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Series P735

Single Pressure Controls for Refrigeration, Air-conditioning and Heatpump Applications

Introduction

These pressure controls are designed for use in a variety of applications involving refrigeration high or low pressure. Models supplied have a "whole range" design, enabling them to be used with all non-corrosive refrigerants which are within the operating range of the control. They may also be used for other high or low pressure applications such as air, water etc. Models which can be used with ammonia are included in the program. Also models tested and approved according to PED 97/23EC Cat. IV are included in the program.



**P735 Single Pressure Control
for Refrigeration**

Description

The P735 series pressure controls may be used for control functions or limit functions, depending on model number. All models are provided with alarm contacts. All standard models have phosphor bronze bellows and brass pressure connections. Models for use with ammonia are provided with stainless steel bellows and connectors. Devices conforming PED 97/23EC (HP models) have a double bellows.

Feature and Benefits	
<input type="checkbox"/> Generous wiring space	Easy wiring and maintenance
<input type="checkbox"/> SPDT contacts are provided as standard on single pressure controls.	Can be wired for alarm functions
<input type="checkbox"/> Trip-free manual reset	Override is not possible in the control function

Note

The controls are intended to control equipment under normal operating conditions. Where failure or malfunctioning of the controls could lead to an abnormal operating condition that could cause personal injury or damage to the equipment or other property, other devices (limit or safety controls) or systems (alarm or supervisory systems) intended to warn of or protect against failure or malfunctioning of the controls must be incorporated into and maintained as part of the control system.

Type number matrix

P735AAA	Automatic reset
P735BCA	Open low - manual reset
P735BEA	Open high - manual reset
P735AAW	HP or LP Limit (Auto reset) HP conforming PED 97/23CE
P735BEB	HP Limit (Man. Reset) Conforming PED 97/23CE
P735BES	HP Safety Limit (Man. Reset) Conforming PED 97/23 CE
P735BCB	LP Limit (Man. Reset) Including lock plate assy.

Mounting

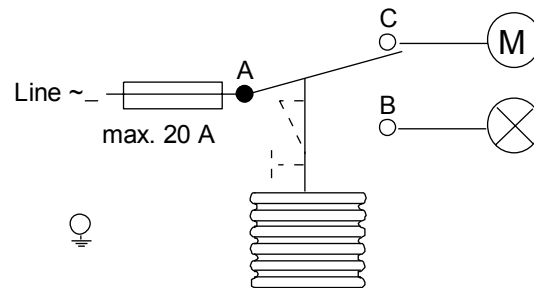
Mounting can easily be done with mounting bracket 271-51L (order separately) or directly on a surface. Mounting holes M4 are provided.

Adjustment

Adjustment of range and differential can be done by turning the hexagonal range screw and differential screw. Manual reset models have a range screw only. The adjustment screw can also be locked by a lock plate accessory (KIT023N600). On all models the scale indicates the high switch point (Except type P735BCA, P735BCB, here the scale indicates the low (cut-out) switch point). The low switch point can be derived by deducting the differential value from the high switch point.

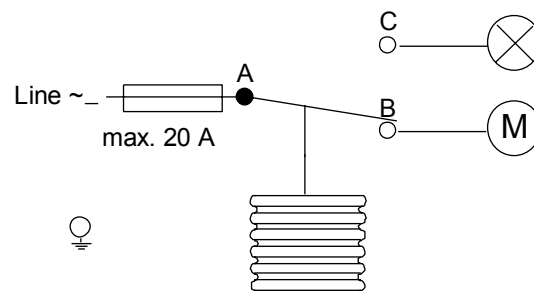
Contact functions

(see also "Type Number Selection" table)



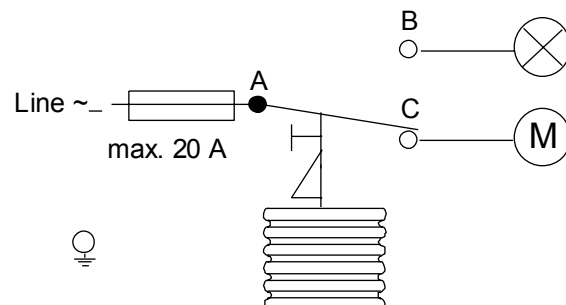
A - C open on pressure decrease

Fig. 1



A - B open on pressure increase

Fig. 2



A - C open on pressure increase

Fig. 3

Optional construction note

If your requirements are not in the type number selection table, then please contact your Johnson Controls representative.

Repair and replacement

Repair is not possible. In case of an improperly functioning control, please check with your nearest supplier. When contacting the supplier for a replacement you should state the type/model number of the control. This number can be found on the data plate.

Type number selection table

Pressure controls for Non-corrosive refrigerants

Family Code	Style 5		Style 30	Range (bar)	Diff. (bar)	Contact function (Figure)	Max. Bellows pressure	
	Ind. Pack.	Bulkpack	Ind. Pack.					
P735AAA	-9300		-9320	-9400	-0.5 to 7	0.6 to 3	1	22
	-9301				-0.2 to 10	1 to 4.5	1	15
	-9350		-9370	-9450	3 to 30	3 to 12	2	33
	-9351		-9371	-9451	3.5 to 21	2.1 to 5.5	2	30
P735BCA	-9300		-9320	-9400	-0.5 to 7	Man. res.**	1	22
P735BEA	-9350		-9370	-9450	3 to 30	Man. res.*	3	33

** Resetable at 0.5 bar above cut-out point

* Resetable at 3 bar below cut-out point

Pressure controls for Ammonia and Non-corrosive refrigerants

Family Code	Style 15		Range (bar)	Diff. (bar)	Contact function (Figure)	Max. Bellows pressure
	Ind. Pack.	Bulkpack				
P735AAA	-9700		-0.5 to 7	0.6 to 3	1	20
	-9750	-9770	3 to 30	3.5 to 12	2	33
P735BCA	-9700		-0.5 to 7	Man. res.**	1	20
P735BEA	-9750		3 to 30	Man. res.*	3	33

** Resetable at 0.5 bar above cut-out point

* Resetable at 3 bar below cut-out point

Note: 100 kPa = 1 bar ≈ 14.5 psi

Pressure controls for Non-corrosive refrigerants (including lock plate assy)

Family Code	Style 5		Style 28	Range (bar)	Diff. (bar)	Contact function (Figure)	Max. Bellows pressure	Approved according to PED 97/23EC Cat. IV
	Ind. Pack.	Bulkpack	Ind. Pack.					
P735AAW	-9300		-9800	-0.5 to 7	0.6 to 3	1	20	
	-9350	-9370	-9850	3 to 30	3.5 to 12	2	33	Yes
P735BCB	-9300			-0.5 to 7	Man. res.**	1	20	
P735BEB	-9350	-9370	-9850	3 to 30	Man. res.*	3	33	Yes
P735BES	-9350	-9370		3 to 30	Man. res.*	3	33	Yes

** Resetable at 0.5 bar above cut-out point

* Resetable at 3,5 bar below cut-out point

Pressure controls for Ammonia and Non-corrosive refrigerants (including lock plate assy)

Family Code	Style 15		Range (bar)	Diff. (bar)	Contact function (Figure)	Max. Bellows pressure	Approved according to PED 97/23EC Cat. IV
	Ind. Pack.	Bulkpack					
P735AAW	-9750		3 to 30	3.5 to 12	2	33	Yes
P735BEB	-9750		3 to 30	Man. res.*	3	33	Yes

** Resetable at 0.5 bar above cut-out point

* Resetable at 3,5 bar below cut-out point

Note: 100 kPa = 1 bar ≈ 14.5 psi

Pressure connections

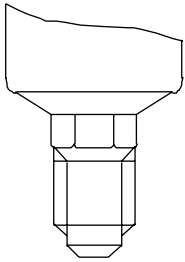


Fig. 4
Style 5
Male connector
7/16"-20 UNF for 1/4"
6 mm flare nut.

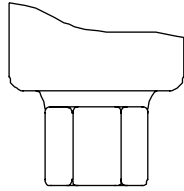


Fig. 5
Style 15
Female connector
1/4"-18 NPT

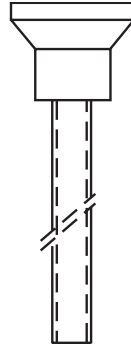


Fig. 6
Style 28
Braze connection
6 mm ODM

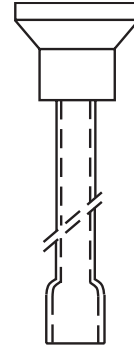


Fig. 7
Style 30
Braze connection
1/4" ODF

Accessories (optional)

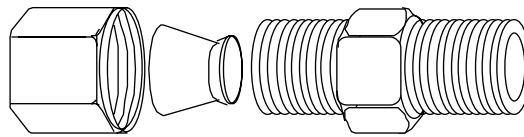


Fig. 8

Description	Application	Order number
Fits into style 15 pressure connectors	For 6 mm copper or steel tubing	CNR003N001R
	For 8 mm copper or steel tubing	CNR003N002R

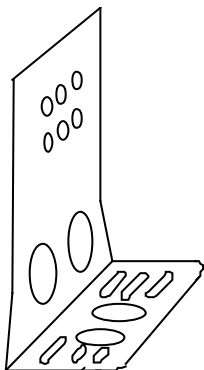


Fig. 9
Mounting bracket
Order number **271-51L**

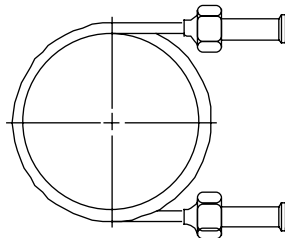


Fig. 10
90 cm Capillary with (2) flare nuts (1/4" SAE)
Order number **SEC002N600**

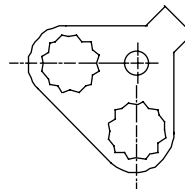


Fig. 11
Locking kit
Order number **KIT023N600**

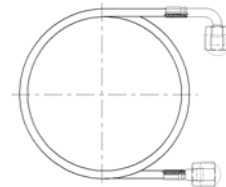
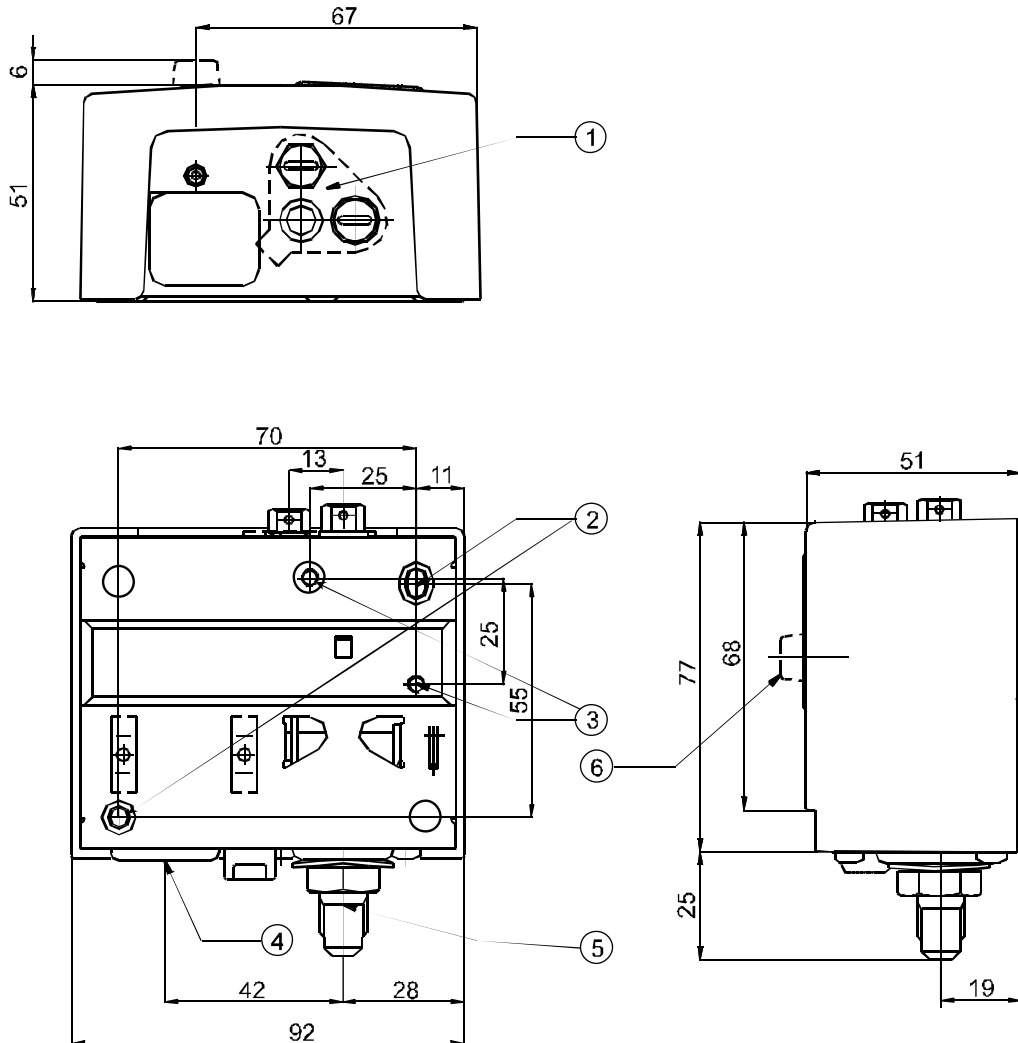


Fig. 12
90 cm Flexible synthetic refrigeration hose with (2) flare nuts (1/4" SAE)
Order number **H735AA-90D**

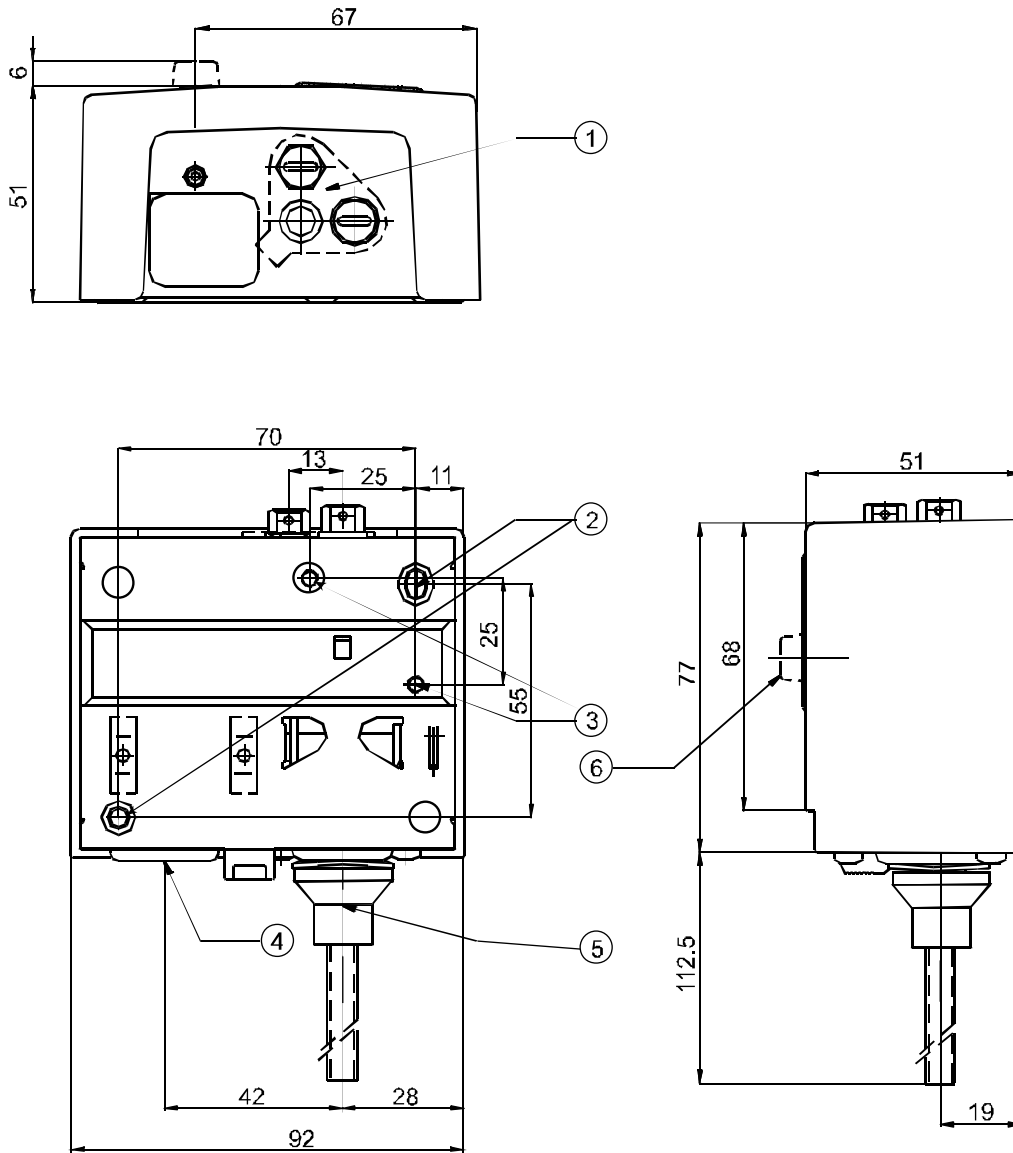
Dimensions (mm)



1. lock plate (if applied)
2. two mounting holes \varnothing 4.5 mm
3. two mounting holes \varnothing M4 (back side)
4. cable inlet grommet (cable range to \varnothing 16 mm)
5. power element:
Style 5: $\frac{7}{16}$ "-20 UNF male (shown)
Style 15: $\frac{1}{4}$ "-18 NPT female
6. reset button (on manual reset models only)

Fig. 13

Dimensions (mm)



1. lock plate (if applied)
2. two mounting holes \varnothing 4.5 mm
3. two mounting holes \varnothing M4 (back side)
4. cable inlet grommet (cable range to \varnothing 16 mm)
5. power element:
Style 28: Braze connection 6 mm ODM (shown)
Style 30: Braze connection 1/4" ODF
6. reset button (on manual reset models only)

Fig. 14

Notes

Specifications

Pressure connections	Style 5, 15, 28, 30 (see drawings)		
Operating ranges and diff.	See type number selection		
Adjustments	See type number selection		
Ambient temp. limit	-50 to +55 °C (+70 °C max. duration two hours) -20 to +55 °C for PED approved models		
Electrical ratings	400 V ~ 16(10) A 230 V ~ 12 W (pilot duty only)		
Pulsation plug	Fitted into all HP bellows on models with range 3.5 to 21 bar and up		
Locking plate and screw	To lock and seal range and/or differential screw. Standard included on types P735AAW, BEB, BES and BCB. Optional on all other types (quantity orders only)		
Protection Class	IP30		
Material	Case	1, 5 mm cold-rolled zinc plated steel	
	Cover	2 mm ABS plastic blue (RAL 5007)	
	Contact unit	Large copper-backed silver contacts	
Accessories (see pag. 4)	Mounting bracket Compression coupling 90 cm capillary with two flare nuts 90 cm flexible synthetic hose with two flare nuts		
Shipping weight	ind. pack	0.42 kg	
	-93xx	{	Ind. overpack 36 pcs. (16 kg)
	-97xx		Bulk pack 35 pcs. (15 kg)
	-94xx	{	Ind. overpack 16pcs. (7.5 kg)
	-98xx		

The performance specifications are nominal and conform to acceptable industry standards. For applications at conditions beyond these specifications, consult the local Johnson Controls office or representative. Johnson Controls shall not be liable for damages resulting from misapplication or misuse of its products.



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