

# General Specifications

## Class CTL Panelboards

Class CTL panelboards incorporate physical features which, in conjunction with the physical size, configuration, or other means provided in Class CTL circuit breakers, are designed to prevent the installation of more over current protective poles than that number for which the device is designed and rated, per UL 67 and National Electrical Code (NEC) NFPA70.

## Service Entrance Equipment

When a panelboard is used as service entrance equipment, it must be located near the point of entrance of building supply conductors. In a main lugs only panel, the number of breakers or switches directly connected to the main bus must be limited to six. In a panel having a main breaker or main switch, the number of circuits are not limited except as may be provided under other panelboard requirements, i.e., lighting and appliance branch circuit panelboards. Also, panels must include a connector for bonding and grounding neutral conductor.

## Panelboard Code Data

42-Circuit Rule: NEC Paragraph 408.34 defines a lighting and appliance branch circuit panelboard as one having more than 10 percent of its over current devices rated 30 amperes or less, for which neutral connectors are provided. NEC paragraph 480.35 states that not more than 42 over current devices (other than those provided in the mains) of a lighting and appliance branch-circuit panelboard shall be installed in any one cabinet. For the purpose of this article, a two-pole circuit breaker shall be considered two over current devices; a three-pole circuit breaker shall be considered three over current devices. (NEC 480.34 and 408.35 do not apply to panelboards feeding and communication circuits. Panelboards for this application must be so marked.)

## Integrated Equipment Short Circuit Rating

The term "Integrated Equipment Short Circuit Rating" refers to the application of series connected circuit breakers in combination that allows some breakers to have lower individual interrupting ratings than the available fault current. This is permitted as long as the series combination has been tested and certified by UL.

## Standards

NEC: 2005

NEMA: PB1

UL: 67 and 50. Listed by Underwriter's Laboratories, Inc., under "Panelboards" File #E2269, and #E4016. Meets Federal Specification W-P-115c.

## Wire Connectors

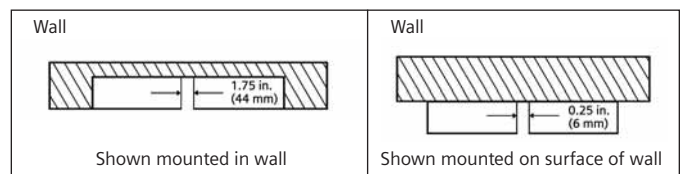
Standard wire connectors in Siemens panels are suitable for copper or aluminum cables rated 60/75 degree. Copper main lugs are price added option for most panel types and some Circuit Breakers (check with Siemens sales for availability). It should be noted that most copper lugs will only accept copper cables. Some applications, 100% rated devices in particular, require that the cable and connectors be rated 90 degree but are sized to the 75 degree tables.

Standard ground connectors are also suitable for Copper or Aluminum wire. Ground connector assemblies (EGK, IKG) have (7) 1/0 max. and (15) #6 max. connections. The 1/0 holes are capable of connecting up to (3) #10 max. wires. Copper ground assemblies (ECGK, ICGK) are rated for copper wire only and have the same wiring capacity as the Al/Cu connectors.

Standard neutrals, like standard main lugs, are also rated for copper or aluminum wire. The neutral cross bar material follows the selection bus. Copper neutral lugs are rated for copper cable only and available as a price added option.

## Lug Data

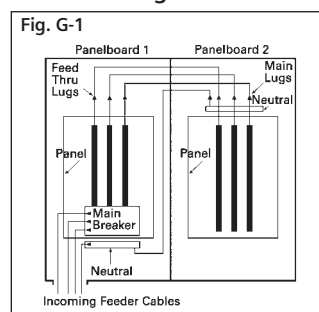
### Space Required for Mounting of Double Panels



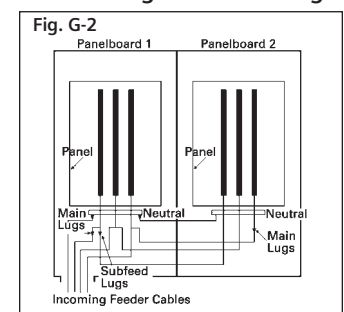
Use two or more panelboards with feed-thru or subfeed lugs when:

1. Lighting and appliance panelboards are required with more than 42 circuits.
2. More circuit mounting space is required than is provided in the largest box size.

## Feed-Thru Lugs



## Subfeed Lugs or Double Lugs



Feed-thru lugs are mounted at the opposite end of the main bus from the main lugs or main breaker and are used to connect two or more panelboards to the incoming feeder. The feeder cables are brought into Panelboard 1 and connected to the main lugs or main breaker. Cables interconnecting the two panelboards are connected to the feed-thru lugs in Panelboard 1 and are carried over the main lugs in Panelboard 2. This arrangement could be reversed with the main lugs located at the top and the feed-thru lugs at the bottom of the panel. Subfeed lugs are mounted directly beside the main incoming lugs and are used to connect two or more panelboards to the incoming feeder. The feeder cables are brought into Panelboard 1 and connected to the main lugs. Another set of cables that are the same size are connected to the subfeed lugs of Panelboard 1 and are carried over the main lugs of Panelboard 2.

# Miscellaneous

**Table Misc. 6 – Miscellaneous Replacement Accessories**

Catalog Number	Description	For Panel Types
EGK	Al Ground Assembly 44 Connections	P1, P2, P3
BK1	Bonding Kit for P1 250A Max.	as noted
BK4	Bonding Kit for SE & P5 400	as noted
IMK	Interior Adjusting Kit	P1, P2, P3
11-1824-01	Directory Card Holder	P1, P2, P3
12-1110-01	Directory Card	P1, P2, P3
11-1056-01	NEMA Instruction Book	All
NBK3	Number Strips 1-42	P1, P2, P3
NBK4	Number Strips 43-84	P1, P2, P3
NBK5	Number Strips 85-126	P1, P2, P3
NBK6	Number Strips 127-168	P1, P2, P3
ECGK	Cu Ground Bus 44 Connections	P1, P2, P3
IGK	Insulated Al Ground Bus	P1, P2, P3
ICGK	Insulated Cu Ground Bus	P1, P2, P3
EWK1	End Wall Kit with Knockouts (20"W x 5.75" DP)	P1
QF3	Filler Plate	①
EBF1	Filler Plate for NEB, HEB Provisions	P3, P4, P5

① All 1" QP, BL, BQD, NBG, and ED Frame Provisions.

FC20, FCI and FCII switchboards – includes copper straps, cover plates and necessary hardware.

**Table Misc. 7 – Blank Plates – Vacu-Break**

For use with VB-23, VB-30, VB-32 and Uni-Power Switchboards

Unit Height Inches	12 in. Units - 23 in. Wide Enclosure Only	17 in. Units - 30 in. and 32 in. Wide Enclosures
	Catalog Number	Catalog Number
2 1/2	VB2F025	VB7F025
5	VB2F050	VB7F050
7 1/2	VB2F075	VB7F075
10	VB2F100	VB7F100

**Table Misc. 9 – Molded Case Switches (Non-Automatic Circuit Interrupters)**

Ampere Rating	Breaker Frame
100	ED2, ED4, ED6
225	QJ2
250	FXD6
400	JXD2, JXD6
600	LXD6
800	MD6
1200	ND6

① These circuit breakers are obsolete, and for the most part, unavailable. Please replace them with Sentron Series circuit breakers and use mounting strap kits shown for Sentron breakers.

**Table Misc. 8 – Connecting Strap Kits — Vacu-Break**

For use with VB-23 and VB-32 Type Panelboards.

Panel Type	Catalog Number	For Use With	Unit Height (in.)
		Ampere Rating	
VB-23	V2AX25	30-30	2 1/2
	V2BX50	30-30 and 60-60	5
	V7AX25	30-30	2 1/2
	V7BX50	30-30 and 60-60	5
VB-32	V7EX75	100-100	7 1/2
		100	7 1/2
		200	7 1/2 (2-Pole)
		200	10 (3-Pole)