



SERIES: P82

Dial: 4", 6"
Accuracy: 1.6%

DESCRIPTION

Indumart *P82 Series* Fillable Contact Pressure Gauges are both reliable pressure gauges and accurate multi-stage pressure switches. They are ideal tools for controlling process sequences with the aid of process pressure.

Because of their robust design, they are suitable for harsh environment and most corrosive media, and meet stringent demands to bring the advantages of high accuracy, long-term stability and protection against water jets and dust on their moving parts.

These heavy duty pressure gauges can be used at measuring points with high dynamic alternating loads and strong vibrations and pulses. They may be filled with glycerin or silicon oil to ensure smooth pointer movement and to provide lubrication of the moving parts; protecting the measuring system against wear.

Optionally, monel K400 may be specified as the wetted parts material for the *P82 Series* pressure gauges, and various types of wall and panel mounting such as front or back flange and U-bracket may be ordered to suit most applications.

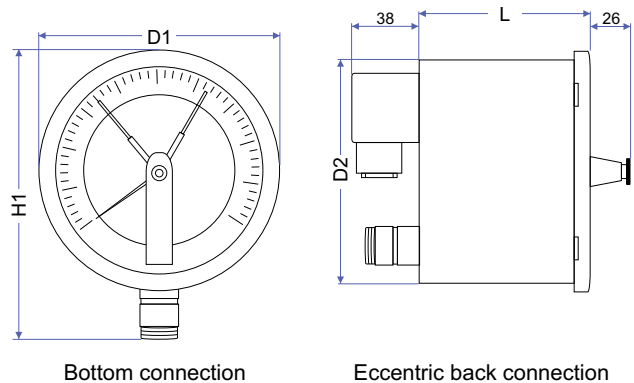
SPECIFICATIONS

Accuracy	1.6%
Dial Sizes	4" (100 mm), 6" (160 mm)
Case & Bayonet Bezel	Stainless steel
Connection	Back or bottom
Thread	½" NPT, BSP thread (option)
Blow-out Disk	Viton
Window	Plexiglas (standard), glass, safety glass (option)
Bourdon Tube System	316 st. steel (standard), monel K400 (option)
Contact Type	See the electric alarm contact types section
Max. Temperature Range	100°C 0...10 to 0...15000 psi; 0...60 to 0...100000 kPa; 0...0.6 to 0...1000 bar Up to 60,000 psi (4000 bar) for 6" dial only Vacuum and compound ranges are available; see the Range Table

Specifications may change without prior notice



Indicating Pressure Switch



DIMENSIONS & WEIGHT (mm)		
	Ø100 mm	Ø160 mm
D1	117	160
D2	103	149
D3	86	86
L	155	195
Weight (g)	800	1000

Electric Alarm Contact Types

Alarm contacts are fitted into or onto the casing of pressure gauges and thermometers and are being used to make or break an electric control circuit. Pressure gauges and thermometers with 100mm dial or larger can be equipped with up to four independent sets of contacts.

A non-wearing jewel bearing consisting of a stainless steel shaft and two axially arranged synthetic rubies are used in Indumart switches. This bearing is easy running, electrically insulating, resistant against aggressive media and guarantees optimum safety even under extreme conditions.

Indumart offers three types of electrical contacts: 1)Magnetic, 2)Inductive, 3)Electronic.

Magnetic Contacts

The magnetic contacts can be virtually used under all conditions, they are largely insensitive to vibration. The contact pin holder of the setting pointer is fitted with an adjustable magnet which attracts the contact arm just before the preset level is reached. The magnetic action makes contact almost insensible to vibrations, and prohibits arcing and scorching of the contact pin.

In the table below only single and double contacts are shown, but the contact devices can also be delivered as triple or quadruple -type. The functions are given considering the pointer moves clockwise so that the pointer passes the set point.

Code	Size	Version	Contact Type		Recommended Amplifier
			1 st Contact	2 nd Contact	
M-1	100/160	magnetic	make		MSR-010
M-2	100/160	magnetic	break		MSR-010
M-3	100/160	magnetic	special single change over contact (SPDT)		MSR-010
M-11	100/160	magnetic	make	make	MSR-020
M-12	100/160	magnetic	make	break	MSR-020
M-21	100/160	magnetic	break	make	MSR-020 or 011
M-22	100/160	magnetic	break	break	MSR-020 or 011
M-33	100/160	magnetic	special double change over contact (DPDT)		MSR-020

For triple magnetic contacts, the recommended amplifier is MSR-010 or MSR-020.

For double magnetic contacts special, 2 separate circuits contacts are available upon request.

For triple magnetic contacts special, 3 separate circuits contacts are available upon request.

Dry Gauges	Voltage	DC	AC	Inductive Load (max.)
	220 V	100 mA	120 mA	65 mA
	115 V	200 mA	240 mA	130 mA
	50 V	300 mA	450 mA	200 mA
	24 V	400 mA	600 mA	250 mA
Switching Capacity: 30 W / 50 VA		Making & Breaking Current: 0.7 A		

Filled Gauges	Voltage	DC	AC	Inductive Load (max.)
	220 V	65 mA	90 mA	40 mA
	115 V	130 mA	180 mA	85 mA
	50 V	190 mA	330 mA	130 mA
	24 V	250 mA	450 mA	150 mA
Switching Capacity: 20 W / 20 VA		Making & Breaking Current: 0.7 A		

For both dry and filled systems, the minimum current should not be less than 20 mA.

Inductive Contacts

The inductive contacts are non-contacting electrical switches, which are suitable for 5 to 25 VDC operations. Basically the contact system consists of a pair of coils energized in a transistorized oscillator, whose RF magnetic field is influenced by a metal control tab. By means of an amplifier, a relay is controlled which performs the actual switching task. The advantages of this contact are: 1) these switches can be applied in rooms with an explosion hazard classification "Ex i G5", and 2) they are wear-resistant due to the lack of mechanical contact, and thus require absolutely no maintenance. In the following table only single and double contacts are shown, but the contact devices can also be delivered as triple or quadruple-type. The functions are given considering the pointer moves clockwise so that the pointer passes the set point.

Code	Size	Version	Contact Type		Recommended Amplifier
			1 st Contact	2 nd Contact	
I-1	100/160	inductive	make		WE77/Ex1* or MSR-010-1**
I-2	100/160	inductive	break		WE77/Ex1* or MSR-010-1**
I-11	100/160	inductive	make	make	WE77/Ex2* or MSR-020-1**
I-12	100/160	inductive	make	break	WE77/Ex-IR* or MSR-020-1** or 011-I**
I-21	100/160	inductive	break	make	WE77/Ex2* or MSR-020-1**
I-22	100/160	inductive	break	break	WE77/Ex2* or MSR-020-1**

* = Intrinsically safe ** = not intrinsically safe

For triple inductive contacts the recommended amplifiers are WE77/Ex1*, WE77/Ex2*, MSR-010-I**, or MSR-020-I**.

Electronic Contacts

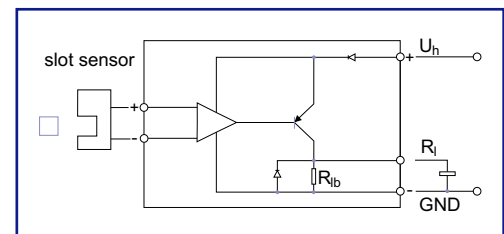
Electronic contacts can be used in almost all industrial applications. Due to their switching accuracy (proximity type), these contacts are suitable for precision measuring instruments (also for liquid filled and low pressure instruments). Compared to the inductive contacts, this system is more economical since it does not need an amplifier.

Electronic contacts with a PNP output are particularly suitable for switching small DC loads (10 - 30 Vdc, under 100 mA), for instance PLC signal inputs.

In the table below only single and double contacts are shown, but the contact devices can also be delivered as triple quadruple-type. The functions are given considering the pointer moves clockwise so that the pointer passes the set point.

Code	Size	Version	Contact Type	
			1 st Contact	2 nd Contact
E-1	100/160	electronic	make	
E-2	100/160	electronic	break	
E-11	100/160	electronic	make	make
E-12	100/160	electronic	make	break
E-21	100/160	electronic	break	make
E-22	100/160	electronic	break	break

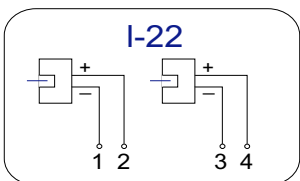
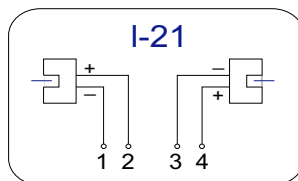
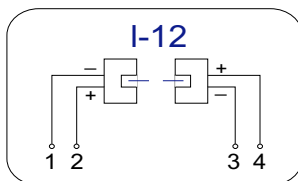
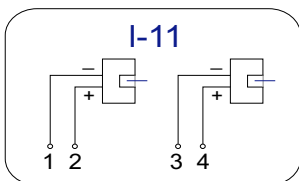
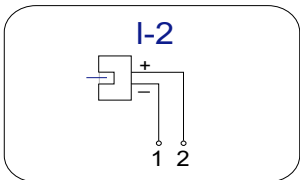
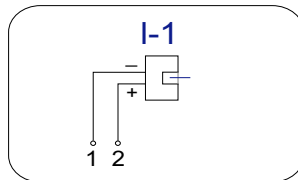
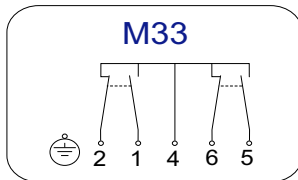
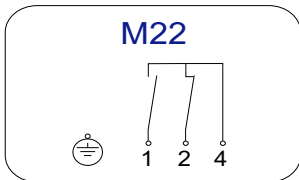
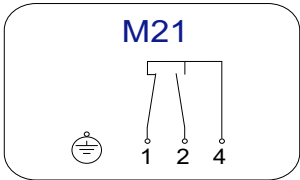
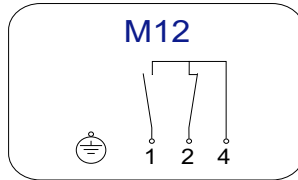
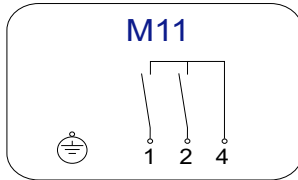
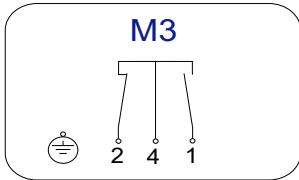
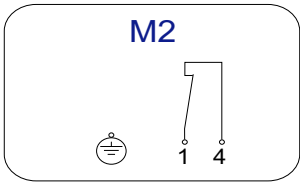
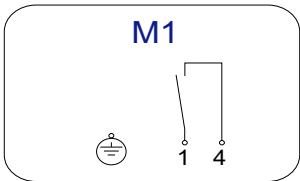
With a PNP switched unit, the switched output (U) is a connection towards "+". The load (R) between (U) and the connection towards "-" should be selected not to exceed the maximum switching current (100 mA). There is no direct connection between (U) and "-".



Electrical Wiring

In the following schemes, M stands for magnetic contacts, and I for inductive contacts. The numbers 1 to 4 are similar to the codes used in the connection boxes.

The electrical wiring for the electronic (E type) contacts is equal to the wiring of the inductive (I type) contacts.



ORDER CODES

Model P82 - - -

CONNECTION

Back
Bottom

DIAL SIZE

100 mm (4")
160 mm (6")

CONTACT TYPE

Specify a code from the contact tables and diagrams

OPTIONS (more than one option may be selected)

- Glycerine Filling
- Silicon Filling
- Monel K400 Wetted Parts (4" & 6" only)
- Safety Glass Window
- Glass Window
- Adjustable Pointer with slotted bush
- Duplex Bourdon Tube System (2 Pointers)
- BSP Thread
- Back Flange for wall mounting
- Front Flange for panel mounting
- U-bracket for panel mounting

FG
FS
IM
WS
WG
PS
BD
TB
MK
MF
MU

Example: P82T4-M-22-FG,IM,WS,MF