



VIBRASWITCH[®] MALFUNCTION DETECTOR Model Euro 366

INDUSTRIAL PRODUCTS DIVISION

GENERAL DESCRIPTION

The Model Euro 366 **Vibraswitch[®]** is a vibration sensitive device that protects rotating and reciprocating machinery from extensive damage resulting from mechanical malfunction. When the vibration level of a **Vibraswitch[®]** protected machine exceeds normal by a preselected amount, an internal switch closes, actuating either an audible warning system or a shutdown circuit before costly damage occurs.

Failing bearings, broken blades and similar malfunctions cause increased imbalance or high frequency vibration detectable with the **Vibraswitch[®]**. It is designed for maintenance-free service in permanent installations where general purpose weather-resistant enclosures are required.

The **Vibraswitch[®]** is an acceleration sensitive instrument that measures the total acceleratory shock present on the machine. Acceleration is a vibration characteristic of prime importance in cases of mechanical failure on reciprocating or rotating machinery. Acceleration is directly related to the shock forces (impact) acting on a machine, thus the **Vibraswitch[®]** offers a valid measurement of the destructive forces acting on the machine.

Accelerator measurements made by the **Vibraswitch[®]** are the summation of all of the individual accelerations giving a total destructive force acting on the machine, the result is positive protection.

PRINCIPLE OF OPERATION

The Model Euro 366 **Vibraswitch[®]** employs a magnetic circuit opposed by inertial and adjustable spring forces in the actuating mechanism. Operation of the **Vibraswitch[®]** may be understood by reference to Figure 1.

The armature is constrained so as to respond to only one direction of movement by a frictionless flexure pivot composed of two overlapping blocks and a leaf spring loaded in one direction to hold the blocks together. The armature rotates on the pivot being forced in one direction by the adjusting spring force and the other direction by the magnetic force.

When the entire assembly is subjected to vibration perpendicular to the base, the peak acceleration times the effective mass of the armature produces an inertial force, aided by the adjustable spring tending to pull the armature away from the Stop pin and the restraining force of the magnet. When the peak acceleration exceeds the set-point level the armature leaves the stop pin, increasing the gap and decreasing the force with the armature continuing to move up until it reaches the latch magnet, actuating the switch during its upward travel.

The **Vibraswitch[®]** may be reset by depressing the reset button or by applying power to the electrical reset coil. The effect of temperature in the mechanism is negligible as the elastic modulus of the adjusting spring and the magnetic flux through the air gap both decrease slightly with increasing temperature thereby compensating each other.



VIBRASWITCH[®] MODEL Euro 366

Ex II 2 GD EEx d IIC T6 IP65 T85°C - INERIS 02ATEX0043

FEATURES AND BENEFITS

- **Explosion Proof**
EEx d IIC T6 IP65 T85°C - INERIS 02ATEX0043
- **Self powered**
Does not require any form of external power to operate.
- **Acceleration sensitive**
Measures total destructive shock, not displacement.
- **Minimum Maintenance**
No moving parts except when set-point is exceeded.
- **Continuous protection**
No attention required after installation.
- **Ease of Installation**
Requires no special training.
- **Long life**
Instrument is rugged and durable -no wearing parts.
- **Reset**
Choice of remote electrical or manual at unit.
- **AC or DC**
Reset coil options.
- **IP65 Standard**

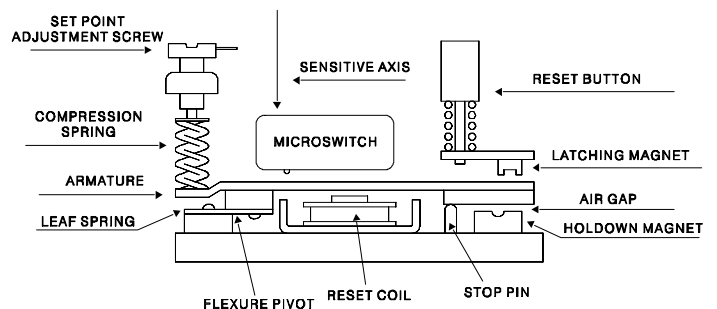


Figure No. 1

SPECIFICATIONS

ENVIRONMENTAL

Housing.....Cast Aluminum UNI 4514 Alloy
 Weight Model CPSC 2,0 Kg
 Weight Model EFSRC 2,2 Kg
 Enclosure Classification Explosion Proof
 EEx-d-IIA/B/C-T6 IP65 T85°C
 Explosion Proof Approval.....INERIS 02ATEX0043
 Enclosure Protection..... IP65 Standard
 Enclosure Finish.....Sandblasted (Standard)
 Polyurethane RAL 6003 Painting (Optional)
 Mounting Location:Outdoors, Unprotected
 External Bolts..... Stainless Steel
 Nameplate..... Stainless Steel
 Conduits..... 2 x 3/4" UNI 6125-74
 Ambient Temperature Limits.....-30°C ÷ +85°C
 Humidity..... To 95% Relative Humidity @ +37,7°C
 Shock 40 g @ 11 ms. maximum

ELECTRICAL

Switch Configuration:..... See Table 1
 Contact Ratings: See Table 5

PERFORMANCE

Vibration Measurement Range 0 ÷ 4,5 g from 0 to 300 Hz
 Set point Range from 0 to 4,5 g
 Set point Adjustment 1 turn per g
 Accuracy..... ±5% of full range (0÷300 Hz)
 Ambient Temperature Effect..... ±10%/55,5°C maximum

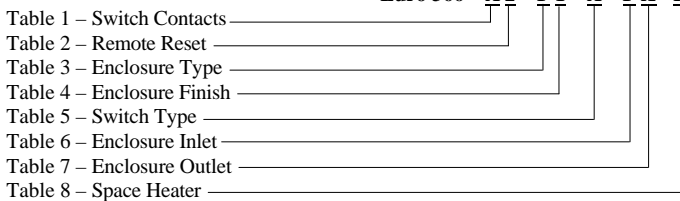
RESET COIL

Power 14 Watt
 Duty Cycle:..... 4 minutes max. ON - 10 minutes min. OFF
 Reset Coil 24, 48, 120 VDC, 117 VAC
 Duty Cycle..... 1 minute max. ON - 10 minutes min. OFF
 Reset Coil 220 VAC
 Standard Voltages See Table

ORDERING INFORMATION AND MODEL NUMBERS

Key Model Number Example

Euro 366 - A 2 - F 1 - A - F X - F



Key Model Number

Designation	Description
Euro 366	Vibraswitch® Explosion-Proof — Range 0-4.5G

Table 1 - Switch Contacts

Designation	Description
A	SPDT Single pole, double throw
D	DPDT (2 gang mounted SPDT load switch).

Table 2 -Remote Reset

Designation	Description
0	No reset coil.
2	24 VDC reset coil voltage.
4	48 VDC reset coil voltage.
7	120 VDC reset coil voltage.
8	117 VAC reset coil voltage.
9	220/230 VAC reset coil voltage

Table 3 – Enclosure Type

Designation	Description	Approval No.
F	EFSRC T.cable 90°C T.amb. -30 ÷ +40°C	Ineris 02Atex0043
G	CPSC T.cable 90°C T.amb. -30 ÷ +40°C	Ineris 02Atex0043
H	EFSRC T.cable 105°C T.amb. -30 ÷ +55°C	Ineris 02Atex0043
L	CPSC T.cable 105°C T.amb. -30 ÷ +55°C	Ineris 02Atex0043
S	EFSRC Suitable for Intrinsic Safety Applications	NA
T	CPSC Suitable for Intrinsic Safety Applications	NA
U	EFSRC for not classified area	NA
V	CPSC for not classified area	NA

Table 4 – Enclosure Finish

Designation	Description
1	Sandblasted
2	Polyurethane RAL 6003 Painting

Table 5 – Switch Type

Designation	Resistive Load Ratings	Protection
A	7,0 Amp max. 460 VAC max. 0,5 Amp at 120 VDC 1,0 Amp at 48 VDC 2,0 Amp at 24 VDC 5,0 Amp at 12 VDC	IP50
E	5,0 Amp at 250 VAC	IP50
G	2,0 Amp at 125 & 250 VAC 2,0 Amp at 30 VDC 0,4 Amp at 125 VDC	IP67 (Sealed)
H^o	0,1 Amp max. at 125, 250 VAC 0,1 Amp max. at 30 VDC 5,0 mA min. 6 VDC max. 2,0 mA min. 12 VDC max. 1,0 mA min. 24 VDC max.	IP67 (Sealed)

^o Gold plated contacts, suitable for Intrinsic Safety Applications

Table 6 and 7 – Enclosure Inlet and Outlet

Designation	Description
A	3/4" - 1/2" NPT Adapter
B	3/4" - 1/2" UNI Adapter
C	3/4" - M20 ISO Adapter
D	3/4" - 1" NPT Adapter
E	3/4" - 1" UNI Adapter
F	3/4" UNI Plug
G	EExd-IIC Cable Gland Inner Seal Ø 6÷9
H	EExd-IIC Cable Gland Inner Seal Ø 9÷12
L	EExd-IIC Cable Gland Inner Seal Ø 11÷14
M	EExd-IIC Cable Gland Inner Seal Ø 14÷17
X	Standard 3/4" UNI 6125

Table 8 – Space Heater

Designation	Description
F	24 VDC 2 Watt
G	48 VDC 2 Watt
H	117 VAC 2 Watt
L	120 VDC 2 Watt
M	220/230 VAC 2 Watt
X	No Space Heater

CUSTOMER ELECTRICAL CONNECTIONS

Euro 366-D (DPDT Switch)

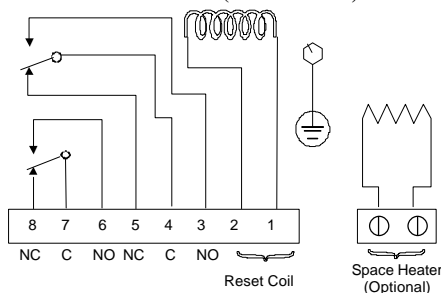


Figure No. 2

Euro 366-A (SPDT Switch)

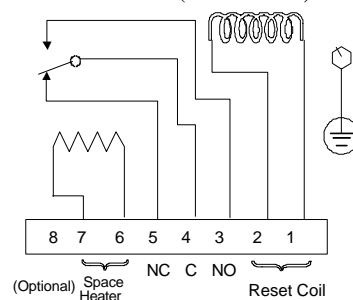


Figure No. 3

OUTLINE DIMENSIONS

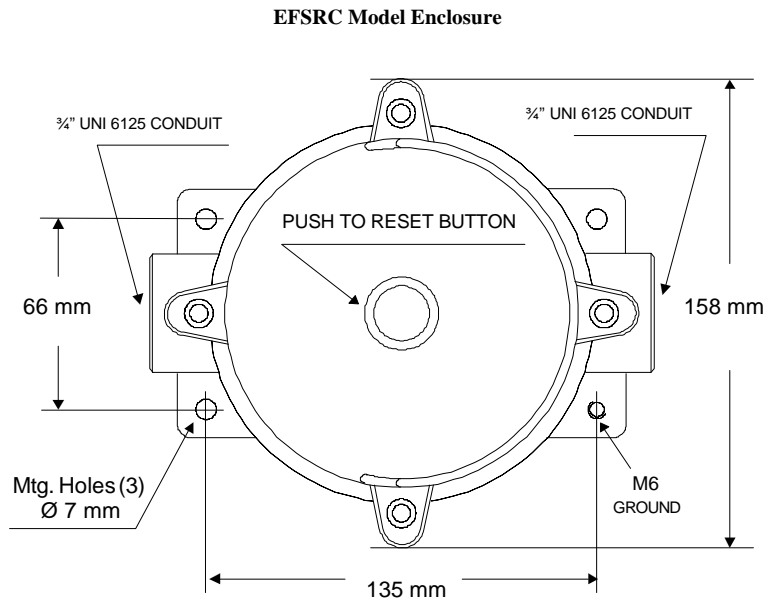


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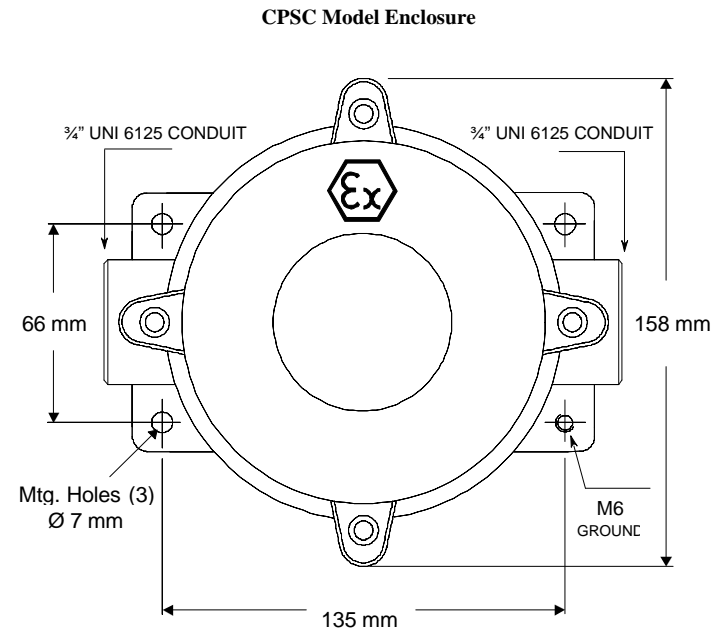


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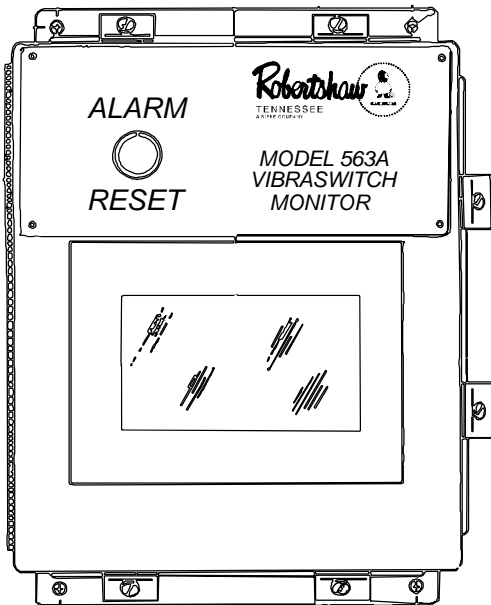
ALSO AVAILABLE



Model 365 Vibration Switch - Range 0-4,5g - Explosion Proof Class I Div. 1, Groups C & D, and Class II, Div. 1, Groups E, F & G,



Model 366 Vibration Switch – Range from 0 to 4,5 g - Enclosure NEMA 4 & 12 Equivalent to IP65



Model 563A Vibraswitch Monitors to eliminate false shut downs due to transient shocks or vibrations.(See PS-563A)



Model 566 Velocity-Acceleration Vibration Monitor. Two adjustable trip points. Analog 4-20mA output. Monitor delay on alarm #1



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