

ORBIT 60 SERIES

Process Variable and Discrete Input Module

Datasheet

Bently Nevada Machinery Condition Monitoring

145M9027 Rev. -



Description

The Orbit 60 Series Isolated Process Variable and Discrete (PVD) Input module processes machine-critical parameters such as pressure, flow, temperature, and levels that merit continuous monitoring. The module conditions and digitizes the signals so the result can be compared with user-programmable alarm setpoints. The user can program the PVD module using the Orbit Configuration software to perform current, voltage or discrete input measurements. This module provides discrete inputs for essential operational commands, such as Trip Multiply for machine start-up and Alarm Inhibit.

The monitor accepts +4 to +20 mA current inputs or any proportional voltage inputs between -10 Vdc and +10 Vdc, in addition to monitoring "dry" or "wet" contacts which can be a sensor, switch, or relay.

Primary purposes of the PVD Module:

- Continuously process input from monitored parameters to be compared against configured alarm setpoints to drive alarms for machinery protection.
- Allow provision of essential machine information, such as Trip Multiply for machine startup and Alarm Inhibit for both operations and maintenance personnel.

These modules occupy a single slot. The module OK LEDs indicate proper functioning and the LINK LEDs indicate good system communication. Six Channel Status LEDs on the utility side of the module indicate a connected sensor in OK condition.

* Process Variable measurements are not available in the first release.



Isolated Process Variable / Discrete Input

Isolated PV / Discrete Input (PVD)	
Power Consumption	
Channels	6
Isolation	5700 V Channel to System and 250 V Channel to Channel isolation
Process Variable 4-20 mA Input	
Process Variable Input (Current)	4 to 20 mA 0 to 25 mA
Error	±1% of Fullscale
Voltage Compliance	3 V
Fault Input Tolerance	±24 V
Powered off module input resistance	>10 Mega Ohm
Powered on nominal Input resistance	100 Ohms + 0.3V*
Process Variable -10V to +10V Input	
Process Variable Input (Voltage)	-10 to 10 Vdc 0 to 10 Vdc 2 to 10 Vdc 0 to 5 Vdc 1 to 5 Vdc -10 to 0 Vdc
Error	±1% of Fullscale
±10V Nominal Input Impedance	249 kΩ
Fault Input Tolerance	±40 V

* The voltage drop across the input when configured for a current input is 100 Ohms x Input Current + 0.3 V.

Discrete Input	
Discrete Input	Dry Contact, Internally Wetted Wetted Contact, 0 to 10 Vdc
Closed State Impedance	Programmable
Open State Impedance	Programmable
Internal Wetting Voltage	11.5V to 12.7V
Fault Input Tolerance	± 40 V

PVD Output	
Module OK LED	Indicates when the module is functioning properly
System Communication LED	Indicates when the module is communicating to the rest of the system
Channel Status LED	1 per output channel indicates Electromechanical relay module states

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.

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* (108M1756) available from Bently.com.

Isolated Process Variable / Discrete Input Module (PVD)

Ordering Option	Description
60R/INP09	
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
2	SIL 2

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1631 Bently Parkway South, Minden, Nevada USA 89423
Phone: 1.775.782.3611 (US) or [Bentley.com/support](https://www.bentley.com/support)
[Bentley.com](https://www.bentley.com)