

Sentinel Blackbelt Pro

Benchtop Leak and Flow Test Instrument

Providing world-class leak test and assembly verification solutions to industries around the globe.



Instrument Features

Multi-Port, Multi-Channel, Multi Station:

- 1 to 4 independent leak tests
- 1 to 2 independent standard flow tests 3 to 4 independent custom flow tests
- Multiple tests per port

Standard Test Types:

Pressure and Vacuum Testing

- Pressure decay ΔP
- Pressure decay over time ΔP/ΔT
- Pressure decay to leak standard
- Occlusion (blockage)
- Pressure verify
- Mass flow
- Mass flow to leak standard
- Ramp to pressure event
- Ramp to input event
- Ramp to proof event

999 Test Programs

Program selections and flexibility:

- Pressure, flow, and vacuum test types
- Timers
- Pressure limits
- Reject leak limits
- Reject flow limits
- Calibration parameters
- Units of measurement
- Digital I/O
- Tooling control
- Data communication

Touch Screen Interface

• 9" LCD, 800 x 480 color touchscreen

Pneumatic Seal Actuation:

 8 Outputs; easily actuate independent CTS Connect pneumatic seal devices

32-bit Processor & 24-Bit A/D Converter:

- Exceptionally fast, high resolution test processing
- Stable yet extremely responsive pressure/flow measurements

Absolute Pressure Transducer:

- Eliminates test variations from barometric pressure changes
- Uncertainty 0.05% full scale (all ranges)

Pressure Range:

- Standard ranges: -14.5 psig, 0.2-2 psig, 1-30 psig, 1-100 psig, 2-200 psig, 4-400 psig, and 5-500 psig
- Option above 500 psig



Standard Mass Flow Ranges:

- Standard ranges from 0.5 to 3,000 scc/m
- Above 3,000 scc/m available Uncertainty 0.5% full scale (standard ranges)
- Uncertainty 0.05% full scale (all ranges)
- Internal vacuum generation option

Transducer Verification/Recertification:

- Pressure and flow transducers
- 6 point standard flow calibration

6-point standard pressure calibration

Available Pneumatic Manifolds- Optimization Transducer Verification/Recertification:

- Low volume
- Standard flow
- High flow
- Super high flow option
- Internal vacuum generation option

Test Ports:

- 1, 2, 3, or 4 ports
- 1/8" FNPT, Male or Female Luer
- Other size options

Leak Standards:

- Internal leak standard on the manifold
- Optional external leak standard port

Pressure Control

- Standard high precision manual regulators
- High flow, precision manual regulators for mass flow
- Select up to two precision electronic regulators for automatic pressure changes, unique to each test port
- Six point e-regulator calibration

Units of Measure:

 All standard industrial units of measure are easily selectable per part program

Self -Test Functions:

- Internal leak detection process
- Program calibration verification

TCP/IP and RS232 Communication Ports:

- 2-Way Telnet communication
- Test result data transmission with definable fields
- Pressure streaming for curve storage
- Email of reports, test data ,and alerts

Ethernet Port:

- 2-Way Telnet communication w/Email of reports, test data ,and alerts
- EtherNet/IP™ Option
 Additional 50 Inputs/53 Outputs (digital)
- Test result data transmission with definable fields
- Test Program Selection

USB Ports (3)

- Backup/Restore
- Cloning
- Report storage
- Test result data storage & result synchronization

Automatic Calibration

- Easy to perform
- Permits manual edits if averaging multiple parts is required
- Calibrates to master part

Environmental Drift Correction:

 Automatically maintains calibration accuracy to compensate for changes in environmental conditions including temperature



Quik Test Function:

- Shortens test cycle when it is obvious and imminent the monitored pressure curve will result in a reject or accept
- Analyzes test results in real time
- Provides projected final test results

24 Volt Digital Inputs/Outputs

- 18 User configurable inputs
- 18 User configurable outputs
- Tooling control up to five tooling motions with feedback - eliminates the need for a PLC in some cases

Smart Key™ or Password Security:

• Select menu items to secure or unsecure

Language Neutral Keypad

Help Button:

- On-screen popup help window
- Minimizes dependency on the manual

Data Management & Storage:

- 1,000,000 tests stored on internal memory
- Infinite Expandable Storage Via USB
- Statistic Data Tracking
- Tracks Percent of Accept and Rejects
- Provides Average Accept and Reject
- Standard Deviation on Accepts
- Allows definable Sample Size
- Resettable counters:
- Test Results Including Malfunction
- Data Viewable on Display

Onscreen Status and Test Indicator:

- Onscreen status and color illumination provides clear feedback of each test
- Eliminates stack lights
- Adjustable brightness

Compact Enclosure Design:

Dimensions:16.25" wide x 13.5" height x 10" deep

Utility Requirements:

- Electrical: 88-264 VAC, 47/63 Hz
- I/O supply: 24 VDC selectable on board Onboard use - maximum 1 Amp
- External I/O supply selectable and recommended when exceeding 1 Amp use.
- Pneumatic:
 - Pressure Input = 20 psig above maximum test pressure, clean dry compressed air or nitrogen
 - Pilot Input (if required) = 60 psig, clean dry compressed air or nitrogen

Environmental Factors:

- Operating temperature range:
 5°C to 40° C (41°F to 104°F)
- Maximum humidity: 90% relative humidity, non-condensing
- Maximum operating altitude:
 2,500 meters (8,200 feet)
- Indoor use only, IP20