

REFRIGERATION COMPONENTS
Pressure Controls

Adjustable Differential Pressure Switch

P232

Sensitive Differential

This switch senses a change in the differential pressure (either velocity pressure or pressure drop across a restriction) as the air flow changes. The pressure, as sensed by two sensing ports, is applied to the two sides of a diaphragm in the control. The spring loaded diaphragm moves and actuates the switch.

The series P232 can also be used to detect small positive gauge pressure by using only the high pressure connection and leaving the low pressure connector open, or to detect a vacuum by using only the low pressure connection and leaving the high pressure connector open to ambient pressure.

Features

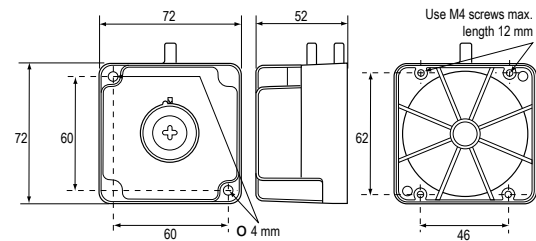
- Easy to read Setpoint scale
- Large wiring space
- Versatile mounting options

Application

- This (differential) pressure switch is used to sense flow of air, single or differential air pressure

Typical applications include:

- Clogged filter detection
- Detection of frost on air conditioning coils and initiation of defrost cycle
- Air proving in heating or ventilation ducts
- Maximum air flow controller for variable air volume system



Dimensions in mm

Ordering Codes	Switch point Range (in. wc)	Switching Differential (in. wc)	Pack
P232A-B-AAC	0,2 to 1,6	< 0.1	ind.

Note

Other models on request, range up to 20 inWC

REFRIGERATION COMPONENTS
Pressure Controls

Adjustable Differential Pressure Switch

P233

Sensitive Differential

This switch senses a change in the (differential) pressure as the airflow changes. The (differential) pressure is applied to the two sides of a diaphragm in the control.

The spring-loaded diaphragm moves and actuates the switch. The series P233A/F can also be used to detect small positive gauge pressure or to detect a vacuum.

Features

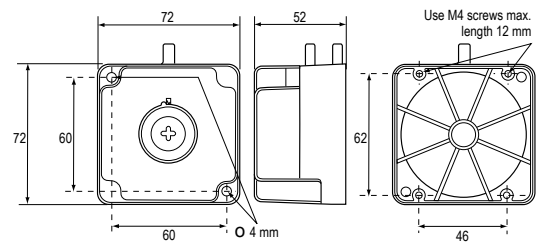
- One switch to measure relative pressure, vacuum or differential pressure
- Various accessories available
- Compact and durable construction
- Easy mounting and wiring, various mounting possibilities
- Standard PG 11 nipple and optional DIN 43650 connector
- Accurate and stable switch point
- SPDT contact standard

Application

- This (differential) pressure switch is used to sense flow of air, single or differential air pressure

Typical applications include:

- Detect clogged filter
- Detect frost or ice build-up on air conditioning coils
- Air proving in heating or ventilation ducts
- Maximum airflow controller for variable air volume system
- Detect blocked flue or vent
- Monitor fan operation



Dimensions in mm

REFRIGERATION COMPONENTS

Pressure Controls

Adjustable Differential Pressure Switch

P233

Ordering Codes	Switch point Range (mbar)	Switching Differential (mbar) **	Contacts	Pack	Additional Features			
P233F-P3-AAC	0,3 fixed	< 0.3	SPDT contacts, Contact rating 5(2) A 250 VAC	Ind.	---			
P233A-4-AAC	0,5 to 4			Bulk	---			
P233A-4-AAD*				Ind.	GMT008N600R + BKT024N002R			
P233A-4-AHC				Bulk	Scale in Pa			
P233A-4-PAD*	50 to 400 Pa			< 0.3	Ind.	---		
P233A-4-PAC						Scale in Pa, GMT008N600R + BKT024N002R		
P233A-4-PHC						Scale in Pa, FTG015N602R (2x) + 2 m tube 4/7 mm		
P233A-4-PKC						FTG015N602R (2x) + 2 m tube 4/7 mm		
P233A-4-AKC	0,5 to 4			< 0.5	SPDT contacts, Contact rating 5(2) A 250 VAC	Bulk	---	
P233A-6-AAC	0,5 to 6					Ind.	---	
P233A-6-AAD*	1,4 to 10						GMT008N600R + BKT024N002R	
P233A-10-AAC							---	
P233A-10-AHC	140 to 1000 Pa					< 0.5	Ind.	Scale in Pa, FTG015N602R (2x) + 2 m tube 4/7 mm
P233A-10-PAC								---
P233A-10-PKC		Scale in Pa, FTG015N602R (2x) + 2 m tube 4/7 mm						
P233A-10-AAD*	1,4 to 10	< 1	SPDT contacts, Contact rating 5(2) A 250 VAC			Bulk	---	
P233-10-AKC	6 to 50					Ind.	FTG015N602R (2x) + 2 m tube 4/7 mm	
P233A-50-AAC							Scale in Pa, GMT008N600R + BKT024N002R	
P233A-10-PHC	140 to 1000 Pa					< 0,5	Ind.	Scale in Pa, GMT008N600R + BKT024N002R

Notes

* : Quantity orders only

** : Switching differential is maximum value mid-range

REFRIGERATION COMPONENTS
Pressure Controls

Adjustable Differential Pressure Switch

P74

Differential Pressure

The P74 series of differential pressure switches incorporate two opposing pressure elements and an adjustable range setpoint spring with a calibrated scale.

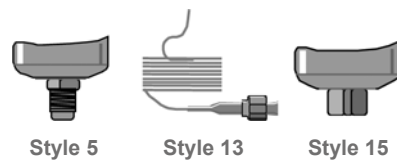
The control switches at the indicated setpoint on an increase in differential pressure and switches back to the normal position when the different pressure decreases to the setpoint less the mechanical switching differential.

Features

- Heavy duty pressure elements.
- These controls may be used in combination with series P28 lube oil protection control on two compressor, single motor units.

Application

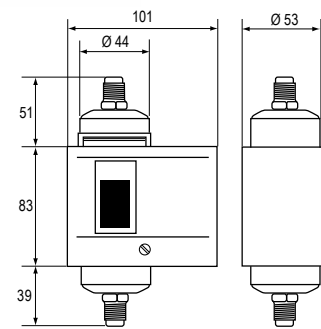
These controls are designed to sense pressure differences between two points and may be used as operating or limit controls. Typical applications are to detect flow across a chiller or water cooled condenser, to detect flow in a heating system and sensing lube oil pressure differential on refrigeration compressors.



Style 5

Style 13

Style 15



Dimensions in mm

Ordering Codes	Range (bar)	Mech. Differential (bar)	Style	Switch Action	Additional Features
P74DA-9300	0.6 to 4.8	0.7 to 2 adj.	5	DPST, 10A, contacts Open Low	---
P74DA-9600			13		
P74EA-9300		0.3 fix.	5	SPDT, 5 A, contact Open High	
P74EA-9600			13		
P74EA-9700			15		
P74EA-9701		For NH3 Set 1 bar, concealed adjustment, for NH3			
P74FA-9700	0 to 1	0.1 fix.	15	SPDT, 3 A, contact Open High	For water
P74FA-9701	2 to 8	0.7 fix.			For NH3

REFRIGERATION COMPONENTS

Pressure Controls

Adjustable Pressure Switch

P20

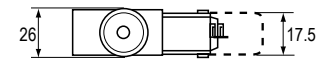
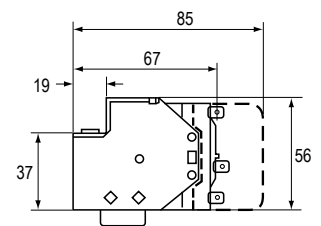
For Air-conditioning and Heat pump Applications

The P20 series high and low limit (cut-out) controls for all non-corrosive refrigerants are compact pressure controls ideally suited for commercial or residential packaged air conditioning units, heat pumps, small water chillers, ice cube machines and other applications where a semi fixed setting is acceptable or required and where mounting space is limited. The P20 series includes auto reset as well as manual reset models and is factory set.

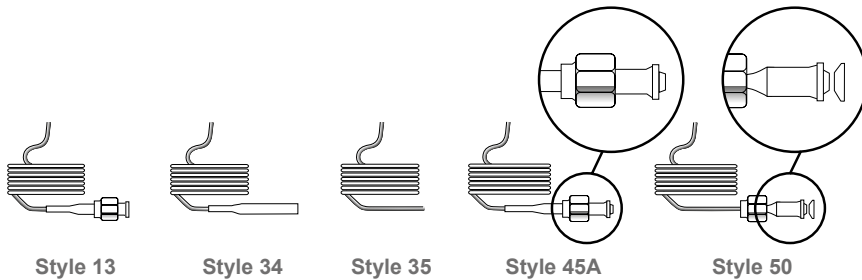
A special setting tool is available while also field (screwdriver) adjustable models can be chosen.

Features

- Field proven reliability
- Reset tab must be released before restart (Trip free manual reset)
- Compact design
- Enclosed dust-tight switch
- SPDT contact with special terminals
- Test pressure 53 bar
- Designed for at least 300000 cycles



Dimensions in mm



Style 13

Style 34

Style 35

Style 45A

Style 50

REFRIGERATION COMPONENTS

Pressure Controls

Adjustable Pressure Switch

P20

Ordering Codes	Range (bar)	Differential fixed	Set at (bar)	Style	Capillary Length	Switch Action	PED approval
P20EA-9611D	0.5 to 10	0.9	2	13	120 cm	SPDT, 8 A, Open Low, Auto Reset	---
P20EA-9620D		1.5			90 cm		
P20EA-9621D					120 cm		
P20EA-9160L	7 to 29	3.1	17	45A	90 cm	SPDT, 8 A, Open High, Auto Reset	•
P20EA-9561K		1.2	16	50			

High Pressure Control

Ordering Codes	Range (bar)	Differential fixed	Set at (bar)	Style	Capillary Length	Switch Action	
P20EA-9670X	7 to 29	5.2	28	13	90 cm	SPDT, 8 A, Open High, Auto Reset	
P20EA-9681T		7.1	24	13	120 cm		
P20EA-9950C		1.1	10	34	90 cm		
P20EA-9950K		1.2	16				
P20GA-9650X		---		28		13	SPDT, 8 A, Open High, Manual Reset
P20GA-9650T				24			

Low and High Pressure Control Universal Replacements

Ordering Codes	Range (bar)	Differential fixed	Set at (bar)	Style	Capillary Length	Switch Action	Additional Features	PED Approval	
P20EA-9530FC	0.5 to 10	2.1	3	50	90 cm	SPDT, 8 A, Auto Reset	Open Low	---	
P20EA-9630FC		2.1	3	13					
P20EA-9570XC	7 to 29	5.2	28	50			Open High	•	
P20EA-9670XC		5.2	28	13					
P20EL-9670TC	14 to 42	6.5	37	50		SPDT, 8 A, Manual Reset	Open Low	---	
P20FA-9510FC	0.5 to 10		3						13
P20FA-9610FC			7 to 29	28			50	Open High	•
P20GA-9550XC	14 to 42			37			13		
P20GA-9650XC									
P20GL-9650TC									

REFRIGERATION COMPONENTS
Pressure Controls

Adjustable Pressure Switch

P735

Single Pressure

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.

Features

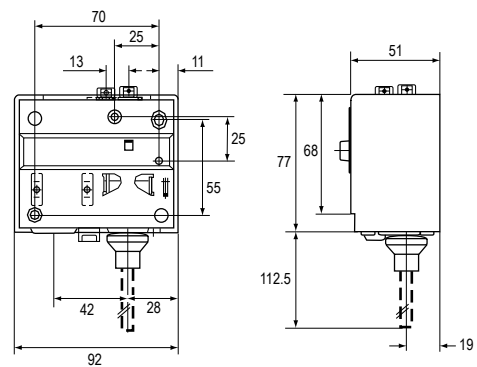
- Generous wiring space
- SPDT contacts are provided as standard on single pressure controls
- Trip-free manual reset

Application

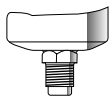
These pressure controls are designed for use in a variety of applications involving refrigeration high or low pressure.

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.

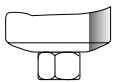
They may also be used for other high or low pressure applications such as air, water etc. Models which can be used with ammonia are included in the program.



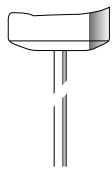
Dimensions in mm



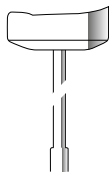
Style 5



Style 15



Style 28



Style 30

REFRIGERATION COMPONENTS

Pressure Controls

Adjustable Pressure Switch

P735

For Water

Ordering Code	Range (bar)	Differential (bar)	Switch Action (wire diag.)	Max. Bellows Pressure	Special Pressure Connection G ¹ / ₄ " female
					Ind. Pack.
P735AAA	-0,2 to 10	1 to 4,5	1	15	-9200
	-0,5 to 7	0,6 to 3	1	22	-9201

For Non-Corrosive Refrigerants

Ordering Codes	Range (bar)	Differential (bar)	Switch Action (wire diag.)	Max. Bellows Pressure	Style 5		Style 28	Style 30
					Ind. Pack.	Bulkpack	Ind. Pack.	Ind. Pack.
P735AAA	-0.5 to 7	0.6 to 3	1	22	-9300	-9320	-9800	-9400
	-0.2 to 10	1 to 4.5	1	15	-9301	---	---	---
	3 to 30	3 to 12	2	33	-9350	-9370		
	3.5 to 21	2.1 to 5.5	2	30	-9351	---		
P735BCA	-0.5 to 7	Man. res.**	1	22	-9300	---	---	---
P735BEA	3 to 30	Man. res.*	3	33	-9350	-9370		

Notes

* : Resetable at 3 bar below cut-out point

** : Resetable at 0.5 bar above cut-out point

For Non-Corrosive Refrigerants (including lock plate assy)

Ordering Codes	Range (bar)	Differential (bar)	Switch Action (wire diag.)	Max. Bellows Pressure	Style 5		Style 28	PED Approval
					Ind. Pack.	Bulkpack	Ind. Pack.	
P735AAW	-0.5 to 7	0.6 to 3	1	22	-9300	-9320	-9800	---
	3 to 30	3.5 to 12	2	33	-9350	-9370	-9850	•
P735BCB	-0.5 to 7	Man. res.**	1	22	-9300	---	---	---
P735BEB	3 to 30	Man. res.*	3	33	-9350	-9370	-9850	•

Notes

* : Resetable at 3.5 bar below cut-out point

** : Resetable at 0.5 bar above cut-out point

REFRIGERATION COMPONENTS
Pressure Controls

Adjustable Pressure Switch

P736

Dual Pressure

The P736 series pressure controls may be used for control functions or limit functions, depending on model number.

All models are provided with alarm contacts (except P736ALA).

All standard models have phosphor bronze bellows and brass pressure connections.

Models for use with ammonia are provided with stainless steel bellows and connectors.

Features

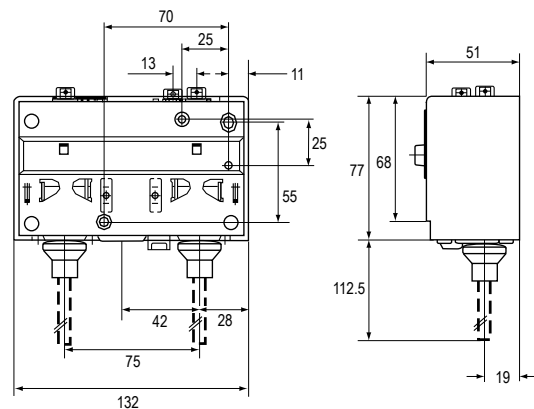
- Generous wiring space
- Trip-free manual reset
- Separate alarm contacts for both low pressure and high pressure cut-out (except P736ALA)

Application

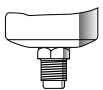
These dual pressure controls are designed for use in a variety of applications involving refrigeration high or low pressure.

Models supplied have a "whole range" design, enabling them to be used all non-corrosive refrigerants which are within the operating range of the control.

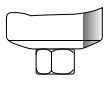
They may also be used for other high or low pressure applications such as air, water etc. Models which can be used with ammonia are included in the program.



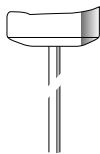
Dimensions in mm



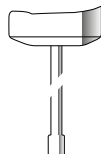
Style 5



Style 15



Style 28



Style 30

REFRIGERATION COMPONENTS Pressure Controls

Adjustable Pressure Switch P736

For Non-corrosive Refrigerants

Ordering Codes	Left Side		Right Side		Construction LP/HP (max. press.)	Style 5		Style 30
	Range (bar)	Diff. (bar)	Range (bar)	Diff. (bar)		Ind. Pack.	Bulkpack	Ind. Pack.
P736LCA	-0.5 to 7	0.6 to 3	3 to 30	3 (fixed)	LP: 22 bar HP: 33 bar	-9300	-9320	-9400
P736MCA	-0.5 to 7	0.6 to 3	3 to 30	Man. Res.**		-9300	-9320	---
P736PGA	-0.5 to 7	Man. Res.*	3 to 30	Man. Res.**		-9300	---	---

Dual Pressure Fan Cycling Controls for Air-Cooled Condensers (Non-corrosive Refrigerants)

Ordering Codes	Left Side		Right Side		Construction HP/HP (max. press.)	Style 5		Style 30
	Range (bar)	Diff. (bar)	Range (bar)	Diff. (bar)		Ind. Pack.	Bulkpack	Ind. Pack.
P736ALA	3.5 to 21	1.8 (fixed)	3.5 to 21	1.8 (fixed)	30 bar	-9351	****	---

For Non-Corrosive Refrigerants

Ordering Codes	Left Side		Right Side		Construction LP/HP (max. press.)	Style 5		Style 28	PED Approvals
	Range (bar)	Diff. (bar)	Range (bar)	Diff. (bar)		Ind. Pack.	Bulkpack	Ind. Pack.	
P736LCW	-0.5 to 7	0.6 to 3	3 to 30	3 (fixed)	LP: 22 bar HP: 33 bar	-9300	-9320	-9800	•
P736MCB	-0.5 to 7	0.6 to 3	3 to 30	Man. Res.**		-9300	****		
P736MCS	-0.5 to 7	0.6 to 3	3 to 30	Man. Res.**		-9300	****	---	
P736PGB	-0.5 to 7	Man. Res.*	3 to 30	Man. Res.**		---	****	---	

Manual Reset HP/HP, TÜV-Begrenzer + Sicherheitsbegrenzer

Ordering Codes	Left Side		Right Side		Construction HP/HP (max. press.)	Style 5		Style 30
	Range (bar)	Diff. (bar)	Range (bar)	Diff. (bar)		Ind. Pack.	Bulkpack	Ind. Pack.
P736PLM	3 to 30	Man. Res.*	3 to 30	Man. Res.**	30 bar	---	-9370	---

Notes

* : Resettable at 0.5 bar above cut-out point

** : Resettable at 3 bar below cut-out point

*** : Can be set-up for quantity orders

100 kPa = 1 bar ≈ 14.5 psi

REFRIGERATION COMPONENTS
Pressure Controls

Adjustable Pressure Switch

P77

Single Pressure, IP54

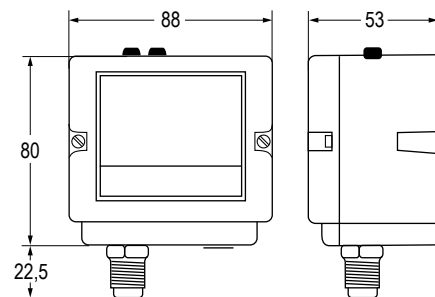
The P77 series pressure controls may be used for control functions or limit functions, depending on model number. All models are provided with alarm contacts. All standard models have phosphor bronze bellows and brass pressure connections. Models for use with ammonia are provided with stainless steel bellows and connectors. Devices conforming to PED 97/23/EC Cat. IV (HP models) have the fail-safe function with double bellows. Their IP54 classification means that these pressure controls are suitable for almost all applications.

Features

- Generous wiring space
- Splash-proof enclosure (IP54)
- SPDT contacts are provided as standard on single pressure controls.
- Trip-free manual reset

Application

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 refrigerants R22, R134A, R404A, R410A, CO₂ and all other 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 to PED 97/23/EC Cat. IV (supersedes DIN and TUV approval) are included in the program.



Dimensions in mm



Style 5



Style 15



Style 28



Style 30

REFRIGERATION COMPONENTS

Pressure Controls

Adjustable Pressure Switch P77

For Non-corrosive Refrigerants

Family Code	Style 5		Style 28	Style 30	Range (bar)	Diff. (bar)	Max Bellows Pressure
	Ind. Pack.	Bulkpack	Bulkpack	Ind. Pack.			
P77AAA	-9300	-9320	-9800	-9400	-0.5 to 7	0.6 to 3	22
	-9301	---	---	---	-0.2 to 10	1 to 4.5	15
	-9302	---	---	---	-0.3 to 2	0.4 to 1.5	4
	-9350	-9370	-9850	-9450	3 to 30	3 to 12	33
	-9351	-9371	---	-9451	3.5 to 21	2.1 to 5.5	30
P77BCA	-9300	-9320	---	-9400	-0.5 to 7	Man. res.**	22
P77BEA	-9350	-9370	---	-9450	3 to 30	Man. res.*	33

For Ammonia and Non-corrosive Refrigerants

Family Code	Style 15		Range (bar)	Diff. (bar)	Max Bellows Pressure
	Ind. Pack.	Bulkpack			
P77AAA	-9700	---	-0.5 to 7	0.6 to 3	14
	-9750	---	3 to 30	3.5 to 12	33
P77BCA	-9700	---	-0.5 to 7	Man. res.**	14
P77BEA	-9750	---	3 to 30	Man. res.*	33

For Non-corrosive Refrigerants (Wächter, Begrenzer, Sicherheitsdruckbegrenzer including lockplate assy)

Family Code	Style 5		Style 28	Range (bar)	Diff. (bar)	Max Bellows Pressure	Approved according to PED 97/23/EC Cat. IV
	Ind. Pack.	Bulkpack	Ind. Pack.				
P77AAW	-9300	-9320	-9800	-0.5 to 7	0.6 to 3	22	---
	-9350	-9370	-9850	3 to 30	3.5 to 12	33	•
	-9355	---	-9855	3 to 42	5 to 15	47.6	
P77BCB	-9300	---	-9800	-0.5 to 7	Man. res. **	22	---
P77BEB	-9350	-9370	-9850	3 to 30	Man. res. *	33	•
	-9355	---	-9855	3 to 42	Man. res. *	47.6	
P77BES	-9350	-9370	-9850	3 to 30	Man. res. *	33	

For Ammonia and Non-corrosive Refrigerants, (Wächter, Begrenzer, Sicherheitsdruckbegrenzer including lockplate assy)

Family Code	Style 15		Range (bar)	Diff. (bar)	Max Bellows Pressure	Approved according to PED 97/23/EC Cat. IV
	Ind. Pack.	Bulkpack				
P77AAW	-9700	---	-0.5 to 7	0.6 to 3	14	---
	-9750	---	3 to 30	3.5 to 12	33	
P77BEB	-9750	---	3 to 30	Man. res.*	33	•
P77BES	-9750	---	3 to 30	Man. res.*	33	

Note:

** Resettable at 0.5 bar above cut-out point

* Resettable at 3.5 bar below cut-out point

100 kPa = 1 bar ≈ 14.5 psi

REFRIGERATION COMPONENTS
Pressure Controls

Adjustable Pressure Switch

P78

Dual Pressure, IP54

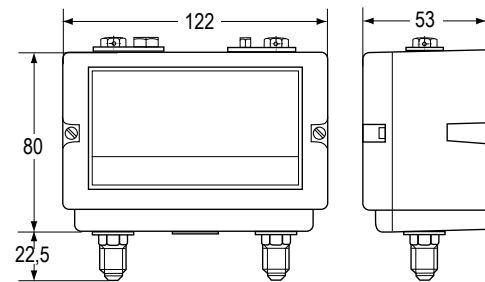
The P78 series pressure controls may be used for control functions or limit functions, depending on model number. All models are provided with alarm contacts (except P78ALA). All standard models have phosphor bronze bellows and brass pressure connections. Models for use with ammonia are provided with stainless steel bellows and connectors. Devices conforming to PED 97/23/EC Cat. IV have a double bellows on the high pressure versions. Their IP54 classification means that these pressure controls are suitable for almost all applications.

Features

- High refrigerant pressure.
Suitable for R410A and CO₂ subcritical applications
- Gold plated contacts
- Generous wiring space
- Splash-proof enclosure (IP54)
- Trip-free manual reset
- Patented separate alarm contacts for both low pressure and high pressure cut-out (except P78ALA)

Application

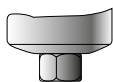
These pressure controls are designed for use in a variety of applications involving refrigeration high or low pressure. Models supplied have a "whole range" design, enabling them to be used with refrigerants R22, R134A, R404A, R410A, CO₂ and all other non-corrosive refrigerants which are within the operating 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 to PED 97/23/EC Cat. IV (supersedes DIN and TUV approval) are included in the program.



Dimensions in mm



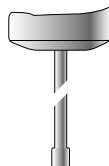
Style 5



Style 15



Style 28



Style 30

REFRIGERATION COMPONENTS Pressure Controls

Adjustable Pressure Switch P78

Dual Pressure Controls for Non-corrosive Refrigerants

Family Code	Pressure Connection			Left Side		Right Side		Construction LP/HP (max. press.)
	Style 5		Style 30	Range (bar)	Diff. (bar)	Range (bar)	Diff. (bar)	
	Ind. Pack.	Bulkpack	Ind. Pack.					
P78LCA	-9300	-9320	-9400	-0.5 to 7	0.6 to 3	3 to 30	3 (fixed)	LP: 22 bar HP: 33 bar
P78MCA	-9300	-9320	-9400	-0.5 to 7	0.6 to 3	3 to 30	Man. Res.**	
P78PGA	-9300	****	-9400	-0.5 to 7	Man. Res.*	3 to 30	Man. Res.**	

**** Can be set-up for quantity orders ** Resettable at 3 bar below cut-out point * Resettable at 0.5 bar above cut-out point

For Ammonia and Non-corrosive Refrigerants

Family Code	Pressure Connection		Left Side		Right Side		Construction LP/HP (max. press.)
	Style 15		Range (bar)	Diff. (bar)	Range (bar)	Diff. (bar)	
	Ind. Pack.	Bulkpack					
P78LCA	-9700	****	-0.5 to 7	0.6 to 3	3 to 30	3 (fixed)	LP: 14 bar HP: 33 bar
P78MCA	-9700	****	-0.5 to 7	0.6 to 3	3 to 30	Man. Res.**	
P78PGA	-9700	****	-0.5 to 7	Man. Res.*	3 to 30	Man. Res.**	

**** Can be set-up for quantity orders ** Resettable at 3 bar below cut-out point * Resettable at 0.5 bar above cut-out point

Fan Cycling Controls for Air-Cooled Condensers (Non-corrosive Refrigerants)

Family Code	Pressure Connection			Left Side		Right Side		Construction HP (max. press.)
	Style 5		Style 30	Range (bar)	Diff. (bar)	Range (bar)	Diff. (bar)	
	Ind. Pack.	Bulkpack	Ind. Pack.					
P78ALA	-9351	****	-9451	3.5 to 21	1.8 (fixed)	3.5 to 21	1.8 (fixed)	HP: 30 bar

**** Can be set-up for quantity orders 100 kPa = 1 bar ≈ 14.5 psi

For Non-corrosive Refrigerants

(Wächter, Begrenzer, Sicherheitsdruckbegrenzer including lockplate assy) - (Except P78PGB-*)

Family Code	Pressure Connection			Left Side		Right Side		Construction LP/HP (max. press.)	Approved according to PED 97/23/EC Cat. IV
	Style 5		Style 28	Range (bar)	Diff. (bar)	Range (bar)	Diff. (bar)		
	Ind. Pack.	Bulkpack	Ind. Pack.						
P78LCW	-9300	-9320	-9800	-0.5 to 7	0.6 to 3	3 to 30	3 (fixed)	LP: 22 bar HP: 33 bar	•
P78MCB	-9300	-9320	-9800	-0.5 to 7	0.6 to 3	3 to 30	Man. Res.**		
P78MCS	-9300	---	---	-0.5 to 7	0.6 to 3	3 to 30	Man. Res.**		
P78PGB	-9300	****	-9800	-0.5 to 7	Man. Res.*	3 to 30	Man. Res.**		
P78PLM	-9350	****	-9850	3 to 30	Man. Res.**	3 to 30	Man. Res.**		

**** Can be set-up for quantity orders ** Resettable at 3.5 bar below cut-out point * Resettable at 0.5 bar above cut-out point

Dual pressure controls for Non-corrosive Refrigerants

(Wächter, Begrenzer, Sicherheitsdruckbegrenzer including lockplate assy)

Family Code	Pressure Connection		Left Side		Right Side		Construction LP/HP (max. press.)	Approved according to PED 97/23/EC Cat. IV
	Style 5		Range (bar)	Diff. (bar)	Range (bar)	Diff. (bar)		
	Ind. Pack.							
P78LCW	-9355		-0.2 to 10	1 to 4.5	3 to 42	4 (fixed)	LP: 15 bar HP: 47.6 bar	•
P78MCB	-9355		-0.2 to 10	1 to 4.5	3 to 42	Man. Res.*		
P78PLM	-9355		3 to 42	Man. Res.*	3 to 42	Man. Res.*		

* Resettable at 4 bar below cut-out point

REFRIGERATION COMPONENTS
Pressure Controls

Fixed Setting Pressure Switch

P100

Direct Mount Pressure Switch

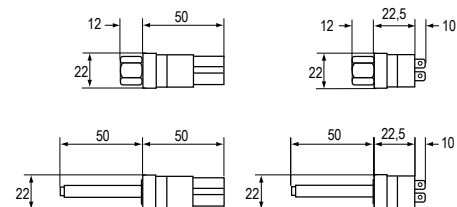
The P100 series are encapsulated, non-adjustable, direct mount pressure controls typically used for low and high-pressure cut-outs for OEM applications. The P100 series are produced according to switchpoint requirements of customers. The small dimensions, weight and protection class makes the P100 series applicable for use without the need of additional mounting brackets. The P100 series can be used for all non-corrosive refrigerants like R134a; R22; R404, R410A and others.

Features

- Compact size and light weight
- Encapsulated, dust tight switch IP67
- Broad variety of electrical and pressure connections

Application

- Computer room air conditioning
- Refrigeration/Air conditioning condensers
- Commercial refrigeration
- Ice machines
- Food service equipment



Dimensions in mm

Auto Reset Models

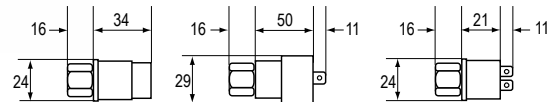
Ordering Codes	Application	Refrigerant	P (bar)		P open ± (bar) tolerance	P close ± (bar) tolerance	Connection		Electr. Termination	Switch
			Open	Close			"1/4" "SAE Fem Flare"	50 mm straight, 6 mm dia. x 7 mm reduced end, copper clad brazing tube (TIF5)		
P100AP-300D	Low Pressure Auto Reset	R134A	2,5	4	0,5	0,5	•	---	2 Mt.	SPST
P100AP-301D			---	---			•			
P100AP-302D		R407C	4	6	0,4	0,4	•	---		
P100AP-306D			R404A	0,3						
P100AP-308D	Normally Open	---	0,5	1,5	0,3	0,3	•	---	FASTON	
P100AP-309D			0,7	2,2					1,2 Mt.	
P100AP-310D			3 Mt.							
P100CP-102D	High Pressure Auto Reset	R134A	16	11	0,7	1,4	---	•	2 Mt	
P100CP-103D			R407C	24			18			
P100CP-104D		R404A	28	23	0,7	0,7	•	---		
P100CP-106D			---	•						
P100CP-107D		Normally Closed	R410A	38	28	0,7	0,7	•	---	FASTON
P100CP-108D				27,6	20,7					2 Mt.
P100CP-110D				---	26					20
P100CP-111D										

REFRIGERATION COMPONENTS Pressure Controls

Fixed Setting Pressure Switch P100

Features

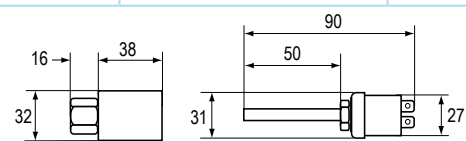
- Compact size and light weight
- Encapsulated, dust tight switch IP67
- Manual reset models have a trip-free design
- Models with gold-plated contacts available
- Broad variety of electrical and pressure connections



Dimensions in mm

Manual Reset Models

Ordering Codes	Application	Refrigerant	P (bar)		P open ± (bar) tolerance	P close ± (bar) tolerance	Connection		Electr. Termination (Mt)	Switch
			Open	Close			"1/4" "SAE Fem Flare"	50 mm straight, 6 mm dia. x 7 mm reduced end, copper clad brazing tube (TIF5)		
P100DA-66D	High Pressure Manual Reset	R134A	16		0,7	---	•	---	2	SPST
P100DA-67D							---	•		
P100DA-68D							•	---		
P100DA-69D		R407C	26				---	•	3	
P100DA-70D							•	---		
P100DA-71D							---	•		
P100DA-72D		R410A	38		1,0	---	•	---	2	
P100DA-73D							---	•		
P100DA-74D							R407C	26		
P100DA-75D		•	---							
P100DA-76D		R410A	42		0,7	---			•	



Dimensions in mm

P100 Heavy Duty Pressure Controls - Auto Reset

Ordering Codes	Application	Refrigerant	P (bar)		P open ± (bar) tolerance	P close ± (bar) tolerance	Connection		Electr. Termination (Mt)	Switch
			Open	Close			"1/4" SAE Fem Flare"	50 mm straight, 6 mm dia. x 7 mm reduced end, copper clad brazing tube (TIF5)		
P100EE-17D	High Pressure Auto Reset	R404A	20	25	1,0	1,0	•	---	1,5	SPDT
P100EE-18D		R134A	15	11						
P100EE-60D	Normally closed	R404A	28	21	0,7	0,7	---	•	2	
P100EE-61D							•	---		
P100EE-68D							R134A	3		

REFRIGERATION COMPONENTS

Pressure Controls

Pressure Switches Accessories

Ordering Codes	Description	Minimum order qty.
BKT034N602R	Mounting bracket + screws for P35AC transducer	1
BKT275-1	Mounting bracket dual for P20	
210-25R	Mounting bracket for P20/P35 (single)	
WRN12-1	Wrench P20/P21	
210-604R	Terminal cover P20/P21	50
BKT024N002R	Mounting bracket for P233	1
FTG015N602R	Duct mounting kit "staight"	
FTG015N603R	Duct mounting kit "bent"	
GMT008N600R	Duct kit for P233, self locking grommet and tubing	
CNR003N001R	Connector 6 mm for P77/P78, P735/P736	
CNR003N002R	Connector 8 mm for P77/P78, P735/P736	
CNR012N001R	Adapter R3/8 female to 1/4-18 NPT male for P48	
CNR013N001R	Adapter R 3/8 female to 1/4-18 NPT female for P48	
KIT023N600	Locking kit for P48, P77/P78, P735/P736 - for field installation	
KIT031N600	Valve depressors for conversion style 13 - style 45a	
KIT031N601	Valve depressors for conversion style 51 - style 50	250 (1 box)
KIT034N600	Seal rings for style 50/51	
271-51L	Mounting bracket for P28, P45, P48, P74, P77/P78, P735/P736	50

REFRIGERATION COMPONENTS
 Pressure Controls

Pressure Switches Accessories

Capillary kit

Ordering Codes	Length	Style	Minimum order qty.
SEC002N600	90 cm	2x style 13	100
SEC002N602	90 cm	style 13 - style 45a	
SEC002N606	200 cm	style 13 - style 45a	75
SEC002N607	200 cm	2x style 13	
SEC002N617	100 cm	style 13 - style 13	100
SEC002N621	90 cm	style 34 - style 34	
SEC002N622	90 cm	style 50 - style 50	
SEC002N624	200 cm	style 50 - style 50	75
SEC002N626	90 cm	style 50 - style 51	100
SEC002N627	200 cm	style 50 - style 51	
SEC002N628	300 cm	style 50 - style 51	75

Replacement - Time relays P28 - P29

Ordering Codes	Timing (s)	Voltage	Switch Action
RLY13A603R	90	120/240	Manual reset, dual voltage (AC)
RLY13A620R	120		
RLY13A998R	50		
RLY13A626R	90	12	Manual reset, 12 VAC/DC
RLY13A627R	120	24	Manual reset, 24 VAC/DC
RLY13A635R	90		
RLY13A644R	50		

REFRIGERATION COMPONENTS
Pressure Controls

Pressure Switches Accessories

H735

Syntetic Flexible Hose

The synthetic hoses consist of a seamless PA compound inner layer reinforced with a braided layer of high performance synthetic fibre.

This reinforcement is protected by an oil, weather and abrasion resistant Polyester Elastomer Compound.

The standard assembly length is 0,9 meter with one straight and one elbow 90 degree hose fitting.

The fitting connection is 1/4" metal tube with 7/16"-20 UNF swivel nut connection suitable for 1/4" SAE male flare.

Other lengths and/or fitting connections configurations (Style 50, 51 straight or elbow) are available on request (quantity orders only).



Features

- Very flexible
- Low minimum bend radius (30 mm)
- One straight and one 90° elbow pressure connection
- Polyester Elastomer Compound construction
- High pressure safety ratio
- Low effusion

Application

These synthetic hoses are designed for pressure measuring connections.

They provide, for example, a very flexible connection between a refrigerant compressor and pressure controls. The hoses can be used for all non-corrosive refrigerants including R134a, R22, R404a, R407c and R410A with pressures within the maximum pressure range of the hose. Hoses are tested with common compressor oils in combination with above mentioned refrigerants.

Ordering Codes	Pressure Connection	Fitting Connection	Length (cm)	Additional Features
H735AA-30C	Straight x 90° elbow	1/4" metal tube with 7/16"-20 UNF swivel nut connection suitable for 1/4" SAE male flare	30	All models bulk packed
H735AA-40C			40	
H735AA-50C			50	
H735AA-70C			70	
H735AA-90D			90	
H735AA-100C			100	
H735AA-150C			150	
H735AA-200C			200	

Note

Minimum shipping quantity 100 pieces

REFRIGERATION COMPONENTS
Pressure Controls

Adjustable Oil Protection Switch

P28

Oil Protection

These controls measure the pressure differential between the pressure generated by the oil pump and the refrigerant pressure at the crankcase.

A built-in time delay switch allows for pressure-pick up on start and avoids nuisance shutdowns on pressure drops of short duration during the running cycle.

When the compressor is started, the time delay switch is energised. If the net oil pressure does not build up within the required time limit, the time delay switch trips to stop the compressor. If the net oil pressure rises within the required time after the compressor starts, the time delay switch is automatically de-energised and the compressor continues to operate normally. If the net oil pressure should drop below setting (scale pointer) during the running cycle, the time delay switch is energised and, unless the net oil pressure returns to cut-in point within the time delay period, the compressor will be shut down, and have to be manual reset.

The compressor can never run longer than the predetermined time on low oil pressure.

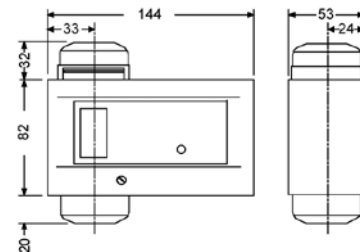
Controls are available only for manual reset after cut-out.

Features

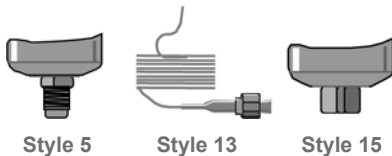
- Heavy duty pressure elements
- Safety lock-out with trip-free manual reset
- Ambient compensated timing
- Dust-tight Penn switch

Application

These oil protection controls are designed to give protection against low net lube oil pressure on pressure lubricated refrigeration compressors.



Dimensions in mm



Style 5

Style 13

Style 15

REFRIGERATION COMPONENTS

Pressure Controls

Adjustable Oil Protection Switch

P28

Ordering Codes	Range (bar)	Style	Time Delay (s)	Voltage	Switch Action	Refrigerant	Additional Features	
P28DA-9341	0.6 to 4.8	5	50	115/230	15(8) A, 230 VAC, Open Low, Alarm and Safe Light Contacts	non-corr.	incl 2 flare nuts 7/16"-20 UNF	
P28DA-9660		13	90				---	
P28DJ-9360		5	90	230		IP66 enclosure		
P28DJ-9861		15	90				NH3	IP66 enclosure, Incl. 2 connectors CNR003N001
P28DP-9300		5	---			230	non-corr.	Without time delay
P28DP-9340			50					---
P28DP-9360			90					---
P28DP-9380			120					---
P28DP-9381			Concealed adjustment, set 0.65 bar					
P28DP-9640			50					---
P28DP-9660		13	90			---		
P28DP-9680			120			---		
P28DP-9840		15	50	---		NH3	---	
P28DP-9860			90	---				
P28DN-9750	50		115/230	---	Concealed adjustment, set 1,5 bar			

REFRIGERATION COMPONENTS
Pressure Controls

Adjustable Oil Protection Switch

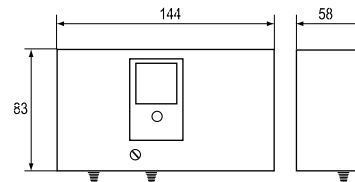
P45

Oil Protection

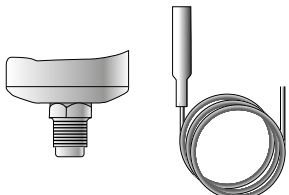
The series P45 controls are designed to give protection against low lube-oil pressure on pressure lubricated refrigeration compressors. The controls measure the pressure differential (net oil pressure) between the pressure generated by the oil pump and the refrigerant pressure at the crankcase. A built-in time delay switch allows pressure build-up during start and avoids nuisance shut-down on pressure drops of short duration during the running cycle.

Features

- Several million in use today
- Heavy duty pressure elements
- Key specifications match/exceed other brands
- Accurate 0.2 bar switch differential standard
- Adjustable or fixed setpoint
- Safelight output standard
- Trip-free manual reset
- High current rated output
- Ambient compensated timing



Dimensions in mm



Style 5

Style 13

Ordering Codes	Range (bar)	Setting (bar)	Time Delay (s)	Style	Voltage	Switch Action ~15(8) A 230 V Open Low
P45NBB-9361B	0.5 to 4	0.6	90	5	230	Alarm/Safelight Contacts
P45NBB-9381B		0.6	120			
P45NBB-9640C		0.7	50	13		
P45NBB-9660C		0.7	90			
P45NBB-9660Q		1.8	90			
P45NBB-9680C		0.7	120			
P45NCA-9056		0.45	50	115/230		
P45NCA-9104		0.7	120			

REFRIGERATION COMPONENTS
Pressure Controls

Adjustable Steam Pressure Switch

P48

Steam Pressure

The P48 series have been developed for special applications where pressure must be controlled.

All models have an adjustable differential depending on the range (see type number selection table).

The P48AAA-9110 and P48AAA-9120 has the power element outside the case.

All the models have phosphor bronze bellows and brass pressure connections except the P48AAA-9150. This model has a stainless steel bellows and pressure connection and is provided with a brass adapter 1/4"-18 NPT female to R3/8 male.

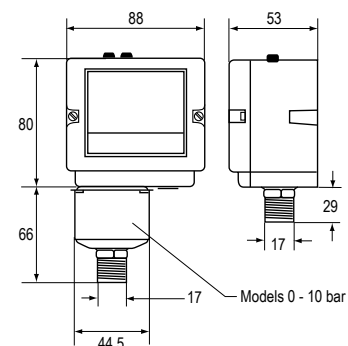
Features

- Generous wiring space provided
- Splash-proof enclosure (IP54)
- SPDT contacts are provided as standard on single pressure control
- Trip-free manual reset

Application

The series P48 pressure controls are designed as operating or high/low cut-out control on steam, air or (hot) water applications.

Also for non-combustible gases which are not harmful to the materials in contact with these mediums. On steam applications a steam trap is recommended (see Accessories).



Dimensions in mm

Ordering Codes	Range (bar)	Differential (bar)	Pressure Connection	Style	Switch Action	Additional Features	Approved According to PED 97/23/ EC Cat IV
P48AAA-9110	0 to 1	0.16 to 0.55	G 3/8" male	29a	~16(10)A 400 V ... 220 V DC, 12 W (pilot duty only) SPDT, Open High	Automatic Reset	•
P48AAA-9120	0.2 to 4	0.25 to 0.8					
P48AAA-9130	-0.2 to 10	1 to 4.5				Automatic Reset, stainless steel bellows	---
P48AAA-9140	1 to 16	1.3 to 2.5					
P48AAA-9150	3 to 30	3 to 12					
P48BEA-9140	4 to 16	---	Manual Reset	•			