



DET-1020 Application Guide

Emergency Standby Systems for Elevator Switches

Selective Coordination using GE Circuit Breakers Feeding Elevator Switches

Electrical power to elevators is commonly supplied by standby systems in order to maintain operation in the event of a utility power outage. The standby system may be classified by the standard NFPA 70®, the National Electrical Code® (NEC) as either an “emergency standby system,” required to comply with NEC Article 700, or a “legally required standby system,” required to comply with NEC Article 701. Among the requirements in these two Articles are those that require the overcurrent devices in these systems to selectively coordinate with all supply side overcurrent devices. Furthermore, when feeders are supplying more than one elevator, NEC 620.62 requires selective coordination of the overcurrent devices in elevator disconnecting means with any other supply side overcurrent device. The definition of selective coordination adopted in the 2014 NEC made it very clear that the coordinated protection must occur for the full range of currents that the device may experience. Typically, two or more tiers of overcurrent devices are designed into standby systems and must be shown to coordinate. This publication provides the recommended circuit breaker and ratings that will selectively coordinate with the Mersen elevator switch for short circuit currents up to the switch short circuit rating.

The Mersen elevator switch is a separately enclosed switch designed to accept class J fuses and it is installed in the elevator room. The operation and maintenance manual, Pub#MER-OM, recommends Mersen type AJT fuses although the switch should work satisfactorily with other class J fuses. The fuses are not provided with the switch and should be supplied by the installer. The following assumes the use of type AJT fuses.

As shown on Figure 1, the Mersen elevator switch is fed from a branch circuit breaker housed in either a branch panel or a distribution panel. The branch circuit breaker does not need to coordinate with the fuses in the elevator switch because they are connected in series with each other. However, the upstream feeder circuit breaker must coordinate with both. The branch circuit breaker must be a type documented by the manufacturer to be selective with upstream feeder circuit breakers. The selective combination must be valid for the fault current available at the branch circuit breaker and at the elevator switch location.

Notes:
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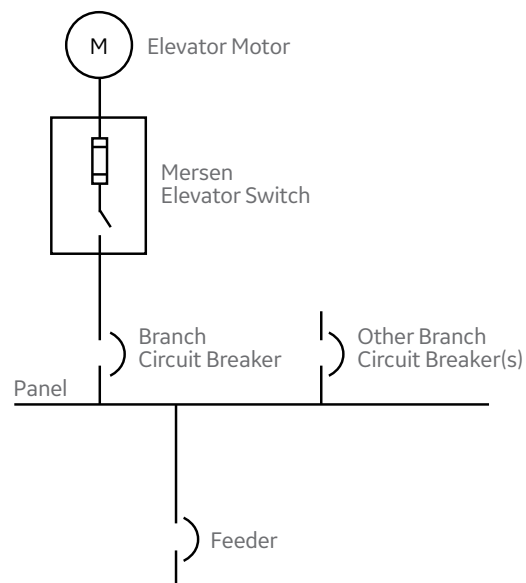


Figure 1. Elevator Switch One-line Diagram

Table 1: Recommended Branch Circuit Breakers and Feeder Circuit breakers, 480 VAC

SWITCH RATING (A)	SHORT CIRCUIT RATING (KA)	MOTOR RATING (HP)	TYPICAL FUSE RATING (A)	RECOMMENDED BRANCH MCCB						RECOMMENDED FEEDER BREAKER	
				TEYH	FB	FE ⁽¹⁾		FG		TYPE	MINIMUM CURRENT RATING (AMP SENSOR/AMP TRIP)
				RATING (A)	RATING (A)	SENSOR (A)	RATING (A)	SENSOR (A)	RATING (A)		
30	25	10	20	30	30	25	18	-	-	FG	250AS/80AT
		15	30	40	35	60	27	-	-	FG	250AS/80AT
60	25	20	40	60	45	60	35	-	-	FG	250AS/90AT
		25	50	70	60	60	45	-	-	FG	250AS/100AT
		30	60	80	70	60	50	-	-	FG	250AS/125AT
100	25	40	80	110	100	125	65	-	-	FG	400AS/175AT
		50	100	-	-	125	90	-	-	FG	600AS/175AT
200	35	75	150	-	-	125	120	-	-	FG	600AS/175AT
		100	200	-	-	250	165	-	-	FG	600AS/175AT
400	35	125	225	-	-	250	200	-	-	FG	600AS/300AT
		150	250	-	-	250	225	-	-	FG	600AS/300AT
		200	350	-	-	-	-	400	300	SKTC	800AS/450AT ⁽²⁾
		250	450	-	-	-	-	400	375	SKTC	800AS/600AT ⁽³⁾
		300	600	-	-	-	-	600	450	SKTC	800AS/700AT ⁽²⁾

Table 2: Recommended Branch Circuit Breakers and Feeder Circuit breakers, 208 VAC

SWITCH RATING (A)	SHORT CIRCUIT RATING (KA)	MOTOR RATING (HP)	TYPICAL FUSE RATING (A)	RECOMMENDED BRANCH MCCB						RECOMMENDED FEEDER BREAKER	
				TEYH	FB	FE ⁽¹⁾		FG		TYPE	MINIMUM CURRENT RATING (AMP SENSOR/AMP TRIP)
				RATING (A)	RATING (A)	SENSOR (A)	RATING (A)	SENSOR (A)	RATING (A)		
30	65	3	15	20	15	25	13	-	-	FG	250AS/80AT
		5	25	35	30	25	21	-	-	FG	250AS/80AT
60	65	7.5	35	50	40	60	30	-	-	FG	250AS/80AT
		10	50	70	60	60	40	-	-	FG	250AS/100AT
100	65	15	70	90	90	60	60	-	-	FG	400AS/150AT
		40	80	125	-	-	-	-	-	FG	400AS/175AT
				-	-	125	75	-	-	FG	600AS/175AT
200	65	25	110	-	-	125	75	-	-	FG	600AS/175AT
		30	150	-	-	125	110	-	-	FG	600AS/175AT
		40	175	-	-	150	145	-	-	FG	600AS/200AT
400	65	50	225	-	-	250	190	-	-	FG	600AS/250AT
		60	250	-	-	250	215	-	-	FG	600AS/300AT
		75	350	-	-	-	-	400	300	SKTC	800AS/400AT ⁽⁴⁾
		100	400	-	-	-	-	400	350	SKTC	800AS/600AT ⁽⁵⁾

Notes:

1. Selective with FG only when provided with 600A sensor (minimum 175AT)
2. Selective when FG Instantaneous trip set to 8X
3. Selective when FG Instantaneous trip set to 9.5X
4. Selective when FG Instantaneous trip set to 7X

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