

# Alco Controls

## Fan Speed Control Modules FSE Series

### Technical Bulletin

Emerson FSE control modules are simple and economical devices that provide analogue 0...10 V electrical signals based on condensing pressure changes. They have been optimized to meet the requirements of air-cooled condensers. Additional conditioning of the output signal is not necessary.

#### Features

- Minimize noise with pressure actuated condenser fan speed control.
- Most economical solution for highly efficient, low energy consumption electronically commutated (EC) motors.
- Suitable for any size of EC fan motors
- Direct wiring to EC-motor for easy installation
- IP 65 protection with PS3-Nxx cable assembly for locating FSE close to fan motor
- Characteristics of pressure versus fan speed optimized for condenser fan speed control
- Simple adjustable set point for head pressure
- Compact dimensions
- Silent fan rotation at low ambient temperatures (night)
- Optimized for stable speed control in the event of small pressure fluctuations
- UL file nr.: E355325



**FSE Control Module**

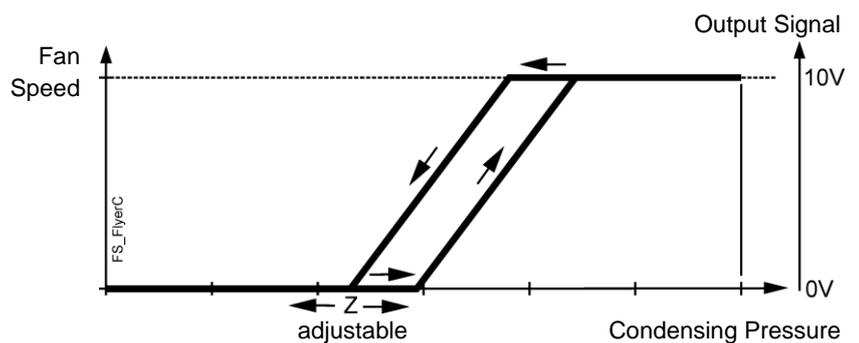
#### Selection Chart

Type	Part No.	Refrigerants	Adjustment Range Z (bar)*	Factory set point Z (bar)	P-Band (bar)	Hysteresis (bar)	Test Pressure (bar)	Weight (g)
<b>FSE-01S</b>	<b>804 701</b>	R 134a	4 ... 12.5	~ 7.0	~ 2.3	~ 1.3	30 bar	125
<b>FSE-02S</b>	<b>804 706</b>	R 22, R 407C, R 404A, R 507	10 ... 21	~ 14.5	~ 3,6		36 bar	125
<b>FSE-03S</b>	<b>804 711</b>	R 410A	12 ... 28	~ 19.0	~ 7.2		50 bar	150

\* Z = Lower end of proportional range at falling pressure; see control diagram below

#### Functionality

The basic function can be described with the control diagram (see drawing right). In the proportional range **FSE** behaves like a simple pressure transducer. At higher pressure the output signal is maximum, at lower pressure it is at minimum.



**Cable Assemblies** for connection of FSE Control Module to EC-motor (3 leads for supply voltage, Gnd and signal output)

Type	Part No.	Cable length mtr.	Diameter of leads	Temperature Range °C
<b>PS3-N15</b>	<b>804 580</b>	1.5	0.75 mm <sup>2</sup>	-25 / +80
<b>PS3-N30</b>	<b>804 581</b>	3.0		
<b>PS3-N60</b>	<b>804 582</b>	6.0		

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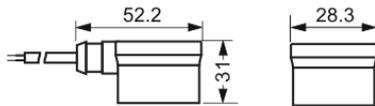
### Technical Data

Supply Voltage	10V
Operating current 0...10 VDC output	max. 1 mA
Medium compatibility	HFC, HCFC, POE-, synthetic and mineral oils
Protection class (IEC529/EN 60529)	IP 65 with cable connector assemblies PS3-Nxx
Max. operating pressure PS	FSE-01_: 27bar FSE-02_: 32bar FSE-03_: 45bar
Humidity	0 ... 80% r.h. non condensing
ROHS	compliant
UL file nr.:	E355325

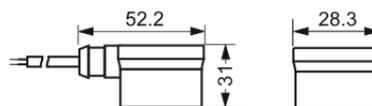
Temperature Range Storage and transportation Operation	-30° ... +70°C -20° ... +65°C non condensing
Pressure Connection	7/16" -20 UNF female with Schrader valve opener
Materials Housing cover Pressure connection FSE-01S and FSE-02S FSE-03S	Plastic Brass Stainless Steel
CE marking based on LVD PED EMC	Not required Not required Not required

### Dimensions (mm)

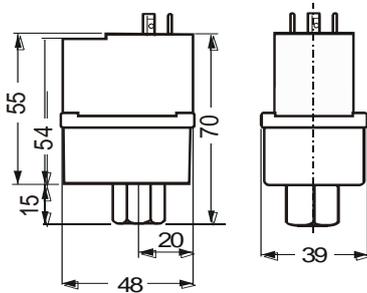
#### PS3-Nxx



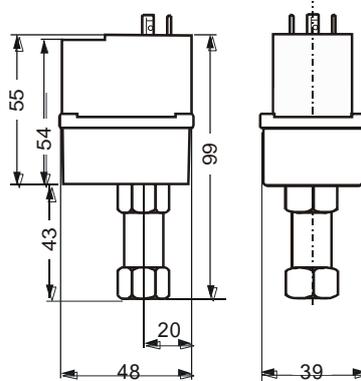
#### PS3-Nxx



#### FSE-01S / FSE-02S



#### FSE-03S



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