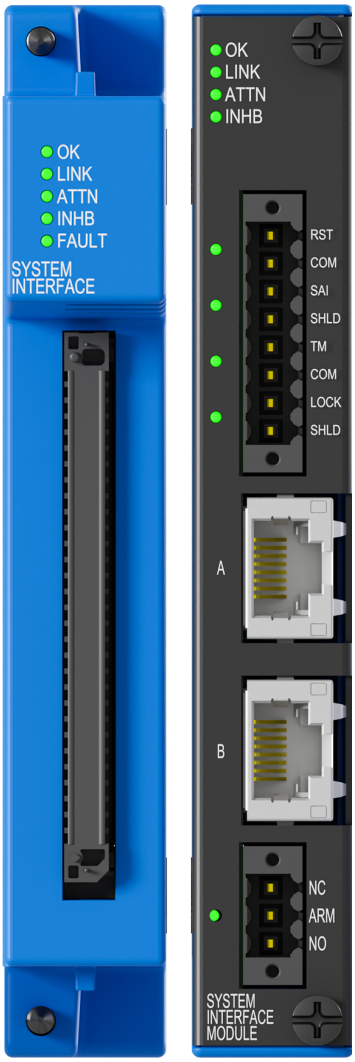
ORBIT 60 SERIES
System Interface Module
Datasheet

Bently Nevada Machinery Condition Monitoring

142M9054 Rev. C



Description

Each 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.

System level functions include:

- Alarm List
- System Event List
- System Level Diagnostics
- Firmware Updates
- System Level Controls
    - RUN/PROG Mode
    - Trip Mutiply
    - System Alarm Inhibit
    - System Reset
    - Protection Fault Relay (Output)

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a Baker Hughes business

System Interface Module

System Interface Module (SIM)	
Power Consumption	
Typical	7.6 Watts
Maximum	10.9 Watts
System Contacts	
4 contacts on utility or rear side	Trip Multiply
	Alarm Inhibit
	System Reset
	Configuration Lock
Voltage In	24 V max
Current rating	<1 mA to 125 mA
Trigger Threshold Input High	1.7 V
Trigger Threshold Input Low	0.8 V
Low Limit Open Resistance	10.5 to 15.7 kΩ
Upper Limit Closed Resistance	3.7 to 6 kΩ
Protection Fault Relay	
Relay Type	Solid State, Single-Pole, Double Throw
Voltage	1 Vdc to 125 Vdc
Current	0.01 to 125 mA
Isolation	250 Volts
Maximum cycling rate	1 Hz

System Interface Module (SIM)	
Default Coil State	Normally Energized
Switching Properties	Limited to non-inductive loads
Communications	
1 Ethernet port-public side 2 Ethernet ports-utility side	Independent Ethernet ports 1000/100/10 Base-T Auto-negotiation
Connector	RJ-45
Supported Connections	NTP time sources Orbit Config-System configuration Orbit Display-Local system display
Cable Length	100 meters (328 feet) max
Cyber Security	

- Aligned to the IEC 62443-4-2 standard.

- Encrypted communications using latest TLS standards.

- PKI implemented signed firmware images to facilitate secure boot and trusted firmware updates.

- Device identity management uses certificates for trusted connections.

- Configure user, roles and rights account management.

- Uses physical Run/Program control

System Interface Module (SIM)	
Controls and Contacts	
RST Reset Contact or Button	Used to clear all latched alarms and NOT OK statuses across the system. LED indicates reset contact closed. [1]
SAI System Alarm Inhibit Contact	Used to inhibit all alarms within the system. LED indicates the state of the alarming functions within the system.
TM Trip Multiply Contact	Used to place the system in Trip Multiply. LED indicates that the system is in Trip Multiply mode.
LOCK Configuration Lock Contact or Key	**PRG** - Allows configuration changes to be made to the system. Amber LED indicates the system is in Program mode. **RUN** - Locks the system, blocking configuration changes. Green LED indicates the system is in Run mode. [2]
NO, ARM, NC Protection Fault Relay	NO, ARM, and NC contacts are all used to wire the output to an external receiver. A green LED indicates that all the protection functions within the system are operational. Red indicates the protection path is faulted and the Protection Fault Relay is in a tripped state (not energized).

[1] Performed by either closing the contact on the module or pressing the button on the front panel.

[2] Performed by either closing the contact on the module or setting the key on the front to the RUN setting on the front panel.

SIM LED Indications	
OK	OK LED - indicates the operational status of the module.
LINK	Internal Communication LED - successful communication on the internal network.
ATTN	Attention LED - unacknowledged system events.
INHB	Inhibit LED - one or more configured alarming functions have been inhibited.
FAULT	Indicates Protection Fault Status. A green LED indicates that all the protection functions within the system are operational. Red indicates the protection path is faulted. A blinking amber light indicates an unconfigured module.

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, temperatures over 58°C (136°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

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

Ex 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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System Interface Module

Ordering Option	Description
60R/SIM01-AAA-B • System Interface Module	
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

For an Orbit 60 safety system, SIL certification for the SIM is not required.

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