

# Powerful Reliability Meets Design Flexibility

Trident® Solid Dielectric Switchgear



With a century of expertise in engineering durable medium-voltage distribution products, G&W Electric possesses the knowledge of the power industry and the art of attentive listening. Our commitment to understanding your unique requirements through thoughtful listening enables us to develop solutions tailored precisely to your needs. Whether it involves deploying our time-proven switches to ensure uninterrupted power in vital industries or implementing cutting-edge automation systems for the smart grids of tomorrow, we stand ready to tackle your challenges with decades of high-performance engineering experience.

## The Trident® Switchgear Solution

We are dedicated to delivering proven solutions that meet — and exceed — your needs. That's why our engineers ask you questions and listen to find the right solution. Our solid dielectric insulated Trident switchgear does not require preventative maintenance while offering more flexibility, leading to a longer-lasting solution that can be designed for your unique application.

Trident switchgear provides the total lifecycle cost and operational benefits of fuseless, electronically controlled, resettable overcurrent protection, with the safety and maintenance benefits of an environmentally friendly dead-front design.

Utilizing G&W Electric's time-proven, submersible epoxy insulation, Trident switchgear load and fault interrupting vacuum interrupters are fully encapsulated. This solid dielectric insulation eliminates the degradation of dielectric integrity commonly associated with oil and air insulated switchgear.

## Far-Reaching Capabilities

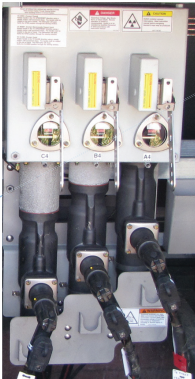
The Trident switchgear family of products are available for both padmount and vault solutions. Enclosures comply with IEEE C57.12.28 and C57.12.29 and are available in a variety of colors.

Trident switchgear is ideal for harsh environments, such as wet vaults, with its ability to withstand extended periods of submersion, and meets IP68 per IEC 60529 for 20 feet over 20 days.



# Trident® Switchgear\*

## Spring Operated



Trident-ST Switchgear



Trident-S Switchgear



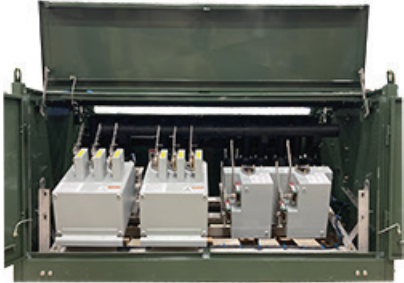
Trident-S Switchgear with SafeVu® Visible Break  
Available up to 29.3kV



Trident-SP Switchgear  
Available up to 27kV



Trident-SP Switchgear  
with SafeVu Visible Break  
Available up to 15.5kV



Low-profile Mounting Frame for  
Trident-S Switchgear with SafeVu  
Visible Break and Trident-ST Switchgear

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## Magnetically Actuated



Trident-SR Switchgear



Trident-SR Switchgear with SafeVu Visible Break  
Available up to 15.5kV

\*Trident switchgear can be designed for various solutions. Contact your sales representative for the various configurations.

# Key Features



## OVERCURRENT PROTECTION

Our engineers equip fault interrupters with an encapsulated 500:1 or 1000:1 current transformer and a G&W Electric 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.

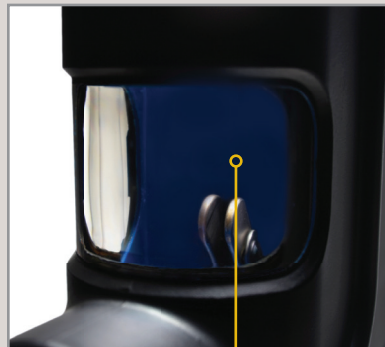


## OPERATING HANDLE

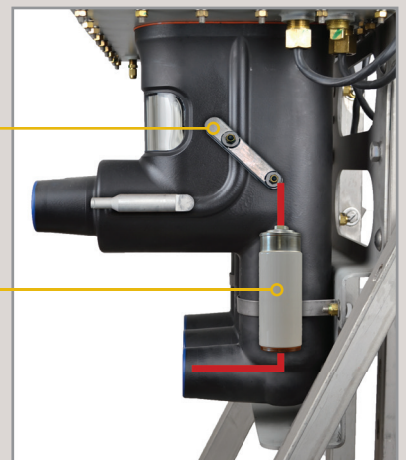
G&W Electric will select the appropriate handle based on the application. Handles are operable via hook stick or rope rigging. This photo demonstrates an example of one type of handle.

## SafeVu® Visible Break

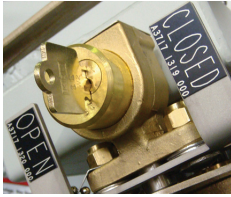
G&W Electric introduced the first visible break – known as SafeVu – to the market in 2012. This innovative feature is built into the Trident® switchgear, eliminating the need to remove elbows or use externally mounted components to provide a visible open. The visible open SafeVu visible break feature is gas and oil free, without the need for maintenance or monitoring. The SafeVu visible break operating handle is operable via 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.



Integral visible break in the open position.



Internal components are shown outside the model as reference.



## KEY INTERLOCKS

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Key interlocks may be used to ensure safe coordination of equipment. All Trident® switchgear ways can be factory equipped with key interlocks or provisions for key interlocks.



## AUTOMATION

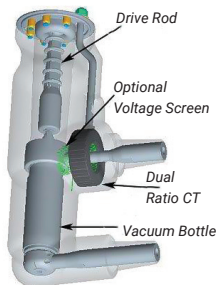
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Automation begins with adding motor actuators to a manual switch, or with magnetically actuated Trident-SR switchgear. Motors can be factory installed on new equipment or retrofitted to pre-existing switchgear.

We offer motor operated automatic transfer solutions that perform in 10 seconds and magnetically actuated transfer switches that perform in 10 cycles or less.

For fast-acting applications, the Trident-SR switchgear series offer speeds of just 3.5 cycles for both load and fault interrupting operations.

G&W Electric can supply a variety of relay manufacturer packages including SEL, ABB, GE and more. Relays can be programmed with our LaZer® automation system, with many standard configurations available.



## VOLTAGE SENSING BUSHINGS

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G&W Electric's Voltage Sensing (VS) Bushings are 2% to 4% accurate and are available in dead break apparatus or 200A deepwell. The VS is a temperature compensated, built-in voltage measuring system that eliminates the need for PTs in analog phase to ground voltage monitoring.



## HIGH ACCURACY VOLTAGE SENSORS

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Underground Accusense® sensors provide 0.5% metering class voltage sensing accuracy and enables users to collect critical voltage data for optimizing grid power delivery and reliability. The 27kV sensor is designed to connect to underground switchgear in both new and retrofit applications.

## AUXILIARY CONTACTS

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Auxiliary contacts are available and 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.

## Trident Switchgear Series Overview

Trident Switchgear Series	Single or 3-phase Operation	Automation	SafeVu® Visible Break	Voltage Sensing	Benefits	Applications
Trident-S Switchgear	3-phase	Motor optional	✓*	✓**	No maintenance or monitoring  Dead-front design eliminates exposure to live parts  Epoxy is inert  No fuses or fuse links  Fully encapsulated current transformers; no external power source or PT required	Padmount, Dry Vault and Submersible Installations
Trident-SR Switchgear	3-phase	Magnetic actuator	✓‡	✓		System Fault Protection and Curve Coordination
Trident-SP Switchgear	Single Phase	Motor optional	✓‡	—		Radial and Loop Switching
Trident-ST Switchgear	Single or 3-phase	—	—	—		Automation with Communicating and Non-communicative Schemes

Note:

\*Available up to 29.3kV

\*\* Not yet available with 27kV / 29.3kV SafeVu visible break

‡ Available up to 15.5kV

## IEEE C37.60 Fault Interrupting Duty for Vault and Automated

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

## Trident® Switchgear Ratings

Trident switchgear 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.

Voltage Class (kV)	15	25	35
Max. System Voltage (kV)	15.5	27 <sup>‡</sup>	38
BIL (kV)	110 <sup>Δ</sup>	125	150
Continuous Current (A)	630 <sup>§</sup>	630 <sup>§</sup>	630 <sup>§</sup>
Load Break Current (A)	630 <sup>§</sup>	630 <sup>§</sup>	630 <sup>§</sup>
AC Withstand, 1 min. (kV)	35	60	70
AC Withstand, Productions, 1 min. (kV)	34	40	50
DC Withstand, 15 min. (kV)	53	78	103
Momentary Current, RMS, asym (kA)	20 <sup>*</sup>	20	20
Fault Close 3 times, asym (kA)	20 <sup>*</sup>	20	20
1 second Current, sym (kA)	12.5 <sup>*</sup>	12.5	12.5
Fault Interrupting Current, sym (kA)	12.5 <sup>*</sup>	12.5	12.5
Vacuum Interrupter Mechanical Operations for Spring Operated	2,000	2,000	2,000
Vacuum Interrupter Mechanical Operations for Magnetically Actuated	10,000	10,000	10,000

Note:

<sup>Δ</sup> BIL impulse rating is 95kV when using integrated visible break feature

<sup>‡</sup> Up to 29.3kV max. system voltage available

<sup>§</sup> Up to 900A available on In/Out without SafeVu; up to 800A available on multiway Trident switchgear without SafeVu

<sup>\*</sup> 16kA sym. 25.6kA asym. Available with 3 phase ganged Trident-S switchgear and Trident-S switchgear with SafeVu® visible break upon request up to 15.5kV



## A Reliable Partner

G&W Electric combines unmatched design and manufacturing expertise, as well as extensive research and development, with ISO 9001 certified quality systems across the entire design and manufacturing process. Our suite of products is designed to the latest industry standards and backed by over a century of engineering and manufacturing expertise. The result? Time proven, reliable performance.

With a commitment to listening to our customers and delivering on their needs, G&W Electric has built a long-standing reputation for delivering quality solutions and superior service. This commitment to putting our customers first has kept us ahead of a changing industry, allowing us to continue powering the world.

**Contact your nearest G&W Electric sales representative for additional information.**

Contact us today

708.388.5010 or [info@gwelec.com](mailto:info@gwelec.com)

**G&W Electric**

Engineered to order. Built to last.®

Since 1905, G&W Electric has been a leading provider of innovative power grid solutions including the latest in load and fault interrupting switches; reclosers; sensors; system protection equipment; power grid automation; transmission and distribution cable terminations; and joints and other cable accessories. G&W Electric is headquartered in Bolingbrook, Illinois, U.S.A., with manufacturing facilities and sales support in more than 100 countries, including Canada, Italy, China, Mexico, Brazil, India, UAE and Singapore. We help our customers meet their challenges and gain a competitive edge through a suite of advanced products and technical services.

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