Introduction

MZ series pressure switches have been designed for applications that require cost effective outdoor mounting, in aggressive environments. The tough polycarbonate cover, fitted on a stainless steel base, retained by SS screws offers excellent resistance to corrosion, and also allows a view of the internal scale and working of the pressure switch. The reliable microswitch offers narrow deadband, switching values, which have excellent repeatability. By using appropriate capsules and wetted parts, MZ series pressure switches can be used for thousands of applications.

APPLICATIONS

- Power Generation
- Burners and Furnaces
- Glass and Metal Industries
- Chemical Industries
- Steel Industry
- Hydraulic, Steam and GasTurbines
- Boilers & Compressors
- Machine tools
- Water treatment
- Sugar and Paper Mills
- Fire protection
- Surgical gas, Breweries, Milk industries
- Tyre Industry

PRODUCT SPECIFICATIONS:

- Storage temperature : Atmospheric temperature
- Operating ambient temperature : - 20° C to + 60° C
- Media temperature : for rubber diaphragms 80° C max
- Can be offered for higher temperatures with other capsule combinations
- Setpoint repeatability : ± 1 % of FSR
- Enclosure : Tough Polycarbonate, SS and Diecast Aluminium to IP 66/IP 68
- Switch output : SPDT / 2SPDT
- Process connection : ¼ "BSP standard,
- Approximate weight : 1 kg

FEATURES

- Robust
- Externally visible scale for viewing, alongwith internal working of the switch
- Enclosure protection : IP 66 / IP 68 standard
- Reliable accurate microswitches for long life switching
- Customized arrangements for switching values on request
- Easy safe wiring options
- Locking and sealing arrangement to avoid tampering of setpoints on field
- Accuracy +/- 1 % FSR
- Warranty : 2 years

*Accuracy changes with switch configuration

PROCESS SWITCHES

SPECIFIER'S GUIDE FOR

- PRESSURE SWITCHES
- PRESSURE DIFFERENCE SWITCHES
- VACUUM SWITCHES
- TEMPERATURE SWITCHES

Orion® INSTRUMENTS

CE



Using the section

This section helps you make a logical choice in selecting the best product for a particular application. It allows a user familiar with our product line to locate the exact page the product is listed on. For those not familiar with our products, a logical sequence is given to help the user pick the best product for their need.

By taking a few minutes to familiarise yourself with the catalogue organization, you will find it very easy to locate the product / information you need.

1. The contents page lists the broad outline in which the catalogue is organized, and will help the user familiar with products to select the page on which the product or other useful information is listed.
2. Need Product Selection help ?

   Product selection help will start with the "Pictorial Index" on Page 141, where the products are broadly classified. A brief description of each product group , a typical photo of the product within the group and the page number on which it is listed are given.

   If the user is not familiar with the products, a product selection guide is provided on pages 146 through 149, where photos for each product and important specifications are given to help determine and select the best product for the application.

   By evaluating and comparing these parameters, a logical selection can be made. Turn to the page on which the product information for the selected product is listed, for :

   Capsule Construction details

   Physical sizes

   Special features

   Ranges, hysterisis, electrical ratings etc.

   Ordering information

   Some applications

   The organisation of each of these pages is demonstrated on pages 142 and 143, of this section "How to use this section".

   In many cases, more than one product may work. For the most cost effective solution, compare prices and consider alternatives. Remember, the end cost includes initial product price, plus the installation, plus the service.

3. Need the terminology explained? (see page 300)

   Turn to page 300 for the definitions and terminology. This will help you familiarize with the terms used throughout the catalogue.

4. Need information on Accessories? (see page 292)

   Turn to page 292 for information on important accessories. These will give information on only important accessories, and information needed, when these are to be supplied with our products.

5. Need selection guidance? (see page 301)

   A logical procedure on page 301 will help you to consider most of the important factors when selecting a pressure switch.

6. Need other products ? (see page 302)

   Products other than those listed in this catalogue are referenced on these pages. Separate catalogues for these products are available.

Process Switches Pictorial Index

PRESSURE SWITCHES

HIGH RANGE

HIGH RANGE



Page No. 150

HIGH PROOF HIGH RANGE



Page No. 154

FLANGED



Page No. 158

HYDRAULIC RANGE*

HYDRAULIC DIAPHRAGM RANGE



Page No. 162

HYDRAULIC RANGE



Page No. 166

PRESSURE DIFFERENCE SWITCHES

HIGH RANGE



Page No. 170

HIGH RANGE DP



Page No. 174

HYDRAULIC RANGE DP



Page No. 178

VACUUM SWITCHES

HIGH RANGE



Page No. 182

COMPOUND SWITCHES

HIGH RANGE



Page No. 186

TEMPERATURE SWITCHES

TEMPERATURE



Page No. 190

DIRECT MOUNTED TEMPERATURE



Page No. 194

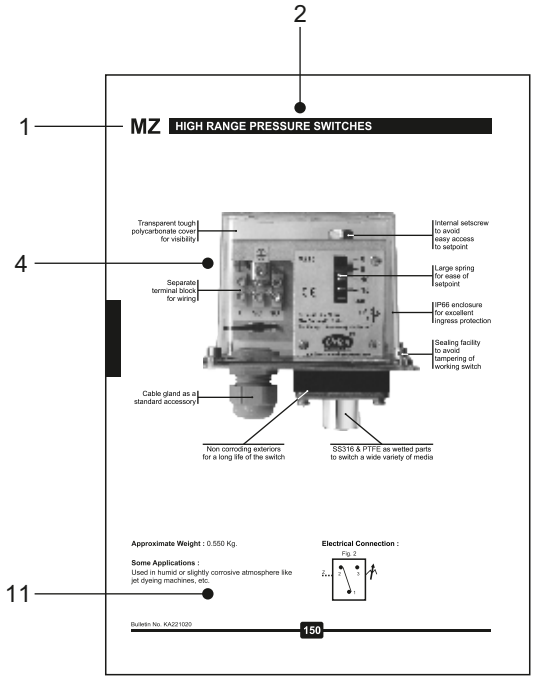
*Hydraulic ranges are ranges typically from 2 bar to 600 bar, used in oil applications.
However, these switches can be used for other media depending on wetted parts compatibility.

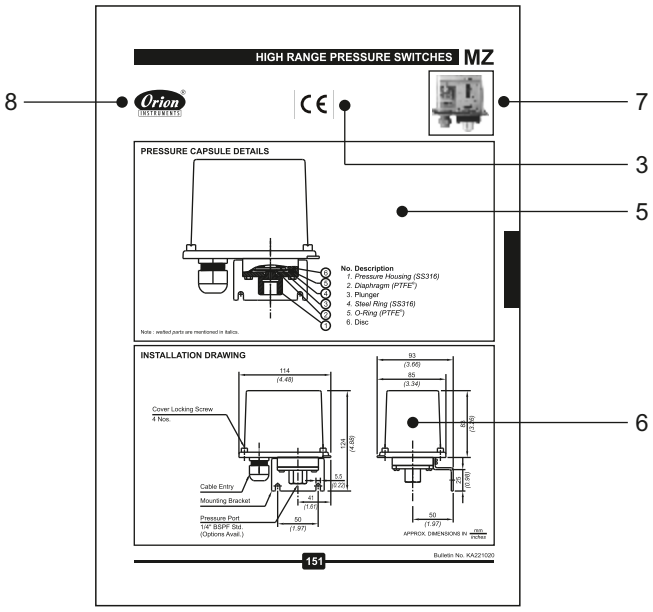
HOW TO USE this section

Due to the variety in product types and their salient features, catalogue page formats may vary. But generally the following format is adhered to.

Elements appearing on each page will be:

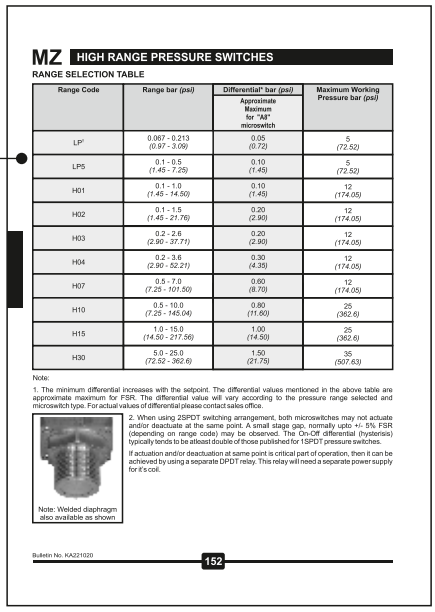
1. **Product family/series** - A product family/series will appear on the outside page corner, depending on the left / right hand page, and will be in large bold type.
2. **Product section** - will appear immediately following the product family / series at top of the page and will be in bold type.
3. **Certification** - Where ever applicable, will appear below the name of the product section in between product photo and company logo.
4. **Features** - will appear next to product description & will enlist only the major attributes.
5. **Pressure capsule details** - will show the construction of the pressure capsule and all it's internal parts. If the process / working medium is variable, the wetted parts will be mentioned in italics. If the wetted parts are unique, the material of construction (MOC) will be mentioned alongside in brackets. Where the material of construction is not specified, it will vary and the options are to be selected by the user considering the compatibility of the process / working medium. Modifications can be made to suit any particular medium, if the answer for your needs is not in the standard MOC listed. Products for which process / working medium is predefined, pressure capsule details are not provided (e.g as in case of comparison test pump). Pressure capsule details of accessories are not given.
6. **Installation drawing** - will show the typical installation dimensions of products as they exist in their standard forms. The dimensions are mentioned in millimetres and also in inches to facilitate the user. The dimensions of accessories will have to be added to these to arrive at any particular general arrangement (GA) drawings. The dimensions are approximate and for precise dimensions, where mounting space is restricted, the user may contact the nearest sales office. Installation drawings of only fast moving accessories are given.





7. **Photos** - will appear on the relevant top of the page for products. If there are mounting variations / styles, all the styles for standard products will appear for easy identification. Options, if included in the photograph, are for demonstration only, and are not a part of the standard equipment. For accessories, the photos are not given due to the sheer variety and range available.
8. **Logo** - will appear on right hand top of page to identify the manufacturer.
9. **Characteristics** - Range tables and their relevant data, e.g the range covered, the differentials and maximum working pressures will generally appear on the right hand page. Additional technical details will also be mentioned, wherever required, on the right hand side of the page.
10. **Ordering guide** - A guide as to how to order the particular series' variations will appear on right hand bottom of the page. Only the variations available within a particular product family / series will appear here. Any additional accessories or modifications required for the product need to be mentioned in text by the user.
11. **Some applications** - will appear at the bottom left of the page. This is for easy understanding of the specific use of the product.
12. Numerous combinations are possible when pressure switches are provided with accessories like chemical seals, snubbers, remote seals, pipe mounting brackets, combination of switches mounted in a panel etc. Users are requested to provide the details of accessories required in text / drawings, as separate identification codes are provided for pressure switches fitted and supplied with accessories.

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MZ HIGH RANGE PRESSURE SWITCHES

RANGE SELECTION TABLE

Range Code	Range bar *(psi)*	Differential* bar *(psi)* Approximate Maximum for "A8" microswitch	Maximum Working Pressure bar *(psi)*
LP[1]	0.067 - 0.213 *(0.97 - 3.09)*	0.05 *(0.72)*	5 *(72.52)*
LP5	0.1 - 0.5 *(1.45 - 7.25)*	0.10 *(1.45)*	5 *(72.52)*
H01	0.1 - 1.0 *(1.45 - 14.50)*	0.10 *(1.45)*	12 *(174.05)*
H02	0.1 - 1.5 *(1.45 - 21.76)*	0.20 *(2.90)*	12 *(174.05)*
H03	0.2 - 2.6 *(2.90 - 37.71)*	0.20 *(2.90)*	12 *(174.05)*
H04	0.2 - 3.6 *(2.90 - 52.21)*	0.30 *(4.35)*	12 *(174.05)*
H07	0.5 - 7.0 *(7.25 - 101.50)*	0.60 *(8.70)*	12 *(174.05)*
H10	0.5 - 10.0 *(7.25 - 145.04)*	0.80 *(11.60)*	25 *(362.6)*
H15	1.0 - 15.0 *(14.50 - 217.56)*	1.00 *(14.50)*	25 *(362.6)*
H30	5.0 - 25.0 *(72.52 - 362.6)*	1.50 *(21.75)*	35 *(507.63)*

Note:

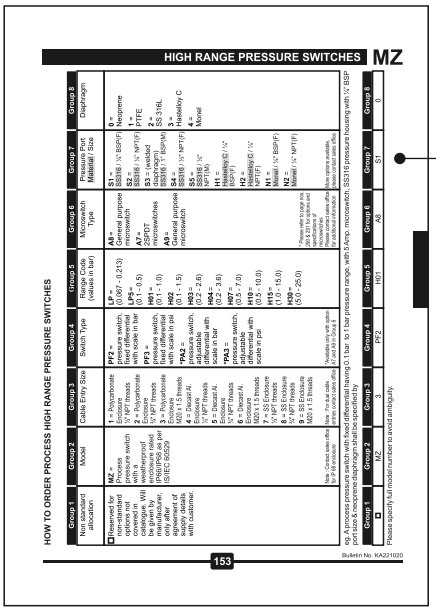
1. The minimum differential increases with the setpoint. The differential values mentioned in the above table are approximate maximum for FSR. The differential value will vary according to the pressure range selected and microswitch type. For actual values of differential please contact sales office.

2. When using 2SPDT switching arrangement, both microswitches may not actuate and/or deactuate at the same point. A small stage gap, normally upto +/- 5% FSR (depending on range code) may be observed. The On-Off differential (hysterisis) typically tends to be atleast double of those published for 1SPDT pressure switches.

If actuation and/or deactuation at same point is critical part of operation, then it can be achieved by using a separate DPDT relay. This relay will need a separate power supply for it's coil.

Note: Welded diaphragm also available as shown

10



HIGH RANGE PRESSURE SWITCHES **MZ**

HOW TO ORDER PROCESS HIGH RANGE PRESSURE SWITCHES

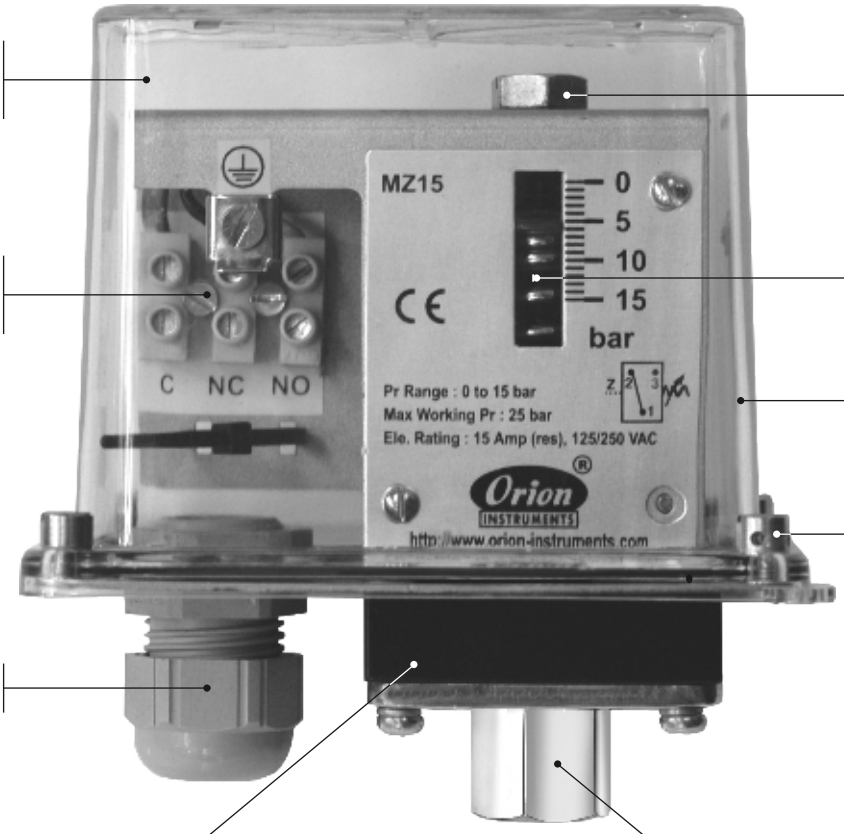
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
Non standard selection	Model	Cable Entry Size	Switch Type	Range Code Hysteresis (Typical)	Microswitch Type	Pressure Port Material Size	Diaphragm
☐ Reserved for non standard options not covered in catalogue. Will be quoted by manufacturer, only after receipt of enquiry details with customer	MZ = Process pressure switch with weatherproof enclosure (IP65/IP66 as per ISI/IEC 60529)	1 = Polycarbonate Enclosure 2 = Polycarbonate Enclosure 3 = Diecast Al. Enclosure 4 = Diecast Al. Enclosure 5 = Diecast Al. Enclosure 6 = Diecast Al. Enclosure 7 = SS Enclosure 8 = SS Enclosure 9 = SS Enclosure	PF2 = Pressure switch, fixed differential with scale in bar PF3 = Pressure switch, fixed differential with scale in psi PFA2 = Pressure switch, adjustable differential with scale in bar PFA3 = Pressure switch, adjustable differential with scale in psi	LP = (0.067 - 0.213) LP5 = (0.1 - 0.5) H01 = (0.1 - 1.0) H02 = (0.1 - 1.5) H03 = (0.2 - 2.6) H04 = (0.2 - 3.6) H07 = (0.5 - 7.0) H10 = (0.5 - 10.0) H15 = (1.0 - 15.0) H30 = (5.0 - 25.0)	A5 = General purpose microswitch A7 = 2SPDT microswitches A8 = General purpose microswitch	S1 = SS316 / ¼" BSP(F) S2 = SS316 / ¼" NPT(F) S3 = Welded diaphragm SS316 / BSP(F) S4 = SS316 / ½" NPT(F) S5 = SS316 / ½" BSP(F) N1 = Monel / ¼" BSP(F) N2 = Monel / ¼" NPT(F)	N = Neoprene 1 = PTFE 2 = SS 316L 3 = Hastelloy C 4 = Monel

Group 9	Group 10
Range Adjustment Screw	Special Features
0 = Standard	0 = Standard

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
☐	MZ	3	PF2	H01	A8	S1	0

Please specify full model number to avoid ambiguity.

Switch Construction



Transparent tough polycarbonate cover for visibility

Separate terminal block for wiring

Cable gland as a standard accessory

Non corroding exteriors for a long life of the switch

Internal setscrew to avoid easy access to setpoint

Large spring for ease of setpoint

IP66 enclosure for excellent ingress protection

Sealing facility to avoid tampering of working switch

SS316 & PTFE as wetted parts to switch a wide variety of media

Switch Construction

The versatile construction of MZ series process pressure switches can be configured to suit applications, by selecting the following main subassemblies / components :

a) The enclosure

The tough polycarbonate cover, fitted on a stainless steel base, retained by SS screws offers excellent resistance to corrosion, and also allows a view of the internal scale and working of the pressure switch. The reliable snapaction microswitch offers narrow deadband, switching values, which have excellent repeatability. By using appropriate capsules and wetted parts, MZ series pressure switches can be used for thousands of applications.

A standard cable gland (PG13.5 or M20 x 1.5) is provided as a standard accessory.

b) The electrical element (s) :

Choice of electrical elements to suit end use are offered, like :

A8 : General purpose applications

A7 : 2SPDT switching elements

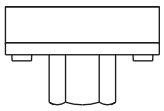
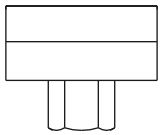
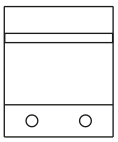
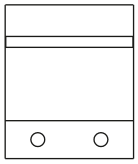
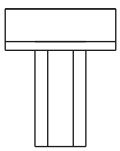
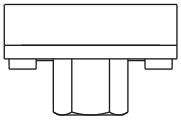
A9 : General purpose applications

It is possible to have more options of electrical elements not published here, to suit individual end use.

The deadband (or hysterisis / on-off differential) of the switches will change with the change of the electrical element (s). The approximate values for each range (for standard microswitches offered) are published in this catalogue

c) The pressure capsule :

To suit the setpoints , the working media and the function of the switch in the application:

High Range Pressure Switches (typically from 0.067 barg to 25 barg) 	**High Proof High Range Pressure Switches** (typically from 0.1 barg to 25 barg : Pmax = 70) 	**High Range Pressure Difference Switches** (typically from 0.1 barg to 25 barg) 
Vacuum Switches (typically from 760 mm Hg to atmospheric pressure) 	**Hydraulic Range Pressure Switches** (typically from 0.5 barg to 400 barg) 	**OEM Switches** (typically from 0.1 barg to 25 barg) 

The pressure capsule can be modified to take high proof pressures [typically 100 bar for high pressure switches, or pressure difference switches (from high pressure side)].

Several accessories like chemical seals, pipe mounting brackets etc can be supplied with these switches to suit the media to be sensed. All of these are not listed, though most popular ones can be found on pages 322 through 328.

Please do get in touch with us for any of your applications, not addressed in this catalogue. We would be glad to offer you a solution.

Product Selection Guide



Page No. 150



Page No. 154



Page No. 158

Switch type	High range	High proof high range	Flanged
Repeatability (% FSR)	± 1	± 2	± 2
Range covered	0.067 bar to 25 bar	0.1 bar to 25 bar	0.1 bar to 200 bar
Enclosure Protection	IP 66 / IP 68		
Enclosure Material	Tough transparent polycarbonate		
WETTED PARTS sensing element Standard Optional	Diaphragm nylon reinforced neoprene diaphragm protected by PTFE SS 316L, PTFE, Monel	Diaphragm SS 316L, PTFE	Diaphragm nylon reinforced neoprene diaphragm PTFE, SS316L, Hastelloy C, Monel, Titanium, Tantalum
Pressure housing Standard Optional	SS 316 Monel		Flange SS316L Hastelloy C276, Monel, Titanium, Tantalum
Other Wetted Parts	PTFE, SS316		PTFE, SS 316
Optional wetted parts through chem. seal	-		
Temp. of working medium	For non-metallic diaphragm: 80°C maximum. For metallic diaphragm: 150°C maximum For higher temperature, please use impulse tubing/chemical seals.		
Switching element	SPDT Snap action switch A8 : General purpose rated at 5A, 250 VAC, 0.2 A, 250 VDC resistive. For other switching elements please contact sales office		

Accessories can be supplied with most of the switches. Please consult sales office.



Page No. 162



Page No. 166



Page No. 170

Hydraulic Diaphragm	Hydraulic Range	High range pressure difference	Switch type
± 2	± 1	± 1	Repeatability (% FSR)
0.5 bar to 1000 bar	5 bar to 700 bar	0.1 bar to 3.6 bar	Range covered
IP 66 / IP 68			Enclosure Protection
Tough transparent polycarbonate			Enclosure Material
Diaphragm SS316 Monel	Piston SS	Diaphragm nylon reinforced neoprene diaphragm protected by PTFE PTFE	sensing element Standard Optional
SS 316		Aluminium SS 316	Pressure housing Standard Optional
SS316, PTFE	SS	PTFE, SS, SS 316	Other Wetted Parts
-	-	-	Optional wetted parts through chem. seal
For non-metallic diaphragm: 80°C maximum. For metallic diaphragm: 150°C maximum For higher temperature, please use impulse tubing/chemical seals.			Temp. of working medium
SPDT Snap action switch A8 : General purpose rated at 5A, 250 VAC, 0.2 A, 250 VDC resistive. For other switching elements please contact sales office			Switching element

WETTED PARTS

Product Selection Guide



Page No. 174



Page No. 178



Page No. 182

Switch type	High Range DP	Hydraulic Range DP	Vacuum
Repeatability (% FSR)	± 1		± 2
Range covered	0.1 bar to 25 bar	0.1 bar to 400 bar	760 mmHg to 100 mmHg
Enclosure Protection	IP 66 / IP 68		
Enclosure Material	Tough transparent polycarbonate		
WETTED PARTS sensing element Standard Optional	Diaphragm nylon reinforced neoprene diaphragm protected by PTFE PTFE		
Pressure housing Standard Optional	SS 316	SS 316	Aluminium SS 316
Other Wetted Parts	PTFE	PTFE	PTFE, SS 316
Optional wetted parts through chem. seal			
Temp. of working medium	For non-metallic diaphragm: 80°C maximum. For metallic diaphragm: 150°C maximum For higher temperature, please use impulse tubing/chemical seals.		
Switching element	SPDT Snap action switch A8 : General purpose rated at 5A, 250 VAC, 0.2 A, 250 VDC resistive. For other switching elements please contact sales office		

Accessories can be supplied with most of the switches. Please consult sales office.



Page No. 186



Page No. 190



Page No. 194

High Range Compound	Temperature	Temperature	Switch type
± 2		± 1	Repeatability (% FSR)
-1 bar to 7 bar	25°C to 215°C	35°C to 215°C	Range covered
IP 66 / IP 68			Enclosure Protection
Tough transparent polycarbonate			Enclosure Material
Diaphragm Neoprene / SS316 / Teflon	Bulb / Probe Brass		sensing element Standard Optional
			Pressure housing Standard Optional
SS316		SS	Other Wetted Parts
-	-	-	Optional wetted parts through chem. seal
For non-metallic diaphragm: 80°C maximum. For metallic diaphragm: 150°C maximum For higher temperature, please use impulse tubing/chemical seals.			Temp. of working medium
SPDT Snap action switch A8 : General purpose rated at 5A, 250 VAC, 0.2 A, 250 VDC resistive. For other switching elements please contact sales office			Switching element

WETTED PARTS

MZ HIGH RANGE PRESSURE SWITCHES



Transparent tough polycarbonate cover for visibility

Separate terminal block for wiring

Cable gland as a standard accessory

Internal setscrew to avoid easy access to setpoint

Large spring for ease of setpoint

IP66 enclosure for excellent ingress protection

Sealing facility to avoid tampering of working switch

Non corroding exteriors for a long life of the switch

SS316 & PTFE as wetted parts to switch a wide variety of media

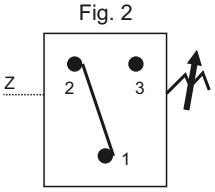
Approximate Weight : 0.550 Kg.

Some Applications :

Used in humid or slightly corrosive atmosphere like jet dyeing machines, etc.

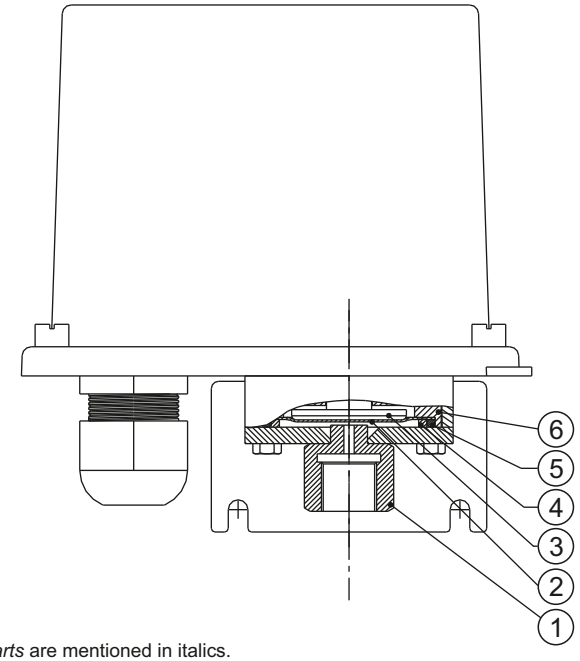
Electrical Connection :

Fig. 2





PRESSURE CAPSULE DETAILS

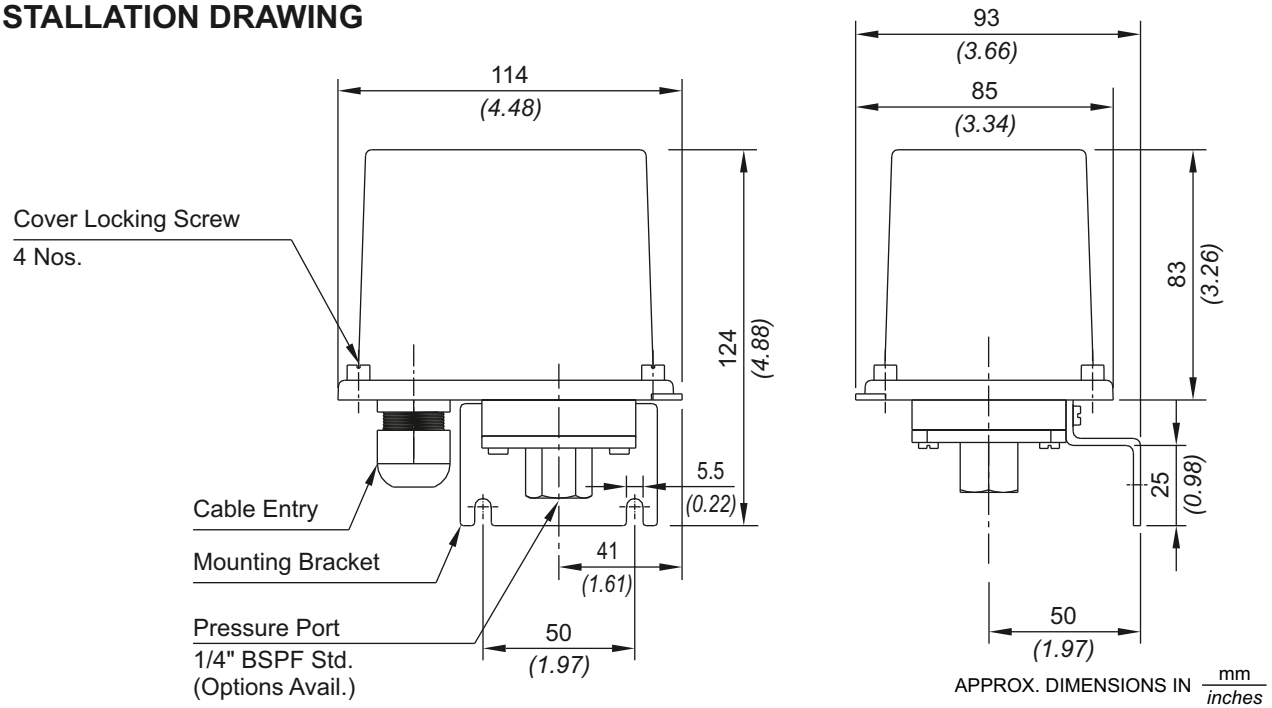


No. Description

1. *Pressure Housing (SS316)*
2. *Diaphragm (PTFE®)*
3. Plunger
4. *Steel Ring (SS316)*
5. *O-Ring (PTFE®)*
6. Disc

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



APPROX. DIMENSIONS IN mm / *inches*

MZ HIGH RANGE PRESSURE SWITCHES

RANGE SELECTION TABLE

Range Code	Range bar *(psi)*	Differential* bar *(psi)*	Maximum Working Pressure bar *(psi)*
		Approximate Maximum for "A8" microswitch	
LP†	0.067 - 0.213 *(0.97 - 3.09)*	0.05 *(0.72)*	5 *(72.52)*
LP5	0.1 - 0.5 *(1.45 - 7.25)*	0.10 *(1.45)*	5 *(72.52)*
H01	0.1 - 1.0 *(1.45 - 14.50)*	0.10 *(1.45)*	12 *(174.05)*
H02	0.1 - 1.5 *(1.45 - 21.76)*	0.20 *(2.90)*	12 *(174.05)*
H03	0.2 - 2.6 *(2.90 - 37.71)*	0.20 *(2.90)*	12 *(174.05)*
H04	0.2 - 3.6 *(2.90 - 52.21)*	0.30 *(4.35)*	12 *(174.05)*
H07	0.5 - 7.0 *(7.25 - 101.50)*	0.60 *(8.70)*	12 *(174.05)*
H10	0.5 - 10.0 *(7.25 - 145.04)*	0.80 *(11.60)*	25 *(362.6)*
H15	1.0 - 15.0 *(14.50 - 217.56)*	1.00 *(14.50)*	25 *(362.6)*
H30	5.0 - 25.0 *(72.52 - 362.6)*	1.50 *(21.75)*	35 *(507.63)*

Note:

1. The minimum differential increases with the setpoint. The differential values mentioned in the above table are approximate maximum for FSR. The differential value will vary according to the pressure range selected and microswitch type. For actual values of differential please contact sales office.



Note: Welded diaphragm also available as shown

2. When using 2SPDT switching arrangement, both microswitches may not actuate and/or deactuate at the same point. A small stage gap, normally upto +/- 5% FSR (depending on range code) may be observed. The On-Off differential (hysterisis) typically tends to be atleast double of those published for 1SPDT pressure switches.

If actuation and/or deactuation at same point is critical part of operation, then it can be achieved by using a separate DPDT relay. This relay will need a separate power supply for it's coil.

HOW TO ORDER PROCESS HIGH RANGE PRESSURE SWITCHES

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
Non standard allocation	Model	Cable Entry Size	Switch Type	Range Code (values in bar)	Microswitch Type	Pressure Port Material / Size	Diaphragm
☐ A prefix "N" is used in the model code in case of any non standard options / accessories that are provided with the switches. Will be given by manufacturer, only after agreement of supply details with customer. The prefix is subject to change as per specific requirement.	**MZ** = Process pressure switch with a weatherproof enclosure rated IP66/IP68 as per IS/IEC 60529 Note : Contact sales office for IP 68 enclosure	**1** = Polycarbonate Enclosure ½" NPT threads **2** = Polycarbonate Enclosure ¾" NPT threads **3** = Polycarbonate Enclosure M20 x 1.5 threads **4** = Diecast Al. Enclosure ½" NPT threads **5** = Diecast Al. Enclosure ¾" NPT threads **6** = Diecast Al. Enclosure M20 x 1.5 threads **7** = SS Enclosure ½" NPT threads **8** = SS Enclosure ¾" NPT threads **9** = SS Enclosure M20 x 1.5 threads Note : For dual cable entries contact sales office	**PF2** = pressure switch, fixed differential with scale in bar **PF3** = pressure switch, fixed differential with scale in psi ***PA2** = pressure switch, adjustable differential with scale in bar ***PA3** = pressure switch, adjustable differential with scale in psi *Available only with option A7 and A9 in Group 6	**LP** = (0.067 - 0.213) **LP5** = (0.1 - 0.5) **H01** = (0.1 - 1.0) **H02** (0.1 - 1.5) **H03** = (0.2 - 2.6) **H04** = (0.2 - 3.6) **H07** = (0.5 - 7.0) **H10** = (0.5 - 10.0) **H15** = (1.0 - 15.0) **H30** = (5.0 - 25.0)	**A8** = General purpose microswitch **A7** = 2SPDT microswitches **A9** = General purpose microswitch * Please refer to page nos. 290 & 291 for options and specifications of microswitches Please contact sales office for additional information	**S1** = SS316 / ¼" BSP(F) **S2** = SS316 / ¼" NPT(F) **S3** = (welded diaphragm) SS316 / 1" BSP(M) **S4** = SS316 / ½" NPT(F) **S5** = SS316 / ½" NPT(M) **H1** = Hastelloy C / ¼" BSP(F) **H2** = Hastelloy C / ¼" NPT(F) **N1** = Monel / ¼" BSP(F) **N2** = Monel / ¼" NPT(F) More options available, please contact sales office	**0** = Neoprene **1** = PTFE **2** = SS 316L **3** = Hastelloy C **4** = Monel

eg. A process pressure switch with fixed differential having 0.1 bar to 1 bar pressure range, with 5 Amp. microswitch, SS316 pressure housing with ¼" BSP port size & neoprene diaphragm shall be specified by

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
☐	MZ	3	PF2	H01	A8	S1	0

Please specify full model number to avoid ambiguity.

Bulletin No. KA221020

MZ HIGH PROOF HIGH RANGE PRESSURE SWITCHES



Transparent tough polycarbonate cover for visibility

Separate terminal block for wiring

Cable gland as a standard accessory

Non corroding exteriors for a long life of the switch

Internal setscrew to avoid easy access to setpoint

Large spring for ease of setpoint

IP66 enclosure for excellent ingress protection

Sealing facility to avoid tampering of working switch

SS316 & PTFE as wetted parts to switch a wide variety of media

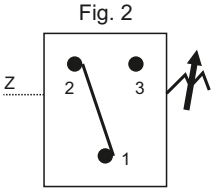
Approximate Weight : 0.900 Kg.

Some Applications :

Used where low set point and high proof pressure is required like tyre moulding machines, etc.

Electrical Connection :

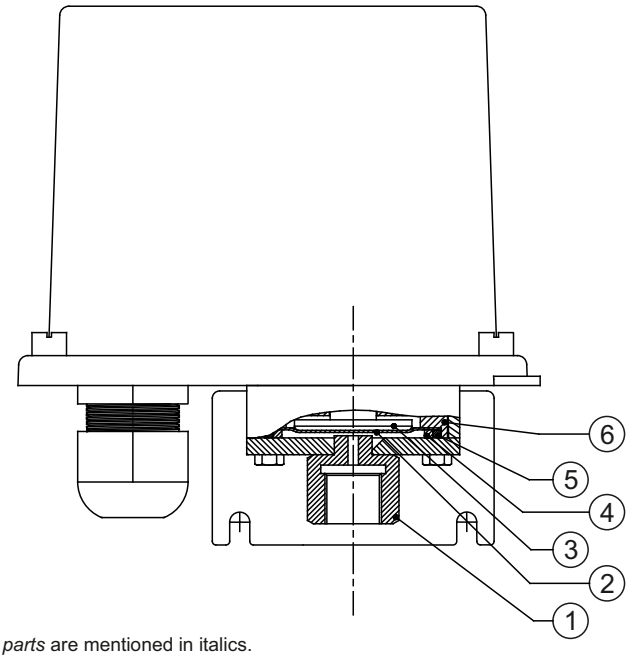
Fig. 2



HIGH PROOF HIGH RANGE PRESSURE SWITCHES MZ



PRESSURE CAPSULE DETAILS

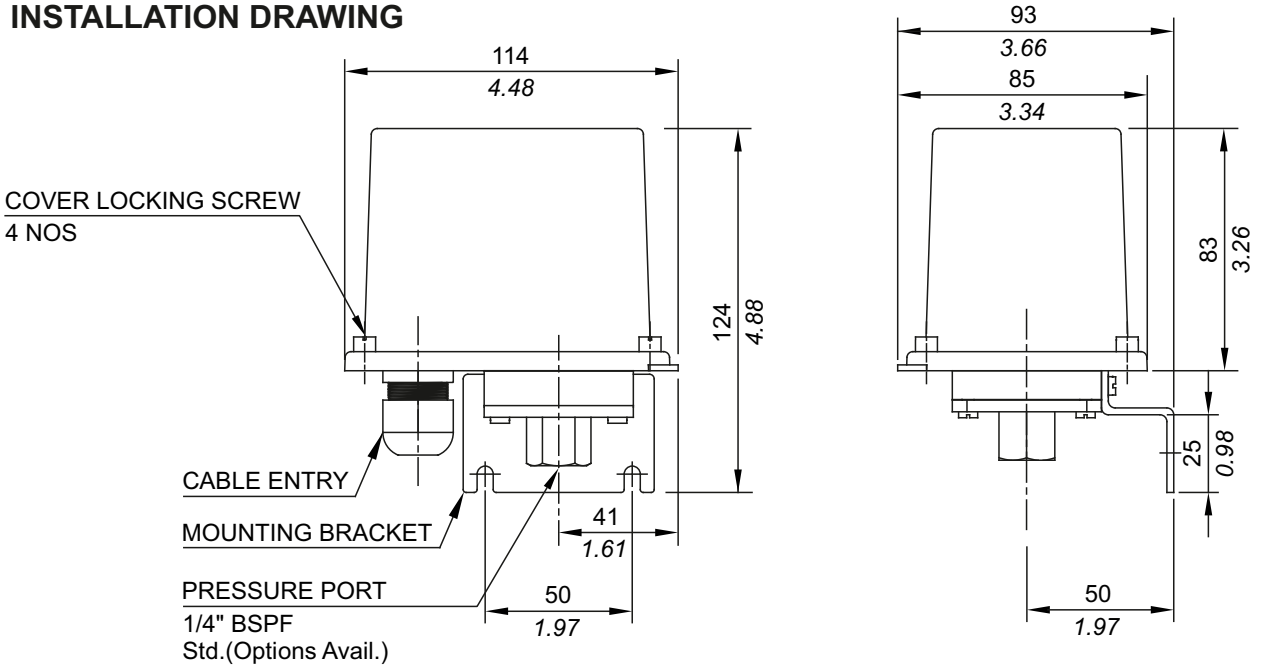


No. Description

1. *Pressure Port (SS316)*
2. *Diaphragm (PTFE®)*
3. Plunger
4. *Steel Ring (SS316)*
5. *O-Ring (PTFE®)*
6. Disc

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



APPROX. DIMENSIONS IN mm / *inches*

MZ HIGH PROOF HIGH RANGE PRESSURE SWITCHES

RANGE SELECTION TABLE

Range Code	Range bar *(psi)*	Differential* bar *(psi)*	Maximum Working Pressure bar *(psi)*
		Approximate Maximum for "A8" microswitch	
P01	0.1 - 1.0 *(1.45 - 14.50)*	0.20 *(2.90)*	70 *(1015.26)*
P02	0.1 - 1.5 *(1.45 - 21.76)*	0.40 *(5.80)*	70 *(1015.26)*
P03	0.2 - 2.6 *(2.90 - 37.71)*	0.40 *(5.80)*	70 *(1015.26)*
P04	0.2 - 3.6 *(2.90 - 52.21)*	0.50 *(7.25)*	70 *(1015.26)*
P07	0.5 - 7.0 *(7.25 - 101.53)*	1.00 *(14.50)*	70 *(1015.26)*
P10	0.5 - 10.0 *(7.25 - 145.04)*	1.00 *(14.50)*	70 *(1015.26)*
P15	1.0 - 15.0 *(14.50 - 217.56)*	1.5 *(21.76)*	70 *(1015.26)*
P30	5.0 - 25.0 *(72.52 - 362.6)*	1.5 *(21.76)*	70 *(1015.26)*

Note:

1. The minimum differential increases with the setpoint. The differential values mentioned in the above table are approximate maximum for FSR. The differential value will vary according to the pressure range selected and microswitch type. For actual values of differential please contact sales office.



Note: Welded diaphragm also available as shown

2. When using 2SPDT switching arrangement, both microswitches may not actuate and/or deactuate at the same point. A small stage gap, normally upto +/- 5% FSR (depending on range code) may be observed. The On-Off differential (hysterisis) typically tends to be atleast double of those published for 1SPDT pressure switches.

If actuation and/or deactuation at same point is critical part of operation, then it can be achieved by using a separate DPDT relay. This relay will need a separate power supply for it's coil.

HOW TO ORDER PROCESS HIGH PROOF HIGH RANGE PRESSURE SWITCHES

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
Non standard allocation	Model	Cable Entry Size	Switch Type	Range Code (values in bar)	Microswitch Type	Pressure Port Material / Size	Diaphragm
☐ A prefix "N" is used in the model code in case of any non standard options / accessories that are provided with the switches. Will be given by manufacturer, only after agreement of supply details with customer. The prefix is subject to change as per specific requirement.	**MZ** = Process pressure switch with a weatherproof enclosure rated IP66/IP68 as per IS/IEC 60529 Note : Contact sales office for IP 68 enclosure	**1** = Polycarbonate Enclosure ½" NPT threads **2** = Polycarbonate Enclosure ¾" NPT threads **3** = Polycarbonate Enclosure M20 x 1.5 threads **4** = Diecast Al. Enclosure ½" NPT threads **5** = Diecast Al. Enclosure ¾" NPT threads **6** = Diecast Al. Enclosure M20 x 1.5 threads **7** = SS Enclosure ½" NPT threads **8** = SS Enclosure ¾" NPT threads **9** = SS Enclosure M20 x 1.5 threads Note : For dual cable entries contact sales office	**PF2** = pressure switch, fixed differential with scale **PF3** = pressure switch, fixed differential with scale in psi **PA2*** = pressure switch, adjustable differential with scale in bar **PA3*** = pressure switch, adjustable differential with scale in psi *Available only with option A7 and A9 in Group 6	**P01** = (0.1 - 1.0) **P02** = (0.1 - 1.5) **P03** = (0.2 - 2.6) **P04** = (0.2 - 3.6) **P07** = (0.5 - 7.0) **P10** = (0.5 - 10.0) **P15** = (1.0 - 15.0) **P30** = (5.0 - 25.0)	**A8** = General purpose microswitch **A7** = 2SPDT microswitches **A9** = General purpose microswitch * Please refer to page nos. 290 & 291 for options and specifications of microswitches Please contact sales office for additional information	**S1** = SS316 / ¼" BSP(F) **S2** = SS316 / ¼" NPT(F) **S3** = (welded diaphragm) SS316 / 1" BSP(M) **S4** = SS316 / ½" NPT(F) **S5** = SS316 / ½" NPT(M) **H1** = Hastelloy C / ¼" BSP(F) **H2** = Hastelloy C / ¼" NPT(F) **N1** = Monel / ¼" BSP(F) **N2** = Monel / ¼" NPT(F) More options available, please contact sales office	**0** = Neoprene **1** = PTFE **2** = SS 316L **3** = Hastelloy C **4** = Monel

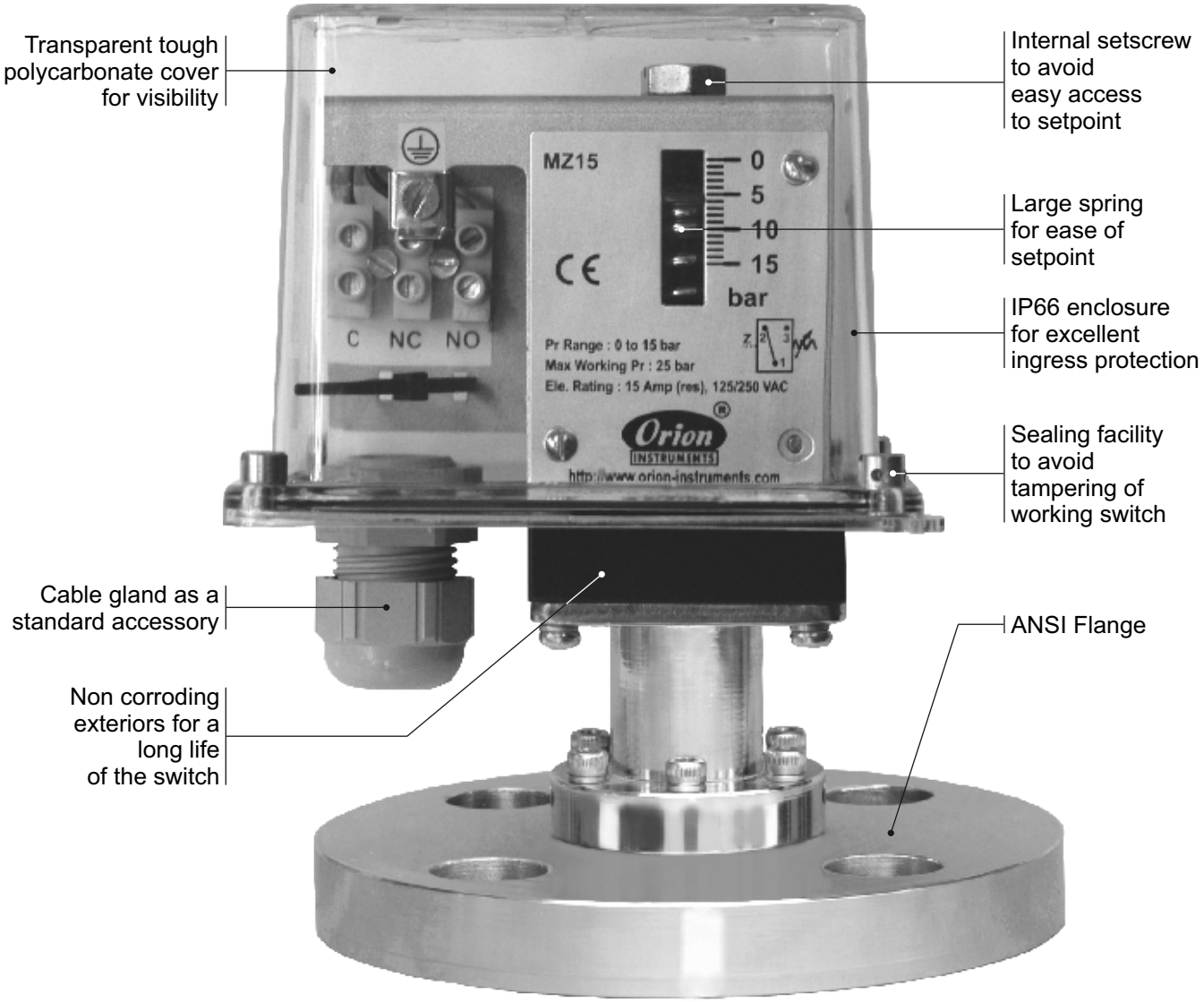
eg. A process pressure switch with fixed differential having 0.1 bar to 1 bar pressure range, with 5 Amp. microswitch, SS316 pressure housing with ¼" BSP port size & neoprene diaphragm shall be specified by

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
☐	MZ	3	PF2	P01	A8	S1	0

Please specify full model number to avoid ambiguity.

Bulletin No. KA221020

MZ FLANGED PRESSURE SWITCHES



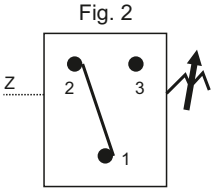
Approximate Weight : 0.900 Kg.

Some Applications :

In non-hazardous areas for slurry, colloidal solutions, corrosive & non-corrosive working media (unclean working media), etc.

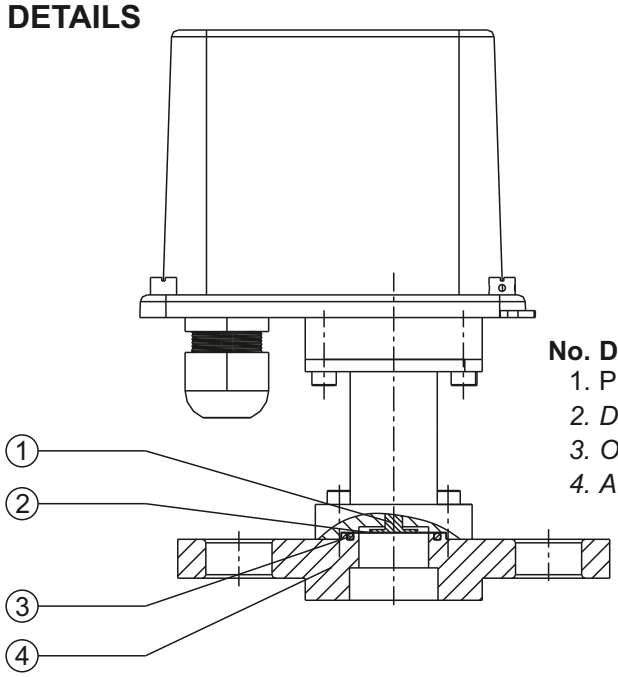
Electrical Connection :

Fig. 2





PRESSURE CAPSULE DETAILS

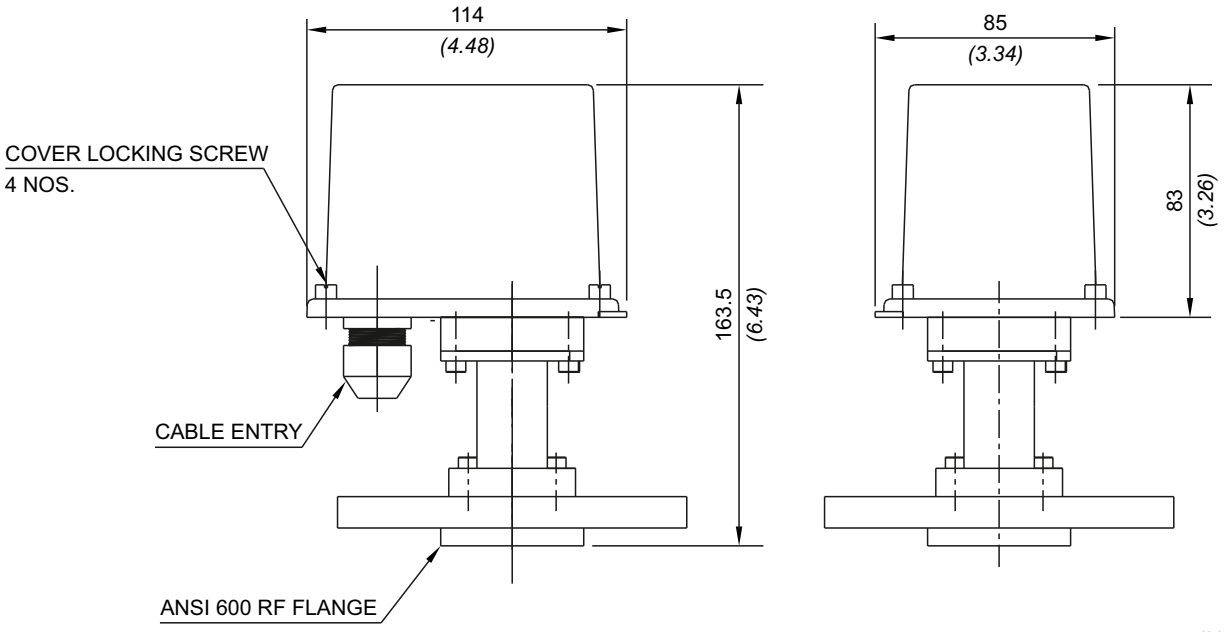


No. Description

1. Plunger
2. *Diaphragm (PTFE®)*
3. *O-Ring (PTFE®)*
4. *ANSI 600 Flange (SS316)*

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



APPROX. DIMENSIONS IN mm / *inches*

MZ FLANGED PRESSURE SWITCHES

RANGE SELECTION TABLE

Range Code	Range bar *(psi)*	Differential* bar *(psi)* Approximate Maximum for "A8" microswitch	Maximum Working Pressure bar *(psi)*
H01	0.1 - 1.0 *(1.45 - 14.50)*	0.1 *(1.45)*	As per the class of flange
H02	0.1 - 1.5 *(1.45 - 21.76)*	0.2 *(2.90)*	
H03	0.2 - 2.6 *(2.90 - 37.71)*	0.2 *(2.90)*	
H04	0.2 - 3.6 *(2.90 - 52.21)*	0.4 *(5.80)*	Please consult Sales Office in case you need clarification on availability of maximum working pressure for a particular range.
H07	0.5 - 7.0 *(7.25 - 101.50)*	0.6 *(8.70)*	
H10	0.5 - 10.0 *(7.25 - 145.04)*	0.8 *(11.60)*	
H15	1.0 - 15.0 *(14.50 - 217.71)*	1.0 *(14.50)*	
H30	5.0 - 25.0 *(72.52- 362.6)*	1.5 *(21.75)*	
H4T	5 - 40 *(72.52 - 580.15)*	5 *(72.52)*	
H1H	10 - 100 *(145.04 - 1450.38)*	12 *(174.05)*	
H2H	10 - 200 *(145.038 - 2900.76)*	24 *(348.09)*	
H4H	40 - 400 *(580.15 - 5801.40)*	70 *(1015.27)*	

* **Note:** Minimum differential increases with setpoint (Graphs available on request)
* Differentials of miroswitches A2 through A9 will vary. Differentials for A7 are typically twice that for A1 microswitch. Please indicate specifically the differential value in enquiry/order, when it is critical in your application.

FLANGE CODE TABLE (Please refer page no. 288 & 289 for more options)

	SS316L		Hastelloy C276		Monel		Titanium		Tantalum	
	RF*	FF*	RF*	FF*	RF*	FF*	RF*	FF*	RF*	FF*
150 #										
1" NB	AC	BS	DI	EY	GO	IE	JU	LK	NA	OQ
2" NB	AF	BV	DL	FB	GR	IH	JX	LN	ND	OT
300#										
1" NB	AI	BY	DO	FE	GU	IK	KA	LQ	NG	OW
2" NB	AL	CB	DR	FH	GX	IN	KD	LT	NJ	OZ
2500#										
1" NB	BM	DC	ES	GI	HY	JO	LE	MU	OK	QA
2" NB	BP	DF	EV	GL	IB	JR	LH	MX	ON	QD

*RF = Raised Face
*FF = Flat Face

RANGE AVAILABILITY AS PER BORE SIZES

	H01 to H04	H07	H10	H15	H30	H2T to H2H
1" NB	NA	Yes	Yes	Yes	Yes	Yes
2" NB	Yes	Yes	Yes	Yes	Yes	Yes

HOW TO ORDER PROCESS FLANGED PRESSURE SWITCHES

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
Non standard allocation	Model	Cable Entry Size	Switch Type ANSI flanged	Range Code (values in bar)	Microswitch Type	Flange Size and Material	Diaphragm
☐ A prefix "N" is used in the model code in case of any non standard options / accessories that are provided with the switches. Will be given by manufacturer, only after agreement of supply details with customer.	**MZ** = Process pressure switch with a weatherproof enclosure rated IP66/IP68 as per IS/IEC 60529	**1** = Polycarbonate Enclosure ½" NPT threads **2** = Polycarbonate Enclosure ¾" NPT threads **3** = Polycarbonate Enclosure M20 x 1.5 threads **4** = Diecast Al. Enclosure ½" NPT threads **5** = Diecast Al. Enclosure ¾" NPT threads **6** = Diecast Al. Enclosure M20 x 1.5 threads **7** = SS Enclosure ½" NPT threads **8** = SS Enclosure ¾" NPT threads **9** = SS Enclosure M20 x 1.5 threads	**AF2** = pressure switch, fixed differential with scale in bar **AF3** = pressure switch, fixed differential with scale in psi ***AA2** = pressure switch, adjustable differential with scale in bar ***AA3** = pressure switch, fixed differential with scale in psi	**H01** = 0.1 - 1.0 **H02** = 0.1 - 1.5 **H03** = 0.2 - 2.6 **H04** = 0.2 - 3.6 **H07** = 0.5 - 7.0 **H10** = 0.5 - 10.0 **H15** = 1.0 - 15.0 **H30** = 5.0 - 25.0 **H4T** = 5 - 40.0 **H1H** = 10.0 - 100.0 **H2H** = 10.0 - 200.0 **H4H** = 40.0 - 400.0	**A8** = General purpose microswitch **A7** = 2SPDT microswitches **A9** = General purpose microswitch * Please refer to page nos. 290 & 291 for options and specifications of microswitches Please contact sales office for additional information	Please refer to the flange code table on Page nos. 288 & 289 for selection of the flange Please contact sales office for additional information	**0** = Neoprene **1** = Teflon **2** = SS316L **3** = Hastelloy C **4** = Monel 400 **5** = Titanium **6** = Tantalum
The prefix is subject to change as per specific requirement.	Note : Contact sales office for IP 68 enclosure	Note : For dual cable entries contact sales office	*Available only with option A7 and A9 in Group 6				

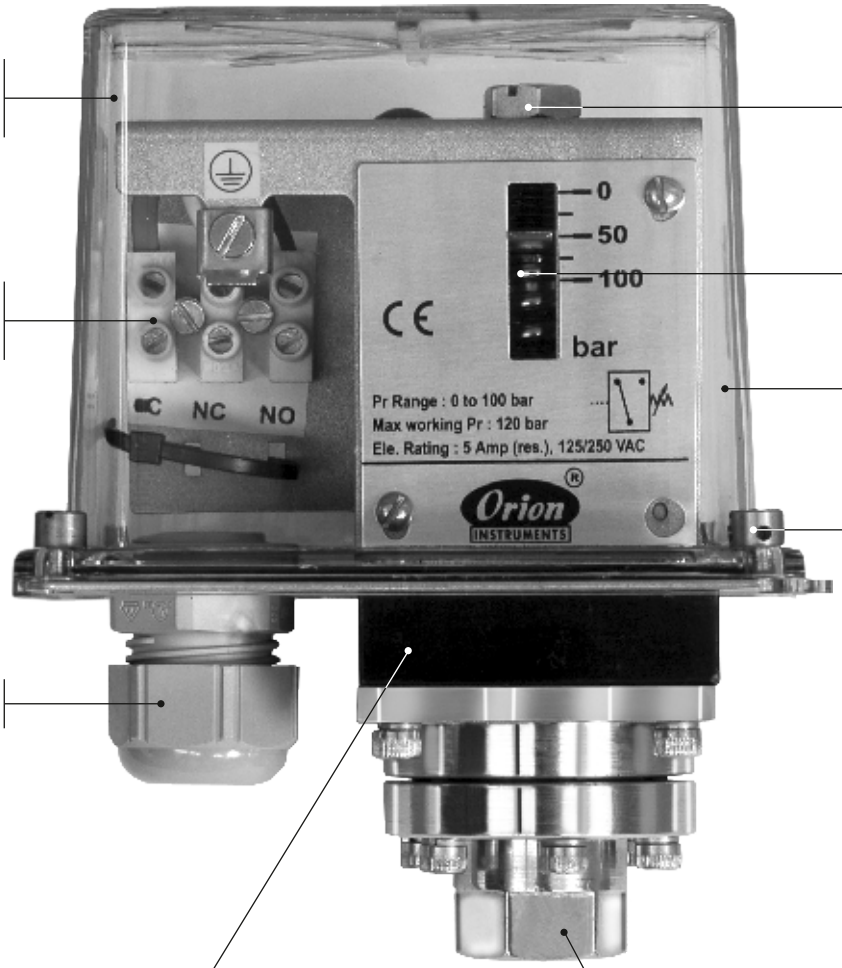
eg. A high range process ANSI flanged pressure switch with ½" NPT cable entry with fixed differential without scale, having 0.1 bar to 1 bar pressure range, with 15 Amp. microswitch, and 2" 150# RF SS316L flange & SS316L diaphragm shall be specified by

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
☐	MZ	3	AF2	H01	A8	AF	2

Please specify full model number to avoid ambiguity.

Bulletin No. KA221020

MZ HYDRAULIC DIAPHRAGM PRESSURE SWITCHES



Transparent tough polycarbonate cover for visibility

Separate terminal block for wiring

Cable gland as a standard accessory

Internal setscrew to avoid easy access to setpoint

Large spring for ease of setpoint

IP66 enclosure for excellent ingress protection

Sealing facility to avoid tampering of working switch

Non corroding exteriors for a long life of the switch

SS316 & PTFE as wetted parts to switch a wide variety of media

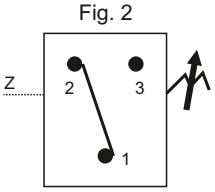
Approximate Weight : 0.680 Kg.

Some Applications :

High Pressure applications requiring diaphragm as sensing element like water treatment plants, etc.

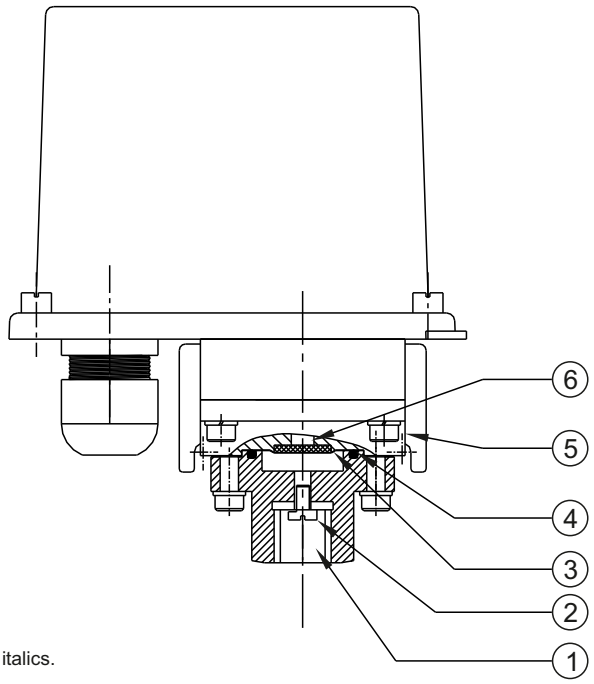
Electrical Connection :

Fig. 2





PRESSURE CAPSULE DETAILS

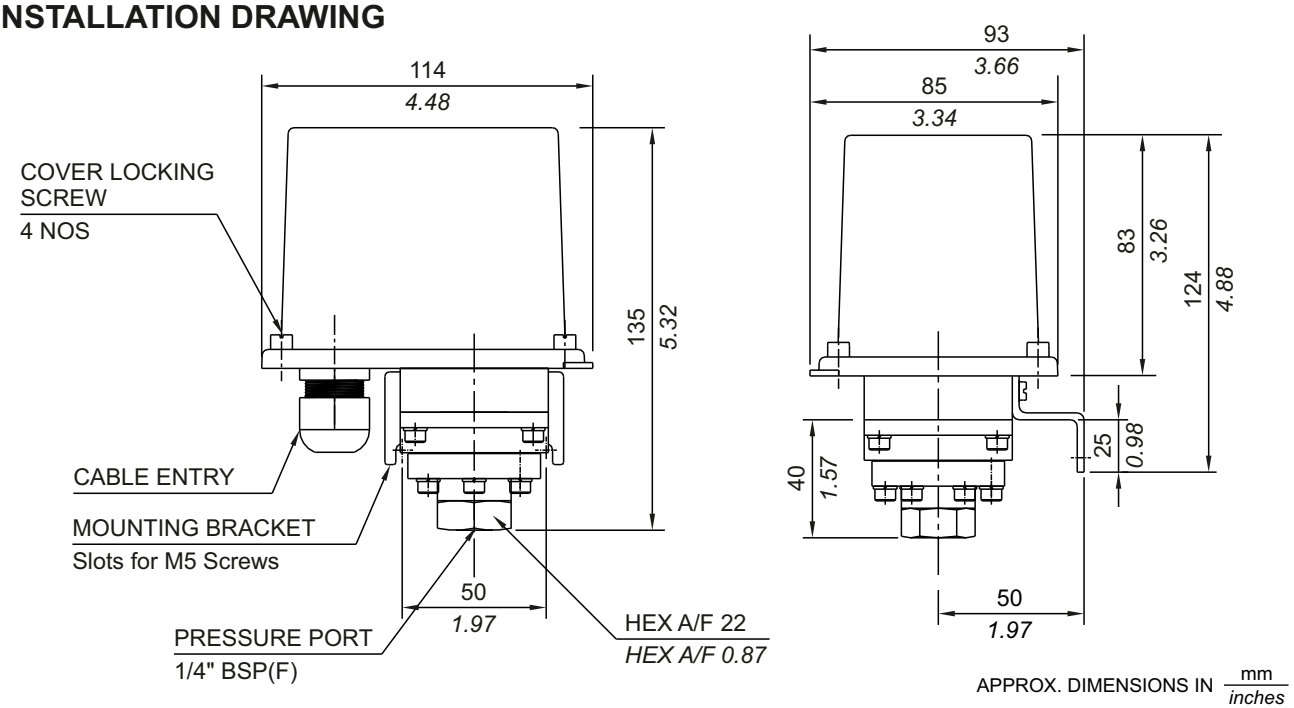


No. Description

1. *Pressure Housing*
2. *Surge Reducer*
3. *Diaphragm*
4. *O-Ring*
5. *Disc*
6. *Plunger*

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



APPROX. DIMENSIONS IN mm / *inches*

MZ HYDRAULIC DIAPHRAGM PRESSURE SWITCHES

RANGE SELECTION TABLE

Range Code	Range bar *(psi)*	Differential* bar *(psi)*	Maximum Working Pressure bar *(psi)*
		Approximate Maximum for "A8" microswitch	
H1T	0.5 - 10 *(7.25 - 145.04)*	1 *(14.50)*	150 *(2175.51)*
H2T	2 - 20 *(29.00 - 290.07)*	2 *(29.00)*	200 *(2900.76)*
H4T	5 - 40 *(72.52 - 580.15)*	5 *(72.52)*	200 *(2900.76)*
H1H	10 - 100 *(146.04 - 1450.38)*	12 *(174.05)*	200 *(2900.76)*
H2H	7 - 200 *(101.52 - 2900.76)*	24 *(348.09)*	400 *(5801.52)*
H4H	40 - 400 *(580.15 - 5801.52)*	50 *(725)*	500 *(7251.88)*
H7H	70 - 700 *(1015.26 - 10152.64)*	70 *(1015.26)*	800 *(11603)*
H1K	100 - 1000 *(1450.37 - 14503.77)*	100 *(1450.37)*	1100 *(15954.15)*

Note:

1. The minimum differential increases with the setpoint. The differential values mentioned in the above table are approximate maximum for FSR. The differential value will vary according to the pressure range selected and microswitch type. For actual values of differential please contact sales office.



Note: Welded diaphragm also available as shown

2. When using 2SPDT switching arrangement, both microswitches may not actuate and/or deactuate at the same point. A small stage gap, normally upto +/- 5% FSR (depending on range code) may be observed. The On-Off differential (hysterisis) typically tends to be atleast double of those published for 1SPDT pressure switches.

If actuation and/or deactuation at same point is critical part of operation, then it can be achieved by using a separate DPDT relay. This relay will need a separate power supply for it's coil.

HOW TO ORDER PROCESS HYDRAULIC DIAPHRAGM PRESSURE SWITCHES

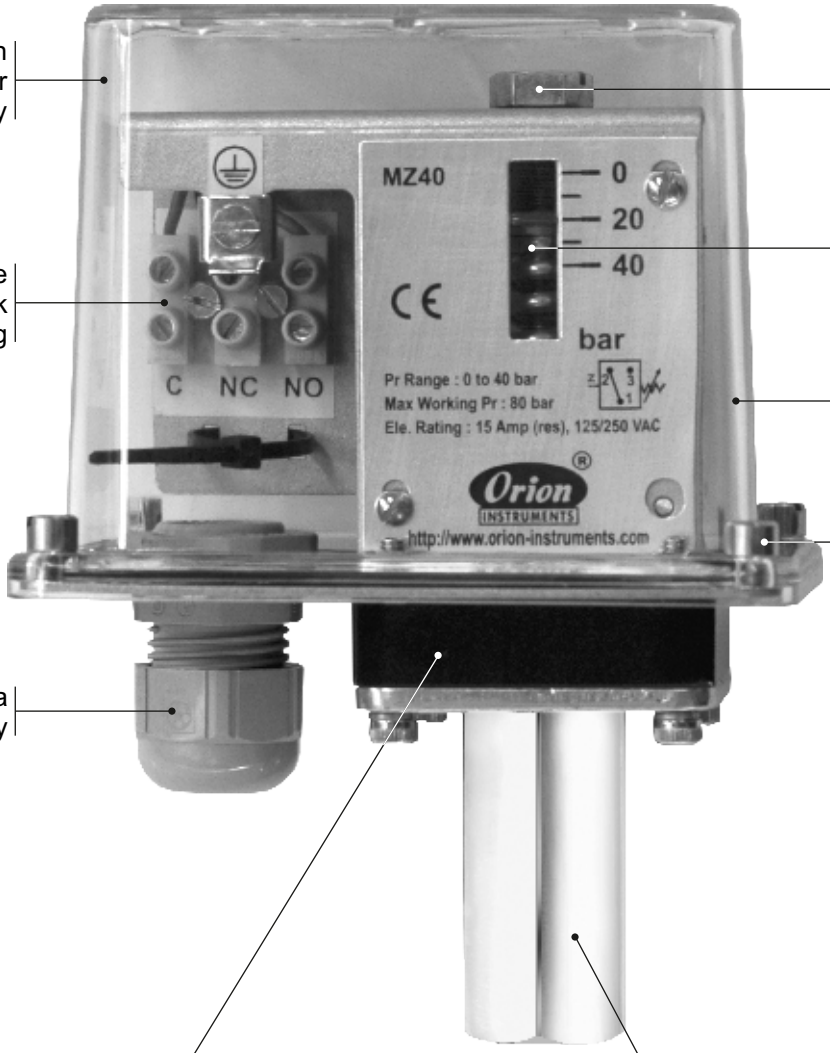
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
Non standard allocation	Model	Cable Entry Size and Material of Enclosure	Switch Type	Range Code (values in bar)	Microswitch Type	Pressure Port Material / Size	Diaphragm
☐ A prefix "N" is used in the model code in case of any non standard options / accessories that are provided with the switches. Will be given by manufacturer, only after agreement of supply details with customer.	**MZ** = Process pressure switch with a weatherproof enclosure rated IP66/IP68 as per IS/IEC 60529	**1** = Polycarbonate Enclosure ½" NPT threads **2** = Polycarbonate Enclosure ¾" NPT threads **3** = Polycarbonate Enclosure M20 x 1.5 threads **4** = Diecast Al. Enclosure ½" NPT threads **5** = Diecast Al. Enclosure ¾" NPT threads **6** = Diecast Al. Enclosure M20 x 1.5 threads **7** = SS Enclosure ½" NPT threads **8** = SS Enclosure ¾" NPT threads **9** = SS Enclosure M20 x 1.5 threads	**PF2** = pressure switch, fixed differential with scale in bar **PF3** = pressure switch, fixed differential with scale in psi ***PA2** = pressure switch, adjustable differential with scale in bar ***PA3** = pressure switch, adjustable differential with scale in psi	**H1T** = (0.5 - 10) **H2T** = (2 - 20) **H4T** = (5 - 40) **H1H** = (10 - 100) **H2H** = (7 - 200) **H4H** = (40 - 400) **H7H** = (70 - 700) **H1K** = (100 - 1000)	**A8** = General purpose microswitch **A7** = 2SPDT microswitches **A9** = General purpose microswitch	**S1** = SS316 / ¼" BSP(F) **S2** = SS316 / ¼" NPT(F) **S3** = (welded diaphragm) SS316 / 1" BSP(M) **S4** = SS316 / ½" NPT(F) **S5** = SS316 / ½" NPT(M) **H1** = Hastelloy C / ¼" BSP(F) **H2** = Hastelloy C / ¼" NPT(F) **N1** = Monel / ¼" BSP(F) **N2** = Monel / ¼" NPT(F)	**0** = Neoprene **1** = PTFE **2** = SS 316L **3** = Hastelloy C **4** = Monel
The prefix is subject to change as per specific requirement.	Note : Contact sales office for IP 68 enclosure	Note : For dual cable entries contact sales office	*Available only with option A7 and A9 in Group 6		* Please refer to page nos. 290 & 291 for options and specifications of microswitches Please contact sales office for additional information	More options available, please contact sales office	

eg. A process pressure switch with fixed differential having 5 bar to 40 bar pressure range, with 5 Amp. microswitch, SS316 pressure housing with ¼" BSP port size & neoprene diaphragm shall be specified by

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
☐	MZ	3	PF2	H1T	A8	S1	0

Please specify full model number to avoid ambiguity.

MZ HYDRAULIC RANGE PRESSURE SWITCHES



Transparent tough polycarbonate cover for visibility

Separate terminal block for wiring

Cable gland as a standard accessory

Internal setscrew to avoid easy access to setpoint

Large spring for ease of setpoint

IP66 enclosure for excellent ingress protection

Sealing facility to avoid tampering of working switch

Non corroding exteriors for a long life of the switch

SS316 & PTFE as wetted parts to switch a wide variety of media

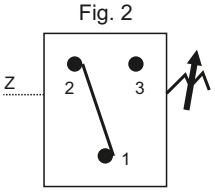
Approximate Weight : 0.680 Kg.

Some Applications :

Used where pressure surges and fluctuations may be present like oil hydraulic systems, etc.

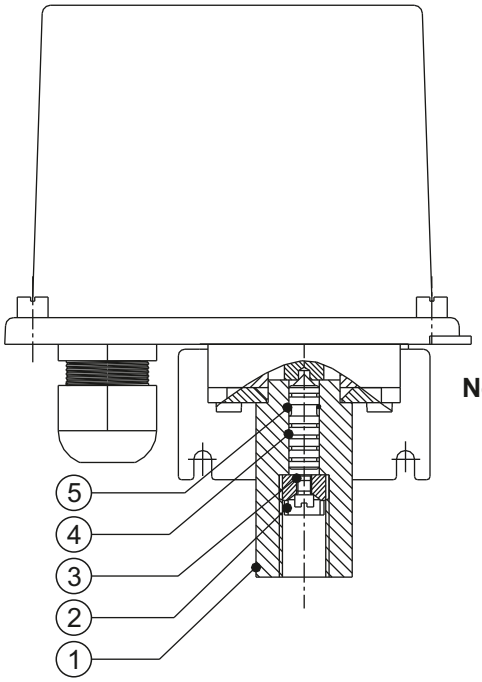
Electrical Connection :

Fig. 2





PRESSURE CAPSULE DETAILS

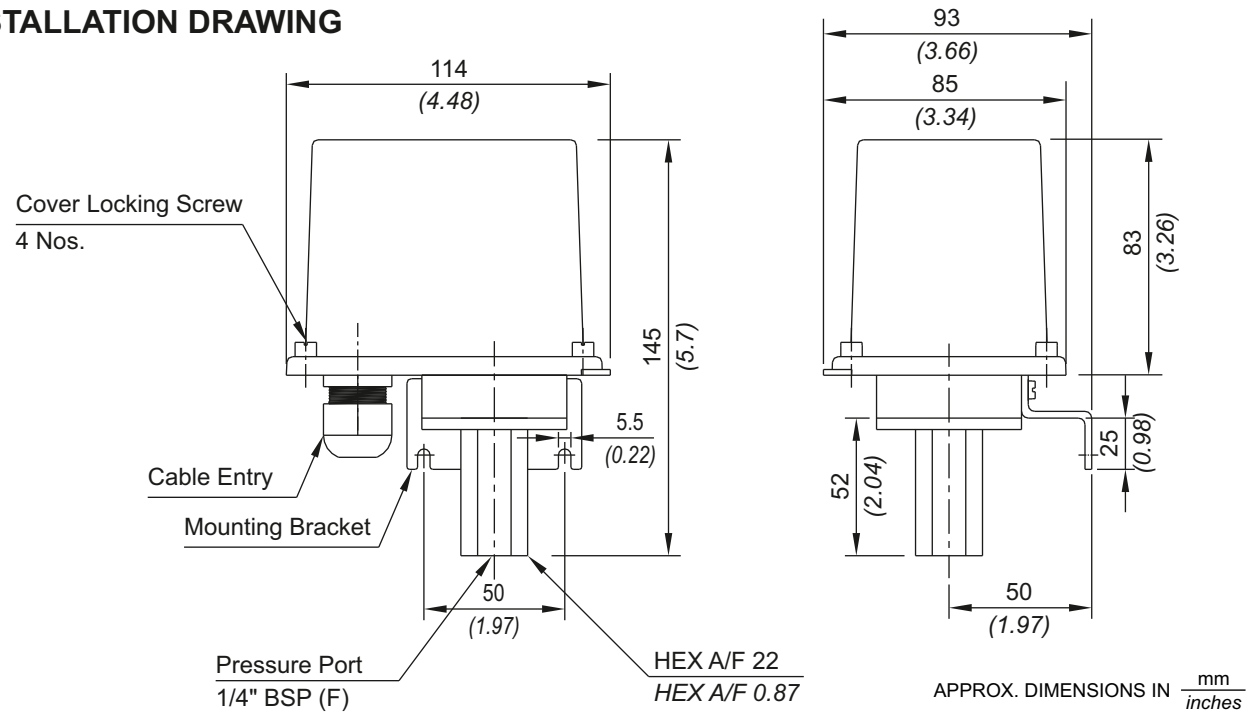


No. Description

1. *Pressure housing (SS)*
2. *Surge Arrestor (SS)*
3. *Surge Reducer (SS)*
4. *Piston (SS)*
5. *O-Ring (Viton®)*

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



APPROX. DIMENSIONS IN mm / *inches*

MZ HYDRAULIC RANGE PRESSURE SWITCHES

RANGE SELECTION TABLE

Range Code	Range bar *(psi)*	Differential* bar *(psi)*	Maximum Working Pressure bar *(psi)*
		Approximate Maximum for "A8" microswitch	
040	5 - 40 *(72.52 - 580.15)*	5 *(72.52)*	80 *(1160.30)*
100	10 - 100 *(145.04 - 1450.38)*	12 *(174.05)*	120 *(1740.45)*
200	10 - 200 *(145.03 - 2900.75)*	24 *(348.09)*	300 *(4351.13)*
350	35 - 350 *(101.53 - 2900.75)*	24 *(348.09)*	400 *(5801.52)*
400	100 - 400 *(1450.38 - 5801.51)*	40 *(580.15)*	500 *(7251.9)*
700	100 - 700 *(1450.38 - 10152.64)*	70 *(1015.26)*	800 *(11603.00)*

Note:

1. The minimum differential increases with the setpoint. The differential values mentioned in the above table are approximate maximum for FSR. The differential value will vary according to the pressure range selected and microswitch type. For actual values of differential please contact sales office.

2. When using 2SPDT switching arrangement, both microswitches may not actuate and/or deactuate at the same point. A small stage gap, normally upto +/- 5% FSR (depending on range code) may be observed. The On-Off differential (hysterisis) typically tends to be atleast double of those published for 1SPDT pressure switches.

If actuation and/or deactuation at same point is critical part of operation, then it can be achieved by using a separate DPDT relay. This relay will need a separate power supply for it's coil.

HOW TO ORDER PROCESS HYDRAULIC RANGE PRESSURE SWITCHES

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
Non standard allocation	Model	Cable Entry Size and Material of Enclosure	Switch Type	Range Code (values in bar)	Microswitch Type	Pressure Port Material / Size	Piston
☐ A prefix "N" is used in the model code in case of any non standard options / accessories that are provided with the switches. Will be given by manufacturer, only after agreement of supply details with customer.	**MZ** = Process pressure switch with a weatherproof enclosure rated IP66/IP68 as per IS/IEC 60529	**1** = Polycarbonate Enclosure ½" NPT threads **2** = Polycarbonate Enclosure ¾" NPT threads **3** = Polycarbonate Enclosure M20 x 1.5 threads **4** = Diecast Al. Enclosure ½" NPT threads **5** = Diecast Al. Enclosure ¾" NPT threads **6** = Diecast Al. Enclosure M20 x 1.5 threads **7** = SS Enclosure ½" NPT threads **8** = SS Enclosure ¾" NPT threads **9** = SS Enclosure M20 x 1.5 threads	**PF2** = pressure switch, fixed differential with scale in bar **PF3** = pressure switch, fixed differential with scale in psi ***PA2** = pressure switch, adjustable differential with scale in bar ***PA3** = pressure switch, adjustable differential with scale in psi	**040** = (5 - 40) **100** = (10 - 100) **200** = (10 - 200) **350** = (35 - 350) **400** = (100 - 400) **700** = (100 - 700)	**A8** = General purpose microswitch **A7** = 2SPDT microswitches **A9** = General purpose microswitch	**S1** = SS316 / ¼" BSP(F) **S2** = SS316 / ¼" NPT(F)	**2** = SS
The prefix is subject to change as per specific requirement.	Note : Contact sales office for IP 68 enclosure	Note : For dual cable entries contact sales office	*Available only with option A7 and A9 in Group 6		* Please refer to page nos. 290 & 291 for options and specifications of microswitches Please contact sales office for additional information	More options available, please contact sales office	

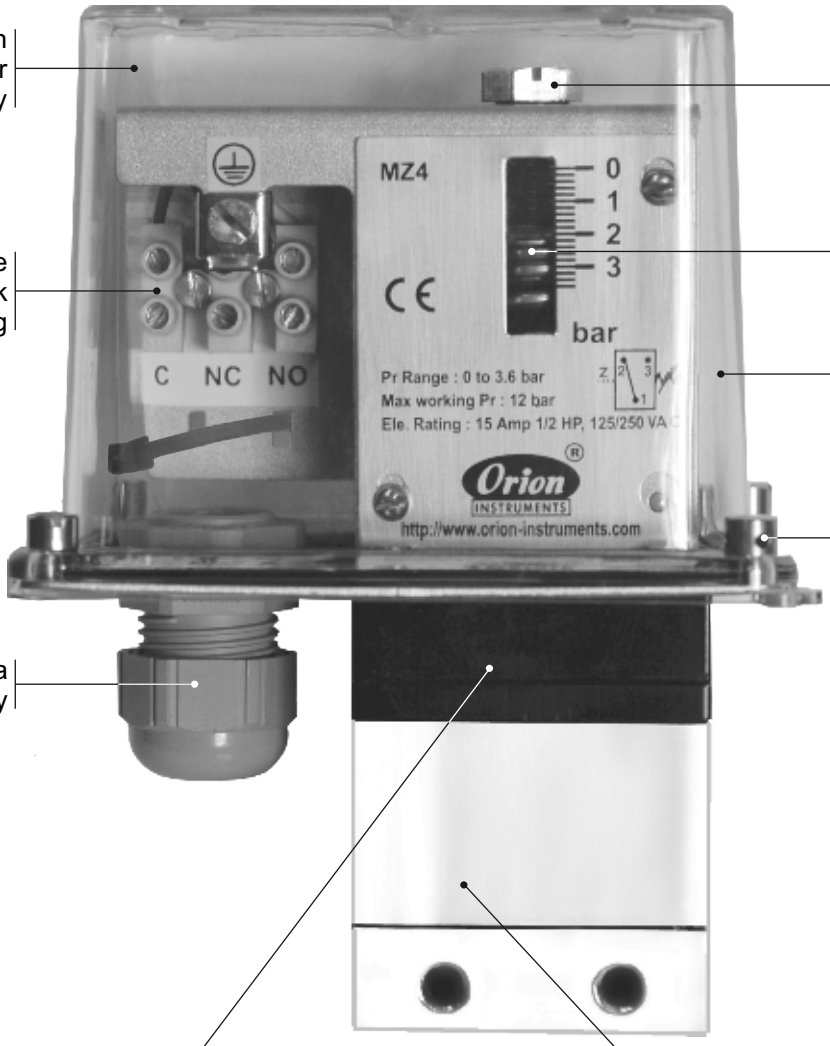
eg. A process pressure switch with fixed differential having 5 bar to 40 bar pressure range, with 5 Amp. microswitch, SS316 pressure housing with ¼" BSP port size & neoprene diaphragm shall be specified by

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
☐	MZ	3	PF2	040	A8	S1	2

Please specify full model number to avoid ambiguity.

Bulletin No. KA221020

MZ HIGH RANGE PRESSURE DIFFERENCE SWITCHES



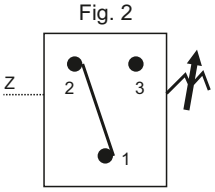
Approximate Weight : 1.400 Kg.

Some Applications :

In non-hazardous areas for filters, strainers, cooling systems, etc.

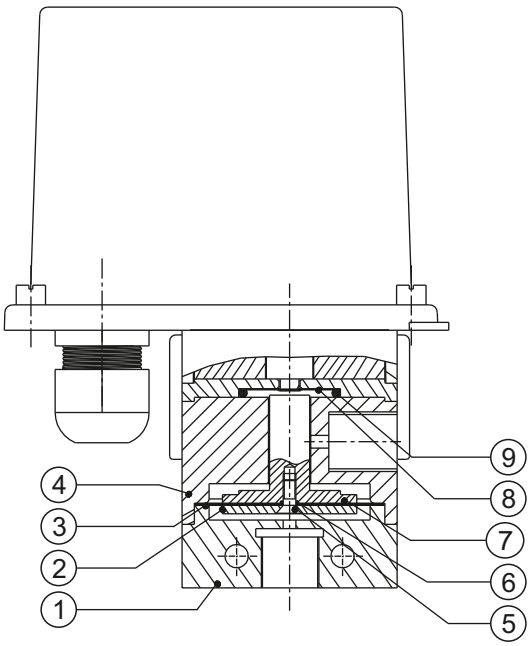
Electrical Connection :

Fig. 2





PRESSURE CAPSULE DETAILS

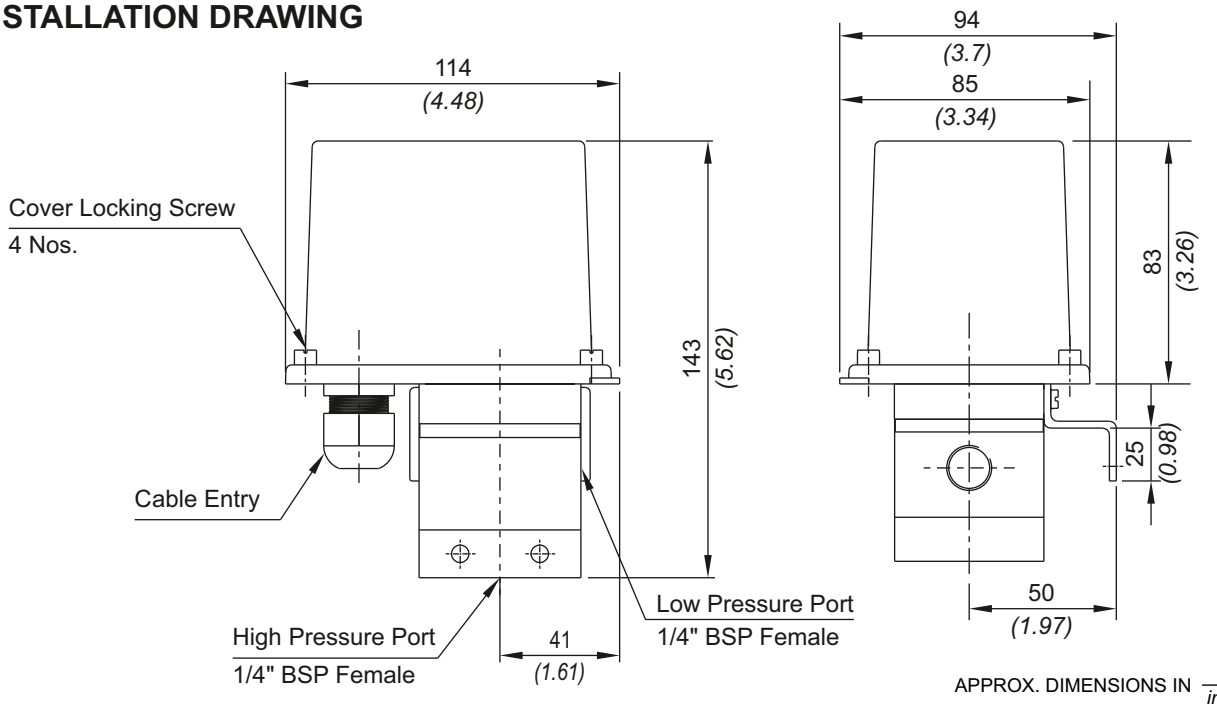


No. Description

1. *Pressure Housing*
2. *HP Plunger (SS316)*
3. *Diaphragm*
4. *Disc*
5. *CSK Screw (SS)*
6. *O-Ring (PTFE®)*
7. *LP Plunger (SS316)*
8. *Sealing Diaphragm (PTFE®)*
9. *Sealing O-Ring (PTFE®)*

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



APPROX. DIMENSIONS IN mm / *inches*

MZ HIGH RANGE PRESSURE DIFFERENCE SWITCHES

RANGE SELECTION TABLE

Range Code	Range bar *(psi)*	Differential* bar *(psi)*	Maximum Working Pressure bar *(psi)*
		Approximate Maximum for "A8" microswitch	
H01	0.1 - 1.0 *(1.45 - 14.50)*	0.12 *(1.74)*	12 *(174.05)*
H02	0.1 - 1.5 *(1.45 - 21.76)*	0.20 *(2.90)*	12 *(174.05)*
H03	0.2 - 2.6 *(2.90 - 37.71)*	0.20 *(2.90)*	12 *(174.05)*
H04	0.2 - 3.6 *(2.90 - 52.21)*	0.30 *(4.35)*	12 *(174.05)*

Note:

1. The minimum differential increases with the setpoint. The differential values mentioned in the above table are approximate maximum for FSR. The differential value will vary according to the pressure range selected and microswitch type. For actual values of differential please contact sales office.

2. When using 2SPDT switching arrangement, both microswitches may not actuate and/or deactuate at the same point. A small stage gap, normally upto +/- 5% FSR (depending on range code) may be observed. The On-Off differential (hysterisis) typically tends to be atleast double of those published for 1SPDT pressure switches.

If actuation and/or deactuation at same point is critical part of operation, then it can be achieved by using a separate DPDT relay. This relay will need a separate power supply for it's coil.

HOW TO ORDER PROCESS HIGH RANGE PRESSURE DIFFERENCE SWITCHES

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
Non standard allocation	Model	Cable Entry Size	Switch Type	Range Code (values in bar)	Microswitch Type	Pressure Port Material / Size	Diaphragm
☐ A prefix "N" is used in the model code in case of any non standard options / accessories that are provided with the switches. Will be given by manufacturer, only after agreement of supply details with customer. The prefix is subject to change as per specific requirement.	**MZ** = Process pressure switch with a weatherproof enclosure rated IP66/IP68 as per IS/IEC 60529 Note : Contact sales office for IP 68 enclosure	**1** = Polycarbonate Enclosure ½" NPT threads **2** = Polycarbonate Enclosure ¾" NPT threads **3** = Polycarbonate Enclosure M20 x 1.5 threads **4** = Diecast Al. Enclosure ½" NPT threads **5** = Diecast Al. Enclosure ¾" NPT threads **6** = Diecast Al. Enclosure M20 x 1.5 threads **7** = SS Enclosure ½" NPT threads **8** = SS Enclosure ¾" NPT threads **9** = SS Enclosure M20 x 1.5 threads Note : For dual cable entries contact sales office	**DF2** = pressure difference switch, fixed differential with scale in bar **DF3** = pressure difference switch, fixed differential with scale in psi ***DA2** = pressure difference switch, adjustable differential with scale in bar ***DA3** = pressure difference switch, adjustable differential with scale in psi *Available only with option A7 and A9 in Group 6	**H01** = (0.1 - 1.0) **H02** = (0.1 - 1.5) **H03** = (0.2 - 2.6) **H04** = (0.2 - 3.6)	**A8** = General purpose microswitch **A7** = 2SPDT microswitches **A9** = General purpose microswitch * Please refer to page nos. 290 & 291 for options and specifications of microswitches Please contact sales office for additional information	**S1** = SS316 / ¼" BSP(F) **S2** = SS316 / ¼" NPT(F) More options available, please contact sales office	**0** = Neoprene **1** = PTFE

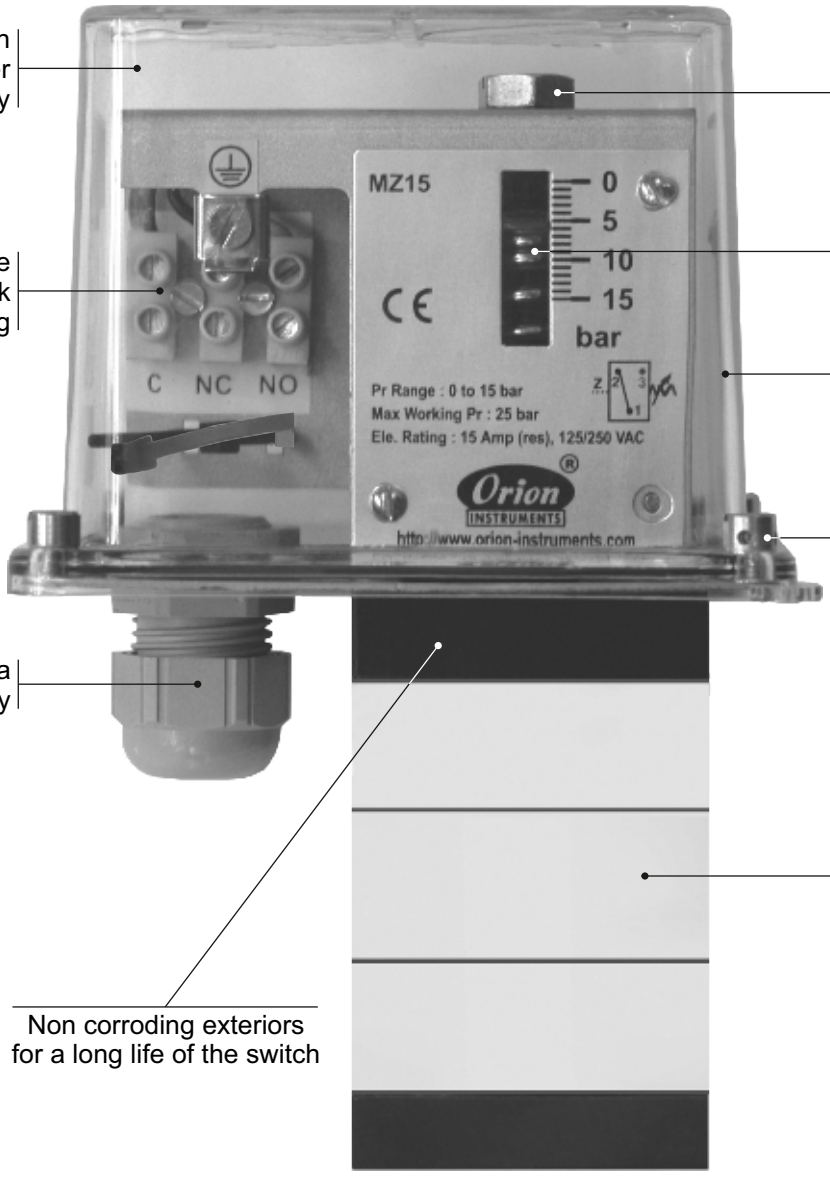
eg. A process pressure difference switch with fixed differential having 0.1 bar to 1 bar pressure range, with 5 Amp. microswitch, SS316 pressure housing with ¼" BSP port size & neoprene diaphragm shall be specified by

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
☐	MZ	3	DF2	H01	A8	S1	0

Please specify full model number to avoid ambiguity.

Bulletin No. KA221020

MZ HIGH RANGE DP



Transparent tough polycarbonate cover for visibility

Separate terminal block for wiring

Cable gland as a standard accessory

Non corroding exteriors for a long life of the switch

Internal setscrew to avoid easy access to setpoint

Large spring for ease of setpoint

IP66 enclosure for excellent ingress protection

Sealing facility to avoid tampering of working switch

SS316 & PTFE as wetted parts to switch a wide variety of media

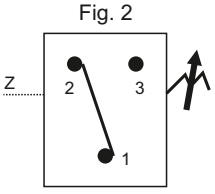
Approximate Weight : 1.800 Kg.

Some Applications :

Applications requiring high static/system pressure but low pressure difference.

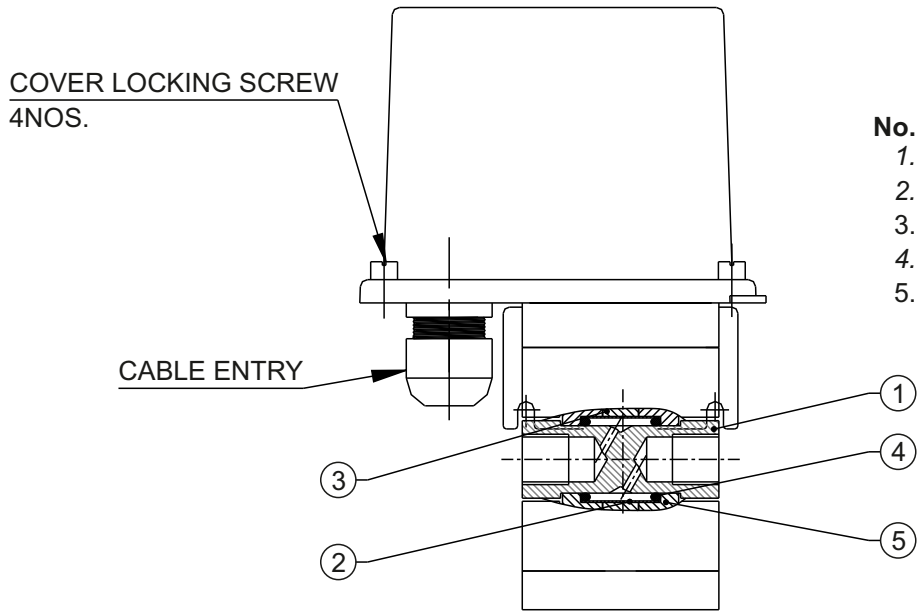
Electrical Connection :

Fig. 2





PRESSURE CAPSULE DETAILS

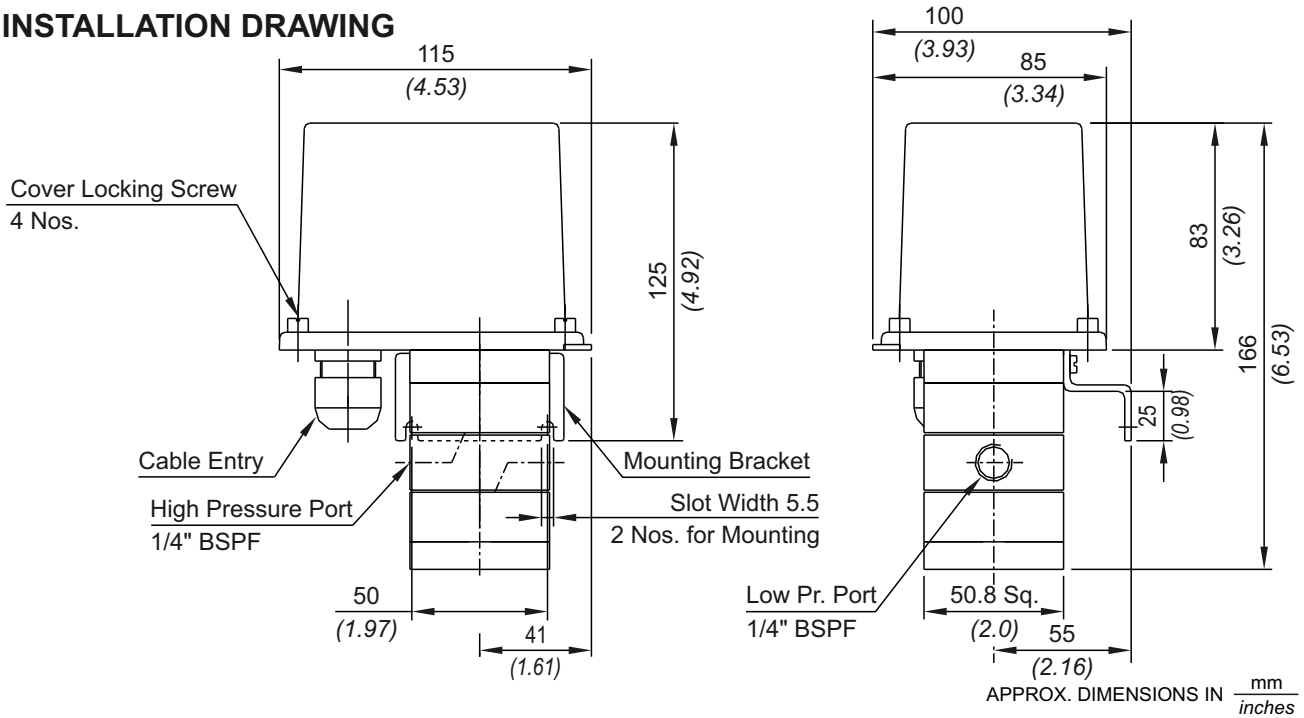


No. Description

1. *Pressure Housing*
2. *Diaphragm*
3. Plunger
4. *O-Ring*
5. Disc

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



APPROX. DIMENSIONS IN mm / *inches*

MZ HIGH RANGE DP

RANGE SELECTION TABLE

Range Code	Range bar *(psi)*	Differential* bar *(psi)*	Maximum Working Pressure bar *(psi)*
		Approximate Maximum for "A8" microswitch	
D01	0.1 - 1.0 *(1.45 - 14.50)*	0.12 *(1.74)*	70 *(1000.00)*
D02	0.1 - 1.5 *(1.45 - 21.76)*	0.2 *(2.90)*	70 *(1000.00)*
D03	0.2 - 2.6 *(2.90 - 37.71)*	0.4 *(5.80)*	70 *(1000.00)*
D04	0.2 - 3.6 *(2.90 - 52.21)*	0.6 *(8.70)*	70 *(1000.00)*
D07	0.5 - 7.0 *(7.25 - 101.50)*	0.8 *(11.60)*	70 *(1000.00)*
D10	0.5 - 10.0 *(7.14 - 142.86)*	1.0 *(14.50)*	70 *(1000.00)*
D15	1.0 - 15.0 *(14.29 - 214.29)*	1.5 *(21.75)*	70 *(1000.00)*
D30	5.0 - 25.0 *(71.43 - 357.14)*	2.0 *(29.00)*	70 *(1000.00)*

Note:

1. The minimum differential increases with the setpoint. The differential values mentioned in the above table are approximate maximum for FSR. The differential value will vary according to the pressure range selected and microswitch type. For actual values of differential please contact sales office.

2. When using 2SPDT switching arrangement, both microswitches may not actuate and/or deactuate at the same point. A small stage gap, normally upto +/- 5% FSR (depending on range code) may be observed. The On-Off differential (hysterisis) typically tends to be atleast double of those published for 1SPDT pressure switches.

If actuation and/or deactuation at same point is critical part of operation, then it can be achieved by using a separate DPDT relay. This relay will need a separate power supply for it's coil.

HOW TO ORDER PROCESS HIGH RANGE DP SWITCHES

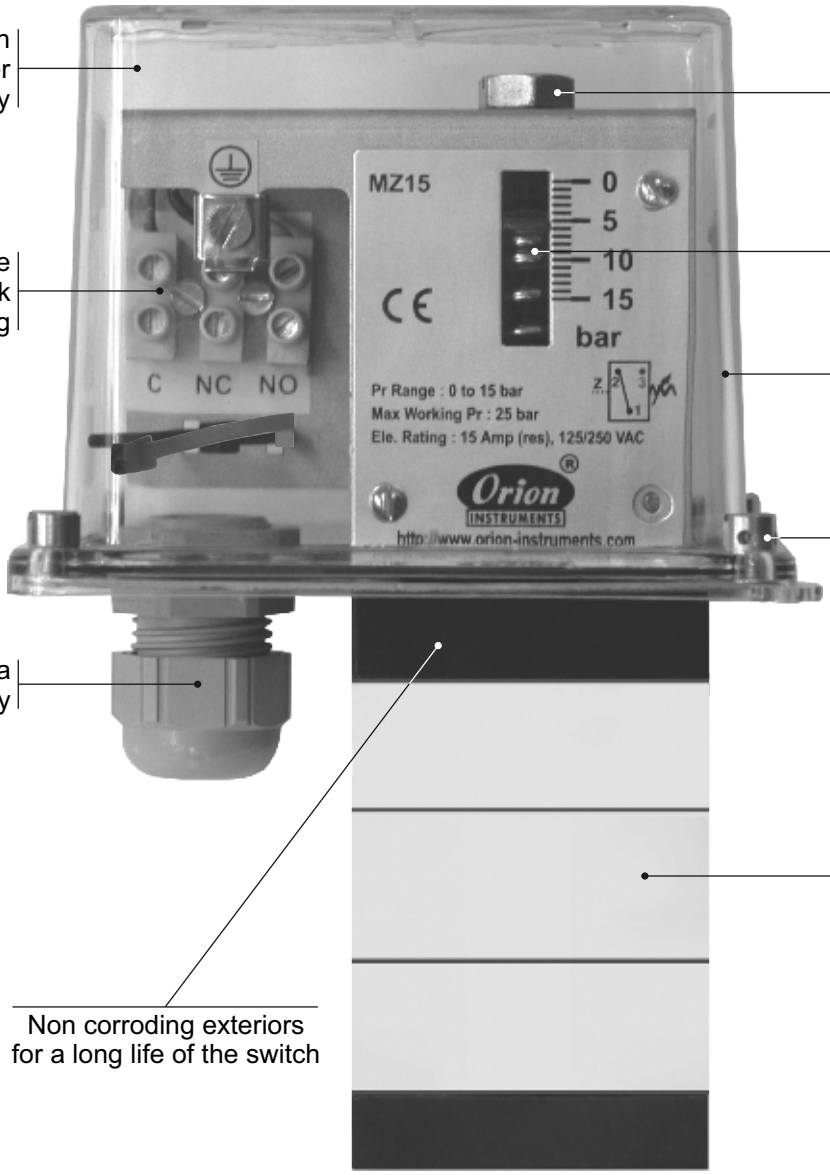
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
Non standard allocation	Model	Cable Entry Size	Switch Type	Range Code (values in bar)	Microswitch Type	Pressure Port Material / Size	Diaphragm
☐ A prefix "N" is used in the model code in case of any non standard options / accessories that are provided with the switches. Will be given by manufacturer, only after agreement of supply details with customer. The prefix is subject to change as per specific requirement.	**MZ** = Process pressure switch with a weatherproof enclosure rated IP66/IP68 as per IS/IEC 60529 Note : Contact sales office for IP 68 enclosure	**1** = Polycarbonate Enclosure ½" NPT threads **2** = Polycarbonate Enclosure ¾" NPT threads **3** = Polycarbonate Enclosure M20 x 1.5 threads **4** = Diecast Al. Enclosure ½" NPT threads **5** = Diecast Al. Enclosure ¾" NPT threads **6** = Diecast Al. Enclosure M20 x 1.5 threads **7** = SS Enclosure ½" NPT threads **8** = SS Enclosure ¾" NPT threads **9** = SS Enclosure M20 x 1.5 threads Note : For dual cable entries contact sales office	**DF2** = pressure difference switch, fixed differential with scale in bar **DF3** = pressure difference switch, fixed differential with scale in psi ***DA2** = pressure difference switch, adjustable differential with scale in bar ***DA3** = pressure difference switch, adjustable differential with scale in psi *Available only with option A7 and A9 in Group 6	**D01** = (0.1 - 1.0) **D02** (0.1 - 1.5) **D03** = (0.2 - 2.6) **D04** = (0.2 - 3.6) **D07** = (0.5 - 7.0) **D10** = (0.5 - 10.0) **D15** = (1.0 - 15.0) **D30** = (5.0 - 25.0)	**A8** = General purpose microswitch **A7** = 2SPDT microswitches **A9** = General purpose microswitch * Please refer to page nos. 290 & 291 for options and specifications of microswitches Please contact sales office for additional information	**S1** = SS316 / ¼" BSP(F) **S2** = SS316 / ¼" NPT(F) **N1** = Monel / ¼" BSP(F) **N2** = Monel / ¼" NPT(F) **H1** = Hastelloy C / ¼" BSP(F) **H2** = Hastelloy C / ¼" NPT(F) More options available, please contact sales office	**0** = Neoprene **1** = PTFE **2** = SS316L **3** = Hastelloy C **4** = Monel

eg. A process pressure difference switch with fixed differential having 0.1 bar to 1 bar pressure range, with 5 Amp. microswitch, SS316 pressure housing with ¼" BSP port size & neoprene diaphragm shall be specified by

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
☐	MZ	3	DF2	D01	A8	S1	0

Please specify full model number to avoid ambiguity.

Bulletin No. KA221020



Transparent tough polycarbonate cover for visibility

Separate terminal block for wiring

Cable gland as a standard accessory

Non corroding exteriors for a long life of the switch

Internal setscrew to avoid easy access to setpoint

Large spring for ease of setpoint

IP66 enclosure for excellent ingress protection

Sealing facility to avoid tampering of working switch

SS316 & PTFE as wetted parts to switch a wide variety of media

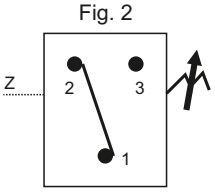
Approximate Weight : 1.800 Kg.

Some Applications :

Applications requiring high static/system pressure but low pressure difference.

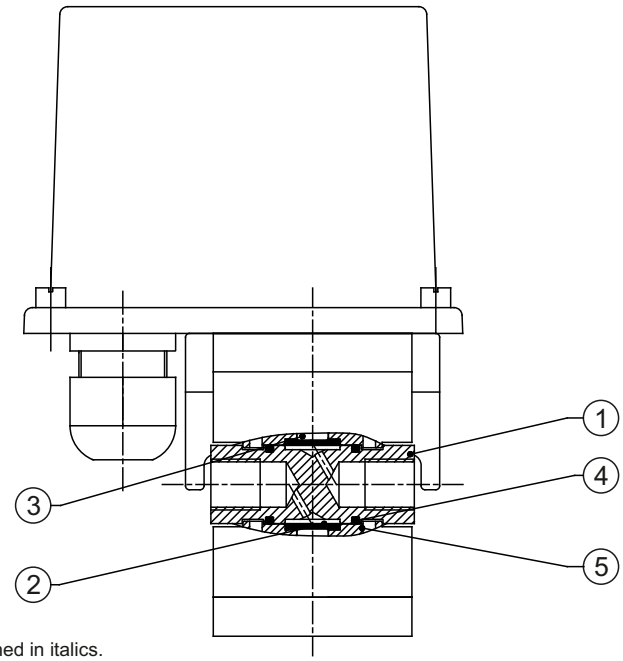
Electrical Connection :

Fig. 2





PRESSURE CAPSULE DETAILS

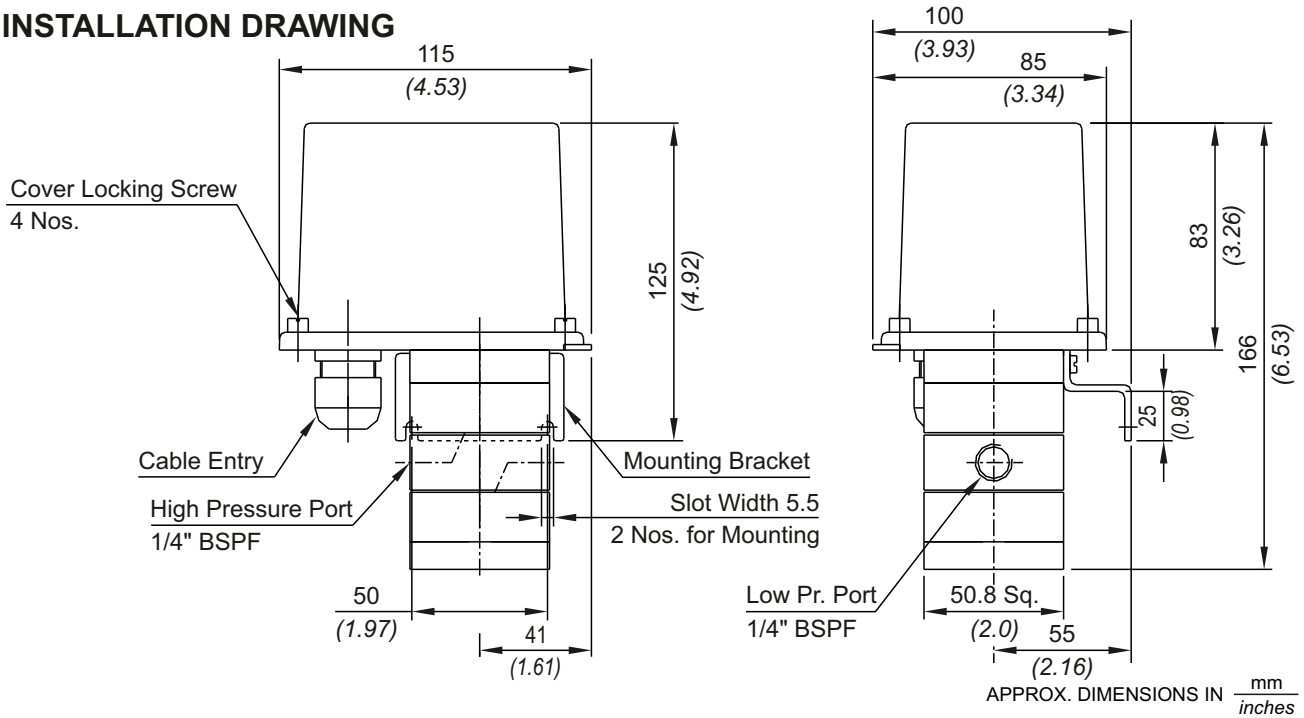


No. Description

1. *Pressure Housing (SS)*
2. *Diaphragm (SS or PTFE®)*
3. Plunger (SS)
4. *O-Ring (Viton)*
5. Disc (Al)

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



APPROX. DIMENSIONS IN mm / *inches*

MZ HYDRAULIC RANGE DP

RANGE SELECTION TABLE

Range Code	Range bar *(psi)*	Differential* bar *(psi)*	Maximum Working Pressure bar *(psi)*
		Approximate Maximum for "A1" microswitch	
H1U	0.1 - 1.0 *(1.45 - 14.50)*	0.30 *(4.35)*	150 *(2175)*
H2U	0.2 - 1.5 *(2.90 - 21.75)*	0.30 *(4.35)*	150 *(2175)*
H3U	0.2 - 2.6 *(2.90 - 37.7)*	0.40 *(5.8)*	150 *(2175)*
H4U	0.2 - 3.6 *(2.90 - 52.2)*	0.40 *(5.8)*	150 *(2175)*
H7U	0.5 - 7.0 *(7.25 - 101.5)*	0.80 *(11.60)*	150 *(2175)*
D1T	1.0 - 10.0 *(14.50 - 145)*	1.00 *(14.50)*	200 *(2900)*
D2T	2.0 - 20.0 *(29.00 - 290.70)*	2.00 *(29.00)*	200 *(2900)*
D3T	3.0 - 30.0 *(43.51 - 435.11)*	2.50 *(36.25)*	200 *(2900)*
D4T	5.0 - 40.0 *(72.50 - 580)*	4.00 *(58)*	400 *(5800)*
D1H	10.0 - 100 *(145.00 - 1450)*	10.00 *(145)*	400 *(5800)*
D2H	10.0 - 200 *(145.00 - 2900)*	20.00 *(290)*	400 *(5800)*
D4H	40.0 - 400 *(580.00 - 5800)*	60.00 *(870)*	500 *(7250)*

Note:

1. The minimum differential increases with the setpoint. The differential values mentioned in the above table are approximate maximum for FSR. The differential value will vary according to the pressure range selected and microswitch type. For actual values of differential please contact sales office.

2. When using 2SPDT switching arrangement, both microswitches may not actuate and/or deactuate at the same point. A small stage gap, normally upto +/- 5% FSR (depending on range code) may be observed. The On-Off differential (hysterisis) typically tends to be atleast double of those published for 1SPDT pressure switches.

If actuation and/or deactuation at same point is critical part of operation, then it can be achieved by using a separate DPDT relay. This relay will need a separate power supply for it's coil.

HOW TO ORDER INDUSTRIAL HYDRAULIC RANGE DP SWITCHES

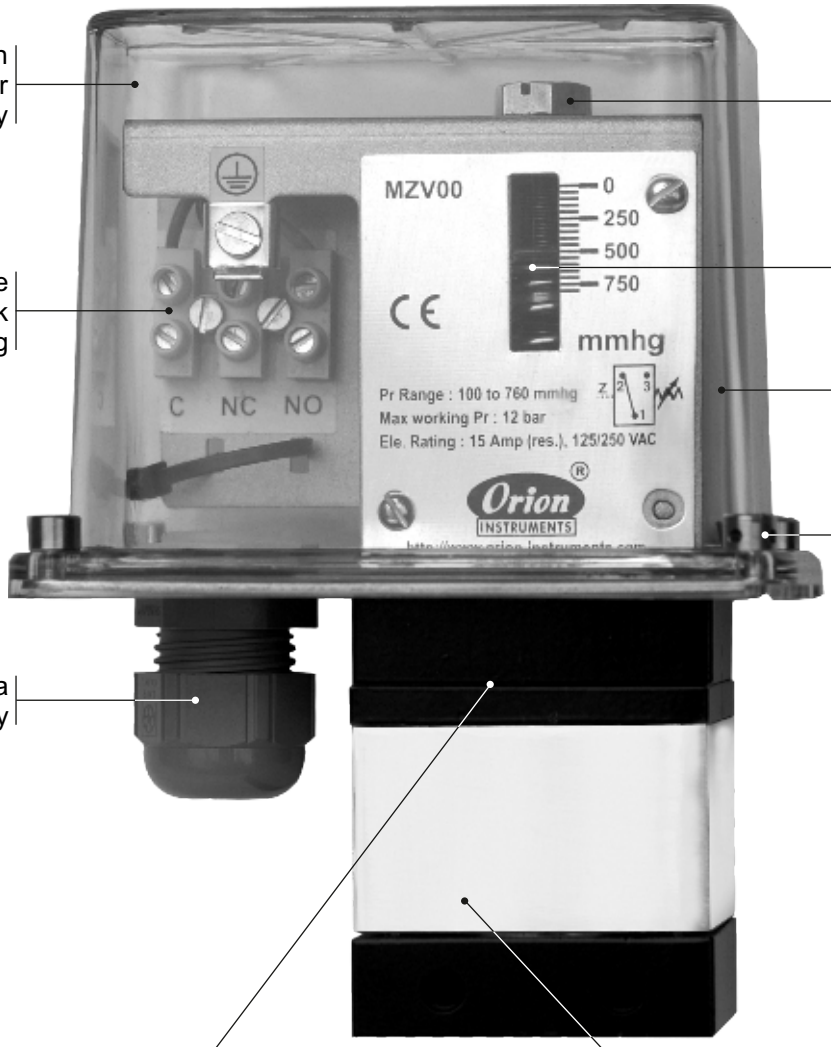
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
Non standard allocation	Model	Cable Entry Size	Switch Type	Range Code (values in bar)	Microswitch Type	Pressure Port Material / Size	Diaphragm
☐ A prefix "N" is used in the model code in case of any non standard options / accessories that are provided with the switches. Will be given by manufacturer, only after agreement of supply details with customer. The prefix is subject to change as per specific requirement.	**MZ** = Process pressure switch with a weatherproof enclosure rated IP66/IP68 as per IS/IEC 60529 Note : Contact sales office for IP 68 enclosure	**1** = Polycarbonate Enclosure ½" NPT threads **2** = Polycarbonate Enclosure ¾" NPT threads **3** = Polycarbonate Enclosure M20 x 1.5 threads **4** = Diecast Al. Enclosure ½" NPT threads **5** = Diecast Al. Enclosure ¾" NPT threads **6** = Diecast Al. Enclosure M20 x 1.5 threads **7** = SS Enclosure ½" NPT threads **8** = SS Enclosure ¾" NPT threads **9** = SS Enclosure M20 x 1.5 threads Note : For dual cable entries contact sales office	**DF1** = pressure difference switch, fixed differential without scale **DF2** = pressure difference switch, fixed differential with scale in bar **DF3** = pressure difference switch, fixed differential with scale in psi ***DA1** = pressure difference switch, adjustable differential without scale ***DA2** = pressure difference switch, adjustable differential with scale in bar ***DA3** = pressure difference switch, adjustable differential with scale in psi *Available only with option A7 and A9 in Group 6	**H1U** = (0.1 - 1.0) **H2U** = (0.2 - 1.5) **H3U** = (0.2 - 2.6) **H4U** = (0.2 - 3.6) **H7U** = (0.5 - 7.0) **D1T** = (1.0 - 10.0) **D2T** = (2.0 - 20.0) **D3T** = (3.0 - 30.0) **D4T** = (5.0 - 40.0) **D1H** = (10.0 - 100.0) **D2H** = (10.0 - 200.0) **D4H** = (40.0 - 400.0)	**A8** = General purpose microswitch **A7** = 2SPDT microswitches **A9** = General purpose microswitch * Please refer to page nos. 290 & 291 for options and specifications of microswitches Please contact sales office for additional information	**S1** = SS316 / ¼" BSP(F) **S2** = SS316 / ¼" NPT(F) **H1** = Hastelloy C / ¼" BSP(F) **H2** = Hastelloy C / ¼" NPT(F) **N1** = Monel / ¼" BSP(F) **N2** = Monel / ¼" NPT(F) More options available, please contact sales office	**0** = Neoprene **1** = PTFE **2** = SS 316L **3** = Hastelloy C **4** = Monel For additional wetted parts please contact sales office

eg. A high range pressure difference process switch, with ½" NPT cable entry in aluminium housing as 1SPDT pressure switch, fixed differential without scale, having 0.1 bar to 1 bar pressure range, with 15 Amp. microswitch, SS316 pressure housing with ¼" BSP port size & neoprene diaphragm shall be specified by

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
☐	MZ	1	DF1	H1U	A8	S1	0

Please specify full model number to avoid ambiguity.

Bulletin No. KA221020



Transparent tough polycarbonate cover for visibility

Separate terminal block for wiring

Cable gland as a standard accessory

Internal setscrew to avoid easy access to setpoint

Large spring for ease of setpoint

IP66 enclosure for excellent ingress protection

Sealing facility to avoid tampering of working switch

Non corroding exteriors for a long life of the switch

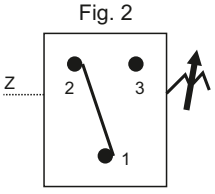
SS316 & PTFE as wetted parts to switch a wide variety of media

Approximate Weight : 1.160 Kg.

Some Applications :
Used in filters, vacuum pumps, blower systems, etc.

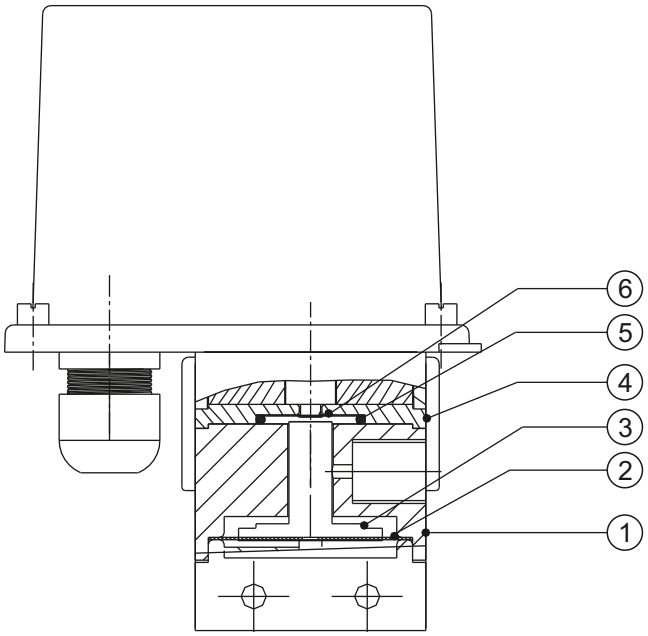
Electrical Connection :

Fig. 2





PRESSURE CAPSULE DETAILS

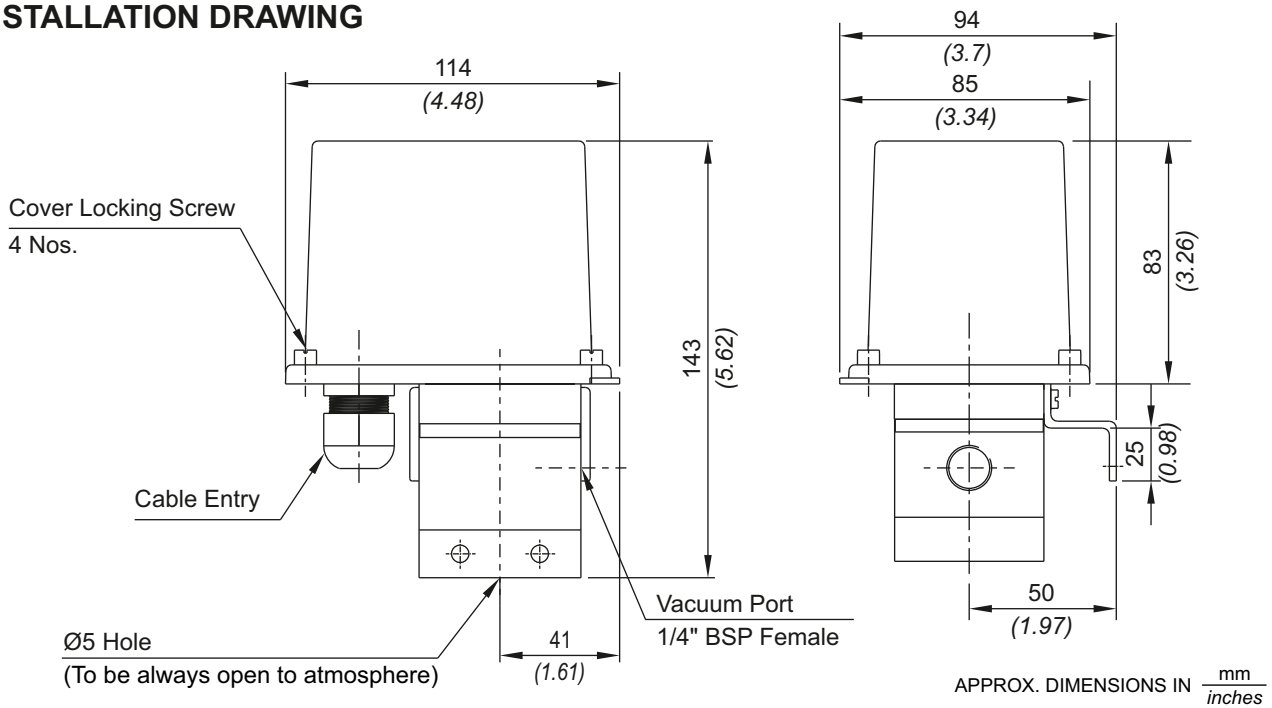


No. *Description*

1. *Disc*
2. *Diaphragm*
3. *Plunger (SS316)*
4. Junction Plate
5. *Sealing 'O' Ring (PTFE®)*
6. *Sealing diaphragms (PTFE®)*

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



APPROX. DIMENSIONS IN mm / *inches*

RANGE SELECTION TABLE

Range Code	Range mm Hg *(" Hg)*	Differential* mm Hg *("Hg)*	Maximum Working Pressure bar *(psi)*
		Approximate Maximum for "A8" microswitch	
V00	† 760 - 100 *(29.92 - 3.94)*	50 *(1.97)*	12 *(174.05)*

Note:

1. The minimum differential increases with the setpoint. The differential values mentioned in the above table are approximate maximum for FSR. The differential value will vary according to the pressure range selected and microswitch type. For actual values of differential please contact sales office.

2. When using 2SPDT switching arrangement, both microswitches may not actuate and/or deactuate at the same point. A small stage gap, normally upto +/- 5% FSR (depending on range code) may be observed. The On-Off differential (hysterisis) typically tends to be atleast double of those published for 1SPDT pressure switches.

If actuation and/or deactuation at same point is critical part of operation, then it can be achieved by using a separate DPDT relay. This relay will need a separate power supply for it's coil.

HOW TO ORDER PROCESS VACUUM SWITCHES

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
Non standard allocation	Model	Cable Entry Size	Switch Type	Range Code (values in mmHg)	Microswitch Type	Pressure Port Material / Size	Diaphragm
☐ A prefix "N" is used in the model code in case of any non standard options / accessories that are provided with the switches. Will be given by manufacturer, only after agreement of supply details with customer.	**MZ** = Process pressure switch with a weatherproof enclosure rated IP66/IP68 as per IS/IEC 60529	**1** = Polycarbonate Enclosure ½" NPT threads **2** = Polycarbonate Enclosure ¾" NPT threads **3** = Polycarbonate Enclosure M20 x 1.5 threads **4** = Diecast Al. Enclosure ½" NPT threads **5** = Diecast Al. Enclosure ¾" NPT threads **6** = Diecast Al. Enclosure M20 x 1.5 threads **7** = SS Enclosure ½" NPT threads **8** = SS Enclosure ¾" NPT threads **9** = SS Enclosure M20 x 1.5 threads	**VF2** = vacuum switch, fixed differential with scale in mmHg **VF3** = vacuum switch, fixed differential with scale in "Hg ***VA2** = vacuum switch, adjustable differential with scale in mmHg ***VA3** = vacuum switch, adjustable differential with scale in "Hg	**V00** = († 760 - 100)	**A8** = General purpose microswitch **A7** = 2SPDT microswitches **A9** = General purpose microswitch	**S1** = SS316 / ¼" BSP(F) **S2** = SS316 / ¼" NPT(F)	**0** = Neoprene **1** = PTFE
The prefix is subject to change as per specific requirement.	Note : Contact sales office for IP 68 enclosure	Note : For dual cable entries contact sales office	*Available only with option A7 and A9 in Group 6		* Please refer to page nos. 290 & 291 for options and specifications of microswitches Please contact sales office for additional information	More options available, please contact sales office	

eg. A process vacuum switch with fixed differential having 760 mmHg vac to 100 mmHg vac vacuum range, with 5 Amp. microswitch, SS316 pressure housing with ¼" BSP port size & neoprene diaphragm shall be specified by

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
☐	MZ	3	VF2	V00	A8	S1	0

Please specify full model number to avoid ambiguity.

Bulletin No. KA221020

MZ HIGH RANGE COMPOUND SWITCHES



Transparent tough polycarbonate cover for visibility

Separate terminal block for wiring

Cable gland as a standard accessory

Internal setscrew to avoid easy access to setpoint

Large spring for ease of setpoint

IP66 enclosure for excellent ingress protection

Sealing facility to avoid tampering of working switch

Non corroding exteriors for a long life of the switch

SS316 & PTFE as wetted parts to switch a wide variety of media

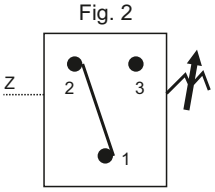
Approximate Weight : 0.550 Kg.

Some Applications :

Used in humid or slightly corrosive atmosphere like jet dyeing machines, etc.

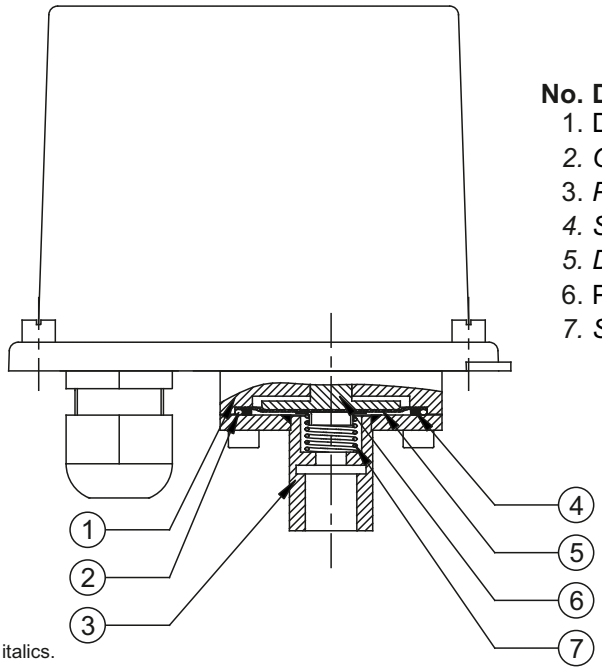
Electrical Connection :

Fig. 2





PRESSURE CAPSULE DETAILS

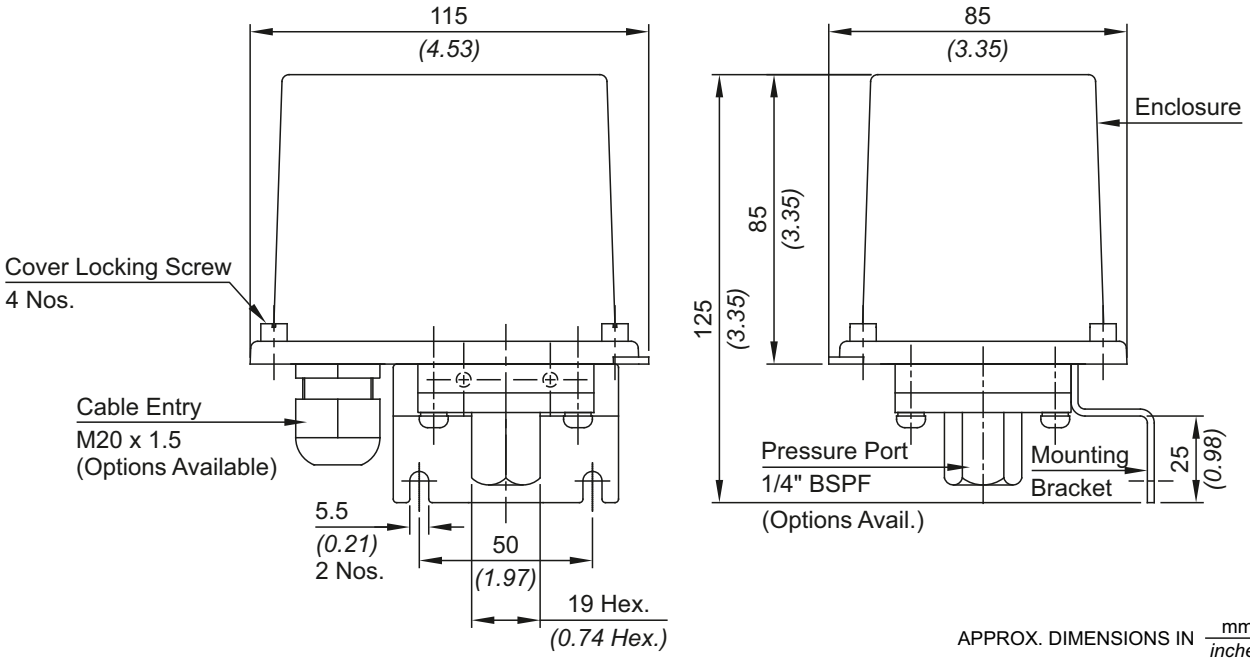


No. Description

1. Disc
2. *O-Ring (PTFE®)*
3. *Pressure Housing (SS316)*
4. *Steel Ring (SS316)*
5. *Diaphragm (PTFE®)*
6. Plunger (SS316)
7. *Spring (SS316)*

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



APPROX. DIMENSIONS IN mm / *inches*

MZ HIGH RANGE COMPOUND SWITCHES

RANGE SELECTION TABLE

Range Code	Range bar *(psi)*	Differential* bar *(psi)*	Maximum Working Pressure bar *(psi)*
		Approximate Maximum for "A1" microswitch	
C01	-1 to 1.0 *(-14.50 - 14.50)*	0.2 *(2.90)*	12 *(174.05)*
C02	-1 to 1.5 *(-14.50 to 21.75)*	0.3 *(4.35)*	12 *(174.05)*
C03	-1 to 2.6 *(-14.50 - 37.71)*	0.4 *(5.80)*	12 *(174.05)*
C04	-1 to 3.6 *(-14.50 - 52.26)*	0.6 *(8.70)*	12 *(174.05)*
C07	-1 to 7 *(-14.50 - 101.526)*	0.8 *(11.60)*	12 *(174.05)*

Note:

1. The minimum differential increases with the setpoint. The differential values mentioned in the above table are approximate maximum for FSR. The differential value will vary according to the pressure range selected and microswitch type. For actual values of differential please contact sales office.

2. When using 2SPDT switching arrangement, both microswitches may not actuate and/or deactuate at the same point. A small stage gap, normally upto +/- 5% FSR (depending on range code) may be observed. The On-Off differential (hysterisis) typically tends to be atleast double of those published for 1SPDT pressure switches.

If actuation and/or deactuation at same point is critical part of operation, then it can be achieved by using a separate DPDT relay. This relay will need a separate power supply for it's coil.

HOW TO ORDER INDUSTRIAL HIGH RANGE COMPOUND SWITCHES

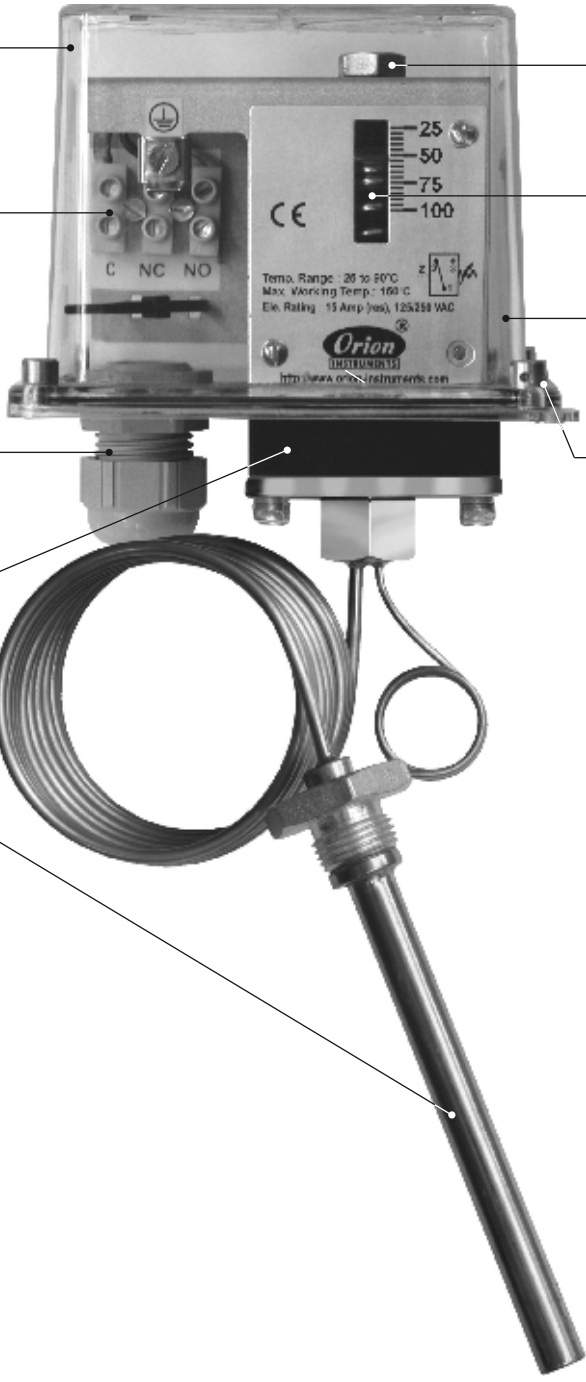
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
Non standard allocation	Gas Group Classification	Cable Entry Size	Switch Type	Range Code (values in bar)	Microswitch Type	Pressure Port Material / Size	Diaphragm
☐ A prefix "N" is used in the model code in case of any non standard options / accessories that are provided with the switches. Will be given by manufacturer, only after agreement of supply details with customer.	**MZ** = Process pressure switch with a weatherproof enclosure rated IP66/IP68 as per IS/IEC 60529	**1** = Polycarbonate Enclosure ½" NPT threads **2** = Polycarbonate Enclosure ¾" NPT threads **3** = Polycarbonate Enclosure M20 x 1.5 threads **4** = Diecast Al. Enclosure ½" NPT threads **5** = Diecast Al. Enclosure ¾" NPT threads **6** = Diecast Al. Enclosure M20 x 1.5 threads **7** = SS Enclosure ½" NPT threads **8** = SS Enclosure ¾" NPT threads **9** = SS Enclosure M20 x 1.5 threads	**CF1** = compound switch, fixed differential without scale **CF2** = compound switch, fixed differential with scale in bar ***CA1** = compound switch, adjustable differential without scale ***CA2** = compound switch, adjustable differential with scale in bar	**C01** = (-1 to 1.0) **C02** = (-1 to 1.5) **C03** = (-1 to 2.6) **C04** = (-1 to 3.6) **C07** = (-1 to 7)	**A8** = General purpose microswitch **A7** = 2SPDT microswitches **A9** = General purpose microswitch	**S1** = SS316 / ¼" BSP(F) **S2** = SS316 / ¼" NPT(F)	**0** = Neoprene **1** = PTFE **2** = SS 316L
The prefix is subject to change as per specific requirement.	Note : Contact sales office for IP 68 enclosure	Note : For dual cable entries contact sales office	*Available only with option A7 and A9 in Group 6		* Please refer to page nos. 290 & 291 for options and specifications of microswitches Please contact sales office for additional information	More options available, please contact sales office	

eg. An industrial switch for gas group IIC, with ½" NPT cable entry in aluminium housing as 1SPDT pressure switch, having -1 bar to +1 bar pressure range, with 15 Amp. microswitch, SS316 pressure housing with ¼" BSP port size & Neoprene diaphragm shall be specified by

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
☐	MD	1	CF1	C01	A8	S1	0

Please specify full model number to avoid ambiguity. If only the first two groups are specified while ordering, uncalibrated switches with standard wetted parts and enclosures will be supplied.

MZ TEMPERATURE SWITCHES



Transparent tough polycarbonate cover for visibility

Separate terminal block for wiring

Cable gland as a standard accessory

Non corroding exteriors for a long life of the switch

Brass bulb for sensing temperature

Internal setscrew to avoid easy access to setpoint

Large spring for ease of setpoint

IP66 enclosure for excellent ingress protection

Sealing facility to avoid tampering of working switch

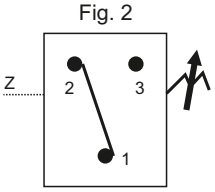
Approximate Weight : 0.700 Kg.

Some Applications :

To detect limiting temperature levels in non-hazardous areas.

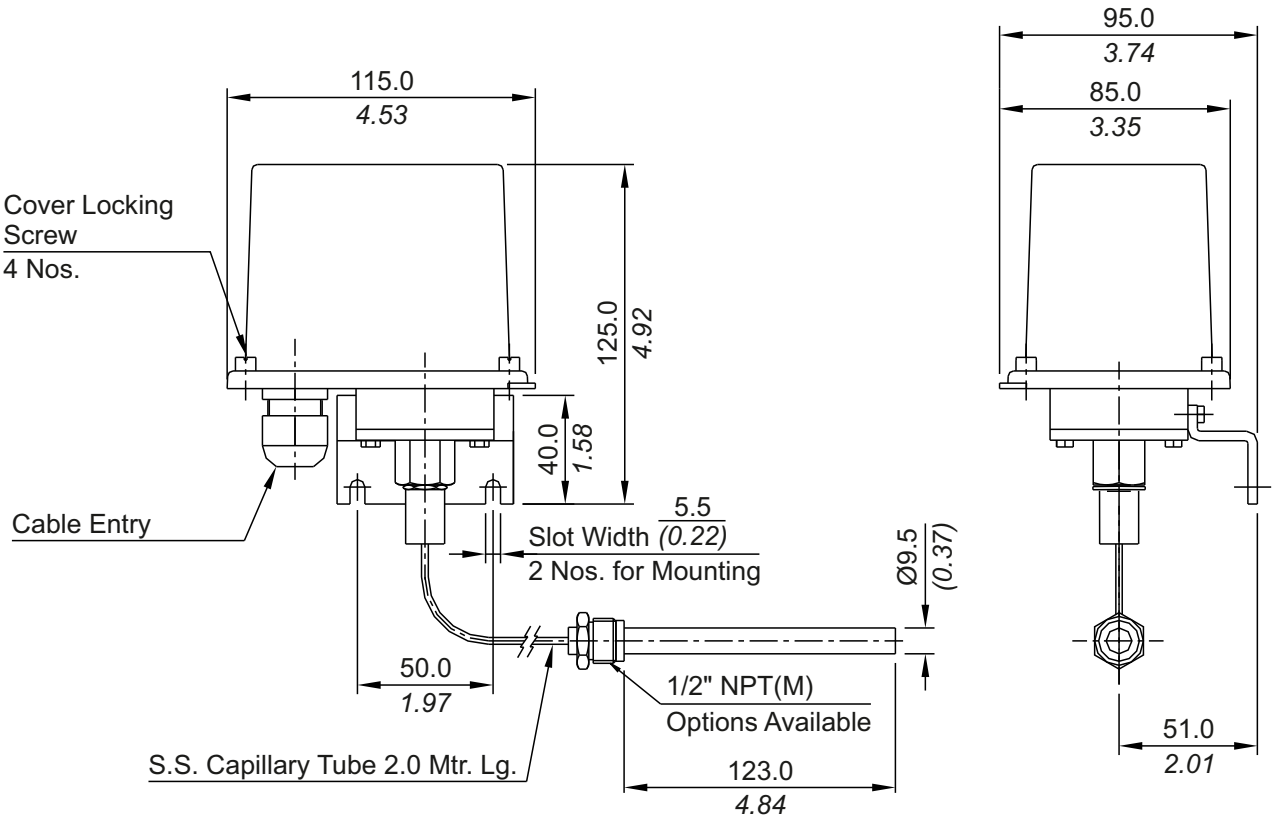
Electrical Connection :

Fig. 2





INSTALLATION DRAWING



APPROX. DIMENSIONS IN mm / inches

RANGE SELECTION TABLE

Range Code	Range °C *(°F)*	Differential* °C *(°F)*	Maximum Working Temperature °C *(°F)*
		Approximate Maximum for "A8" microswitch	
T1H	25 - 90 *(77 - 194)*	15 *(59)*	150 *(302)*
T2H	70 - 150 *(158 - 302)*	20 *(68)*	200 *(392)*
T3H	120 - 215 *(248 - 419)*	30 *(86)*	300 *(572)*

Note:

1. The minimum differential increases with the setpoint. The differential values mentioned in the above table are approximate maximum for FSR. The differential value will vary according to the pressure range selected and microswitch type. For actual values of differential please contact sales office.

2. When using 2SPDT switching arrangement, both microswitches may not actuate and/or deactuate at the same point. A small stage gap, normally upto +/- 5% FSR (depending on range code) may be observed. The On-Off differential (hysterisis) typically tends to be atleast double of those published for 1SPDT pressure switches.

If actuation and/or deactuation at same point is critical part of operation, then it can be achieved by using a separate DPDT relay. This relay will need a separate power supply for it's coil.

HOW TO ORDER PROCESS TEMPERATURE SWITCHES

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
Non standard allocation	Gas Group Classification	Cable Entry Size	Switch Type	Range Code (values in Deg. Cen.)	Microswitch Type	Temp. Bulb Material / Size	Capillary Material / Size
☐ A prefix "N" is used in the model code in case of any non standard options / accessories that are provided with the switches. Will be given by manufacturer, only after agreement of supply details with customer.	**MZ** = Process pressure switch with a weatherproof enclosure rated IP66/IP68 as per IS/IEC 60529	**1** = Polycarbonate Enclosure ½" NPT threads **2** = Polycarbonate Enclosure ¾" NPT threads **3** = Polycarbonate Enclosure M20 x 1.5 threads **4** = Diecast Al. Enclosure ½" NPT threads **5** = Diecast Al. Enclosure ¾" NPT threads **6** = Diecast Al. Enclosure M20 x 1.5 threads **7** = SS Enclosure ½" NPT threads **8** = SS Enclosure ¾" NPT threads **9** = SS Enclosure M20 x 1.5 threads	**TF1** = Temperature Switch fixed differential without scale **TF2** = Temperature Switch fixed differential with scale in °C	**T1H** = 25 - 90 **T2H** = 70 - 150 **T3H** = 120 - 215	**A8** = General purpose microswitch **A7** = 2SPDT microswitches **A9** = General purpose microswitch	**B1** = Brass / Dia. 9.5 mm, 123 mm length, with 3/8" BSP (M) thermowell connection **B2** = Brass / Dia. 9.5 mm, 123 mm length, with 3/8" NPT (M) thermowell connection **B3** = Brass / Dia. 9.5 mm, 123 mm length, with 1/2" NPT (M) thermowell connection	**2** = SS316 / 2.0 meter
The prefix is subject to change as per specific requirement.	Note : Contact sales office for IP 68 enclosure	Note : For dual cable entries contact sales office	*Available only with option A7 and A9 in Group 6		* Please refer to page nos. 290 & 291 for options and specifications of microswitches Please contact sales office for additional information	Please contact sales office for additional information	

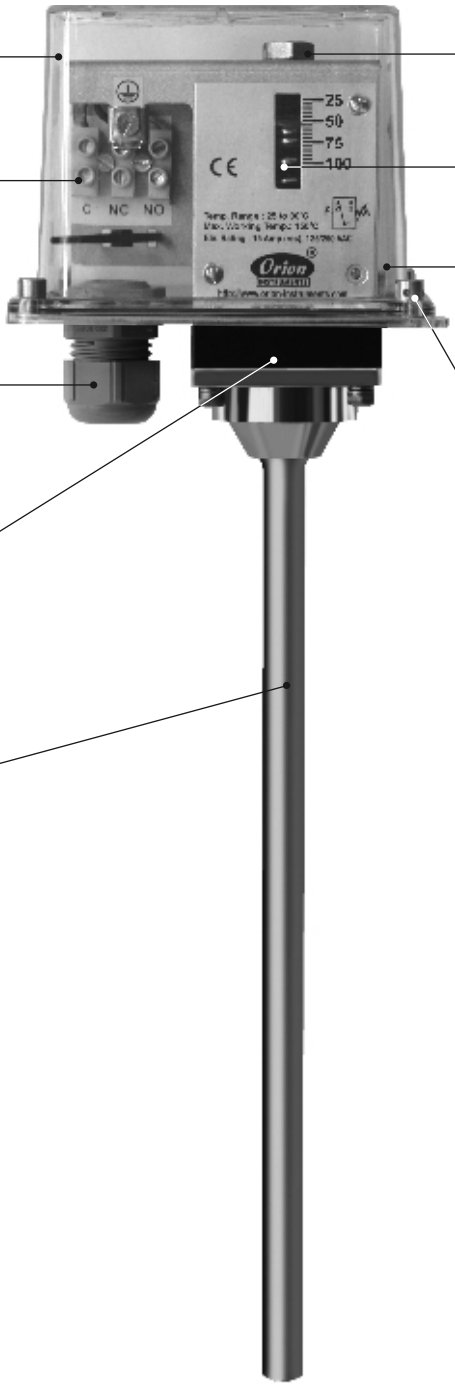
E.g. A Process Temperature switch, with M20x1.5 cable entry as 1 SPDT, fixed differential with scale, having 25°C to 90°C temperature range, with 15 Amp. microswitch, with Brass 9.5 mm diameter bulb, having length 123 mm with 3/8"BSP(M),with 2.0 meter SS316 capillary length shall be specified by

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
☐	MZ	3	TF2	T1H	A8	B1	2

Please specify full model number to avoid ambiguity.

Bulletin No. KA221020

MZ DIRECT MOUNTED TEMPERATURE SWITCHES



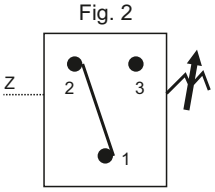
Approximate Weight : 0.700 Kg.

Some Applications :

To detect limiting temperature levels in non-hazardous areas.

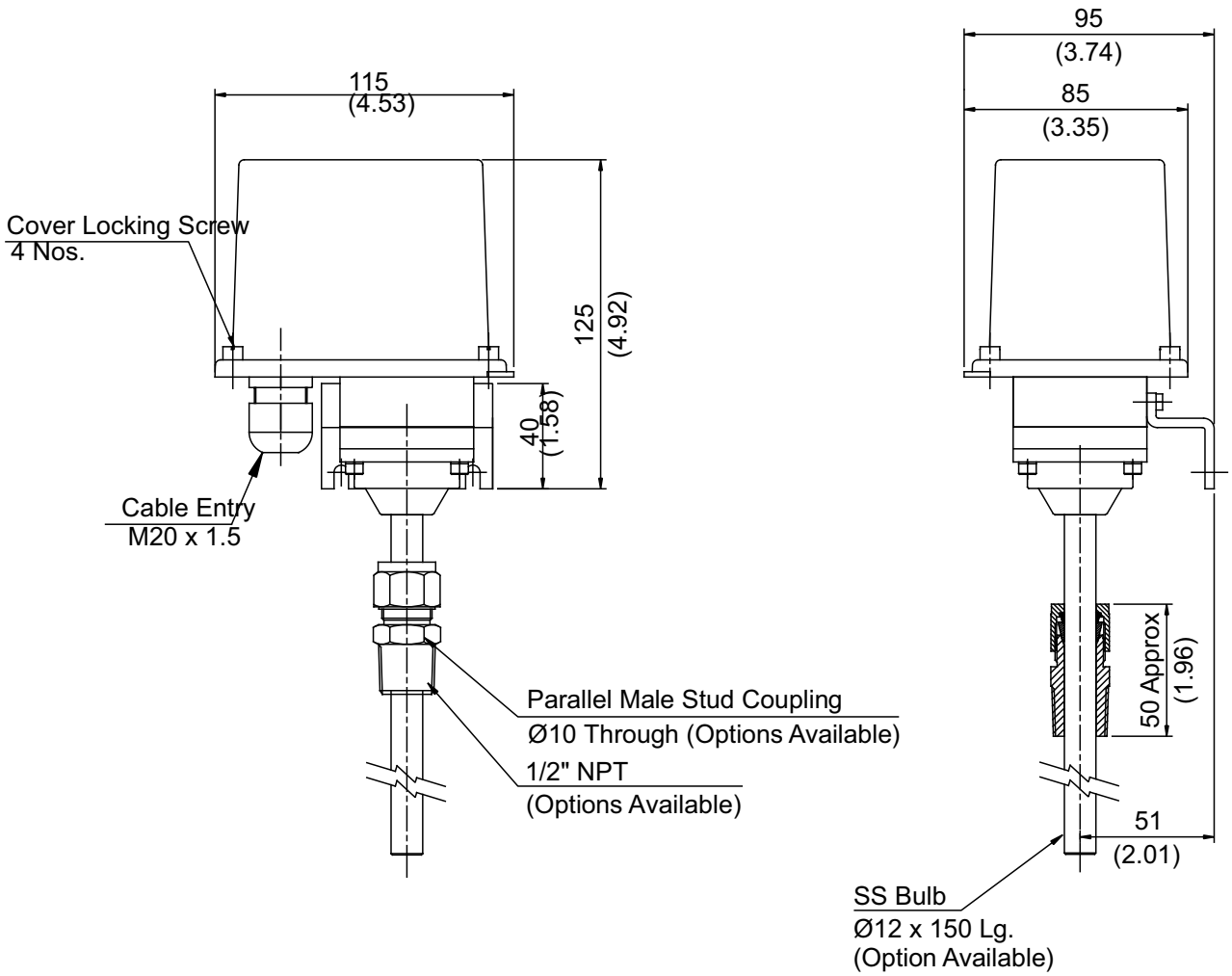
Electrical Connection :

Fig. 2





INSTALLATION DRAWING



APPROX. DIMENSIONS IN mm / *inches*