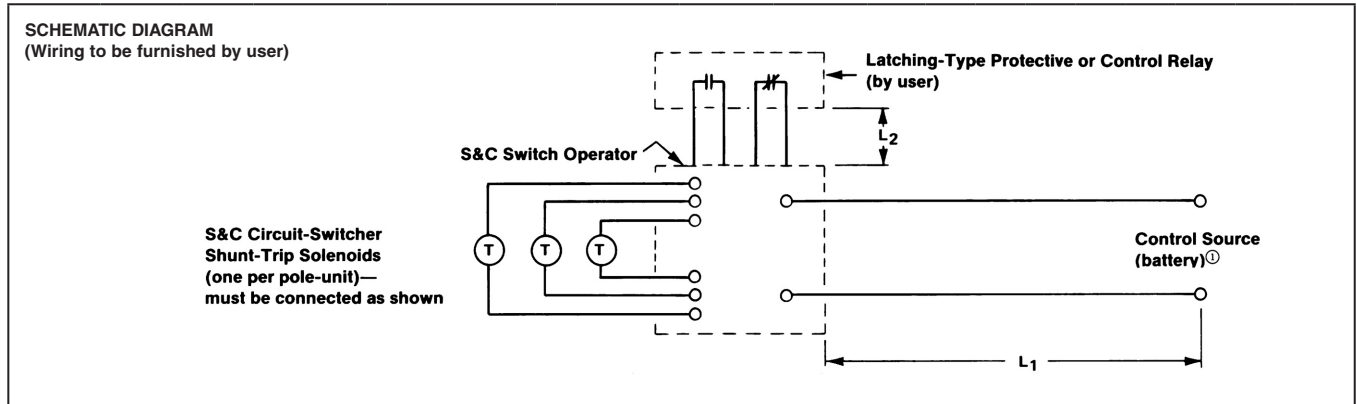


S&C SWITCH OPERATORS—TYPE CS-1A (For S&C Circuit-Switchers with Shunt-Trip Device)



Application		S&C Switch Operator		Control-Source Voltage	Motor		Circuit-Switcher Shunt-Trip Circuit		Minimum Size of Control Wire ^③ for Lines L ₁ and L ₂ Respectively, A.W.G.								
High-Voltage Device	Style and Rating of High-Voltage Device	Type	Catalog Number		Rating, Volts	Accelerating Current at Rated Voltage, Amperes	Total Solenoid Current, Amperes	Size ^② of Wire from Switch Operator to Shunt-Trip, A.W.G.	Line	Distance, Feet							
				100						200	300	400	500	1000	2000	3000	
S&C Mark V Circuit-Switchers with Shunt-Trip Device	Integer, 34.5 thru 69 kV	CS-1A	38846R5-AHP	48 V dc	48	80	36	10	L ₁	6	4	2	1	1/0	4/0		
									L ₂	12	10	8	6	6	2		
	Vertical-Break, 34.5 thru 161 kV		38846R5-B 38858R1-B	125 V dc	125	30	23	12	L ₁	12	10	8	6	6	3	1/0	3/0
									L ₂	12	10	8	6	6	3	1/0	3/0
	Center-Break, 230 and 345 kV, 3 gap		38846R5-BHP	125 V dc	125	30	23	12	L ₁	12	10	8	6	6	3	1/0	3/0
									L ₂	12	12	12	12	12	10	6	4

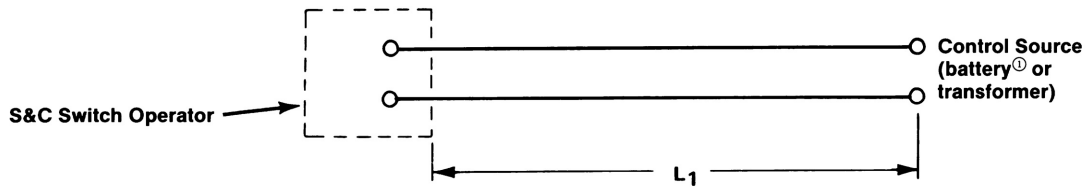
① Recommended minimum one-minute discharge rate of battery for Type CS-1A Switch Operators: 75 amperes.

② Assumed total distance between Circuit-Switcher and switch operator: 30 feet.

③ Where long distances and large wire sizes are encountered, comparative cost of relocating battery and protective relays closer to switch operator should be considered.

S&C SWITCH OPERATORS—TYPE CS-1A (For S&C Circuit-Switchers without Shunt-Trip Device)

SCHEMATIC DIAGRAM
(Wiring to be furnished by user)



Application		S&C Switch Operator		Control-Source Voltage	Motor		Minimum Size of Control Wire ^② for Lines L ₁ A.W.G.							
High-Voltage Device	Style and Rating of High-Voltage Device	Type	Catalog Number		Rating, Volts	Accelerating Current at Rated Voltage, Amperes	Distance, Feet							
							100	200	300	400	500	1000	2000	
S&C Mark V Circuit-Switchers without Shunt-Trip Device	Integer, 34.5 thru 69 kV	CS-1A	38845R4-A	48 V dc	48	80	6	4	2	1	1/0	4/0		
	Vertical-Break, 34.5 thru 161 kV		38845R4-B	125 V dc	125	30	12	10	8	8	6	4	1	
	Center-Break, 230 and 345 kV, 3 gap		38845R4-D	115 V 60 Hz	115	46	10	6	6	4	2	1/0		
			38845R4-E	230 V 60 Hz	230	23	12	12	10	10	8	6	2	

① Recommended minimum battery ratings for Type CS-1A Switch Operator is:

Volts, Dc	One-Minute Discharge Rate, Amperes
48	75
125	36

② Where long distances and large wire sizes are encountered, comparative cost of relocating battery closer to switch operator should be considered.