



# System 1 Software

## Datasheet

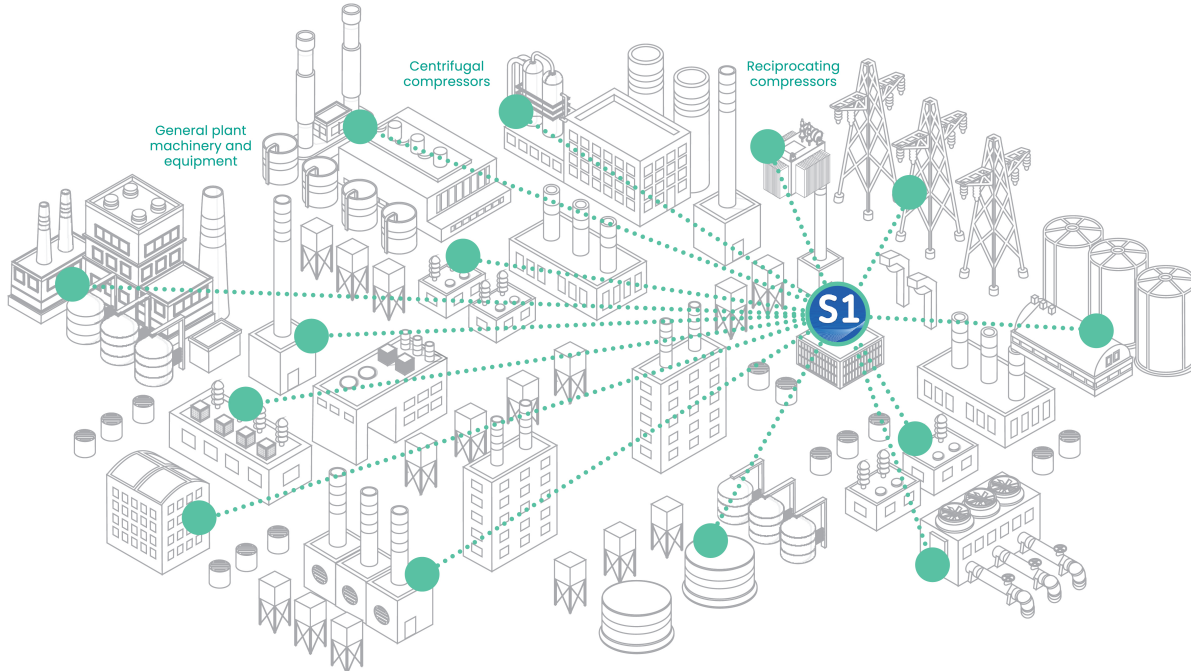
Bently Nevada Machinery Management

108M5214 Rev. AN

### Offering plant-wide condition monitoring insights to reduce risk, increase productivity, and minimize unplanned downtime.

System 1 streamlines decision-making processes by bringing machine data into a single platform, providing clarity and context to your operations and enterprise. Harnessing the power of Bently Nevada's decades of machinery research and advanced diagnostics expertise, this powerful tool is a key component of successful digital transformation in any industrial facility. By combining its **Connectivity**, **Analytics**, and **Visualization** capabilities, System 1 is the premier Edge historian and condition monitoring platform among industrial operators.

### System 1 brings it all together

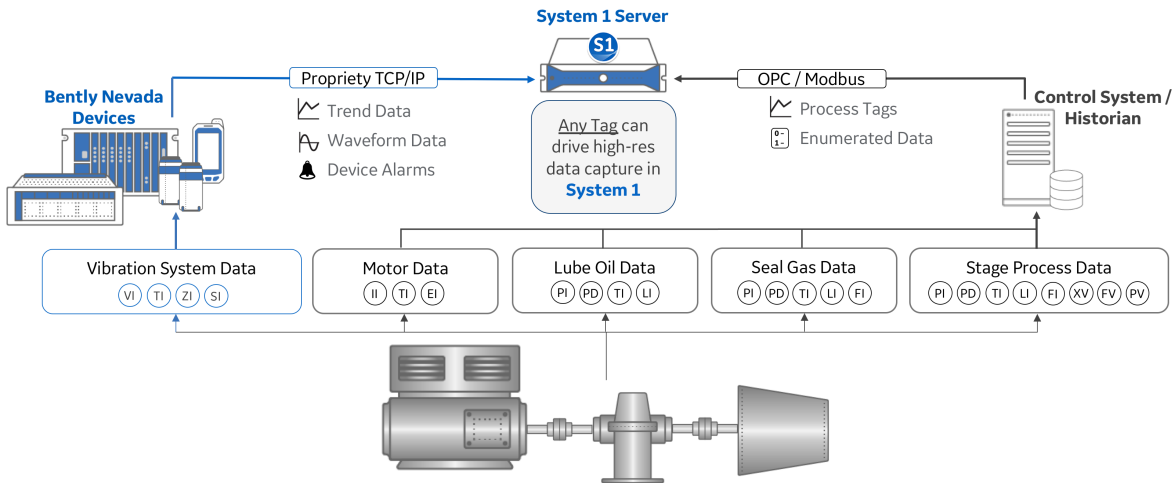


Bently Nevada has a rich heritage in helping customers solve industrial maintenance challenges that is over 60 years strong. Through user research in 25 countries with more than 500 end users, we have studied our customers' team dynamics, site processes, and technology suites to determine how System 1 can best support plant-wide machinery management. The resulting platform is the most comprehensive and user-intuitive condition monitoring solution ever developed.

# Connectivity + Analytics + Visualization = A Complete Solution



## Connectivity



System 1 connects to data sources on the Edge and collects high resolution vibration, process, and control system data. This data can be collected at up to once-per-second from a Bently Nevada Device, such as 3500 or Ranger Pro, from a Programmable Logic Controller (PLC), or from another Historian. In addition, an alarm on any tag mapped to a machine will trigger high-resolution data capture from all other tags, which includes 100ms static data from Bently Nevada's 3500, ADAPT, and Orbit 60 Series devices.



## Analytics

Within System 1, threshold alarms can be configured per machine operating state, with adjustable settings for time delay, latching, and suppression. Four levels of alarm setpoints can be configured per measurement, regardless of the source of the data (e.g., Bently Device, OPC, Modbus). Decision Support extends the analytic capabilities of System 1, enabling users to build custom rules for deeper insights into the behavior of their machines and enhanced knowledge across plants or entire enterprises. Bently Performance further expands analytic capabilities within System 1 by offering online thermodynamic performance monitoring.



**SI Core Alarming**



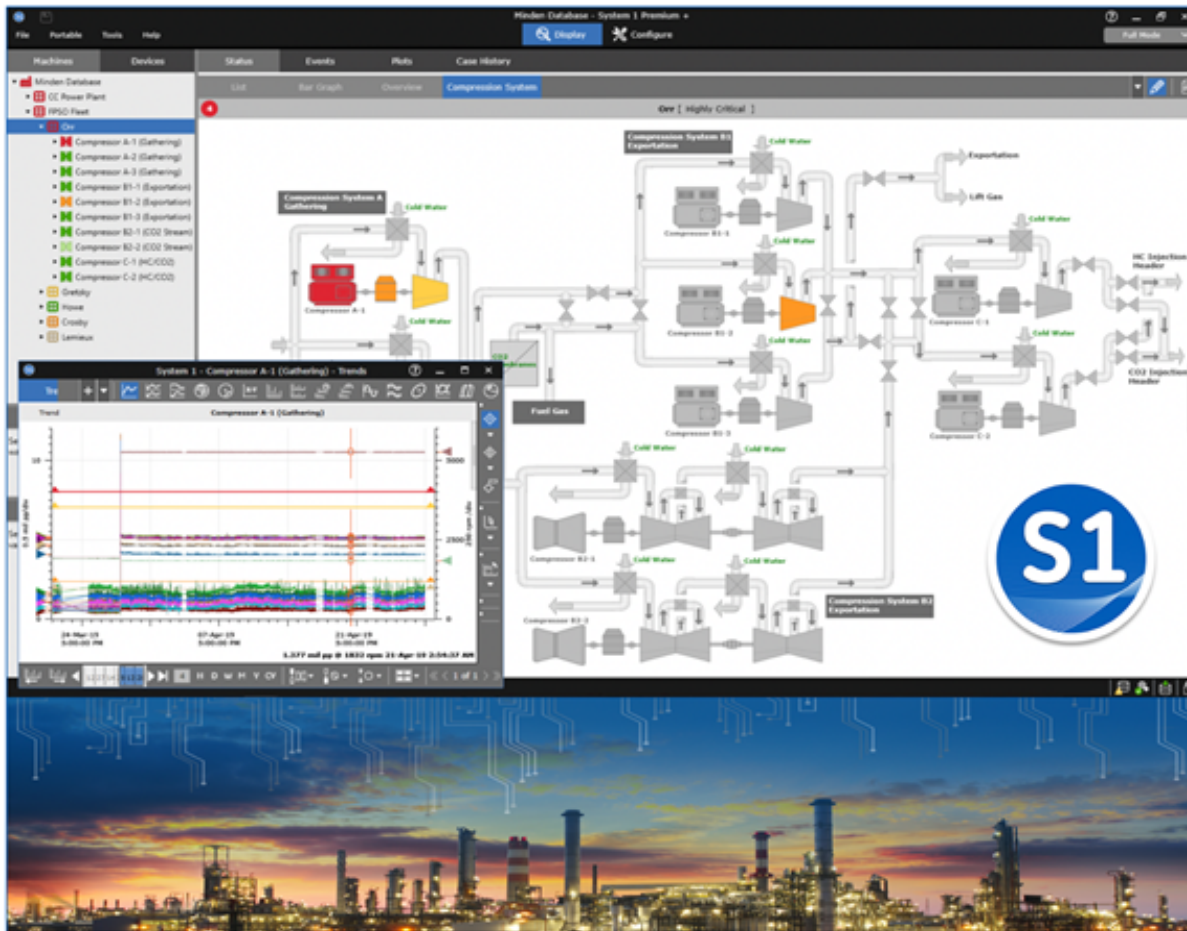
**Decision Support**



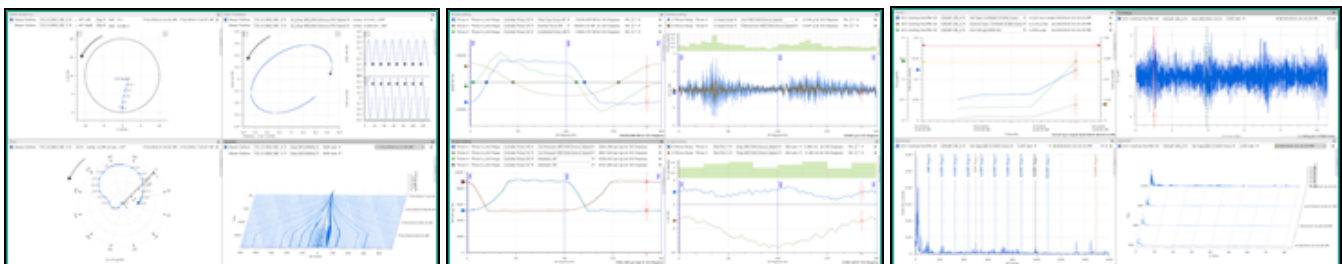
**Bently Performance**



## Visualization



Post collection and analysis, System 1 provides best-in-class visualization tools. The HMI builder allows users to graphically represent their entire Plant System using the built-in symbol library. The HMI view graphically depicts operational health, allowing users to focus on their high priority assets. Collected data can be viewed and manipulated within the plotting workspace, enabling users to diagnose machinery health issues. With a multitude of plot types and tools, users can quickly identify abnormalities and assess their impact on the smooth operation of their facility.



## General Capabilities

### Distributed Client/Server Deployment

- TCP/IP Client to Server Communication (Ports 7550 and 7551)
- Clients can connect to five different condition monitoring databases simultaneously on a server.
- A single Server 1 server can support online data collection for up to 5 databases.
- System performance tested with 5 simultaneous client connections to one online database.

### Data Replication

- Access System 1 on the business network by replicating data across a data diode or firewall.
- Reduce Cyber Security risks to an acceptable level.

### User Security Roles

- Leverages Windows Domain and local accounts
- Administrator Role (Read, Write, Database Management)
- Advanced Role (Read, Write)
- Basic Role (Read Only)
- Users with the Edit Settings right can modify the settings for the Advanced and Basic roles.
- Users with server administrator privileges can add new user-defined roles.

### Database and Server Capacity

- System 1 Server can run five online condition monitoring databases.
- The System 1 Server can contain multiple portable databases in addition to the online databases.
- Each condition monitoring database can contain a maximum of 5000 pieces of equipment. (Motor + Pump = 2)
- Embedded PostgreSQL for data storage and management
- Edit Trend, Alarm, and Transient Data Store sizes and monitor health over time to avoid losing data. Available only for online data.

### Display Unit Preferences

Effortlessly switch between As Configured, Imperial, and SI unit systems from Display.

## System Specifications and Recommendations

Standard Server	<p>Racks: Dual Intel Xeon 4208 8-core, 2.1GHz Processors, 16 cores total, 32 logical processors</p> <p>Towers: Dual Intel Xeon 4210 10-core, 2.2GHz Processors, 20 cores total, 40 logical processors</p> <p>64 GB RAM or above          Operating System Hard Disk: RAID 1 &amp; 300 GB – 10000 RPM          Historian Hard Disk: RAID 6 – 10,000 RPM          DVD-RW</p>
Light Server	<p>Rack: Single Intel Xeon 4208 8-core, 2.1GHz Processors, 8 cores total, 16 logical processors</p> <p>Tower: Single Intel Xeon 4210 10-core, 2.2GHz Processors, 10 cores total, 20 logical processors</p> <p>16 GB RAM or above          Operating System Hard Disk: RAID 1 &amp; 300 GB – 10,000 RPM          Historian Hard Disk: RAID 6 &amp; 1.2 TB– 10,000 RPM          DVD-RW</p>
Workstation	<p>Intel Xeon W-2123 (3.6 GHz Processor)</p> <p>16 GB RAM or above          1 GB Graphics Card          1 TB Hard Drive – 7200 RPM          DVD-RW</p>
Laptop	<p>i7 – 8850H (2.6 GHz Processor) 6 cores</p> <p>16 GB RAM or above          HD Graphics Card          512GB Solid State Drive          DVD-RW</p>
Virtualized Systems	<p>Refer to Virtualized Systems Technical White Paper, document number 125M6425.</p>
Network speed	<p>Minimum 100 Mbps recommended</p>
Supported Operating Systems	<p>Microsoft Windows® 2022 Server Standard Edition 64 bit          Microsoft Windows® 2019 Server Standard Edition 64 bit          Microsoft Windows® 2016 Server Standard Edition 64 bit          Microsoft Windows® 11 Professional 64 bit (22H2, 21H2)†          Microsoft Windows® 10 Professional 64 bit (22H2, 21H2)†</p> <p>† Recommended for Client</p>

# System 1 Ordering

## Package Types

System 1 can be ordered in three different package types:

**Asset-Based:** Order by condition monitoring criticality and quantity of assets.



**Industry-Based:** Order by application industry and size. Includes unlimited data import across all devices.



**Device-Based:** Order by type and quantity of devices.



## License Types

All System 1 Packages can be ordered as Perpetual or Subscription. While System 1 functionality is identical for both license types, key structural differences exist:

### Perpetual Type

- Larger upfront investment (one-time CAPEX)
- Must purchase support and updates (M&S) separately (OPEX lower than Subscription)
- Software license does not expire
- Support and updates cease if M&S is cancelled

### Subscription Type

- Smaller upfront investment (flat year-over-year OPEX)
- Subscription license fee includes support and updates
- Software stops working if subscription is cancelled

## Additional Information

### What is a System 1 Display Client?

A System 1 Display Client can connect to the System 1 Server residing locally on the same computer or remotely via network access. Local clients can have full access to the condition monitoring database. Remote clients can connect to a condition monitoring database only when direct or networked access to the server is available.

### What is a System 1 Server?

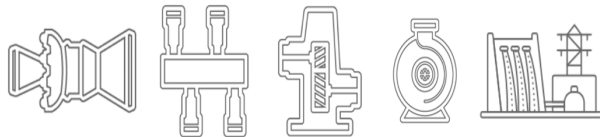
A System 1 Server may contain one or more condition monitoring databases accessible from one or more Display Clients. Historical data and configuration structure reside on the server. Hence, the databases are always available.

### What are + packages?

When ordering by device, a base package must be selected. Select the System 1 Premium+ and Advanced+ packages to use portable data collectors in addition to online devices.

Package	Online Continuous CM	Scanning & Process CM	Portable CM
Premium+	✓	✓	✓
Premium	✓	✓	
Advanced+		✓	✓
Advanced		✓	
Fundamental			✓

## Asset-Based Packages



Asset-Based Packages are ordered by condition monitoring asset criticality and quantity, with four asset categories:

### Category A Assets

- High criticality assets
- Dedicated online continuous monitoring & protection

### Category B Assets

- Essential Assets
- Dedicated online-periodic monitoring or shared continuous monitoring & protection

### Category C Assets

- Low Criticality Assets
- Online periodic monitoring only or distributed protection & monitoring

### Category D Assets

- Balance of Plant
- Offline periodic monitoring using portable devices

Package	Online Continuous Monitoring & Protection <sup>1</sup>	Shared Monitoring & Protection or Dedicated Scanning & Process CM <sup>2</sup>	Shared Scanning CM or dedicated distributed solution <sup>3</sup>	Offline Portable <sup>4</sup>	Replication	Static Data Import/Export	Modbus Import	Waveform Export
Asset A	✓	✓	✓	✓				
Asset B		✓	✓	✓				
Asset C			✓	✓				
Asset D				✓				
CMS Core						✓	✓	
IIoT Integration					✓			✓

<sup>1</sup> Dedicated 3500 or ADAPT rack

<sup>2</sup> Typically shared 3500 or ADAPT rack or dedicated vbOnline Pro/DSM

<sup>3</sup> Typically 2300/1900/Ranger Pro or shared vbOnline Pro/DSM SPA

<sup>4</sup> Scout and vbX Series devices for offline periodic monitoring

Asset-Based Packages			
Perpetual		Subscription	
<b>3071/75 System 1 Asset Package</b>		<b>3072/75 System 1 Asset Package</b>	
<b>A: Category A Assets</b>		<b>A: Purchase Type</b>	
Qty #	0 ->n	01	New(First time purchase)
<b>B: Category B Assets</b>		02	Renewal
Qty #	0 ->n	<b>B: Term (Subscription Term in Years)</b>	
<b>C: Category C Assets</b>		##	Numeric Entry (1 ->5 years)
Qty #	0 ->n	<b>C: Category A Assets</b>	
<b>D: Category D Assets</b>		Qty #	0 ->n
Qty #	0 ->n	<b>D: Category B Assets</b>	
<b>E: CMS Core</b>		Qty #	0 ->n
00	Not Included	<b>E: Category C Assets</b>	
01	Included	Qty #	0 ->n
<b>F: IIoT Integration Package</b>		<b>F: Category D Assets</b>	
00	Not Included	Qty #	0 ->n



Asset-Based Packages			
Perpetual		Subscription	
01	Included	<b>G: CMS Core</b>	
<b>G: Quantity of Server Licenses</b>		00	Not Included
##	Numeric Entry [1->25]	01	Included
H: Industry		<b>H: IIoT Integration Package</b>	
01	Oil & Gas Upstream	00	Not Included
02	Oil & Gas Midstream	01	Included
03	Oil & Gas Downstream	<b>I: Quantity of Server Licenses</b>	
04	Petrochemical	##	Numeric Entry [1->25]
05	LNG	<b>J: Industry</b>	
06	Power Gen - Thermal/Nuclear	01	Oil & Gas Upstream
07	Other Markets	02	Oil & Gas Midstream
08	Power Gen - Hydro	03	Oil & Gas Downstream
		04	Petrochemical
		05	LNG
		06	Power Gen - Thermal/Nuclear
		07	Other Markets
		08	Power Gen - Hydro

## Bently HOST Asset Package

**Bently HOST™ offers our world-renowned remote monitoring and diagnostics service powered by System 1 as an OPEX managed monthly enrollment. Two package options are available to meet the needs of any operator, industry, and geographic location. Both of these packages are inclusive of enablement services to design, implement and run the program.**

**Predictive Asset Health Management:** Help achieve your KPIs for O&M excellence by implementing an efficient asset condition monitoring strategy by continuous exception-based analysis of condition monitoring alerts and Incident-based asset health reports with recommendations.

**•Preventive Asset Health Management:** Help achieve your KPIs for a preventive asset management strategy with periodic asset health audit reports with recommendations.

Subscription	
3072/77 – Bently HOST Asset Package	
<b>A: Purchase Type</b>	
01	New (first time purchase)
02	Renewal
<b>B: Subscription Term (Months)</b>	
##	1 - 60
<b>C: Qty of CAT-A Assets</b>	
Qty #	0 ->n
<b>D: Qty of CAT-B Assets</b>	
Qty #	0 ->n
<b>E: Qty of CAT-C Assets</b>	
Qty #	0 ->n
<b>F: Qty of CAT-D Assets</b>	
Qty #	0 ->n
<b>G: Outcome Package</b>	
00	Not included
01	Bently HOST Predictive
02	Bently HOST Preventative
<b>H: Hosting Location</b>	
01	BN Minden
02	Third Party Cloud
<b>I: Industry</b>	
01	Oil & Gas Upstream

Subscription	
02	Oil & Gas Midstream
03	Oil & Gas Downstream
04	Petrochemical
05	LNG Liquefaction
06	Power Gen Nuclear/Thermal
07	Other Markets
08	Power Gen - Hydro
J: Customer Country Group	
01	Group A (all except India and China)
02	Group B (India and China)

## Industry-Based Packages



Industry-Based Packages are offered for General Industrials, Power Generation, and Wind Generation. Ordering is based off of application industry and size.

Package	Online Continuous CM	Scanning & Process CM	Portable CM	Replication	Performance	Alarm Event Data Export	Static Data Import/Export	Waveform Export	Ranger Pro
Industrial	✓	✓	✓			✓	✓		✓
Power Gen	✓	✓	✓			✓	✓		✓
Wind		✓				✓	✓		

## General Industrial Package

General Industrial Package			
Perpetual		Subscription	
3071/70 System 1 for Industrials		3072/70 System 1 for Industrials	
<b>A: Industry Type</b>		<b>A: Purchase Type</b>	
01	Pulp and Paper	01	New (first time purchase)
02	Air Separation	02	Renewal
03	Sugar Production	<b>B: Term (Subscription Term)</b>	
04	Wastewater	##	Numeric Entry [1->5 years]
05	Drilling Rigs	<b>C: Industry Type</b>	
06	Steel Production	01	Pulp and Paper
07	Food & Beverage	02	Air Separation
08	Manufacturing	03	Sugar Production
09	Pharmaceuticals	04	Wastewater
10	Marine Vessel	05	Drilling Rigs
11	Mining	06	Steel Production
<b>B: Package Size</b>		07	Food & Beverage
01	Small Database	08	Manufacturing
02	Medium Database	09	Pharmaceuticals
03	Large Database	10	Marine Vessel * add 11 option for mining
04	Extra Large Database	11	Mining
<b>C: Quantity of Server Licenses</b>		<b>D: Package Size</b>	
##	Numeric Entry [1 ->25]	01	Small Database
		02	Medium Database
		03	Large Database
		04	Extra Large Database
		<b>E: Quantity of Server Licenses</b>	
		##	Numeric Entry [1 ->25]



\*Navy, Container Ship, LNG Transport, FSRU, etc. NOT applicable for FPSO, FSO, or FLNG vessels.

## Power Generation Industrial Package


Power Generation Industrial Package			
Perpetual		Subscription	
3071/80 System 1 for Power Generation		3072/80 System 1 for Power Generation	
<b>A: Package Option</b>		<b>A: Purchase Type</b>	
01	New Order	01	New (first time purchase)
02	Expansion Order	02	Renewal
<b>B: Plant Output (MW) - Not Fleet or Multi-Site</b>		<b>B: Term (Subscription term)</b>	
##	Numeric Entry [0->30,000 MW]	##	Numeric Entry [1->5 years ]
<b>C: Quantity of Plant Server Licenses</b>		<b>C: Package Option</b>	
##	Numeric Entry [1 ->25]	01	New Order
		02	Expansion Order
		<b>D: Plant Output (MW) - Not Fleet or Multi-Site</b>	
		##	Numeric Entry [0->30,000 MW]
		<b>E: Quantity of Plant Server Licenses</b>	
		##	Numeric Entry [1->25]




**Note:** It is not acceptable to use this license for multiple sites or an entire fleet.

## Wind Generation Industrial Package

Wind Generation Industrial Package			
Perpetual		Subscription	
3071/84 System 1 for Wind Generation		3072/84 System 1 for Wind Generation	
<b>A: Plant Output (MW)</b>		<b>A: Purchase Type</b>	
##	Numeric Entry [7 ->1000 MW]	01	New (first time purchase)
<b>B: Quantity of Server Licenses</b>		02	Renewal
##	Numeric Entry [1 ->25]	<b>B: Term (Subscription term in years)</b>	
<b>C: License Type</b>		##	Numeric Entry [1, 2, 3, 4 or 5 ]
01	TX	<b>C: MW Output of Wind Farm</b>	
02	RX	##	Numeric Entry [7->1000 MW ]
		<b>D: Quantity of Server Licenses</b>	
		##	Numeric Entry [1->25 ]
		<b>C: License Type</b>	
		01	TX
		02	RX

 It is acceptable to license multiple sites or an entire fleet using this part number, as long as an active M&S is in place or all of the sites or the entire fleet.

 This package includes data import for up to 200 vbOnline Pro devices. Separate device import licenses are not required.

## Device-Based Packages



Device-Based Packages are ordered by base package, device type, and quantity. Base packages are:

### System 1 Premium

Provides connectivity to all of Bently Nevada’s online devices, as well as process data sources. Select the System 1 Premium+ option to add support for portable data collectors.

### System 1 Advanced

Provides connectivity to Bently Nevada’s scanning and wireless devices, as well as process data sources. Select the System 1 Advanced+ option to add support for portable data collectors.

### System 1 Fundamental

Provides connectivity to Bently Nevada’s portable data collectors.

Package	Online Continuous CM	Scanning & Process CM	Portable CM	Replication	Performance
Premium+	✓	✓	✓		
Premium	✓	✓			
Advanced+		✓	✓		
Advanced		✓			
Fundamental			✓		
Replication				✓	
Performance					✓

## System 1 Premium [Highly Critical]

Premium Package			
Perpetual		Subscription	
3071/10 System 1 Software Premium Package		3072/10 System 1 Software Premium Package	
<b>A: Software Package</b>		<b>A: Purchase Type</b>	
01	Premium Package	01	New (first time purchase)
02	Premium+ Package	02	Renewal
<b>B: Quantity of Display Clients</b>		<b>B: Term (Subscription Term in Years)</b>	

Premium Package			
Perpetual		Subscription	
01	Single Client Package	##	Numeric Entry (1 ->5 years)
05	Small Package [6 Clients]	<b>C: Software Package</b>	
10	Medium Package [11 Clients]	01	Premium Package
15	Unlimited Clients	02	Premium + Package
<b>C: Quantity of Server Licenses</b>		<b>D: Quantity of Display Clients</b>	
Qty #	1 ->n	01	Single Client Package
		05	Small Package [6 Clients]
		10	Medium Package [11 Clients]
		15	Unlimited Clients
		<b>E: Quantity of Server Licenses</b>	
		Qty #	1 ->n



## System 1 Advanced [Critical]

Advanced Package			
Perpetual		Subscription	
3071/05 System 1 Software Advanced Package		3072/05 System 1 Software Advanced Package	
<b>A: Software Package</b>		<b>A: Purchase Type</b>	
01	Advanced Package	01	New (first time purchase)
02	Advanced+ Package	02	Renewal
<b>B: Quantity of Display Clients</b>		<b>B: Term (Subscription Term in Years)</b>	
01	Single Client Package	##	Numeric Entry (1 ->5 years)
05	Small Package [6 Clients]	<b>C: Software Package</b>	
10	Medium Package [11 Clients]	01	Advanced Package
15	Unlimited Clients	02	Advanced+ Package
<b>C: Quantity of Server Licenses</b>		<b>D: Quantity of Display Clients</b>	
Qty #	1 ->n	01	Single Client Package
		05	Small Package [6 Clients]
		10	Medium Package [11 Clients]
		15	Unlimited Clients
		<b>E: Quantity of Server Licenses</b>	
		Qty #	1 ->n

## System 1 Fundamental [Less Critical]

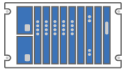
Fundamental Package			
Perpetual		Subscription	
3071/01 System 1 Software Fundamental Package		3072/01 System 1 Software Fundamental Package	
<b>A: Quantity of Display Clients</b>		<b>A: Purchase Type</b>	
01	Single Client Package	01	New (first time purchase)
05	Small Package [6 Clients]	02	Renewal
10	Medium Package [11 Clients]	<b>B: Term (Subscription Term in Years)</b>	
15	Unlimited Clients	##	Numeric Entry (1 ->5 years)
<b>B: Quantity of Server Licenses</b>		<b>C: Quantity of Display Clients</b>	
Qty #	1->n	01	Single Client Package
		05	Small Package [6 Clients]
		10	Medium Package [11 Clients]
		15	Unlimited Clients
		<b>D: Quantity of Server Licenses</b>	
		Qty #	1->n




## Device Ordering

### 3500 Series Device Import



Quantity (Qty) is the number of racks.

3500 Series Device Import			
Perpetual		Subscription	
3071/11 3500 Series Device Import		3072/11 3500 Series Device Import	
<b>A: 3500 Devices - Turbomachinery</b>		<b>A: Purchase Type</b>	
Qty #	0->n	01	New (first time purchase)
	Monitor turbomachinery and hydro turbine generators. Also monitor general purpose machines when slots available in device.	02	Renewal
<b>B: 3500 Devices - General Machines</b>		<b>B: Term (subscription term in years)</b>	

3500 Series Device Import			
Perpetual		Subscription	
Qty #	0 ->n	##	Numeric Entry (1 ->5 years)
	Monitor general purpose machines. Also monitor turbomachinery or reciprocating compressors when SUSD data not required.	<b>C: 3500 Devices - Turbomachinery</b>	
<b>C: 3500 Devices - Recip Machines</b>		Qty #	(Qty # 0->n)
Qty #	0 ->n	<b>D: 3500 Devices - General Machines</b>	
	Monitor reciprocating compressors. Also monitor turbomachinery and general purpose machines when slots available in device.	Qty #	(Qty # 0->n)
<b>D: TDI Secure Devices [/42E /45E /PV]</b>		<b>E: 3500 Devices - Recip Machines</b>	
Qty #	0 ->n	Qty #	(Qty # 0->n)
	Recommended for monitoring machines that cannot be natively connected to System 1 via standard devices (3rd party HW, Cyber, etc.) <ul style="list-style-type: none"> <li>• 24Vib + 24 Process points + 4 Tachs</li> </ul>	<b>F: TDI Secure Devices</b>	
		Qty #	(Qty # 0->n)


**Table 1: (A-C and E Options) 3500 Turbo, General, Recip and Hydro Racks**

Type of Data	Monitor/Data	Description	AA	BB	CC
Supported Monitors	3500/22	TDI	X	X	X
	3500/25	Keyphasor	X	X	X
	3500/32	Relay 4-ch	X	X	X
	3500/33	Relay 16-ch	X	X	X
	3500/40	TSI	X	X	X
	3500/42	Extended TSI	X	X	X
	3500/44	Aeroderivative	X	X	X
	3500/45	Position	X	X	X
	3500/46	Hydro Turbine/Generator	X		
	3500/50	Tachometer	X	X	X
	3500/60-/61	Temperature	X	X	X
	3500/62	Process Variable	X	X	X
	3500/64	Dynamic Pressure	X	X	X
	3500/65	Temperature 16-ch	X	X	X
	3500/70	Recip Impulse/Velocity		X	X
	3500/72	Recip Rod Drop/Position		X	X
3500/77	Recip Cylinder Pressure			X	
Data Types	SUSD	Transient Data	X		X
	ALARM	Alarm Data	X	X	X
	WF	Waveform Data	X	X	X
	TRND	Trend Steady State	X	X	X



## Orbit 60 Series Device Import


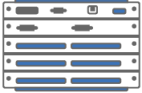
Orbit 60 Series Device Import			
Perpetual		Subscription	
3071/18 Orbit 60 Series Device Import		3072/18 Orbit 60 Series Device Import	
<b>A: License</b>		<b>A: Purchase Type</b>	
01	New License	01	New (first time purchase)
02	Existing License Transfer	02	Renewal
<b>B: System Type</b>		<b>B: Term (subscription term in years)</b>	
00	Category A - Continuous online protection	##	Numeric Entry (1 -> 5 years)
01	Category B - Periodic monitoring	<b>C: License</b>	
02	Category C - Plantwide monitoring	01	New License
<b>C: System Size</b>		02	Existing License Transfer
01	1-20 Dynamic and 6 Process	<b>D: System Type</b>	
02	21-40 Dynamic and 12 Process	00	Category A - Continuous online protection
03	41-60 Dynamic and 18 Process	01	Category B - Periodic monitoring
04	61-80+ Dynamic and 24+ Process	02	Category C - Plantwide monitoring
		<b>E: System Size</b>	
		01	1-20 Dynamic and 6 Process
		02	21-40 Dynamic and 12 Process
		03	41-60 Dynamic and 18 Process
		04	61-80+ Dynamic and 24+ Process


## Distributed Device Series Import

Distributed Device Series Import			
Perpetual		Subscription	
3071/12-AA Distributed Device Import		3072/12-AA Distributed Device Import	
<b>A: ADAPT 3701 /40 /44 /46</b>		<b>A: Purchase Type</b>	
Qty #	1->n	01	New (first time purchase)
 <ul style="list-style-type: none"> <li>• 12 simultaneous monitoring points + 2 Tachs</li> <li>• 1 sec trend / 10 min waveform data capture</li> <li>• High res alarm and SUSDS data capture</li> </ul>		02	Renewal
		<b>B: Term (subscription term in years)</b>	
		##	Numeric Entry (1->5 years)
		<b>C: ADAPT Monitoring Devices</b>	
		Qty #	(Qty # 1->n)

## Condition Monitoring & Basic Protection Device




Condition Monitoring & Basic Protection Device Import			
Perpetual		Subscription	
3071/13 Condition Monitoring & Basic Protection Device		3072/13 Condition Monitoring & Basic Protection Device	
<b>A: vbOnline Pro Monitoring Device</b>		<b>A: Purchase Type</b>	
Qty #	0->n	01	New (first time purchase)
 <ul style="list-style-type: none"> <li>• 12 simultaneous monitoring points + 2 tachs</li> <li>• 30 sec trend / 10 min waveform data capture</li> <li>• Simultaneous Alarm Snapshot (1 per 30 sec)</li> </ul>		02	Renewal
		<b>B: 2300 Monitoring Device</b>	
Qty #	0->n	##	Numeric Entry (1->5 years)
 <ul style="list-style-type: none"> <li>• 2 simultaneous monitoring points + 1 tach</li> <li>• 1 sec trend / 10 min waveform data capture</li> </ul>		<b>C: vbOnline Pro Devices</b>	
		<b>C: Ranger Pro Device</b>	

Condition Monitoring & Basic Protection Device Import			
Perpetual		Subscription	
Qty #	0 ->n	<b>D: 2300 Series Monitoring Devices</b>	
	<ul style="list-style-type: none"> <li>• Single axis: 1 accel point + 1 temperature</li> <li>• Triaxial: 3 accel points + 1 temperature point</li> <li>• 10 min trend / 6 hour waveform data capture</li> </ul>	Qty #	(Qty #0->n)
<b>D: Trendmaster TIMs</b>		<b>E: Ranger Pro Devices</b>	
Qty #	0 ->n	Qty #	(Qty #0->n)
	<b>Supported Cards</b> <ul style="list-style-type: none"> <li>• 149776-01 10/100 base T</li> <li>• 149776-02 Fiber Optic</li> </ul>	<b>F: Trendmaster TIMs</b>	



Condition Monitoring & Basic Protection Device Import		
Perpetual	Subscription	
 <p><b>Supported Module and Point Types</b></p> <p>ProTIM (Programmable Transducer Interface Module)</p> <ul style="list-style-type: none"> <li>• Accel to Velocity Point</li> <li>• Low Frequency Accel to Velocity Point</li> <li>• Rack Buffer Output ProTIM</li> <li>• Temperature Point: 2-3 wire Platinum RTD</li> <li>• Temperature Point: 4 wire RTD</li> <li>• Speed Input: Keyphasor</li> <li>• Displacement Point</li> <li>• Pressure Point</li> <li>• Accel to Velocity with Enveloping</li> </ul> <p>FlexiTIM</p> <ul style="list-style-type: none"> <li>• Accel to Velocity FlexiTIM</li> <li>• 100 Ohm Platinum RTD FlexiTIM</li> <li>• J TC FlexiTIM</li> <li>• K TC FlexiTIM</li> </ul> <p>TIM</p> <ul style="list-style-type: none"> <li>• Displacement TIM</li> <li>• Keyphasor TIM</li> <li>• Process TIM</li> <li>• Rack Buffered Output TIM</li> <li>• Temperature - J TC Flexi TIM</li> <li>• Temperature - K TC Flexi TIM</li> <li>• Velocity TIM</li> </ul> <p>1900 Monitors</p> <ul style="list-style-type: none"> <li>• 1900/25 Velocity Monitor</li> <li>• 1900/55 Fan Monitor</li> </ul>	Qty #	0 ->n



## Process Data Import

Process Data Import			
Perpetual		Subscription	
3071/14 Process Data Import		3072/14 Process Data Import	
<b>A:OPC DA / UA Server Import - Static Data</b>		<b>A: Purchase Type</b>	
Qty #	1 ->n	01	New (first time purchase)
	<ul style="list-style-type: none"> <li>• OPC DA Includes up to 15,000 tags for a System 1 Server (max 15,000 combined OPC DA and Modbus)</li> <li>• Supports setpoints imported as OPC tags (Up to 60,000 tags)</li> <li>• 1 sec trend data capture</li> </ul>	02	Renewal
	<ul style="list-style-type: none"> <li>• OPC UA Import (up to 40,000 tags)</li> <li>• 1 sec trend data capture</li> </ul>		
<b>B:Modbus Import - Static Data</b>		<b>B: Term (Subscription term in years)</b>	
Qty #	1 ->n	##	Numeric Entry (1 ->5 years)
	<ul style="list-style-type: none"> <li>• Includes up to 200 Modbus devices</li> <li>• Includes up to 15,000 tags for a System 1 Server (max 15,000 combined OPC DA and Modbus)</li> <li>• Supports Dynamic Setpoints (Up to 30,000 tags) (Postgres Database only)</li> <li>• 1 sec trend data capture for process and Enum points</li> <li>• 200 ms collection rate for 20% of the Modbus points (Postgres Database only)</li> </ul>	<b>C:OPC DA and OPC UAServer Import</b>	
		Qty #	1 ->n
		<b>D: Modbus Import</b>	
		Qty #	1 ->n



## Process Data Export

Process Data Export			
Perpetual		Subscription	
3071/15 Process Data Export		3072/15 Process Data Export	
<b>A: OPC DA Server Export (1 per server) (Max 10,000 tags export supported)</b>		<b>A: Purchase Type</b>	
Qty #	1->n	01	New (first time purchase)
	<ul style="list-style-type: none"> <li>Export static data via OPC DA protocol for online tags for a SI server.</li> <li>Export rates configurable by client.</li> </ul>	02	Renewal
<b>B: OPC UA Server Export - Waveforms (1 per server)</b>		<b>B: Term (Subscription term in years)</b>	
Qty #	1->n	##	Numeric Entry (1->5 years)
	<ul style="list-style-type: none"> <li>Maximum number of exported waveform tags per for a System 1 database is 3000 waveforms tags (combination of synchronous and asynchronous waveforms).</li> <li>Waveforms - 10 minute intervals or at device rate interval.</li> </ul>	<b>C: OPC DA Server Export</b>	
		Qty #	1->n
		<b>D: OPC UA Server Export - Waveforms</b>	
		Qty #	1->n
<b>C: OPC UA Server Export - Static Data (1 per server)</b>		<b>E: OPC UA Server Export - Static Data</b>	
Qty #	1->n	Qty #	1->n
	<ul style="list-style-type: none"> <li>Static tags - 1 second interval or at device rate.</li> </ul>		
<b>D: OPC UA Server Export - Alarm Events (1 per server)</b>		<b>F: OPC UA Server Export - Alarm Events</b>	
Qty #	1->n	Qty #	1->n
	<ul style="list-style-type: none"> <li>Events - exported as soon as new alarm events are logged in System 1.</li> </ul>		



It is recommended to meet the standard server specification for performing OPC UA export from five online portable databases on a single System 1 Server.



## Database Replication

Database Replication			
Perpetual		Subscription	
3071/16 System 1 Replication		3072/16 System 1 Replication	
<b>A: Tx Server(s) (Total SW License Price of Tx Server)</b>		<b>A: Purchase Type</b>	
##	Numeric entry (in local currency)	01	New (first time purchase)
	<ul style="list-style-type: none"> <li>Conduit to move data to the business network</li> <li>Contains config info and connection to devices</li> </ul>	02	Renewal
<b>B: Rx Server(s)</b>		<b>B: Term (Subscription term in years)</b>	
Qty #	1 -> 8	##	Numeric Entry (1 ->5 years)
	<ul style="list-style-type: none"> <li>Database mirroring S1 server on Plant Network</li> <li>Supports 80-90% of condition monitoring tasks</li> </ul>	<b>C: Total SW License Price of Tx Server(s)</b>	
		##	(Qty # 1->8)
		<b>D: Quantity of Rx Server Licenses</b>	
		##	(Qty # 1->8)





A standard server specification can support one to five replications. For six to eight replications, it is recommended to have SSD on the Rx server.

## Performance Monitoring

Performance Monitoring			
Perpetual		Subscription	
3071/17 System 1 Performance		3072/17 System 1 Performance	
<b>A: Complex Machines</b>		<b>A: Purchase Type</b>	
Qty #	0 ->n	01	New (first time purchase)
	Expander Recompressor, Gas Turbine, Side Stream Compressor Counts per stage/casing	02	Renewal
<b>B: Simple Machines</b>		<b>B: Term (Subscription term in years)</b>	
Qty #	0 ->n	##	Numeric Entry (1 ->5 years)
	Pump, Compressor, Steam Turbine, Fan, Expander, Generator, Heat Exchanger	<b>C: Complex Machines</b>	
		Qty #	0 ->n
<b>C: SI Servers with Performance (Excel licenses)</b>		<b>D: Simple Machines</b>	
Qty #	0 ->n	Qty #	0 ->n
<b>D: Predictive Emissions Monitoring System (PEMS)</b>		<b>E: SI Servers with Performance</b>	
Qty #	0 ->n	Qty #	0 ->n
<b>E. Purchase Type</b>		<b>F : Predictive Emissions Monitoring System (PEMS)</b>	
01	New	Qty #	0 ->n
02	Expansion	<b>G. Industry</b>	
<b>F. Industry</b>		00	Baseline
00	Baseline	01	O&G Upstream
01	O&G Upstream	02	O&G Midstream
02	O&G Midstream	03	O&G Downstream
03	O&G Downstream	04	Petrochemical
04	Petrochemical	05	LNG Liquefaction
05	LNG Liquefaction	06	Power Gen Nuclear/Thermal
		07	Other Markets

Performance Monitoring			
Perpetual		Subscription	
06	Power Gen Nuclear/Thermal	08	Power Gen Hydro
07	Other Markets		
08	Power Gen Hydro		

## Decision Support

Decision Support			
Perpetual		Subscription	
3071/51 System 1 Decision Support		3072/51 System 1 Decision Support	
<b>A: Core Package (n = max. number of packages)</b>		<b>A: Purchase Type</b>	
Qty #	0 ->n	01	New (first time purchase)
	Includes one Decision Support engine and rule writing capability for up to 40 rule results for a single System 1 database.	02	Renewal
<b>B: Developer Package</b>		<b>B: Terms (Years)</b>	
Qty #	0 ->n	##	Numeric Entry (1 ->5 years)
	Includes one Decision Support engine and rule writing capability for maximum rule results for a single System 1 database.	<b>C: Core Package (n = max. number of packages)</b>	
<b>C: Upgrade from Decision Support Core Package to Decision Support Developer Package</b>		Qty #	0 ->n
Qty #	0 ->n		Includes one Decision Support engine and rule writing capability for up to 40 rule results for a single System 1 database.
		<b>D: Developer Package</b>	
		Qty #	0 ->n
			Includes one Decision Support engine and rule writing capability for maximum rule results for a single System 1 database..
		<b>E: Upgrade from Decision Support Core Package to Decision Support Developer Package</b>	
		Qty #	0 ->n



Decision Support and Decision Support Analytics work only with databases using PostgreSQL. Decision Support applied to a targeted Rx server will support a maximum of 8 Rx replicated databases with a maximum of 2,000 results per database. Results may come from Decision Support analytics and / or custom analytics.

## Decision Support Analytics

Decision Support Analytics			
Perpetual		Subscription	
3071/53 Decision Support Analytics		3072/53 Decision Support Analytics	
<b>A: Qty of CAT-A Assets</b>		<b>A: Purchase Type</b>	
Qty #	0 ->n	01	New (first time purchase)
<b>B: Qty of CAT-B Assets</b>		02	Renewal
Qty #	0 ->n	<b>B: Terms (Years)</b>	
<b>C: Qty of CAT-C Assets (future)</b>		##	Numeric Entry (1 ->5 years)
Qty #	0	<b>C: Qty of CAT-A Assets</b>	
<b>D: Qty of CAT-D Assets (future)</b>		Qty #	0 ->n
Qty #	0	<b>D: Qty of CAT-B Assets</b>	
<b>E: Functionality</b>		Qty #	0 ->n
01	Decision Support Analytics	<b>E: Qty of CAT-C Assets (future)</b>	
<b>F: Server/DB Qty</b>		Qty #	0
Qty #	0 ->n	<b>F: Qty of CAT-D Assets (future)</b>	
<b>G: Industry</b>		Qty #	0
01	Oil & Gas Upstream	<b>G: Functionality</b>	
02	Oil & Gas Midstream	01	Decision Support Analytics
03	Oil & Gas Downstream	<b>H: Server/DB Qty</b>	
04	Petrochemical	Qty #	0 ->n
05	LNG Liquefaction	<b>I: Industry</b>	
06	Power Gen Nuclear/Thermal	01	Oil & Gas Upstream
07	Other Markets	02	Oil & Gas Midstream
08	Power Gen - Hydro	03	Oil & Gas Downstream
		04	Petrochemical
		05	LNG Liquefaction
		06	Power Gen Nuclear/Thermal
		07	Other Markets
		08	Power Gen - Hydro

## System 1 Expansion

System 1 Expansion			
Perpetual		Subscription	
3071/25 System 1 Software Expansion		3072/25 System 1 Software Expansion	
<b>A: Package Upgrade</b>		<b>A: Purchase Type</b>	
00	None	01	New (first Time Purchase)
01	Fundamental ->Advanced+	02	Renewal
02	Fundamental ->Premium+	<b>B: Term (Subscription Term in Years)</b>	
03	Advanced ->Advanced+	##	Numeric Entry (1 ->5 years)
04	Advanced ->Premium	<b>C: Package Upgrade</b>	
05	Advanced ->Premium+	00	None
06	Advanced+->Premium+	01	Fundamental->Advanced+
07	Premium -> Premium+	02	Fundamental->Premium+
<b>B: Client Expansion</b>		03	Advanced->Advanced+
00	None	04	Advanced->Premium
05	Small Package [6 Clients]	05	Advanced->Premium+
10	Medium Package [11 Clients]	06	Advanced+->Premium+
15	Unlimited Clients	07	Premium -> Premium+
<b>C: Server License Expansion</b>		<b>D: Client Expansion</b>	
00	None	00	None
01	Fundamental Server License	05	Small Package [6 Clients]
05	Advanced Server License	10	Medium Package [11 Clients]
10	Premium Server License	15	Unlimited Clients
		<b>E: Server License Expansion</b>	
		00	None
		01	Fundamental Server License
		05	Advanced Server License
		10	Premium Server License



## Software Maintenance and Support (M&S)

System 1 Maintenance and Support (M&S) provides access to the latest platform upgrades through a simplified web portal interface.

- 24/7 technical support (regional specialists)
- Access to the latest software releases
  - Operating system updates
  - Cyber security patches
  - User-driven feature additions



System 1 version 6.x, Ascent and ADAPT.wind customers with active M&S qualify for an upgrade to the latest System 1 platform at no additional cost. To receive an upgrade, include product 3071/65.

## Maintenance and Support

### 3071/20 System 1 Maintenance & Support

#### A: M&S Support Level

00	Basic Support
01	Essential Support
02	Premier Support
	Anti-virus Option (only in Premier Support)
	01 Symantec
	02 McAfee
	03 Total # of Computers

#### B: M&S Term

##	Numeric Entry (1 ->5 years)
----	-----------------------------

#### C: System 1 Products Covered under M&S Agreement

01	System 1 (3071)
02	System 1 (3060)
03	Enterprise Impact
04	ADRE SXP
05	Bently Balance

#### D: Total System 1 Software License Price

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### 3071/20 System 1 Maintenance & Support

*Software value at customer site to be covered by M&S Agreement*

##	Numeric Entry [In Local Currency]
----	-----------------------------------

**E: Customer Agreement Number (CAN)**

##	Text Entry (Ex: CAN1631)
----	--------------------------

**F: Software Contact First Name**

##	Text Entry (Ex. John)
----	-----------------------

**G: Software Contact Last Name**

##	Text Entry (Ex: Smith)
----	------------------------

**H: Software Contact Email Address**

##	Text Entry (Ex. John.smith@bently.com)
----	--

**I: M&S Order Type**

01	New [New Customer]
----	--------------------

02	Renewal [Returning M&S Customer]
----	----------------------------------

03	Expansion [Pre-Existing M&S Customer adding additional software]
----	--



Seller may maintain a de-identified (anonymized/pseudonymized) copy of the Condition Monitoring system database for purposes of customer training and use case demonstrations, unless otherwise negotiated.

## System 1 Software Platform Upgrade



System 1 version 6.x and Ascent customers with active M&S qualify for an upgrade to the latest System 1 platform at no additional cost. To receive an upgrade, include product 3071/65.

### 3071/65 System 1 Platform Upgrade

#### A: Customer Agreement Number (CAN)

##	Text entry [CAN#####]
----	-----------------------

#### B: Software Package Upgrade

01	System 1 v6.x
----	---------------

02	Ascent 2015
----	-------------

03	ADAPT.wind
----	------------

#### C: New Software Package

(Options 1-6 available for S1 v6.x upgrade, options 3-5 available for Ascent upgrade, and option 7 only for ADAPT.wind upgrade)

01	Premium+
----	----------

02	Premium
----	---------

03	Advanced+
----	-----------

04	Advanced
----	----------

05	Fundamental
----	-------------

06	Power Generation
----	------------------

07	Wind
----	------

08	Performance Monitoring
----	------------------------

09	Decision Support - Core
----	-------------------------

#### D: Quantity of Display Clients (not available for C options 08 or 09)

01	Single client
----	---------------

05	Small package (6 clients)
----	---------------------------

10	Medium package (11 clients)
----	-----------------------------

15	Unlimited Clients
----	-------------------

#### E: Quantity of Server Licenses (DAQs)

Qty #	1->n
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**3071/65 System 1 Platform Upgrade**

**F: Historical Data Migration**

01 Yes [System 1 v6.81+ and Ascent v2015]

02 No

**G: Qty of 3500 Devices - Turbomachinery & Hydro (available for C options 01, 02, and 06 only)**

Qty # Numeric entry [0->n]

**H: Qty of 3500 Devices - General Machines (available for C options 01, 02, and 06 only)**

Qty # Numeric entry [0->n]

**I: Qty of 3500 Devices - Recip Machines (available for C options 01, 02, and 06 only)**

Qty # Numeric entry [0->n]

**J: Qty of TDI Secure Devices (available for C options 01, 02, and 06 only)**

Qty # Numeric entry [0->n]

**K: Qty of OPC DA/UA (Static Data) Import Licenses (1 per server) (available for C options 01-04 only)**

Qty # Numeric entry [0->n]

**L: Qty of OPC DA/UA (Static Data) Export Licenses (1 per server) (available for C options 01-04 only)**

Qty # Numeric entry [0->n]

**M: Qty of Trendmaster TIMs (equals 3071/13-DD) (available for C options 01-04 only)**

Qty # Numeric entry [0->n]

**N: Qty of Complex Machines (equals 3071/17-AA) ( Performance Monitoring option only)**

Qty # Numeric entry [0->n]

**O: Qty of Simple Machines (equals 3071/17-BB) (Performance Monitoring option only)**

Qty # Numeric entry [0->n]

**P: Qty of Predictive Emissions Monitoring Systems (PEMS) (equals 3071/17-CC) ( Performance Monitoring option only)**

Qty # Numeric entry [0->n]

**Q: Total Plant/Wind Farm Output (Power Gen and Wind Only)**

Qty # 1->n

**R: Qty of Modbus Import (1 per server) (available for C options 01-04 only)**

Qty # 1->n

### 3071/65 System 1 Platform Upgrade

**S: Decision Support Analytics included (available for C option 09 only)**

01	Yes
02	No


## Accessories

Accessory	BN Part Number	Description
<b>136M4565-01</b>	System 1 Disk	Latest version of System 1 on DVD
<b>117M5159-01</b>	System 1 Languages Disk	Latest version of System 1 Languages on DVD
<b>150M1856-01</b>	Decision Support Disk	Latest version of Decision Support on DVD



The 3071/30 System 1 Servers are now in a separate datasheet, see document 133M3049.

## System 1 Classic Connector

Perpetual		Subscription	
<b>3071/60 System 1 Classic Connector</b>		<b>3072/60 System 1 Classic Connector</b>	
Qty #	1->n	<b>A: Purchase Type</b>	
 <p>Connect to legacy Bently Nevada Devices, including, TDXNet, 1701 FMIM (Trendmaster natively supported now)</p>		01	New (first time purchase)
		02	Renewal
		<b>B: Term (Subscription term in years)</b>	
		##	Numeric Entry (1->5 years)
		<b>C: System 1 Classic Connector</b>	
	Qty #	(Qty # 1->n)	Connect to legacy Bently Nevada Devices, including TDXNet, 1701 FMIM

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