FREDERICKS COMPANY
High Performance Sensing Solutions™

TELEVAC®

Application Note 3020
Vacuum Terminology Reference

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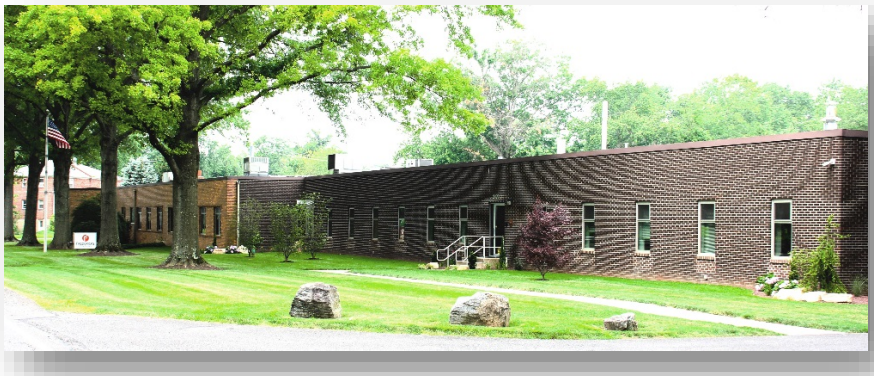
1. Summary

Vacuum measurement terminology is often unique to specific industries and/or used interchangeably. This document gives an overview of different terms and how they relate to each other.

2. Terminology

1. **Analog output, recorder output, 0 to 10 V DC output;** all interchangeable terms for the same thing, a voltage output corresponding to pressure.
2. **Low vacuum, rough vacuum, coarse vacuum, high pressure;** interchangeable terms for the same thing, depending on who you're talking to these are pressures between ~760 Torr and ~25 Torr, or ~760 Torr and ~10^{-3} Torr. The latter is also defined as medium vacuum.
3. **High vacuum, low pressure;** interchangeable terms for the same thing, typically defined as 10^{-3} Torr to 10^{-9} Torr.
4. **Ultra-high vacuum, UHV, very low pressure;** interchangeable terms for the same thing, typically defined as 10^{-9} Torr to 10^{-12} Torr.
5. **Extremely-high vacuum, XHV, very low pressure;** interchangeable terms for the same thing, typically defined as pressures below 10^{-12} Torr.
6. **Micron, millitorr, mTorr;** all terms for the same thing, equal to 10^{-3} or 0.001 Torr.
7. **PLC, or programmable logic controller;** the "brain" of your vacuum system, typically supplied by Rockwell Collins/Allen-Bradley or Siemens, though there are several other manufacturers.
8. **HMI, or human-machine interface;** the display for your vacuum system.
9. **Gauge, passive gauge, sensor, transducer, tube, or some combination of these;** all interchangeable terms for the same thing, for clarity we like to refer to these as "passive vacuum gauges". Sometimes these terms are used to indicate a passive vacuum gauge combined with electronics, which we refer to as an "active gauge". This is an important distinction for certain applications, particularly those where radiation is present (active vacuum gauges will degrade quickly in irradiated environments).
10. **Pirani, convection, convectron, TC, thermocouple;** these are technically all different (except for TC and thermocouple), but they're often used interchangeably. The broad term for all of these types of gauges is "thermal conductivity gauge".
11. **CDG, capacitance diaphragm gauge, capacitance manometer, Baratron;** all interchangeable terms for the same thing. Baratron is a registered trademark of MKS Instruments, Inc.
12. **Cold cathode, CC, cold ionization gauge, ionization gauge, ion gauge, Penning;** usually all interchangeable terms for the same thing. There are different types of cold cathodes, but most manufacturers and users don't distinguish between them.
13. **Hot ion, hot ionization, hot filament, hot cathode, Bayard-Alpert, BAG (Bayard-Alpert Gauge);** there are different types, but these are typically all interchangeable terms for the same thing.
14. **Flange, fitting;** these are technically different, but they're used interchangeably. This is the interface between the port on your vacuum system and your vacuum gauge.
15. **NW, KF, QF, DN, Klein flange, quick flange, or some combination of these with a two-digit number;** these are all designations for the same type of flange. If you're interested, the two-digit number indicates the nominal inner diameter of the flange in millimeters.
16. **CF, conflat;** interchangeable names for the same type of flange, these are typically used for UHV applications.

3. Company Information



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High performance products designed and manufactured with pride in the USA. Televac is a global provider and U.S. manufacturer and designer of high performance vacuum measurement products. Built to last, our products are made with state-of-the-art sensing technology, proven processes and an intrinsic passion for the trade. Offering simple integration and quality and safety benchmarks, our customers benefit not just from standard-setting reliability, but from our commitment to competitive pricing and performance.

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Vacuum measurement tools built for the toughest jobs. Televac's world-class passive vacuum gauges, active vacuum gauges, and vacuum controllers are engineered for the most demanding applications and environments. Our Televac® and ETI vacuum brands feature cold cathode gauges, thermocouple gauges, convection gauges, and precision-manufactured hot ion gauges. Dedicated solely to vacuum gauging and calibration services, we provide industrial heating, national laboratories, cryogenics and industrial gas applications, among many others, with fast lead times and industry-leading performance. Covering the entire practical vacuum range, our products deliver rapid response vacuum readings and superior sensitivity.

Have questions? We'd love to hear from you!

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