SmartDS

DYNAMIC EXPLOSION DETECTOR SYSTEM

IEP TECHNOLOGIES
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Description

SmartDS Dynamic Explosion Detection is designed to provide high-speed detection of an incipient explosion with the highest level of false alarm immunity available for active explosion protection solutions. The SmartDS detection system is programmable to accommodate a wide range of hazard and process conditions, including vacuum and positive pressure applications. The SmartDS system has the ability to analyze rate of pressure rise and to differentiate this from non-explosion pressure excursions.

The IEP Technologies SmartDS system is comprised of a MEX-3 dynamic explosion pressure detector and FAB-4 Field Connection Box. The MEX-3 is designed to be flush mounted to protected process vessels using the MEX-3 stainless steel mounting flange. The Mex-3 Dual pressure sensors are used to increase the level of false alarm immunity. The SmartDS system features include a history buffer for event recording, hygienic design, stainless steel body for demanding process environments, and ATEX approval.

The FAB-4 Field Connection Box processes the data collected by the MEX-3 detector and generates the appropriate alarm or trouble/fault signal. SmartDS Evaluation Software can be used to download detector settings, event logs, and both short term and long term pressure data to a personal computer in order to facilitate event investigation and analysis—a key feature.

SmartDS

Advantages

- Dynamic rate of rise pressure sensing differentiates between real explosion events and process pressure fluctuations

- Three separate algorithms that interrogate pressure data to secure detection whilst providing excellent false alarm immunity

- High reliability – dual pressure sensors provide secure detection and redundancy together with third party certification to SIL2

- Event history memory records pressure data before, during, and after explosion protection system activation facilitating post-event interrogation and analysis

- Powerful User Software Interface for graphical representation and analysis of recorded pressure data

- Hygienic design with O-ring seal and stainless steel detector body resists harsh process environments

- Field programmable to accommodate process changes

- Programmable static pressure pre-alarm alerts operator of process problems

- ATEX Approved and CE Marked

Application

The IEP Technologies SmartDS dynamic explosion detection system is designed for demanding explosion protection applications requiring state-of-the-art rate of rise pressure sensing and data interrogation. The ability of the SmartDS to analyze rate of pressure rise, and to differentiate this from non-explosion pressure excursions, sets it apart from other explosion pressure sensors. The SmartDS is fully programmable to accommodate a wide range of hazard and process conditions, including vacuum and positive pressure applications. Additionally, the detector design is suitable for hygienic applications. Typical applications include protection of dust collectors, drying systems, pneumatic conveying systems, and reaction vessels.

Specifications

MEX-3.2 Explosion Multi-Sensors (Pressure)		Area & Equipment Classification
Pressure Range	0 - 2 (0 - 4) bar (abs)	II 1/2 D Ex ia IIIC 128°C T$_{200}$ 140°C Da/Db
Process Temperature	-20 to +125°C	II 1/2 G Ex ia IIC T4...T1 Ga/Gb
Ambient Temperature	-20 to 125°C	Cl. I. Div 1 & Cl. II. Div. 1
Ceramic Measuring Cells		SEV 15 ATEX 0176 X
		IECEx SEV 15.0023X
MEX-3.2T Explosion Multi-Sensor (Pressure & Temperature)		
Pressure Range	0 - 2 (0 - 4) bar (abs)	II 1/2 D Ex ia IIIC 128°C T$_{200}$ 140°C Da/Db
PT100 Temperature Range	0 to +160°C	II 1/2 G Ex ia IIC T4...T1 Ga/Gb
Process Temperature	-20 to +125°C	Cl. I. Div 1 & Cl. II. Div. 1
Ambient Temperature	-20 to 125°C	SEV 15 ATEX 0176 X
Ceramic Measuring Cells		IECEx SEV 15.0023X
MEX-3.2HT Explosion Multi-Sensors (High Temperature Applications)		
Pressure Range	0 - 2 (0 - 4) bar (abs)	II 1/2 D Ex ia IIIC 163°C T$_{200}$ 175°C Da/Db
Process Temperature	-20 to +160°C	II 1/2 G Ex ia IIC T4...T1 Ga/Gb
Ambient Temperature	-20 to 160°C	Cl. I. Div. 1 & Cl. II. Div 1
Hastelloy Measuring Cells		SEV 15 ATEX 0176 X
		IECEx SEV 15.0023X
Wielding Fiange MEX3.2 (all variants)		
Dimensions	ø 130 x 24 mm	
Material	1.4404/316L	
Field Connections Box FAB-4		
Operating Voltage	10 - 30 VDC	II 2 (1) D Ex tb [ia Da] IIIC T85°C Db
Max. Current Consumption	1.5 W	II 3 (1) G Ex nA [ia Ga] IIC t4 Gc
Ambient Temperature	-25 to +75°C	Cl. I. Div. 2 & Cl. II D, DIV. 1 & 2
		SEV 15 ATEX 0120

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