

FAULT INTERRUPTING SWITCHES

VACUUM INTERRUPTERS

G&W Vacuum Interrupters combine the total cost and operating benefits of fuseless, electronically controlled, resettable overcurrent protection with the safety and maintenance benefits of a totally sealed, deadfront SF₆ insulated device. The switches are designed for automatic single or three phase fault interruption with manual load break capabilities for systems through 35kV, 630A continuous. Compared to conventional current limiting fuses, G&W Vacuum Interrupters permit extended continuous current capability and offer many operating advantages.

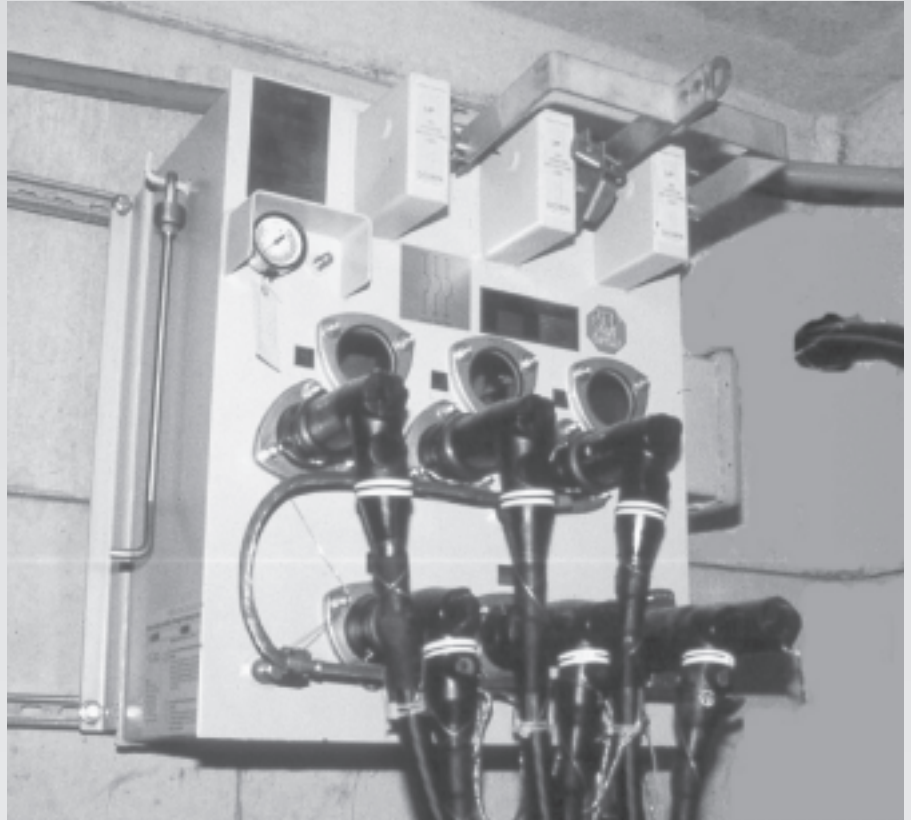
FEATURES

Operator Safety — G&W Vacuum Interrupters are totally sealed, deadfront and insulated with nonflammable, nontoxic SF₆ gas. Operators are spring assisted for positive quick-make, quick-break operation. A trip-free mechanism permits interruption independent of the operating handle if closing into a fault. Viewing windows permit visible indication of interrupter contact position.

Minimal Maintenance — No more routine inspections or dielectric testing as with oil gear. No more contact contamination, rodent problems or insulator maintenance as with air gear. A periodic check of the gas pressure gauge is all that is required.

Three Phase Tripping — No more single phasing problems. Simultaneous three phase tripping is available through the electronic control and with three phase operating handles for manual operation and reset.

Protection Curve Compatibility — No need to recoordinate your distribution system. G&W solid state electronic controls permit extremely accurate, consistent protection curve characteristics compared to conventional fuses. The exclusive controls can emulate the most common



▲ *Three phase vacuum interrupter with model VI mechanism.*

protection curves for power fuses, relays and fuse links (oil fuse cutouts). Optional electronic controls can provide ground trip, inrush restraint and adjustable time delay capability.

User Friendly Controls — Specific protection curve characteristics are factory set in accordance with customer requirements. Controls permit individual phase trip setting selection from twelve available ratings. Future changes in protection curve requirements can be easily made in the field.

APPLICATIONS

G&W Vacuum Interrupters are available in single or three phase models with a variety of mounting arrangements and cable entrance styles and locations. VIs are ideal for a variety of applications requiring overcurrent protection, including:

Transformer and Motor

Protection — The three phase trip feature and high continuous current capability make VIs ideal for three phase motors and transformers.

Load Break Switching — G&W VIs can function as a load break switch by using either the operating handle or optional manual trip push-button on the electronics. Vacuum interrupters can be combined with other load break switch configurations for loop and tap applications.



▲ *Motor actuators can be added for remote operation.*

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Remote/SCADA Control—

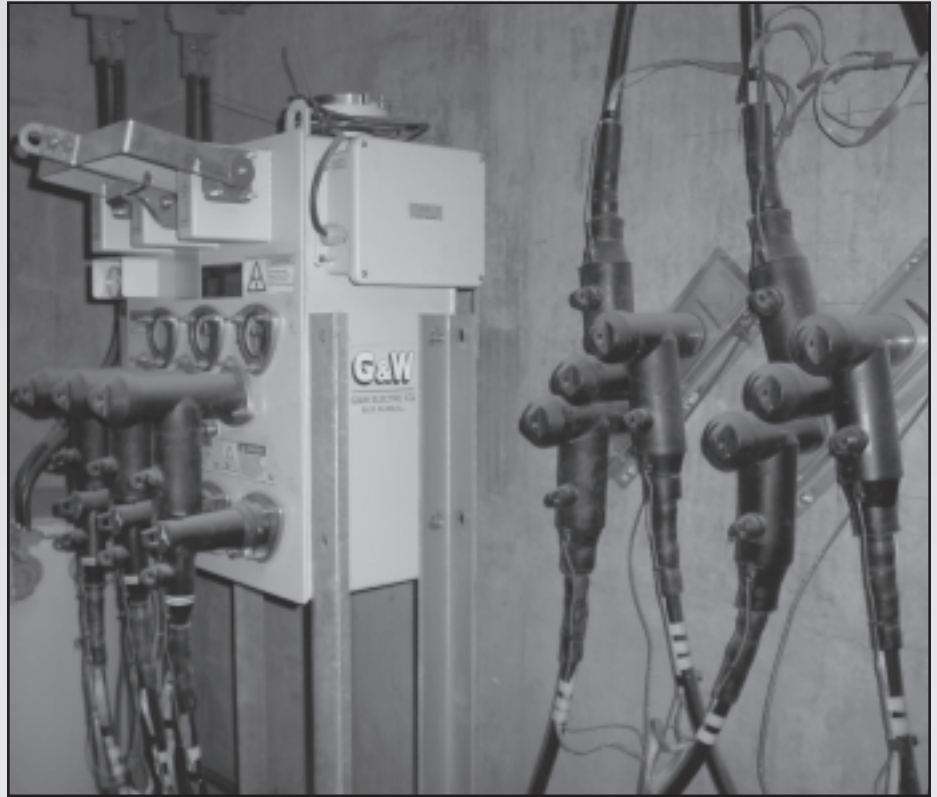
G&W Vacuum Interrupters can be supplied with motor actuators providing remote control capability. Various control packages including portable or permanently mounted DC controllers for onsite operation or complete SCADA / RTU systems are available.

VACUUM INTERRUPTER OPERATION

The overcurrent control monitors the current in the tap circuits and sends a trip signal which opens the vacuum interrupters and interrupts the fault current. The control is self-powered from the current transformers located inside the sealed switch tank. The user selects the time-current response curve (TCC) for the tap circuits. Selection of time-current characteristics may be made under load or no-load conditions with continuous current ranges in twelve selectable levels. The trip current level represents the 100 second trip current for the TCC curve. Standard settings are 30-600A, or 15-300A. A wide variety of TCC curves are built into the electronics and can be field selected and changed. External trip and remote power (12-24VDC) connections are available as an option.

Interrupter Mechanisms

There are two styles of vacuum interrupter mechanisms. The model VI mechanism is a single phase vacuum bottle and spring assembly used for single phase protection. Three individual mechanisms can also be gang linked together with an external operating handle assembly if three phase operation is desired. Switches incorporating the VI mechanism permit changing from single phase to three phase operation in the field and provide in-line bushing arrangements with a minimum 6 1/2" phase spacing for maximum clearance of elbow connectors.



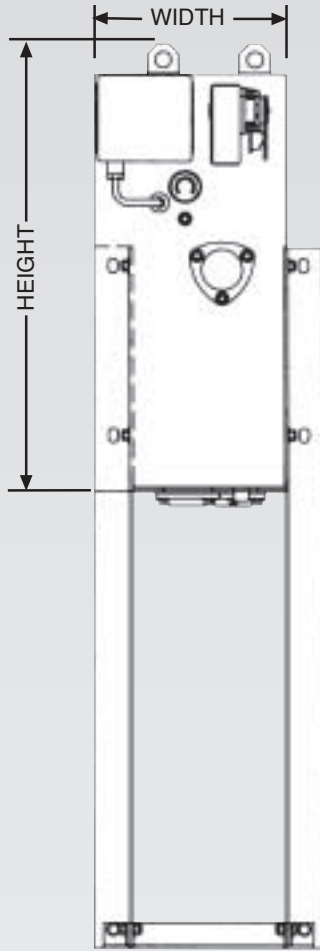
▲ Vault style, three phase vacuum interrupter. G&W multiple point junction bars used as an economical 600A disconnect point also shown.

The model FI interrupter mechanism is used on certain switch designs for three phase operation. The FI combines three vacuum bottles into a single spring assisted mechanism providing simultaneous open and close operation for manual trip and reset. Switches incorporating the FI provide a more compact construction by utilizing diagonal bushing configurations with 5" phase spacing.



▲ Standard Type 1 control

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FRONT

Single phase model VI with "VI" mechanism.

For standard components and options, see typical specifications page 17. For cable entrances, see pages 41-43.

* For 200A models, replace the "6" with "2", i.e. VI21-172-12-4.

** For Model VI (single phase):
Height = 37" (940mm),
depth = 33" (838mm).

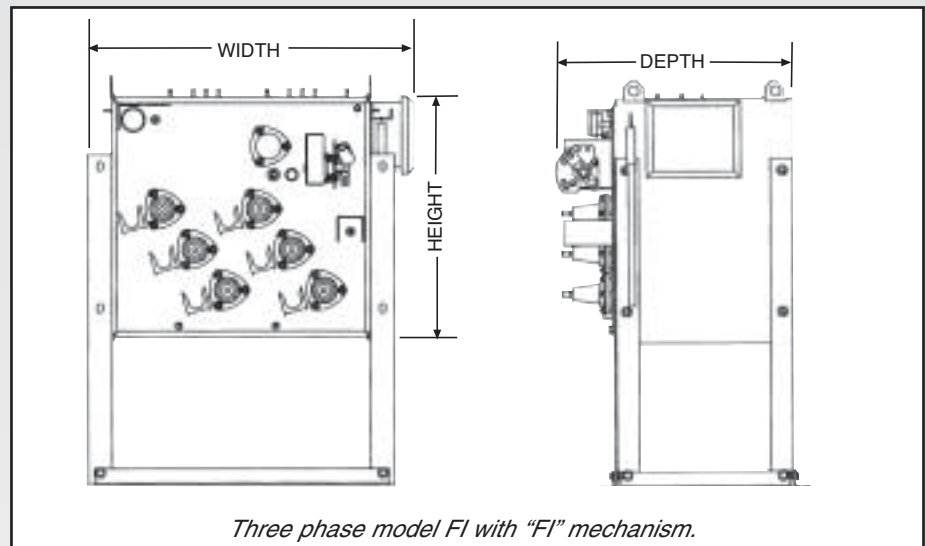
For Model VI (three phase):
Height = 37" (940mm),
depth = 33" (838mm).

For Model FI (three phase):
At 15-25kV: height = 31"
(787mm), depth = 22" (559mm).

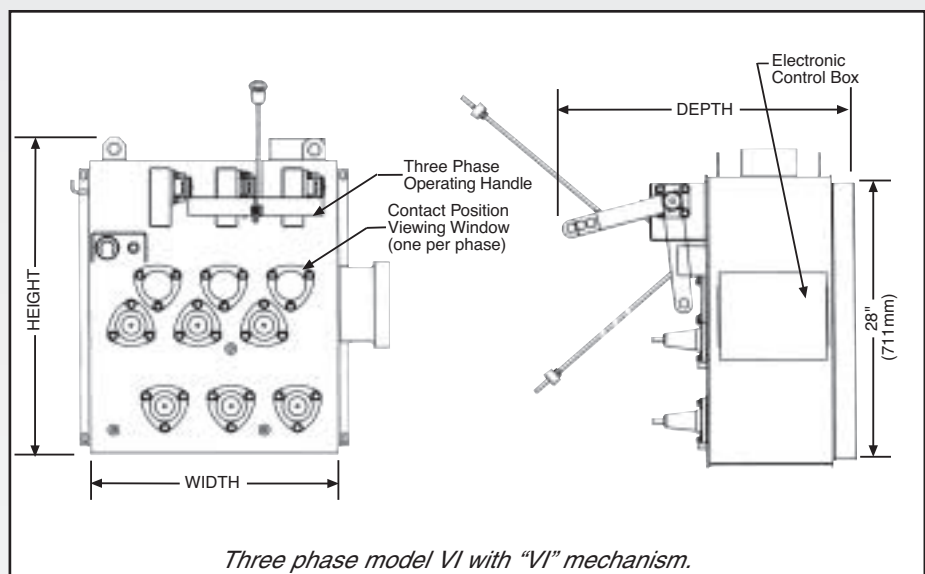
Phases	Three-line Diagram	Voltage Class (kV)	Amp	Catalog Number*	Approximate	
					Width in. (mm)**	Wt. w/SF ₆ lbs (kgs)

VACUUM INTERRUPTER SWITCHES

1		15	600	VI21-176-12-4	24.5 (622)	285 (130)
		25	600	VI21-186-12-4	24.5 (622)	285 (130)
		35	600	VI21-196-12-4	24.5 (622)	285 (130)
3		15	600	FI21-376-12-4	38.1 (969)	700 (317)
			600	VI21-376-12-4	42.8 (1086)	800 (364)
		25	600	FI21-386-12-4	38.1 (969)	700 (317)
			600	VI21-386-12-4	47 (1194)	800 (364)
		35	600	VI21-396-12-4	47 (1194)	800 (364)



Three phase model FI with "FI" mechanism.



Three phase model VI with "VI" mechanism.