



SENTINEL Blackbelt Pro™

Multi-Channel
Leak, Flow, Pressure
and Vacuum
Instrument

EtherNet/IP™
Communications
Inside



PRESSURE SOURCE 2
0-10 PSIG

FLOW
CONTROLLER
0-5 SLPM
CR-135



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

The Standard for High-Productivity Multi-Channel Leak Testing...



*Blackbelt Pro
Benchtop
Instrument for
Medical Industry
Applications*

*Blackbelt Pro Wall
Mount Instrument
for Industrial
Applications*



The Sentinel Blackbelt Pro™ is our Next Generation of multi-test, multi-port, multi-channel test instrumentation. It manages and simultaneously executes 4 part tests, at different stations, and all under the control of one Blackbelt Pro instrument.

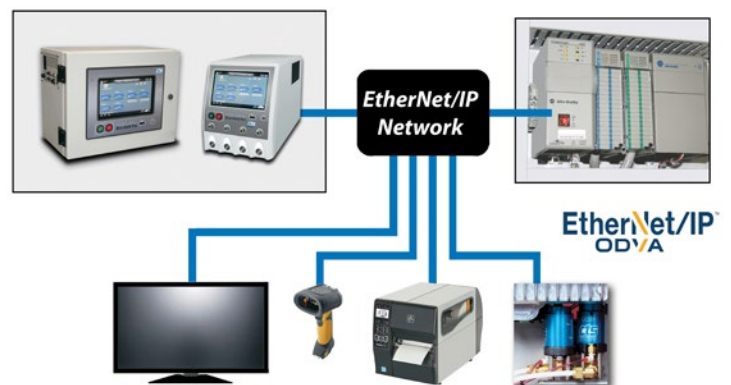
The Blackbelt Pro sets the bar for productivity, flexibility, and communication. It provides leak, flow, pressure, and vacuum testing in one instrument with simultaneous or sequential test capabilities.

Blackbelt Pro Spotlight Features

- Available in Benchtop and Wall Mount units
- Configurable to provide up to 4 independent test ports
- Synchronous and asynchronous testing capability
- Sequential and conditional linked test capability
- On-board storage for 999 programs and test configurations
- On-board storage for 1 million test results
- Flexible communication capability
 - Ethernet/Telnet, EtherNet/IP™, download, backup, and data storage via USB
- Digital I/O
 - Discrete instrument I/O, 18 I/O and Tooling Control
 - EtherNet/IP I/O - Additional 50 inputs / 53 outputs
- SmartKey™ technology for 21CFR Part 11 compliance
- 40 million cycle valve manifolds

EtherNet/IP™ Communication

- Leak and flow test system integration made easy
 - RJ45 interface connection
 - Reduces installation time
 - Simple 'plug-and-play' integration with PLCs
- Provides more I/O
 - 50 inputs / 53 outputs
- CTS EtherNet/IP™ is ODVA™ Conformance Tested for flawless operation and verified data exchange



SENTINEL

Blackbelt Pro™



Leak, Flow, Pressure and Vacuum Testing in One Integrated Unit

Wall Mount Unit

The Blackbelt Pro Wall Mount is our newest industrial test instrument designed for leak, flow, pressure, and vacuum testing. Its small footprint cabinet provides room for multi-station hardware, wiring, and connections designed for easy installation and maintenance.

Easy access manual pressure regulators are located on the bottom of each cabinet for its 1 to 4 independent test ports. As an option, the instrument can be equipped with electronic pressure regulators for programmable test pressure control.

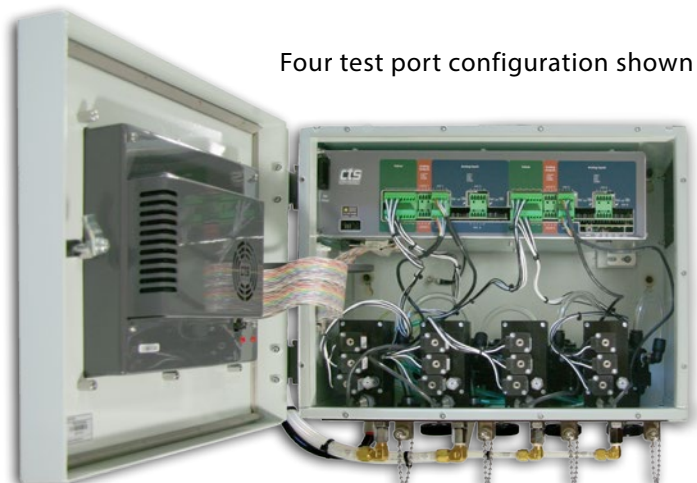
The communications panel for the Wall Mount instrument is located on the left side of the instrument and provides connectivity to power, I/O, RS232, Ethernet, and USB.

Instrument Highlights

- Leak, flow, pressure, and vacuum testing in one instrument
- Small footprint multi-station instrument; 16.9 W x 16.6 H x 10.3 D (inches)
- Integrated controls and pneumatics
- Concurrent, sequential, and conditional testing
- Test ports and pressure regulators are located on the bottom of the cabinet for easy access
- 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
- Replacement control to the CTS legacy M24 instrument
- Complimentary control to the Sentinel I28

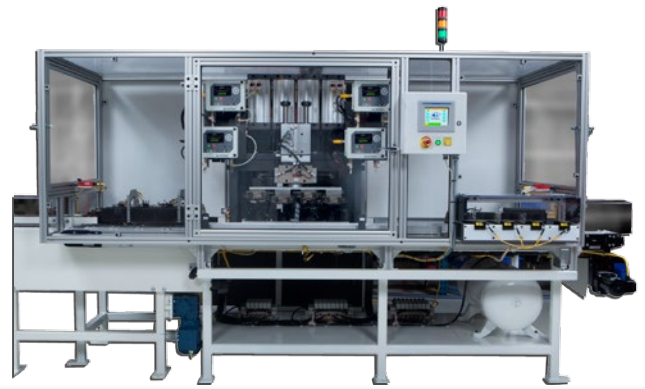


Three test port system shown



Four test port configuration shown

One Blackbelt Pro instrument can replace 4 single station test instruments.



Independent Four Port Integrated Testing



Benchtop Unit

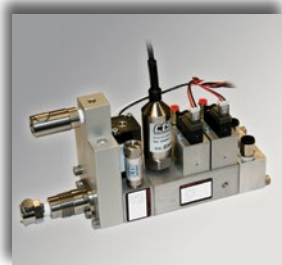
The Benchtop unit is an advanced small packaged design integrated with controls and pneumatics to simultaneously manage and execute up to 4 independent tests; synchronously or asynchronously. The Benchtop is supplied with the test port connections on the front of the unit for easy connection.

Pressure regulators are located on the rear of the unit for manual adjustment; optional electronic pressure regulators are available. As standard, the Blackbelt Pro Benchtop is equipped with 1, 2, 3, or 4 1/8-inch FNPT test port connections.

The Benchtop's communications panel is located on the rear of the enclosure for connectivity to power, I/O, RS232, Ethernet, USB, and up to 8 pneumatic actuation circuits for sealing actuation.

Instrument Highlights

- Leak, flow, pressure, and vacuum testing all in one instrument
- Small footprint multi-station instrument; 10.8 W x 12.9 H x 21.7 D (inches)
- Integrated controls and pneumatics
- Test ports on the front with LED operator lights 1, 2, 3, or 4 independent test ports
- Concurrent, sequential, and conditional testing
- Pressure regulators and electrical connections are located on the rear of the unit
- 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
- Complimentary control to the Sentinel Blackbelt, providing enhancements meeting medical industry requirements



CTS pneumatic manifolds rated for 40 million cycle life

Sentinel Blackbelt®

The Sentinel Blackbelt benchtop instrument is the sister control to the new Blackbelt Pro. The Blackbelt provides up to 4 port sequential part testing in a single instrument.



Traditional CTS World-class Features

- Instrument self-test
- Quik test
- Environmental drift correction
- Absolute pressure transducers
- Broad range of functional test types
- Program linking
- Choice of manifold flow
- Pressure correction
- Calibration leak masters
- Transducer calibration
- Test port connection fittings
- External leak test ports
- Auto calibration to leak std.
- Electronic pressure regulators
- Global language friendly



Blackbelt Pro... the Next Generation of Multi-Part Test Instruments

Available Test Types

Pressure or Vacuum Testing

- Pressure decay - ΔP
- Pressure decay over time - $\Delta P/\Delta T$
- 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



Certified Performance

Cincinnati Test Systems supplies each standard Blackbelt Pro instrument with a N.I.S.T. Traceable Certificate of Calibration identifying multiple pressure and flow measurement points for its full range of operation.

Flexible Communications

- Ethernet/Telnet
- Ethernet/IP™ communications
- RS232 connections (two ports)
- USB - 3 ports
- Digital Hardware I/O
 - 18 inputs, 18 outputs with Tooling Control
 - All programmable
- Additional EtherNet/IP I/O
 - 18 inputs / 21 outputs pre-defined
 - 32 inputs / 32 outputs programmable
- Program selection:
 - Touchscreen, digital I/O, and RS232 download
- System backup and cloning



Operator Interface

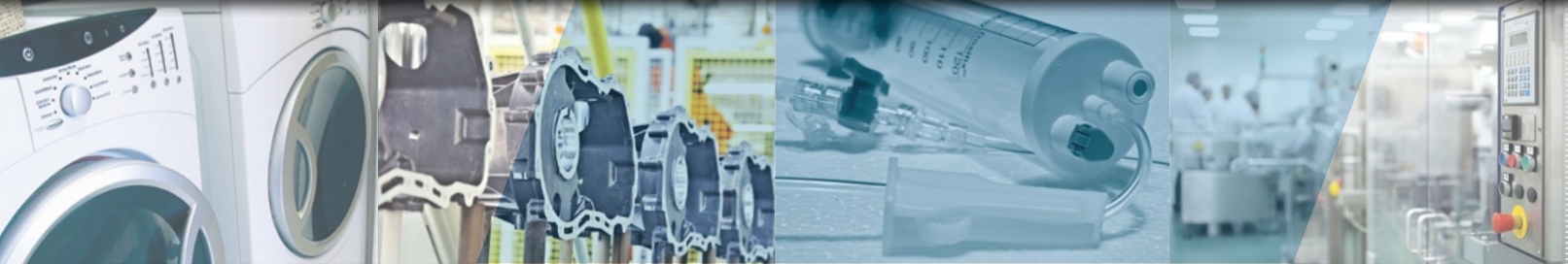
- Large 9 inch touch screen hi-res 800 x 480 LCD display with graphics to display custom charts and XY graphs
- Touchscreen menu selection technology
- Two operation modes: Basic and Advanced
- Language neutral interface
- Data security:
 - Multi-level password access
 - SmartKey™ technology



Optional SmartKey™



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



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.



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.



C28WE and C28DP

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



Blackbelt Benchtop

The Sentinel Blackbelt is designed to medical industry standards, providing up to 4 test port, sequential testing, and configurable with a broad range of pressure and vacuum tests.



Specialized Instrumentation

For those special application, 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.



Corporate Office

Cincinnati Test Systems
10100 Progress Way
Harrison, OH 45030
(513) 367-6699
Fax: (513) 367-5426
www.cincinnati-test.com

China

Cincinnati Test Systems
Dongfang Road 3601
Harvest Industrial Park No. 7 Building
Room 403
Pudong, Shanghai, China 200125
+86 +21 58366290
Fax: 96-21-58366290

Korea

Cincinnati Test Systems Korea Inc.
104-1110, Sk Ventium
#522 Dangeong-d
Gunpo-si, Gyunggi-do, 435-776 Korea
+82-707-7501-7743
Fax: 82-31-624-4743



Scan to view our web site
Blackbelt Pro, Smartkey, and
CTS Connect + are trademarks of
Cincinnati Test Systems Inc.
©2016 Cincinnati Test Systems Inc.



Printed in U.S.A.