Pressure switch mechanical for refrigeration applications
With settable / fixed differential
Model PSM-690

CE

Applications

- Refrigeration compressors
- Chillers
- Driers
- HVAC

Special features

- Robust mechanism
- Auto or manual reset
- Designed for use in refrigeration systems
- No tools required to adjust the setpoint
- Fail safe double ply bellow element for high pressure

Fig. top: Refrigeration pressure switch, single pressure port, model PSM-690
Fig. bottom: Refrigeration pressure switch, dual pressure port, model PSM-690

Description

The PSM-690 is used in refrigeration control, monitoring and alarm applications.
The switch point can be specified by the customer on site.

The instrument can switch electrical loads of up to AC 230 V, 10 A.

The PSM-690 pressure switch is specially designed for refrigeration applications.

Data sheets showing similar products:
Pressure switch, heavy-duty version, TPST; model PSM-530; see data sheet PV 35.02
Pressure switch, heavy-duty version, for superior industrial applications; model PSM-550; see data sheet PV 35.03

Specifications

Single pressure port

Setting range	Unit	Permissible switch point on rising pressure	Adjustable switch differential	Fixed differential	Maximum working pressure	Bellows
-0.15 ... 5	bar	0.25 ... 5	0.4 ... 4	0.4	16	Phosphor bronze or 304 SS
-0.4 ... 7		0.2 ... 7	0.6 ... 6	0.6	16	
6 ... 15		7.5 ... 15	1.5 ... 5	1.5	32	Phosphor bronze
6 ... 22		8 ... 22	2 ... 8	2	32	304 SS
6 ... 30		9 ... 30	3 ... 8	3	32	Phosphor bronze
4 inHg ... 72	psi	4 ... 72	6 ... 58	6	232	Phosphor bronze or 304 SS
12 inHg ... 100		3.2 ... 100	9 ... 87	9	232	
87 ... 217		109 ... 217	22 ... 72	22	464	Phosphor bronze
87 ... 319		116 ... 319	29 ... 116	29	464	304 SS
87 ... 435		131 ... 435	44 ... 116	44	464	Phosphor bronze

Dual pressure port

Setting range		Unit	Permissible switch point on rising pressure		Adjustable switch differential		Fixed differential		Maximum working pressure		Bellows
-0.4 ... 7	8 ... 22	bar	0.2 ... 6	11 ... 22	0.6 ... 6	---	---	3	16	32	304 SS
-0.4 ... 7	8 ... 30	bar	0.2 ... 6	12 ... 30	0.6 ... 6	---	---	4	16	32	Phosphor bronze
12 inHg ... 100	116 ... 319	psi	3.2 ... 100	160 ... 319	9 ... 87	---	---	44	232	464	304 SS
12 inHg ... 100	116 ... 435	psi	3.2 ... 100	174 ... 435	9 ... 87	---	---	58	232	434	Phosphor bronze

Reset
- Auto
- Manual

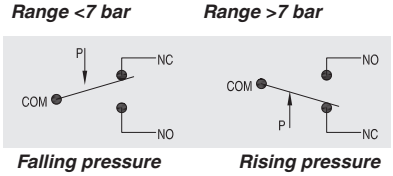
Differential
Single pressure port
- Fixed for manual reset
- Adjustable for auto reset

Dual pressure port
- Adjustable for low range
- Fixed for high range

Process connection
1/4" flare with nut for general refrigerant
M10×0.75 for ammonia

Non-repeatability of the switch point
≤ 2 % of span

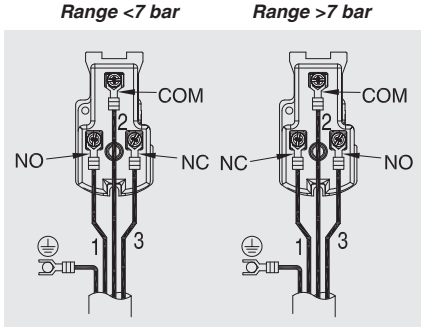
Switch contact
1 x change-over contact / SPDT [1)]



NC	Normally closed
COM	Common contact
NO	Normally open
p	Pressure

[1)] Single pole double throw

Terminal assignment



1	NC	Normally closed
2	COM	Common contact
3	NO	Normally open
⏚	GND	Ground connection

Electrical connection
Rubber grommet for cables Ø 6 ... 14 mm (Ø 0.24 ... 0.55 in)

Ingress protection per IEC/EN 60529
IP30
The ingress protection is only valid if all mounting holes on the rear of the instrument are covered, or for panel mounting on flat surfaces.

Suitable refrigerants
R22, R134A, R404A, R407A, R407C, R407F, R422D, R438A, R507A, R717 (with 304SS bellows)

Electrical rating

Current consumption [2]	Voltage	Current
Resistive load AC-1	230 V, 50/60 Hz	10 A
Inductive load AC-15	230 V, 50/60 Hz	6 A

2) per DIN EN 60947-1

Operating conditions

Permissible temperature ranges
Ambient: -40 ... +70 °C (-40 ... +158 °F)
Medium: -20 ... +70 °C (-4 ... +158 °F)
Storage: -20 ... +80 °C (-4 ... +176 °F)

Reference conditions

Relative humidity per BS 6134
< 50 % r. h. at 40 °C (104 °F)
< 90 % r. h. at 20 °C (68 °F)

Process connections

Process connection per	Thread size
ISO 228-1	1/4" flare with nut
	M10 × 0.75

Materials

Wetted parts
Bellows: Copper alloy CuSn6 per EN 1652
Stainless steel, 1.4301 for ammonia service

Process connection
Free cutting steel EN1A per EN 10277-3, tin plated

Options
- Steel capillary for ammonia service
- Solder connection
- Angle mounting bracket
- Wall mounting bracket
- Process connection copper alloy CuSn6 per EN 1652 non ammonia service

Approvals

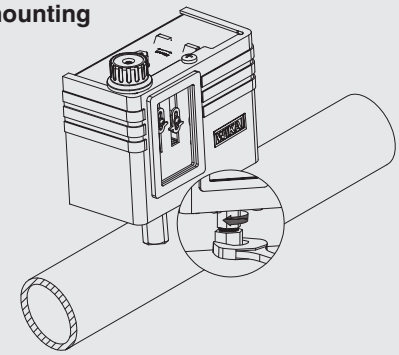
Logo	Description	Country
CE	**EU declaration of conformity** ■ Low voltage directive ■ RoHS directive	European Union

Approvals and certificates, see website

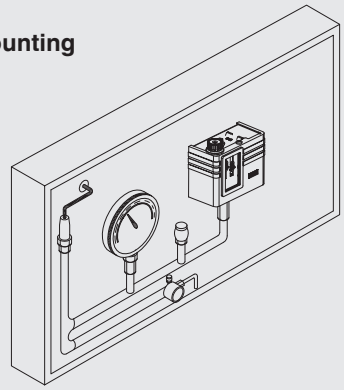
Mounting

Mounting option

Direct mounting

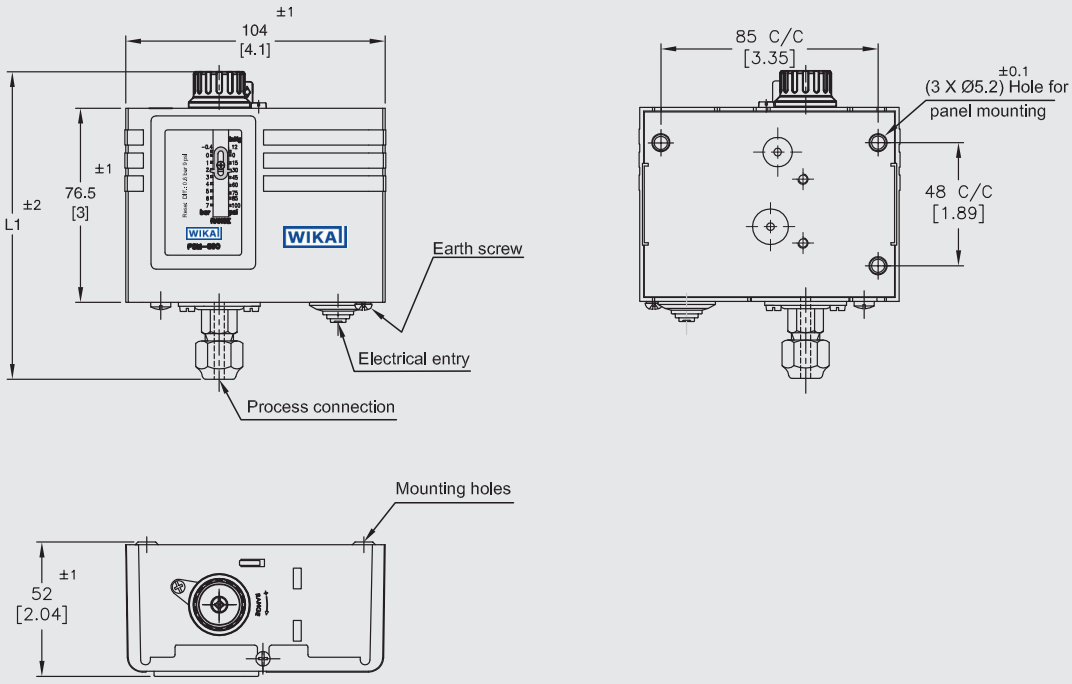


Panel mounting



Dimensions in mm (in)

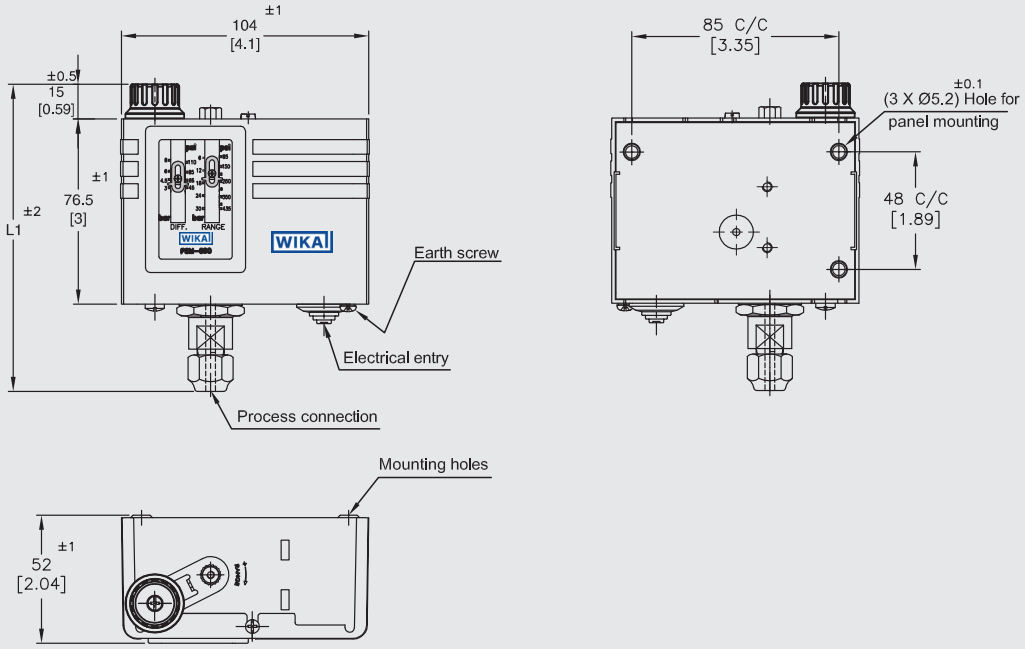
Range <7 bar with manual reset



Setting Range		Dimensions in mm 'L1'	Service	Reset
in bar	in psi			
-0.15 ... 5	4 inHg ... 72	119	General	Auto
-0.15 ... 5	4 inHg ... 72	117	Ammonia	Auto
-0.15 ... 5	4 inHg ... 72	119	General	Manual
-0.15 ... 5	4 inHg ... 72	117	Ammonia	Manual
-0.4 ... 7	12 inHg ... 100	119	General	Auto
-0.4 ... 7	12 inHg ... 100	117	Ammonia	Auto
-0.4 ... 7	12 inHg ... 100	119	General	Manual
-0.4 ... 7	12 inHg ... 100	117	Ammonia	Manual

Dimensions in mm (in)

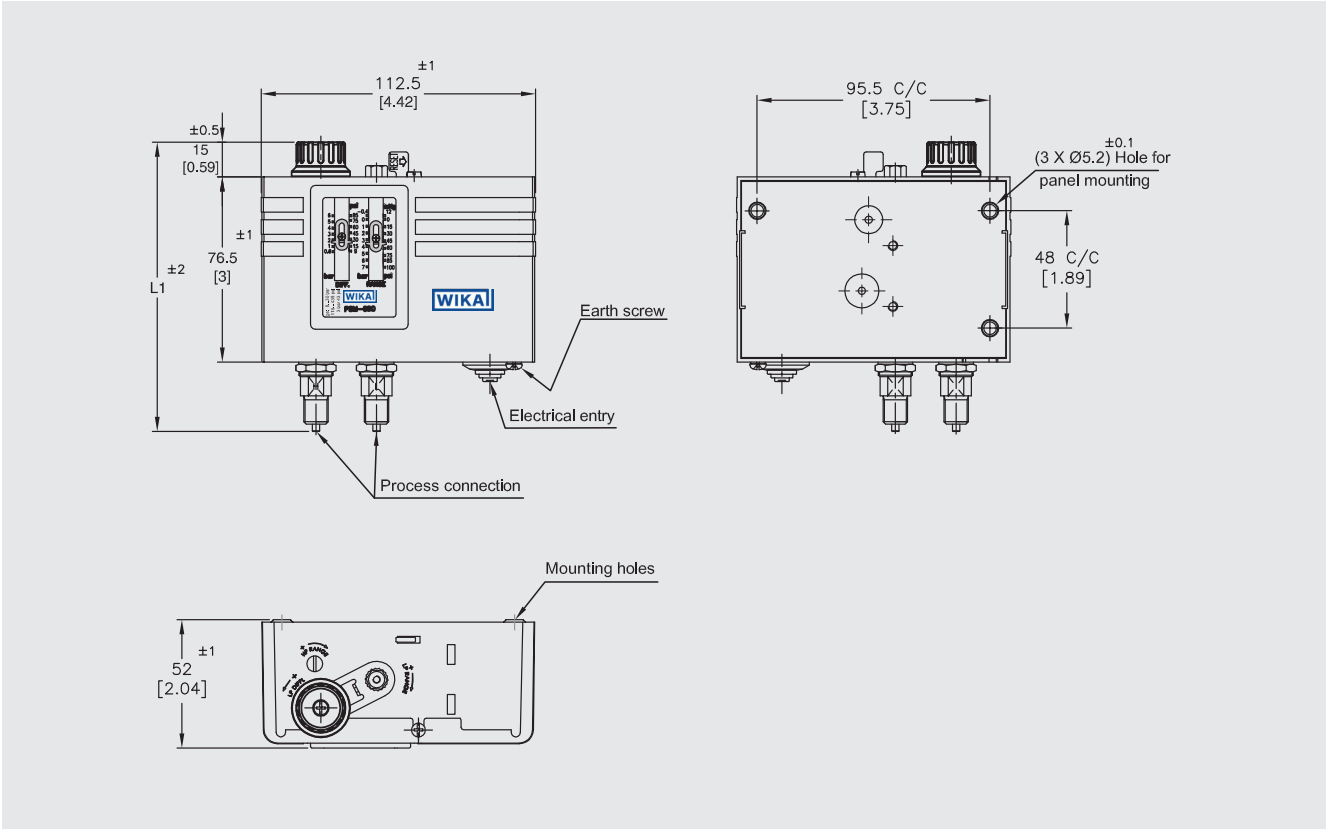
Range >7 bar with auto reset



Setting range		Dimensions in mm 'L1'	Service	Reset
in bar	in psi			
6 ... 15	87 ... 217	125	General	Auto
6 ... 15	87 ... 217	127	General	Manual
6 ... 22	87 ... 319	121	Ammonia	Auto
6 ... 22	87 ... 319	123	Ammonia	Manual
6 ... 30	87 ... 435	125	General	Auto
6 ... 30	87 ... 435	127	General	Manual

Dimensions in mm (in)

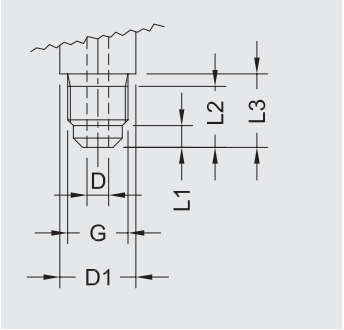
Dual pressure port with manual reset for ammonia



Setting range 1		Setting range 2		Dimensions in mm 'L1'	Service	Reset
in bar	in psi	in bar	in psi			
-0.4 ... 7	12 inHg ... 100	8 ... 22	116 ... 319	118	Ammonia	Auto
-0.4 ... 7	12 inHg ... 100	8 ... 22	116 ... 319	118	Ammonia	Manual
-0.4 ... 7	12 inHg ... 100	8 ... 30	116 ... 435	122	General	Auto
-0.4 ... 7	12 inHg ... 100	8 ... 30	116 ... 435	122	General	Manual

Process connection

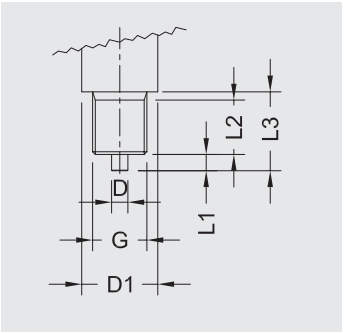
1/4" flare per ISO 228-1



Setting range 1 (bar)	Setting range 2 (bar)	Dimensions in mm (in)					
		G	D	D1	L1	L2	L3
-0.15 ... 5	---	1/4" flare	Ø 4	A/F 12	4.0	11.2	14 [3]
-0.4 ... +7	---			A/F 12			
---	6 ... 15			A/F 14			
---	6 ... 30			A/F 14			
-0.4 ... +7	8 ... 30			A/F 12 A/F 11			

[3] For brass process connection L3 length is 13.5.

M10 × 0.75 with steel capillary tube (Optional)



Setting range 1 (bar)	Setting range 2 (bar)	Dimensions in mm (in)					
		G	D	D1	L1	L2	L3
-0.15 ... 5	---	M10 × 0.75	Ø 3	AF/11	3	10	14.5
-0.4 ... +7	---	M10 × 0.75	Ø 3	A/F 11	3	10	14.5
---	6 ... 22			A/F 14			
-0.4 ... +7	8 ... 22			A/F 12 A/F 11			

Ordering information

PSM-690 / Range code / Service / Reset / Options

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