

# ORBIT 60 SERIES Relay Modules Datasheet

Bently Nevada Machinery Condition Monitoring

137M0699 Rev. -

## Description

Relay modules provide a set of relays that you can program to actuate based on alarm conditions defined in other modules. They are programmable with standard logic elements (True AND, Normal AND, OR and NOT) to combine various alarms and statuses (alarm statuses, OK statuses and other statuses (Bypass, Protection State, Test Mode, Inhibit, Attention, Protection Fault, etc.)) into relay activation conditions. Use Orbit Studio to program the voting logic.

You can also program relays to operate as a system or group protection fault relay, especially when the protection fault relay on the SIM does not provide adequate granularity of system health - typically for multiple machines in one system.

Pairs of relays within the module function as a single Double-Pole, Double-Throw relay when appropriately configured. All relay types are available for SIL system implementation.



## Electromechanical Relay (EMR)

This relay drives a load directly, or through, an interposing relay. This module takes two slots. It features **8 Epoxy Sealed, Single-Pole Double-Throw Electromechanical Relays**. This module supports an AC voltage range of 5-250 Vac for loads of 100 mA to 4 A. The module also supports DC voltages and loads of 5-30 Vdc at 4 A.

## Solid State Relay (SSR)

This relay connects to an external system's discrete input for low current communication. It occupies a single slot and features **8 Solid-State Relays**. This module supports secondary voltages up to 125 Vdc and loads of 0.1-125 mA.



## Electromagnetic Relay (EMR)

| Electromagnetic Relay (EMR) |  |
|-----------------------------|--|
| Characteristics             |  |
| Type                        | Electromechanical Single-Pole, Double-Throw                                |
| Number of Relay Outputs     | 8  |
| Environmental               | Epoxy Sealed   |
| Arc Suppressor              | 250 Vrms, installed standard   |
| Contact Life                | 100,000 cycles @ 5 A, 24 Vdc or 240 Vac                                    |
| Operation                   | Each relay is configurable for Normally De-Energized or Normally Energized |

### Contact Rating for Standard Systems

|                             |                  |
|-----------------------------|------------------|
| Minimum Switched Current    | 100 mA           |
| DC Maximum Switched Current | 4 A @ 30 Vdc     |
| DC Maximum Switched Voltage | 30 Vdc           |
| AC Maximum Switched Voltage | 250 Vrms         |
| AC Maximum Switched Current | 4 A              |
| Maximum Switched Power      | 180 W or 1800 VA |

### Contact Rating for Hazardous Area Systems

|                             |          |
|-----------------------------|----------|
| Maximum Switched Current    | 4 A      |
| DC Maximum Switched Voltage | 30 Vdc   |
| AC Maximum Switched Voltage | 160 Vrms |

## Solid State Relay (SSR)

| Solid State Relay (SSR) |  |
|-------------------------|--|
| Characteristics         |  |
| Type                    | Solid State Single-Pole, Double-Throw                                      |
| Number of Relay Outputs | 8  |
| Environmental           | Plastic Encapsulated   |
| Arc Suppressor          | 150 Vdc, installed standard  |
| Contact Life            | 100,000 cycles @ 4.5 A, 30 VDC or 240 AC                                   |
| Operation               | Each relay is configurable for Normally De-Energized or Normally Energized |

### Contact Rating for Standard Systems

|                             |                  |
|-----------------------------|------------------|
| Minimum Switched Current    | 1 mA             |
| DC Maximum Switched Current | 125 mA @ 125 Vdc |
| DC Maximum Switched Voltage | 125 Vdc          |
| Maximum Switched Power      | 650 mW           |

### Contact Rating for Hazardous Area Systems

|                             |        |
|-----------------------------|--------|
| Maximum Switched Current    | 125 mA |
| DC Maximum Switched Voltage | 50 Vdc |

## 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;

### RoHS

European Community Directive:

RoHS Directive 2011/65/EU

### Cyber Security

Designed to meet IEC 62443

### Maritime\*

ABS Rules for Condition of Classification, Part 1

- Steel Vessels Rules
- Offshore Units and Structures

### Functional Safety\*

SIL 2

\* Approvals pending

## Hazardous Area Approvals



For the detailed listing of country and product specific approvals, refer to the *Approvals Quick Reference Guide* (108M1756) available from [Bently.com](http://Bently.com).

### CSA/NRTL/C

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 +65°C (-22°F to +149°F)

### ATEX/IECEx

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

T4 @ Ta= -30°C to +65°C (-22°F to +149°F)

## Ordering Information



For the detailed listing of country and product specific approvals, refer to the *Approvals Quick Reference Guide* (108MI756) available from [Bently.com](http://Bently.com).

### Electromechanical Relay Module

| Ordering Option                     | Description                 |
|-------------------------------------|-----------------------------|
| 60R/RLY01-AAA-BB                    |                             |
| 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  |
| BB – SIL Level                      |                             |
| 00                                  | No SIL                      |
| 02                                  | SIL 2                       |

### Solid State Relay Module

| Ordering Option                     | Description                 |
|-------------------------------------|-----------------------------|
| 60R/RLY02-AAA-BB                    |                             |
| 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  |
| BB – SIL Level                      |                             |
| 00                                  | No SIL                      |
| 02                                  | SIL 2                       |

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