Single & Dual Adjustable Pressure Switch

Emerson Climate Technologies

July 2013





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Asia PS1&2 Models
_ Offerings 18 PCNs

NO.	PCN	Description	Equivalent Kolin PCN
1	099001	PS2-A7K	4350900
2	099002	PS2-G8A	4368600
3	099004	PS2-L7X	4713418
4	099007	PS2-R7A	4351300
5	099014	PS1-A3R	4366600
6	099015	PS1-A3U	4712201
7	099016	PS1-A4A	4350300
8	099020	PS1-B5U	4712332
9	099033	PS1-W5U	4713439
10	099035	PS1-A3A	4370700
11	099036	PS1-A5A	4350500
12	099037	PS1-R5A	4350700
13	099038	PS2-A7A	4353400
14	099039	PS1-A5K	4370400
15	099040	PS2-L7A	4351100
16	099041	PS1-A3K	4370600
17	099042	PS2-M7A	4361300
18	099043	PS1-X4A	4715704

- **All The 18 Modes Are WITHOUT Mounting Bracket.**
- **The Bracket Can Be Ordered Separately, Under PCN:099019.**

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PS1 Pressure Controls Nomenclature

Type Code

PS1 - ☐☐☐

Product Name
PS1 = Adjustable Single Pressostat

Function
A = Pressure control, automatic
B = Pressure cut out, external manual reset EN 12263
R = Pressure control; external manual reset
W = Pressure limiter, automatic, DIN/EN 12263

Pressure Connector
A = 7/16" – 20 UNF male (1/4" SAE male flare)
K = 1m cap tube and schrader valve opener, 7/16" – 20 UNF flare nut
U = 6mm ODF solder, 80mm length
R = 1/4" male, brass (1/4" BSPP Fitting)

Pressure Range
3 = -0.3 to 7 bar
4 = 2 to 20 bar
5 = 6 to 31 bar

New

Pressure Range
3 = -0.5 to 7 bar
4 = 1 to 20 bar
5 = 6 to 31 bar

Old

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PS2 Pressure Controls Nomenclature

Type Code

PS2 - □□□

Product Name
PS2 = Adjustable Dual Pressostat

Function
A = both sides: automatic pressure controls
G = left side: cut out, external manual reset, EN12263
right side: cut out, external manual reset, EN12263
L = left side: automatic pressure control
right side: external manual reset
M = left side: automatic pressure control
right side: convertible from R to A
R = both sides: external manual reset

Pressure Connector
A = 7/16" – 20 UNF male (1/4" SAE male flare)
K = 1m cap tube and schrader valve opener, 7/16" – 20 UNF flare nut
X = ¼" ODF solder, 80mm length

Pressure Range

7 = -0.3 to 7 bar	6 to 31 bar	New
8 = 6 to 31 bar	6 to 31 bar	

Pressure Range

7 = -0.5 to 7 bar	6 to 31 bar	Old
8 = 6 to 31 bar	6 to 31 bar	

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PS1 Single Low Pressure Controls

Applications:	• Pump-down • Defrost Control • Compressor Cycling
Features:	• Adjustable Differential • Auto Reset
Switch:	• Single Pole Double Throw (SPDT) • Heavy Duty Amp Rating FLA: 12A at 240VAC, 16A at 120VAC LRA: 72A at 240VAC, 96A at 120VAC
Pressure Connections:	• 7/16” 20 UNF male (¼" SAE Male Flare) • 1m (36”) Capillary with ¼" Flare Nut • 6mm ODF solder, 80mm length
Pressure Range:	Range 3 • Set Point: -0.3 to 7 bar • Differential Range: 1 to 5 bar



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PS1 Single High Pressure Controls

Applications:	• Fan Cycling • Pressure Limiting • Pressure Cutout
Features:	• Automatic Or Manual Reset • Adjustable Differential
Switch:	• Single Pole Double Throw (SPDT) • Heavy Duty Amp Rating FLA: 12A at 240VAC, 16A at 120VAC LRA: 72A at 240VAC, 96A at 120VAC
Pressure Connections:	• 7/16” 20 UNF male (¼" SAE Male Flare) • 1m Capillary with ¼" Flare Nut • 6mm ODF solder, 80mm length
Pressure Range:	Range 4 • Set Point: 2 to 20 bar • Differential Range: 3 to 15 bar Range 5 • Set Point: 6 to 31 bar • Differential Range: 3 to 15 bar



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PS2 Dual Low and High Pressure Controls

Applications:	• Compressor Cycling • Pump-Down • Defrost Control • Pressure Limiting • Pressure Cutout
Features:	• Adjustable Differential On Low Pressure Side • Automatic Reset On Low Pressure Side • "Convertible" Reset On High Pressure Side User Can Select Auto OR Manual Reset • Factory Installed Jumper For Conventional 2-Wire Connection
2 Independent Switches:	• Single Pole Double Throw (SPDT) • Heavy Duty Amp Rating FLA: 12A at 240VAC, 16A at 120VAC LRA: 72A at 240VAC, 96A at 120VAC
Pressure Connections:	• 7/16" 20 UNF male (¼" SAE Male Flare) • 1m Capillary With ¼" Flare Nut
Pressure Range:	Range 7 Left Side • -0.3 to 7 bar With 1 To 5 bar Adj Diff Right Side • 6 to 31 bar With Fixed Differential



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PS1&2 Difference Comparison With Kolin Products

- Dimensions
- Cover Appearance
- PCN Code
- Pressure Range Variation
- Diff. Pressure Range Variation
- FLA And LRA Of SPDT Switch
- Certificates
  - UL, CE, KC

New



Old



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PS1-A5A Difference Comparison With Kolin Product

Features	Kolin Version	New Version
Dimension LXDXH (mm)	86X44X75	86X47X75
PCN	4350500	099036
Pressure	6 to 31 bar	6 to 31 bar
Differential	2 to 15 bar	3 to 15 bar
Pressure Connection	7/16" - 20 UNF Male(1/4" SAE)	7/16" - 20 UNF Male(1/4" SAE)
Switch	SPDT - FLA: 24A At 120/240VAC - LRA: 144A At 120/ 240VAC	SPDT - FLA: 12A At 240VAC, 16A At 120VAC - LRA: 72A At 240VAC, 96A At 120VAC
UL/CE/KC	UL ✓ CE✓ KC X	UL ✓ CE✓ KC✓

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PS2-L7A Difference Comparison With Kolin Product

Features	Kolin Version	New Version
Dimension LXDXH (mm)	139X44X75	139X47X75
PCN	4351100	099040
Press. Range Left	-0.5 to 7 bar	-0.3 to 7 bar
Differential Left	0.9 to 5 bar	1 to 5 bar
Pressure Connection	7/16" - 20 UNF Male(1/4" SAE)	7/16" - 20 UNF Male(1/4" SAE)
Two Independent Switches	SPDT - FLA: 24A At 120/240VAC - LRA: 144A At 120/ 240VAC	SPDT - FLA: 12A At 240VAC, 16A At 120VAC - LRA: 72A At 240VAC, 96A At 120VAC
UL/CE/KC	UL ✓ CE✓ KC X	UL ✓ CE✓ KC✓

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PS1&2 Information

- All Orders Should Be Placed Under New PCN's
  - No More Customer Orders To Be Placed With Kolin
- Product Will Be Stocked In Shanghai And Then Transferred To Suzhou Plant
- Keep Customer LT at 12 Weeks Until Stock Is Established
  - LT Will Eventually Drop To 3 Weeks
- Brackets Will Be Sold Separately–PCN 099019 (100 per box)

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PS1&2 Qualification And Testing

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Pressure Switch Qualification Testing

- **Controls Were Validated Through European And US Standard Agency Testing**

- **European Standard (PED / EN12263)**
  - **Set-point Stability (Life / Temperature Per EN12263)**
  - **Burst Pressure**
  - **Fail Safe (Per EN12263 4.6)**

- **US Standard (UL873)**
  - **Set-point Stability (Life Per UL 873)**
  - **Electrical Load (Endurance Per UL873)**

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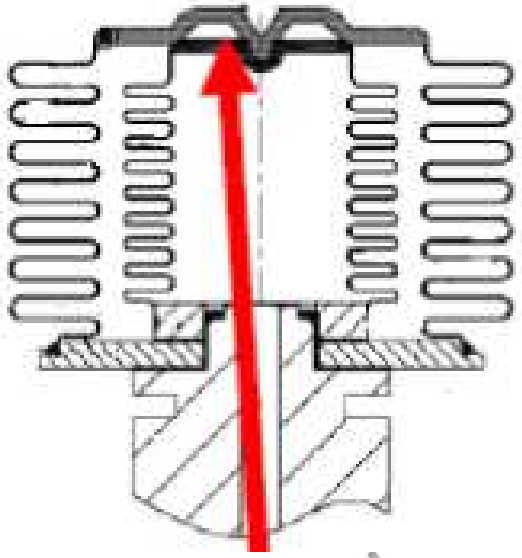
Set-Point Stability Testing
European Standard EN12263

- **Requirement:**
  - **Less Than 5% Drift In Critical Direction**
  - **Less Than 10% Drift In Non-Critical Direction**
- **Over Pressure Test**
  - **Vacuum For 1 minute**
  - **50 Cycles Of Overpressure**
- **Temperature Test**
  - **- 20 ℃ For 1 Hour**
  - **55 ℃ For 1 Hour**
- **Active Cycle Test**
  - **5000 Cycles**
  - **Max Pressure Range (0 To 450 For High Pressure / 0 To 100 For Low Pressure)**
  - **No Electrical Load**
- **Passive Cycle Test**
  - **50,000 Passive (Dither Cycles)**
  - **Cycle Range 300 To 400 PSI For High Pressure Device (20.5 To 27.5 Bar)**
  - **Cycle Range From 50 To 150 PSI For Low Pressure Device (3.45 To 10.34 Bar)**

Burst & Fail Safe Testing
European Standard EN12263

- **Burst Test**
  - **80 Bar For 1 Minute For Low Pressure**
  - **140 Bar For 1 Minute For High Pressure**
- **Fail Safe**
  - **Fracture The Inner Bellows**
  - **Validate Cut-Out Pressure Reduce**



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Electrical Load Endurance Testing
US Standard UL873

- **Requirement:**
  - **Set-point Drift Less Than 5% Up, Or 10% Down**
  - **Contacts Cannot Weld Together**
- **Test Plan:**
  - **3 Measurements Of Initial Calibration**
  - **100,000 Cycles At Full Load Conditions (FLA) & Conditions**
    - **Voltage = 232VAC**
    - **Current = 24.8A**
    - **Power Factor = .78pf**
    - **Temperature = 25 ℃**
  - **Pressure Range Is Complete Cycle (0 PSI To 450 PSI Or 0 Bar To 32 Bar)**
  - **Final Calibration And Set-Point Drift Calculation**

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Production Quality Control Process

- **100% Leak Check On Bellows Assembly**
  - **1.5 MWP For 1 Minute, Air Under Water.**
  - **For Double Bellows Additional Vacuum Test**
    - **-0.6 Bar Vacuum For 20 Seconds.**
- **100% Inspection Of Final Product**
  - **Set-Points (Per Drawing)**
  - **Differential**
  - **Scale Accuracy**
  - **Dielectric Resistance**
  - **Contact Resistance**

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