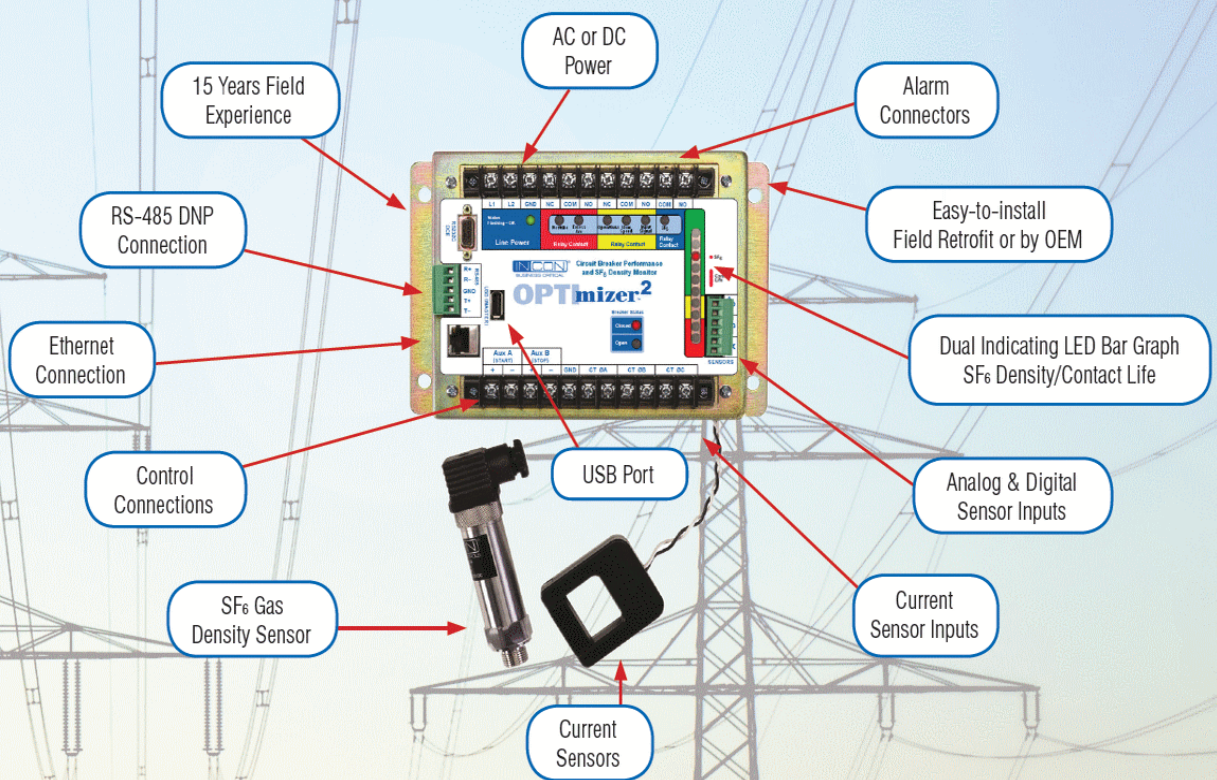


# OPTimizer<sup>2</sup>

## Performance and SF<sub>6</sub> Density Monitor for High-Voltage Circuit Breakers



### Designed For System-Wide Use

- Generator Breakers
- Transmission Breakers
- Circuit Switchers
- Distribution Breakers

SF<sub>6</sub> & Oil Types, Any Mechanism Style  
Live Tank & Grounded (Dead) Tank



## Capabilities

- Applicable system-wide to all Breaker Types
- Accurately times arc duration, trip, close, & clearing
- Reports days since last operation
- Monitors phase-segregated line current during interruption to gauge contact life, detects restrikes
- Gives precise time, in days, until breaker will lock-out on low gas alarm
- Up to three SF<sub>6</sub> density sensors may be used with a single OPTImizer<sup>2</sup>
- Totalizes mass of SF<sub>6</sub> lost to atmosphere for breaker lifetime, useful in EPA reporting
- May be installed temporarily, as-needed, on problem breakers for diagnosis
- All performance metrics may be exported to MS Excel for detailed review

## Benefits

- Every breaker operation is examined; Logs in-service performance metrics
- Reduces need for off-line time/travel testing of circuit breakers
- Displays SF<sub>6</sub> Density & Contact life remaining in simple RED YELLOW GREEN format
- No moving parts, reliable in temperature extremes, eliminates nuisance alarms
- Provides IEEE function 63, low gas alarm lockout
- Reports fault and switching operations
- Forecasts SF<sub>6</sub> refill deadline for use as a maintenance planning driver
- Total unit cost can be recouped by avoiding emergency gas service calls
- Integrates using SmartGrid DNP 3.0 Communication
- No PC software to maintain, only a Web browser is needed

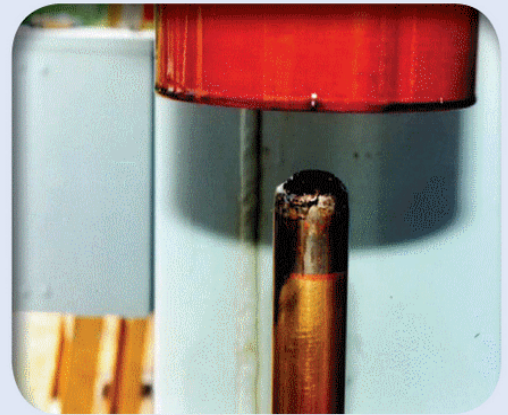
## Features

- Powered from AC or station battery
- Accurate for 50 or 60 Hz Power Systems
- Secure—Digital Signing Encryption Layers used with TCP/IP
- Fast installation—field retrofit in less than two hours
- Auto-resets alarms after a gas fill operation, no user interaction required
- Fast Functions—Using the USB port and a memory stick, in seconds, the user may:
  - Clone any OPTImizer<sup>2</sup>
  - Batch program multiple OPTImizer<sup>2</sup> units for a specific breaker type
  - Retrieve breaker performance history data
  - Reset parameters after a breaker service or rebuild
- 16 user-defined PdM alarms
- Remote communication using Ethernet TCP/IP or DNP 3.0 or RS485 DNP 3.0

## Applications

- High Voltage Circuit Breakers to 765 kV  
Generator • Transmission • Distribution • Circuit Switchers
- SF<sub>6</sub> and oil types, any mechanism type
- Live Tank and Dead (Grounded) tank

The OPTImizer<sup>2</sup> Measures and Totalizes Interrupting Duty, Detects Restrikes, & Tracks Clearing Time for Every Operation



Oil Circuit Breaker Contact



SF<sub>6</sub> Puffer Arcing and Main Contact

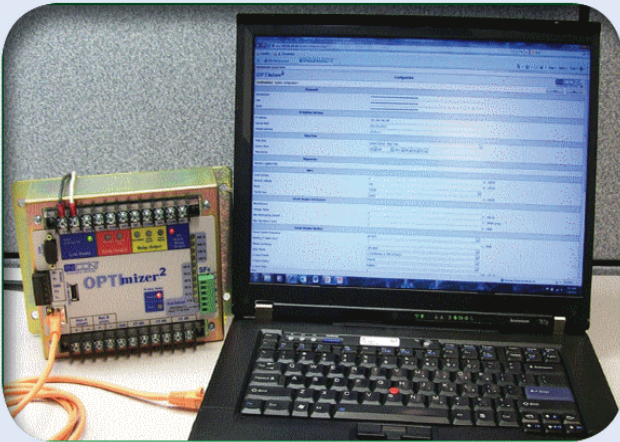


SF<sub>6</sub> Generator Circuit Breaker Arcing Contact



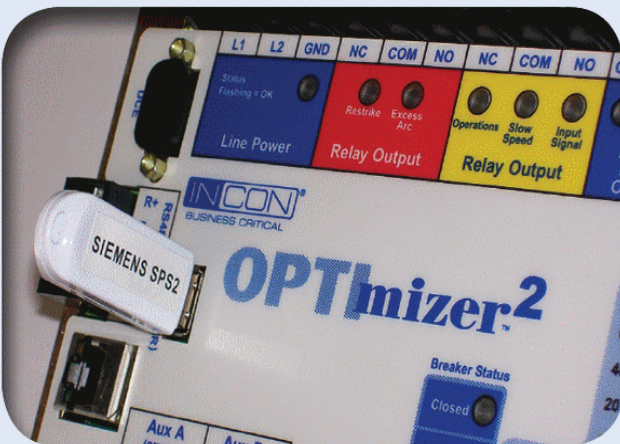
The OPTimizer<sup>2</sup> continually monitors SF<sub>6</sub> Gas Density. With the latest sensor technology, Nuisance Alarms are eliminated. Gas Leakage Rates are Trended, compared to Alarm Parameters, and a **Days-To-Lockout** Forecast is given. Fugitive SF<sub>6</sub> Emissions are Totalized for the Breaker Lifetime.

## Setup and Programming



### Web Server Interface using Browser

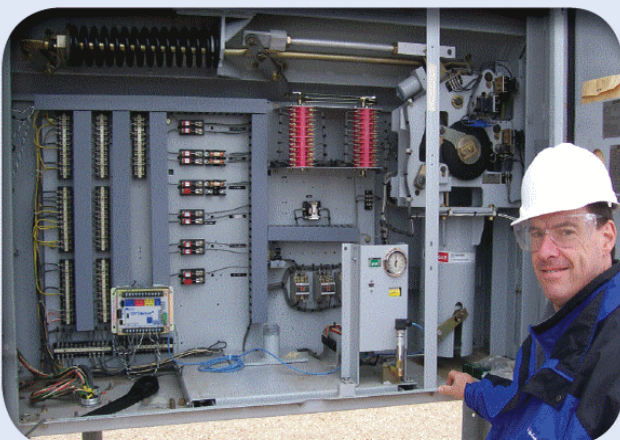
- No PC Software Required
- For User-Specific Programming
- Easy, Using Pull-Down Menus



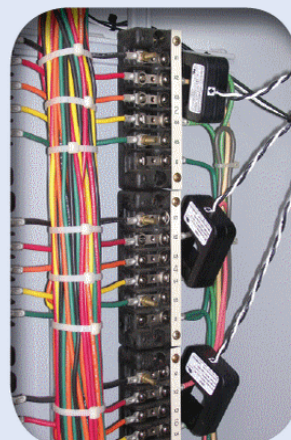
### Batch Programming & Cloning

- Set Up Multiple Units for Like Breakers
- Uses USB Stick with No Computer Required
- Access INCON Setup Library or Develop Your Own

## Installation



SIEMENS SPS2 Installation



Current Sensor



SF<sub>6</sub> Density Sensor Installed on Fill Port

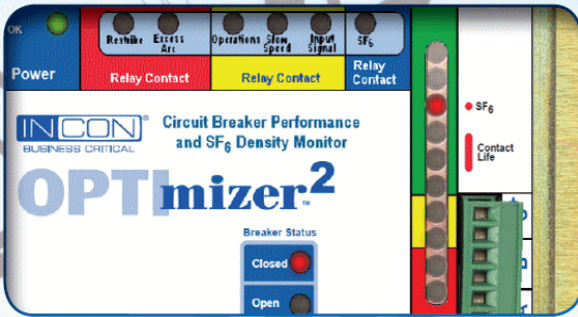


# Dual-use LED Status Display → SEE AT THE BREAKER

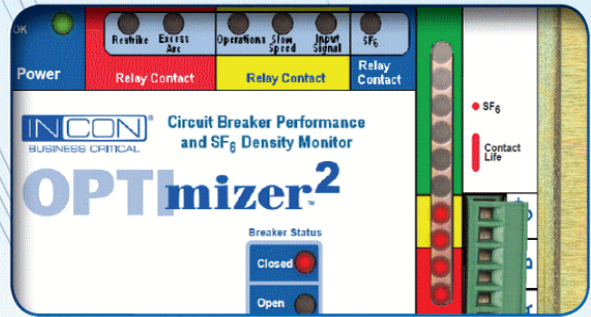
SF<sub>6</sub> Density Reading is shown as single LED

Remaining Contact Life is shown as Full Bar Graph

Display Alternates every 10 seconds



Single LED in Green Zone  
SF<sub>6</sub> Status is OK



Solid Bar Graph in Yellow Zone  
Contact Maintenance Soon Required

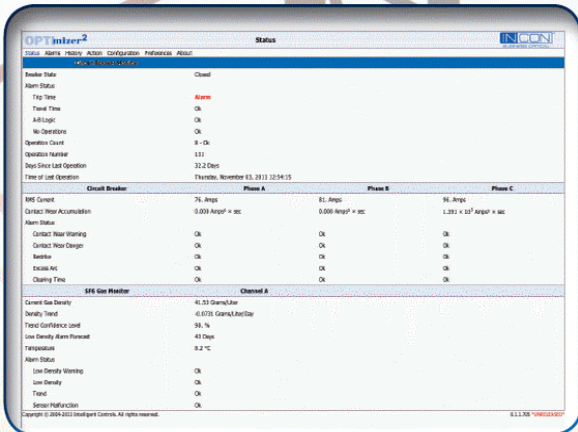
# Online Via Ethernet → SEE IN YOUR OFFICE

Entire Lifetime Performance History

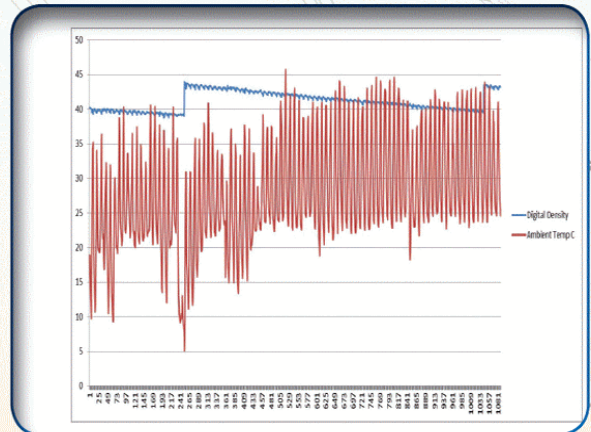
SF<sub>6</sub> Gas Density Trending, Refill Forecast

Measurements for Every Operation

Secure Digital Signature Encryption TCP/IP



Status Screen



Gas Leak and Two Refills Indicated. Planned gas refills directed by the forecasting feature will save the entire cost of the OPTimizer<sup>2</sup> by avoiding alarm-driven service calls during off-hours.

# Networked with DNP 3.0 → FEED ASSET MANAGEMENT

Fault Magnitudes, Operation Counts, SF<sub>6</sub> and Mechanical Anomalies



INCON PRS  
34 Spring Hill Rd.  
Saco, ME 04072

800.872.3455  
www.incon.com