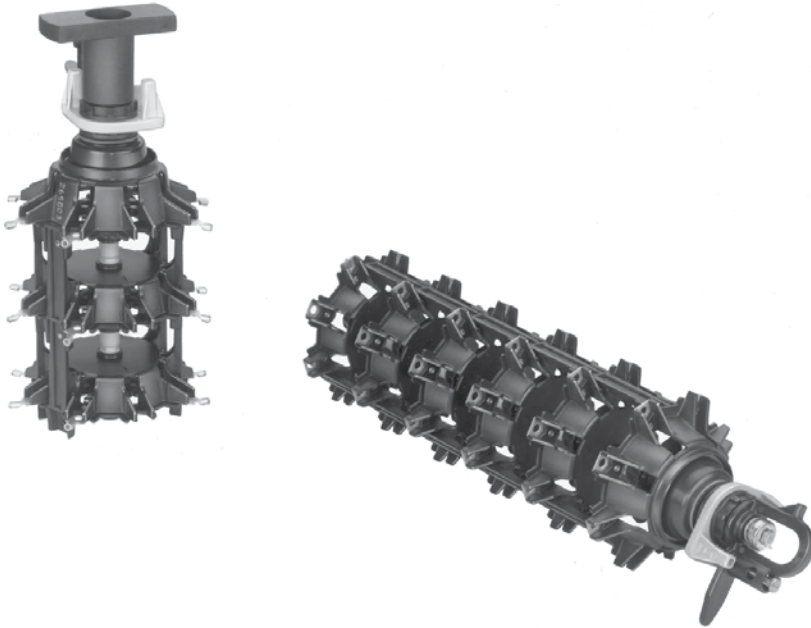


150 A two- and three-phase series multiple (dual voltage) switches



General

Eaton designs its Cooper Power™ series 150 A externally operated two- or three-phase series multiple (dual voltage) switch to change connection of de-energized transformer windings between series and parallel to provide different common transformer voltage ratios. They also make it possible to stock one transformer with voltage conversion capability. Using stacked multi-layer switches and auxiliary back switches, voltages such as 2400 V x 7620 V or 7200 V x 19920 V can be provided. Tri-voltage switches are also available.

Externally operable switches eliminate many of the hazards associated with manual internal tap changing of distribution transformers because line crews need not be exposed to high-voltage conductors and hot transformer fluids. They also eliminate the need to dismount pole-type transformers for voltage adjustment and prevent exposure of the transformer tank interiors to contamination. The switches are designed for use in distribution transformers filled with transformer oil, Envirotemp™ FR3™ Fluid or an approved equivalent.

Series multiple (dual voltage) switches are available with lever, "T", or hotstick-operable handles. The lever handle has an indexing screw to ensure complete, positive switch contact. The spring-loaded padlockable handle is hotstick-operable. It allows greater leverage and provides positive indication of switch position.

The switch shaft is made of a high strength glass-reinforced nylon, and is sealed against leakage by two high temperature resistant Viton® O-rings. The switch body and rotor are made of glass-reinforced polyester. The spring tempered, high conductivity copper pinch-type rotor contacts, provide dependable self-cleaning action.

Series multiple (dual voltage) switches are available with either bolt tab or crimp terminals. Switches with crimp terminals have additional inboard tapped holes for making separate ring tongue connections without changing switch contacts. All terminals have hex recesses to hold 7/16 inch hex bolt heads of standard 1/4 inch hardware for fast, easy connections.

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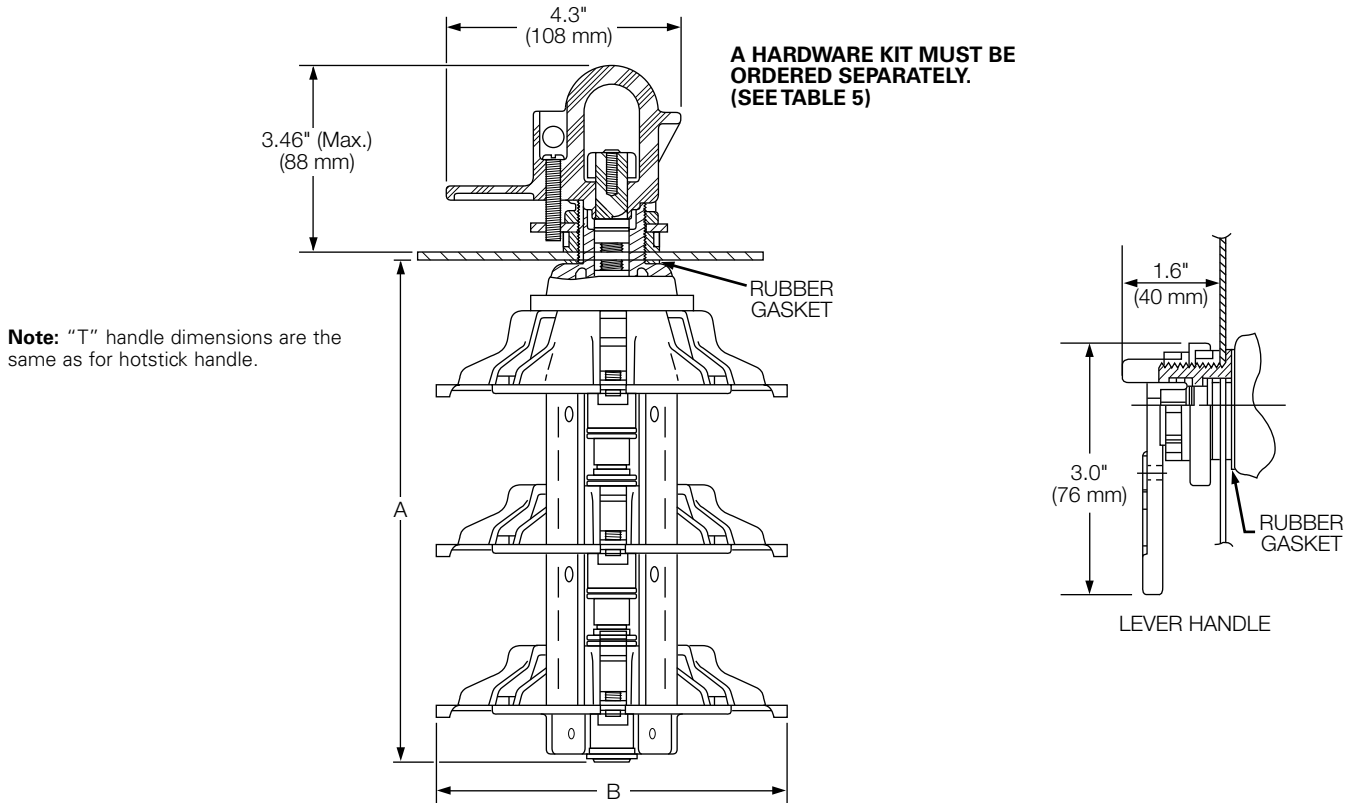


Figure 1. Series multiple switch. (Shown with padlocked hotstick handle.)

Note: Dimensions given are for reference only.

Table 1. Voltage Ratings and Characteristics

Description	kV
Standard Voltage Class	35 Max.
AC 60 Hz 1 Minute Withstand	50
BIL and Full Wave Crest (in both series and parallel positions)	150

Voltage ratings and characteristics are in accordance with IEEE Std C57.12™ standard.

Table 2. Current Ratings and Characteristics

Description	Amperes
Continuous	150 A rms series position 300 A rms parallel position

Installation

No special tools are required. The switch body is installed through a keyed 1.33 inch (34 mm) hole in the tank wall and sealed by an inside gasket. An outer sealing nut is tightened to a torque of 80 to 120 in-lbs. Refer to *Service Information S800-72-1 150 A Series Multiple (Dual Voltage) - Cap/Wrench, Lever or Hotstick Operable Handles Installation Instructions* for details.

Table 3. Multiple Switch Configurations

Switch Type	Dimensions-in./(mm)				
	A	B (w/Terminals)			
		Bolt Tab	Bolt Tab w/Stud	#14-16 #10-12 #8	#6
2-Phase Standard (2 Decks)	6.28	5.52	5.52	6.63	6.88
	(160)	(140)	(140)	(168)	(175)
3-Phase Standard (3 Decks)	9.12	5.52	5.52	6.63	6.88
	(232)	(140)	(140)	(168)	(175)
3-Phase With Back Decks (6 Decks)	16.1	5.52	5.52	6.63	6.88
	(409)	(140)	(140)	(168)	(175)
3-Phase Cover Mount (5 Decks)*	14.9	5.52	5.52	6.63	6.88
	(378)	(140)	(140)	(168)	(175)

* The upper two decks have no contacts – for spacing only.

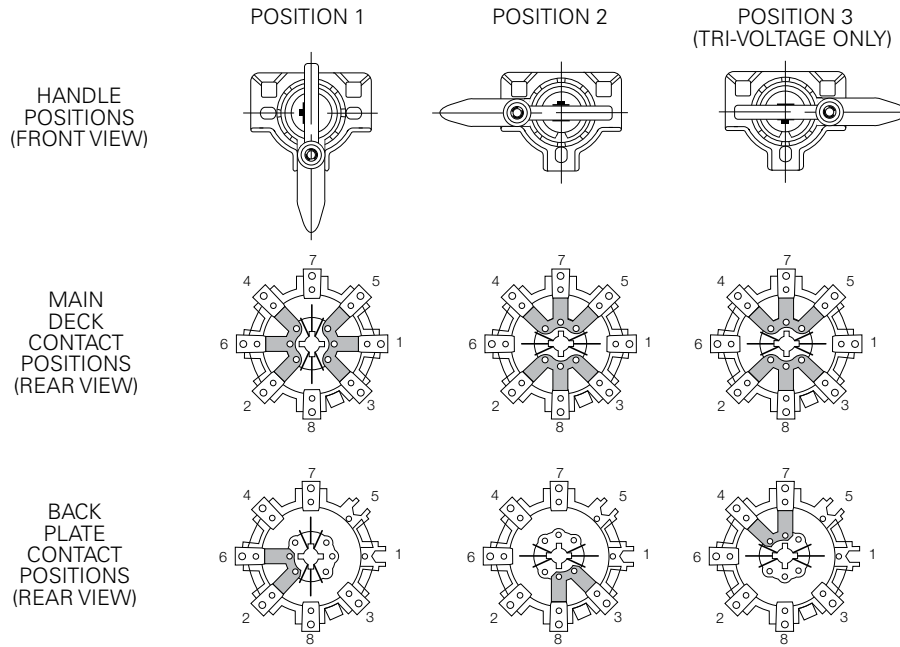


Figure 2. Switch Contact Positions. (Typical switch shown. For specifics refer to Table 5.)

Ordering information

To order a 150 A externally operated series multiple switch, specify one switch and one hardware kit from the charts on pages 3-4.

Table 4. Abbreviations and Definitions

DV	Dual Voltage, 6 or 8 Terminals, 2-3 Finger Contacts.
TV	Tri-Voltage, 6 or 8 Terminals, 2-3 Finger Contacts.
BP	Backplate (Backswitch), 4 Terminals, 2 Finger Contacts.
DBP	Double Backplate, 8 Terminals, 2-2 Finger Contacts.
2BP	Two Backplates, 4 Terminals each, 2 Finger Contacts each.
1BP	One Backplate, at end of switch, 4 Terminals, 2 Finger Contacts.
TD	Terminal Deck, 2 Terminals (B.T.), w/o Rotor Assembly or Finger Contacts
CM/DV	Cover Mounted Switch.
SP	Special Switch with non-standard quantities and placements of terminals and contacts.

Table 5. Capwrench, Lever, Padlockable Hotstick Handle or "T" Handle Operated Series Multiple Switches^e

Catalog Number		Switch Type ^f	Description	Contacts		No. of Terminals on Front Phase Deck	"N" Drawing No.
Switch Number	Hardware Kit ^{a,b}	DV CM/DV TV	Phase	Bolt Tab Back Deck ^f	Bolt Tab w/Stud ^c		
			Two Three	BP, DBP, 1BP, SP	#14-16 #10-12 #8, #6		
2237266C01M	Hotstick Handle 2237947A07H or "T" Handle 2237947A74H	DV	2Ø	—	Bolt Tab	6	599
2237266C02M		DV	2Ø	—	#14 - 16	6	
2237266C03M		DV	2Ø	—	#10 - 12	6	
2237266C04M		DV	2Ø	—	#8	6	
2237266C05M		DV	2Ø	—	#6	6	
2237266C51M	Hotstick Handle 2237947A07H or "T" Handle 2237947A74H	DV	2Ø	—	Bolt Tab	8	599
2237266C52M		DV	2Ø	—	#14 - 16	8	
2237266C53M		DV	2Ø	—	#10 - 12	8	
2237266C54M		DV	2Ø	—	#8	8	
2237266C55M		DV	2Ø	—	#6	8	
2237914C01M	Lever Handle 2237947A08H ^d	DV	3Ø	BP	Bolt Tab	6	879
2237914C02M		DV	3Ø	BP	#14 - 16	6	
2237914C03M		DV	3Ø	BP	#10 - 12	6	
2237914C04M		DV	3Ø	BP	#8	6	
2237914C05M		DV	3Ø	BP	#6	6	
2237914C16M		DV	3Ø	BP	Bolt Tab w/Stud ↯	6	
2237560C01M	Lever Handle 2237947A08H ^d	DV	3Ø	SP	Bolt Tab	6	788
2237560C06M		DV	3Ø	SP	Bolt Tab w/Stud ↯	6	
2237560C51M		DV	3Ø	SP	Bolt Tab	8	
2237560C56M		DV	3Ø	SP	Bolt Tab w/Stud ↯	8	
2237510C01M	Hotstick Handle 2237947A06H or "T" Handle 2237947A73H	TV	2Ø	SP	Bolt Tab	8	755
2237265C01M	Hotstick Handle 2237947A04H or "T" Handle 2237947A70H	DV	3Ø	—	Bolt Tab	6	601
2237265C02M		DV	3Ø	—	#14 - 16	6	
2237265C03M		DV	3Ø	—	#10 - 12	6	
2237265C04M		DV	3Ø	—	#8	6	
2237265C05M		DV	3Ø	—	#6	6	
2237265C16M		DV	3Ø	—	Bolt Tab w/Stud ^c	6	
2237265C51M	Hotstick Handle 2237947A04H or "T" Handle 2237947A70H	DV	3Ø	—	Bolt Tab	8	601
2237265C52M		DV	3Ø	—	#14 - 16	8	
2237265C53M		DV	3Ø	—	#10 - 12	8	
2237265C54M		DV	3Ø	—	#8	8	
2237265C55M		DV	3Ø	—	#6	8	
2237265C56M		DV	3Ø	—	Bolt Tab w/Stud ^c	8	
2237403B01M	Hotstick Handle 2237947A05H or "T" Handle 2237947A72H	DV	3Ø	BP	Bolt Tab	6	602
2237403B02M		DV	3Ø	BP	#14 - 16	6	
2237403B03M		DV	3Ø	BP	#10 - 12	6	
2237403B04M		DV	3Ø	BP	#8	6	
2237403B05M		DV	3Ø	BP	#6	6	
2237403B16M		DV	3Ø	BP	Bolt Tab w/Stud ^c	6	
2237403B51M	Hotstick Handle 2237947A05H or "T" Handle 2237947A72H	DV	3Ø	BP	Bolt Tab	8	602
2237403B52M		DV	3Ø	BP	#14 - 16	8	
2237403B53M		DV	3Ø	BP	#10 - 12	8	
2237403B54M		DV	3Ø	BP	#8	8	
2237403B55M		DV	3Ø	BP	#6	8	
2237403B66M		DV	3Ø	BP	Bolt Tab w/Stud ^c	8	

^a Hardware Kits are not included with the switch, Hardware Kits must be ordered separately.
^b Actuating devices are included in the Hardware Kits.
^c Bolt Tab w/Stud (1/4-20 threaded stud).
^d Add "P" to end of the part number to make lever handle padlockable.
^e For configuration not found, consult with your factory representative.
^f For abbreviations and definitions see Table 4.

Table 5. Capwrench, Lever, Padlockable Hotstick Handle or "T" Handle Operated Series Multiple Switches^e (continued)

Catalog Number		Switch Type ^a	Description	Contacts	No. of Terminals on Front Phase Deck	"N" Drawing No.
Switch Number	Hardware Kit ^{a,b}	DV CM/DV TV	Phase	Back Deck ^f		
			Two Three	BP, DBP, 1BP, SP	#14-16 #10-12 #8, #6	
2237403B06M	Hotstick Handle 2237947A05H or "T" Handle 2237947A72H	DV	3Ø	DBP	Bolt Tab	6
2237403B07M		DV	3Ø	DBP	#14 - 16	6
2237403B08M		DV	3Ø	DBP	#10 - 12	6
2237403B09M		DV	3Ø	DBP	#8	6
2237403B10M		DV	3Ø	DBP	#6	6
2237403B11M		DV	3Ø	DBP	Bolt Tab w/Stud ^c	6
2237403B56M	Hotstick Handle 2237947A05H or "T" Handle 2237947A72H	DV	3Ø	DBP	Bolt Tab	8
2237403B57M		DV	3Ø	DBP	#14 - 16	8
2237403B58M		DV	3Ø	DBP	#10 - 12	8
2237403B59M		DV	3Ø	DBP	#8	8
2237403B60M		DV	3Ø	DBP	#6	8
2237403B61M		DV	3Ø	DBP	Bolt Tab w/Stud ^c	8
2237908C01M	Hotstick Handle 2237947A05H or "T" Handle 2237947A72H	DV	3Ø	SP	Bolt Tab	8
2237586C01M	Hotstick Handle 2237947A05H or "T" Handle 2237947A72H	DV	3Ø	SP	Bolt Tab	6
2237467C01M	Hotstick Handle 2237947A04H or "T" Handle 2237947A70H	CM/DV	3Ø	—	Bolt Tab	6
2237467C02M		CM/DV	3Ø	—	#14 - 16	6
2237467C03M		CM/DV	3Ø	—	#10 - 12	6
2237467C51M		CM/DV	3Ø	—	Bolt Tab	8
2237404B01M	Hotstick Handle 2237947A03H or "T" Handle 2237947A73H	TV	3Ø	BP	Bolt Tab	6
2237404B02M		TV	3Ø	BP	#14 - 16	6
2237404B03M		TV	3Ø	BP	#10 - 12	6
2237404B04M		TV	3Ø	BP	#8	6
2237404B05M		TV	3Ø	BP	#6	6
2237404B51M	Hotstick Handle 2237947A03H or "T" Handle 2237947A73H	TV	3Ø	BP	Bolt Tab	8
2237404B52M		TV	3Ø	BP	#14 - 16	8
2237404B53M		TV	3Ø	BP	#10 - 12	8
2237404B54M		TV	3Ø	BP	#8	8
2237404B55M		TV	3Ø	BP	#6	8

^a Hardware Kits are not included with the switch, Hardware Kits must be ordered separately.
^b Actuating devices are included in the Hardware Kits.
^c Bolt Tab w/Stud (1/4-20 threaded stud).
^d Add "P" to end of the part number to make lever handle padlockable.
^e For configuration not found, consult with your factory representative.
^f For abbreviations and definitions see Table 4.

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