



60X/CFG

Orbit Studio Configuration Software

Product scope

- Configures Orbit 60 chassis, modules, channels, measurements, alarms and relay functions.
- Supports simultaneous work with online systems and offline configuration files in one client session.
- Provides system-capacity, current-value and loop-check tools for engineering verification.

Manufacturer source

Baker Hughes Bently Nevada Orbit 60 System Overview and Ordering Information

Baker Hughes Bently Nevada Orbit 60 Series System Overview Datasheet 137M5182 Rev. AA.

Request a fast quote	Product reference	
Email: info@apterpower.com Phone: +86 18106909650 apter.com/inquiry.php	60X/CFG	

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60X/CFG product reference

Orbit Studio Configuration Software

Verified configuration

Bently Nevada 60X/CFG is Orbit Studio Configuration Software for configuring, verifying and maintaining Orbit 60 chassis, modules, channels, measurements, alarms and relay logic.

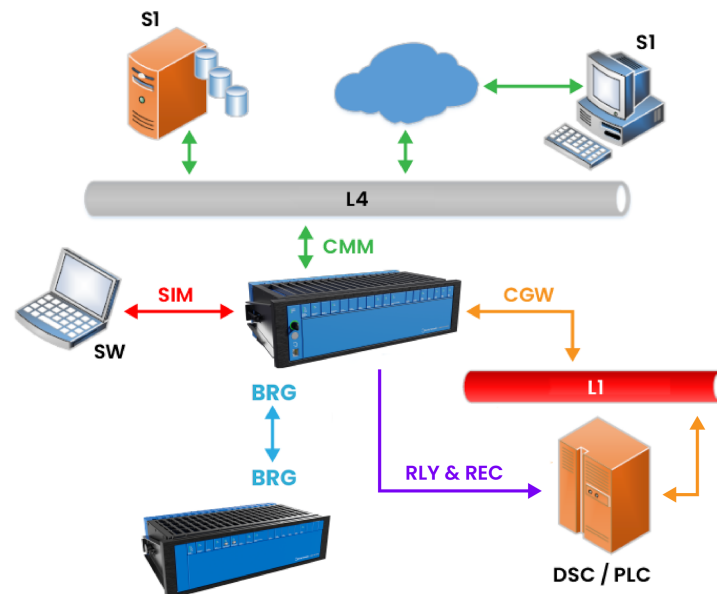
Manufacturer	Bently Nevada
Model	60X/CFG
Product family	Orbit 60 Series
Product type	Configuration Software
Part number	60X/CFG
Software name	Orbit Studio Configuration Software
System family	Orbit 60 Series
Configuration scope	Chassis, modules, channels, measurements and setpoints
Relay logic modes	Graphical and text-based
Multi-system session	Supported
Offline file comparison	Supported
Send and retrieve configuration	Supported for multiple systems

Manufacturer source

Baker Hughes Bently Nevada Orbit 60 System Overview and Ordering Information

The following pages retain the manufacturer technical content for configuration and engineering review.

Orbit 60 System Level Diagram



SIM - System Interface Module

CMM - Condition Monitoring Module

CGW - Comm Gateway Module

RLY & REC - Relay Outputs and/or Recorder Outputs

BRG - Bridge Module

S1 - System 1 Server or Client

CNFG - Orbit Studio Configuration Software

DCS/PLC - Distributed Control Systems/
Programmable Logic Controller

L1 - Unit Network

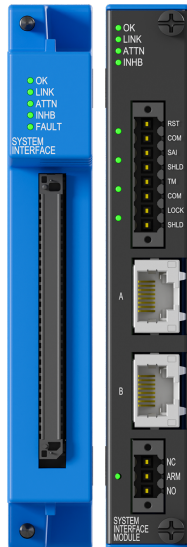
L2 - Control Network

L4 - Business Network

Figure 1: System Diagram

One System Interface Module (SIM) defines a system of up to 64 dynamic channels, accommodating multiple machine trains and supporting unrestricted synchronous Keyphasors for any channel. The Condition Monitoring Module (CMM) interfaces to the business network through a cyber-secure access port. The Communications Gateway (CGW) sends (data, status, setpoints) and receives controls (inhibit, reset, trip multiply) with control systems and plant historians. The Bridge Module allows for additional chassis to be connected while still forming a single system. The Recorder Module outputs analog signals proportional to configured measurement values. Relay Modules provide digital output signals based on configurable logic of system statuses.

System Interface Module



Each Bently Nevada™ Orbit 60 system requires a single System Interface Module (SIM). The SIM provides the user access to manage protection configuration, local display, system-level diagnostics, system LEDs, system contacts, and the system protection fault relay. The SIM occupies one slot and must be adjacent to the Power Input Module (PIM) in the chassis.

The SIM is the access point for configuring and maintaining the system. The module communicates to the Orbit Studio configuration software and transmits the configuration to other modules in the system. The SIM provides a physical access security feature through a key-lock switch on the public side and a contact on the utility side of the SIM. Either of these controls can be used to secure the system configuration, preventing unauthorized changes.

The SIM has three independently configurable Ethernet ports. Each port can be used for system configuration, system time synchronization, temporary troubleshooting, or an external display.

For additional details, see the System Interface Module Datasheet (142M9054).

Protection Processing Module



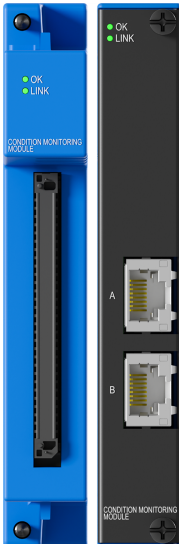
The Protection Processing Module (PPM) serves as the computational engine for the Bently Nevada™ Orbit 60 monitoring system. It extracts all machinery measurements for the protection system and performs alarm determinations. The PPM analyzes signals from transducers, generates measurements and statuses and publishes them to other modules for data collection and external communication. Each PPM occupies a single slot within the system.

Each PPM provides computational capacity for a large number of sensors and can support typical monitored machine trains. The PPM capacity is a function of the type of processing required on each input. If the system requires more processing than a single PPM can provide, additional PPMs can be added to the system for complex monitoring deployments. For protection systems, redundant PPMs are recommended.

The Orbit Studio Configuration Software provides a System Utilization Calculator to evaluate the remaining capacity of the PPMs in your system. If a PPM processing capacity reaches 90%, a warning indicator is displayed in Orbit Studio software, and it is recommended to add another PPM or two PPMs if the system is redundant.

For additional details, see the Protection Processing Module Datasheet (142M8515).

Condition Monitoring Module



The Condition Monitoring Module (CMM) listens to all information within the system, including all measurements, waveforms, digital transducer signals, system controls, status information, system configuration information, process data from external systems, and alarm and events logs. It only listens, with no capability to write, allowing interface to System 1 over the business networks, with no risk to the protection system.

Each module occupies either one slot (60R/CMM02) or two slots (60R/CMM01) within the system. Placing multiple CMM modules allows the connection of two independent System 1 clients to the Bently Nevada™ Orbit 60 System. Data is transferred to System 1 continuously, but in the event the connection is lost, non-volatile storage buffers historical data until the information is off-loaded to the host software. System 1 can configure the CMM module to extract additional measurements and waveforms from system sensor data. Without System 1, the customer can use the CMM module to collect data to diagnose machinery issues when an alarm event occurs in the hardware.

For additional details, see the Condition Monitoring Module Datasheet (145M9028).

Orbit Studio Configuration Software

The Orbit Studio software configures Orbit 60 chassis, modules, channels, measurements, setpoints, relays, and many other aspects to protect plant assets. It is also the primary method used to verify systems. For more information, see Orbit Studio online help or Orbit Studio Configuration Software User Guide (137M0696).



Measurement Accuracy Warning:

Orbit Studio configuration software provides extensive flexibility to configure Orbit 60 devices for a wide range of applications. When using custom transducer configurations, it is possible to exceed the specified measurement accuracy for low full-scale range (FSR) measurements, particularly when configured FSR corresponds to less than 100 mV transducer signal levels.

Additionally, applying filtering settings beyond the typical frequency range supported by the transducer may increase susceptibility to external noise sources, which can adversely affect measurement integrity.

To ensure optimal performance when using custom configurations:

- Carefully validate all configuration settings.
- Consider environmental noise mitigation strategies.
- Perform installed end-to-end system testing to confirm measurement accuracy and system reliability.

Multiple Systems Configuration

You can connect multiple systems from a single Orbit Studio client session. This opens multiple offline configuration files alongside actively connected systems allowing for easy cross-referencing across systems, while enabling security through user-based permissions. You can copy and paste modules and channels across systems and configuration files, as well as send and retrieve configurations for multiple systems at once.

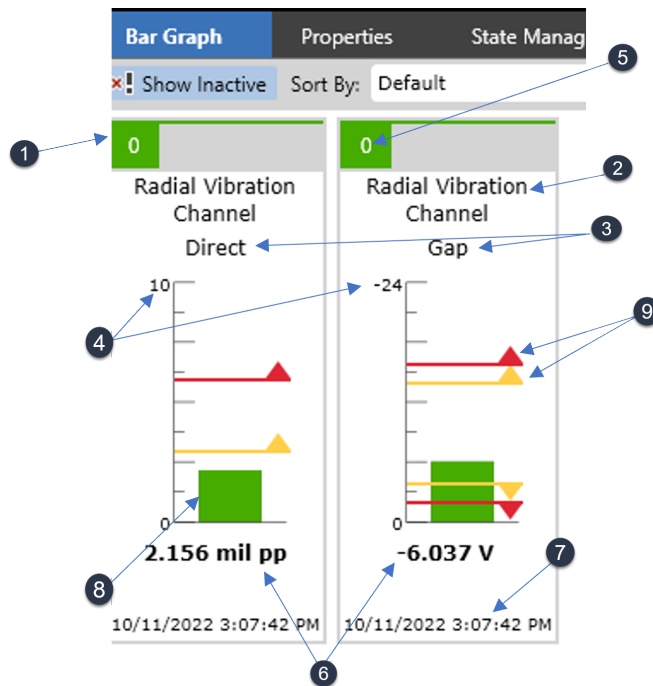
Relay Logic Configuration

Create and manage relay logic for your system using a method that fits your workflow. [Graphical Configuration](#) supports drag-and-drop assembly with nodes and connectors, while [Text-Based Configuration](#) lets you define the same logic with concise text notation. Regardless of configuration mode, the Toolbox provides quick access to input sources, output sources, and logical operations, so you can add the pieces you need without leaving the configuration context.

Current Values and Loop Check

View current value data across all channels within a system. You can use the bar graphs and tabular lists to complete loop checks from channels throughout the system.

To configure the Orbit 60 system, refer to the Orbit Studio online help.



1. Overall Health Color
2. Channel Name
3. Measurement
4. Full Scale Range
5. Highest Alarm Severity Level
6. Measurement Value
7. System Time
8. Measurement Health
9. Alarm Levels

Figure 1: Bar graph Verification Screen for 1 RV Channel

ORBIT 60 SERIES System Overview
Datasheet

137M5182 Rev. AA

Part Number	Description
0005	5 feet (1.5 meters)
0007	7 feet (2.1 meters)
0010	10 feet (3.0 meters)
0025	25 feet (7.6 meters)
0050	50 feet (15.2 meters)
0100	100 feet (30.5 meters)

B: Assembly Instructions

01	Not Assembled
02	Assembled

External Barriers

Part Number	Description
175502	3-pin Transducer Barrier
177241	2-pin Velomitor Barrier
175990 or 170M3559	Thermocouple Barrier
170M3559	RTD Barrier

External Galvanic Isolators

Part Number	Description
103M7134	3-pin Transducer Isolator
103M7134	2-pin Transducer Isolator
154M1361	Thermocouple Isolator
103M7138	RTD Isolator



"Ext Termination Block - TC" cannot be used with Internal Termination I/O modules.

Configuration Software

Part Number	Description
60X/CFG	Orbit Studio Configuration Software

AC/DC Industrial Power Supply



Specific Power Supplies are exclusively used with either the 3U (240 W) or 6U (480 W chassis).

Ordering Option	Description
60X/XPS01-AAA	240 Watt AC/DC (3U) Industrial Power Supply

AAA – Agency Approvals

00	No Hazardous Area
01	CSA/NRTL/C (Class I, Div 2)
02	Multi (CSA, ATEX, IECEx)
XXX	Country Specific Approvals

60X/XPS02-AAA	480 Watt AC/DC (6U) Industrial Power Supply
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AAA – Agency Approvals

00	No Hazardous Area
01	CSA/NRTL/C (Class I, Div 2)
02	Multi (CSA, ATEX, IECEx)
XXX	Country Specific Approvals

Miscellaneous

Part Number	Description
60X/KEY01	System Key
60R/BLK01	Blank: Module slot blank cover



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