

Disconnect
switches
Non-fusible

Technical data

OT16E3 – OT160E3

UL & CSA

UL & CSA

Catalog number	3 pole	OT16E3	OT25E3	OT32E3	OT45E3	OT63E3	OT30E3	OT60E3	OT100E3	OT160E3	
Approvals ^①	2 pole 3 pole 4 pole	N/A UL508 & IEC UL508 & IEC	N/A UL508 & IEC UL508 & IEC	N/A UL508 & IEC UL508 & IEC	N/A UL508 & IEC UL508 & IEC	N/A UL508 & IEC UL508 & IEC	N/A UL98 & IEC UL98 & IEC	N/A UL98 & IEC UL98 & IEC	N/A UL98 & 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	200V – 208V 240V 480V 600V	HP/A HP/A HP/A HP/A	3/10.6 5/15.2 10/14.0 10/11.0	7.5/24.2 7.5/22.0 15/21.0 20/22.0	10/30.8 10/28.0 20/27.0 25/27.0	15/46.2 15/42.0 30/40.0 30/32.0	20/60.0 20/54.0 40/52.0 40/41.0	10/30.8 10/28.0 20/27.0 30/32.0	20/60.0 20/54.0 40/52.0 40/41.0	25/75.0 30/80.0 50/65.0 50/52.0	30/88.0 40/104.0 75/96.0 100/99.0
Single phase	120V 240V	HP/A HP/A	1/16 2/13.2	1.5/20 3/18.7	2/24 5/30.8	2/24.0 7.5/40.0	2/24.0 10/57.5	2/24.0 5/28.0	3/34.0 7.5/40.0	5/56.0 15/68.0	7.5/80 20/88.0
Short circuit rating with fuse											
Fuse type CC	kA	10	10	10	10	10	10	10	10	10	
Fuse type J	kA	10	10	10	10	100	100	50	50	50	
Fuse type T	kA	10	10	10	10	100	100	50	50	50	
Fuse type RK1	kA	10	10	10	10	10	10	10	10	10	
Fuse type RK5	kA	5	5	5	5	10	5	10	5	10	
Fuse type L	kA	—	—	—	—	—	—	—	—	—	
Fuse type H	kA	—	—	—	—	5	5	—	—	—	
Maximum fuse size	A	30	60 ^④	30	60 ^④	100	150	100	150	60	200
Short circuit rating with MCCB	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 4 pole	lb	0.24 0.33	0.24 0.33	0.24 0.33	0.59 0.77	0.59 0.77	0.79 1.10	0.79 1.10	0.79 1.10	2.42 2.86
Dimension, switches	3 pole	H in W in D in	2.68 1.38 2.20	2.68 1.38 2.20	2.68 1.38 2.20	3.60 2.07 2.85	3.60 2.07 2.85	3.94 2.76 2.95	3.94 2.76 2.95	3.94 2.76 2.95	5.00 4.96 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	8.9
Shaft size — square □	in	.20 x .20	.20 x .20	.20 x .20	.20 x .20	.20 x .20	.20 x .20	.20 x .20	.20 x .20	.20 x .20	.24 x .24
	mm	5 x 5	5 x 5	5 x 5	5 x 5	5 x 5	5 x 5	5 x 5	5 x 5	5 x 5	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	17.5	52.5
Terminal lug kits											
Wire range	AWG	Not required #18 – 8	Not required #18 – 8	Not required #18 – 8	Not required #14 – 1	Not required #14 – 1	Not required #14 – 4	Not required #14 – 4	Not required #14 – 4	Not required #8 – 1/0	Not required #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											
NEMA ratings, AC		OA1G__ A600	OA1G__ A600	OA1G__ A600	OA1G__ A600	OA1G__ A600	OA1G__ A600	OA1G__ A600	OA1G__ A600	OA1G__ A600	OBEA__ 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. 17.24.
 ④ Fuse size 70A for RK5

Technical data

OETL-NF200 – OETL-NF3150

UL & CSA

Disconnect
switches
Non-fusible

UL & CSA

Catalog number	3 pole	OETL-NF200A	OETL-NF400	OETL-NF600A	OETL-NF800A	OETL-NF1200	OETL-NF1600	OETL-NF2000	OETL-NF3150 ⑤
Approvals ^①	2 pole 3 pole 4 pole	UL98 & IEC UL98 & IEC IEC	UL98 & IEC UL98 & IEC UL98 & IEC	UL98 & IEC UL98 & IEC UL98 & IEC	UL98 & IEC UL98 & IEC IEC	UL98 & IEC UL98 & IEC IEC	UL98 & IEC UL98 & IEC IEC	UL98 & IEC UL98 & IEC IEC	IEC IEC IEC
General purpose amp rating pf = 0.7 – 0.8	-40° to 40°C 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	200 – 208V HP/A 240V HP/A 480V HP/A 600V HP/A	60/160.0 75/192.0 150/180.0 200/192.0	100/273.0 125/312.0 250/302.0 350/336.0	150/396.0 200/480.0 400/477.0 500/472.0	200/528.0 250/602.0 500/590.0 600/576	— — — —	— — — —	— — — —	— — — —
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	100	100	—	—	—	—	—
Fuse type RK1	kA	—	—	—	—	—	—	—	—
Fuse type RK5	kA	—	100	100	—	—	—	—	—
Fuse type L	kA	—	—	—	100	100	100	100	—
Fuse type H	kA	—	—	—	—	—	—	—	—
Maximum fuse size	A	600 200	600	600	1200	1200	2000	2000	—
Short circuit rating with MCCB	kA	25	50	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		16,000	10,000	10,000	10,000	10,000	6000	6000	6000
Physical characteristics									
Weight, switches 3 pole	lb	6.61	13.66	13.66	35.9	38.55	127.7	127.7	127.7
4 pole	lb	8.15	16.74	16.74	45.15	49.56	149.7	149.7	149.7
Dimension, switches 3 pole	H in	6.38	8.78	8.54	14.65	14.65	21.5	21.5	21.5
	W in	8.50	10.24	11.69	14.25	14.25	18.11	18.11	18.11
	D in	4.57	5.12	5.12	4.92	4.92	10.67	10.67	10.67
Shaft set screw tightening torque	lb. in.	—	—	—	—	—	—	—	—
Shaft size — square □	in	.31 x .31	.47 x .47	.47 x .47	.47 x .47	.47 x .47	.47 x .47	.47 x .47	.47 x .47
	mm	8 x 8	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.	71.5	184	184	184	184	438	438	438
Terminal lug kits		OZXA-25	OZXA-26	OZXA-27	OZXA-30	OZXA-28	OZXA-28	OZXA-28/2	OZXA-28/2
Wire range	AWG	#6-300kcmil ^②	#2-600kcmil	(2)#2-600kcmil	(2)#2-600kcmil	(4)#2-600kcmil	(4)#2-600kcmil	(8)#2-600kcmil	(8)#2-600kcmil
Torque:									
Wire tightening	lb. in.	375	500	500	375	375	375	375	375
Lug mounting	lb. in.	230	480	480	230	230	230	230	230
Auxiliary contacts		OZ XK-__	OZ XK-__	OZ XK-__	OZ XK-__	OZ XK-__	OZ XK-__	OZ XK-__	OZ XK-__
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

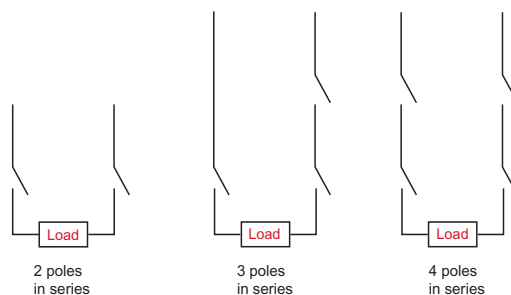
- ① UL Listed switches are also CSA Approved.
- ② UL98 overload test, 50 operations, pf 0.40 – 0.50 at 2x FLA.
- ③ Multi-tap lug available, please see pg. 17.24.
- ④ Fuse size 70A for RK5
- ⑤ IEC rated only.

Technical data

OT16E3 – OT160E3

IEC

Catalog number		3 pole	OT16E3	OT25E3	OT32E3	OT45E3	OT63E3	OT30E3	OT60E3	OT100E3	OT160E3
Rated insulation and operation voltage, AC20 and DC20		40°C 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	40	63	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



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.

Technical data

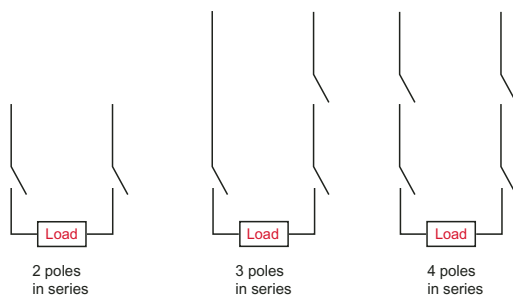
OETL-NF200 – OETL-NF3150

IEC

Disconnect
switches
Non-fusible

		IEC							
Catalog number	3 pole	OETL-NF200A	OETL-NF400	OETL-NF600A	OETL-NF800A	OETL-NF1200	OETL-NF1600	OETL-NF2000	OETL-NF3150
Rated insulation and operational voltage, AC20 and DC20	40°C 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	open ^① A	630	800	1250	1600	2500	2500	3150	
	40°C enclosed A	270	630	720	1250	1600	2300	2300	2600
	60°C enclosed A	220	500	600	1000	1250	1950	1950	2300
Rated operational currents									
AC 21A	≤500V A	250	630	800	1250	1600	2500 ^②	2500 ^②	3150 ^②
	≤690V A	250	630	800	1250	1600	2500 ^②	2500 ^②	3150 ^②
	≤1000V A	250	630	630	—	—	—	—	—
AC 22A	≤500V A	250	630	800	1250	1600	1600 ^②	1600 ^②	1600 ^②
	≤690V A	250	630	800	—	—	—	—	—
	≤1000V A	250	400	400	—	—	—	—	—
AC 23A	≤415V A	250	630	720	800	800	800 ^②	800 ^②	800 ^②
	≤500V A	250	580	600	800	800	800 ^②	800 ^②	800 ^②
	≤690V A	250	350	350	—	—	—	—	—
	≤1000V A	125	200	200	—	—	—	—	—
Rated operational currents/poles in series									
DC21A	48V A	250/2	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	250/2	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	250/2	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	180	200	250	250	250	250	250
	400/415V kW	132	315	355	400	400	400	400	400
	500V kW	160	355	400	450	450	450	450	450
	690V kW	200	355	355	—	—	—	—	—
Short-circuit current	kA	100	100	100	50/50 ^③	50/50 ^③	50/63 ^④	50/63 ^④	50/63 ^④
with back-up fuses of size	A	400	800	800	—	—	—	—	—

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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

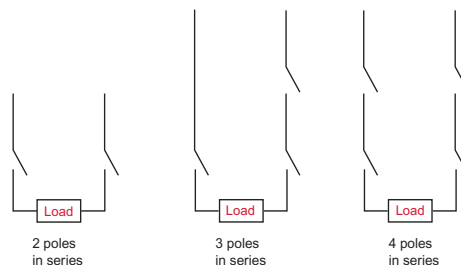
Technical data

OT16E3 – OT160E3

IEC

IEC

Catalog number	3 pole	OT16E3	OT25E3	OT32E3	OT45E3	OT63E3	OT30E3	OT60E3	OT100E3	OT160E3	
Rated voltage, U ^e	V/V	415/690	415/690	415/690	415/690	415/690	415/690	415/690	415/690	500/690	
Rated conditional short-circuit current	kA	50	50	50	50	50	50	50	50	100/50	
Max. allowed fuse size, type OFAA	A	25	32	40/32	63/50	80	100	100	100	200	
Max. allowed cut-off current, peak value	kA	6.5/4	6.5/4	6.5/4	8.3/6.7	11	18/10	18/10	18/10	30/25	
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, 3 pole in series											
≤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	
Capacitor ratings	≤400/415V	kVar	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	1000	
Mechanical endurance operations											
			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	1.1	
	4 pole	kg	0.15	0.15	0.15	0.35	0.35	0.5	0.5	1.3	
Dimension	3 pole	H mm	68	68	68	91.5	91.5	100	100	127	
		W mm	35	35	35	52.5	52.5	70	70	126	
		D mm	56	56	56	72.5	72.5	75	75	74.5	
Power loss per pole		W	0.3	0.6	1	1.4	2.8	1	1.6	6.5	
Shaft size — square □		mm	5 X 5	5 x 5	5 x 5	5 x 5	5 x 5	5 x 5	5 x 5	6 x 6	
Switch operating torque for rotary 3 pole switches											
		Nm	1	1	1	1.2	1.2	2	2	6	
Suitable conductor cross section Cu											
		mm ²	0.75 – 10	0.75 – 10	0.75 – 10	1.5 – 25	1.5 – 25	1.5 – 25	1.5 – 25	10 – 70	
Bolt size											
			—	—	—	—	—	—	—	—	
Auxiliary contacts											
			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	
Thermal current, I th											
	A		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/—	
	250V	A	—	—	—	—	—	—	—	—/0.55	
	400V	A	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/—	



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

Technical data

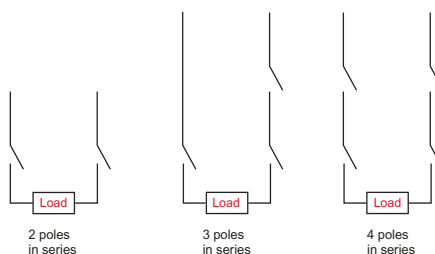
OETL-NF200 – OETL-NF3150

IEC

Disconnect
switches
Non-fusible

IEC

Catalog number	3 pole	OETL-NF200A	OETL-NF400	OETL-NF600A	OETL-NF800A	OETL-NF1200	OETL-NF1600	OETL-NF2000	OETL-NF3150
Rated voltage, U _e	V/V	500/690	500/690	500/690	500/690	500/690	500/690	500/690	500/690
Rated conditional short-circuit current	kA	100/50	100/50	100/50	50	50	63/50	63/50	63/50
Max. allowed fuse size, type OFAA	A	400	800	800	—	—	—	—	—
Max. allowed cut-off current, peak value	kA	45/35	70/63	70/63	—	—	—	—	—
Rated short-circuit making capacity, prospective peak value, I _{em} 500/690V	kA	35	80	80	105	105	140/105	140/105	140/105
Rated short time withstand current,									
RMS I _{low} 0.2s	kA	17	38	38	—	—	—	—	—
RMS I _{low} 1.0s	kA	8	17	17	50 ②	50 ②	80 ②	80 ②	80 ②
AC breaking capacity									
pf = 0.35	≤415V	A	2000	5040	5760	6400	6400	6400	6400
	≤500V	A	2000	4640	4800	6400	6400	6400	6400
	≤690V	A	2000	2800	2800	2500 ③	2500 ③	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	①	①	①	①	①
750V	A	1000/4	①	①	①	①	①	①	①
Capacitor ratings 400/415V	kVar	110	300	330	①	①	①	①	①
Rated capacitor duty	kA	170	450	500	①	①	①	①	①
Physical characteristics									
Electrical endurance at rated operational									
current, pf = 0.65	operation cycles	1000	1000	500	500	500	100 ⑤	100 ⑤	100 ⑤
Mechanical endurance	operations	16,000	10,000	10,000	10,000	10,000	6000	6000	6000
Weight	3 pole	kg	3.0	6.2	6.2	16.3	17.5	37	37
	4 pole	kg	3.7	7.6	7.6	20.5	22.5	47	47
Dimension	3 pole	H mm	162	216	216	372	372	546	546
		W mm	219	260	304	363	363	468	468
		D mm	92.5	130	130	125	125	271	271
Power loss per one pole	W	5.5	22	40	40	67	90	90	140
Shaft size — square □	mm	8 x 8	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	8.2	21	21	21	21	50	50	50
Suitable conductor cross section Cu	mm ²	—	—	—	—	—	—	—	—
Bolt size		10 x 30	12 x 40	12 x 40	12 x 60	12 x 60	12 x 60	12 x 60	12 x 60
Auxiliary contacts		OZ XK-__	OZ XK-__	OZ XK-__	OZ XK-__	OZ XK-__	OZ XK-__	OZ XK-__	OZ XK-__
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	10	10	10	10	10	10	10	10
AC12/DC12 I _{th} , A U _e =	120V	A	8/—	8/—	8/—	8/—	8/—	8/—	8/—
	125V	A	-/1.1	-/1.1	-/1.1	-/1.1	-/1.1	-/1.1	-/1.1
	240V	A	6/—	6/—	6/—	6/—	6/—	6/—	6/—
	250V	A	-/0.55	-/0.55	-/0.55	-/0.55	-/0.55	-/0.55	-/0.55
	400V	A	4/—	4/—	4/—	4/—	4/—	4/—	4/—
	415V	A	4/—	4/—	4/—	4/—	4/—	4/—	4/—
	440V	A	-/0.31	-/0.31	-/0.31	-/0.31	-/0.31	-/0.31	-/0.31
	480V	A	3/—	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	3/0.27
	600V	A	-/0.2	-/0.2	-/0.2	-/0.2	-/0.2	-/0.2	2-/0.2
690V	A	2/—	2/—	2/—	2/—	2/—	2/—	2/—	



- 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.

Selecting switches per NEC & IEC

Selecting switches per NEC

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:

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

- greater than or equal to 115 percent of the equivalent full load current; and,
- greater than or equal to the equivalent HP rating.

Selecting switches per IEC

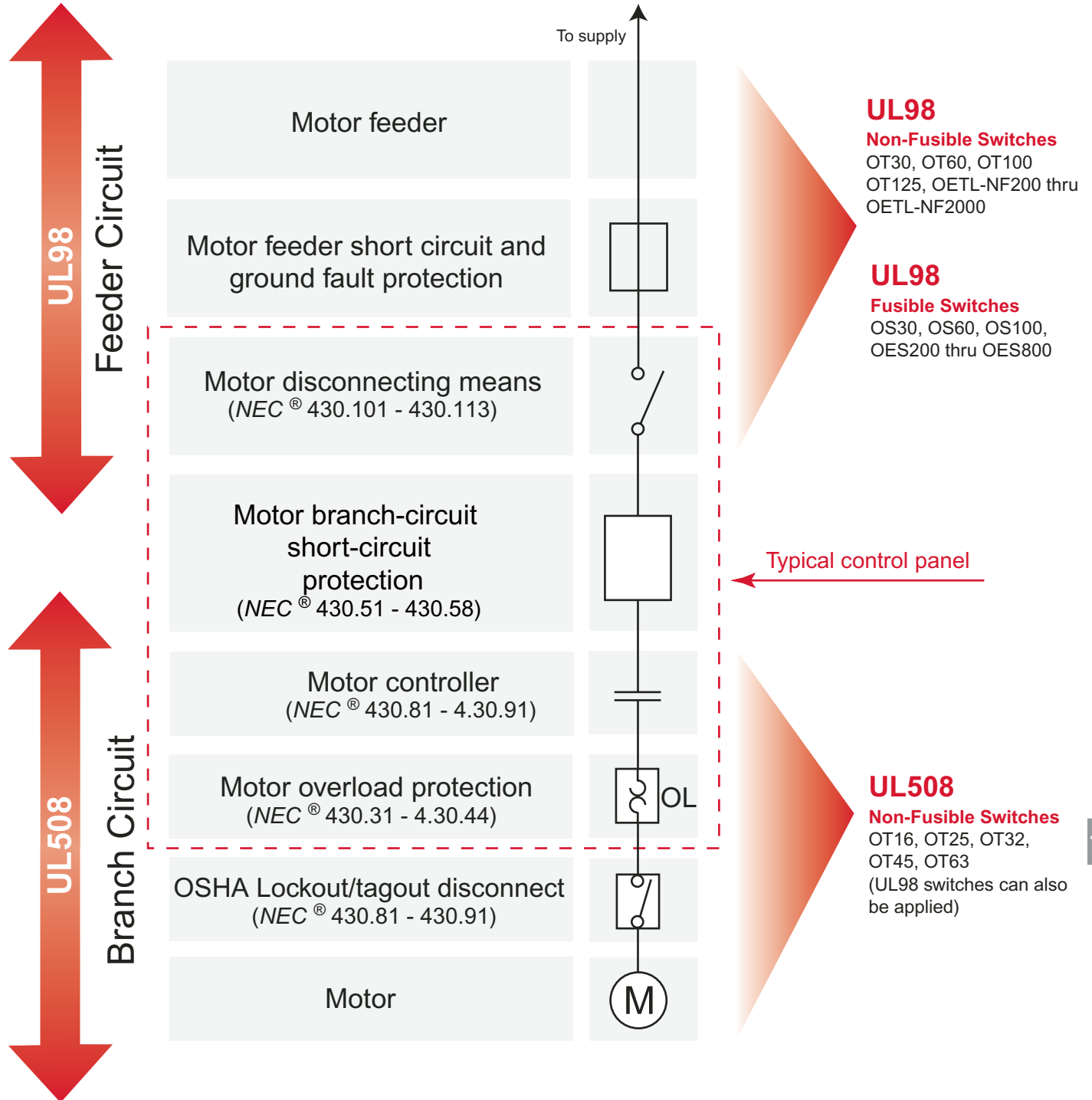
Utilization categories

Nature of current	Utilization category		Typical applications
	Frequent operation	Infrequent operation	
Alternating current	AC-20A	AC-20B	<ul style="list-style-type: none"> Connecting and disconnecting under no-load conditions Switching of resistive loads including moderate overloads (PF > 0.95) Switching of mixed resistive and inductive loads, including moderate overloads (PF > 0.65) Switching of motor loads or other highly inductive loads (PF > 0.45 below 100A; PF > 0.35 above 100A)
	AC-21A	AC-21B	
	AC-22A	AC-22B	
	AC-23A	AC-23B	
Direct current	DC-20A	DC-20B	<ul style="list-style-type: none"> Connecting and disconnecting under no-load conditions Switching of resistive loads including moderate overloads (L/R < 1ms) Switching of mixed resistive and inductive loads, including moderate overloads e.g., shunt motors (L/R < 2.5ms) Switching of highly inductive loads e.g., series motors (L/R < 15ms)
	DC-21A	DC-21B	
	DC-22A	DC-22B	
	DC-23A	DC-23B	
Mechanical endurance	Number of operations	Number of operations	
100A	10,000	2000	
315A	8000	1600	
>315A	2000	400	

- Category AC-23 includes occasional switching of individual motors. The switching of capacitors of tungsten filament lamps shall be subject to agreement between manufacturer and user.

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

Disconnect
switches
Non-fusible



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 17.50.

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.

17 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_o — Current value stated by the

manufacturer and taking into account the rated operating voltage U_o , the rated frequency, the rated duty, the utilization category, the electrical contact life and the type of protective enclosure.

Rated operating voltage U_o — 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 disconnect 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 disconnect 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:
 $L/R = \text{mH}/\text{Ohm} = \text{ms}$.

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 17.49.

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

NEMA Environmental ratings

Disconnect
switches
Non-fusible

Introduction

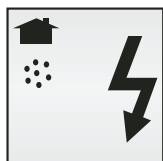
An enclosure is a surrounding case constructed to provide a degree of protection to personnel against accidental contact with the enclosed equipment and to provide a degree of protection to the enclosed equipment against specified environmental conditions.

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.

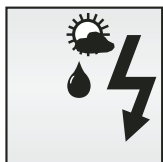
Individual NEMA product Standards Publications or third party certification standards may contain additional requirements for product testing and performance.

Definitions pertaining to nonhazardous locations



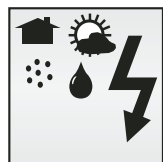
Type 1

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.)



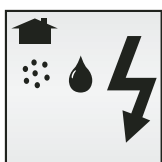
Type 4X

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

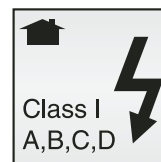
Enclosures are intended for indoor use primarily to provide a degree of protection against circulating dust, falling dirt, and dripping noncorrosive liquids. (NEMA Standard 7-15-1991.)



Type 13

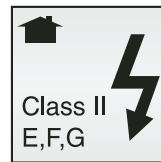
Enclosures are intended for indoor use primarily to provide a degree of protection against dust, spraying of water, oil and noncorrosive coolant. (NEMA Standard 1-10-1979.)

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.)




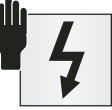





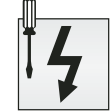












Legend

- Indoors
- Outdoors
- Water
- Dirt/dust
- Corrosion

IEC Environmental ratings

IP ratings

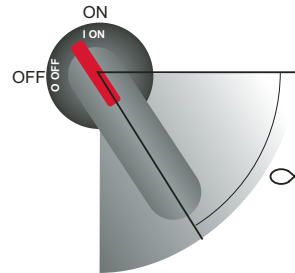
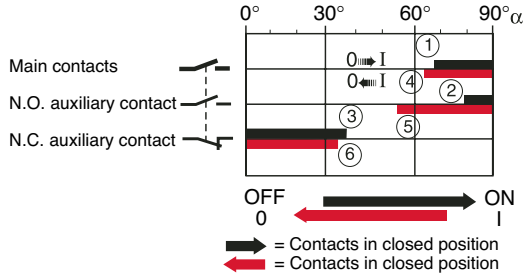
indicate the degree of protection against dust, liquids and impacts. The IP degrees of protection are defined by the French standard NFC 20-010. To rate a device's degrees of protection, the letters IP are followed by up to three numbers. These numbers are defined as follows:

first number protection against solid objects	second number protection against liquids	third number protection against mechanical impacts
<p>IP 0  no protection</p>	<p>IP 0  no protection</p>	<p>IP 0  no protection</p>
<p>1  protected against solid objects over 50mm (e.g. accidental touch by hands.)</p>	<p>1  protected against vertically falling rain or condensation</p>	<p>1  impact 0,225 joule 150g falling from 15 cm</p>
<p>2  protected against solid objects over 12 mm (e.g. fingers)</p>	<p>2  protected against direct sprays of water up to 15° from vertical</p>	<p>2  impact 0,375 joule 250g falling from 15 cm</p>
<p>3  protected against solid objects over 2.5 mm (tools & wires)</p>	<p>3  protected against sprays to 60° from vertical</p>	<p>3  impact 0,50 joule 250g falling from 20cm</p>
<p>4  protected against solid objects over 1mm (small tools & small wires)</p>	<p>4  protected against water sprayed from all directions</p>	<p>5  impact 2,00 joule 500g falling from 40 cm</p>
<p>5  protected against dust (no harmful deposit)</p>	<p>5  protected against low pressure jets of water from all directions</p>	<p>7  impact 6,00 joule 1.5kg falling from 40 cm</p>
<p>6  totally protected against dust</p>	<p>6  protected from strong jets of water (e.g. for use on ship decks)</p>	<p>9  impact 20,00 joule 5 kg falling from 40 cm</p>
	<p>7  protected against the effects of immersion between 15cm and 1m</p>	

Auxiliary contact timing diagrams OT16 – OT100

Disconnect
switches
Non-fusible

Legend



Contacts closing

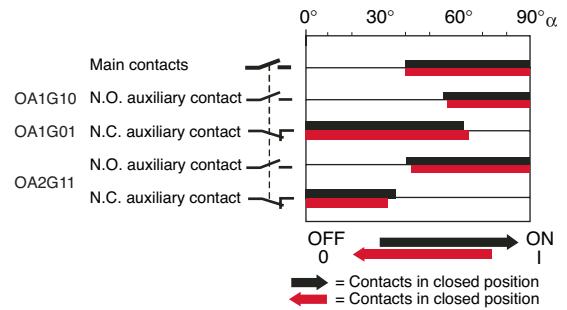
- ① Main contacts close
- ② N.O. auxiliary contacts close
- ③ N.C. auxiliary contacts open

Contacts opening

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

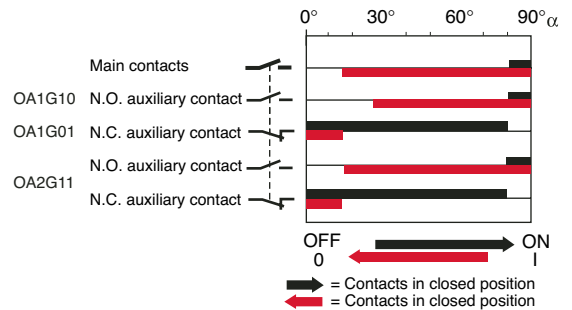
OT16, OT25, OT32

Catalog number	Auxiliary contact	Contact configuration
OT16, OT25, OT32	OA1G10 OA1G01 OA2G11	1 N.O. 1 N.C. 1 N.O. & 1 N.C.



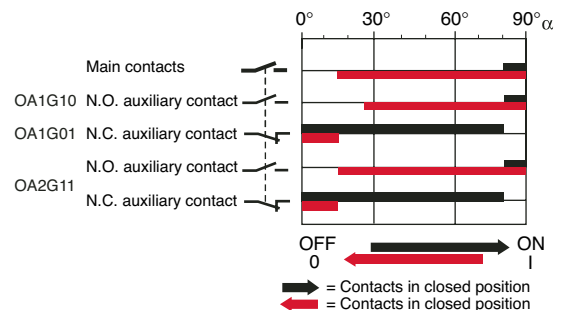
OT45, OT63

Catalog number	Auxiliary contact	Contact configuration
OT45, OT63	OA1G10 OA1G01 OA2G11	1 N.O. 1 N.C. 1 N.O. & 1 N.C.



OT30, OT60, OT100

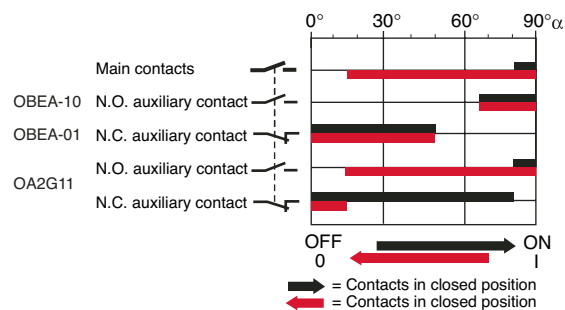
Catalog number	Auxiliary contact	Contact configuration
OT30, OT60, OT100	OA1G10 OA1G01 OA2G11	1 N.O. 1 N.C. 1 N.O. & 1 N.C.



Auxiliary contact timing diagrams OT160 – OETL-NF200A

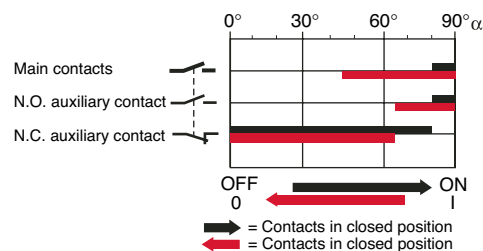
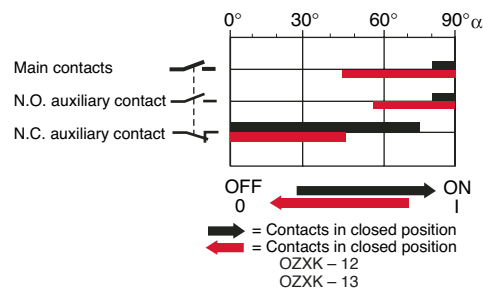
OT160E3

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



OETL-NF200A

Catalog number	Auxiliary contact	Contact configuration
OETL-NF200A	OZXK-121	N.O. & 1 N.C.
	OZXK-132	N.O. & 2 N.C.
	OZXK-16	4 N.O. & 4 N.C.

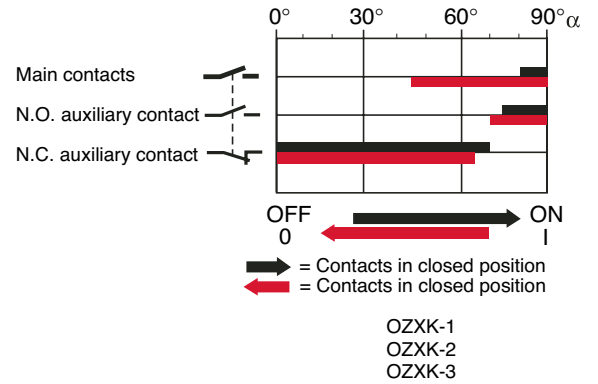


Auxiliary contact timing diagrams OETL-NF400 – OETL-NF3150

Disconnect
switches
Non-fusible

OETL-NF400 – OETL-NF600A

Catalog number	Auxiliary contact	Contact configuration form C
OETL-NF400 – OETL-NF600A	OZXK-1 OZXK-2 OZXK-3	1 N.O. & 1 N.C. 2 N.O. & 2 N.C. 4 N.O. & 4 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.

