

Guardian Series Pressure Sensors for Safety Assurance

Meet the EN ISO 13849-1 Machine Directive PL'c' compliance and NFPA 79 clauses for pressure sensors *without* the need for redundant sensors or a separate relay module



Description

Machinery Directive standard EN ISO 13849-1 is a European safety regulation. This is a generic standard defining the requirements for the safety-related parts of control systems. A pressure sensor is a machinery component that is expected to comply under the directive, when it is used in a safety function on a machine. Dynisco offers its popular pressure sensors with an internal relay switch that serves as a safety backup as well as being compliant to the directive through an extension of the line called Guardian Series. Guardian meets the directive without the expense and complication of redundant sensors and external relay modules. Guardian also complies with NFPA 79 clauses A.9.2, A.9.4.1, A.9.4.3.2 as a way of evaluating safety-related aspects of control functions. Select the relay switch threshold among ten different choices from 10-100% of full scale of the pressure range.

Guardian Series sensors are self-certified based on the testing and

Features

- Integral relay switch for redundant safety and future compliance
- 3rd-party agency analysis (**exida™**) and self-certified based on FMEDA analysis and internal audit.
- Meets Performance Level 'c' as defined by the Machinery Directive (single sensor installed per Category 1).
- Meets Performance Level 'd' as defined by the Machinery Directive (two sensors installed per Category 3).
- Meets the following compliance directives, when properly installed and used:
 - Machinery Directive 2006/42/EC
 - NFPA 79 clauses A.9.2, A.9.4.1, A.9.4.3.2
 - EMC Directive 2004/108/EC
 - PED 97/23/EC
- Available on popular mV/V (PT, MDA, DYN) and mA-HART SPX models

evaluation reports of the respected third-party agency, **exida™**. Guardian Series sensors have undergone extensive FMEDA analysis (Failure Mode Effects and Diagnostic Analysis). Each single sensor will meet Performance Level 'c' (PL'c') as defined in the Machinery Directive, without the need for redundant sensors, a comparator module, or extra wiring and installation costs. Performance Level "d" (PL'd') can be achieved by installing two sensors in a configuration per Category 3.

Dynisco branded sensor families that can be ordered as a Guardian sensor include:

- SPX 2xxx, SPX 3xxx, SPX 4xxx, SPX 5xxx, DYNA4, DYN-X, MDA410, MDA420, MDA460, PT410, PT415, PT418, PT420, PT435A, PT450, PT460E, PT460XL, PT462E-M10, PT465XL, PT467E, PT467E-M10, PT467XL, PT480, TPT, TDA



Specifications

PERFORMANCE CHARACTERISTICS

Specifications are particular to the Guardian Series option. Refer to the specific sensor data sheet (via www.Dynisco.com) for specifications related to the sensor.

NOTE: Guardian requires use of an 8-pin connector for wiring (screw-type, not bayonet).

A relay, closed under normal operating conditions, is provided.

Relay Specs

- Max. switching voltage: 200 VDC; 200 peak AC
- Max. switching current: 0.5 Amp
- Max. DC current: 1.0 Amp

The relay contacts will open under the following fault conditions:

- An open bridge is detected
- Loss of power to the sensor
- Pressure exceeds the relay threshold selected by customer at time of order. (See Order Guide for selections.)

NOTE: It is the user's responsibility to wire this relay into the machine in such a way that when the relay opens it returns the machine to a safe condition.

NOTE: It is the user's responsibility to comply with Directive's "Proof in Use" requirements and recalibrate the sensor on an annual basis.

APPROVALS & CERTIFICATIONS

PL'c': EN ISO 13849-1 meeting the performance requirements of a safety-related part of a control system for Performance Level 'c' (PL'c') safety system when installed per Category 1

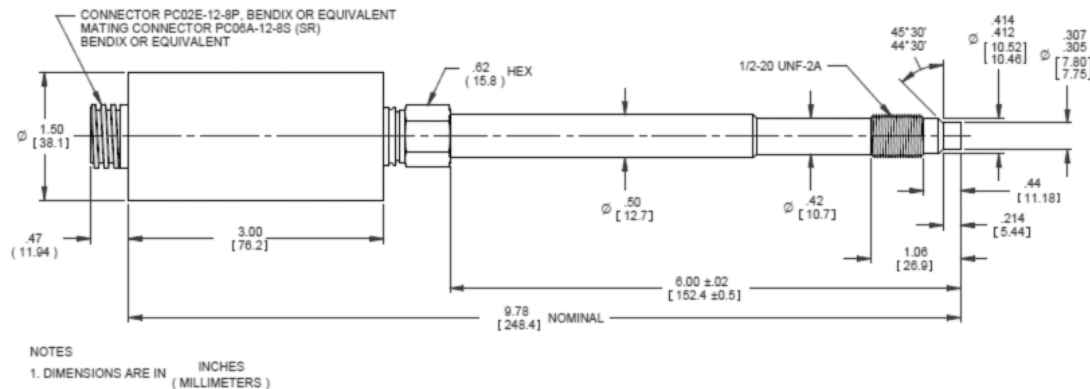
PL'd': EN ISO 13849-1 meeting the performance requirements of a safety-related part of a control system for Performance Level 'd' (PL'd') safety system, if installed per Category 3

NFPA 79: NFPA 79 clauses A.9.2, A.9.4.1, A.9.4.3.2

Ordering Guide

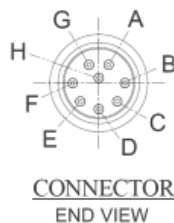
Order Guardian features as an option code at the end of the **product** model code. For example, **PT-XX-XXX-XX-XXX**

Guardian Series
 GCx = Performance Level 'c' to EN ISO 13849-1 Machinery Directive, where "x" is the relay threshold as a % of full scale for the pressure range. Select "x" as a number from 10% to 100% in ten percent increments, expressed as a single digit — "1"=10%; "2"=20%; "3"=30% and so on to "0"=100%".
 Example: C9 = PL'c' with a relay switch threshold of 90% of full scale



Example of the MDA 420 dimensions. Other product drawings are available by product model via www.Dynisco.com.

CONNECTOR WIRING, mV	
PIN	FUNCTION
A	EXCITATION +
B	SIGNAL +
C	EXCITATION -
D	SIGNAL -
E	INTERNAL CALIBRATION
F	RESISTOR
G	RELAY CONTACT
H	RELAY CONTACT



CONNECTOR WIRING, SPX 4-20mA	
PIN	FUNCTION
A	POWER +
B	SIGNAL -
C	POWER -
D	N/C
E	RCAL+
F	RCAL -
G	RELAY CONTACT
H	RELAY CONTACT

All dimensions are inches (mm) unless otherwise specified.

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Refer to www.Dynisco.com for access to Operator Manual and other support documentation.