



# TruTorr Single-Use Sensor



# TruTorr Single-Use Headspace Pressure Sensor

## TruTorr SmartSensors

The TruTorr® pressure sensor is a single-use solution for measuring headspace pressure and preventing rupture of a bioprocess container. A TruTorr loop consists of a disposable pressure sensor, a cable, and a transmitter blade that is seamlessly integrated into a Finesse bioreactor controller. The single-use sensor is sealed into an insertion port of a disposable bioreactor bag and sterilized in place, so that process sterility is guaranteed.

TruTorr single-use sensors use only USP Class VI materials, compensate for temperature, are pre-calibrated and provide full traceability information using a gamma radiation resistant SmartChip.

## Smart Calibration // SmartChip

Finesse TruTorr sensors contain embedded SmartChips that hold factory calibration data and are gamma radiation resistant. The SmartChip also holds manufacturing lot and serial numbers that can be part of the batch record when used with the blade transmitter.

## TruTorr Blade Transmitters

TruTorr transmitter blades are mounted within an enclosure in a Finesse bioreactor controller. The TruTorr transmitter provides automatic input of calibration data from the sensor's SmartChip and provides diagnostic information to the bioreactor control system. The Virtual Transmitter module in Finesse TruBio software allows full access to all of the blade's functions, simulates a physical transmitter, and provides alarms and connectivity monitoring capability. Calibration of the sensor is performed in TruBio® software.

## Features

**Single-use pressure sensor, cable and blade**

**Self-calibrated for immediate use**

**Wetted materials USP Class VI**

**Plug-and-play**

**Easy-to-use**

**Gamma radiation resistant to 50 kGy**



# TruTorr Sensor

## ENVIRONMENTAL SPECIFICATIONS

|                              |                              |
|------------------------------|------------------------------|
| Operating Temperature        | 15°C to 45°C (59°F to 113°F) |
| Operating Pressure (Typical) | 1 bar / 14.7 psi             |
| Storage Temperature          | 0°C to 60°C (32°F to 140°F)  |
| Storage Relative Humidity    | 10% to 90% (non-condensing)  |
| Altitude                     | 12192 m (40000 feet)         |
| Materials                    | USP Class VI                 |

## PERFORMANCE SPECIFICATIONS

|                              |   |
|------------------------------|---|
| Sample Rate Settings         | 1 Second  |
| Measuring Range              | 0 to 0.48 barg / 0 to 7 psig  |
| Relative Accuracy            | 0.7 mbarg / 0.01 psig   |
| Accuracy                     | @25°C: $\pm 0.014$ barg / $\pm 0.2$ psig or $\pm 2\%$ of the reading, whichever is greater (inc. drift 21 days) |
| Response Time (T90 Agitated) | <1 Second   |
| Drift (21 days)              | 13.6 mbarg / 0.2 psig   |
| Calibration                  | Pre-calibrated (SmartChip) 1-pt standardization optional  |
| Gamma Radiation              | Standard range: 26 to 38 kGy, for radiation doses outside of this range contact Finesse directly                |
| Cross Sensitivity            | None  |
| Temperature Accuracy         | Automatic compensation over operating range   |
| Temperature Precision        | $\pm 0.1^\circ\text{C}$   |



# TruTorr Blade Transmitter

## SPECIFICATIONS

|   |   |
|---|---|
| Power Supply                              | 24 VDC @ 150 mA   |
| Signal Outputs<br>(Isolated / 4 to 20 mA) | Isolated / 4 to 20 mA / 1x Pressure   |
| Output Accuracy                           | ±0.1 mA   |
| Transmitter Diagnostics                   | Internal diagnostics for sensor and loop  |
| Calibration                               | Based on NIST-traceable standards, entered automatically using SmartChip,<br>Optional 1-point standardization |
| RFI / EMI                                 | EN-61326  |
| Operating Temperature                     | 5°C to 45°C (41°F to 113°F)   |
| Storage Temperature                       | 0°C to 65°C (32°F to 149°F)   |
| Relative Humidity                         | 10% to 90% (non-condensing)   |

## PHYSICAL DESCRIPTION

|                          |   |
|--------------------------|---|
| Case Material            | Aluminum Bracket                                |
| Rating                   | NEMA 1 (when mounted, same rating as enclosure) |
| Dimensions (H x W x D)   | 130 x 35 x 128 mm (5.1 x 1.4 x 5 in)            |
| Mounting / Conduits      | Mounted within utility tower (enclosure)        |
| Display                  | Virtual transmitter in TruBio software (GAMP5)  |
| Weight / Shipping Weight | 0.1 kg / 0.3 kg (0.2 lb / 0.6 lb)               |

Warranty: Each TruFluor Transmitter is warranted for one full year (12 months) from date of shipment against defects in material and workmanship. Blade transmitters are only sellable to approved OEM customers or as spare parts for Finesse control systems.



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