



® Knowledge Beyond Measure.

Positive and Negative Duct Accreditation (PANDA) System

Model PAN231 Series



The Positive and Negative Duct Accreditation (PANDA) system provides contractors, commissioning engineers, and research and development technicians with the best in class choice of test equipment to quantify air leakage in ductwork and other areas as well as the ability to measure the performance of ducted systems.

The PANDA system provides a fast, accurate, automated solution and helps to ensure compliance with SMACNA, EN12237, EN1507, and EUROVENT 2/2 standards, enhancing energy savings in buildings.

Pass/Fail Reporting for Standards

- SMACNA HVAC Air Duct Leakage Test Manual
- EN12237 Ventilation for Buildings—Ductwork—Strength & Leakage of Circular Sheet Metal Ducts
- EN1507 Ventilation for Buildings—Sheet Metal Ducts with Rectangular Section—Requirements for Strength and Leakage
- EUROVENT 2/2 Air Leakage Rate in Sheet Metal Air Distribution Systems

Features and Benefits

- Positive and Negative Duct Leakage Testing in one system
- Find and fix duct leaks to save energy
- High accuracy gives confidence in measurements
- High-flow fan for testing large duct sections
- Pressurizes duct quickly, allowing testing to begin in minutes
- Includes TSI VelociCalc® Model 9650 and Model 5815 instruments:
 - Automatically calculate leakage rate in real time
 - Simultaneously displays flow leakage rate and static pressure
 - Monitors barometric pressure and temperature to automatically correct to Standard Temperature and Pressure (STP)
 - Simplify report generation and documentation by downloading stored data
 - Works with Model 8934 Portable Printer for field documentation
- Weight 121 lbs. (55 kg)



Specifications

Positive and Negative Duct Accreditation (PANDA) System

Model PAN231 Series

Pressure Measurement (Model 5815)

Range	±15 in. W.G. (±3,735 Pa)
Resolution	0.001 in. W.G. (0.1 Pa)
Accuracy	1% of reading ±0.005 in. W.G. (±1 Pa)
Actual Duct Static Range	±10 in. W.G. (±2,500 Pa) at Zero Flow

Volume Flow Measurement (Model 9650)

High Leakage Range	Wilson Radial Flow Grid 21 to 424 cfm (10 to 200 l/s), 36 to 720 m ³ /hr
Low Leakage Range	Conical Inlet Nozzle Adapter 2 to 27.5 cfm (1 to 13 l/s), 3.6 to 46.9 m ³ /hr
Resolution	0.01 cfm (0.01 l/s), 0.01 m ³ /hr
Accuracy	±2.5% of reading or ±0.02 cfm (±0.01 l/s, ±0.04 m ³ /hr), whichever is greater

Temperature Measurement (Model 9650)

K Type Thermocouple Probe	To EN60584 (IEC 584)
Range	-40 to 1200°F (-40 to 650°C)
Resolution	0.1°F (0.1°C)
Accuracy	±0.1% of reading ±2°F (±0.056% of reading ±1.1°C)

Barometric Pressure Measurement (Model 9650)

Range	20.36 to 36.648 in. Hg (690 to 1,241 hPa), 517.15 to 930.87 mm Hg
Accuracy	±2% of reading

Power requirements

Model PAN231	220 to 240 V, 1 Phase, 50/60 Hz, 10A
Model PAN231-110	110 to 120 V, 1 Phase, 50/60 Hz, 16A

Weight

121 lbs (55 kg)

Dimensions (L x W x H)

44.5 in. x 26 in. x 20 in. (1,130 mm x 660 mm x 510 mm)

PAN231, PAN231-110

Instruments Included	VelociCalc® Model 9650 meter, DP-Calc™ Model 5815 micromanometer. See spec sheets for details on individual instruments.
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Model 9650



Model 5815



Carry Weight: 99 lbs (45 kg) with Instrument Box
and Flex Carrying Tube Removed.

Specifications are subject to change without notice.

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Knowledge Beyond Measure.

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