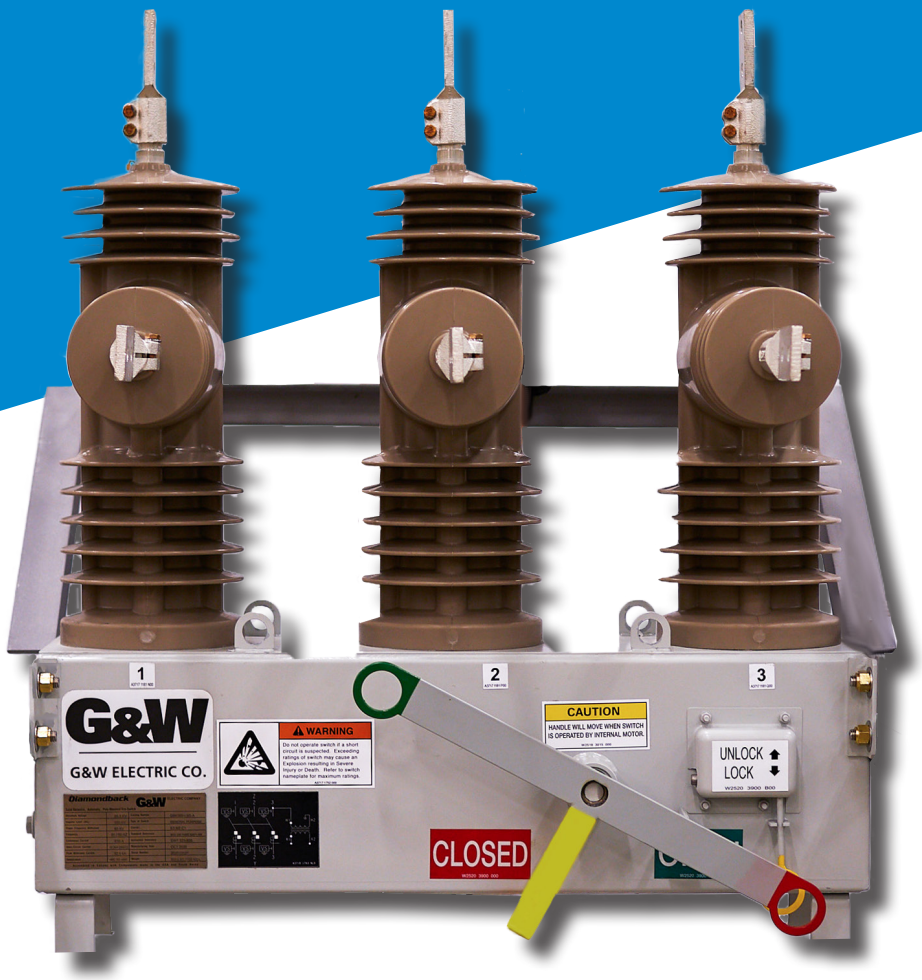


Diamondback®

Solid-Dielectric, SCADA-Ready Load Break Switch

G&W Electric

Engineered to order. Built to last.®

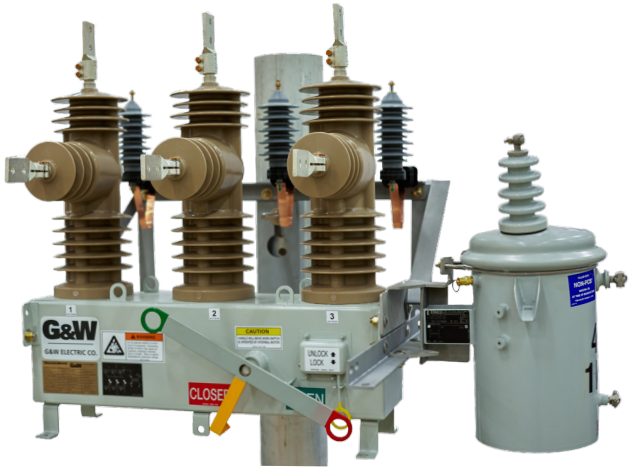
G&W Electric offers the Diamondback Load Break Switch for 15kV through 29.3kV overhead systems. Switches can be operated manually or through various remote control, distribution automation or automatic transfer control packages.

G&W Electric's Diamondback Load Break Switch is an overhead, maintenance free, solid dielectric technology that is SCADA ready with integrated current and voltage measurement capability.

Smart Grid Ready makes it easy to automate with control options, serving remote operable switching, sectionalizing, automatic transfer and manual switching applications.

The Diamondback switch combines the time-proven reliability of vacuum bottles with the maintenance-free benefits of a solid-dielectric insulated device. It's designed for three-phase automatic or manual switching operations providing circuit isolation for systems rated up to 29.3 kV, 630A continuous current.

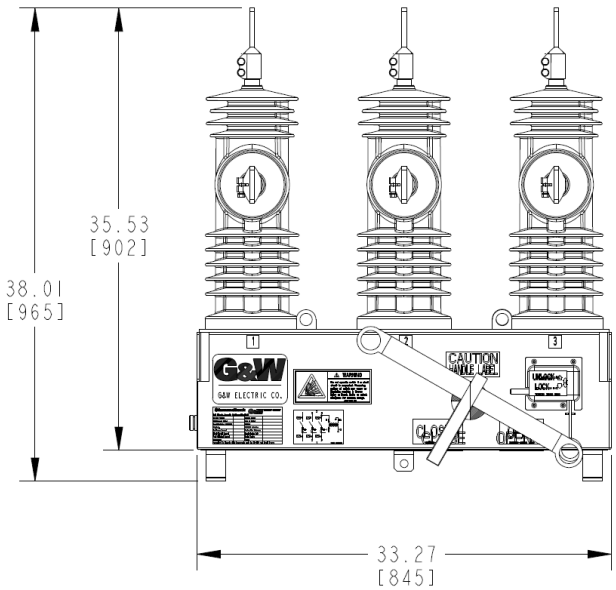
The compact, light-weight design provides ease of installation. The Diamondback has been designed and tested to comply with the IEEE C37.74 and IEC 62271- 103 (formerly IEC 60265-1:1998) standards.

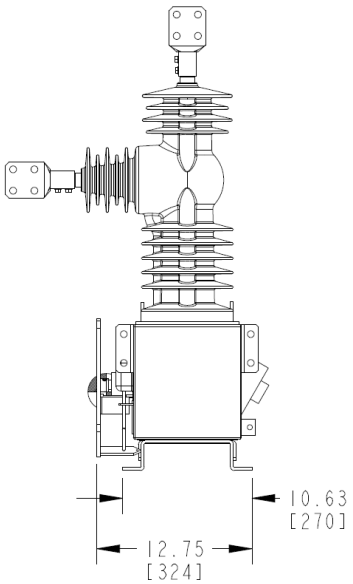


Site-Ready Diamondback with lightning arrestors and transformer

Operation handle located in the front for improved operator safety.

Dimensions





Features and Benefits

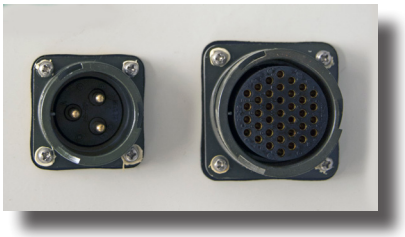
Features	Benefits
Solid-dielectric Insulation, uses no oil or gas	No maintenance or system monitoring necessary due to solid-dielectric insulation. Solid-dielectric provides lowest total lifecycle cost
	Solid-dielectric material is inert, environmentally friendly
Easy to automate with control options	Smart applications pre-programmed into the SEL control, ready for immediate deployment *(sectionalizing, auto open on loss of voltage and auto close for open tie applications)*
Integrated six voltage sensors	Enables full line monitoring capability for Smart Grid applications and less congestion on the pole
Compact size and lightweight construction	Allows for installation in tight areas and eases handling during installation
Site-ready Designs	Enables faster installations and the convenience of a single source supplier. Designs include factory installed and wired options such as lightning arrestors and potential transformers
Operation handle and lock handle	Located on front side of switch for easier linemen access
Open/close status visibility	Open/Close status labels are reflective, providing clear night time visibility
Angled control cable connector	Linemen can easily see and connect the control cable to switch

Electrical Ratings

Maximum System Voltage		**15.5kV**	**29.3kV**
Rated Voltage		15kV	25kV
Impulse Withstand Voltage (1.2x50µs)		110kV	150kV
Power Frequency Withstand Voltage (1 min)		50kV	60kV
Rated Continuous Current		630A	
Rated Peak Withstand Current (rms, asym)		32.5kA	
Rated Short-Time Current Withstand (rms, 3sec)		12.5kA	
Switching Performance Tested per IEEE C37.74-2014/ IEC 62271-103	**100% Load Current Switching**	630A	
	50% Load Current Switching	315A	
	10% Load Current Switching	63A	
	Loop Current Switching	630A	
	100% Cable Charging Current Switching	25A	
	30% Cable Charging Current Switching	7.5A	
	Line Charging Current Switching	1.5A	
	Magnetizing Current Switching	22A	
Mechanical Operations Switching Performance		5,000	
Frequency		50Hz/60Hz	

Control Connections

The 37-pin cable with 1/4 turn quick-connectors on each end make the connection between the Diamondback switch and the control; providing operations, status, and current and voltage monitoring capabilities. Two cables are provided: (1) Main Control Cable and (1) AC Power Cable .



37-pin connector for control connection and 3-pin for AC power connection.

SEL-651RA Relay Measurement & Status Monitoring

Measurement & Status Monitoring
The SEL-651RA relay is equipped to input currents, voltages and status of the Diamondback to allow full monitoring and control of this load break switch. Instantaneous and demand metering are available with programmable integration intervals.

- Voltage, current, and phase angle
- Six voltage inputs
- Fault passage Indication
- Over/under voltage
- Phase sync fail detection
- Battery charging and status monitoring

Automation Ready
Integrate the Diamondback with SEL-651RA relay into SCADA or distribution automation systems with ease. Communications interfaces include RS232/RS485 serial ports, USB, Ethernet (metallic), or Ethernet (fiber). Communications protocols supported include DNP 3.0, Modbus, and IEC 61850. Automation programming applications include:

- Sectionalizing
- Auto open
- Auto close/tie

Data & Fault Analysis
Analyze grid performance with event and fault recording.

- Fault waveform recording
- 60 cycle length, 128 samples/cycle event reports
- Waveform evaluation software
- Sequence of Events (SOE) and Event History

G&W control with SEL-651RA relay

PNC Control

Measurement & Status Monitoring
The PNC control is equipped to input currents, voltages and status of the Diamondback to allow full monitoring and control of this load break switch. Instantaneous and demand metering are available with programmable integration intervals.

- Sectionalizing
- Auto Close
- Fault Detection

SCADA Communications
Integrate the PNC control into SCADA or distribution automation systems with ease. RS232/RS485 serial port and Ethernet port connectivity are available.

Communications protocols supported include the DNP 3.0 protocol, and the IEC 60870-5-101 and IEC 60870-5-104 protocols.

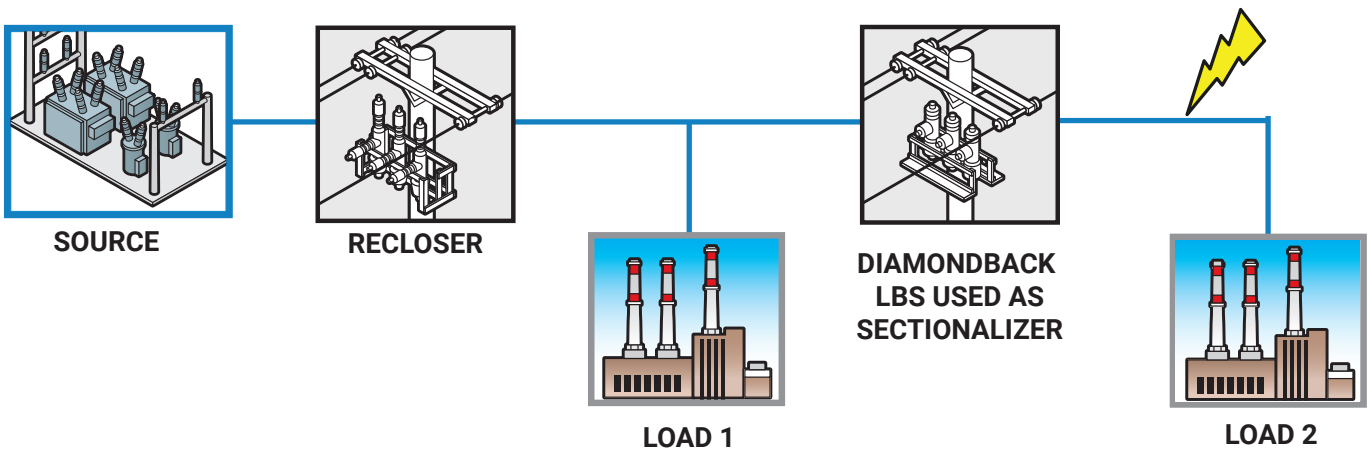
PNC Control

Applications

Remotely Operable Load Break Switch	Perform switching operations via SCADA without having to dispatch field personnel to the site
Sectionalizing & Fault Isolation	Apply an automatic sectionalizing device in a loop scheme or as a dedicated sectionalizer to automatically isolate faults and restore power quickly and reliably
Grid Visibility & Fault Indication	Remotely monitor current and six voltage sensing via SCADA to increase grid visibility and identify faults
Automatic Transfer	Apply to critical load applications. Upon a loss of voltage on the primary source, the switch will initiate an automatic open to isolate the primary source and work with a tie switch to close the alternate source and automatically restore power
Tie Switches	Tie switches can be applied to automatically bypass a feeder that has been locked out due to a failure, planned outage or a faulted line
Manual Switching	Redistribute power locally and easily during times of planned outages. Use to isolate faults in areas where immediate power restoration is not necessary or to perform an emergency sectionalizing function to quickly restore power to the customers affected by a power outage
Lazer® Automation	Distribution automation expertise using our LaZer® Automation Solution

Application example: Diamondback as a sectionalizer

1. A fault occurs between Diamondback and Load 2
2. The recloser starts reclosing sequence; trips open, closes, trips open
3. The Diamondback opens after 2nd overcurrent trip
4. The recloser closes and restores power on the line between the recloser and Diamondback



Contact us today

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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, system protection equipment, power grid automation and transmission and distribution cable terminations, joints and other cable accessories. G&W 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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