



Spectra Series™ Switchboards

Specifications and Feeder Lug Sizes

These specifications describe General Electric Spectra Series™ switchboard standards. Any exception or modification to these standards will appear on specific customer job drawings.

Specifications

Structure – The switchboard is a completely self-supporting structure of the required number of vertical sections bolted together to form one metal-enclosed rigid switchboard 90 inches high. The sides, top, and rear are covered with removable screw-on code-gauge steel plates.

Devices – The switchboard includes protective devices and equipment, as listed on drawings, with necessary interconnections, instrumentation, and control wiring.

Bus Bars – Buses are tin-plated aluminum sized on the basis of a current density of not more than 700 amperes per square inch. The bus structure will not be arranged to permit future additions. The bus bars are mounted on supports of high-impact nontracking insulating material and are braced to withstand mechanical forces exerted during short-circuit conditions when connected to a power source of 65,000 amperes RMS symmetrical, maximum.

Wiring – Small wiring, necessary fuse blocks, and terminal blocks within the switchboard are furnished when required. All groups of control wires leaving the switchboard are provided with terminal blocks with suitable numbering strips.

Finish – All steel surfaces are chemically cleaned and treated to provide a bond between paint and metal surfaces to help prevent the entrance of moisture and the formation of rust under the paint film. The switchboard exterior is finished in ANSI-61 light grey.

Hardware – All hardware used on conductors has a high tensile strength and has a suitable protective finish.

Ground Bus – When a ground bus is furnished, it is secured to each vertical section structure and extends the entire length of the switchboard.

Handling – The switchboard is provided with adequate lifting means and is capable of being rolled or moved into installation position and bolted directly to the floor without the use of floor sills.

Bus Arrangement – A-B-C type bus arrangement: left-to-right, top-to-bottom and front-to-rear will be used throughout to assure convenient and safe testing and maintenance. Where special circuitry precludes this arrangement, bus bars will be labeled.

Record Drawings – Record drawings will be furnished providing the following information:

- Complete ratings
- The short-circuit rating of the bus and the interrupting rating of the lowest-rated device
- Overall outline dimensions, including the space available for conduits
- The circuit schedule showing circuit numbers
- Device descriptions
- Device trip or fuse clip ampere rating
- Feeder circuit identification
- Conductor ratings
- One-line diagram

Fusible Switch Ratings (Switchboard Panel Mount)

The maximum short-circuit interrupting ratings of GE fusible switch units, in symmetrical RMS amperes, are listed in Table 1. Maximum horsepower ratings are listed in Table 2. Wire size ranges are listed in Table 3.

UL Class	Rating, Amps	Max. Short-Circuit Rating in Sym. RMS Amps	Max. Voltage	Application
H	0–600	10,000	250/600	One-time general purpose
J	0–600	200,000	600	Fast-acting rejection sizing mains and feeders, current limiting
K	0–600	200,000	250/600	Dual element, no rejection means, motor starting, current limiting
L ② ③	601–6000	200,000	600	Rejection means available in two forms: <ul style="list-style-type: none"> • Fast-acting mains and feeders • Time delay, motor starting, current limiting
R ③	0–600	200,000	250/600	Dual-element rejection means, motor starting, current limiting
T ③ ④	0–600	200,000	250/600	Fast-acting, small physical size mains and feeders, current limiting

- ① The interrupting rating of the fuse must equal or exceed the short-circuit rating of the switch. If it is lower, then the interrupting rating of the switch is the same as the rating of the fuse. Switches have no short-circuit rating if renewable fuses are used.
- ② 800 A and 1200 A switches are designed to accept only Class L fuses.
- ③ The combination of Class J, R, L, or T fuses with panelboard units are UL listed at 200,000 symmetrical amperes.
- ④ T-type fuses may be used only on 100 A, 200 A, 400 A, and 600 A switches.

Table 1. Fuse classifications. ①

Amp Rating	Voltage	Lugs/Pole	Terminals			
			Cu/Al Mechanical	Cu Mechanical	Cu/Al Crimp	Cu Crimp
30	240/600	1	#2–14 Cu/Al	#6–14 Cu	#2–14 Cu/Al	#6–10 Cu
60	240	1	#2–14 Cu/Al	#2–14 Cu/Al	#2–14 Cu/Al	#2–14 Cu/Al
60	600	1	#14–1/0 Cu/Al	#4–14 Cu	#8–1/0 Cu/Al	#6–1/0 Cu
100	240/600	1	#14–1/0 Cu/Al	#6–1/0 Cu	#8–1/0 Cu/Al	#6–1/0 Cu
200	240/600	1	#6–350 MCM Cu/Al	#6–250 MCM Cu	#4–300 MCM Cu/Al	2/0–300 MCM Cu
400	240/600	1	2–600 MCM Al/Cu or (2) 1/0–250 MCM Al/Cu or optional oversize lug 3/0–800 MCM Cu 250–800 MCM Al	1/0–600 MCM or (2) 1/0–4/0	750 MCM Cu or 400–600 MCM Al or 400–500 MCM Cu or 2/0–500 MCM Cu/Al	250–500 MCM Cu
600	240/600	2				
800	240/600	3				
1200	240/600	4				

Table 3. Wire size ranges for fusible switches with various terminal types.

Rating In Amps ②	Volts ac						Volts dc		
	2 Pole			3 Pole			2 Pole	3 Pole	
	120	240	480	600	240	480	600	125	250
With Standard Fuses (Class H)									
30	1/2	1 1/2	3	3	3	5	7 1/2	2	5
60	1 1/2	3	5	10	7 1/2	15	15	5	10
100	—	7 1/2	10	15	15	25	30	—	20
200	—	15	25	30	25	50	60	—	40
400	—	—	—	—	50	100	125	—	50
600	—	—	—	—	75	150	200	—	50
With Time-Delay Fuses (Class H)									
30	2	3	7 1/2	10	7 1/2	15	20	3	—
60	3	10	20	25	15	30	50	—	—
100	—	15	30	40	30	60	75	—	—
200	—	15	50	50	60	125	150	—	—
400	—	—	—	—	125	250	350	—	—
600	—	—	—	—	200	400	500	—	—

① Ratings are based on the latest version of the National Electrical Code, Article 430. Horsepower ratings for switches with Standard Class H fuses are based on one-time fuses having minimum time delay. When time-delay fuses are used, the horsepower ratings are maximum for the switches.

② No horsepower ratings are available for 800 A and 1200 A switches. They are arranged for GE CLF® NEMA Class L current-limiting fuses.

Table 2. Maximum horsepower ratings ① for fusible switches.

Circuit Breakers

Table 4 lists the standard lug sizes for GE circuit breakers.

Table 5 lists the lug sizes for Spectra RMS breakers.

Circuit Breaker Frame						Terminal Lugs		
Standard	Hi-Break	Current Limiting	High Interrupt	Poles	Trip Range, Amps	No. per Pole	Wires per Lug	Wire Range Cu/Al unless otherwise noted
THQB	—	—	—	1	15–70	1	1	15–30A: #14–4 Cu or #12–4 Al 35–100 A: #14–1/0 Cu or #12–1/0 Al
				2–3	15–100			
TEY	—	—	—	1, 2, 3	15–100	1	1	15–20 A: #14–12 Cu or #12–1 Al 30–60 A: #10–6 Cu or #8–4 Al 70–100 A: #4–1 Cu or #2–1/0 Al
TEB	—	—	—	2–3	15–100	1	1	15–30 A: #14–8 30–60 A: #14–3 Cu or #12–1 Al 70–110 A: #6–2/0 Cu or #4–2/0 Al 110–150 A: #2–3/0
TED	THED	—	—	1				
TED4	THED4	—	—	2–3				
TED6	THED, THED6	—	—	2–3				
TQD	THQD	—	—	2–3	100–225	1	1	#1–300 MCM
TFJ, TFK	THFK	—	TFL	2–3	70–225	1	1	#4–300 MCM
TJJ, TJK4	THJK4	—	—	2–3	125–400	1	1	#6–600 MCM or (2) 2/0–250 MCM
TJD	—	—	—	2–3	250–400	1	1	#6–600 MCM or (2) 2/0–250 MCM
—	—	—	TJL4V	2–3	150–600	1	1	#6–600 MCM or (2) 2/0–250 MCM
						1	2	250–350 MCM Cu or 350–500 MCM Al
TJK6, TJ4V	THJK6, THJ4V	—	—	2–3	250–400	1	1	#6–600 MCM or (2) 2/0–250 MCM
					450–600	1	2	250–350 MCM Cu or 350–500 MCM Al
TKM8	THKM8	—	—	2–3	300–450	1	1	#4–600 MCM or (2) 1/0–250 MCM
					500–600	1	2	2/0–500 MCM
					700–800	1	3	250–500 MCM
TKM12, TK4V	THKM12	—	TKL4V	2–3	600–1000	1	3	250–500 MCM
					1200	1	4	250–300 MCM Cu or 350–500 MCM Al
—	—	THLC1	TEL	3	15–150	1	1	15–60 A: #14–3 Cu or #12–1 Al 70–110 A: #6–2/0 Cu or #4–2/0 Al 125–150 A: #1–2/0 Cu or 1/0–3/0 Al
—	—	THLC2	—	3	125–225	1	1	#4–300 MCM
—	—	THLC4	TLB4	3	250–400	1	1	3/0–500 MCM or (2) 3/0–250 MCM

Table 4. Standard lug sizes for various circuit breakers.

Spectra RMS Circuit Breaker			Terminal Lugs		
Frame	Poles	Ampacity Range	Catalog Number	Description	Wire Range Cu/Al unless otherwise noted
SEDA, SEHA, SELA, SEPA	2–3	15–150	TCAL18	Single Lug	#14–3/0 Cu or #12–3/0 Al
		15–30	TCAL14		#14–8
SFHA, SFLA, SFPA	2–3	70–250	TCAL29	Single Lug	8–350 MCM
SGDA, SGHA, SGLA, SGPA	2–3	125–600	TCAL265	2-Pole Lug Kit	(2) 2/0–400 MCM Cu or
			TCAL365	3-Pole Lug Kit	(2) 2/0–500 MCM Al or (1) 6–600 MCM
SKHA, SKLA, SKPA	2–3	300–1200	TCAL125	Single Lug	(4) 250–350 MCM Cu or 250–500 MCM Al

Table 5. Standard lug sizes for Spectra RMS circuit breakers.

These instructions do not cover all details or variations in equipment nor do they provide for every possible contingency that may be met in connection with installation, operation, or maintenance. Should further information be desired or should particular problems arise that are not covered sufficiently for the purchaser's purposes, the matter should be referred to the GE Company.



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