

Selecting switches per CEC & IEC



Selecting switches per CEC

Section 28 of the Canadian 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 28 of the CEC, determine one equivalent full load current and plus 15% of the largest motor 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

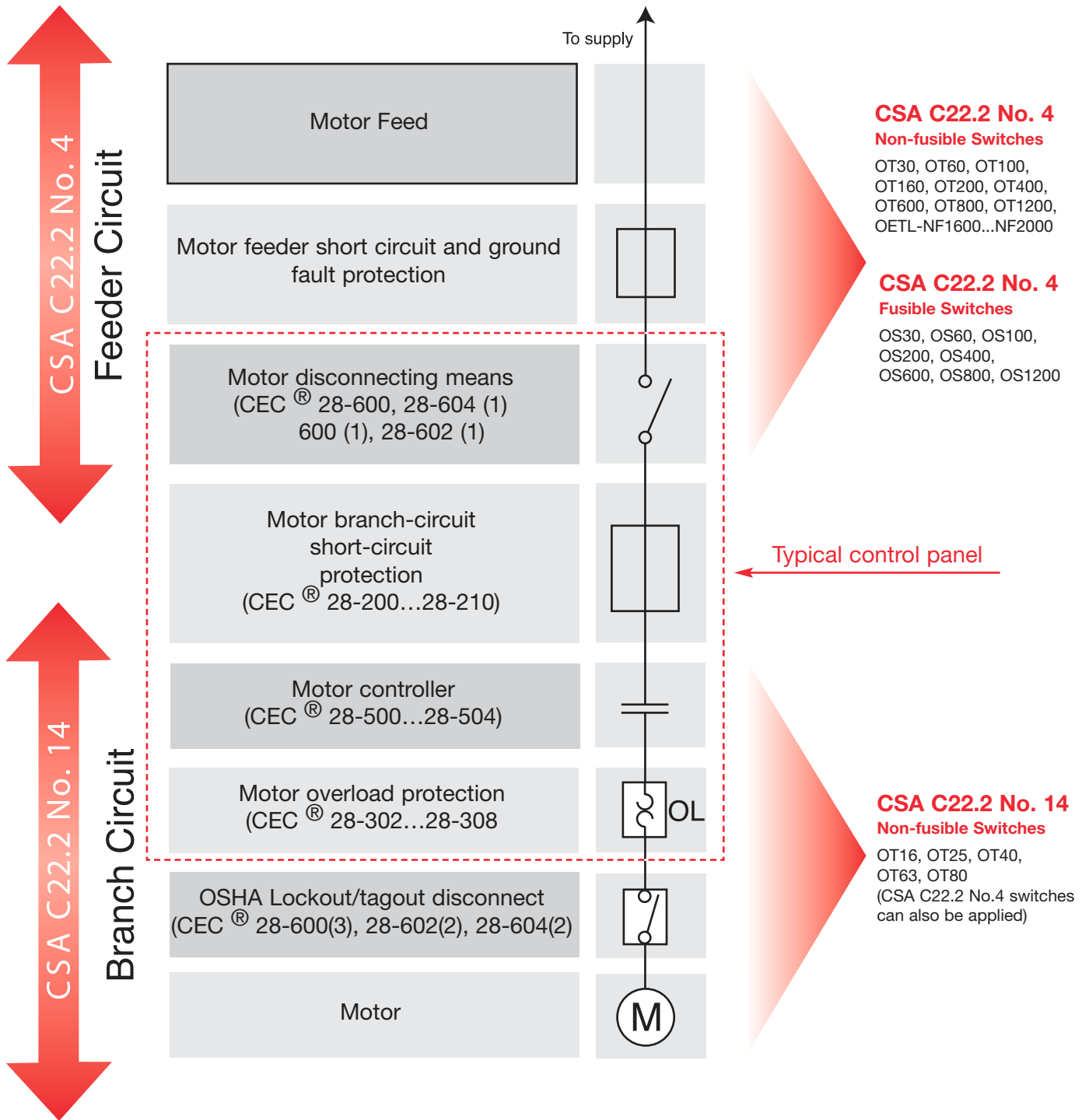
Utilization categories

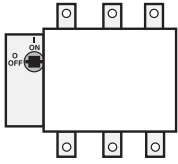
Nature of current	Utilization category		Typical applications
	Frequent operation	Infrequent operation	
Alternating current	AC-20A	AC-20B	<ul style="list-style-type: none"> Connecting and disconnecting under no-load conditions Switching of resistive loads including moderate overloads (PF > 0.95) Switching 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 CSA C22.2 No. 4 & No. 14 Disconnects According to CEC[®] Section 28



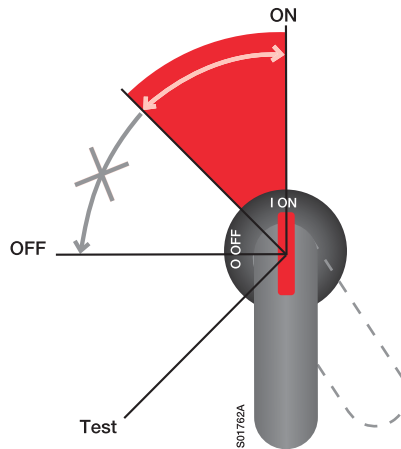


Auxiliary contact timing diagrams OT16 – OT160

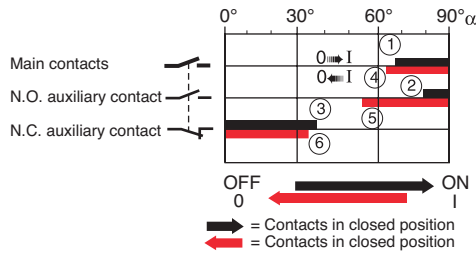


Handle indications and functions

- The handle indicates the position of the contacts with complete reliability in all situations. If the contacts are welded together, the handle doesn't reach the OFF-position but remains between ON and OFF, maintaining the door interlock and padlocking is not possible to do.
- When operating the switch to the Test-position with a test handle the auxiliary contacts change position. The main contacts remain open.

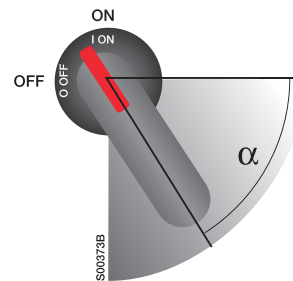


ON and OFF-functions of main and auxiliary contacts



Contacts closing

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



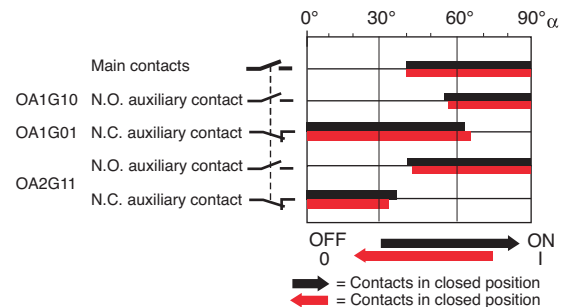
Contacts opening

- 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	1 N.O.
	OA1G01	1 N.C.
	OA2G11	1 N.O. & 1 N.C.

Early break



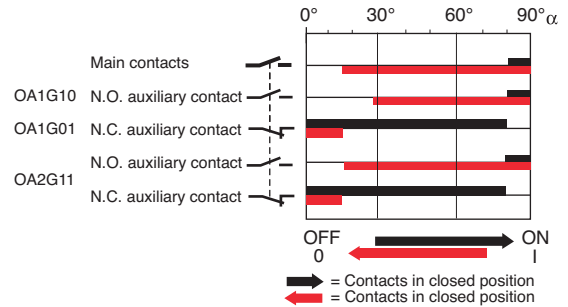


Auxiliary contact timing diagrams for Non-fusible disconnect switches OT200 - OETL-NF2000

OT63, OT80, OT30, OT60, OT100

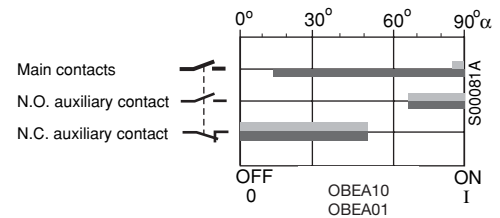
Catalog number	Auxiliary contact	Contact configuration
OT63, OT80 OT30, OT60, OT100	OA1G10 OA1G01 OA2G11	1 N.O. 1 N.C. 1 N.O. & 1 N.C.

Early break



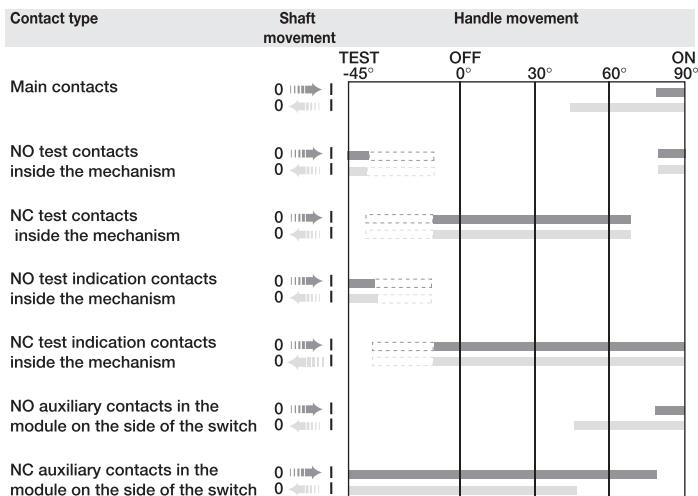
OT160

Catalog number	Auxiliary contact	Contact configuration
OT160	OBEA10 OBEA01	1 N.O. 1 N.C.



OT200U03 – OT1200U03

Catalog number	Auxiliary contact	Contact configuration
OT200U03 – OT1200U03	OA1G10 OA3G01	1 N.O. 1 N.C.



OETL-NF1600 – OETL-NF2000

Catalog number	Auxiliary contact	Contact configuration
OETL-NF1600 – OETL-NF2000	OZXK-1 OZXK-2 OZXK-3	1 N.O. & 1 N.C. 2 N.O. & 2 N.C. 4 N.O. & 4 N.C.

