

# numatics®

## Precision Regulators



[www.numatics.com](http://www.numatics.com)

# Table of Contents

Features and Benefits	3
Electropneumatic Transducer	4-5
Economy Miniature Electropneumatic Transducer	6-7
Miniature Electropneumatic Transducer	8-9
Precision Regulator	10-11
High Flow Precision Regulator	12-13
Ratio Relay Volume Booster	14-15
Instrument Air Regulator	16-17
Replacement Parts and Kits	18



### 1. Economy Miniature Electro-Pneumatic Transducer – R84 Series

- I/P and E/P Versions
- Magnet Coil Technology

### 2. High Flow Precision Regulator – R88 Series

- R880 High Flow Regulator
- R881 Back Pressure Precision Regulator

### 3. Ratio Relay Volume Booster – R87 Series

- Precision Air Pilot Regulator
- 1:1 and 1:6 Ratios Available

### 4. Instrument Air Regulator – R89 Series

- Precision Regulator
- Integral 5 Micron Filter – Manual Drain

### 5. Electro-Pneumatic Transducer – R83 Series

- I/P and E/P Versions
- Magnet Coil Technology

### 6. Precision Regulator – R80 Series

- R800 Standard Series
- R820 High Relief Series

### 7. Miniature Electro-Pneumatic Transducer – R85 Series

- I/P and E/P Versions
- Piezo Electric Technology

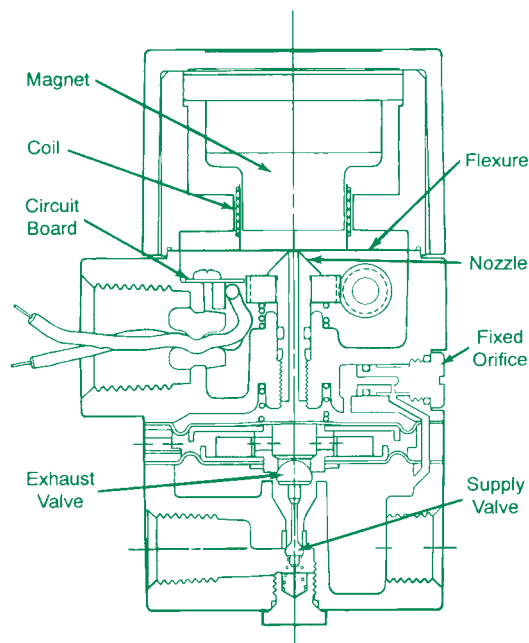
**I/P, E/P R83 Series**

**Application**

The Electropneumatic Transducer (I/P, E/P) converts a current or voltage input signal to a linearly proportional pneumatic output pressure. This versatile instrument is designed for control applications that require a high degree of reliability and repeatability at an economical cost. These units are used for applications that require the operation of valve actuators, pneumatic valve positioners, damper and louver actuators, final control elements, relays, air cylinders, web tensioners, clutches, and brakes.

**Features**

- Integral volume booster
- Compact size
- Low air consumption
- Field reversible
- Flexible zero and span adjustments
- Standard process inputs
- Split ranging
- FM - NEMA 4x
- CE Approved



**Specifications**

	<b>Low Output Range (Up to 30 PSIG)</b>	<b>High Output Range (Up to 120 PSIG)</b>
Min./Max. Supply Pressure:	minimum 3 PSIG (21 kPa) above maximum output maximum 100 PSIG (700 kPa)	minimum 5 PSIG (35 kPa) above maximum output maximum 150 PSIG (1050 kPa)
Supply Pressure Sensitivity	< +/- .1% of span per PSIG (< +/- .15% of span per 10 kPa)	< +/- .004% of span per 1.0 PSIG (7 kPa)
Terminal Based Linearity	< +/- .75% of span	< +/- 1.5% of span typ., +/- 2.0% max
Repeatability:	< .5% of span	< .5% of span
Hysteresis	< 1.0% of span	< .5% of span
Response Time	dependent on pressure range, typically less than .25 sec. for 3 - 15 PSIG units	dependent on pressure range, typically less than .25 sec. for 3 - 15 PSIG units
Flow Rate	4.5 SCFM (7.6 m3/hr ANR) at 25 PSIG (175 kPa) supply 12 SCFM (20 m3/hr ANR) at 100 PSIG (700 kPa) supply	20 SCFM (34 m3/hr ANR) at 150 PSIG (1050 kPa) supply
Relief Capacity	2.0 SCFM (3.4 m3/hr) at 5 PSIG (35 kPa) above set point	2.0 SCFM (3.4 m3/hr) at 5 PSIG (35 kPa)
Maximum Air Consumption	.03 SCFM (.07 m3/hr) typical	.05 SCFM (.14 m3/hr) typical
Media	oil free, clean dry air filtered to 0.3 micron	oil free, clean dry air filtered to 0.3 micron
Temp. Range (operating)	-20° F to 140° F (-30° C to 60° C)	-20° F to 140° F (-30° C to 60° C)

NOTE: This unit, as is, is a Class 1, Division 2 hazardous location item (non-incendive). With the proper barrier it is a Class 1,2,3; Division 1; Groups C,D,E,F,G item (applies only to 4-20 Ma I/P).

### How To Order

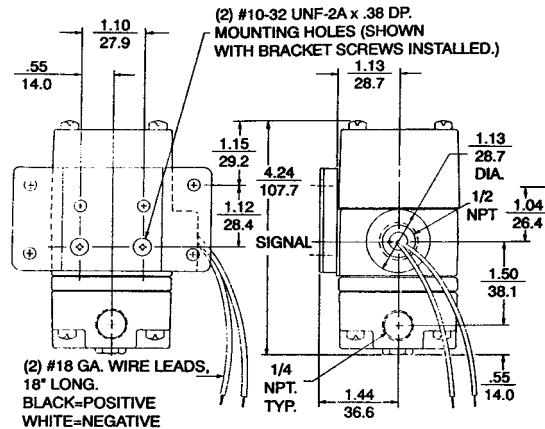
**R 83 1 - 02 F G**

<p><b>Model</b></p> <p>R = Regulator</p> <p><b>Series</b></p> <p>83 = I/P, E/P Transducer</p> <p><b>Style</b></p> <p>1 = 4-20 Ma 2 = 0-5 VDC 3 = 0-10 VDC</p> <p><b>Threads</b></p> <p>- = NPTF G = G tap (BSPP)</p>	<p><b>Options</b></p> <p>G = Gauge</p> <p><b>Output Range</b></p> <p>B = 3-15 PSIG (4-20 Ma Input Signal Available)</p> <p>C = 3-27 PSIG (4-20 Ma Input Signal Available)</p> <p>E = 2-60 PSIG (4-20 &amp; 0-5 VDC Ma Input)</p> <p>F = 3-120 PSIG (4-20 &amp; 0-10 VDC Ma Input Signal Available)</p> <p><b>Port Size</b></p> <p>02 = 1/4</p>
--	--

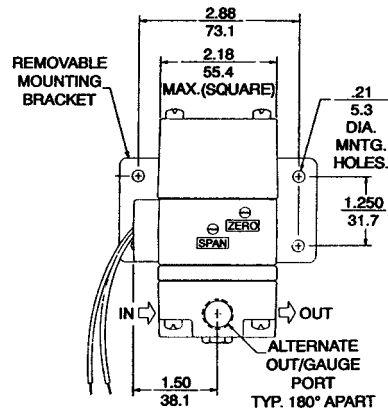
### Dimensions: Inches (mm)



R831-02B pictured

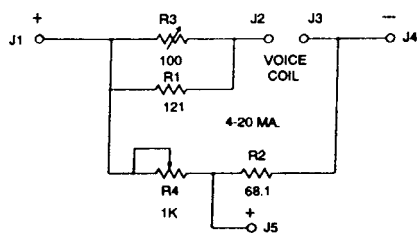


(2) #18 GA. WIRE LEADS, 18" LONG. BLACK=POSITIVE WHITE=NEGATIVE



NOTE: Bracket included with each unit.

### Electrical Schematic



NOTE: FOR 4-20MA AND 10-MA USE J1 AS POSITIVE INPUT.

**Precision Regulators**

<b>Precision Regulator Repair Kits</b>	
<b>Kit #</b>	<b>Description</b>
RKR800D	for 2-40 pressure range models
RKR800E	for 2-60 pressure range models
RKR800F	for 2-120 pressure range models
RKR820F	for 2-120 pressure range models

<b>Replacement Adjustment Knob Kits</b>	
<b>Kit #</b>	<b>Description</b>
RP8002	for R800 and R820 models

**Electropneumatic Transducers**

<b>Electropneumatic Transducer Repair Kits</b>	
<b>Kit #</b>	<b>Description</b>
RKR831BC	for 3-15 and 3-27 pressure range models
RKR831EF	for 2-60 and 3-120 pressure range models

**High Flow Precision Regulators**

<b>Regulator Repair Kits</b>	
<b>Kit #</b>	<b>Description</b>
RKR880A	for 0-2 pressure range models
RKR880B	for 0-15 pressure range models
RKR880C	for 0-30 pressure range models
RKR880E	for 1-60 pressure range models
RKR880F	for 2-150 pressure range models
RKR881	for back pressure regulator

<b>Replacement Adjustment Knob Kits</b>	
<b>Kit #</b>	<b>Description</b>
RP81	for R880 models

**Mounting Brackets**

<b>High Flow Precision Regulator</b>	
<b>Kit #</b>	<b>Description</b>
PK80	80 & 82 Series Bracket
PK88	87 & 82 Series Bracket
PK89	89 Series Bracket

**Instrument Air Regulators**

<b>Instrument Air Regulator Repair Kits</b>	
<b>Kit #</b>	<b>Description</b>
RKR89	for all models



World Class Supplier of Pneumatic Components



## World Headquarters

### **USA Numatics, Incorporated**

46280 Dylan Drive  
Novi, Michigan 48377

P: 248-596-3200  
F: 248-596-3201

### **Canada Numatics, Ltd**

P: 519-758-2700  
F: 519-758-5540

### **México - Ascomatica SA de CV**

P: 52 55 58 09 56 40 (DF y Area metropolitana)  
P: 01 800 000 ASCO (2726) (Interior de la República)  
F: 52 55 58 09 56 60

### **Brazil Ascoval Ind.e Comercio Ltda**

P: (55) 11-4208-1700  
F: (55) 11-4195-3970