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Pressure switch with membrane or valve, single or double

Protection by intrinsic safety and by enclosures

Series HNSPX-Ex "i" and "t"

Type Approval Certificate 32251/C0 BV



Features

- Directive 94/09/CE
- Housing IP 6X
- Max. contact rating 30 V/50mA
- Mounting in zone 0 and/or 20
- Adjustment in zone 0 and/or 20
- Pressure range: +0,1to +50 bar
- Compliant with standards

EN 60079-0 (2009)
 EN 60079-11 (2007)
 EN 60079-31 (2009)

LCIE 12 ATEX 3012 X
 IECEx LCIE 13.0076 X



Type HNSPX-Ex-2

Description

Explosion protected pressure switches of the HNSPX-Ex type series with intrinsic safety "i" and by enclosures "t" control and monitor pressure process.

In gas area the pressure switches HNSPX-Ex could be only fitted to equipment certificated with intrinsic safety and could be used in explosive areas - Zone 0, Zone 1 and Zone 2.

In dust area the **ignition protection class "t"** allows the use of device in Zone 20, 21 and 22.

The pressure switches operate according to a deformable sensor (membrane or valve). The variation of pressure leads to a deviation of the membrane (or valve) which acts on a electrical contact. One or two independent normally opened (or closed) contact can be supplied on this device.

Option Type Approval Certificate

Type HNSPX-Ex/BV (405071/.../BV) with one or two single pole independent.

This devices shall not be used for pressure measurement on diesel engine.

Type approval Certificate 32251/C0 BV



ATEX and IECEx marks

	II 1GD	Device of Group II, category 1 device for Explosive area which contains explosives gas or explosive dusts
	ia IIC T6 Ga	For Explosive area which contains explosive gas
	t IIIC T85°C Da IP6X	For Explosive area which contains explosive dust
	-40°C ≤ T _{amb} ≤ +70°C	Operating temperature
	Ex ia IIC T6 Ga	For Explosive area which contains explosive gas
	Ex ta IIIC T85°C Da	For Explosive area which contains explosive dust



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Main applications

- Temperature monitoring for machines and machine tools
- Shipbuilding
- Vehicles and railways
- Chemical industry and petrochemistry
- Farm-produce industry
- Paper industry

Technical data

Switching Function

Pressure monitor DW

If the pressure exceeds the setpoint value, the membran (or valve) acts on the microswitch which opens or closes the electrical circuit. If the pressure falls below the selected setpoint (by the amount of the switching difference), the microswitch is reset to its initial position.

Control ranges / accuracy of the contact point at ambient temperature 20 °C

+0,1 to +1 bar	±0,2
+1,0 to +10 bar	±0,5
+10 to +20 bar	±1
+20 to +50 bar	± 2

Hysteresis

4 to 8%

Permissible overpressure

Static pressure +100 bar

Dynamic pressure : less or equal to 1bar/ms

Membrane

NBR; (for standard execution) or EPDM; FKM ; silicone or HNBR on request

Temperature

Range temperature of the media: -40 à + 85 °C.

For temperature of the media over than +85 °C, it's necessary to use a cooling element.

Ambient temperature max -40 to +70 °C

Switching frequency

200 / min.

Lifetime

10⁶ cycles (up to 50 bar)

Mechanical vibration

10 g / 5...200Hz sinus

Shock resistance

294 m/s²; 14ms half-sinus

Electrical data

Ui ≤ 30 V, Ii ≤ 50 mA, Pi ≤ 75 mW, Ci =0, Li =0

Electrical connection

On screw type terminal block(s) is directly accessible(s) after the cover of is removed, towards the top of the housing.

C Terminal spotted (common); NC (normaly closed); NO (normaly opened)

Screw type earth connection is top right (interior or exterior connection possible)

Connection to the ground is by female Faston lug.

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Casing

Material		Case and cover in aluminium cast-iron, blue Ral 5003
Setpoint value setting	HNSPX-Ex-1	1 switching point adjustable with a screwdriver after removing the case
	HNSPX-Ex-2	2 switching points adjustable with a screwdriver after removing the case
Protection type	EN 60 529-IP 67	
Cable inlet	Cable screw connection M20x1,5 on the top or side of the casing	
Casing fixation	with 4 screws once the cover is removed (in option 1 mounting plate with 2 screws)	
Weight	Pressure switch with 1 limit value	
	Pressure switch with 2 limits values	

Process connection

Material: stainless steel 316L
 Connection 1/4"NPT F - 1/2"G M, other connections on request
 Key opening: 17mm

Approvals/marks of conformity

Types	Switching function	ATEX or IECEx certification number
HNSPX1-Ex	1 control contact	LCIE 12 ATEX 3012 X IECEx LCIE 13.0076 X
HNSPX2-Ex	2 independent control contact	

Ignition protection class	Ex ia			
	Ex	General regulations	Standard European	EN 60079-0 (2009)/IEC 60079-0 (2011)
	ia	Intrinsic safety		EN 60079-11 (2007)/IEC 60079-11 (2011)
	IIC	Gas group		
	T6	Temperature class		
	Ga	Degree of protection EPL		
Mode de protection	Ex t			
	Ex	General regulations		EN 60079-0 (2009)/IEC 60079-0 (2011)
	t/ta	Protection by enclosure		EN 60079-31 (2009)/IEC 60079-31 (2008)
	IIIC	Dust group		
	T85°C	Max. admissible surface temperature (use in flammable dust)		
	Da	Degree of protection EPL		
	IP6X	Protection type against the penetration of external solid (only for ATEX)		

Accessories (example)

Galvanic isolation SI

Protection against explosions:

Module channel 1: type 9170/10-11-11s IS PAC

Logic input S.I

Output NSI : 2 change-over contacts (125V/ 1A)

Module power 24 VDC

Module channel 2: 9710/20-10-11s IS PAC

Logic input S.I

Output NSI : 1 change-over contact (125V/ 1A)

Module power 24 VD



II 3 (1) G Ex nAc nCc [ia] IIC T4



II (1) D [Ex iaD]



Connection block accessories :

PAC-Bus To simply power, 1 PAC by module (Ref. 9194/31-17 IS PAC PAC-Bu

Terminal Kit for PAC-Bus 1 set by rail DIN (Ref. : 9194/50-01 IS PAC)

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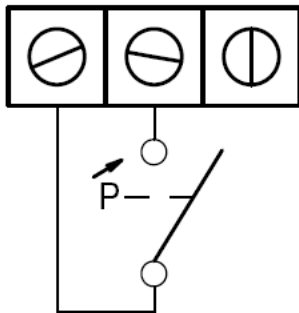
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Connection diagram

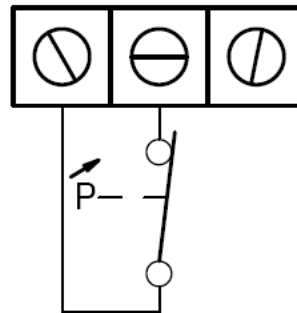
Contact NO

Contact normally opened
 Increasing pressure to close

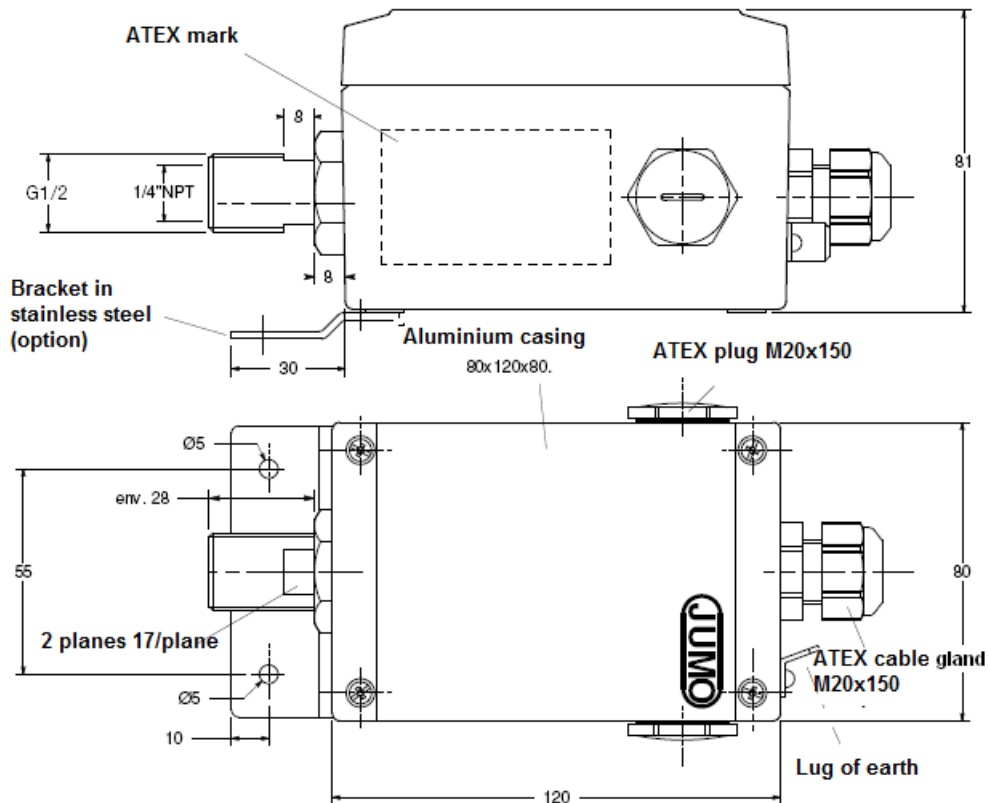


Contact NC

Contact normally closed
 Increasing pressure to open



Dimensions



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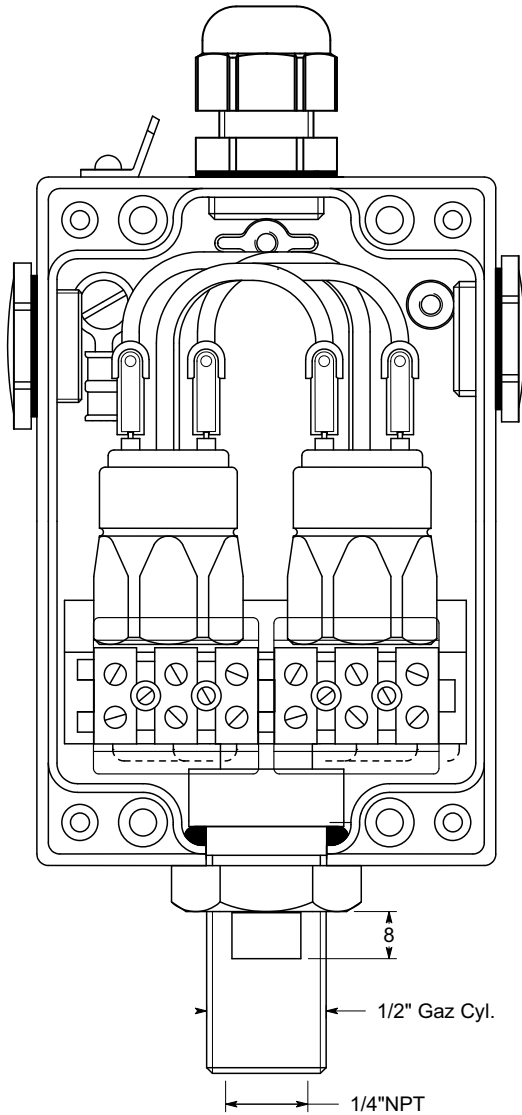
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Internal views

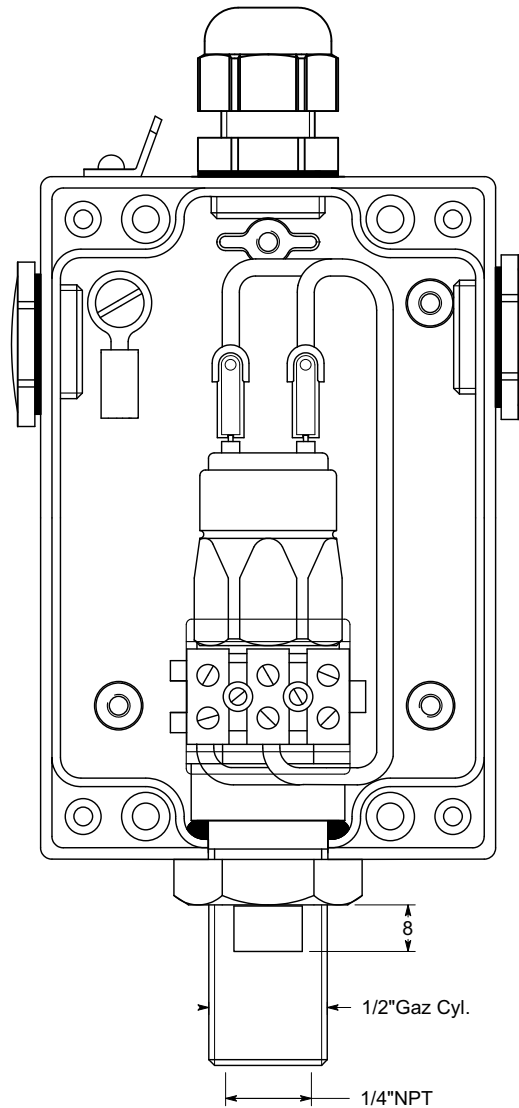
Double pressure switch

HNSPX-Ex-2.....HNSPX-Ex/BV-2



Single pressure switch

HNSPX-Ex-1.... HNSPX-Ex/BV-1



ATEX marks:

ATEX Kennzeichnung
 JUMO REGULATION 57075 METZ
 Type AMTXs-Ex
 N° de Fab.;
 Année de Fab.:
 CE0359 II 1GD
 Ex ia IIC T6 Ga
 Ex t IIIC T85°C Da IP6X
 -40°C ≤ Tamb ≤ +70 °C
 LCIE 12 ATEX 3012 X
 Ui ≤ 30 V ; li ≤ 50mA ; Pi ≤ 750 mW ; Li = 0 ; Ci = 0

IECEx marks:

JUMO REGULATION 57075 METZ
 Type : HNSPX-Ex
 Number :
 Year of manufacture :
 Ex ia IIC T6 Ga
 Ex ta IIIC T85 °C Da
 -40°C Tamb +70 °C
 IECEx LCIE 13.0076 X
 Ui : 30 V ; li : 50mA ; Pi : 750 mW ; Li : 0 ; Ci : 0

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Order details:

Order code		(1) Model
405071		Pressure switch with membrane or valve, series HNSPX-Ex /BV = Authorized execution with option type Approval Certificate - Type HNSPX-Ex/.../BV
BV		(2) Basic type extension
	X	1 HNSPX-Ex-1 Pressure controller single pressure switch
	X	2 HNSPX-Ex-2 Pressure controller double pressure switch
BV	X	(3) Control / limit 1 value ranges in bar
		520 +0,1 to + 1
		521 +1,0 to + 10
		522 +10 to +20
		523 +20 to +50
BV	X	(4) control / limit 2 value ranges in bar
		520 +0,1 to + 1
		521 +1,0 to + 10
		522 +10 to+20
		523 +20 to+50
BV		(5) Function of the switch 1
		01 contact normally opened
		02 contact normally closed
BV		(6) Function of the switch 2
		00 single pressure switch
		01 contact normally opened
		02 contact normally closed
BV		(7) Membrane / medium temperature
		55 NBR -40 to + 85 °C Standard
		58 EPDM -30 to +85 °C
		57 FKM -5 to +85 °C
		59 SILICONE -40 to +85 °C
		56 HNBR -30 to +85 °C
BV	X	(8) Process connection
		629 G1/2" male - 1/4"NPT female
		998 Mounting on separator
		999 other on request
BV	X	(9) Material of process connection
		20 CrNi (stainless steel, AISI 316Ti)
		... other on request
BV	X	(10) Extra code (optional)
		000 Without option
		247 Wall-mount plate stainless steel AISI 304L
		911 Delivered with a second cable inlet
		624 Free from oil and grease
		BV Execution with Type Approval Certificate
		372 IECEx option

Order code

(1) 405071 / (2) - (3) - (4) - (5) - (5) - (7) - (8) - (9) / (10)

Example order

405071 / 2 - 521 - 521 - 01 - 01 - 55 - 629 - 20 / 000

Example of order with type approval Certificate

405071 / 2 - 521 - 521 - 01 - 01 - 55 - 629 - 20 / BV