## A. 1 The

Engineered to order. Built to last.

## TRIDENT

Vault Style Solid Dielectric Switchgear Catalog



- G\&W headquarters in Bolingbrook, IL USA


## Company Profile

Since 1905, G\&W Electric has helped energize the world with innovative power system solutions. With the introduction of the first disconnecting cable terminating device, G\&W began to build a reputation for engineering custom solutions to meet the needs of system designers. Solutions which today have extended far beyond cable accessory products and into the latest in load and fault interrupting switchgear, reclosers, system protection equipment and distribution automation.

## Headquarters

G\&W headquarters is located in Bolingbrook, IL, USA, a suburb of Chicago. G\&W also has manufacturing facilities or sales offices in China, Mexico, Canada, India, Singapore and Brazil. G\&W covers the globe with product installations and sales representation in over 100 countries and all seven continents.


| G\&W Electric Facilities: |
| :--- |
| G\&W Electric Co. Headquarters <br> (Bolingbrook, IL, USA) |
| G\&W China (Shanghai) |
| G\&W Canada <br> (Mississauga, Ontario) |
| G\&W Mexico (San Luis Potosí) |
| G\&W do Brasil (Salvador) |
| G\&W sales office (Dubai) |
| G\&W sales office (Delhi, India) |
| G\&W sales office (Singapore) |
| Manufacturer's Brass and <br> Aluminum Foundry <br> (Blue Island, IL, USA) |



## G\&W Product Overview



Single and Three Phase Solid Dielectric Reclosers


System Automation and Smart Grid Solutions


Solid Dielectric Underground Distribution Switchgear


System Protection
Equipment


SF6 Underground Distribution Switchgear


Transmission and
Distribution Cable
Accessories

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## Technology

## What is solid dielectric insulation?

G\&W's solid dielectric insulation is a field proven epoxy which is used to insulate the high voltage connections of a vacuum switch. The load break and fault interrupting vacuum bottle and bushing conductors are fully over molded creating a single phase module. Each module is then coated with a semi-conductive paint creating a continuous grounding surface for a truly dead front design. For three phase switches, three modules are combined together to create one way of the switch.

Each module can also include an integral current transformer fully protected by the solid dielectric epoxy. This ensures that the transformer is impervious to environmental conditions and insulated from extreme temperatures.

G\&W's molding expertise allows for various options including 200A bushing wells or 600A apparatus bushings. The rugged epoxy surface minimizes the force required for removing elbow connections compared to rubber-to-rubber junctions. Different module orientations are available which permit cable entry from the front, back, or bottom of the unit.

The solid dielectric insulations and vacuum bottle combination make the Trident switchgear suitable for wet and corrosive environments, vertical or horizontal mounting and use in any altitude.

## When you need visible break... Trident with SafeVum

Trident switches are available with the SafeVu"' option. These switches include an innovative visible break feature built into the switch, which eliminates the need to remove elbows or use externally mounted components to provide a visible open. The SafeVu operating handle is operable via


A Close up of integrated visible break in the open position hook stick or rope rigging, making it ideal for subsurface applications where space or safety practices prevent the operator from entering the vault to create a visible break.

## Description

The visible break is achieved with a blade type switch incorporated within the solid dielectric module. The blade is in series with the vacuum interrupter and provides a clear visible open. The blade is easily visible through a viewing window molded as an integral part of each module.


A Internal components are shown outside the module as reference.

## Multi-way Trident Solid Dielectric Switches

Trident solid dielectric insulated switches provide the total life cycle cost and operational benefits of fuseless, electronically controlled, resettable overcurrent protection, with the safety and maintenance benefits of an environmentally friendly dead-front design.

The Trident utilizes G\&W's time proven, submersible epoxy insulation to fully encapsulate load and fault interrupting vacuum interrupters. This solid dielectric insulation eliminates the degradation of dielectric integrity commonly associated with oil and air insulated switchgear.

## VLS Switch Series

The Trident VLS Series is available in two through six way configurations, in any combination of three phase load break switch ways and three phase fault interrupter ways. The fault interrupter utilizes a trip-free mechanism, which provides interruption independent of the operating handle when closing into a fault. Viewing windows provide visible indication of the contact position.

## Applications

Trident load and fault interrupting combination switches provide a direct replacement for power fused and vacuum-in-oil switchgear. Some ideal applications include:

Transformer and Motor Protection - The three phase trip feature and high continuous current make the VLS switches ideal for protecting three phase motors and transformer loads.

Loop Switching - Standard 600A loop switching is accomplished using field proven vacuum switching and solid dielectric insulation. Switching through 630A provides up to 12.5 kA symmetric fault protection using resettable, electronically controlled vacuum interrupters. The vacuum interrupters also function as load break switches.

## Additional Features

Visible Break - The load break and three phase fault interrupter ways are available with G\&W's SafeVu feature, which provides an integrated visible break disconnect switch in series with the vacuum interrupter. This eliminates the need to remove elbows or use externally mounted linkage systems to provide a visible open. Switches equipped


Trident VLS Switch Series
with the SafeVu feature incorporate redundant mechanical interlocks to ensure the load break switch is open prior to the operation of the visible break switch.

## Testing

Trident switches are designed and tested to applicable standards including IEEE C37.74 (IEEE C37.71 and C37.72), IEEE 386, IEC 60265, IEEE 592,. All fault interrupter devices have passed IEEE C37.60. Trident switches are RUS accepted.

Fully encapsulated current transformers provide power and sensing for G\&W's Vacuum Interrupter controls. The controls emulate the most common time current curves (TCC) for power fuses, mechanical relays, and fuse links. Control options include Ground Fault (Phase Imbalance), Time Delays, and Inrush Restraint (Cold Load Pickup).

## Submersibility

G\&W VLS solid dielectric switchgear is completely submersible. Units have remained fully operable after withstanding years of submersion at depths of up to 10 feet (3m).

## Multi-way Trident Solid Dielectric Switches

## Features and Benefits

| Features | Benefits |
| :---: | :---: |
| Epoxy Insulation <br> (No oil or SF6 gas, and dead-front design) | No maintenance or monitoring system necessary, lowest total life cycle costs |
|  | Dead-front design provides increased operator safety by eliminating all exposed live parts |
|  | Epoxy is inert, environmentally friendly, with no EPA usage restrictions |
| Resettable Vacuum Interrupter Mechanism | No fuses or fuse links to stock and replace |
| Integral self-powered overcurrent protection available | Integrated solution with fully encapsulated current transformers and no external power source or PT required |

## Ratings

The switch is designed, tested and built per IEEE C37.74 for load break switching, IEEE C37.60 for fault interrupting, IEEE 386 for bushing specification, and IEC 60529 for environmental protection rating. Certified test reports are available.

| Load Break Ratings |  |  |  |
| :---: | :---: | :---: | :---: |
| Voltage Class | 15 kV * | 25 kV | 35 kV |
| Max System Voltage | 15.5 kV | 27 kV | 38 kV |
| BIL | $110 \mathrm{kV} \dagger$ | 125 kV | 150 kV |
| Continuous Current | 630 A | 630 A | 630 A |
| Load Break Current | 630 A | 630 A | 630 A |
| AC Withstand, 1 minute | 35 kV | 60 kV | 70 kV |
| AC Withstand, <br> Production, 1 minute | 34 kV | 40 kV | 50 kV |
| DC Withstand, <br> 15 minutes | 53 kV | 78 kV | 103 kV |
| Momentary Current, <br> RMS, asym | 20 kA | 20 kA | 20 kA |
| Fault-Close 3-times, <br> asym | 20 kA | 20 kA | 20 kA |
| 1 Second Current, sym | 12.5 kA | 12.5 kA | 12.5 kA |
| Load Break Switch <br> Mechanical Operations | 2,000 | 2,000 | 2,000 |

(*) Integrated visible break available on 15 kV load break and three phase fault interrupters.
( $\dagger$ ) BIL impulse rating is 95 kV when using integrated visible break feature.

| Fault Interrupting Ratings |  |  |  |
| :---: | :---: | :---: | :---: |
| Voltage Class | 15 kV * | 25 kV | 35 kV |
| Max System Voltage | 15.5 kV | 27 kV | 38 kV |
| BIL | $110 \mathrm{kV} \dagger$ | 125 kV | 150 kV |
| Continuous Current | 630 A | 630 A | 630 A |
| AC Withstand, 1 minute | 35 kV | 60 kV | 70 kV |
| AC Withstand, <br> Production, 1 minute | 34 kV | 40 kV | 50 kV |
| DC Withstand, <br> 15 minutes | 53 kV | 78 kV | 103 kV |
| Fault Interrupting <br> Current, sym | 12.5 kA | 12.5 kA | 12.5 kA |
| Vacuum Interrupter <br> Mechanical Operations | 2,000 | 2,000 | 2,000 |

IEEE C37.60 Fault Interrupting Duty

| Percent of <br> Maximum <br> Interrupting <br> Rating | Approximate <br> Interrupting <br> Current, Amps | Number of <br> Fault <br> Interruptions |
| :---: | :---: | :---: |
| $15-20 \%$ | 2,000 | 44 |
| $45-55 \%$ | 6,000 | 56 |
| $90-100 \%$ | 12,500 | 16 |
| Total Number of Fault Interruptions: 116 |  |  |

## Front Access

VLS-FA Switch Series


Depth $=2$ in $(710 \mathrm{~mm})$
Height $=55$ in ( 1400 mm ) with standard 24 " Bushing height.

Dimensions are approximate.
Do not use for construction.

Visit gwelec.com/specs.html for electronic versions of guide specifications.

| Model | One-line Diagram | Voltage (kv) | Catalog Number | Approximate |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Width Inches (mm) | Weight lbs (kg) |
| 6 | $\uparrow \geqslant$ | 15 | VLS32-376-12-6FA | 63(1600) | 850 (400) |
|  |  |  | VLS32-376-12-6FAVU* | 63 (1600) | 950 (400) |
|  |  | 25 | VLS32-386-12-6FA | 63 (1600) | 850 (400) |
|  |  | 35 | VLS32-396-12-6FA | 63 (1600) | 850 (400) |
| 7 |  | 15 | VLS31-376-12-7FA | 63 (1600) | 850 (400) |
|  |  |  | VLS31-376-12-7FAVU* | 63 (1600) | 950 (400) |
|  |  | 25 | VLS31-386-12-7FA | 63 (1600) | 850 (400) |
|  |  | 35 | VLS31-396-12-7FA | 63 (1600) | 850 (400) |
| 9 |  | 15 | VLS42-376-12-9FA | 81 (2060) | 900 (400) |
|  |  |  | VLS42-376-12-9FAVU* | 81 (2060) | 1000 (500) |
|  |  | 25 | VLS42-386-12-9FA | 81 (2060) | 900 (400) |
|  |  | 35 | VLS42-396-12-9FA | 81 (2060) | 900 (400) |
| 10 |  | 15 | VL44-376-20-10FA | 81 (2060) | 900 (400) |
|  |  |  | VL44-376-20-10FAVU* | 81 (2060) | 1000 (500) |
|  |  | 25 | VL44-386-20-10FA | 81 (2060) | 900 (400) |
|  |  | 35 | VL44-396-20-10FA | 81 (2060) | 900 (400) |
| 11 |  | 15 | VLS43-376-12-11FA | 81 (2060) | 900 (400) |
|  |  |  | VLS43-376-12-11FAVU* | 81 (2060) | 1000 (500) |
|  |  | 25 | VLS43-386-12-11FA | 81 (2060) | 900 (400) |
|  |  | 35 | VLS43-396-12-11FA | 81 (2060) | 900 (400) |
| 12 | $\left\{\begin{array}{\|c\|} \hline 1 \\ \|1\| \end{array}\right.$ | 15 | VLS41-376-12-12FA | 81 (2060) | 900 (400) |
|  |  |  | VLS41-376-12-12FAVU* | 81 (2060) | 1000 (500) |
|  |  | 25 | VLS41-386-12-12FA | 81 (2060) | 900 (400) |
|  |  | 35 | VLS41-396-12-12FA | 81 (2060) | 900 (400) |
| 13 |  | 15 | VL33-376-20-13FA | 63 (1600) | 850 (400) |
|  |  |  | VL33-376-20-13FAVU* | 63 (1600) | 950 (400) |
|  |  | 25 | VL33-386-20-13FA | 63 (1600) | 850 (400) |
|  |  | 35 | VL33-396-20-13FA | 63 (1600) | 850 (400) |
| 40 |  | 15 | VS40-376-12-40FA | 81 (2060) | 900 (400) |
|  |  |  | VS40-376-12-40FAVU* | 81 (2060) | 1000 (500) |
|  |  | 25 | VS40-386-12-40FA | 81 (2060) | 900 (400) |
|  |  | 35 | VS40-396-12-40FA | 81 (2060) | 900 (400) |
| 50 |  | 15 | VS50-376-12-50FA | 99 (2510) | 1250 (600) |
|  |  |  | VS50-376-12-50FAVU* | 99 (2510) | 1400 (600) |
|  |  | 25 | VS50-386-12-50FA | 99 (2510) | 1250 (600) |
|  |  | 35 | VS50-396-12-50FA | 99 (2510) | 1250 (600) |
| 51 |  | 15 | VLS51-376-12-51FA | 99 (2510) | 1250 (600) |
|  |  |  | VLS51-376-12-51FAVU* | 99 (2510) | 1400 (600) |
|  |  | 25 | VLS51-386-12-51FA | 99 (2510) | 1250 (600) |
|  |  | 35 | VLS51-396-12-51FA | 99 (2510) | 1250 (600) |
| 52 | $\begin{array}{\|c\|c\|} \hline 1 & \sum \\ \mid=1 \end{array}$ | 15 | VLS52-376-12-52FA | 99 (2510) | 1250 (600) |
|  |  |  | VLS52-376-12-52FAVU* | 99 (2510) | 1400 (600) |
|  |  | 25 | VLS52-386-12-52FA | 99 (2510) | 1250 (600) |
|  |  | 35 | VLS52-396-12-52FA | 99 (2510) | 1250 (600) |

*VU indicates the switch includes the SafeVu integrated visible break.

## Front Access

## VLS-FA Switch Series



FRONT


SIDE

## Depth $=$ 28in $(710 \mathrm{~mm})$

Height $=55$ in ( 1400 mm ) with standard 24 " Bushing height.

Dimensions are approximate. Do not use for construction.


[^0]Visit gwelec.com/specs.html for electronic versions of guide specifications.

## Two-way Trident Solid Dielectric Switches

Trident solid dielectric insulated switches provide the total life cycle cost and operational benefits of fuseless, electronically controlled, resettable overcurrent protection, with the safety and maintenance benefits of an environmentally friendly dead-front design.

The Trident utilizes G\&W's time proven, submersible epoxy insulation to fully encapsulate load and fault interrupting vacuum interrupters. This solid dielectric insulation eliminates the degradation of dielectric integrity commonly associated with oil and air insulated switchgear.

## Configurations

The two way Trident is available as a loadbreak switch or a fault interrupter. The fault interrupter utilizes a trip-free mechanism, which provides interruption independent of the operating handle when closing into a fault. Viewing windows provide visible indication of the contact position.

## Applications

Trident load and fault interrupting switches provide a direct replacement for vacuum-in-oil switchgear. Some ideal applications include:

Transformer and Motor Protection - The three phase trip feature and high continuous current make the two way Trident fault interrupters switches ideal for protecting three phase motors and transformer loads.

Oil Fuse Cutout Replacement - Eliminate the need to replace fuse links or maintain insulating oil. The Trident with SafeVu does not require any maintenance and features compact size, lightweight, integral visible break, and fault interrupting capability. It is the perfect solution to replace obsolete oil fuse cutouts.

## Additional Features

Visible Break - The Front Access two way Trident is available with G\&W's SafeVu feature, which provides an integrated visible break disconnect switch in series with the vacuum interrupter. This eliminates the need to remove elbows or use externally mounted linkage systems to provide a visible open. Switches equipped with the SafeVu


- Front Access Design
feature incorporate redundant mechanical interlocks to ensure the load break switch is open prior to the operation of the visible break switch.


## Testing

Trident switches are designed and tested to applicable standards including IEEE C37.74 (IEEE C37.71 and C37.72), IEEE 386, IEC 60265, and IEEE 592, All fault interrupter devices have passed IEEE C37.60. Trident switches are RUS accepted.

Fully encapsulated current transformers provide power and sensing for G\&W's Vacuum Interrupter controls. The controls emulate the most common time current curves (TCC) for power fuses, mechanical relays, and fuse links. Control options include Ground Fault (Phase Imbalance), Time Delays, and Inrush Restraint (Cold Load Pickup).

## Submersibility

G\&W solid dielectric switchgear is completely submersible. Units have remained fully operable after withstanding years of submersion at depths of up to 10 feet (3m).

## Two-way Trident Solid Dielectric Switches

## Features and Benefits

| Features |  |
| :---: | :---: |
| $\begin{array}{c}\text { Epoxy Insulation } \\ \text { (No oil or SF6 gas, and dead-front design) }\end{array}$ | No maintenance or monitoring system necessary, lowest total life |
|  |  |$]$| Dead-front design provides increased operator safety by |
| :---: |
| eliminating all exposed live parts |

## Ratings

The switch is designed, tested and built per IEEE C37.74 for load break switching, IEEE C37.60 for fault interrupting, IEEE 386 for bushing specification, and IEC 60529 for environmental protection rating. Certified test reports are available.

| Load Break Ratings |  |  |  |
| :---: | :---: | :---: | :---: |
| Voltage Class | 15 kV * | 25 kV | 35 kV |
| Max System Voltage | 15.5 kV | 27 kV | 38 kV |
| BIL | $110 \mathrm{kV} \dagger$ | 125 kV | 150 kV |
| Continuous Current | 630 A | 630 A | 630 A |
| Load Break Current | 630 A | 630 A | 630 A |
| AC Withstand, 1 minute | 35 kV | 60 kV | 70 kV |
| AC Withstand, <br> Production, 1 minute | 34 kV | 40 kV | 50 kV |
| DC Withstand, <br> 15 minutes | 53 kV | 78 kV | 103 kV |
| Momentary Current, <br> RMS, asym | 20 kA | 20 kA | 20 kA |
| Fault-Close 3-times, <br> asym | 20 kA | 20 kA | 20 kA |
| 1 Second Current, sym | 12.5 kA | 12.5 kA | 12.5 kA |
| Load Break Switch <br> Mechanical Operations | 2,000 | 2,000 | 2,000 |

(*) Integrated visible break available on 15 kV load break and three phase fault interrupters.
( $\dagger$ ) BIL impulse rating is 95 kV when using integrated visible break feature.

| Fault Interrupting Ratings |  |  |  |
| :---: | :---: | :---: | :---: |
| Voltage Class | 15 kV * | 25 kV | 35 kV |
| Max System Voltage | 15.5 kV | 27 kV | 38 kV |
| BIL | $110 \mathrm{kV} \dagger$ | 125 kV | 150 kV |
| Continuous Current | 630 A | 630 A | 630 A |
| AC Withstand, 1 minute | 35 kV | 60 kV | 70 kV |
| AC Withstand, <br> Production, 1 minute | 34 kV | 40 kV | 50 kV |
| DC Withstand, <br> 15 minutes | 53 kV | 78 kV | 103 kV |
| Fault Interrupting <br> Current, sym | 12.5 kA | 12.5 kA | 12.5 kA |
| Vacuum Interrupter <br> Mechanical Operations | 2,000 | 2,000 | 2,000 |

IEEE C37.60 Fault Interrupting Duty

| Percent of <br> Maximum <br> Interrupting <br> Rating | Approximate <br> Interrupting <br> Current, Amps | Number of <br> Fault <br> Interruptions |
| :---: | :---: | :---: |
| $15-20 \%$ | 2,000 | 44 |
| $45-55 \%$ | 6,000 | 56 |
| $90-100 \%$ | 12,500 | 16 |
| Total Number of Fault Interruptions: 116 |  |  |

## Two-way Trident Solid Dielectric Switches

## Front Access Switch Series



FRONT


SIDE

| Model | One-line Diagram | Voltage (kv) | Catalog Number |
| :---: | :---: | :---: | :---: |
| 3 |  | 15 | VL21-376-20-3FA |
|  |  | 25 | VL21-386-20-3FA |
|  |  | 35 | VL21-396-20-3FA |
| 4 |  | 15 | VS20-376-12-4FA |
|  |  | 25 | VS20-386-12-4FA |
|  |  | 35 | VS20-396-12-4FA |


| Model | One-line Diagram | Voltage (kv) | Catalog Number |
| :---: | :---: | :---: | :---: |
| 3 |  | 15 | VL21-376-20-3FAVU |
| 4 |  |  | VS20-376-12-4FAVU |

Dimensions are approximate.
Do not use for construction.

## Components for Three Phase Switches

## Overcurrent Protection

Fault interrupters are equipped with an encapsulated 500:1 or 1000:1 current transformer and a G\&W self powered Vacuum Interrupter Control. Alternately, a wide variety of protective relay packages are available, including relays from SEL and other leading relay suppliers.

## External CTs and External PTs

Metering or relaying accuracy current and potential transformers are available for use with protective relay packages.


- Example of integrated external transformer


## Operating Handle

G\&W will select the appropriate handle based on the application. Handles are operable via hook stick or rope rigging.

## Key Interlocks

 Key interlocks may be used to ensure safe coordination of equipment. All Trident ways can be equipped with provisions for key interlocks. Key interlocks can be provided, and factory installed if required.

- Key interlock


## Auxiliary Contacts

Auxiliary contacts are mounted internal to the mechanism housing to provide remote indication of switch contact position. One normally open and one normally closed Form C contact is provided. A junction box is available with terminal strip connections for up to four auxiliary contacts.

## Motor Actuator

Automation begins with the addition of motor actuators to a manual switch. These actuators can be factory installed for new equipment or retrofitted to switchgear installed in the field. (Refer to the Motor Operator catalog, MO11, for motor control options.)


[^1]
## Overcurrent Protection Options

| Type |  | Trip Selection | Enclosure Rating | User Interface | Settings Available | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Type 1.0 |  | Single or Three Phase | NEMA 4X* | Knobs | Phase Only |  |
| Type 2.0 |  | Three Phase | NEMA 4X* | Knobs | Phase and Ground |  |
| Type 3.1 |  | Single or Three Phase | NEMA 4X* | Via computer using a programming port, or manually via the pushbuttons on the front panel | Phase and Ground | Available as EZset or Plus |
| Type 4.1 NEMA 4X |  | Single or Three Phase | NEMA 4X | Computer using a Programming Port | Phase and Ground | Available as EZset or Plus |
| Type 4.1 IP68 |  | Single or Three Phase | IP68 (submerged in 20' of water for 20 days) | $\begin{aligned} & \text { Computer } \\ & \text { using a } \\ & \text { Programming } \\ & \text { Port } \end{aligned}$ | Phase and Ground | Available as EZset or Plus |
| Type 7.1 | $\pm 5$ | Single or Three Phase | IP68 (located within the mechanism housing) | $\begin{gathered} \text { Computer } \\ \text { using a } \\ \text { Programming } \\ \text { Port } \end{gathered}$ | Phase and Ground | Available as EZset or Plus |

[^2]
## Single Phase

Trident solid dielectric insulated switches provide the total life cycle cost and operational benefits of fuseless, electronically controlled, resettable overcurrent protection, with the safety and maintenance benefits of an environmentally friendly dead-front design.

The Trident utilizes G\&W's time proven, submersible epoxy insulation to fully encapsulate load and fault interrupting vacuum interrupters. This solid dielectric insulation eliminates the degradation of dielectric integrity commonly associated with oil insulated switchgear.

## Single Phase

Trident single phase, spring-assisted switchgear is available for load break or fault interrupting switching. The compact units are ideal for switching residential loops and for oil fuse cutout replacements. Fault protection can be provided using a vacuum interrupter with an integral current transformer and a variety of overcurrent controls.

The Single Phase Trident is available in a Front Access design, with operating handles and bushings on the same side of the switch. The switch can be mounted in any orientation to best meet the requirements of the application.

## Additional Features

Visible Break - The single phase Trident is available with G\&W's SafeVu feature at 15 kV , which provides an integrated visible break disconnect switch in series with the vacuum interrupter. This eliminates the need to remove elbows or use externally mounted linkage systems to provide a visible open. Switches equipped with the SafeVu feature incorporate redundant mechanical interlocks to ensure the load break switch is open prior to the operation of the visible break switch.

$\Delta$ Single phase Trident with SafeVu switch

## Testing

Trident switches are designed and tested to applicable standards including IEEE C37.74 (IEEE C37.71 and C37.72), IEEE 386, IEC 60265, and IEEE 592. All fault interrupter devices have passed IEEE C37.60. Trident switches are RUS accepted.

Fully encapsulated current transformers provide power and sensing for G\&W's solid state electronic controls. The controls emulate the most common time current curves (TCC) for power fuses, mechanical relays, and fuse links.

## Features and Benefits

| Features |  |
| :---: | :---: |
| Epoxy Insulation <br> (No oil or SF6, and true dead-front design) | No maintenance or monitoring system, lowest total life cycle costs |
|  | Dead-front design provides increased operator safety by <br> eliminating all exposed live parts |
|  | Epoxy is inert, environmentally friendly, with no EPA usage <br> restrictions |
| Resettable Vacuum Interrupter Mechanism | No fuses or fuse links to stock and replace |
| Integral self-powered overcurrent protection available | Integrated solution with fully encapsulated current transformers and <br> no external power source or PT required |

## Single Phase

## Single Phase Trident Switch Series



FRONT


SIDE

## Single Phase Trident with SafeVu



FRONT

Approximate Weight $=75 \mathrm{lbs} .(34 \mathrm{~kg})$ with SafeVu feature $=150 \mathrm{lbs} .(68 \mathrm{~kg})$

Ratings
Load Break \& Fault Interrupting Ratings

| Voltage Class | 15 kV * | 25 kV |
| :---: | :---: | :---: |
| Max System Voltage | 15.5 kV | 27 kV |
| BIL | 110 kV † | 125 kV |
| Continuous Current | 630 A | 630 A |
| Load Break Current | 630 A | 630 A |
| AC Withstand, 1 minute | 35 kV | 60 kV |
| AC Withstand, Production, | 34 kV | 40 kV |
| 1 minute | 53 kV | 78 kV |
| DC Withstand, 15 minutes | 20 kA | 20 kA |
| Momentary Current, RMS, asym | 20 kA | 20 kA |
| Fault-Close 3-times, asym | 12.5 kA | 12.5 kA |
| Fault Interrupting Current, sym | 12.5 kA | 12.5 kA |
| 1 Second Current, sym | 2,000 | 2,000 |
| Load Break Switch <br> Mechanical Operations |  |  |

(*) SafeVu available on 15 kV load break and single phase fault interrupters.
( $\dagger$ ) BIL impulse rating is 95 kV when using SafeVu feature.

## Catalog Numbering

| Model | One-Iine <br> Diagram | Voltage <br> (kv) | Catalog Number |
| :---: | :---: | :---: | :---: |
| 3 | $\square$ | 15 | VL21-176-20-3FA |
| 4 | $\square$ | 25 | VL21-186-20-3FA |
|  |  |  | 15 |
|  |  | 25 | VS20-176-12-4FA |

Catalog Numbering with SafeVu Feature

| Model | One-line Diagram | Voltage (kv) | Catalog Number |
| :---: | :---: | :---: | :---: |
| 3 |  | 15 | VL21-176-20-3FAVU |
| 4 |  |  | VS20-176-12-4FAVU |

Dimensions are approximate.
Do not use for construction.

## Notes

## G\&W offers

## Technical Support and Services:

## Custom Engineering

Our engineers can tailor our products to meet the needs of any application.


## Custom Programming

Our automation engineers can provide tailored relay programs to meet any specified needs.

## Factory Acceptance Testing

G\&W's Factory Acceptance Testing ensures customers' automation solutions are certified to operate properly and meet all requirements prior to being installed in the field.

## Training Services

G\&W offers a range of training solutions at both G\&W facilities and on site.

## 24 Hour Technical Support

Technical support for G\&W products is available 24 hours a day, 7 days a week.

Engineered to order. Built to last.


[^0]:    *VU indicates the switch includes the SafeVu integrated visible break.

[^1]:    Trident with Motor Actuator

[^2]:    G\&W ELECTRIC PAGE 14

    * Optional clear lid enclosure available (shown above on Type 2)

