

QUALITROL® STB 100/200 Series

Smart transformer breathers



Reduce maintenance costs with learned transformer breathing patterns and self-regenerating desiccant

- 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

Product Summary

Description 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 Qualitrol STB 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.



QUALITROL®
Defining Reliability

QUALITROL STB-100/200 Series - Smart transformer breathers

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

Constructed 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

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

- Front mounted indication LED lights of green, amber, and red indicate breather status and alarm capabilities
- A guide to the color coded light alarms is displayed on the control box for easy field diagnosis

STB model offerings

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

Model Offerings	STB-100	STB-100	STB-200
	1 kg	2 kg	4 kg
Standard	✓	✓	✓
 POLAR Execution	✓	✓	✓
 OFFSHORE Xtreme	✓	✓	

STB-desiccant size selection

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

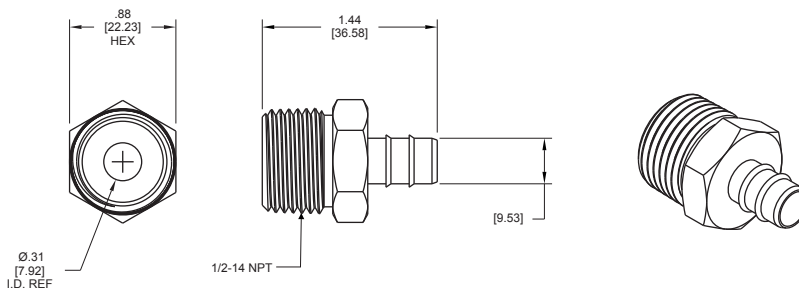
Desiccant Size	STB-100	STB-100	STB-200
	1 kg	2 kg	4 kg
Oil (liters)	30,000	68,000	136,000
Oil (gallons)	8,000	18,000	36,000



STB mounting options

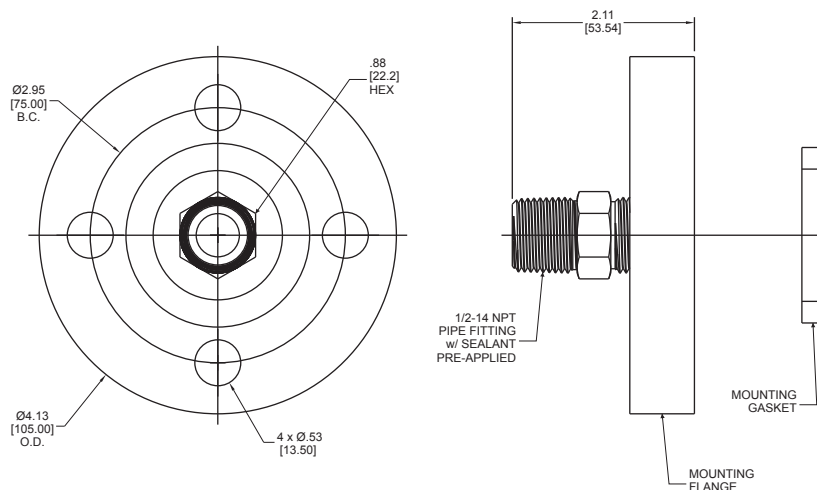
Hose barb fitting

- 3/8 inch I.D. hose barb with 1/2 inch NPT threads. Supplied with 6.5 foot (2 meter) black rubber hose



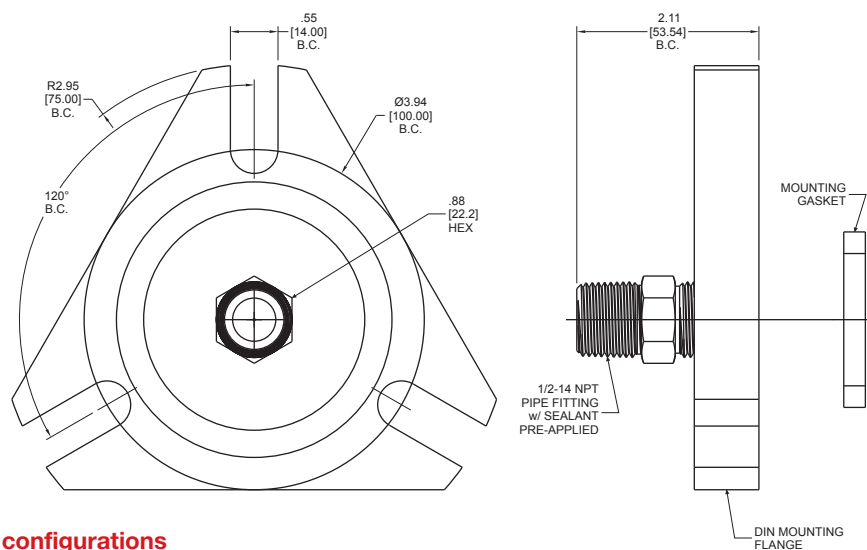
Circular flange

- Circular flange provided with mounting gasket and bolts



Triangular flange

- Triangular flange provided with mounting gasket and bolts



Special mounting configurations

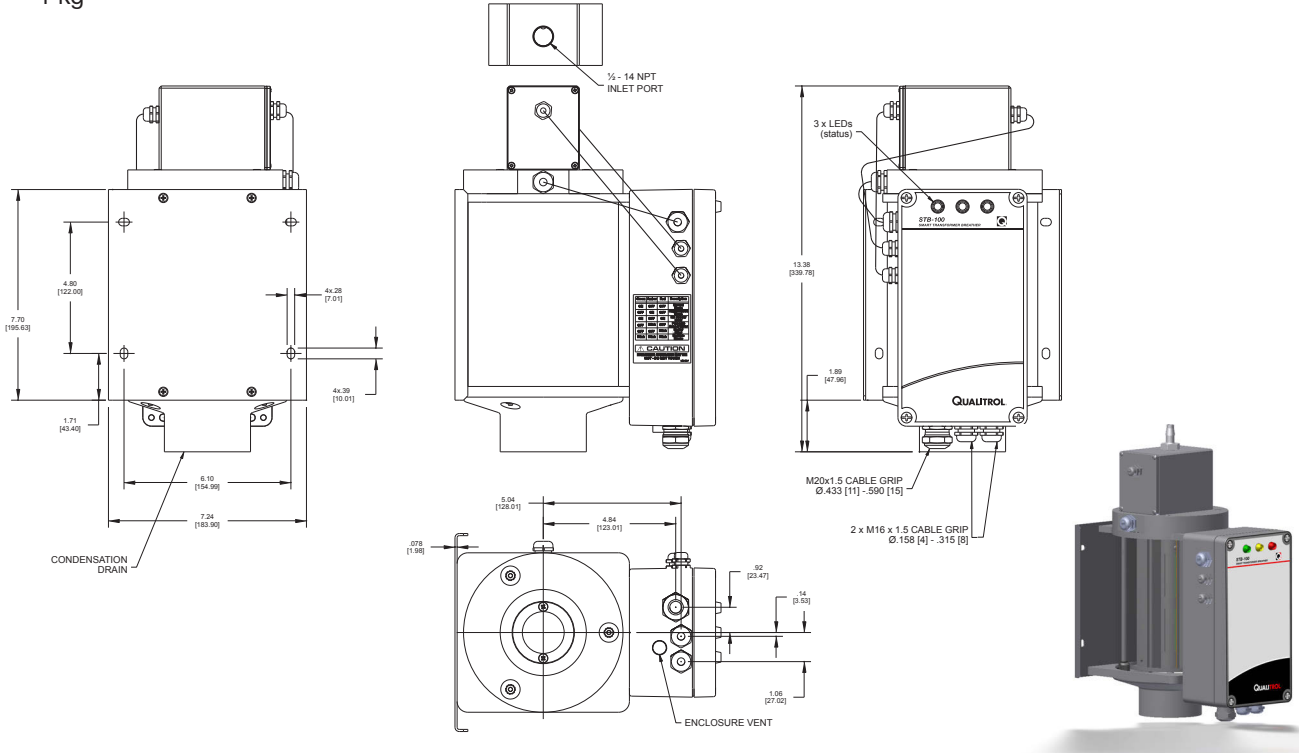
- Other special mounting configurations can be ordered per request

QUALITROL STB-100/200 Series - Smart transformer breathers

STB standard models

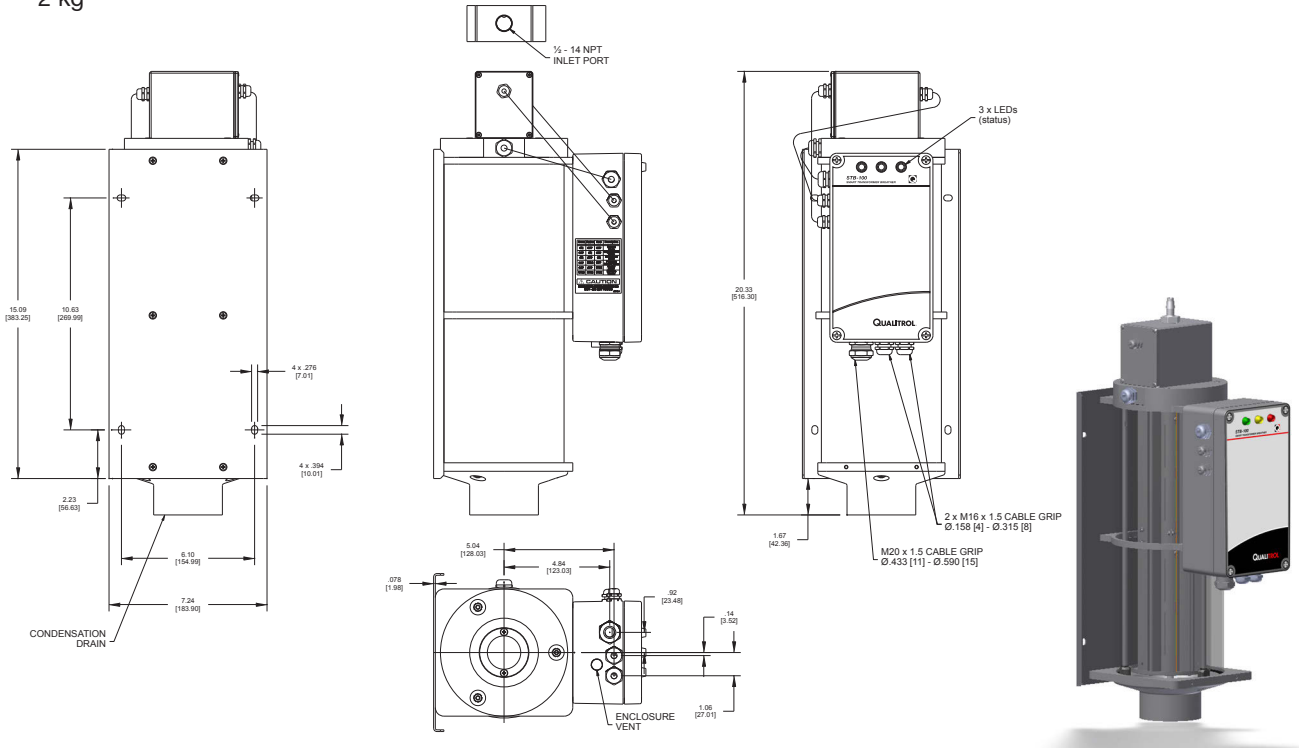
STB-100-1 Smart transformer breather - standard capacity

- 1 kg



STB-100-2 Smart transformer breather - large capacity

- 2 kg

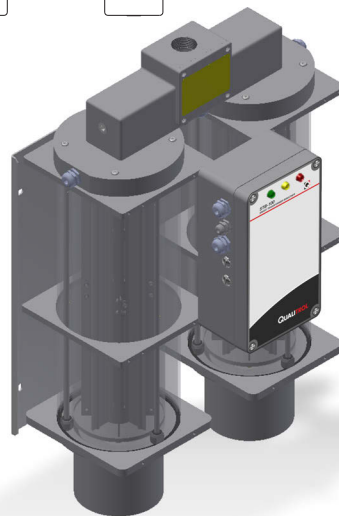
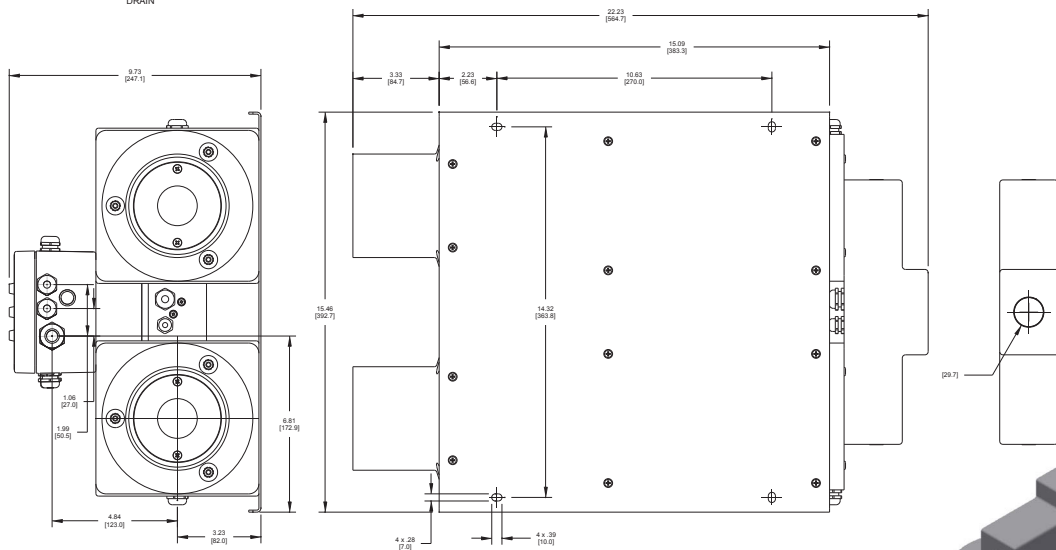
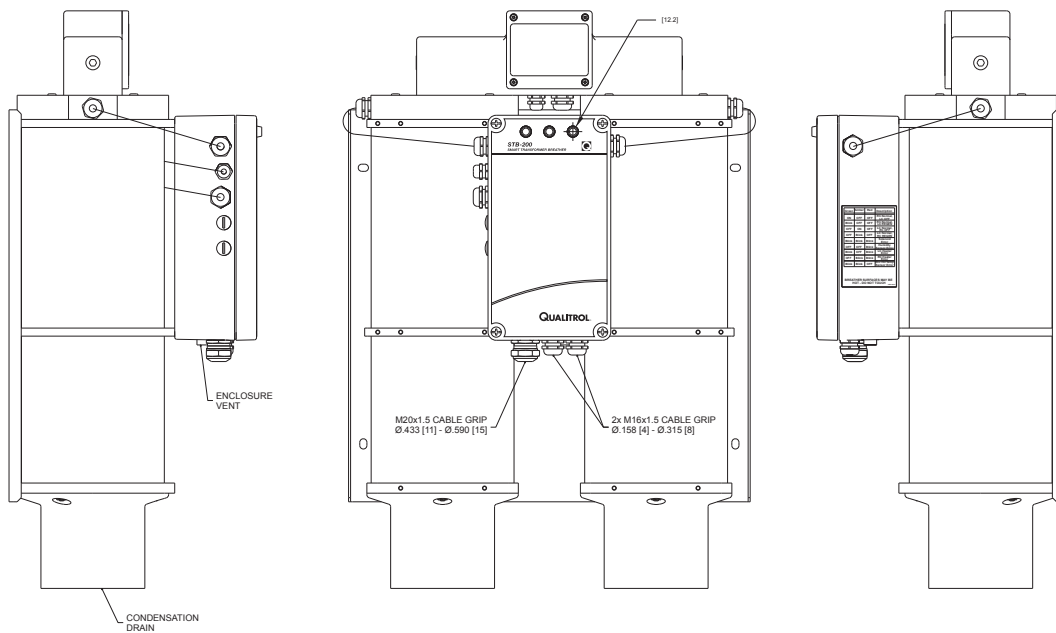




STB standard models

STB-200 Smart transformer breather

- 4 kg “jumbo”



QUALITROL STB-100/200 Series - Smart transformer breathers

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



Hardened for Polar Use

Ambient Operating Temperatures	Standard STB	Polar Xecution
Lower range	-40 °C	-60 °C
Upper range	80 °C	80 °C

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



Hardened for Offshore Use

Material Sets	Standard STB	Offshore Xtreme™
Body components	Aluminium	316 stainless steel
Circuit board enclosure	Aluminium	Fiberglass
Tube	Polycarbonate	Glass



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
	Harmonics and flicker tests	EN 61000-4-8
		EN 61000-4-11
Dielectric isolation	EN 61000-3-2	
	EN 61000-3-3	
Power consumption	1500 VAC for 60 seconds to ground	
Functions	Steady state, non-regeneration: < 10 watts	
	Steady state regeneration: 3 amps	
	Regeneration heater inrush current: 10 amps	
	Regeneration frequency setting	10, 40, 70, 100 days
	Humidity range	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



QUALITROL

Don't see what you need?

Qualitrol regularly creates models with special customer requirements. Contact your local sales representative or Qualitrol Applications Engineer to review your special requirements.



STB-100/200 Series

Smart transformer breathers



Extend asset life and reduce capital costs

About QUALITROL®

Established in 1945, with continual improvement at the core of our business, QUALITROL® provides smart utility asset condition monitoring across the globe. We are the largest and most trusted global leader for partial discharge monitoring, asset protection equipment and information products across generation, transmission and distribution. At QUALITROL® we are redefining condition monitoring technology for Electric utilities assets.

©2014 QUALITROL® Company LLC, an ISO 9001 system certified company. QUALITROL is a registered trademark and OTIWTI is a trademark of QUALITROL® Company LLC. All trademarks are properties of their respective companies, as noted herein. All rights reserved. Information subject to change without notice. AP-S35-02L-01E.