

Approved Exia Intrinsically Safe Terminal Box Assembly



DESCRIPTION

Intrinsically safe coil assembly suitable for Zones 0, 1 and 2, manufactured in accordance with the requirements of the European harmonised standards EN/IEC60079-0 and EN/IEC60079-11. Covered by Certificates CML17ATEX2046X & IECEx CML17.0030X.

FEATURES

- M20 x 1.5 conduit entry (Cable diameter 6 - 8mm) or 1/2 NPT
- Connection by 2-pole 2.5mm Terminal Block
- Protection class IP65 according to EN 60529
- Continuously rated
- Maximum permitted voltage variation $\pm 10\%$
- Maximum Ambient Temperature $+65^{\circ}\text{C}$
- Low power consumption
- Operates with a wide range of barriers and galvanic isolators

Previous Model Name - EP000/ia/TB
Current Model Name - S02

PRODUCT CODE: **E 1 3 A X C A**  **0**   

OPTIONS 1 DESIGNATOR VOLTAGE OPTIONS 2

SEE BELOW FOR
PRODUCT CODE
DETAILS

Any of the below options that are not required enter '0' in relevant box.

Options 1

C	Lever manual override
D	Push button manual override
S	Screw driver override
0	No option required

Standard Voltage

B	24v DC (33mA)
A	24v DC (10mA) FM/CSA

Designator

A	ATEX / IECEx
B	ATEX / IECEx (10mA)
F	FM / CSA
X	NEPSI

Options 2

0	No option required
E	1/2" NPT electrical connection
L	Low temperature duty -55°C
S	Crmo Stainless Steel

INTRINSIC SAFETY

Intrinsic safety is the safest form of protection for electrical equipment operating in potentially hazardous atmospheres. Intrinsic safety (IS) is based on the principle of restricting the electrical energy available in hazardous area circuits such that any sparks or hot surfaces that may occur as a result of electrical faults are too weak to cause ignition.

An intrinsically safe system consists of a certified IS interface which passes signals to and from the process (hazardous area) but limits the energy (that is voltage and current) that can reach the hazardous area under fault conditions.

The interface is usually mounted in the safe area and can be either a shunt diode safety barrier or a galvanic isolator.

In the hazardous area 'simple' or 'non-energy storing devices' (switches thermocouples & LED's) can be used without certification but 'Energy-storing' equipment such as solenoid valves must be designed so as to prevent this energy escaping and of necessity need to be of sufficiently low power to operate within the constraints of the power of the IS signal.

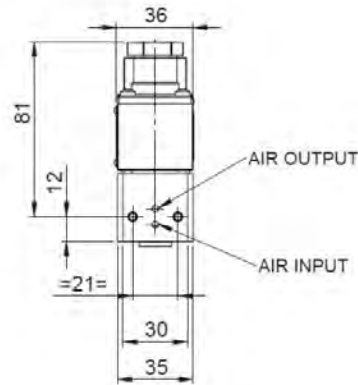
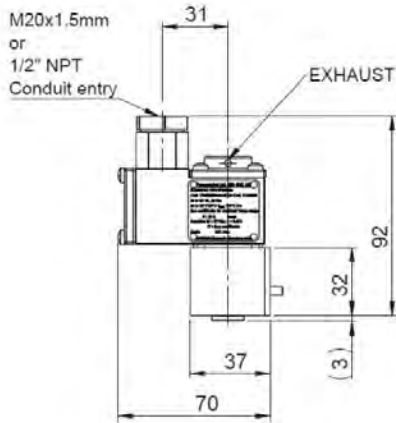
HAZARDOUS AREA SOLENOID VALVE

The Pneumatrol EP000/ia (S02) solenoid coil is approved for this duty and is certified safe for all classified areas of hazard and gasses when installed in accordance with an approved system. The coil is protected by diodes which suppresses the inductance, effectively to zero, and there is no capacitive characteristics in the coil either.

The coil assembly, which is encapsulated, forms a compact solenoid actuator to interchange with the standard (non-hazardous duty) coil fitted to the 3 and 4 way spool valves.

The IS coil because of its low wattage requires that the spring load and travel of the armature be closely controlled and for this reason each solenoid has an inbuilt adjustable jet which is factory set so as to control the operating characteristics of the coil. Where the IS solenoid actuator is fitted to the spool valve, the jet in the end cap which is required for the normal coil, is removed.

DIMENSIONS (mm)

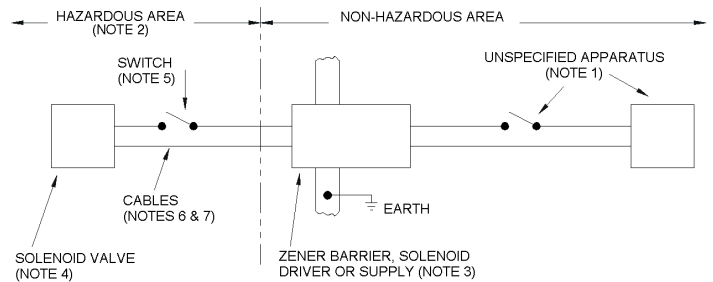


MATERIAL SPECIFICATIONS

STANDARD

Coil Case	Zinc Alloy Epoxy Powder Coated
Armature	Magnetic Stainless Steel
Springs	Stainless Steel
Seals and Seats	Nitrile / Viton
Coil Former	45% Glass Filled PBT
Magnetic Wire	Class H Coated Copper
CNOMO Interface	Black Anodised Aluminium
Jet	Brass

SOLENOID VALVE CONTROL SYSTEM



SOLENOID SPECIFICATIONS

Coil Type	DC Solenoid Coil
Voltage Standard	24
Voltage Tolerance	±10%
Ambient Temperature	-20 to +65°C (-55 to +65°C Low Temp)
Duty Cycle	100%
Degree Of Protection	IP65
Electrical Connection	Junction Box with Conduit Entry (M20 or 1/2" NPT)
Power Consumption	0.4W or 0.27W
Pressure Range	0 - 10 Bar
Resistance	370 Ohms or 2100 Ohms
Inductance (Apparent)	Zero
Capacitance	Zero

NOTE 1

This apparatus is unspecified except that it must not contain under normal or abnormal conditions a source of potential with respect to earth in excess of 250V R.M.S. or 250V DC.

NOTE 2

The electrical circuit in the Hazardous area must be capable of withstanding an AC test voltage of 500V R.M.S. to earth of frame of the apparatus for one minute.

NOTE 3

Any single channel or single channel of a multiple channel Shunt Zener Diode Safety Barrier, Solenoid Driver or supply certified by any EU notified certification body to [Exia] IIC, whose output voltage (U_z , $U_{max,out}$ or U_o) does not exceed 28V and whose output current ($I_{max,out}$ or I_o) is limited by resistance 'R' such that the output voltage divided by 'R' does not exceed 110mA, or whose output voltage (U_z , $U_{max,out}$ or U_o) does not exceed 25.5V and whose output current ($I_{max,out}$ or I_o) is limited by resistance 'R' such that the output voltage divided by 'R' does not exceed 147mA.

NOTE 4

Pneumatrol solenoid valve covered by Certificates CML 17ATEX2046X & IECEx CML17.0030X.

NOTE 5

Switch must be selected and installed to meet the requirements of clauses 5.4 of EN60079-11.

NOTE 6

The cable maybe twin pair, or a pair contained in a type A, or type B multicore cable (as defined in clause 5.3 of EN60079-25), provided that the peak voltage of any circuit contained within the multicore does not exceed 60 volts.

NOTE 7

The capacitance and inductance to resistance ratio of the hazardous area cables must not exceed the values shown in table 1.

INTRINSICALLY SAFE SUPPLY SPECIFICATION

U _{max} : in	31 Vdc
I _{max} :	0.67 A
W _{max} : in	2.98 W

TABLE 1

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	L/R RATIO (µH/ohm)
IIC	0.083	1.4	39
IIB	0.65	7.2	155
IIA	2.1	14.4	283

(Please refer to certificates CML 17ATEX2046X & CML 17.0030X for further clarification)