



# Sentinel Blackbelt Pro

## Wall Mount Leak and Flow Test Instrument

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



### Instrument Features

#### Multi-Channel/Stations Available:

- Discreet pneumatic circuit for each channel allowing Synchronous or Asynchronous testing
- 1 to 4 independent leak tests
- 1 to 4 Independent flow tests
- Multiple linked tests per port

#### Test Types Available:

##### Pressure and Vacuum Testing

- Pressure decay -  $\Delta P$
- Pressure decay rate -  $\Delta P/\Delta T$
- Pressure decay to leak standard
- Occlusion (blockage)
- Pressure verify
- Mass flow
- Mass flow to leak standard
- Ramp to  $\Delta$  pressure event
- Ramp to input event
- Ramp to proof event

#### Program Selections and Flexibility:

- 999 Test Programs
- 100,000 selectable tests with up to - 100 tests per program
- Pressure, flow, and vacuum test types
- Timers
- Pressure limits
- Reject limits
- Test 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 Available:

- Up to 8 independently actuated pneumatic outputs
- Allow easy use of CTS Connect pneumatic seal devices
- Often eliminates need for PLC tooling control

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

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

#### Absolute Pressure Transducers:

- Eliminates test variations from barometric pressure changes
- Test pressure accuracy, 0.05% uncertainty full scale (supplied with calibration certificate)

**Pressure Ranges Available:**

- Standard ranges: 0.5-14.5 psiv, 0.25-2.5 psiv, 1-30 psig, 1-100 psig, 2-200 psig, 4-400 psig, and 5-500 psig
- Custom ranges over 500 psig

**Mass Flow Transducers Available:**

- Thermal and Laminar models
- Test air flow accuracy, 0.5% uncertainty full scale (supplied with calibration certificate)

**Mass Flow Ranges Available:**

- Standard ranges from 0.5 to 3,000 scc/m
- Custom ranges to 250 sl/m

**Transducer Verification/Recertification:**

- Pressure and flow transducers
- 6-point standard pressure calibration
- 6 point standard flow calibration

**Pneumatic Manifolds Available:**

- Low volume
- Standard flow
- High flow
- Super high flow
- Internal vacuum generator

**Test Ports Available:**

- 1, 2, 3, or 4 ports
- 1/8" FNPT, Male or Female Luer
- Other sizes including BSPT available

**Leak Standards Available:**

- Internal leak standard mounted on the pneumatic manifold, or
- External leak standard quick-disconnect port

**Pressure Controls Available:**

- Standard high precision manual regulators
- High precision electronic regulators
- High flow, precision manual regulators for mass flow testing
- Ultra precision electronic pressure controllers for mass flow testing

**Units of Measure:**

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

**Self -Test Functions:**

- Internal leak detection process
- Test calibration verification

**TCP/IP and RS232 Communication:**

- 2-Way Telnet communication
- Test result data transmission with definable fields

**EtherNet/IP™ Network Communication:**

- OVDA Conformant
- Additional 50 Inputs/53 Outputs (digital)
- Function Block Program included
- Real-Time Messaging of test results, errors & I/O Status
- Test Program Selection

**USB Ports (3)**

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

**Automatic Test Calibration**

- Easy to perform
- Converts  $\Delta$  measured value to leak rate
- 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

**Quick 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 18 tooling motions with feedback – often eliminates the need for a PLC

**SmartKey™ or Password Security for Unique Users:**

- Unique user ID's for over 200 individuals
- Menu selectable permissions for each user
- User identity attached to result data

**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
- Resettable counters:
- Test Results Including Malfunction
- Data from Last 1000 tests viewable on Display

**Status and Test Indicators:**

- Onscreen status and color illumination provides clear feedback during and after test
- Eliminates stack lights

**Compact Enclosure Design:**

- Dimensions:  
16.9" wide x 16.6" height x 10.3 deep

**Utility Requirements:**

- Electrical: 88-264 VAC, 50/60 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