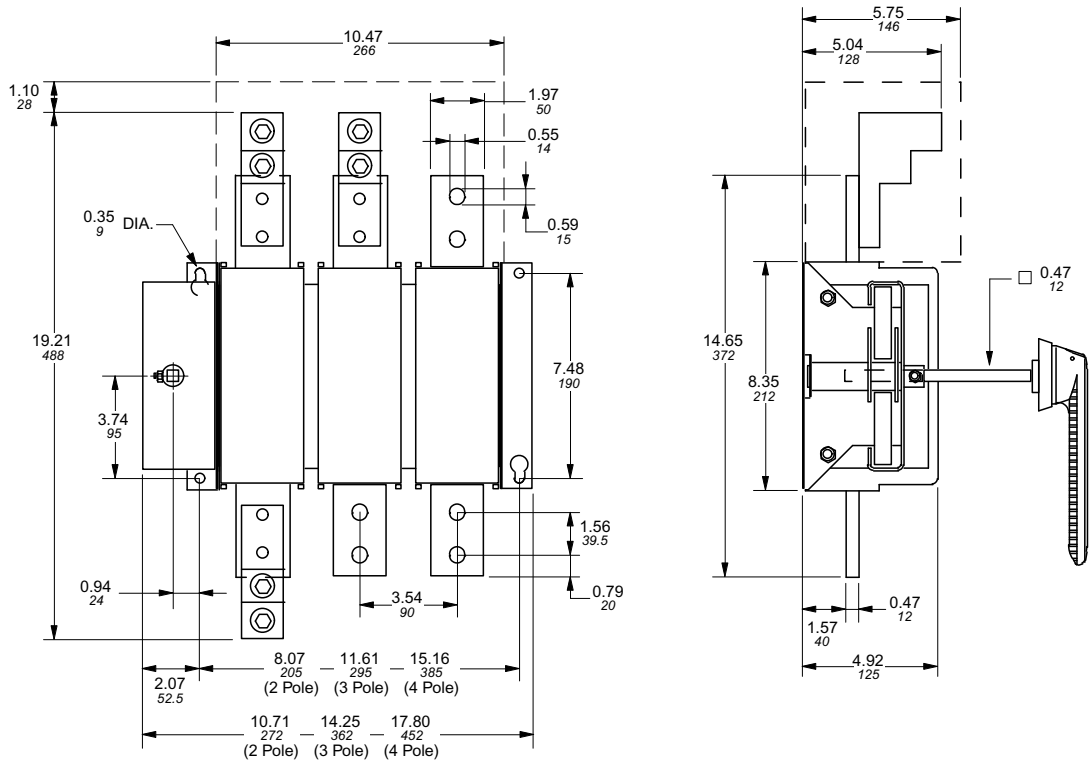
Approximate dimensions
OT600U03 – OETL-NF800A

00.00
00.00
Inches
[Millimeters]

OT600U03



OETL-NF800A

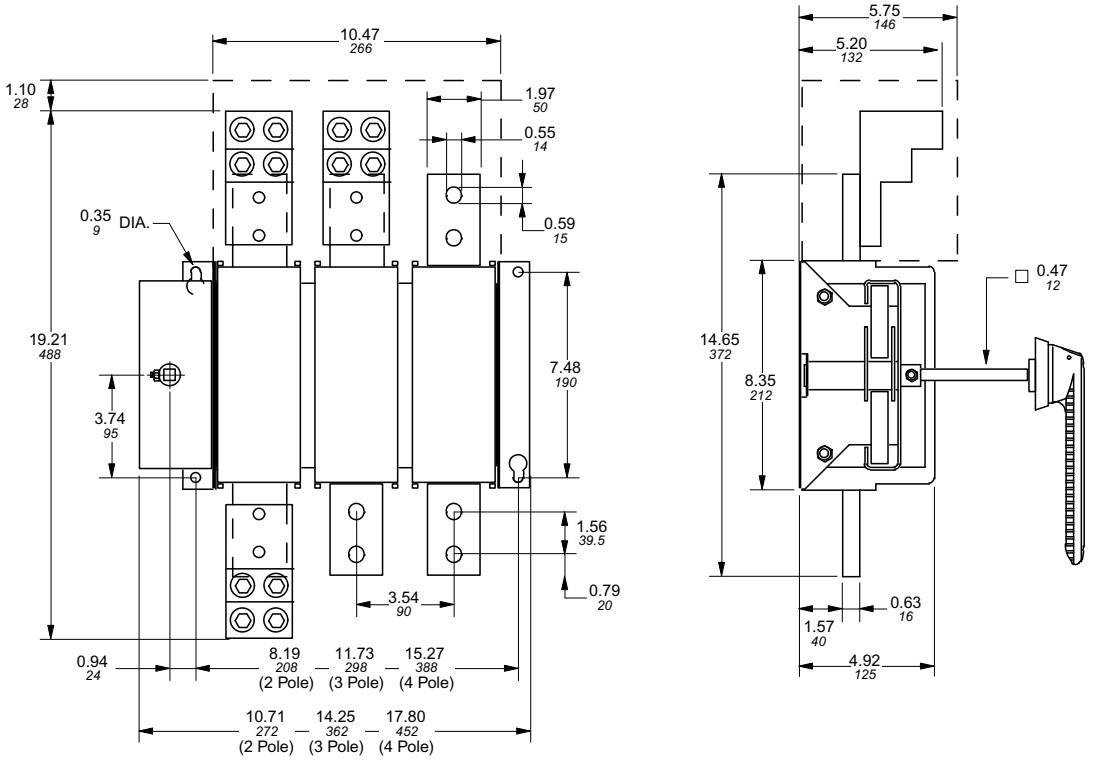


18

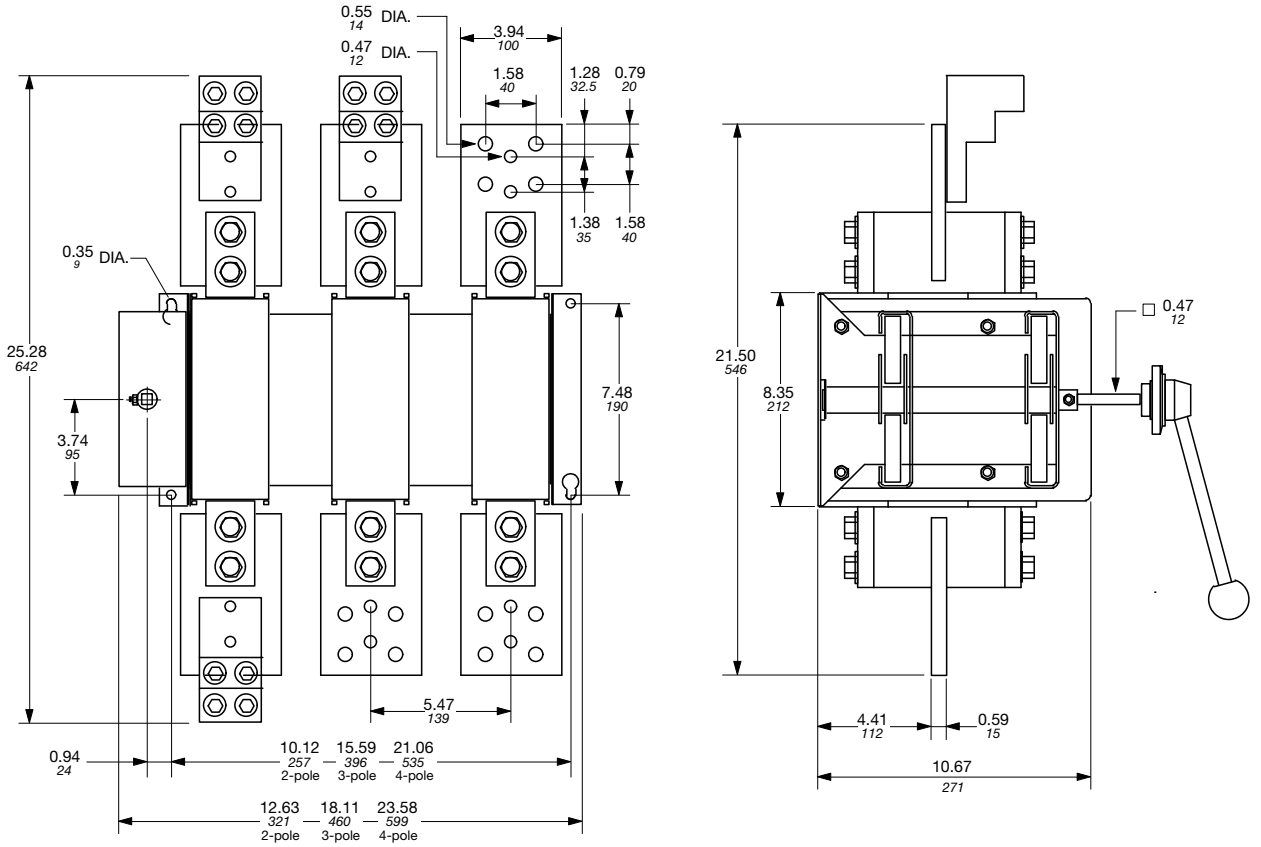
Approximate dimensions
OETL-NF1200 – OETL-NF1600

00.00 Inches
00.00 [Millimeters]

OETL-NF1200



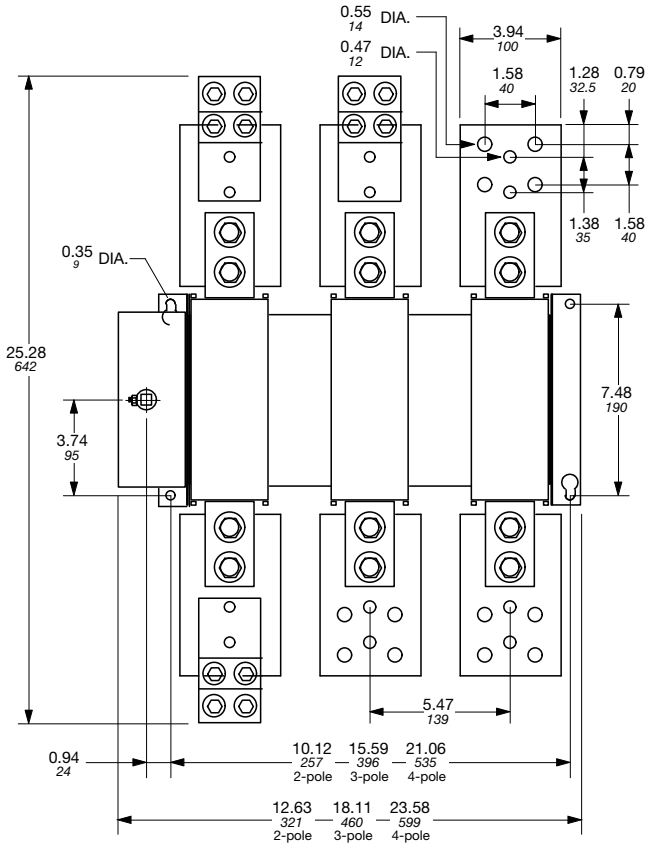
OETL-NF1600

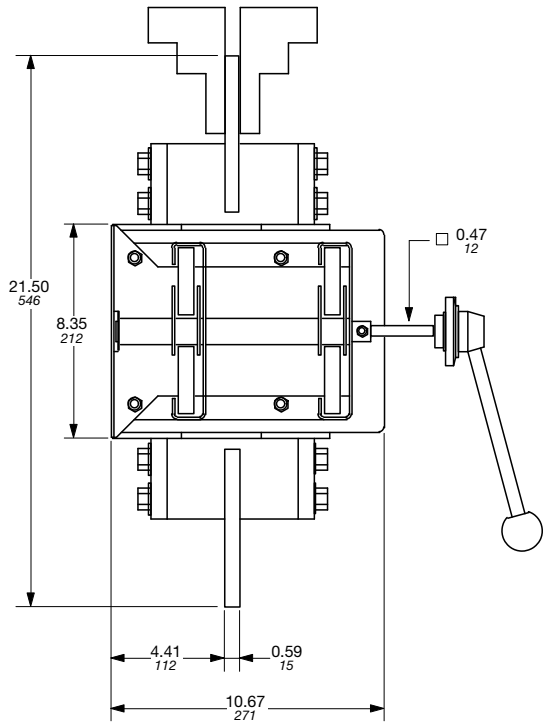


Approximate dimensions
OETL-NF2000 – OETL-NF3150

00.00 / 00.00 Inches [Millimeters]

OETL-NF2000 – OETL-NF3150



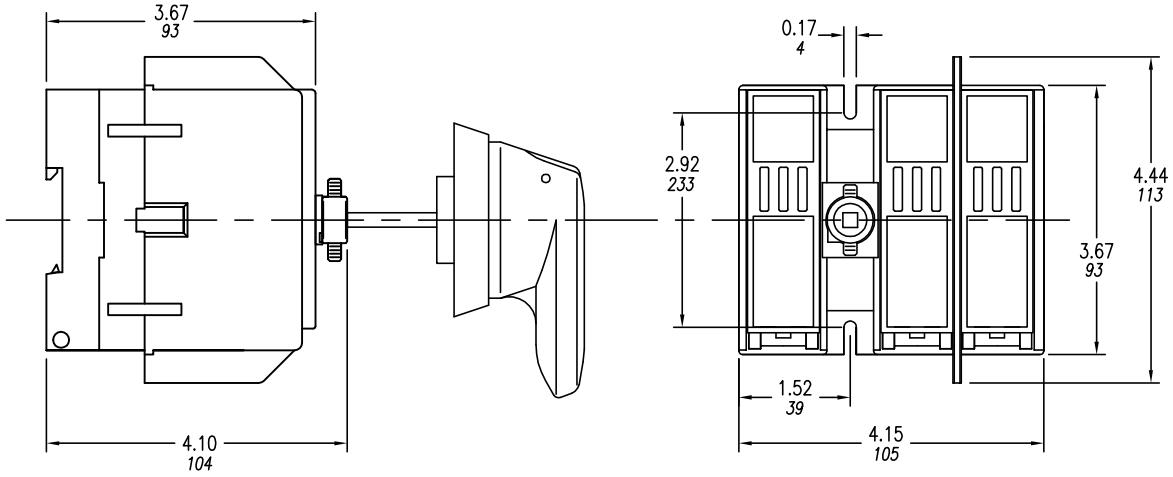


18

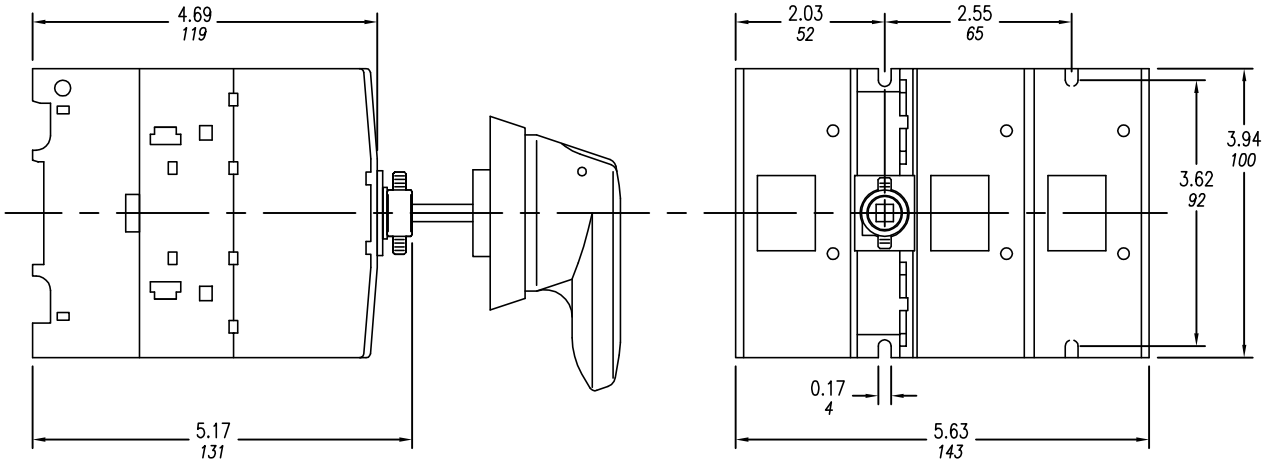
Approximate dimensions
OS30AF_12 — OS60J_12

00.00
00.00
Inches
[Millimeters]

OS30AF_12



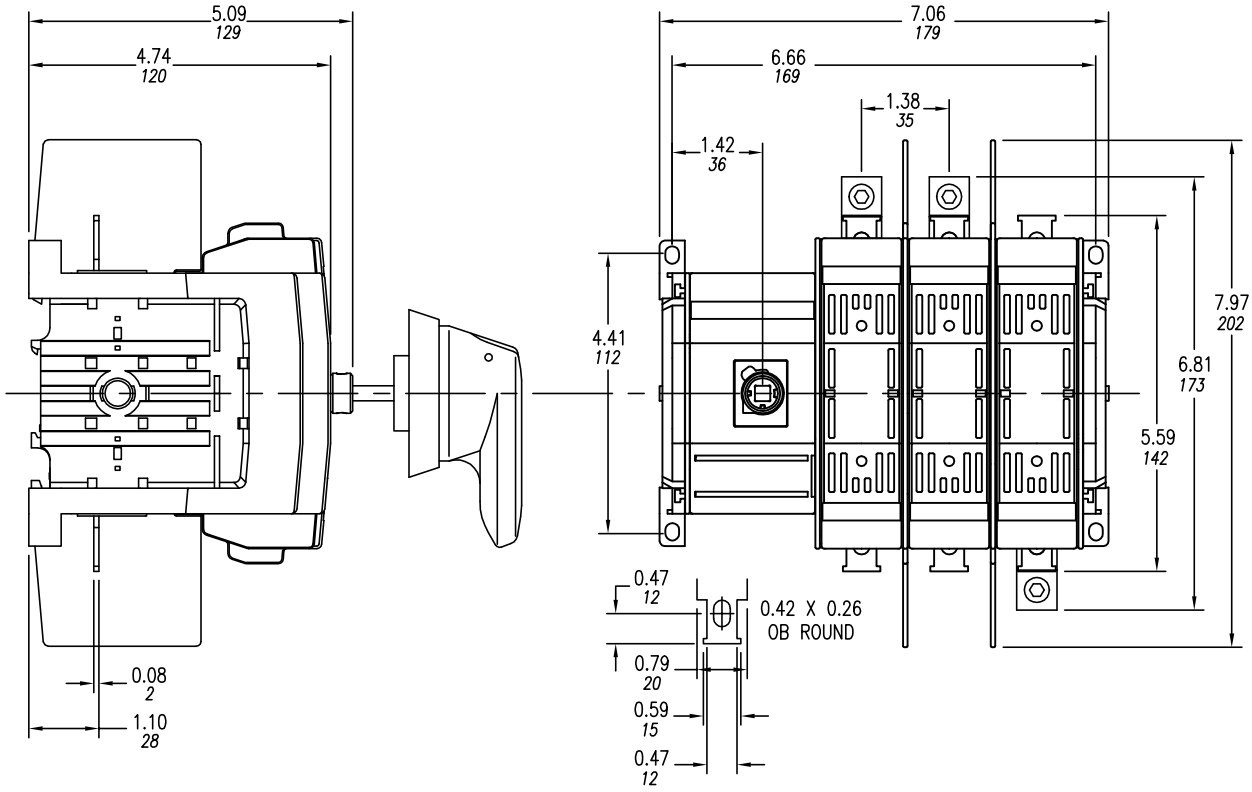
OS60J_12



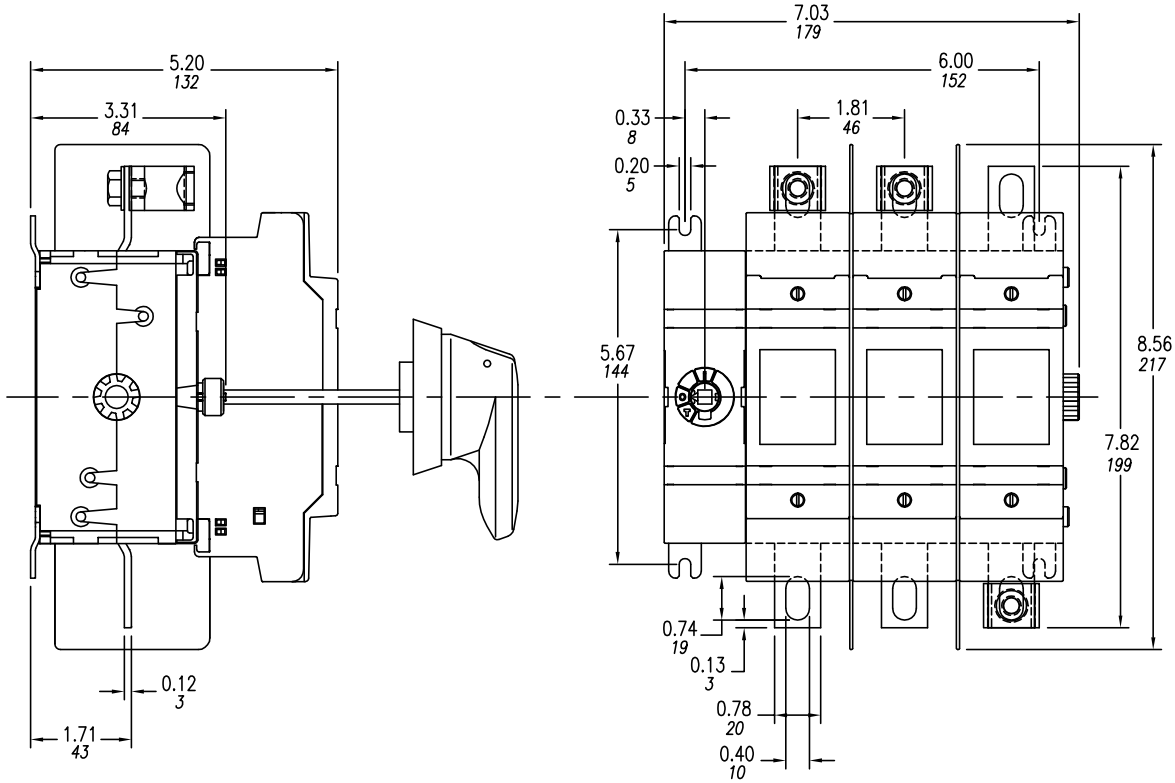
Approximate dimensions
OS100J03 — OS200J03

00.00
00.00
Inches
[Millimeters]

OS100J03



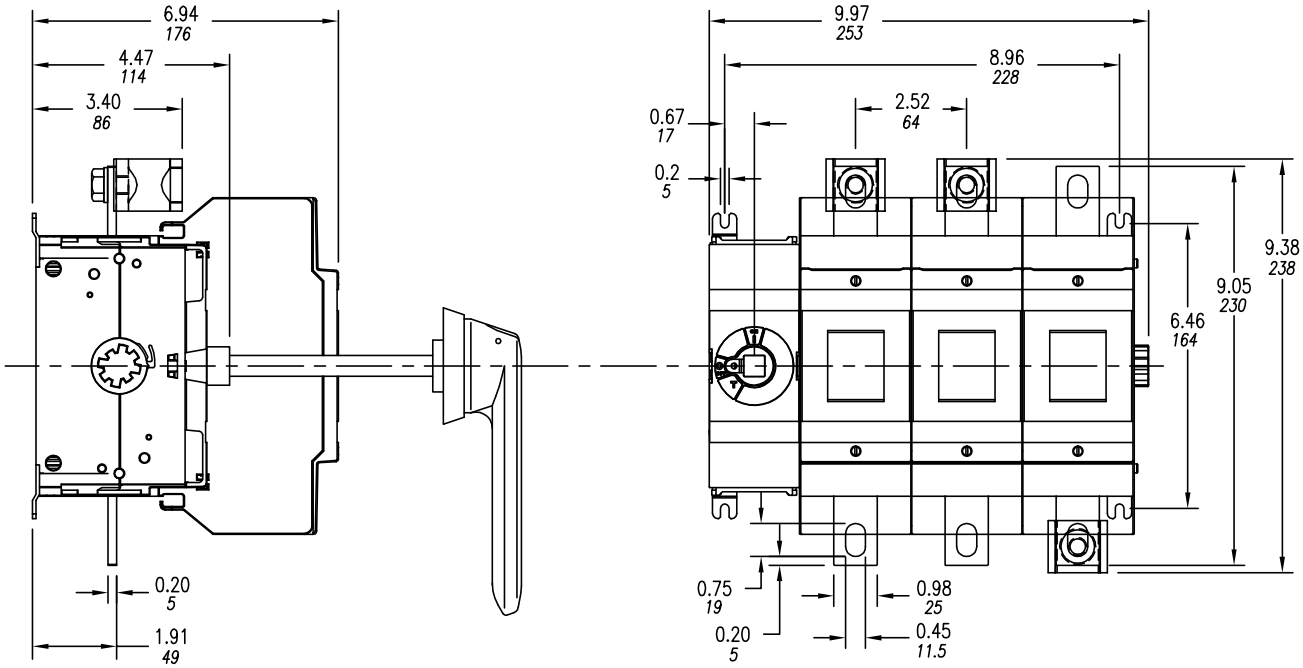
OS200J03



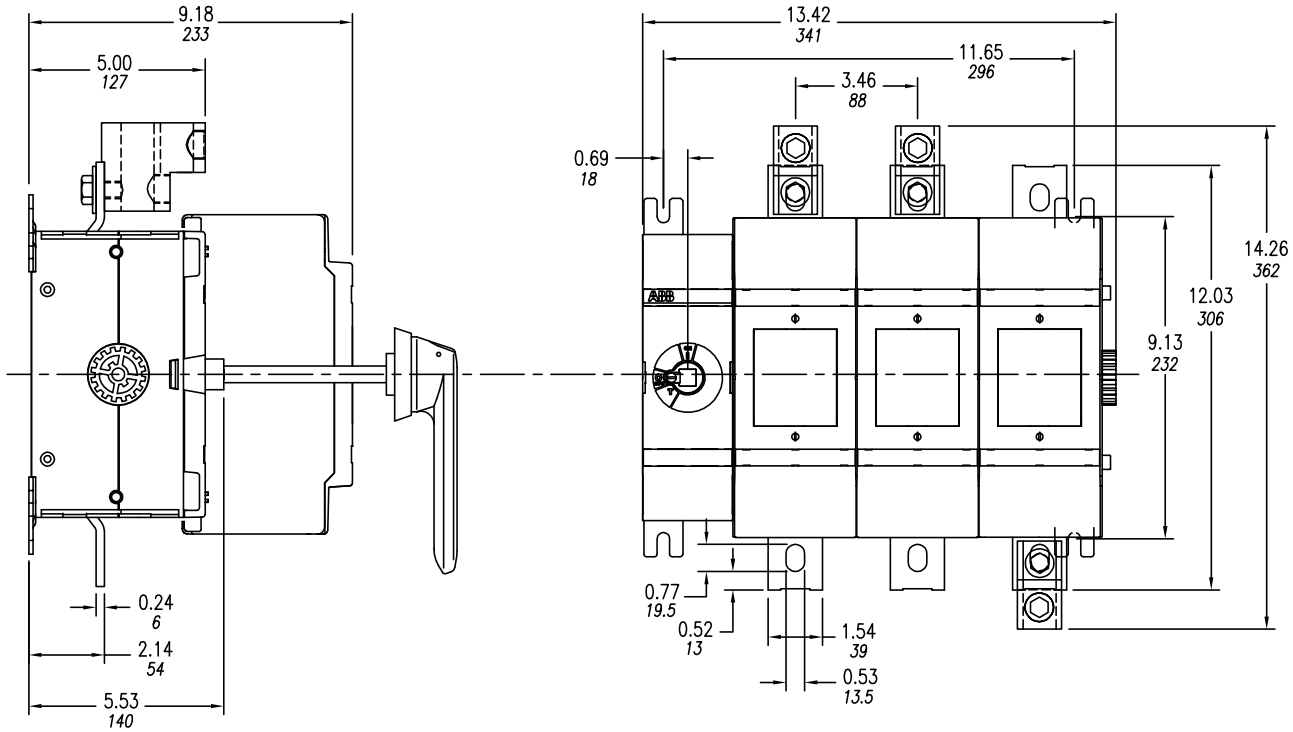
Approximate dimensions
OS400J03 — OS600J03

00.00 Inches
00.00 [Millimeters]

OS400J03



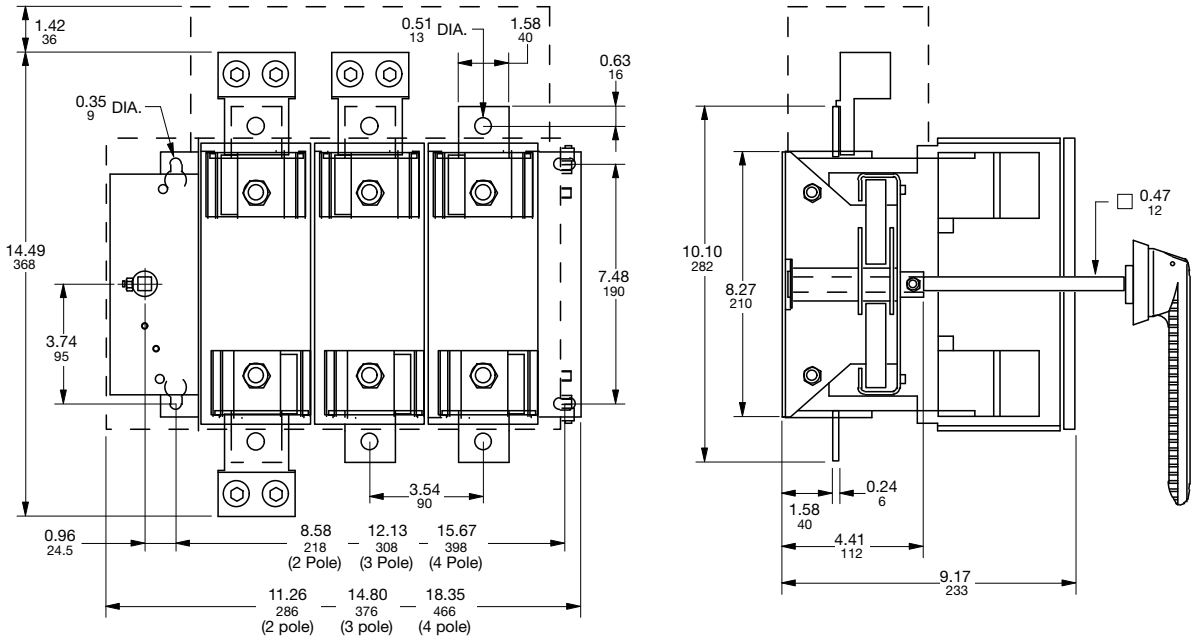
OS600J03



Approximate dimensions
OES800L3

00.00
00.00
Inches
[Millimeters]

OES800L3

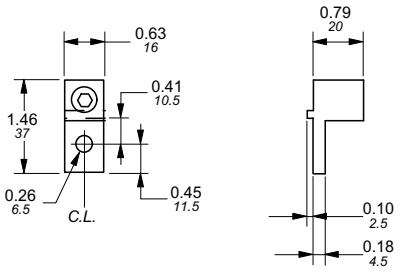


18

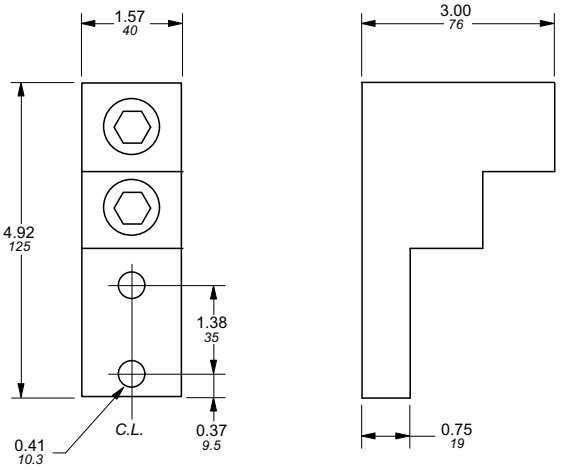
Approximate dimensions
for Terminal lugs

00.00 / 00.00 Inches [Millimeters]

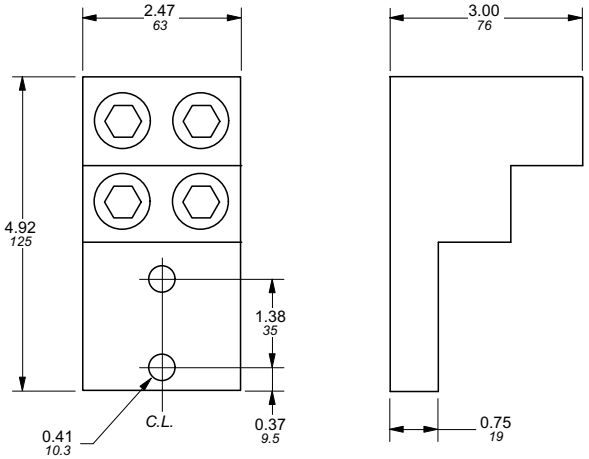
OZXA-24



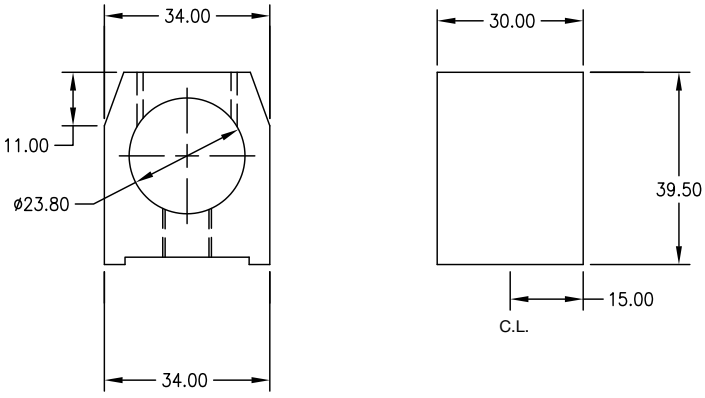
OZXA-30



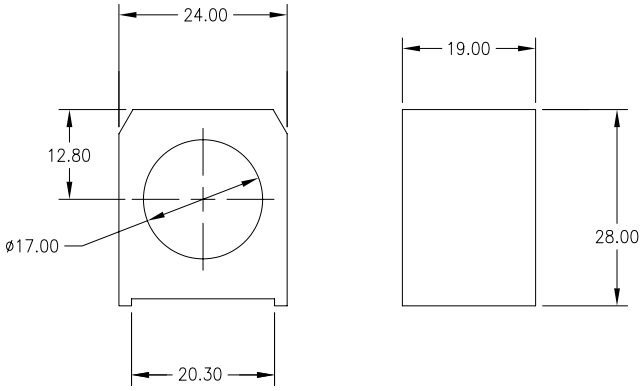
OZXA-28 & OZXA-28/2



OZXA-400



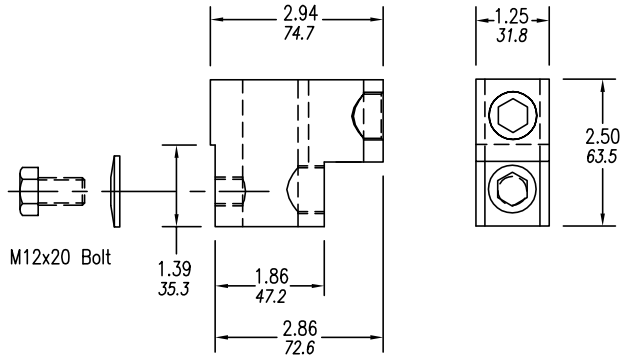
OZXA-200



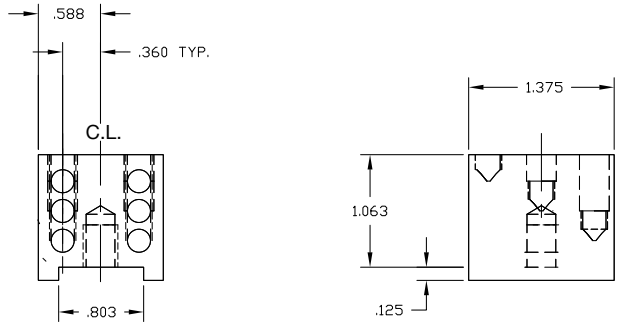
Approximate dimensions
for Terminal lugs

00.00 / 00.00 Inches [Millimeters]

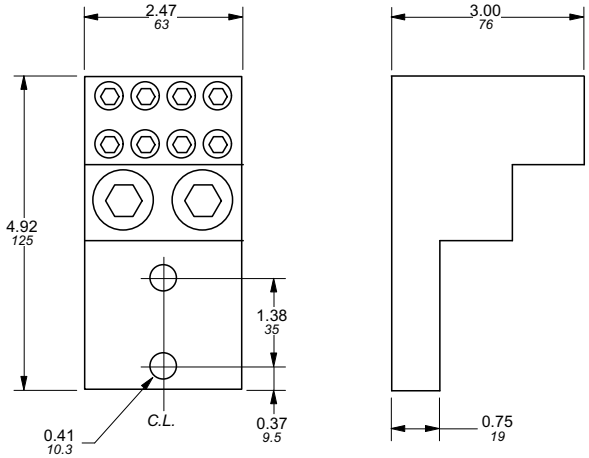
OZXA-800



OZXA-406



OZXA-32

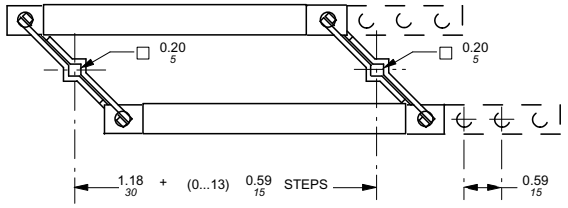


18

Approximate dimensions
for 16A – 100A conversion mechanisms

00.00 Inches
00.00 [Millimeters]

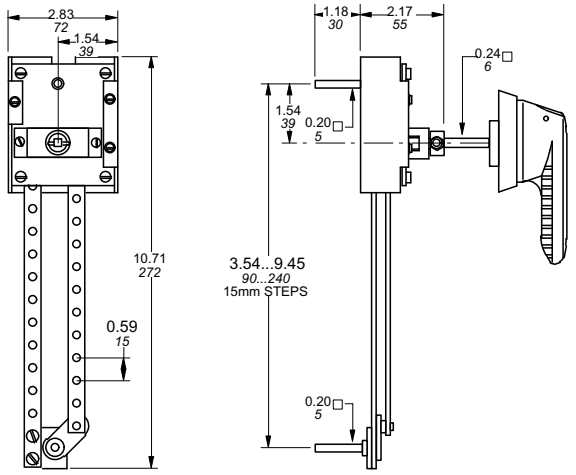
6 or 8 pole — OTZW8



For installation of 6 or 8 pole, transfer and bypass mechanisms, the following minimum and maximum mounting dimensions are given below.

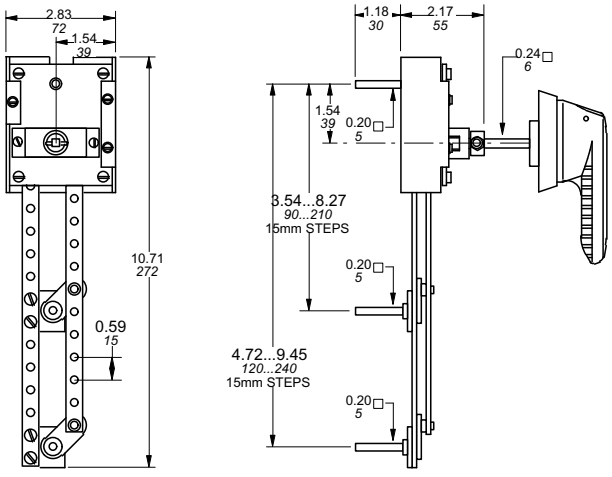
OTZW8 in combination with:	Minimum inches/mm	Maximum inches/mm
OT16F3, OT25F3, OT40F3	3.07/78	N/A
OT63F3, OT80F3	3.74/95	N/A
OT30F3, OT60F3, OT100F3	3.82/97	N/A

Double throw switch — OTZW6, OTZW6X



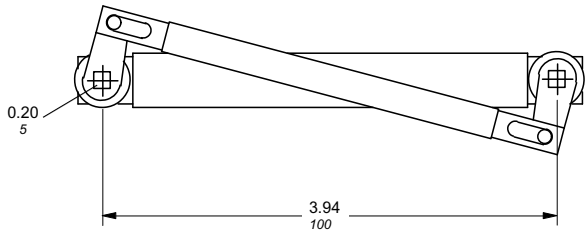
OTZW6, OTZW6X in combination with:	Minimum inches/mm	Maximum① inches/mm
OT16F3, OT25F3, OT40F3	4.61/117	6.57/167
OT63F3, OT80F3	5.31/135	7.28/185
OT30F3, OT60F3, OT100F3	4.84/123	6.81/173

Bypass switch — OTZW17, OTZW17X



OTZW17, OTZW17X in combination with:	Minimum inches/mm	Maximum① inches/mm
OT16F3, OT25F3, OT40F3	4.61/117	6.57/167
OT63F3, OT80F3	5.31/135	7.28/185
OT30F3, OT60F3, OT100F3	4.84/123	6.81/173

Mechanical interlock — OETL-ZW24



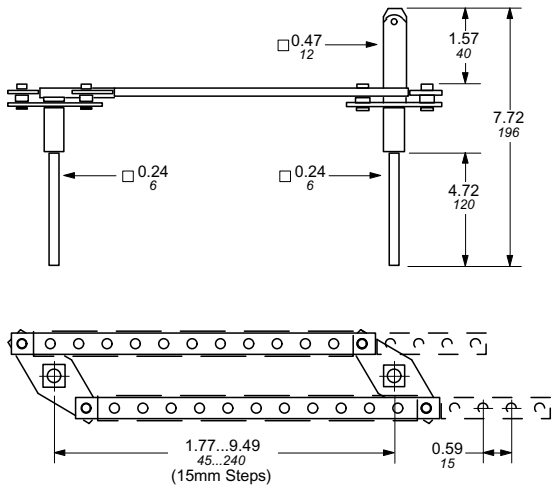
OETL-ZW24 in combination with:	Minimum inches/mm	Maximum① inches/mm
OT16F3, OT25F3, OT40F3	3.39 / 86	—
OT63F3, OT80F3	4.09 / 104	—
OT30F3, OT60F3, OT100F3	4.13 / 105	—

① Deeper enclosures will require a longer shaft. Please select a 6mm shaft from page 18.5.

Approximate dimensions
for 125 – 200A conversion mechanisms

00.00
00.00
Inches
[Millimeters]

6 or 8 pole — OESA-ZW2

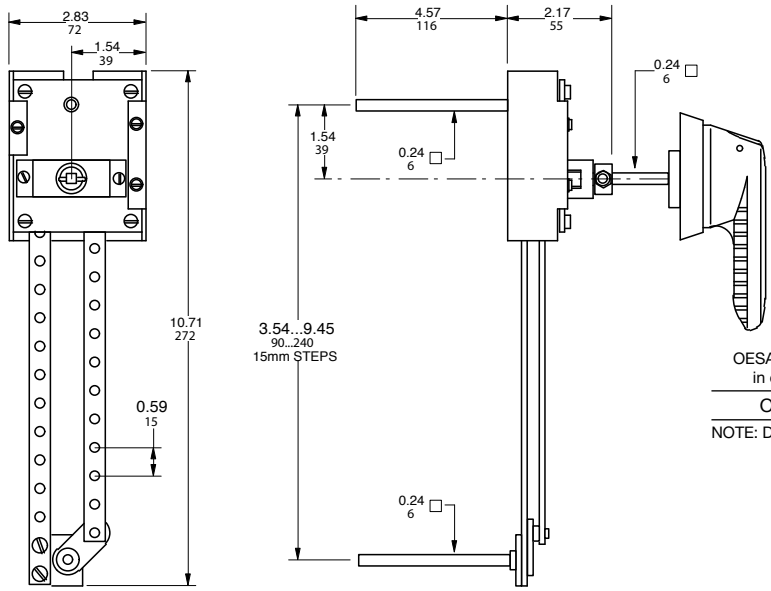


For installation of 6 or 8 pole, transfer and bypass mechanisms, the following minimum and maximum mounting dimensions are given below.

OESA-ZW2 in combination with:	Minimum inches/mm	Maximum inches/mm
OT160 - OT200	5.35/136	9.49/241

NOTE: Deeper enclosures will require a longer shaft. Please select a 12mm shaft from page 18.7 and an OETL-ZX95 shaft extension coupler from page 18.10.

Double throw switch — OESA-ZW1, OESA-ZW1X

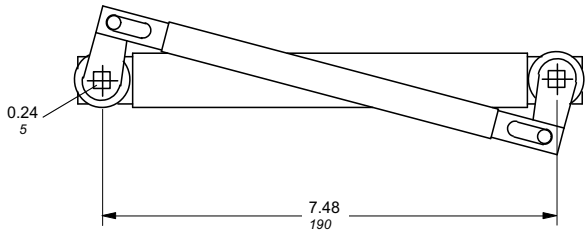


OESA-ZW1, OESA-ZW1X in combination with:	Minimum inches/mm	Maximum inches/mm
OT160 - OT200	4.61/117	6.57/167

NOTE: Deeper enclosures will require a longer shaft. Please select a 6mm shaft from page 18.7

18

Mechanical interlock — OTZW10



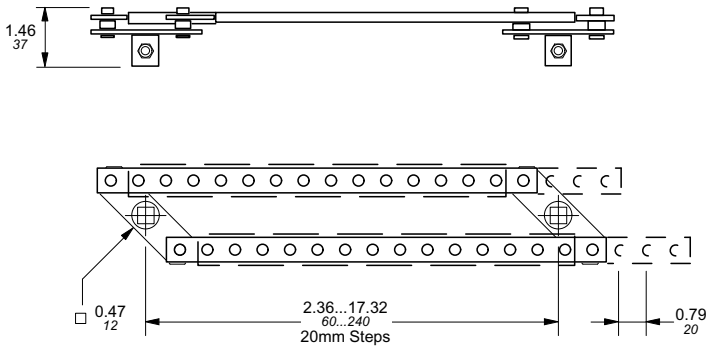
OTZW10 in combination with:	Minimum inches/mm	Maximum inches/mm
OT160 - OT200	4.13 / 105	—

NOTE: Deeper enclosures will require a longer shaft. Please select a 6mm shaft from page 18.7

Approximate dimensions
for 400A – 1200A conversion mechanisms

00.00 / 00.00 Inches [Millimeters]

6 or 8 pole — OETL-ZW9

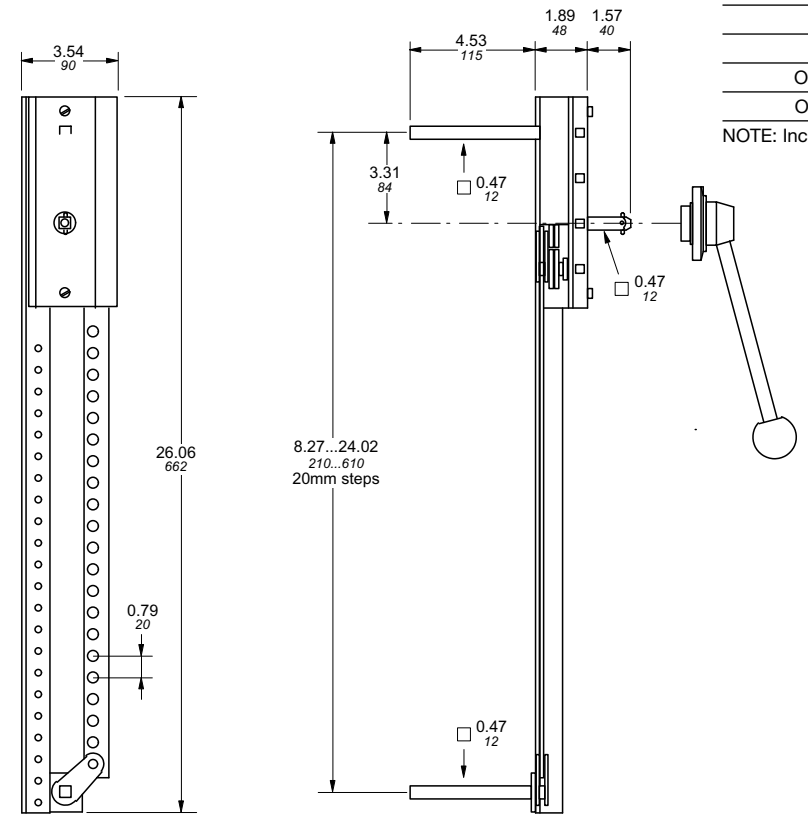


For installation of 6 or 8 pole, transfer and bypass mechanisms, the following minimum and maximum mounting dimensions are given below.

OETL-ZW9 in combination with:	Minimum inches/mm	Maximum inches/mm
OT400	7.52/191	N/A
OT600	7.52/191	N/A
OETL-NF800A	7.52/191	N/A
OETL-NF1200	7.52/191	N/A

NOTE: Handle not included

Double throw — OETL-ZW12



OETL-ZW12 in combination with:	Minimum inches/mm	Maximum① inches/mm
OT400	8.19/208	11.73/298
OT600	8.19/208	11.73/298
OETL-NF800A	8.19/208	11.73/298
OETL-NF1200	8.19/208	11.73/298

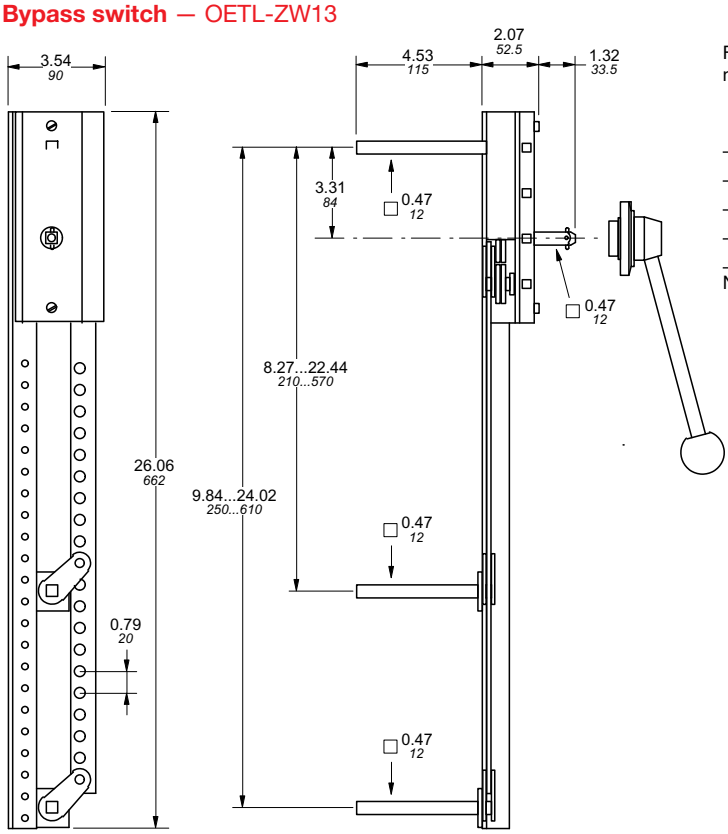
NOTE: Includes YASDA-21 handle

① Deeper enclosures will require a longer shaft. Please select a 12mm shaft from page 18.7 and an OETL-ZX95 shaft extension coupler from pg. 18.10.

Approximate dimensions
for 400A – 3150A conversion mechanisms

00.00 Inches
00.00 [Millimeters]

Bypass switch — OETL-ZW13

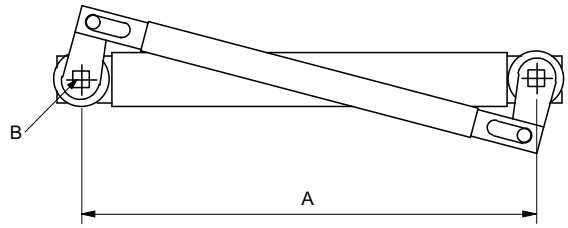


For installation of 6 or 8 pole, transfer and bypass mechanisms, the following minimum and maximum mounting dimensions are given below.

OETL-ZW12 in combination with:	Minimum inches/mm	Maximum① inches/mm
OT400	8.19/208	11.73/298
OT600	8.19/208	11.73/298
OETL-NF800A	8.19/208	11.73/298
OETL-NF1200	8.19/208	11.73/298

NOTE: Includes YASDA-21 handle

Mechanical interlock — OETL-ZW3, OETL-ZW14, OETL-ZW15



Dimensions in Inches
& *mm*

	A	B
OETL-ZW3	11.81 *300.0*	0.47 *12.0*
OETL-ZW14	9.84 *250.0*	0.47 *12.0*
OETL-ZW15	19.69 *500.0*	0.47 *12.0*

OETL-ZW3, 14 & 15 in combination with:	Minimum inches/mm	Maximum① inches/mm
OT400 & OT600	6.50/165	—
OETL-NF800 – OETL-NF1200	6.30/160	—
OETL-NF1600 – OETL-NF3150	12.00/305	—

NOTE: Handle(s) not included.

NOTE: OETL-ZW15 is the only mechnical interlock OETL-NF1200 – OETL-NF3150 can use.

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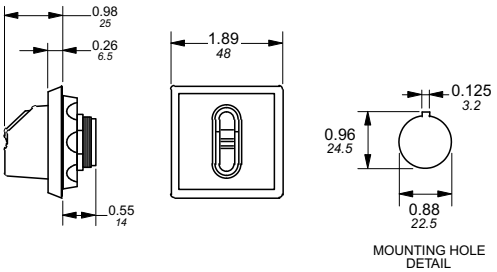
① Deeper enclosures will require a longer shaft. Please select a 12mm shaft from page 18.7 and an OETL-ZX95 shaft extension coupler from page 18.10.

Approximate dimensions
for Handles

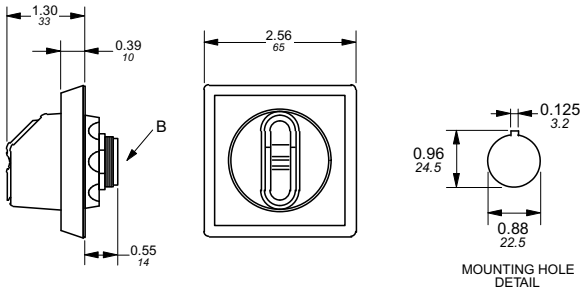
00.00 Inches
00.00 [Millimeters]

Selector handles for base and DIN rail mounted switches

OH_S1AH1 & OH_S3AH1

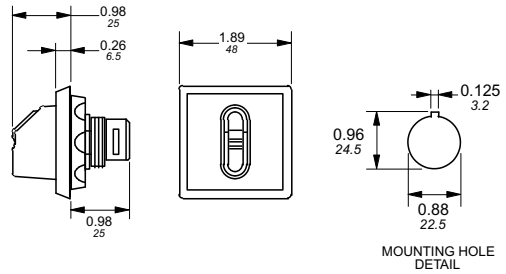


OH_S2A_

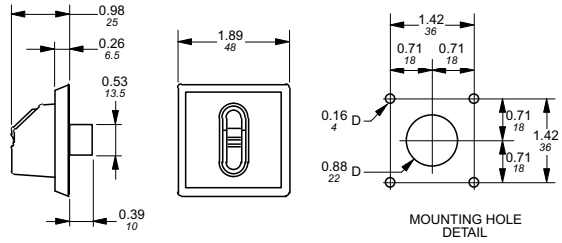


Selector handles for door mounted switches

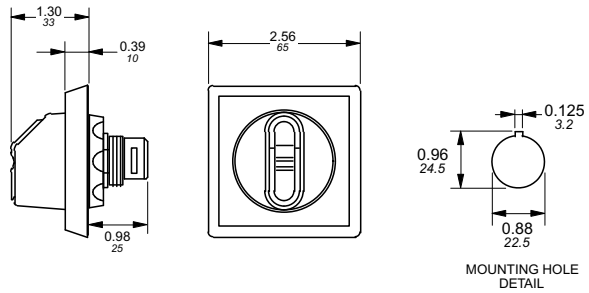
OH_S1P_ & OH_S3P_



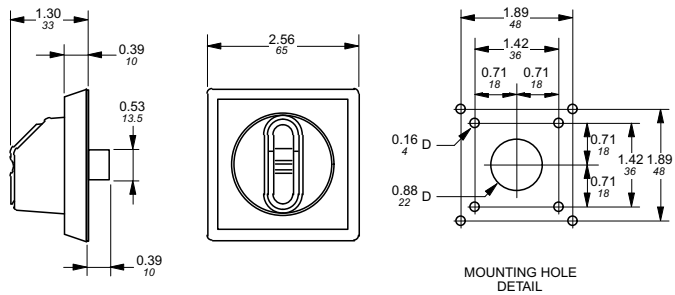
OH_S1R_ & OH_S3R_



OH_S2P_



OH_S2R_

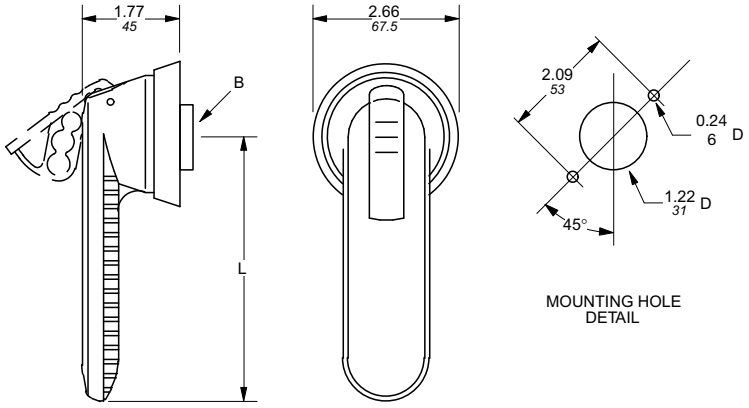


18

Approximate dimensions
for Handles

00.00 / 00.00 Inches [Millimeters]

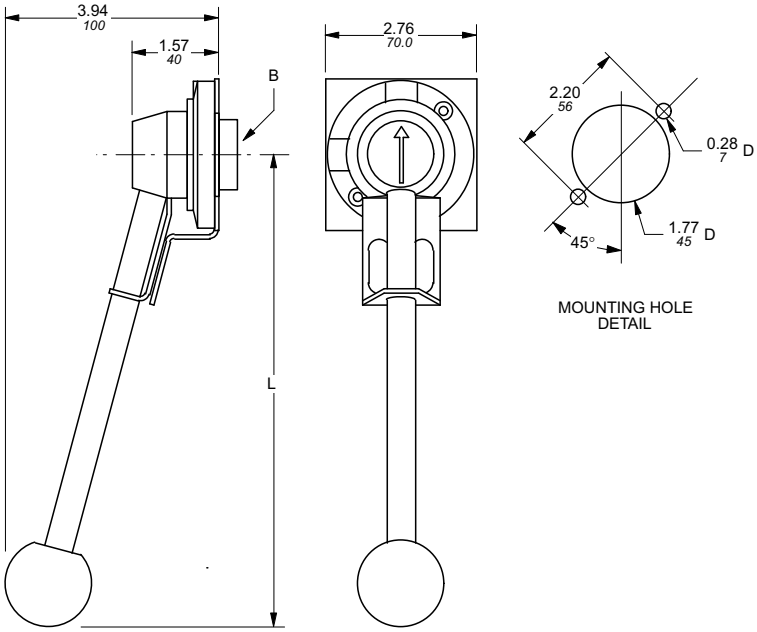
Pistol handles



MOUNTING HOLE DETAIL

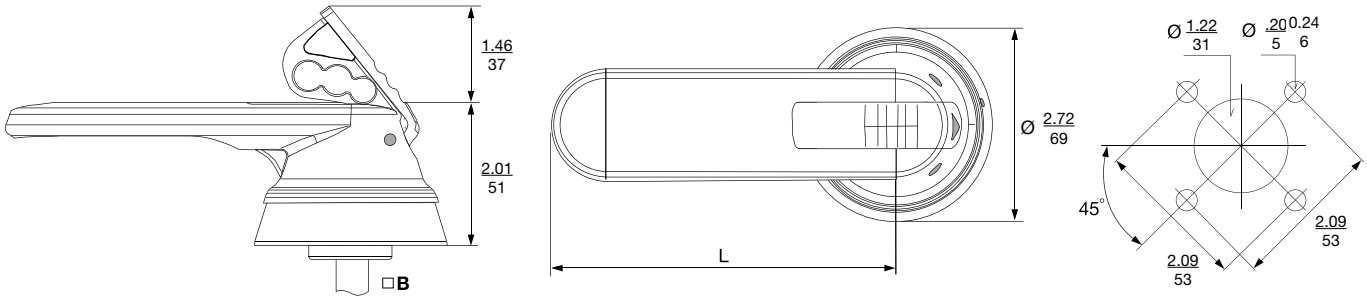
A Catalog number	L Inches/ mm	□B Shaft size Inches/ mm	NEMA / UL Type
OH_45J6	1.8/45	0.24/6	1, 3R, 12
OH_65J6	2.6/65	0.24/6	1, 3R, 12
OH_80J6	3.1/80	0.24/6	1, 3R, 12
OH_125J12	4.9/125	0.47/12	1, 3R, 12
OH_145J12	5.7/145	0.47/12	1, 3R, 12
OH_175J12	6.9/175	0.47/12	1, 3R, 12
OH_80L6	3.1/80	0.24/6	1, 3R, 4, 4X, 12
OH_145L12	5.7/145	0.47/12	1, 3R, 4, 4X, 12
OH_175L12	6.9/175	0.47/12	1, 3R, 4, 4X, 12

__ = Handle color, B (Black) or Y (Red/Yellow)



MOUNTING HOLE DETAIL

A catalog number	L inches/mm	□B Shaft size inches/mm	NEMA Type
YASDA-7	8.66/220	0.47/12	1, 3R, 4, 4X, 12
YASDA-8	8.66/220	0.47/12	1, 3R, 4, 4X, 12
YASDA-21	8.66/220	0.47/12	1, 3R, 4, 4X, 12
YASDA-6	12.60/320	0.47/12	1, 3R, 4, 4X, 12



Handle type	OHM65L6	OHM125L12	OHM175L12	OHM275L12
L	2.6/65	4.9/125	6.9/175	10.8/225
□B	.24/6	.47/12	.47/12	.47/12

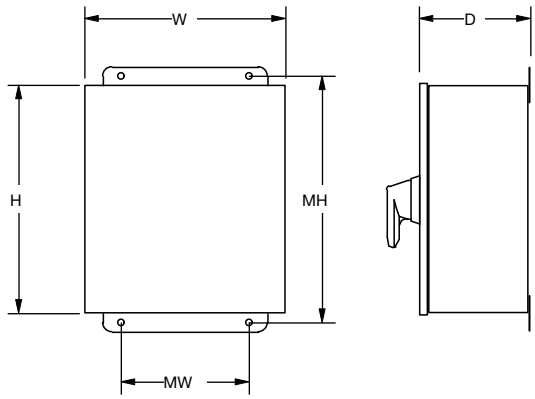
Approximate dimensions
2, 3 & 4 Pole ②
30A – 800A Fusible

00.00 / 00.00 Inches [Millimeters]

Fusible

Frame size	Enclosure type	H height	W width	D depth	MH mtg. height	MW mtg. width	Weight
OS30_	1	10.0	8.0	5.0	7.0	7.0	12
	3R	10.0	8.0	5.0	10.75	6.0	12
	4	10.0	8.0	6.0	10.75	6.0	12
	4X SS	10.0	8.0	5.0	10.75	6.0	12
	4X Plastic	10.0	8.0	5.9	10.75	6.0	8.0
	12	10.0	8.0	5.0	10.75	6.0	12
OS60_	1	10.0	8.0	6.0	7.0	7.0	13
	3R	10.0	8.0	6.0	10.75	6.0	13
	4	10.0	8.0	6.0	10.75	6.0	13
	4X SS	10.0	8.0	6.0	10.75	6.0	13
	4X Plastic	10.0	8.0	5.9	10.75	6.0	9.0
	12	10.0	8.0	6.0	10.75	6.0	13
OS100_	1	14.0	12.0	8.0	11.0	9.0	22
	3R	14.0	12.0	8.0	14.75	10.0	22
	4	14.0	12.0	8.0	14.75	10.0	22
	4X SS	14.0	12.0	8.0	14.75	10.0	22
	4X Plastic	14.0	12.0	8.0	14.75	10.0	16
	12	14.0	12.0	8.0	14.75	10.0	22
OS200_	1	24.0	16.0	8.0	25.5	14.5	75
	3R	24.0	16.0	8.0	25.5	14.5	75
	4	24.0	16.0	8.0	25.5	14.5	75
	4X SS	24.0	16.0	8.0	25.5	14.5	75
	4X Plastic	①	①	①	①	①	①
	12	24.0	16.0	8.0	25.5	14.5	75

Frame size	Enclosure type	H height	W width	D depth	mtg. height	MW mtg. width	Weight
OS400_	1	36.0	24.0	12.0	37.5	22.5	150
	3R	36.0	24.0	12.0	37.5	22.5	150
	4	36.0	24.0	12.0	37.5	22.5	150
	4X SS	36.0	24.0	12.0	37.5	22.5	150
	4X Plastic	①	①	①	①	①	①
	12	36.0	24.0	12.0	37.5	22.5	150
OS600_	1	42.0	36.0	12.0	43.5	34.5	150
	3R	42.0	36.0	12.0	43.5	34.5	150
	4	42.0	36.0	12.0	43.5	34.5	150
	4X SS	42.0	36.0	12.0	43.5	34.5	150
	4X Plastic	①	①	①	①	①	①
	12	42.0	36.0	12.0	43.5	34.5	150
OES800_	1	48.0	24.0	12.0	49.5	22.5	170
	3R	48.0	24.0	12.0	49.5	22.5	170
	4	48.0	24.0	12.0	49.5	22.5	170
	4X SS	48.0	24.0	12.0	49.5	22.5	170
	4X Plastic	①	①	①	①	①	①
	12	48.0	24.0	12.0	49.5	22.5	170



① Please consult factory, enclosures are sized to suit specific customer needs.
② Some 4-pole switches require larger enclosures. Please consult factory.

Approximate dimensions
2, 3 & 4 Pole ③
16A – 3150A, Non-fusible

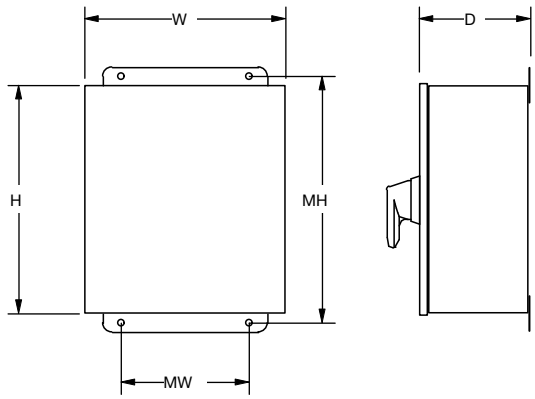
00.00 / 00.00 Inches [Millimeters]

Non-Fusible

Frame size	Enclosure type	H height	W width	D depth	MH mtg. height	MW mtg. width	Weight
OT16_ OT25_ OT40_	1	7.0	5.0	3.0	4.0	4.0	4.0
	3R	7.0	5.0	3.0	7.75	3.0	4.0
	4	6.0	6.0	4.0	6.75	4.0	4.0
	4X SS	7.0	5.0	3.0	7.75	3.0	4.0
	4X Plastic	6.0	6.0	5.9	6.75	4.0	4.0
	12	7.0	5.0	3.0	7.75	3.0	4.0
	IP65 (A)	4.8	3.4	2.4	4.17	2.80	1.0
	IP65 (B)	5.9	5.1	2.4	5.35	4.57	1.0
OT30_ OT60_ OT63_ OT80_	1	8.0	6.0	4.0	7.0	5.0	6.0
	3R	8.0	6.0	4.0	8.75	4.0	6.0
	4	8.0	6.0	4.0	8.75	4.0	6.0
	4X SS	8.0	6.0	4.0	8.75	4.0	6.0
	4X Plastic	8.0	6.0	5.9	8.75	4.0	6.0
	12	8.0	6.0	4.0	8.75	4.0	6.0
	IP65 (A)	7.9	5.7	3.6	7.24	5.16	4.0
	IP65 (B)	15.8	7.9	5.5	14.8	6.93	4.0
OT100	1	10.0	8.0	5.0	7.0	7.0	9.0
	3R	10.0	8.0	5.0	10.75	6.0	9.0
	4	10.0	8.0	4.0	10.75	6.0	9.0
	4X SS	10.0	8.0	5.0	10.75	6.0	9.0
	4X Plastic	10.0	8.0	5.9	10.75	6.0	9.0
	12	10.0	8.0	5.0	10.75	6.0	9.0
	IP65 (A)	7.9	5.7	3.6	7.24	5.16	4.0
	IP65 (B)	15.8	7.9	5.5	14.8	6.93	4.0
OT160	1	14.0	12.0	8.0	11.0	9.0	20
	3R	14.0	12.0	8.0	14.75	10.0	20
	4	14.0	12.0	6.0	14.75	10.0	20
	4X SS	14.0	12.0	8.0	14.75	10.0	20
	4X Plastic	14.0	12.0	6.0	14.75	10.0	12
	12	14.0	12.0	8.0	14.75	10.0	20

Frame size	Enclosure type	H height	W width	D depth	mtg. height	MW mtg. width	Weight
OT200	1	20.0	16.0	6.0	25.5	14.5	50
	3R	20.0	16.0	6.0	25.5	14.5	50
	4	20.0	16.0	6.0	25.5	14.5	50
	4X SS	20.0	16.0	6.0	25.5	14.5	50
	4X Plastic	20.0	16.0	8.0	25.5	14.5	40
	12	20.0	16.0	6.0	25.5	14.5	50
OT400	1	36.0	24.0	8.0	37.5	22.5	120
	3R	36.0	24.0	8.0	37.5	22.5	120
	4	①	①	①	①	①	①
	4X SS	36.0	24.0	8.0	37.5	22.5	130
	4X Plastic	①	①	①	①	①	①
	12	36.0	24.0	8.0	37.5	22.5	120
OT600	1	36.0	24.0	12.0	37.5	22.5	120
	3R	36.0	24.0	12.0	37.5	22.5	120
	4	36.0	24.0	12.0	37.5	22.5	120
	4X SS	36.0	24.0	12.0	37.5	22.5	120
	4X Plastic	40.0	32.0	12.0	41.2	30.2	120
	12	36.0	24.0	12.0	37.5	22.5	120
OETL-NF800A OETL-NF1200	1	60.0	36.0	12.0	61.5	34.5	200
	3R	60.0	36.0	12.0	61.5	34.5	200
	4	60.0	36.0	12.0	61.5	34.5	200
	4X SS	60.0	36.0	12.0	61.5	34.5	200
	4X Plastic	①	①	①	①	①	①
	12	60.0	36.0	12.0	61.5	34.5	200
OETL-NF1600 OETL-NF2000 OETL-NF3150	1	90.0	36.0	24.0	②	②	600
	3R	90.0	36.0	24.0	②	②	600
	4	①	①	①	①	①	①
	4X SS	①	①	①	①	①	①
	4X Plastic	①	①	①	①	①	①
	12	90.0	36.0	24.0	②	②	600

① Please consult factory, enclosures are sized to suit specific customer needs.
② Enclosure is free standing.
③ Some 4-pole switches require larger enclosures. Please consult factory.



600V, 16A - 3150A
2, 3 and 4-pole switches
Enclosure dimensions

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Notes

00.00
00.00
Inches
[Millimeters]