

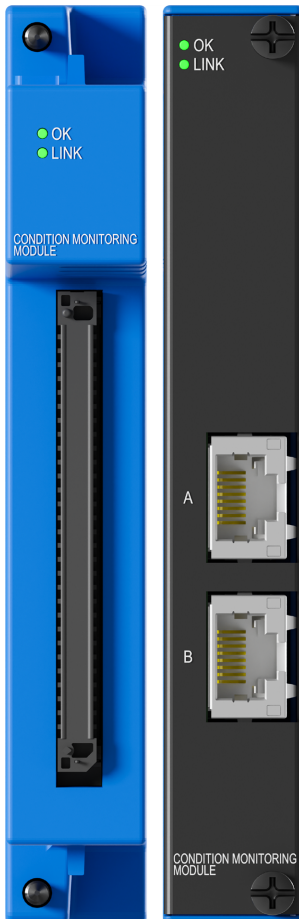
ORBIT 60 SERIES

Condition Monitoring Module

Datasheet

Cordant™

145M9028 Rev. D



Description

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 one slot 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.




Each module has two independently configurable RJ-45 Ethernet ports. OK LEDs indicate proper operation and LINK LEDs show good communication to the system.



Baker Hughes 

Condition Monitoring Module

Condition Monitoring Module (CMM)	
Power Consumption	
Maximum	14.2 W
Typical	10.5 W
Data Communications	
2 Ethernet ports - utility or rear side	Independent Ethernet ports 1000/100/10 Base-T Auto-negotiation
Connector	RJ-45
Cable Length	100 meters (328 feet) max
LEDs	
Module OK LED	Indicates when the module is functioning properly
LINK LED	indicates when the module is communicating to the rest of the system
Physical	
Required Rack Space	2 slot (60R/CMM01) 1 slot (60R/CMM02)
Environmental Limits	
Chassis Operating Temperature Range (indoor use only)	3U Chassis: -30°C to +70°C (-22°F to 158°F)  6U Chassis: -30°C to +65°C (-22°F to 149°F) 
	 Temperatures over 50°C (122°F) require forced air convection with a minimum airspeed of 0.5 m/s.

Environmental Limits	
Module Temperature Rating Certification	-30°C to +70°C (-22°F to 158°F)  When using a Bridge module in a 3U chassis, temperatures over 55°C (131°F) require forced air convection with a minimum airspeed of 0.5 m/s.  You must still meet the Chassis Operating Temperature Range defined above.
Storage Temperature Range	-40°C to +85°C (-40°F to 185°F)
Relative Humidity	0% to 95% rH non-condensing operating and storage
Vibration	Without Isolators: 0 g to 0.35 g @ 57-500 Hz With Isolators: 0 g to 5 g @ 57-500 Hz
Shock	2" Incline Drop
Altitude	< 2000 m (6,562 ft)  Higher altitudes are possible but are site specific applications. Contact Bently Nevada support if you require higher altitudes.
Pollution Degree	Pollution Degree 2

Environmental Limits

Installation
Category

Category II



Verify that temperature ratings on the wiring cables match the operating temperature range.



CAUTION



LOCATION TEMPERATURE AND HUMIDITY

While the system has been tested and capable of achieving the design life when operating in environments up to 70°C, whenever operating any electronics system in elevated humidity or temperatures exceeding 40°C, adding environmental controls maximizes the operational life of the system.

Compliance and Certifications

FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

EMC

European Community Directive:

EMC Directive 2014/30/EU

Standards:

EN 61000-6-2; Immunity for Industrial Environments
EN 61000-6-4; Emissions for Industrial Environments

Electrical Safety

European Community Directive:

LV Directive 2014/35/EU

Standards:

EN 61010-1;
EN 61010-2-201;

†India - Battery EPR Marking

GE Oil & Gas India Private Limited

EPR Certificate No.: 1.1595372902047E+20

†Applies to 60R/BRG01, 60R/CGW01
60R/SIM01, 60R/PPM01, and
60R/CMM01

RoHS

European Community Directive:

RoHS Directive 2011/65/EU

Cyber Security

Designed to meet IEC 62443-4-2

*Maritime

ABS Rules for Condition of Classification, Part 1

- Steel Vessels Rules
- Offshore Units and Structures

*Recorder Output module, Bridge module, and 6U systems approvals pending

Functional Safety

This component is non-interfering with the safety system. The system SIL 2 certification does not require this component be SIL certified.

Hazardous Area Approvals



For the detailed listing of country and product-specific approvals, refer to the [Approvals Quick Reference Guide \(108M1756\)](#).

For additional technical documentation, please log in to bntechsupport.com and access the Bently Nevada Media Library.

cNRTLus

Class I, Zone 2: AEx/Ex ec nC IIC T4 Gc;
Class I, Zone 2: AEx/Ex nA nC IIC T4 Gc;
Class I, Division 2, Groups A, B, C, D T4;
Class I, Division 2, Groups A, B, C, D T4
(N.I.);

T4 @ Ta= -30°C to +70°C (-22°F to +158°F)

ATEX/IECEx



II 3 G
Ex ec nC IIC T4 Gc
Ex nA nC IIC T4 Gc

T4 @ Ta= -30°C to +70°C (-22°F to +158°F)

Ordering Information



For the detailed listing of country and product-specific approvals, refer to the [Approvals Quick Reference Guide \(108M1756\)](#).

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If replacing an existing 60R/CMM01 two slot wide CMM module with a 60R/CMM02 single slot CMM module, an additional blank module (part number 60R/BLK01) must be ordered to fill the unused slot. If connected, System 1 software must be version 25.2 or higher to completely support new module.

Condition Monitoring Module

Ordering Option	Description
60R/CMM01-AAA-B (Two-Slot)	
AAA – Hazardous Area Certifications	
00	No Hazardous Area
01	CSA/NRTL/C (Class I, Div 2)
02	Multi (CSA, ATEX, IECEx)
XXX	Country Specific Approvals
B – SIL Level	
0	No SIL

Ordering Option	Description
60R/CMM02-AAA-B (One-Slot)	
AAA – Hazardous Area Certifications	
00	No Hazardous Area
01	CSA/NRTL/C (Class I, Div 2)
02	Multi (CSA, ATEX, IECEx)
XXX	Country Specific Approvals
B – SIL Level	
0	No SIL

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