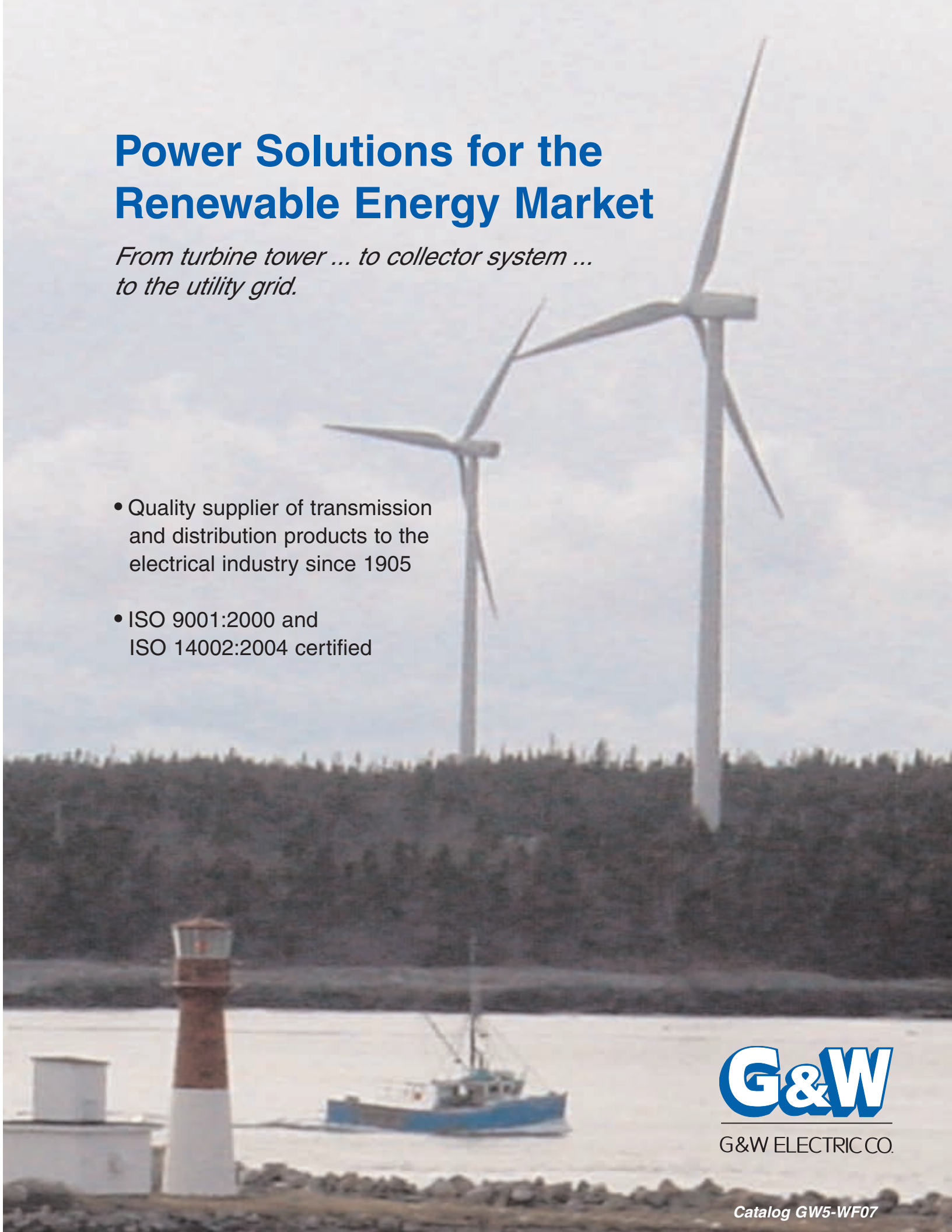


Power Solutions for the Renewable Energy Market

From turbine tower ... to collector system ... to the utility grid.

- Quality supplier of transmission and distribution products to the electrical industry since 1905
- ISO 9001:2000 and ISO 14002:2004 certified

G&W ELECTRIC CO.

Catalog GW5-WF07

LOAD AND FAULT INTERRUPTING SWITCHGEAR

FOR CONNECTING INDIVIDUAL TURBINES

G&W SF6 vault style switches provide a load break connection point for individual tower locations. Fault protection for the transformers can be provided using vacuum interrupters. An integral ground position on the switch operator is available which facilitates easy grounding of the system by simply rotating the operating handle. Specific features include:

- Ratings through 38kV, 630A load break, up to 25kA symmetric interrupting per ANSI 37.60.
- Multi-way configurations permit loop through of the turbine towers eliminating the need for separate cable junction points between the tower and the collector system.
- Dead-front, compact construction capable of fitting through a typical entrance opening of the turbine.
- Resettable, electronically controlled fault interrupters.
- Manual operation, remote operation or total SCADA control.
- Visible break verification of switch contact position.
- Two position (open/close) and three position (close/open/ground) switches are available.
- Rear or side bushing location flexibility.
- Fully tested to ANSI/IEEE and IEC standards.
- IEEE 386 standard for 200A and 600A separable connectors.

OPTIONS

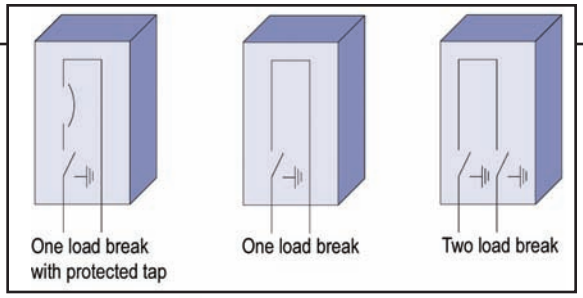
Options include overpressure relief disk, remote LCD display voltage indicator, remote trip and more. Contact your G&W representative.

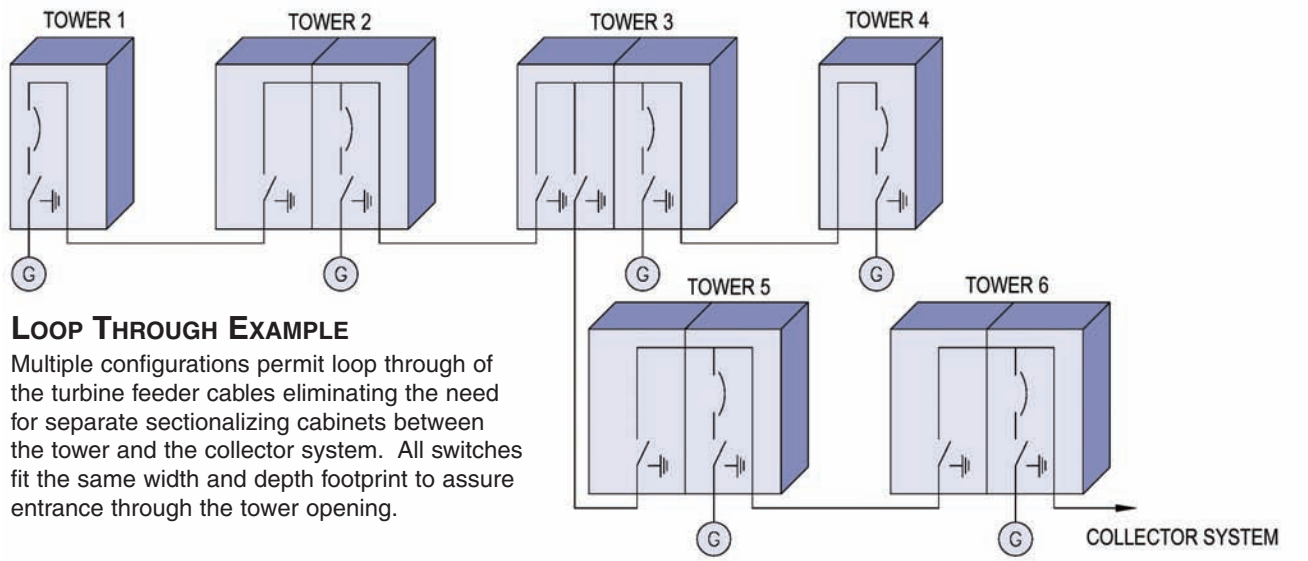
▲ *Compact vertical design fits through the typical entrance opening for installation after the tower is constructed.*

Switches can also be installed and connected prior to tower construction. ►

System Diagrams for Turbine Mounted Units

Integral ground position shown. Two position configurations also available.





Loop Through Example

Multiple configurations permit loop through of the turbine feeder cables eliminating the need for separate sectionalizing cabinets between the tower and the collector system. All switches fit the same width and depth footprint to assure entrance through the tower opening.

Load and Fault Interrupting Switchgear

For Utility Grid Application

G&W SF6 padmount switches are available in a variety of multi-way configurations providing extreme flexibility for single or multiple sources feeding different loads or bus tie application. Specific features include:

- Ratings through 38kV, 630A load break, up to 25kA symmetric interrupting per ANSI 37.60.
- Multiple configurations available from two through six ways.
- Dead-front, compact construction
- Front access or front/back access to cable compartments and operators.
- Resettable, electronically controlled fault interrupters.
- Manual operation, remote operation or total SCADA control.
- Visible break verification of switch contact position.
- Two position (open/close) and three position (close/open/ground) switches are available.

Multiple padmount switches in a collector system.

- Fully tested to ANSI/IEEE and IEC standards.
- IEEE 386 standard for 200A and 600A separable connectors.

Front access, 4-way three position switch with visible break viewing windows.

Solid Dielectric Reclosers

For Utility Grid Application

G&W Viper® reclosers offer an economical alternative to circuit breakers at the utility grid. The solid dielectric, three phase vacuum reclosers provide overcurrent protection for systems up to 38kV, 800A continuous and 12.5kA symmetrical interrupting. Reclosers are available with a variety of mounting brackets for overhead and substation applications. Dead-front padmount configurations are also available. Other features include:

- Dead-tank construction permitting the use of external CTs for SCADA monitoring or metering applications.
- Control and relay flexibility including Schweitzer's SEL-351R, SEL-651R, SEL351S, GE's URC and others.
- Tested to over 10,000 mechanical operations. Circuit breakers are typically limited to 2000 operations.
- Extremely fast operation. Typically a 4 shot sequence including a 4.5 cycle interrupting time takes under 5 seconds. Circuit breakers typically take up to one minute for a similar sequence.
- Maintenance-free solid dielectric insulation compared to the routine maintenance required for gas or oil filled breakers.
- Fully tested to ANSI/IEEE and IEC standards.
- Meets IEEE 386 standard for 200A and 600A separable connectors for padmount applications.

Through programmable control logic, Viper reclosers can be configured for Fault Detection, Isolation and Restoration (FDIR), and peer-to-peer communication in one package.

Substation mounted (top) and dead-front padmounted units shown. ►

Current Limiting Protectors

For Utility Grid Application

G&W's Current Limiting Protector (CLiP®) offers the benefits of current limitation to systems through 38kV, 5000A continuous current and provides fault interruption to 120kA and beyond. This unique device can be used to protect both the utility grid from excessive wind farm fault contributions and the wind farm system from any massive utility grid fault currents. G&W's CLiP limits the current which can protect under-rated circuit breakers or even permit the use of less expensive, lower rated breakers.

The CLiP allows any overloads and lower level faults to be cleared by downstream devices and acts as catastrophic protection for the system by limiting the peak fault currents as well as minimizing let-through energy.

CLiPs can be remotely enabled or disabled. The units provide a remote indication of operation feature permitting integration into a SCADA or other automation scheme to initiate secondary responses set by the utility after a trip has occurred.

▲ *Substation mounted 38kV CLiP*

ISO 9001:2000 Certified Company

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