OnBoard Racking™
A Racking Option for Improved Safety

Safety First
At Powell, our primary goal is the continued development of safety-centered products for the protection of personnel and assets. The OnBoard Racking product epitomizes this goal. Statistics indicate the manual racking of a circuit breaker on and off the live bus carries one of the greatest safety risks for operations personnel. Initiating breaker commands outside of arc flash boundaries would therefore minimize the likelihood for human harm in those rare cases. Additionally, breaker maintenance becomes more convenient when performed remotely, without the use of hard-to-wear PPE, or when heavy mechanical breaker attachments are required. For those associated with the operation or maintenance of PowlVac® equipment, OnBoard Racking is an optional safety solution for maximizing productivity and process uptime. The automated process simply affords greater efficiency and safety for personnel.

How Does it Work?
The PowlVac circuit breaker has been modified to accommodate an integral electric racking motor which rotates the racking shaft and moves the breaker on or off the main bus. Once a remote command is issued, the integral motor, breaker status contacts, and cell mounted sensors report to the Sentry™ Control Unit which processes the requested control function. The Sentry unit must be satisfied with all mechanical, electrical, and logical conditions before operation is initiated. A breaker door interlock, a motor cut-off contact, and the racking motor current are all coordinated to optimize safe operation. There are four (4) control functions available for each circuit breaker; rack-in, rack-out, trip, and close. In addition, an “Emergency Rack Out” feature is incorporated to quickly reverse the breaker travel when required.

Fitting your Equipment
Designed for installation in one-high or two-high medium voltage PowlVac switchgear for any of these switchgear ratings:

<table>
<thead>
<tr>
<th>Voltage Rating</th>
<th>PowlVac-AR® (36”w) 25kA - 63kA</th>
<th>PowlVac® (36”w) 25kA - 63kA</th>
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</thead>
<tbody>
<tr>
<td>5kV*</td>
<td>√</td>
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<tr>
<td>15kV*</td>
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<td>√</td>
</tr>
<tr>
<td>38kV</td>
<td>through 2000A</td>
<td>through 2000A</td>
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* field conversion to OnBoard Racking available

An Industry First
Integral to the PowlVac® Circuit Breaker
Improved Safety for Operators
Remote Control of Racking Process
Available Only From Powell
Field Retrofit Program Available
Product Features

- The Sentry Control Unit is responsible for processing the OnBoard Racking control commands. A modular design allows the mix and match of other application cards in the same chassis for perfect combination of technologies for your application.
- Sentry utilizes a combination of mechanical, electrical, and logical interlocks to ensure proper equipment operation and personnel safety. All operational interlocks required by IEEE C37.20.2 are incorporated.
- Qualify for a new or extended warranty by upgrading your existing PowlVac circuit breakers with OnBoard Racking. Powell technicians will make all necessary modifications and perform preventative maintenance measures on your breakers.

Local Monitoring

Local substation access to OnBoard Racking control typically utilizes a PowlSmart 10”HMI housed in a lockable, wall mounted enclosure located outside the arc flash boundary. Intelligent operator control decisions are facilitated by a graphical one-diagram displaying individual circuit breaker data. You can upgrade to an industrial computer to integrate OnBoard Racking with other substation IED’s such as protective relays, power meters, or system reliability devices like the Powell BriteSpot® thermal monitoring for the detection of hot spots on switchgear bus components.

Hand Held Remote Controller

An optional Hand-Held Remote Controller with 10 meter corded lanyard can attach to the front of the Sentry Control Unit with a quick quarter turn. It operates like a breaker control station or mimic panel, but much more informative. The LED readout displays breaker status/warning messages while the illuminated control buttons indicate available control choices to the operator. This controller allows the same control functions as the HMI interface and is properly used when operator is outside arc flash boundaries. It can be used in conjunction with the HMI for an emergency backup control station.