



# Product specifications and ordering information

## SETPOINT® Condition Monitoring Solution for VCM-3

### Overview

SETPOINT® Condition Monitoring Solution provides a powerful, flexible, and comprehensive solution for collection, storage, and visualization of vibration and condition data from the Vibro Condition Monitoring System 3 (VCM-3) device for auxiliary machinery, allowing trending, diagnostics, and predictive maintenance of monitored machinery. The software is implemented using the OSIsoft PI System. Data is streamed continuously from all supported devices\* into a connected PI System®. It consumes on average 17 PI tags per connected vibration transducer. Customers can use their existing OSIsoft® PI System, or for those without PI, a stand-alone SETPOINT® server powered by the PI System® can be deployed as a self-contained condition monitoring solution.



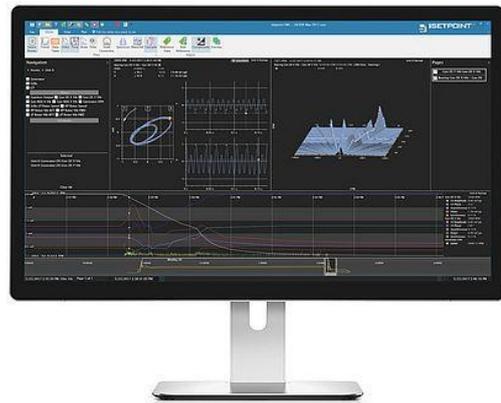
Either solution provides the condition monitoring functionality (see Tables 1 and Table 2) by offering full integration with process data, integrated aero/thermal performance monitoring, integrated decision support functionality, nested machine train diagrams and nearly unlimited visualization capabilities via PI Vision and all of the power of the PI System® and its ecosystem of complementary technologies.

The SETPOINT® solution offers a full condition monitoring solution for all rotating and reciprocating assets in your plant when paired with the VCM-3 for auxiliary machines and VC-8000 for critical machines.

\* VIBROCONTROL 8000 (VC-8000) Machinery Protection System (MPS) is also supported for critical machinery, refer to S1157533002 for specification

### Data Capture/Compression

SETPOINT® can store trending and waveform data without losing any historical information due to the powerful PI database historian and the strong edge descriptor capabilities of VCM-3.



#### Cyclic Waveform Data Collection

The VCM-3 sends waveforms in predefined cycles from seconds to day.

#### Static Data Collection

The VCM-3 sends Trend data derived from descriptors directly to the PI systems. The PI System applies sophisticated compression techniques to this data, ensuring optimal hard drive usage without losing resolution.

**Table 1: System Capability**

Online Collection	<input type="radio"/>
Events	<input type="radio"/>
Network Required	<input type="radio"/>
Server Hardware Required	<input type="radio"/>
PI Server S/W Required	<input type="radio"/>
PI AF Server S/W Required	<input type="radio"/>
PI Visualization S/W Required	<input type="radio"/>
Business Network Access	<input type="radio"/>
Analytics	<input type="radio"/>
Buffering	<input type="radio"/>
400+ interfaces	<input type="radio"/>
Web Server	<input type="radio"/>
Uni-directional protocol	<input type="radio"/>
Database Replication	<input type="radio"/>
Process Data	<input type="radio"/>
Notifications	<input type="radio"/>
Bearing Database	<input type="radio"/>
Decision Support	<input type="radio"/>
Descriptors	<input type="radio"/>



## Visualization Options

**PI Vision** is used with SETPOINT®. It is a web server from OSIsoft® used in thousands of installations worldwide. It connects data sources (PI Systems) to visualization clients (web browsers) and provides a rich suite of tools for visualizing non-waveform data. When used with SETPOINT® CMSi, it serves as the platform for basic system navigation, machine train diagrams, machinery health monitor, asset hierarchy diagrams, alarm lists, statuses, and static data trends. When the user needs to view waveform data associated with one or more points, the CMS Viewer client is launched from within PI Vision web pages to bring up appropriate plots for the selected point(s).



**SETPOINT® CMS** is a powerful diagnostic tool for condition monitoring experts. It enables the user to analyze trend and waveform data of multiple

channels to perform machine diagnostics and create reports. It is a free download available at [www.bkvibro.com](http://www.bkvibro.com). Its primary use is to allow vibration diagnosticians to visualize data and assess machinery condition details using the specialized plot types unique to vibration.

**Table 2: Comparison of Visualization Capabilities**

	PI Vision	SETPOINT CMS	
<b>SUPPORTED PLOTTYPES</b>	Multivariable Trends	•	
	Alarm Statuses / Lists	•	
	Tabular Data	•	
	Plant/Enterprise Diagrams	•	
	Machine Train Diagrams	•	
	X vs. Y	•	
	Spectrum		•
	APHT	1	1
	Timebase		•
	Waterfall		•
	Cascade		•
	Plot overlay support	•	•
	Point Selection / Navigation	•	•
	View via Web Browser	•	
Report Generation		•	
Export to Microsoft Excel <sup>2,3</sup>		•	
Export to .cms file format <sup>4</sup>		•	

**NOTES:**

1. APHT = Amplitude / PHase versus Time. Available via standard trend plot capabilities.
- 2.
3. Export format is comma separated variable (.csv).
4. Requires supplementary PI Datalink software from OSIsoft, an Excel toolbar add-in.
5. An open data file format allowing users to export data, share with others, and view using the free SETPOINT CMS client.

## Features and Benefits

### Never miss important data

Don't wait for the next walkaround data collection. A one to three-month period with no data removes the ability to plan ahead and prevent production loss and unneeded maintenance. Find problems when they happen through online monitoring and extended frequency range with wired sensors.

### Unparalleled ease of data sharing

We borrowed the concept behind the portable document format (.pdf) and extended it to vibration data for the first time. The concept is simple: customers should pay for the infrastructure that creates the data, not the application that views the data. With SETPOINT® CMS, once data has been collected, it can be saved in an innovative .cms format that preserves everything of interest: machinery hierarchy, configuration parameters, waveforms, static data, alarms – everything. Simply select the data points and data region of interest, save as a .cms file, and then share with anyone you want, anywhere in the world. To open, view, and interact with the data (including playing back recorded data), they simply download our free CMS Viewer application from the web – completely analogous to using a free PDF viewer. No more cumbersome licenses to administrate when trying to share data with people inside or outside of your organization.

### Simple, intuitive user interface

We designed the user interface by looking at popular stock trading and audio editing software, borrowing the concept of a timeline and time slider to quickly navigate to the data range of interest. Once there, you can easily zoom in and out, drop a cursor, and see data in all of the powerful plot formats you need as a machinery diagnostic professional (see table on page 2).

### Suitable for both fluid-film and rolling element bearing diagnostics

While rolling element bearing (REB) diagnostics rely primarily on spectral data and “power tools”, fluid film bearing diagnostics rely on a different set of tools like orbits, shaft centerline, and time waveforms. We don't pit one method versus another because we understand that you have both types of machinery in your facilities.

Our solution delivers all tools you need, whether multiple spectral cursors to show harmonics, differences, or other attributes – or enhanced time waveform and orbit analysis features.

### Plot overlays

Did something change? Easily compare two plots by overlaying them – such as a startup from two separate times to compare a known good baseline data set with a that from a recently refurbished rotor. Did a resonance shift? An amplification factor? The frequency content of two spectra on the same bearing months apart? Plot overlay capabilities make this activity simple and intuitive.

### Elimination of vibration data “silos”

Anybody can put slow-moving vibration trend data into PI, but nobody else can put all vibration data (including waveforms) into PI. Why does this matter? Because it eliminates the need for a separate repository just for vibration data, reducing expensive separate infrastructure requirements and separate IT support for a completely different software platform. If you prefer to segregate process data servers from vibration data servers, you retain all the flexibility to do that – but those separate servers can now be based on the same system: your OSIsoft PI System®, meaning fewer systems to learn, license, support, and secure.

### All the Power of the PI System®

SETPOINT® harnesses the full power of the OSIsoft PI system by delivering native process data integration, world-class cybersecurity, built-in tools for push alarm notifications and decision support, an ecosystem of more than 400 OSIsoft partners delivering advanced capabilities like performance monitoring, machinery learning, pattern recognition, and more.

### Valuable Insights

The VCM-3 is built with descriptor technology to allow advanced analysis embedded at the edge. This allows insights to be brought to your DCS, historian so that all users of this data can make informed decisions.



# Typical SETPOINT CMS Display

Export data archive and enable third party diagnostics

Quick access to common controls

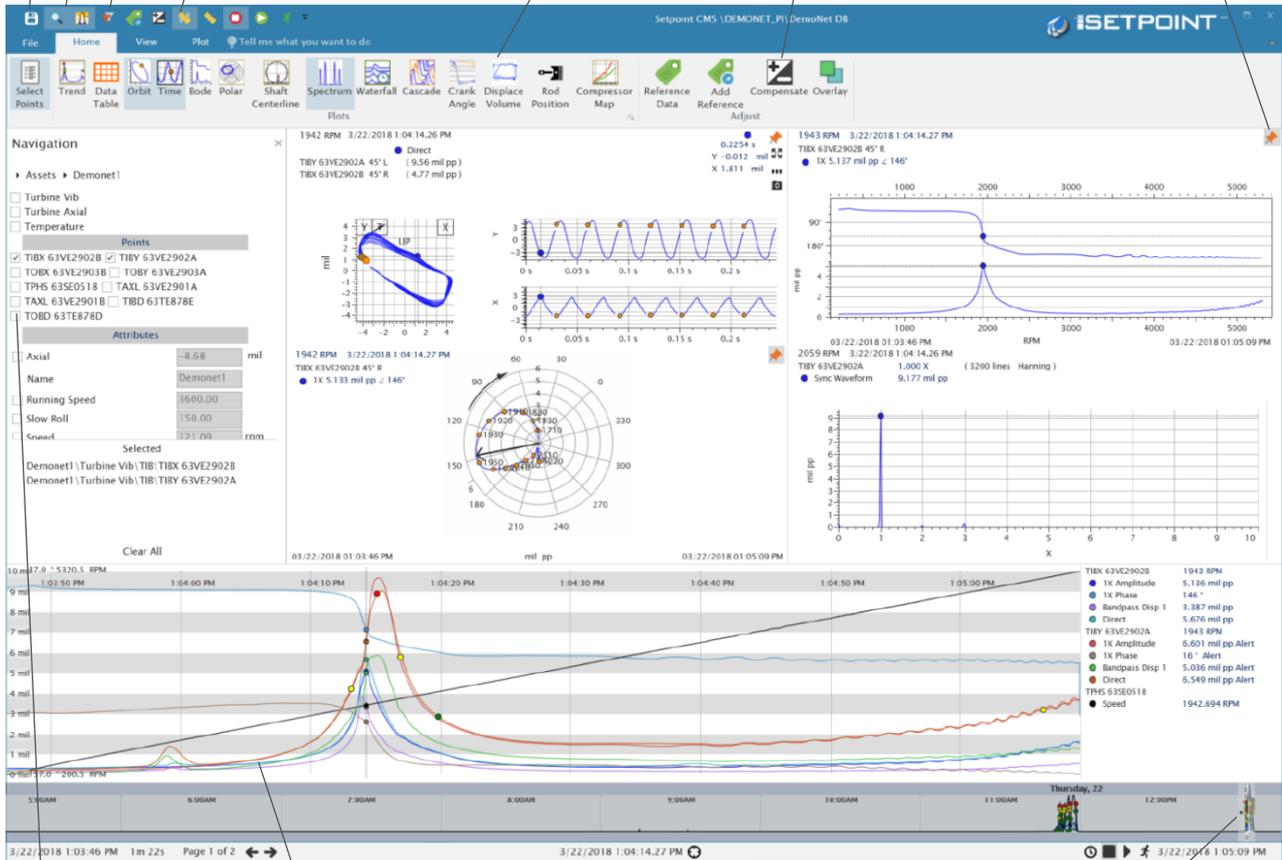
Toggle between unfiltered and filtered settings (1X, 2X, nX) for waveforms

Toggle between auto and manual scaling

Simple, intuitive toggle buttons turn plot types on/off

Flag plots to display and plots to hide

Toggle compensation on/off; both vector and waveform compensation available



Beginning and end of selected data range clearly labeled

Easily identify and change selected points

Cursor position clearly displayed

Playback controls for enhanced visualization

Intuitive time slider shows full range of data at a glance; grab handles to isolate/expand

Zoom into selected data range, showing more detail for precise cursor positioning

## Typical PI Vision Display

Easily build / clone additional train, unit, plant, and enterprise diagrams and hierarchies using PI Vision's extensive tool set.

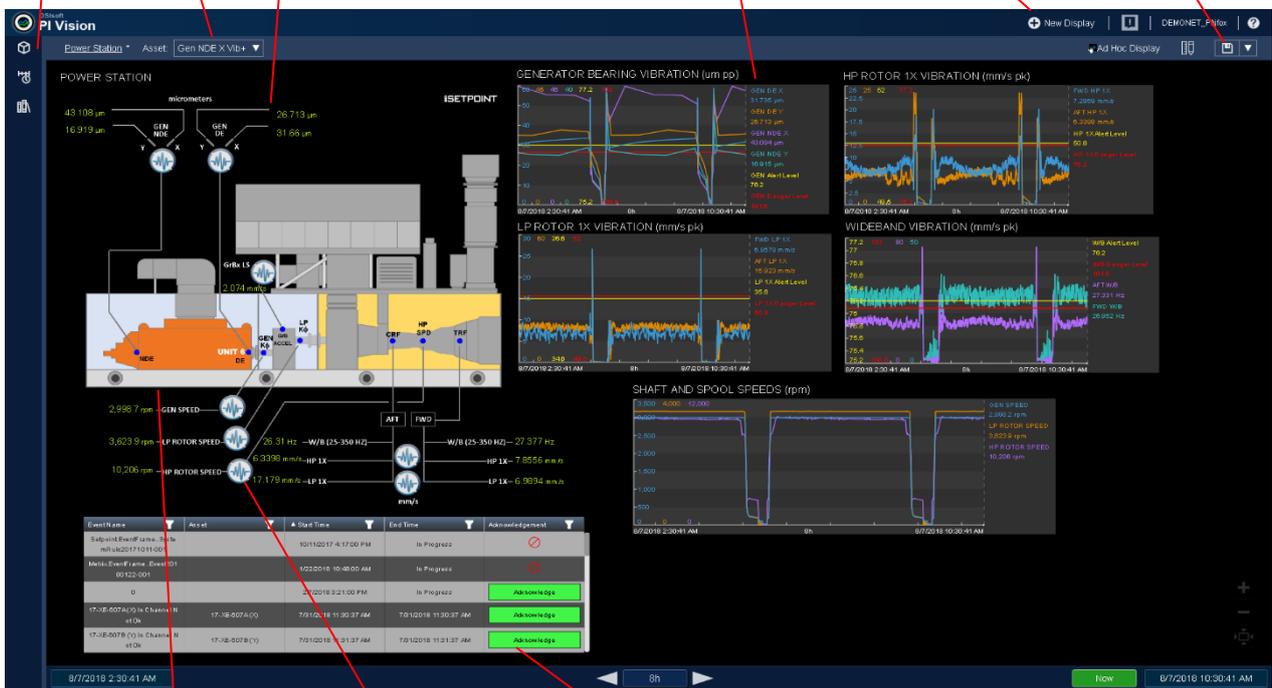
Share displays with other users

Switch displays to show related assets.

Points labeled clearly and intuitively.

Best in class trend plots.

Each user can make displays to meet their needs



Attractive, professional graphics depicting machines, bearings, valves, meters, and any other asset can be easily imported or selected from PI Vision's extensive library.

Event list with acknowledgements, and reason code to manage events directly on the display

Quickly navigate time with time controls.

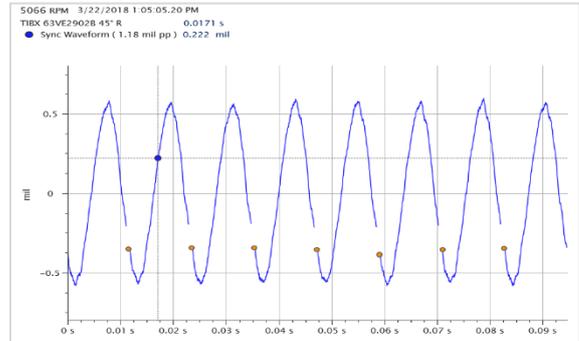
Double click on CMS "Quick View" icons to launch CMS Viewer and view waveforms and measurement plots for selected point(s).



## Supported Plot Types

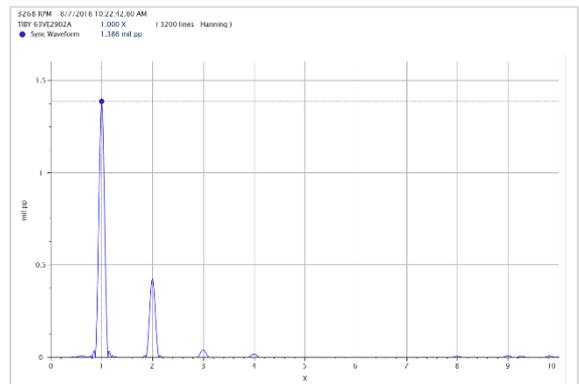
### Timebase

This plot shows the amplitude of the signal along the y-axis and time along the x-axis. Synchronous and asynchronous waveforms can be displayed, and waveforms may be unfiltered or filtered to 1X, 2X and a user-configurable nX value. Synchronous waveforms provide a phase trigger indicator.



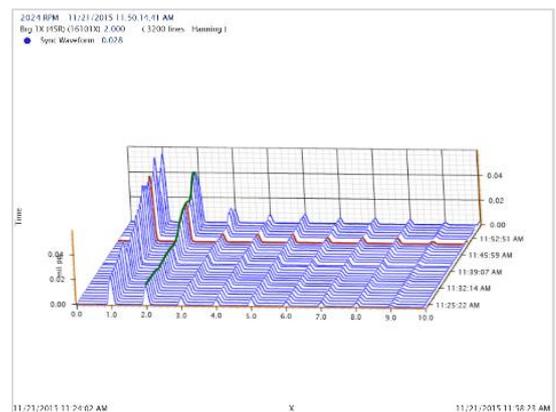
### Spectrum

This plot uses the same data as for timebase presentations, but uses a Fourier transform to generate a frequency-domain view. It is particularly useful for identifying sub- and super-synchronous components that may correlate to machine geometries such as blade pass, gear mesh, or rolling element bearings. Powerful zooming and cursor capabilities are available.



### Waterfall & Cascade

The waterfall plot is a 3D trend of spectra with frequency on the x-axis, time on the y-axis, and amplitude on the z-axis. It allows spectral changes over time to be easily visualized. The cascade plot is similar, but the y-axis is machine rotational speed, allowing spectral changes during startup or shutdown conditions to be identified. 500 spectra can be presented in a single plot, and advanced features such as 3D surface contours, amplitude color coding, crosshair-type cursor movement and display, and 3D rotation enhance the ability to isolate data of interest. Using the cursor, a single spectrum can be selected and displayed in a separate window for even more powerful diagnostic capabilities.



**Tabular**

This plot arranges data numeric values in row/column format, convenient for identifying a sample that will be used for compensation or other purposes. Data is also color-coded to indicate alarm status for easy identification of precise rpm or other conditions at which a channel entered or left an alarm status. Data can be sorted in ascending or descending order by simply clicking on a column header, similar to typical spreadsheet functionality.

3/22/2018 1:07:21 PM										
Name	Speed	Gap	Direct	1X	1X Phase	2X	2X Phase	N	NX	NX Phase
TIBX 63VE2902B	129.8 RPM	-7.0 V	0.28 mil pp	0.37 mil pp	54°	0.04 mil pp	120°	0.5 X	0.00 mil pp	
TIBY 63VE2902A	129.8 RPM	-7.0 V	0.25 mil pp	0.26 mil pp		0.05 mil pp	294°	0.5 X	0.00 mil pp	
TOBX 63VE2903B	129.8 RPM	-6.0 V	0.20 mil pp	0.13 mil pp	33°	0.06 mil pp	38°	0.5 X	0.03 mil pp	
TPHS 63SE0518	129.8 RPM	-11.0 V	129.82 RPM							
TAXL 63VE2901A	129.8 RPM	-11.6 V	-7.13 mil							
TAXL 63VE2901B	129.8 RPM	-11.6 V	-7.15 mil							
TIBD 63TER78E			84.05 F							
TOBD 63TER78D			73.38 F							

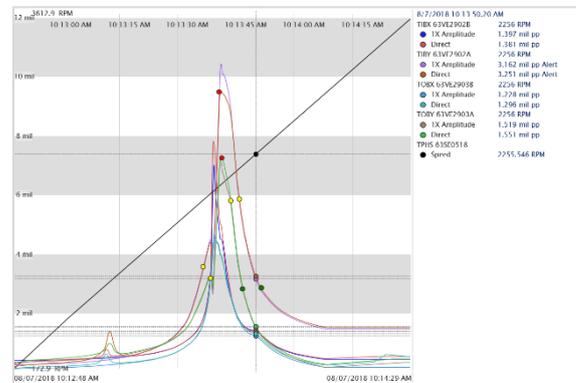
**Alarms and Events**

A sequence of events may be determined by using the event list in the SETPOINT® CMS client or PI Vision display. In CMS click on the event time stamp to center the data on that event. In PI Vision use the event list directly on displays to more easily manage events.

Events	
<b>A</b>	Alert TIBY 63VE2902A:Direct 8/9/2018 3:22:03.28 PM
<b>A</b>	Alert TIBY 63VE2902A:Direct 8/9/2018 3:22:02.40 PM
<b>A</b>	Alert TIBX 63VE2902B:Direct 8/9/2018 3:22:02.24 PM
<b>D</b>	Danger TIBX 63VE2902B:Direct 8/9/2018 3:22:01.76 PM
<b>A</b>	Alert TIBX 63VE2902B:Direct 8/9/2018 3:22:00.68 PM
<b>D</b>	Danger TIBX 63VE2902B:Direct 8/9/2018 3:21:59.96 PM
<b>A</b>	Alert TIBY 63VE2902A:Direct 8/9/2018 3:21:59.88 PM

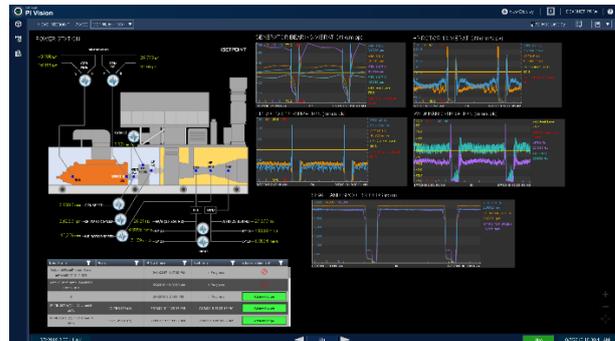
**Trend**

In addition to the single- and multi-variable trend capabilities in the CMS Viewer application, users can easily switch back and forth between CMS and PI Vision displays, leveraging the powerful native capabilities of the PI System. This is particularly useful for showing both CMS and non-CMS data side-by-side in the same trend plots. Trend resolution is 80ms, allowing outstanding correlation of cause-effect relationships and powerful zooming capabilities to see sub-second activity with acute clarity.



**Machine Train Diagrams and Trends**

These diagrams are built in PI Vision and can be customized using the full suite of tools provided by the PI System. Bargraphs, numeric displays, trends, statuses, and many other features can be combined as required to develop screens that are intuitive for personnel, and even mimic your DCS or other screens used by operators.





## Specifications

For additional information and specifications on VCM-3 Vibration Condition Monitoring, refer to the following companion documents ([www.bkvibro.com/product/vcm-3/](http://www.bkvibro.com/product/vcm-3/)):

Components	Document
SETPOINT® CMS User Manual	S1176125
SETPOINT® CMS Product Spec and ordering info for VC-8000	S1157533002
VCM-3 Datasheet	C107993.002

Computer Requirements	
<b>CMS Server</b>	<ul style="list-style-type: none"> <li>8 or more cores recommended</li> <li>16 GB RAM (32 GB recommended)</li> <li>1TB storage recommended</li> <li>1000Base-T (Gigabit) Ethernet</li> <li>Supported Microsoft Windows Operating System (64Bit)</li> <li>Windows Server 2016 or 2019</li> <li>Microsoft SQL Server (Express Edition 2012 or higher)</li> <li>PI Server 2018 SP2 recommended*</li> <li>PI Asset Framework 2018 SP2 recommended*</li> </ul> <p>*compatible back to PI Server 2012; mandatory for Spectral bands feature</p>
<b>SEPTOINT CMS Client/ SETPOINT Adapter</b>	<ul style="list-style-type: none"> <li>Dual-core CPU or better</li> <li>8 GB RAM recommended</li> <li>Display resolution: SXGA (1280 x 1024) or better</li> <li>PI AF Client 2016 or higher*</li> <li>Supported Microsoft Windows Operating System (64Bit)</li> <li>Windows 10 Pro</li> </ul> <p>Windows Server 2016 or 2019* The SETPOINT® CMS system uses PI AF (PI Asset Framework).</p>
<b>PI Vision</b>	<ul style="list-style-type: none"> <li>Processor speed: 2GHz or faster</li> <li>6 GB RAM or more</li> <li>Processor cores: 6 or more</li> <li>Supported Microsoft Windows Operating System (64Bit)</li> <li>Windows Server 2016 or newer, including Server Core versions</li> </ul>

System Capabilities			
<b>Server Capacity</b>	<b>Channels</b>	500	
	<b>Process points (originating outside VCM-3 or VC-8000 racks):</b>	Built-in license for 10% of PI tags	
	<b>Number of devices</b>	No upper limit	
<b>Data Storage Requirements (Hard Drive Size)</b>	<b>Rate</b>	<b>Data Storage Required</b>	
		<b>Per 1CH, per yr</b>	<b>Per 500 CH, per yr</b>
	8 hrs.	108 MB	55 GB
<b>Network Firewall Port Access</b>	<b>Protocol</b>	<b>Port</b>	<b>Direction (Unidirectional)</b>
	VCM-3	8181	To Adapter
	VCM-3	443 8081	To Device To Adapter
	AF	5457	To AF
	PI	5450	To PI
Data Collection and Sampling Rates			
<b>Static Data</b>	Minimum 1 second for all static measurements returned by a channel.		
<b>Asynchronous &amp; Envelope Waveforms (see also table 4)</b>	<ul style="list-style-type: none"> <li><b>Rate:</b> up to 51200 samples/sec</li> <li><b>Duration:</b> up to 32768 samples per waveform</li> <li><b>Anti-Alias Filter:</b> FIR-type; auto-adjusts with configured sample rate.</li> </ul>		
<b>Synchronous Waveforms (see also table 5)</b>	<ul style="list-style-type: none"> <li><b>Rate:</b> Channels individually configurable for 128, 64, 32, or 16 synchronous samples per shaft revolution</li> <li><b>Duration:</b> configurable up to 32768 synchronous samples per waveform</li> </ul>		
<b>Waveform Storage Interval (time between archived waveforms)</b>	Minimum 10 minutes for all waveform measurements returned by a channel		

Plot Types and Plot Features	
<b>SETPOINT® CMS</b>	<ul style="list-style-type: none"> <li>• Filtered and unfiltered Timebase</li> <li>• Spectrum</li> <li>• Waterfall</li> <li>• Cascade</li> <li>• Tabular</li> <li>• Multi-variable trend</li> </ul>
<b>PI Vision</b>	<ul style="list-style-type: none"> <li>• Single- and multi-variable trend</li> <li>• Asset Hierarchies</li> <li>• Machine Train Diagrams</li> </ul>
<b>Plot Context</b>	<ul style="list-style-type: none"> <li>• Asset and point names shown</li> <li>• Probe orientation shown</li> <li>• Date/time shown</li> <li>• Rotational speed shown</li> <li>• Direction of rotation shown</li> <li>• Pk-Pk (or 0-Pk) value shown</li> </ul>
<b>Data Validity</b>	<ul style="list-style-type: none"> <li>• Indicates non-valid data</li> <li>• Indicated NOT OK transducers or points</li> </ul>
<b>Data origin</b>	<ul style="list-style-type: none"> <li>• Both live and historical data display supported</li> </ul>
<b>Plot Scaling</b>	<ul style="list-style-type: none"> <li>• Individual Plot</li> <li>• Auto all / Auto each</li> <li>• Manual</li> </ul>
<b>Units</b>	<ul style="list-style-type: none"> <li>• Imperial and Metric supported</li> </ul>
<b>Pre-defined plot groupings</b>	<ul style="list-style-type: none"> <li>• Flag plot feature</li> <li>• Bookmarks</li> </ul>
<b>Overlay</b>	<ul style="list-style-type: none"> <li>• Use custom events to overlay historical data on top of current context</li> </ul>
<b>Full Screen</b>	<ul style="list-style-type: none"> <li>• Expand plot to view on a second screen</li> </ul>
<b>Cursors</b>	<ul style="list-style-type: none"> <li>• Right arrow advances in time, left arrow goes back in time</li> <li>• Clicking on a curve advances cursor to that position</li> <li>• Clicking on curve activates cursor if not already shown</li> <li>• Numerical readout of time, speed, state, amplitude, and phase at cursor position</li> <li>• Difference cursor allows comparison of two different features</li> <li>• Harmonic cursor</li> <li>• Sideband cursor</li> <li>• Bearing markers</li> </ul>

<b>Spectrum</b>	Selectable for 200, 400, 800, 1600, 3200, 6400, or 12800 lines Windowing Supported <ul style="list-style-type: none"> <li>• Hanning / Hamming / Flat top / Blackman</li> <li>• Frequency Cursor</li> <li>• Amplitude Cursor</li> <li>• Difference Cursor</li> <li>• Harmonic Cursor</li> <li>• Sideband Cursor</li> <li>• Linear Y-axis scaling</li> <li>• X-axis scaling in frequency</li> <li>• 500 spectra available simultaneously in waterfall and cascade plot types</li> <li>• Spectral overlapping supported when contiguous waveform data is available</li> </ul>
<b>Timeline</b>	<ul style="list-style-type: none"> <li>• Visually navigate data to easily zoom out to months of data or zoom into a few seconds</li> <li>• Visually find past events</li> </ul>



General Features	
<b>Event Notifier</b>	Available via PI Server for screen, e-mail, cell phone, web services, text, and other mediums
<b>OPC Integration</b>	Available via PI Server
<b>CMMS Connectivity</b>	Available via PI Server
<b>ERP Connectivity</b>	Available via PI Server
<b>Local Time Support</b>	Yes
<b>Display Data Collection Status</b>	Yes
<b>Manually Start/Stop Data Collection</b>	Yes
<b>Supports Data exchange with Excel</b>	Yes
<b>Access Rights</b>	<ul style="list-style-type: none"> <li>• User-Based</li> <li>• Role-Based</li> <li>• View-Only</li> <li>• Administrator</li> </ul> Changes to access rights logged by user, date, and change
<b>Software Alarms</b>	<ul style="list-style-type: none"> <li>• Supported in PI AF</li> <li>• Multi-state alarms (requires customization in PI AF Analytics)</li> <li>• Shown in Alarm list</li> </ul>
<b>Data playback controls</b>	Supported for both live and historical data
<b>Advisor/ Decision Support</b>	<ul style="list-style-type: none"> <li>• Advanced descriptors</li> <li>• Supported in PI AF Analytics</li> <li>• Machinery rules may be customized by user</li> </ul>
<b>Portable Data</b>	Export CMS data to a file and share it with remote experts
<b>Word Export</b>	Publish plots to a word document to share analysis results
<b>Export Archive Data</b>	From CMS <sub>XC</sub> or CMS <sub>HD</sub> databases export large amounts of data to archive it for future use
<b>Document Management</b>	Available via PI Server

**Table 4: Asynchronous & Envelope Sampling (columns in blue are configurable)**

Rate	Span	# of Samples	Spectrum Lines	Resolution	Time to Collect
3200 sps	1.25 kHz	32768	12800	0.0977 Hz, 5.859 cpm	10.24 s
6400 sps	2.5 kHz	32768	12800	0.1953 Hz, 11.719 cpm	5.12 s
12800 sps	5 kHz	32768	12800	0.3906 Hz, 23.438 cpm	2.56 s
25600 sps	10 kHz	32768	12800	0.7813 Hz, 46.875 cpm	1.28 s
51200 sps	20 kHz	32768	12800	1.5625 Hz, 93.75 cpm	640 ms

sps = samples per second

**Table 5: Synchronous Sampling (columns in blue are configurable)**

Rate	Span	Shaft revs	Spectrum Lines	Resolution	Time to Collect at 3600 RPM
128 spr	50 X	256	12800	0.0039 X	4.26 s
64 spr	25 X	512	12800	0.002 X	8.53 s
32 spr	12.5 X	1024	12800	0.001 X	17.07 s
16 spr	6.25 X	2048	12800	0.0005 X	34.13 s

spr = samples per shaft revolution  
X = orders of running speed

## Ordering Information

**Step 1: Ensure that you have purchased VCM-3 licenses for each of your devices.** If ordering a new condition monitoring system order the correct quantity of device licenses that will integrate to SETPOINT®.

If using SETPOINT® with existing VCM-3 modules order a device upgrade to enable data collection. Refer to the VCM-3 SETPOINT® user manual for instructions on how to apply this license.

### VCM3-License

SETPOINT VCM-3 License when ordering new devices

### VCM3-License-Upgrade

SETPOINT VCM-3 License when upgrading existing devices

**Step 2: Ensure that you have purchased VCM-3 licenses and PI tags for your VCM-3 devices.**

Once license is confirmed, your device(s) can communicate with SETPOINT®. However, sufficient PI Tags must be licensed and available for storing the data supplied by the SETPOINT® Adapter. Two types of tags can be used: Special SETPOINT® PI Tags and Standard PI Tags. SETPOINT® PI Tags can be ordered directly from B&K Vibro and are limited to use only for data originating in VCM-3 and VC-8000 racks\*. The advantage of SETPOINT® PI Tags is that they incorporate all necessary PI System Access (PSA) licensing required when SETPOINT® CMS data is written to and read from a PI System.

Alternatively, Standard PI Tags can be purchased directly from OSIsoft or excess tags may already be present as part of your existing PI System. To use tags of this type with VC-8000 data, you must secure a separate PI System Access (PSA) license allowing the tags to be used in conjunction with a 3rd party application such as SETPOINT® CMS. Contact OSIsoft directly for details ([www.osisoft.com](http://www.osisoft.com)). In addition, you must also confirm that you have a sufficient quantity of Standard PI Tags to store the data generated by your VC-8000 channels.

A single channel in the VCM-3 can return multiple data types simultaneously and may consume anywhere from 2 to 29 PI tags to store its data, depending on application. For estimation purposes assume 17 tags per channel.



**Step 3: Order CMS Software, containing all required OSIsoft (or CMSXC) and SETPOINT® CMS applications\*\*.** This software is supplied on a USB memory stick and can be used on as many computers as required by the installation.

The memory stick contains the following:

- SETPOINT®-to-PI Adapter software
- PI System® software
- PI AF Client
- SETPOINT® CMS Display Client

The SETPOINT® CMS Only option assumes that the necessary tags and PSA (PI System Access) licenses have already been secured directly from OSIsoft or the CMS-XC or CMS-SD databases will be used. SETPOINT software may also be downloaded directly from our website. This option is only necessary if you need physical media.

**C106542.001**  
**SETPOINT® CMS Only, CMS-XC and PI Enterprise Users**

\* 10% of total PI tags can derive from source other than VC-8000.

\*\* Microsoft SQL Express 2012 edition or higher is also required. The Express edition is free of charge and can be downloaded from [www.microsoft.com](http://www.microsoft.com). OSIsoft PI ProcessBook and PI Vision is optional and may be purchased as per Step 4.

Choose from these options if a complete PI System is being purchased from B & K Vibro. Select the number of tags according to the instructions in the operations and maintenance manual. A PSA (PI System Access) license is included to allow SETPOINT access to the PI System.

**C107666.001**  
**SETPOINT® CMS, PSA, and 500 tag PI System**

**C107666.002**  
**SETPOINT® CMS, PSA, and 1000 tag PI System**

**C107666.003**  
**SETPOINT® CMS, PSA, and 2000 tag PI System**

If more than 2000 tags are required order additional tags in 1000 tag increments.

**C106807.001**  
**Supplemental PI Tags, 1000 PI tags**

If the PI System has already been purchased it can be licensed for for SETPOINT access with the PSA Package.

**C107666.004**  
**SETPOINT® CMS, PSA (PI System Access) Package**

**Step 4: Order additional software as required.**

PI Vision is an optional component that is not strictly required for using CMS. However, it is strongly recommended as PI ProcessBook/PI Vision provides essential features for most users, such as the ability to create machine train diagrams, asset hierarchies, alarm list shortcuts, and event list shortcuts. It also provides powerful trending and analysis tools for static data types. PI ProcessBook/PI Vision can be ordered directly from OSIsoft; customers with existing copies of PI ProcessBook/PI Vision can use those as well.

PI DataLink provides a way to query PI data directly from Microsoft Excel and gives an easy way to do additional add-hock analysis.

Each visualization product ordered is valid for 5 named users.

<b>C106808.002</b>
<b>PI DataLink (per named user) - PI Visualization Software</b>

<b>C106808.003</b>
<b>PI Vision (per named user) - PI Visualization Software</b>

**OSIsoft PI Interface Software**

PI-to-PI Interface Software	C106809.001
SP-2020/PII-01 PI Interface Software Modbus Ethernet PLC (OSIsoft P/N PI-IN-MO-EPLC-NTI)	C107206.001
SP-2020/PII-02 PI Interface Software Modbus Serial PLC (OSIsoft P/N PI-IN-MO-MPLC-NTI)	C107207.001
SP-2020/PII-03 PI Interface Software Software Modbus Plus (OSIsoft P/N PI-IN-MO-MBP-NTI)	C107208.001
SP-2020/PII-04 PI Interface Software OPC (DA - Data Access) (OSIsoft P/N PI-IN-OS-OPC-NTI)	C107209.001
SP-2020/PII-05 PI Interface Software OPC (HDA - Historical Data Access) (OSIsoft P/N PI-IN-OS-OPCHDA-NT)	C107210.001
SP-2020/PII-06 PI Interface Software OPC (AE - Alarms & Events) (OSIsoft P/N PI-IN-OS-OPCAE-NT)	C107211.001
SP-2020/PII-07 PI Interface Software OPC (XML) (OSIsoft P/N PI-IN-OS-XML-NTI)	C107212.001
SP-2020/PII-08 PI Interface Software OPC (HDA Server COM Connector) (OSIsoft P/N PI-CTR-OS-OPCHDA)	C107213.001
SP-2020/PII-99 PI Interface Software Other	C107214.001



**Step 5: Ensure that you have appropriate computers and peripherals required to host the software and interconnect all components.**

Installations will require suitable server machine(s) for hosting SETPOINT® CMS coreload software; suitable client machines for running SETPOINT® CMS Viewer and PI ProcessBook software; suitable network switches, routers, firewalls, and CAT 5/6 or fiber-optic cables; and other computing and networking infrastructure as may be required by your IT and/or Instrument & Control departments.

B&K Vibro can also supply these components upon request. Our scope for many SETPOINT® CMS installations has included the following:

**Mid-grade server complete with all required coreload software installed and configured.**

A typical mid-grade server consists of a machine with 8 processor cores, 32GB RAM, a 1 TB RAID 5 hard drives, and a rail kit for mounting in a 19" rack. B&K Vibro can source any model or manufacturer desired to reflect your IT department standards. We can also install our software on a machine you supply, at your site or in one of our field service offices.

**Keyboard/Mouse/Monitor (KMM)**

A KMM is often supplied on a pull-out tray so that it can be retracted when not in use. Similar to a notebook computer in appearance, it contains a large folding screen and an attached keyboard with trackball mouse or other pointing device. The tray is designed for mounting in a 19" rack.

**Network Switches**

When multiple VC-8000 racks are interconnected as part of a single CMS installation, each rack is configured with a unique IP Address and connected via a switch to a common network backbone. B&K Vibro always uses network and switch components from well-known manufacturers like Hirschmann® or others as they are ruggedized for industrial use at elevated temperature and vibration levels; however, you may direct us to source any desired make and model, or you can supply your own.

**Step 6: Consider appropriate B&K Vibro services to install and configure all components.**

B&K Vibro can provide complete installation services in addition to all required hardware and software. This includes software configuration and PI Vision screen design services.

# Contact

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