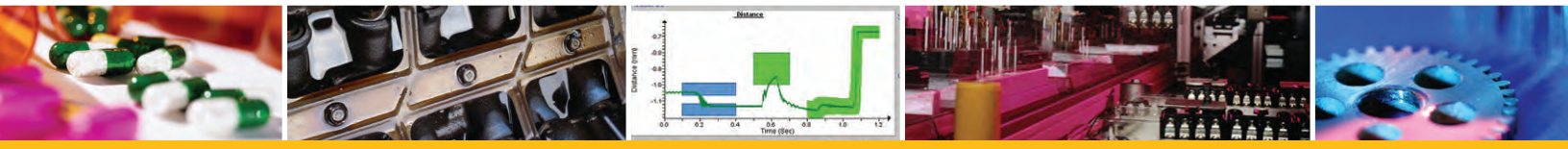
sciemetric®

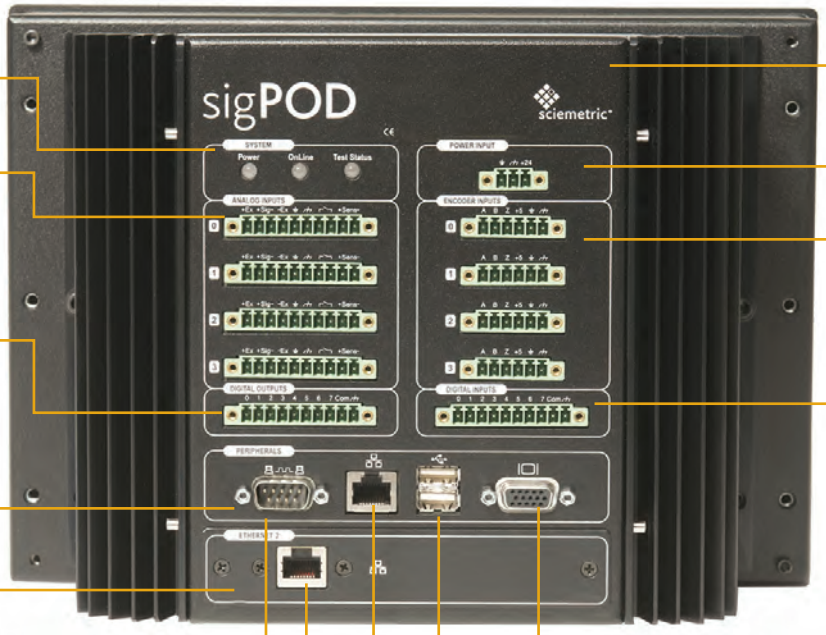


sigPOD

MONITOR AND CONTROL MANUFACTURING PROCESSES

Flexible Monitoring Platform

sigPOD is an in-station process monitoring platform that uses advanced signature analysis to track manufacturing processes, deliver real-time pass/fail feedback and the most advanced defect detection.



System LEDs

Analog Inputs
- 2-4 channels
- 16 bit A/D , ± 32,768 counts
- Up to 250 kHz/number of channels
- + 10 VDC excitation

Digital Outputs
- 8 channels
- Can switch up to +1 A at + 48 VDC or VAC peak
- Optically isolated

Peripheral I/O

Powerful Processor
- 1.60 GHz Quad Core or greater
- 120 GB SSD or greater

Serial Port
- Serial number input
- Test results output

Dual Ethernet Ports
Consists of:
- Gigabit Ethernet port
- 100Mb Ethernet port

Enables:
- Data record transfer
- Backup/recall of sigPOD setup and data

USB Ports
- Supports USB V2.0
- 2 or 4 ports
- Use for system backup, install and data retrieval
- Peripherals

Monitor Port
- Ability to connect external SVGA monitor

NEMA-12 Approved

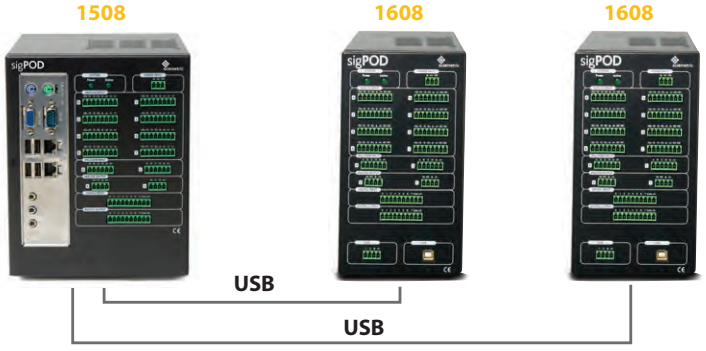
24 VDC Power Input

Encoder Inputs
- 2-4 channels
- 32 bit counter
- 5 VTTL or OC (Open Collector)

Digital Inputs
- 8 channels
- + 48 VDC
- Optical isolation

Model 1204 pictured above

Expandable System



Example 24-Channel System:
Higher channel capacity applications can be supported using Model 1608 expansion units.

sigPOD

Scalable and Powerful

Compact, robust design easily integrates into any manufacturing station.

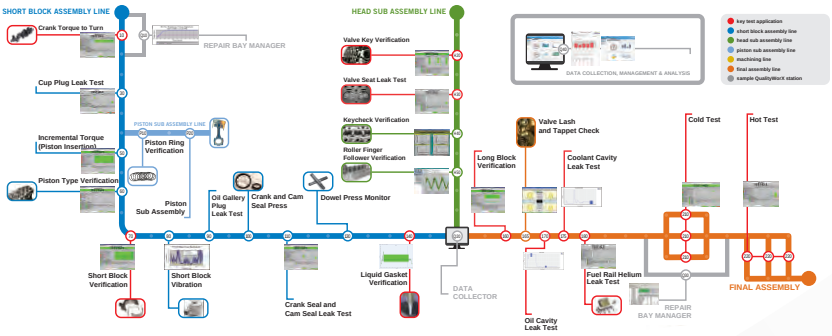
- **Unmatched data collection** with a wide range of analog, encoder and digital input channels and optional expansion modules. Models range from 2 to 8 analog channels and 2 to 4 encoder channels.
- **Expansion units** offer inputs for up to 16 additional analog channels or 64 additional encoder channels for more complex applications.
- **Robust, high speed solid-state drive** provides storage for more than 5,000 complete test records including high resolution waveforms. Store, retrieve and view signatures, histograms, trends and statistics directly on the sigPOD.
- **Industry-leading connectivity options** (EtherNet/IP, ModbusTCP, PROFINET) provide remote communications with virtually any PLC or other common plant floor systems.
- **Wide variety of mounting options** (depending upon model) include machine mount, panel mount, wall mount and DIN rail to suit any manufacturing work space.

Standardize Testing Across the Plant

Achieve greater efficiency and reduce costs by standardizing part test and process monitoring onto a single platform. Instead of learning and managing dozens of different types of systems, plant personnel can focus on making quality and productivity improvements on the assembly line.

The unmatched versatility of sigPOD drives the commonality strategy through:

- **Common hardware**
- **Common software**
- **Common look and feel**
- **Common learning curve**
- **Common spare parts**



Commonality streamlines test development, accelerating production launch and reducing time to market. Because it is only one type of hardware, it simplifies maintenance and dramatically decreases sparing requirements, reducing capital costs. The common software makes it easy for operators and engineers to go from station to station, minimizing training.

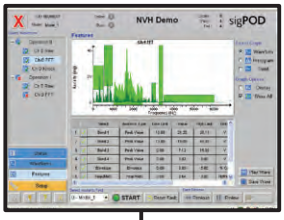
Configurable for Any Test

Leak Testing

- Best leak monitoring software available
- Plug and play connectability
- Applications: medical devices, engine chambers, any application where seal integrity is critical

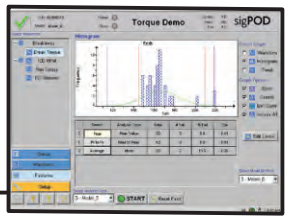
Sound & Vibration Analysis

- Designed for the production line
- Configurable setup for time, frequency, and orders domain analysis
- Applications: rotating machinery, motorized assemblies, resonance testing and machining



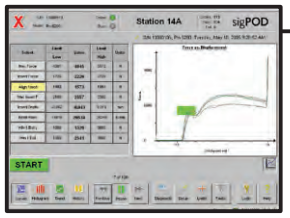
Torque Monitoring

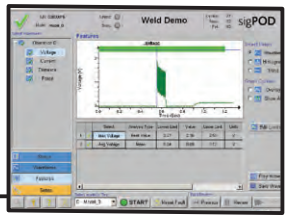
- Multi channel torque and encoder signal support
- Built-in analysis algorithms
- Applications: engine shafts, electric motors, compressors, pumps, etc.



Press-Fit Monitoring

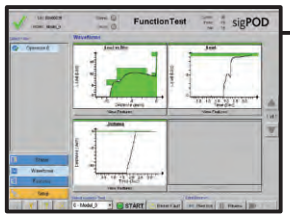
- Sciemetric has been supplying press monitors since 1991
- Built-in proven defect detection algorithms
- Applications: for any assembly operation involving press-fitting





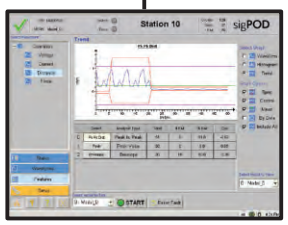
Weld Monitoring

- Integrated analysis for resistance and ultrasonic welding
- Monitors: voltage, current, force distance, amplitude, frequency, power
- Calculates: dynamic resistance, instantaneous power
- Application: medical instruments, automotive assemblies



Functional Testing

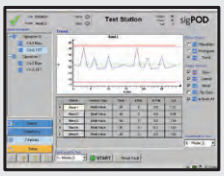
- Completely programmable and flexible platform
- Uses Sciemetric InspeXion IDE software to develop almost any application
- End-of-line testing, e.g., cold or hot engine test, electric motors, pumps



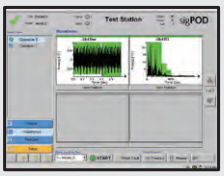
Process Monitoring

- Customizable without programming
- Support for most analog sensor inputs and encoders
- Applications: monitoring any repetitive waveform or signature such as dispensing and profiling

Configurable Software: No Programming Required



Features **SPC for limit management.** Uses production statistics to calculate optimal test limits.



Runs **advanced signature analysis** for greatest accuracy.

Best-in-class user interface with screens tailored for each user: engineer, supervisor, and operator. Common GUI across applications.

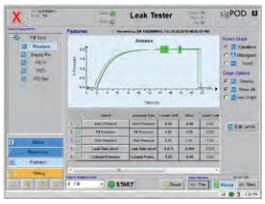
Free Templates

Pre-configured templates for a range of applications are available via the Sciemetric Customer Support Center at support.sciemetric.com

Four Ways to Store, View and Analyze sigPOD Data

1 Comprehensive In-Station SPC Reporting

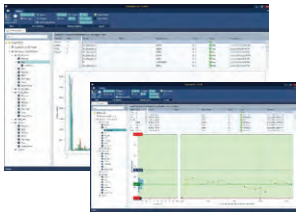
Maximize the value of the sigPOD by putting the data collected to work to help reduce downtime, quickly diagnose station issues and improve both manufacturing quality and yield.



Use the sigPOD's comprehensive SPC reporting to track test results right on the test stand even while the system is monitoring production. Local data storage for thousands of production cycles provides traceability for recent production.

2 Sciemetric Studio

Use Sciemetric Studio software on your desktop to analyze part data and waveforms. Find trends, simultaneously view data from multiple test records and from multiple test stations and more. Drag and drop records to be analyzed into a project or use the optional Remote Store to push data from a sigPOD to the location of your choice for easy access.



3 qualityworx

For long-term traceability, real-time reporting and analytics, connect all of the sigPODs and other systems on the production line to a QualityWorX database. Track production KPIs using dashboards, create reports that provide deep drill-downs to the part level and conduct in-depth, what-if analysis to determine the root causes of issues affecting quality and productivity.

4 QualityWorX CTS DataHub NEW!

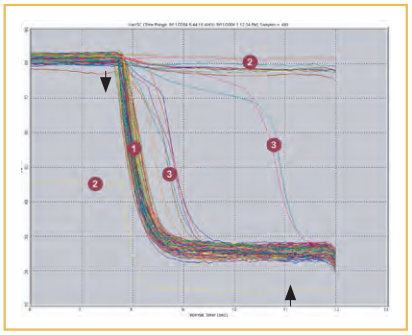
Combine all software capability in one turnkey solution
Set up data analytics on a variety of production processes in minutes with the QualityWorX CTS DataHub! Connect up to five devices to start collecting and analyzing data, without the need for complex IT support to set up. This solution is compatible with Sciemetric's sigPOD and 3520 Series, and a selection of Cincinnati Test Systems' leak test instruments.

WINNER! **New Product of the Year Award** at The ASSEMBLY Show 2018

Find Defects Other Systems Miss With sigPOD

Sciemetric pioneered signature analysis in manufacturing over 30 years ago and the sigPOD features the most advanced process signature verification (PSV) technology available today.

By analyzing and collecting more data points than is typical in conventional test systems, PSV provides the most accurate, reliable and repeatable measurement of manufacturing processes.



1 Repeatable waveforms of a healthy process producing good parts. The waveforms in 2 are the obvious failures, which are usually caught. The waveforms in 3, however, are often missed by other monitoring systems because they meet the minimal criteria for a "pass".

sigPOD Models and Specifications

Model	1202/1204	1508	1608
Name	sigPOD	sigPOD	8-ch USB Expansion
Analog In	2/4	8	8
Analog Range	±10, 2, 0.1, 0.033 V	±10, 5, 2, 1, 0.5, 0.2, 0.1V	±10, 5, 1, 0.2V
Bandwidth	20 kHz	1.7 MHz	700 kHz
Anti-Aliasing Filters	✔	-	-
Max Sample Rate	250 kHz	1 MHz	250 kHz
Analog Out	-	2	2
Encoder In	2/4	2	2
Digital I/O	8/8	8/8	8/8
Processor[1]	1.91 GHz Quad Core	1.60 GHz, 2.24 GHz Burst, Quad Core	-
Memory[1]	8 GB	8 GB	-
HD[1]	120 GB SSD min.	120 GB SSD min.	-
USB	2 V2.0	3 V3.0 1 V2.0	1 V2.0 out
Ethernet	2	2	-
Free PCI Slot	-	-	-
Operating System [2]	Windows® 10 IoT	Windows® 10 IoT	-
Size – inches (mm)	7.5 x 9.66 x 4.2 (199 x 241 x 107)	8 x 6.5 x 8 (203 x 165 x 203)	8 x 4.5 x 8 (203 x 114 x 203)
NEMA 12 (IP 52)	✔	-	-
Expandable [3]	✔	✔	-
Optional Integrated Display	10.4"	-	-
Mounting			
Machine Mount	✔	-	-
Panel Mount	✔	-	-
Wall Mount	Non TFT only	✔	✔
DIN Rail	✔	✔	✔

For specifications on the QualityWorX CTS DataHub, please see the dedicated specifications sheet.

[1] The exact processor type and speed, memory supplied and other technical specifications are subject to change without notice. Please contact Sciemetric for latest specifications.

[2] Alternative option of Windows® 7 Embedded, subject to availability. Confirm with factory.

[3] Measurement capabilities can be expanded through addition of 1608.

sigPOD Technical Specifications

Power

Supply Voltage	24 VDC (22 to 28 VDC)
Power Consumption	65 W maximum, 40 W typical

General

Operating Temperature	5 to 45 ˚C
Environment	NEMA 12 (IP 52) Model 12xx only, other Models IP 30
Paint Finish	Black backed powder
Monitor	SVGA Connector (all models), HDMI (available with Model 1508 only)
Keyboard/Mouse	USB

Analog Input

Number of Channels	2, 4 and 8 channel
Input Ranges	See model chart
Input Accuracy	±0.02% for ±1 V range and greater; ±0.05% for ranges less than 1 V
Resolution	16 bit A/D, ±32,768 counts
Maximum Sample Rate	250 kHz (1 MHz Model 1508)
Input Impedance	10 G Ω || 100 pF power on, 820 Ω power off
Small Signal Bandwidth	1.7 MHz (Model 1508) 700 kHz (Model 1608) 20 kHz (Model 12xx)
Cross Talk	75 dB adjacent channels, 90 dB non-adjacent channels
CMRR (DC to 60 Hz)	75 dB (Model 12xx) 92 dB (Model 1608) 100 dB (Model 1508)
Overload Protection	±25 V for up to two channels powered and ±15 V when off

Analog Excitation

Excitation Voltage	+10 VDC
Maximum Current	100 mA per channel
Accuracy	±0.1 %
Maximum Noise	100 µV
Short Circuit Protection	Continuous

Encoder Input

Number of Channels	1 or 2 (see chart)
Sensors	Rotary encoders and linear scales
Input Voltage	5 V TTL or OC (Open Collector)
Signal Type	Quadrature or Single Phase
Max Input Frequency	10 MHz TTL, 50 kHz Open Collector
Counter	32 bit (±2 x 10^9 counts)
Input Protection	+24 V or -18 V without damage
Sensor Power	+5 VDC @ 150 mA, current limited

Digital Inputs

Number of Channels	8 with common return line
Polarity	Bidirectional
Isolation Voltage	±120 V (Optically isolated)
Input Current	less that 2.3 mA
Input for Low State	8 VDC maximum
Input for High State	16 VDC minimum
Maximum Input Voltage	±48 V
Switching Speed	2 msec

Digital Outputs

Number of Channels	8 with common return line
Polarity	Bidirectional
Isolation Voltage	120 V (Optically isolated)
Switching Capability	±1 A @ ±48 VDC or VAC peak
Contact Resistance	> 100 M Ω off; <0.5 Ω on
Power On State	All Off
Switching speed	8 msec

Analog Outputs

Number of Channels	2 depending on model
Resolution	16 bits
Accuracy	0.02 %
Output Range	±10 V
Output Impedance	0.2 Ω
Output Drive Current	±5 mA
Protection	±25 V
Power On State	±5 mV
Power On Glitch	1.5 V for 1.5 S

sigPOD

SIMPLY THE BEST TECHNOLOGY TO MONITOR AND CONTROL MANUFACTURING PROCESSES

Find answers with the Manufacturing Intelligence Team (MIT)

For expert assistance in resolving manufacturing process problems, consult with Sciemetric's unique Manufacturing Intelligence Team (MIT). Having walked hundreds of lines and developed as many applications, MIT can evaluate test processes, conduct engineering trials and develop custom process monitoring applications to meet your requirements.

Feel confident with our Global Services, Installation and Support

Sciemetric has teams of applications specialists to deliver successful installations and ensure your systems and software are operating properly. We provide integration, commissioning and run-off support, deploying our specialists globally to debug, validate and fully integrate our software and equipment on the integrator's shop floor, run-off at the integrator and at the plant, and launch support for start of production.

About Sciemetric

Since 1981, Sciemetric's process monitoring and quality management systems and software have enabled some of the world's leading automotive, medical and industrial manufacturers to gain visibility into and control over their manufacturing processes. On the production floor, Process Signature Verification (PSV™) technology provides the most accurate determination of process health and part quality while collecting all data. Manufacturing managers use Sciemetric's analytic tools to transform the data into actionable information to reduce costs, manage quality, and maximize yield while providing proof of process compliance and complete line-wide traceability. Visit www.sciemetric.com for more information.

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