Excess humidity from the atmosphere may degrade a transformer bladder, oil and insulation system over time. This degradation causes unnecessary aging to the asset, reducing the overall life and performance. This can lead to additional maintenance or even premature and unexpected asset failure in the future.

**Application**
The Qualtro ST series smart transformer breather removes moisture from air entering oil-filled transformers or LTC conservators. The breather is automated to regenerate the silica gel desiccant at a user selectable time interval or relative humidity (RH) threshold. Alarming capability and communications reduce unnecessary breather maintenance costs over time. The silica gel may be regenerated many times without replacement due to internal heaters inside the unit that drive off accumulated water on a transformer exhale cycle.

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**Extend asset life and reduce capital costs**
- Constructed with robust materials that provide models for almost any application
- User customization through configurable or pre-programmed RH thresholds
- Local and remote communication options provide for any application
- Bright LED indication lights and alarming capabilities indicate breather status
Reduce maintenance costs with learned transformer breathing patterns and self-regenerating desiccant

- Extend asset life by continuously protecting against atmospheric moisture on transformer inhale cycles
- Reduce unnecessary maintenance through self-regenerating silica gel desiccant on transformer exhale cycles
- Color changing desiccant gives visual assurance on breather regeneration process
- 4-20 mA signal provides continuous relative humidity (%RH) status

Built with robust materials that provide models for almost any application

- Standard models are designed for most applications and are offered in a variety of sizes (1 kg, 2 kg, 4 kg) all carrying a 5 year warranty
- Polar models offer additional internal heaters to withstand harsh temperatures down to -60 °C
- Offshore Xtreme™ models contain material sets specially engineered to adapt to life in harsh marine environments
- Multiple mounting options available for new or retrofit installation
- Includes a solenoid valve that closes during the regeneration process to ensure moisture is not wicked into the transformer accidentally
- Color changing silica gel desiccant allows for a visual confirmation of breather regeneration
- Multiple communication options including 4-20 mA, RS-485 MODBUS and local USB port provide for a variety of monitoring solutions for any application
- Front mounted indication LED lights of green, amber, and red indicate breather status and alarm capabilities

STB model offerings

Qualitrol offers a variety of models to suit almost any application:

<table>
<thead>
<tr>
<th>Model Offerings</th>
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<th>STB-200</th>
</tr>
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</tr>
<tr>
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STB desiccant size selection

STB breathers are sized to the application based on the quantity of oil housed within the system (main tank + conservator):

<table>
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<tr>
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<tr>
<td>Oil (liters)</td>
<td>30,000</td>
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<td>Oil (gallons)</td>
<td>8,000</td>
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STB mounting options

Hose barb fitting

- 3/8 inch I.D. hose barb with ½ inch NPT threads. Supplied with 6.5 foot (2 meter) black rubber hose

Circular flange

- Circular flange provided with mounting gasket and bolts

Triangular flange

- Triangular flange provided with mounting gasket and bolts

Special mounting configurations

- Other special mounting configurations can be ordered per request
Reduce maintenance costs with learned transformer breathing patterns and self-regenerating desiccant

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User customization through configurable or pre-programmed RH thresholds

- Desiccant regeneration is configurable by the end user based on % relative humidity (RH) or time frequency (days)
- Color changing silica gel desiccant allows for a visual confirmation of breather regeneration

Local and remote communication options provide for any application

- Multiple communication options including 4-20 mA, RS-485 MODBUS and local USB port provide for a variety of monitoring solutions for any application

Bright LED indication lights and alarming capabilities indicate breather status

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- A guide to the color coded light alarms is displayed on the control box for easy field diagnosis

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Special mounting configurations

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QUALITROL STB-100/200 Series - Smart transformer breathers

**STB standard models**

**STB-100-1 Smart transformer breather - standard capacity**
- 1 kg

**STB-100-2 Smart transformer breather - large capacity**
- 2 kg

**STB-200 Smart transformer breather**
- 4 kg "jumbo"

---

**Description**

<table>
<thead>
<tr>
<th>Normal Mode</th>
<th>Regeneration Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC Normal, LC OFF</td>
<td>RC Normal, LC REGEN</td>
</tr>
<tr>
<td>RC Normal, LC OFF</td>
<td>RC Normal, LC REGEN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Solenoid Error</th>
<th>Humidity Sensor Error</th>
<th>LC Heater Error</th>
<th>RC Heater Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>Blink</td>
<td>OFF</td>
<td>Blink</td>
</tr>
<tr>
<td>OFF</td>
<td>Blink</td>
<td>OFF</td>
<td>Blink</td>
</tr>
</tbody>
</table>

**New LED display modes**

<table>
<thead>
<tr>
<th>RH Sensor Error</th>
<th>Pressure Sensor Error</th>
<th>Heater Error</th>
<th>Multiple Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
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</table>

**ENCLOSURE VENT**

BREATHER SURFACES MAY BE HOT - DO NOT TOUCH

**CONDENSATION DRAIN**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10.63 [269.99]</td>
<td>2.23 [56.63]</td>
<td>1.67 [42.36]</td>
</tr>
<tr>
<td>3.23 [82.0]</td>
<td>4 x .39 [10.0]</td>
<td>1.99 [50.5]</td>
</tr>
<tr>
<td>9.73 [247.1]</td>
<td>4 x .28 [7.0]</td>
<td>6.81 [172.9]</td>
</tr>
<tr>
<td>15.09 [383.3]</td>
<td>15.09 [383.3]</td>
<td>29.7 [751.0]</td>
</tr>
</tbody>
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www.qualitrolcorp.com
STB special applications - Polar Xecution models

**Description**
- Harsh polar climates require transformer accessories designed and engineered to handle these extreme cold environments. Qualitrol’s line of Polar Xecution instruments tackle these temperature extremes to ensure performance even on the coldest days of the year (down to -60 °C)

**Application**
- The Qualitrol Polar Xecution smart transformer breather removes moisture from air entering oil-filled transformers or LTC conservators. The PE breathers regenerate and operate in the same manner as the standard line of breathers offered by Qualitrol, but offer additional protection for the polar climate. Polar Xecution breathers are engineered to house additional heaters to prevent condensate water from freezing at the outlet of the breather. The addition of these heaters ensures proper drainage after the silica gel has been regenerated in extremely cold temperatures. Polar models are available in 1 kg, 2 kg, and 4 kg sizes

### Ambient Operating Temperatures

<table>
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<tr>
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<th>Standard STB</th>
<th>Polar Xecution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower range</td>
<td>-40 °C</td>
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</tr>
<tr>
<td>Upper range</td>
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STB special applications - Offshore Xtreme™ models

**Description**
- Harsh marine environments require transformer accessories designed and engineered to handle these extreme applications. Qualitrol’s line of Offshore Xtreme™ instruments tackle these application extremes and ensure performance even in the harsh saline environment. They continue to carry the 5 year Qualitrol product warranty

**Application**
- The Qualitrol Offshore Xtreme™ smart transformer breather removes moisture from air entering oil-filled transformers or LTC conservators. These breathers regenerate and operate in the same manner as the standard line of breathers offered by Qualitrol, but offer additional protection in a saline environment. Offshore breathers are engineered with advanced material sets to withstand the additional environmental constraints, including stainless steel, reinforced fiberglass and glass components. Offshore models are available in 1 kg and 2 kg sizes

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<th>Material Sets</th>
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<tbody>
<tr>
<td>Body components</td>
<td>Aluminium</td>
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<tr>
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</tr>
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**TECHNICAL SPECIFICATIONS**

**Electrical**
- Voltage / frequency: 100 - 240 VAC, 50 / 60 Hz
- Inrush control: Staged heating at 10 seconds
- Conducted / radiated emissions: EN 55011
- Immunity tests:
  - EN 61000-4-2
  - EN 61000-4-3
  - EN 61000-4-4
  - EN 61000-4-5
  - EN 61000-4-6
  - EN 61000-4-8
  - EN 61000-4-11
- Harmonics and flicker tests: EN 61000-3-2, EN 61000-3-3
- Dielectric isolation: 1500 VAC for 60 seconds to ground

**Power consumption**
- Steady state, non-regeneration: < 10 watts
- Steady state regeneration: 3 amps
- Regeneration heater inrush current: 10 amps

**Regeneration frequency settings**
- 10, 40, 70, 100 days
- RH 2% to 100%
- Status indication: LEDs – green, amber, red
- Regeneration frequency control: 2 position DIP switch
- Relative humidity trigger level: User configurable: 50% default value
- Regeneration cycle: 3 hours full power, 1 hour cool-down
- Regeneration status monitoring:
  - 5A (NO) / 3A (NC) at 30 VDC resistive
  - 5A (NO) / 3A (NC) at 125 / 250 VAC resistive
- Failure detection: RH sensor, heater, solenoid
- Analog output signal: 4 - 20 mA @ maximum 500 Ohms for RH
- Communication: MODBUS (remote) and USB (local)

**Operating conditions**
- Temperature: -40°C to 80°C or -60°C to 80°C, depending on model
- Relative humidity: 95% non-condensing at 80°C
- Enclosure protection: IP65
- Vibration: 50 / 60 Hz @ .004” displacement

**Don’t see what you need?**
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