



# SENTINEL Blackbelt®

Leak and Flow  
Test Instrument

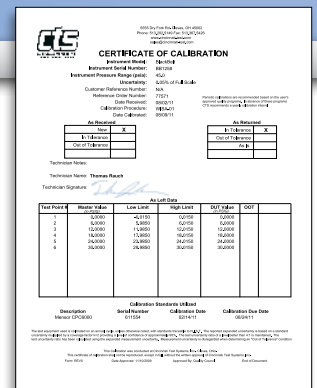
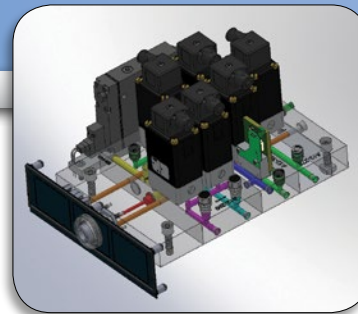


Providing world-class leak test and assembly verification solutions to industries around the globe.

# SENTINEL Blackbelt®

Cincinnati Test Systems is a world leader in the design and manufacture of standard and custom test solutions.

The Sentinel Blackbelt® utilizes pressure and/or vacuum for precision testing. The benchtop design conducts testing with advanced algorithms derived from over 30 years of leak test experience to produce fast and accurate results in minimal space.



## Flexible Design

The Sentinel Blackbelt instrument offers many testing capabilities in a compact, benchtop design. The instrument can be ordered with multiple test options; the test options may operate as independently conducted tests or as a complete testing sequence. The Blackbelt may be ordered with one, two, three, or four test ports.

## Modular Manifold Design

The Blackbelt manifold is specially engineered for flexibility in a small footprint. Its modular design allows for future functionality changes. The machining process to manufacture each manifold supplies precise replication of internal volumes (critical in pressure loss over time tests). Valves matched with the manifold provides millions of worry free cycles.

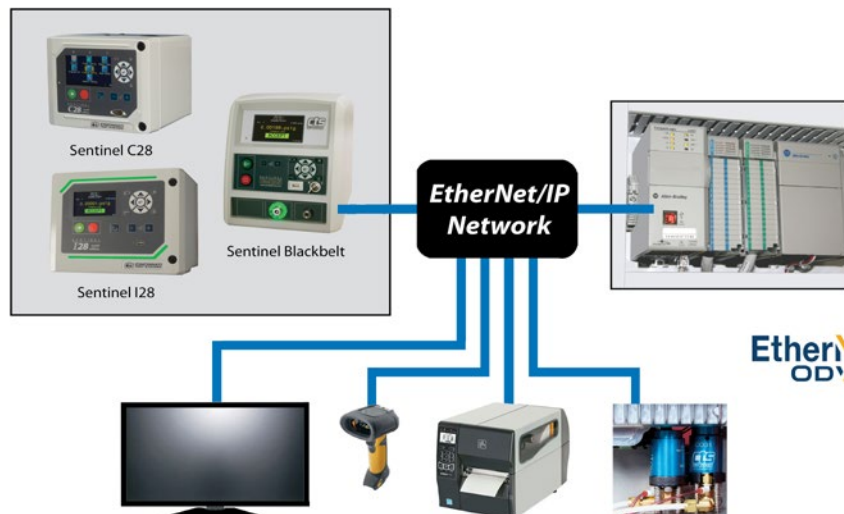
## Certified Performance

Cincinnati Test Systems supplies each standard instrument with a NIST traceable Certificate of Calibration identifying multiple pressure and flow measurement points for its full range of operation.

## EtherNet/IP™ Communication

- Leak and flow system integration made easy
  - RJ45 interface connection
  - Reduces installation time
  - Simple 'plug-and-play' integration to PLC
- Provides more I/O
  - 26 inputs / 25 outputs
- CTS EtherNet/IP is ODVA Conformance Tested for flawless operation and verified data exchange

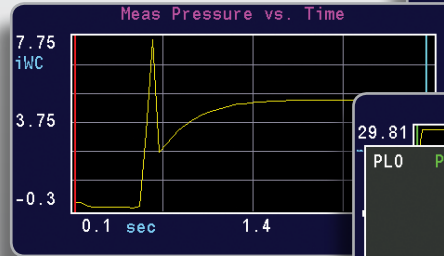
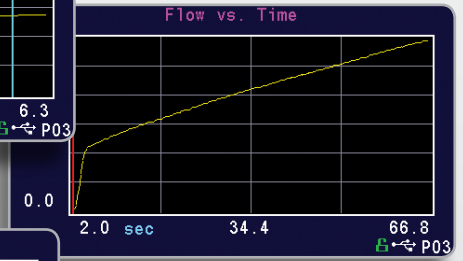
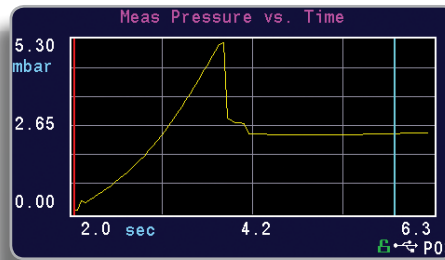
Typical CTS EtherNet/IP Network Interface



EtherNet/IP  
ODVA

## Available Test Types

- Pressure or vacuum decay -  $\Delta P$
- Pressure or vacuum decay -  $\Delta P / \Delta T$
- Pressure or vacuum decay - leak std.
- Pressure or vacuum occlusion
- Pressure or vacuum mass flow
- Mass flow pressure - continuous flow
- Mass flow pressure - leak STD
- Controlled flow
- Pressure or vacuum burst
- Pressure or vacuum proof
- Ramp to pressure event
- Ramp to flow event



Custom Blackbelt installation

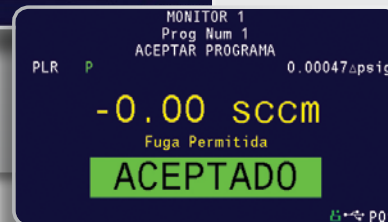
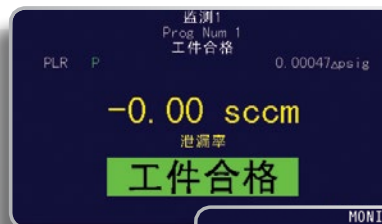


## Performance Features

- Manually or electronically set regulators
- Test pressure accuracy, 0.05% uncertainty full scale
- Test air flow accuracy, 0.5% uncertainty full scale
- Sequential testing
- Self Test
- Patented Auto Set-up
- Digital Pressure Correction
- Onboard data storage for 12,000 results
- Built-in powered digital Input & Output signals
- Adjustable Audible Alarm
- Available with an Internal Vacuum Generator
- Program Calibration utilizing an optional internal or external NIST Leak Standard
- Multi-point calibration on electronic regulators

## Communication Capabilities

- Ethernet connection
- Ethernet/IP™ communication
- RS232 connection
- Bar code upload
- Download, backup, and data storage via USB



**Menu Selectable Language** allows instant changing between languages:

- English
- Spanish
- Portuguese
- Chinese
- Korean

## Fast, Friendly Service and Support

### No Charge Phone Support

Call (513) 202-5108 weekdays 8am - 5pm EST.

Call (513) 202-5174 weekday evenings, weekends, holidays, and after hour emergencies, 5pm - 8am EST.

CTS can also schedule on-site service, start-up, installation, training, and troubleshooting.



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## Other Sentinel Test Instruments and CTS Products



### TracerMate CS

The Sentinel TracerMate CS is a precision benchtop or wall mount Tracer Gas, Evacuate and Charge instrument designed for maximum performance and minimal space.



### C20WE

The Sentinel C20 World Edition is a low cost, high-performance, pressure decay leak test instrument that integrates easily into production lines for many applications.



### C28WE and C28DP

The Sentinel C28 World Edition is designed with additional options, I/O capabilities, and test parameters beyond the C20WE. The C28DP provides differential pressure decay testing up to 200 psig.



### I28

The Sentinel I28 is the most advanced multi-function test instrument on the market. The I28 features a standard valve manifold design tested with over 40,000,000 cycles.



### Blackbelt Pro

The Sentinel Blackbelt Pro is our 'next generation' of multi-port/multi-channel instrumentation. It can manage and simultaneously execute 4 part tests under the control of one Blackbelt Pro instrument.



### Specialized Instrumentation

For those special applications, CTS offers custom test solutions with capabilities exceeding standard instruments. Call the CTS Products Group to discuss your special testing needs.

### CTS Connect®

CTS offers a standard line of pneumatic connectors, manual connectors, and luer connectors, as well as custom seals. Our line of connectors and custom seals are designed for ease of use, longevity, and reliability.



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