PNEUMATIC
PROPORTIONAL VALVE
CATALOG
**Pneumatic Proportional Technology**

**SENTRONIC Pneumatic Proportional Valves**

The Sentronic Pneumatic Proportional valve is a closed loop control valve capable of controlling pressures from vacuum up to 725 psi. This 3-way valve has the control electronics and pressure sensor built into the valve. It is a compact valve package for its capabilities. Controlling voltages are 0-10 V DC, 4-20 mA, 0-20 mA and 8-bits digital.

**PULSTRONIC Pneumatic Proportional Valves**

The Pulstronic is a compact electropneumatic pressure regulator, which converts an electronic signal into a pneumatic pressure using two valves that pulse back and forth to control the pressure. It is particularly suited for precise pressure regulation due to its integrated control loop.

**SERVOTRONIC Pneumatic Solenoid Operated Servovalves**

There are two models of the Servotronic valve. The flow version is a 3-port/3-position slide servovalve with an electronic control supplying a flow rate proportional to a given set point. The other version is a 3-port/3-position pressure control valve with electronic control supplying a pressure proportional to a given set point.

**SENTRONIC Pneumatic Proportional Valves with Bus interface**

The Sentronic Pneumatic Proportional valve is a closed loop control valve capable of controlling pressures from vacuum up to 725 psi. This 3-way valve has the control electronics and pressure sensor built into the valve. This valve package has Bus capabilities that include the following: Interbus-S, Profibus-DP and DeviceNet.

**SENTRONIC Pneumatic Proportional Valves (Servo Model)**

The Servo model of Sentronic Pneumatic Proportional Valve is an open loop 3-way valve that can be controlled by working in conjunction with a PI card, separate pressure transducer and a PLC or PC to close the loop. These controls are external of the valve. The electronics can be located separately from the valve due to temperature or atmospheric conditions.

**PIEZOTRONIC Subbase Mounted Pneumatic Proportional Valves**

Piezotronic Subbase Mounted Pneumatic Proportional Valve is a small valve using a multi layer Piezo element to regulate pressure. The electronics that control this valve are made onto the end of the Piezo element to keep the size to a minimum.

For More Information: Phone 803/548-1300

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PNEUMATIC PROPORTIONAL VALVE
SENTRONIC
Electropneumatic 3-Port Valve with Internal supply or External pressure port for sensor

GENERAL SPECIFICATIONS

FLUIDS ..............................................: Air or inert gas filtered to 25 µm, without condensate, lubricated or dry
PIPE SIZE ........................................: 1/8, 1/4, 1/2, 1
MAXIMUM AIR PRESSURE (MAP) ........: (see "PP" in table below)
TEMPERATURE (FLUID) .....................: 32°F - 140°F (122°F 1/8 size) (0°C - 60°C (50°C 1/8 size)
TEMPERATURE (AMBIENT) ..............: 32°F - 105°F (0°F - 40°F)
VOLTAGE ...........................................: 24VDC +/- 10% (max. ripple 10%)
SET-POINT (ANALOG) .................: 0 - 10 Volts
........................................: sensitivity <50mV - impedance 100K Ohms
........................................: 0 - 20 mA or 4 - 20mA (as option)
........................................: (sensitivity <0.1 mA - impedance 500 Ohms
HYSTERESIS .....................................: <1% of the maximum pressure (Max. Reg. Press.)
LINEARITY .......................................: <0.5% of (Max. Reg. Press.)
REPEATABILITY ..................................: <0.5% of (Max. Reg. Press.)
MINIMUM SET-POINT ......................: 50 +/-20mV (0.1 mA) with switch-off function

CONSTRUCTION

VALVE TYPE ......................................: Direct operated poppet valve
BODY MATERIAL ...............................: body of brass or anodised aluminium or stainless steel
INTERNAL PARTS .............................: stainless steel and brass
SEALING MATERIAL .........................: (1/8):Viton (FPM)
..............................................: (1/4 to 1):Nitrile (NBR)
ASSEMBLY POSITION ......................: Any direction

ELECTRICAL

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Ports</th>
<th>Max. Power (W)</th>
<th>Max. Current (mA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8</td>
<td>15</td>
<td>600</td>
</tr>
<tr>
<td>1/4</td>
<td>29</td>
<td>1200</td>
</tr>
<tr>
<td>1/2</td>
<td>34</td>
<td>1400</td>
</tr>
<tr>
<td>1</td>
<td>44</td>
<td>1800</td>
</tr>
</tbody>
</table>

INSULATION CLASS ..........: Type F
PROTECTION ..................: IP 65
CONNECTION ..................: Plug-in connector 7 pins DIN 43651 (16 pins for digital)

EXAMPLE: 833 - 35C A S I D PP + OPTIONS

C = PRESSURE SUPPLY
4 = Internal Pressure Supply
5 = External Pressure Supply

A = CONSTRUCTION
0 = G1/4", Aluminum
1 = G1/2", Aluminum
2 = G1", Stainless Steel
4 = NPT1/4", Aluminum
5 = NPT1/2", Aluminum
6 = NPT1", Aluminum
7 = G1/8", Brass
8 = G1/4", Brass
9 = NPT1/8", Brass
A= NPT1/4", Brass (0 to 290 psi)
C= G1/4", Stainless Steel
G= NPT1/4" High Pressure Control (435 to 725.psi),
Aluminium
N= G1/8", Subbase Mt.
T = NPT1/4", Position Control

D = PRESSURE SWITCH
0 = Without
1 = +/ -5%, PNP, feedback=setpoint
2 = +/ -5%, NPN, feedback=setpoint
3 = +/ -5%, PNP, feedback=setpoint
4 = +/ -5%, NPN, feedback=setpoint
8 = 1, 0.5sec Delay
9 = 2, 0.5sec Delay

I = SENSOR OUTPUT
0 = Without sensor input
1 = 0...10V
2 = 0...20mA
3 = 4...20mA
4 = Sensor input: 0...10V
5 = Sensor input: 0...20mA
6 = Sensor input: 4...20mA
7 = LED Display

S = SETTING
0 = 0...10V
1 = 0...20mA
2 = 4...20mA
3 = Digital input, 8 bit, Hold, 24VDC
4 = Digital input, 8 bit, pressure reset
6 = Digital input, 8 bit, Hold, TTL

OPTIONS:

Oxygen Cleaning
EPDM Seals
Viton Seals
Pressure sealed coil
12VDC option on 1/8" and 1/4"

ORDERING INFORMATION

Vacuum Applications:
V1 = 0...-15 psi, (shut off)
V2 = 0...-15 psi, (bypass)
**SERIES 601**

**DIMENSIONS & WEIGHTS**

### GENERAL NOTES

**Orifice Diameters**
- 1/8 Size .................. 0.12 in.(3mm)
- 1/4 Size .................. 0.24 in.(6mm)
- 1/2 Size .................. 0.47 in.(12mm)
- 1 Size ..................... 0.79 in.(20mm)

**Flows**
- 1/8 Size .................. 0.21Cv(0.18 Kv)
- 1/4 Size .................. 0.7 Cv(0.60 Kv)
- 1/2 Size .................. 1.4 Cv(1.20 Kv)
- 1 Size ..................... 5.6 Cv(4.80 Kv)

**CONSTRUCTION REF. 2**

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>in.</td>
<td>mm</td>
<td>in.</td>
<td>mm</td>
<td>in.</td>
<td>mm</td>
<td>in.</td>
<td>mm</td>
</tr>
<tr>
<td>1/8</td>
<td>1.4</td>
<td>35</td>
<td>2.6</td>
<td>65</td>
<td>65</td>
<td>5.7</td>
<td>145</td>
<td>2.5</td>
</tr>
<tr>
<td>1/4</td>
<td>2.1</td>
<td>52</td>
<td>6.9</td>
<td>175</td>
<td>*36</td>
<td>92</td>
<td>1.4</td>
<td>35</td>
</tr>
<tr>
<td>1/2</td>
<td>2.8</td>
<td>70</td>
<td>8.1</td>
<td>205</td>
<td>*4.4</td>
<td>111</td>
<td>1.8</td>
<td>45</td>
</tr>
<tr>
<td>1</td>
<td>3.8</td>
<td>96</td>
<td>9.5</td>
<td>240</td>
<td>*5.3</td>
<td>135</td>
<td>2.4</td>
<td>60</td>
</tr>
</tbody>
</table>

* For “C” dimension of INTERNAL version - SUBTRACT: .71 or 18mm

**CONNECTOR WIRING**

**ANALOG Version Set-point**
- 1 -- Power +24V
- 2 -- GND (Power)
- 3 -- Input set-point
- 4 -- GND (Input)
- 5 -- Output voltage stabilized 12V, max. 30mA
- 6 -- Actual pressure (sensor output) (signal 0-10 V band of max. regulation PMR - max. 10mA)
- 7 -- Not connected (standard)

**DIGITAL Version Set-point**
- A -- Power +24V
- B -- GND (Power)
- C -- Bit 1 (LSB)
- D -- Bit 2
- E -- Bit 3
- F -- Bit 4
- G -- Bit 5
- H -- Bit 6
- I -- Bit 7
- K -- Bit 8
- L -- Memory function (option 010 537)
- M -- Pressure reset (option 010 606)
- N -- Not connected (standard)
- Option: pressure switch output connection NPN or PNP (500 mA max.)

---

**FLOWS**
- 1/8 Size .................. 0.21Cv(0.18 Kv)
- 1/4 Size .................. 0.7 Cv(0.60 Kv)
- 1/2 Size .................. 1.4 Cv(1.20 Kv)
- 1 Size ..................... 5.6 Cv(4.80 Kv)
PNEUMATIC PROPORTIONAL VALVE
SENTRONIC
Electropneumatic 3-Port Valve with Bus Interface

GENERAL SPECIFICATIONS
FLUIDS ..................................................: Air or inert gas filtered to 25 µm, without condensate, lubricated or dry
PIPE SIZE ..............................................: 1/4, 1/2, 1
MAXIMUM AIR PRESSURE (MAP) ............: (see table below)
ADJUSTMENT RANGE ..............................: (see table below)
TEMPERATURE (FLUID) .......................: 32°F - 140°F (0°C - 60°C)
TEMPERATURE (AMBIENT) ..................: 32°F - 104°F (0°C - 40°C)
VOLTAGE .............................................: 24VDC +/- 10% (max. ripple 10%)
SET-POINT ..........................................: 8 bits
ERROR DIAGNOSTICS ..........................: Supply voltage control, monitoring of control electronics
HYSTERESIS .........................................: <1% of Max. Reg. Press.
LINEARITY ..........................................: <0.5% of Max. Reg. Press.
REPEATABILITY .................................: <0.5% of Max. Reg. Press.

CONSTRUCTION
VALVE TYPE ......................................: Direct operated poppet valve
BODY MATERIAL ...............................: Brass or anodised aluminum or stainless steel
INTERNAL PARTS .............................: stainless steel and brass
SEALING MATERIAL .........................: Nitrile (NBR)
ASSEMBLY POSITION ......................: Any direction

DESCRIPTION
The Sentronic valve operates as a slave in the fieldbus system. The setpoint is entered with an 8-bit output data word. The feedback value and the pressure switch function can be read in with an input data word.

• INTERBUS-S: ...... The valve is a participant in the remote installation bus. 33H is used as ident code. This corresponds to an analog remote bus participant with input/output addresses.
• PROFIBUS-DP: ... The participant’s address is set with two rotary switches (03 ... 09). The baud rate is entered over the master. The ident number is 0454 Hex. A diskette with the appropriate GSD is supplied.
• DEVCENET: ....... The Sentronic valve operates as a slave. The address and baud rate are set with DIP switches.

ORDERING INFORMATION

EXAMPLE: 833 - 35C A S I D PP + OPTIONS

C = PRESSURE SUPPLY
A = CONSTRUCTION
S = SETTING
I = SENSOR OUTPUT
D = PRESSURE SWITCH
PP = PRESSURE RANGE

OPTIONS:
Oxygen Cleaning
EPDM Seals
Viton Seals
Pressure sealed coil

ELECTRICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Ports</th>
<th>Max. Power (W)</th>
<th>Max. Current (mA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>24</td>
<td>1000</td>
</tr>
<tr>
<td>1/2</td>
<td>34</td>
<td>1400</td>
</tr>
<tr>
<td>1</td>
<td>44</td>
<td>1800</td>
</tr>
</tbody>
</table>

INSULATION CLASS ...........: Type F
PROTECTION ..................: IP 65
CONNECTION ........................: Supply voltage: Female connector M18. Fieldbus: circular connector IP 65
CONSTRUCTION REFS. 1, 2 & 3

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>A (in. mm)</th>
<th>B (in. mm)</th>
<th>C (in. mm)</th>
<th>D (in. mm)</th>
<th>E (in. mm)</th>
<th>F (in. mm)</th>
<th>G (in. mm)</th>
<th>H (in. mm)</th>
<th>I (in. mm)</th>
<th>J (in. mm)</th>
<th>K (in. mm)</th>
<th>L (in. mm)</th>
<th>M (in. mm)</th>
<th>N (in. mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>5.6 143</td>
<td>3.1 76.5</td>
<td>1.4 36</td>
<td>2.9 74</td>
<td>4.8 122</td>
<td>5.7 145</td>
<td>4.1 105.3</td>
<td>2.2 55.3</td>
<td>1.4 35</td>
<td>2.0 52</td>
<td>1.3 33</td>
<td>6.6 168</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1/2</td>
<td>6.7 170</td>
<td>4.1 104</td>
<td>1.8 45</td>
<td>3.7 93</td>
<td>5.2 325</td>
<td>6.3 160</td>
<td>5.4 136</td>
<td>3.2 81</td>
<td>1.8 45</td>
<td>2.8 70</td>
<td>1.3 33</td>
<td>7.7 195</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1</td>
<td>6.7 170</td>
<td>4.1 104</td>
<td>2.4 60</td>
<td>2.7 68</td>
<td>4.6 117</td>
<td>6.1 165.5</td>
<td>7.2 184</td>
<td>7.0 178</td>
<td>3.9 100</td>
<td>1.8 45</td>
<td>2.4 60</td>
<td>3.8 96</td>
<td>1.3 33</td>
<td>7.7 195</td>
</tr>
</tbody>
</table>
### SIGNIFICANCE OF DATA WORDS

**OUTPUT DATA WORD**

<table>
<thead>
<tr>
<th>Signal</th>
<th>MSB</th>
<th>LSB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not used</td>
<td>Out 7</td>
<td>Out 6</td>
</tr>
<tr>
<td>Setpoint</td>
<td>Out 5</td>
<td>Out 4</td>
</tr>
<tr>
<td>DO 1 1</td>
<td>Out 3</td>
<td>Out 2</td>
</tr>
<tr>
<td>DO 2 2</td>
<td>Out 1</td>
<td>Out 0</td>
</tr>
</tbody>
</table>

**INPUT DATA WORD**

<table>
<thead>
<tr>
<th>Signal</th>
<th>MSB</th>
<th>LSB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not used</td>
<td>IN 7</td>
<td>IN 6</td>
</tr>
<tr>
<td>Pressure feedback value</td>
<td>IN 5</td>
<td>IN 4</td>
</tr>
<tr>
<td>DO 3 3</td>
<td>IN 3</td>
<td>IN 2</td>
</tr>
<tr>
<td>DI 4 4</td>
<td>IN 1</td>
<td>IN 0</td>
</tr>
</tbody>
</table>

#### PRESSURE SWITCH
- 1: Feedback = Setpoint ±5%
- 0: Feedback ≠ Setpoint ±5%

#### DIAGNOSTICS OF PRESSURE ADJUSTMENT
- 1: OK
- 0: ERROR, no adjustment possible

#### DIAGNOSTICS OF SUPPLY VOLTAGE
- 1: OK
- 0: Low voltage < 18 V

### CONNECTION OF OPERATING VOLTAGE (not for DeviceNet)

View on screw side of female connector, female thread M18 (Code 881 61 903)
Cable feed-through: 6.5 - 8 mm (supplied)

1. +24V
2. Not connected
3. GND
4. Not connected

#### Interbus-S (remote installation bus)

Circular 9-pin connector to IP 65
- Male connector: CONINVERS (Code: 881 61 952)
- Circular 9-pin connector to IP 65
- Female connector: CONINVERS (Code: 881 61 951)
- Cable feed-through: 5 - 8 mm (supplied)

<table>
<thead>
<tr>
<th>Signal</th>
<th>Circular 9-pin male connector</th>
<th>Circular 9-pin female connector</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>DO</td>
<td>1</td>
<td>1</td>
<td>Yellow</td>
</tr>
<tr>
<td>DO</td>
<td>2</td>
<td>2</td>
<td>Green</td>
</tr>
<tr>
<td>DI</td>
<td>3</td>
<td>3</td>
<td>Grey</td>
</tr>
<tr>
<td>DI</td>
<td>4</td>
<td>4</td>
<td>Pink</td>
</tr>
<tr>
<td>Ground</td>
<td>5</td>
<td>5</td>
<td>Brown</td>
</tr>
<tr>
<td>PE</td>
<td>6</td>
<td>6</td>
<td>Green/yellow (1 mm²)</td>
</tr>
<tr>
<td>+24 V</td>
<td>7</td>
<td>7</td>
<td>Red (1 mm²)</td>
</tr>
<tr>
<td>0 V</td>
<td>8</td>
<td>8</td>
<td>Blue  (1 mm²)</td>
</tr>
<tr>
<td>Shield</td>
<td>9</td>
<td>-</td>
<td>Braid</td>
</tr>
</tbody>
</table>

Pin assignment IBS CCO-R-KONFEK-T
Pin 5 and pin 9 must be bridged at the Interbus-S output.
### Profibus-DP (bus cable)

View on screw side of female connector (Code: 881 00 304)
Cable feed-through: 4 - 6 mm
(supplied)

![Diagram](image)

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>R x D/T x D - P</td>
<td>Data line B/B</td>
</tr>
<tr>
<td>2</td>
<td>5V - Bus (**)</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>R x D/T x D - N</td>
<td>Data line A/A</td>
</tr>
<tr>
<td>4</td>
<td>GND - BUS (**)</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>PE (**)</td>
<td>Protection earth</td>
</tr>
</tbody>
</table>

Lines B/B’ and A/A are one line each of the cable twisted in pairs.

(*) These signals are only necessary for the terminating resistor, they are not wired.

(**) Connect the cable shield to pin 5 of the female connector.

### DeviceNet (bus cable)

![Diagram](image)

24V DC voltage supply over bus cable (see table below).

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal name</th>
<th>Description</th>
<th>DeviceNet cable (colors)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DRAIN</td>
<td>Shield, capacitive ground</td>
<td>(shield)</td>
</tr>
<tr>
<td>2</td>
<td>+24V</td>
<td>Voltage supply over bus cable</td>
<td>red</td>
</tr>
<tr>
<td>3</td>
<td>GND</td>
<td>Ground</td>
<td>black</td>
</tr>
<tr>
<td>4</td>
<td>CAN-H</td>
<td>Data - &quot;high&quot; active</td>
<td>white</td>
</tr>
<tr>
<td>5</td>
<td>CAN-L</td>
<td>Data - &quot;low&quot; active</td>
<td>blue</td>
</tr>
</tbody>
</table>

The male panel connector is on the top side of the valve. Two connections are possible:
- Plug the T-connector (881 61 932) directly into the male panel connector.
- Connect the T-connector (881 61 932) with a stub (max. length: 3 m).

Both ends of the bus line must be provided with a terminating resistor.

Accessories to be supplied separately:
- Terminating resistor with male thread:
  Code: 881 61 934
- Terminating resistor with female thread:
  Code: 881 61 933
- Straight 5-pin male connector
  Thread: 7/8" - 16 UN (250 V 9A)
  Cable feed-through: 9 - 12 mm
  Code: 881 61 931
- 5-pin T-connector (with female thread)
  Thread: 7/8" - 18 UN (250 V, 9A)
  Cable feed-through: 9 - 12 mm
  Code: 881 61 932 (see also accessories for DeviceNet)
**SERIES 602**

**SENTRONIC**
Proportional 3 - Port Solenoid Valve

**GENERAL INFORMATION**
Together with an electronic PI card and separate pressure detector, this solenoid valve is the equivalent to a servo valve SENTRONIC.
This modular arrangement allows the components to be built into specific regulation systems.
Installation of the proportional valve allows a higher ambient temperature range than the SENTRONIC valve.

**GENERAL SPECIFICATIONS**
- **FLUIDS**: Air or inert gas filtered to 25 µm, without condensate, lubricated or dry
- **PIPE SIZE**: 1/4, 1/2, 1
- **MAXIMUM AIR PRESSURE (MAP)**: 115 or 230 PSI (8 or 16 bar) (1/4 - see table below)
  - 175 PSI (12 bar) (1/2 to 1)
- **MAXIMUM REGULATED PRESSURE**: 90 or 230 PSI (6 or 16 bar) (1/4 - see table below)
  - 175 PSI (12 bar) (1/2 to 1)
- **TEMPERATURE (FLUID)**: 15°F - 140°F (-9°C - 60°C)
- **TEMPERATURE (AMBIENT)**: 15°F - 140°F (-9°C - 60°C)
- **VOLTAGE**: 24VDC +/- 10% (max. ripple 10%)

**CONSTRUCTION**
- **VALVE TYPE**: Direct operated poppet valve
- **BODY MATERIAL**: Anodized aluminum
- **INTERNAL PARTS**: Stainless steel and brass
- **SEALING MATERIAL**: Nitrile (NBR), Viton (FPM) optional

**INSTALLATION**
- **ASSEMBLY POSITION**: Any direction

---

**SELECTION CHART**

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>Orifice Dia. (in. mm)</th>
<th>Flow (Cv)</th>
<th>MAP (psi)</th>
<th>Regulation Band (psi)</th>
<th>Model Number (NPT or G)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>0.236 (6)</td>
<td>.7</td>
<td>115</td>
<td>0 - 90</td>
<td>602 00 103</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>602 00 002</td>
</tr>
<tr>
<td>1/2</td>
<td>0.472 (12)</td>
<td>1.4</td>
<td>175</td>
<td>0 - 175</td>
<td>602 00 013</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>602 00 004</td>
</tr>
<tr>
<td>1</td>
<td>0.787 (20)</td>
<td>5.6</td>
<td>175</td>
<td>0 - 175</td>
<td>602 00 016</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>602 00 007</td>
</tr>
</tbody>
</table>

**OPTION**: Viton (FPM) Sealing material - code: 460 594

---

**DIMENSIONS & WEIGHTS**

**1/4 to 1**

**CONSTRUCTION REF. 1**

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>in. mm</td>
<td>in. mm</td>
<td>in. mm</td>
<td>in. mm</td>
<td>in. mm</td>
<td>in. mm</td>
<td>in. mm</td>
<td>in. mm</td>
<td>in. mm</td>
<td>Lbs. Kg.</td>
</tr>
<tr>
<td>1/4</td>
<td>4.2</td>
<td>107</td>
<td>3.2</td>
<td>82</td>
<td>4.8</td>
<td>123</td>
<td>6.1</td>
<td>153</td>
<td>M5</td>
<td>5  0.16</td>
</tr>
<tr>
<td>1/2</td>
<td>4.7</td>
<td>119</td>
<td>3.8</td>
<td>96</td>
<td>5.9</td>
<td>151</td>
<td>7.5</td>
<td>190</td>
<td>M6</td>
<td>M5  .39</td>
</tr>
<tr>
<td>1</td>
<td>-</td>
<td>-</td>
<td>4.6</td>
<td>116</td>
<td>7.2</td>
<td>184</td>
<td>-</td>
<td>-</td>
<td>M8</td>
<td>M8  .60</td>
</tr>
</tbody>
</table>
AMPLIFIER PLUG

For 1/4 and 1/2 proportional valves. The electronic control unit amplifies the external signal to the proportional valve in an open loop control system. The signal sent to the electronic control unit could be 0 - 10 volts, 0 - 20mA or 4 - 20mA to control the valve in the process.

SPECIFICATIONS
- VOLTAGE: 24VDC +/- 10% (max. ripple 10%)
- PROTECTION: IP 65 dust tight/water tight
- CONNECTION: DIN plug CM10
- INPUT: Set-point voltage 0 - 10 V or current 0 - 20mA, 4 - 20 mA
- CURRENT OUTPUT: 1,100 mA max.

**SELECTION CHART**

<table>
<thead>
<tr>
<th>Description</th>
<th>Model Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set-point voltage 0 - 10 V</td>
<td>603 00 019</td>
</tr>
<tr>
<td>or current 0 - 20mA, 4 - 20 mA</td>
<td></td>
</tr>
</tbody>
</table>

• 12VDC option available. Consult factory.
• Amplifier Plug for 1" proportional valve available. Consult factory.

OTHER ASCO PNEUMATIC CONTROLS

MEGA
A compact, reliable and modular spool valve island

• Easy assembly
• High flow rate
• Low power consumption
• Long service life
• Spool position indicators

VCS – Valve Connection System
Intelligent connectors for solenoid and spool valves

• Vampire-type plugs for quick connection
• No tools needed
• No cable assembly required
• Modular design
• Automatic addressing
**PNEUMATIC PROPORTIONAL VALVE**

**PULSTRONIC**

**With Control Circuit**

---

### GENERAL SPECIFICATIONS

**FLUIDS**: Air or inert gas filtered to 25 µm, without condensate, lubricated or dry

**PIPE SIZE**: G1/4, G1/2, G1

**OPERATING PRESSURE**: (see table below)

**TEMPERATURE (FLUID)**: 32°F - 140°F (0°C - 60°C)

**TEMPERATURE (AMBIENT)**: 32°F - 122°F (0°C - 50°C)

**VOLTAGE**: 24VDC +/- 10% (max. ripple 10%)

**SET-POINT ANALOG**: 0 - 10 Volts (input resistance 100K Ohms), 0 - 20 mA (input resistance 500 Ohms), 4 - 20mA (input resistance 500 Ohms)

**SET-POINT (DIGITAL AS OPTION)**: 8 bits + memory function, 8 bits + pressure reset

**HYSTERESIS**: <1% of Max. Reg. Press.

**REPEATABILITY**: <0.5% of Max. Reg. Press.

### CONSTRUCTION

**VALVE TYPE**: Direct operated poppet valve

**BODY MATERIAL**: Aluminum and Polyamide

**INTERNAL PARTS**: stainless steel and Polyamide

**SEALING MATERIAL**: Nitrile (NBR), Fluorocarbon (FKM)

### INSTALLATION

**ASSEMBLY POSITION**: Any direction

### CONNECTION

<table>
<thead>
<tr>
<th>1</th>
<th>+24V (POWER)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>GND (POWER)</td>
</tr>
<tr>
<td>3</td>
<td>Setpoint (0 - 10 V / 0 - 20 mA / 4 - 20 mA)</td>
</tr>
<tr>
<td>4</td>
<td>Option: Feedback output or pressure switch</td>
</tr>
</tbody>
</table>

### ELECTRICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Max. Power (W)</th>
<th>Max. Current (mA)</th>
<th>Insulation class</th>
<th>Degree of protection</th>
<th>Electrical connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.6</td>
<td>150</td>
<td>F</td>
<td>IP 65</td>
<td>Female plug-in connector size 15 rotatable x 90°, CM6 (Pg 7P)</td>
</tr>
</tbody>
</table>

### ORDERING INFORMATION

**EXAMPLE**: 605 A S O F P

**A** = CONSTRUCTION

- 0 = G1/4", indirectly operated
- 1 = G1/2", indirectly operated
- 5 = instant fitting for flex. hose OD 4mm, directly operated
- 7 = G1/8", indirectly operated
- 9 = NPT 1/8", indirectly operated
- A = NPT 1/4", indirectly operated
- B = NPT 1/2", indirectly operated
- C = 0.5mm, directly operated

**S** = SETPOINT

- 0 = 0...10 Volt
- 1 = 0...20 mA
- 2 = 4...20 mA

**O** = OPTION(1)

- 1 = Feedback output 0...10 Volt
- 2 = PNP pressure switch, +/- 5%

1) Only one option possible.

**P** = PRESSURE RANGE

Relative pressure: Max. input pressure:
- 2 = 0-30 psi .......... 35-115 psi
- 5 = 0-75 psi .......... 80-100 psi
- 0 = 0-145 psi .......... 150-175 psi

**F** = FAILSAFE BEHAVIOR

- 0 = pressure held
- 5 = pressure released

---

13
SERIES 605

VERSION W/INSTANT FITTING O.D. 4mm

Weight: 0.39 Lbs. (175 g)

GENERAL NOTES

Orifice Diameters

<table>
<thead>
<tr>
<th></th>
<th>Inst. Ftg.</th>
<th>1/8 Size</th>
<th>1/4 Size</th>
<th>1/2 Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0.5mm)</td>
<td>0.12 in. (3mm)</td>
<td>0.24 in. (6mm)</td>
<td>0.47 in. (12mm)</td>
</tr>
</tbody>
</table>

Flows

<table>
<thead>
<tr>
<th></th>
<th>Inst. Ftg.</th>
<th>1/8 Size</th>
<th>1/4 Size</th>
<th>1/2 Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.007 Cv(0.006 Kv)</td>
<td>0.29 Cv(0.25 Kv)</td>
<td>0.81 Cv(0.69 Kv)</td>
<td>1.81 Cv(1.54 Kv)</td>
</tr>
</tbody>
</table>

INSTANT FTG. VERSION

<table>
<thead>
<tr>
<th>Nom. Dia</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>1.4</td>
<td>36</td>
<td>1.7</td>
<td>42</td>
<td>3.5</td>
</tr>
</tbody>
</table>

VERSIONS: 1/8 - 1/4 - 1/2

VERS 1/8, 1/4 & 1/2

<table>
<thead>
<tr>
<th>Nom. Dia</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8</td>
<td>3.3</td>
<td>83</td>
<td>1.7</td>
<td>42</td>
<td>1.7</td>
<td>42</td>
<td>1.4</td>
<td>36</td>
</tr>
<tr>
<td>1/4</td>
<td>3.7</td>
<td>94</td>
<td>2.4</td>
<td>60</td>
<td>1.7</td>
<td>42</td>
<td>1.4</td>
<td>36</td>
</tr>
<tr>
<td>1/2</td>
<td>3.9</td>
<td>98</td>
<td>2.7</td>
<td>70</td>
<td>1.7</td>
<td>42</td>
<td>1.4</td>
<td>36</td>
</tr>
</tbody>
</table>
GENERAL SPECIFICATIONS
FLUIDS ..............................................................: Air or inert gas filtered to 5 µm, without condensate, lubricated or dry
PRESSURE ..........................................................: 0 to 60 or 115 PSI (0 to 4 or 8 bar)
MAXIMUM AIR PRESSURE (MAP) ..............: 115 PSI (8 bar)
TEMPERATURE (FLUID) ..........................: 32°F - 140°F (0°C - 60°C)
TEMPERATURE (AMBIENT) ......................: 32°F - 140°F (-40°C - +60°C)
BASE ..............................................................: Compatible CNOMO E06.36.120N (size 15)
SERVICE LIFE .....................................................: >10⁹ cycles at 90 PSI (6 bar)
MOUNTING POSITION ...............................: all
HYSTERESIS ........................................................: 10 to 15% of Max. Reg. Press.

CONSTRUCTION
PROPORTIONAL OPERATED VALVE
BODY MATERIAL ..............................................: Polyphenylene Sulfide (PPS)
INTERNAL PARTS .............................................: piezo ceramics
SEALING MATERIAL ...........................................: nitrile (NBR)
MANUAL OVERRIDE ..........................................: without or impulse type
SUBBASE ..........................................................: brass, polyamide, zinc diecast

ELECTRICAL CONNECTION
VERSION WITH PINS: Piezo-valve has polarization
VERSION WITH WIRES: Piezo-valve has polarization

without function
1 : 0-40V DC (+)
2 : GND (-)
red wire : (+)
black wire : (-)

ELECTRICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Voltage (Maximum ripple: 10%)</th>
<th>Consumption (hold position)</th>
<th>Degree of protection</th>
<th>Electrical connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 40 VDC</td>
<td>&lt; 100 µA</td>
<td>IP 65</td>
<td>Connector size 15 rotatable by 90ø, CM6 (Pg 7P) Option : with 2 wires AWG 28, 39 in. long</td>
</tr>
</tbody>
</table>

SELECTION CHART

<table>
<thead>
<tr>
<th>Functions</th>
<th>Flow Cv</th>
<th>Allowable differential pressure (∆P in psi)</th>
<th>Manual Override</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>min.</td>
<td>max.</td>
</tr>
<tr>
<td>2/2 NC</td>
<td>.006</td>
<td>0</td>
<td>115 psi</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/2 NO</td>
<td>.006</td>
<td>0</td>
<td>60 psi</td>
</tr>
<tr>
<td></td>
<td>.0084</td>
<td>0</td>
<td>115 psi</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MANUAL OVERRIDE: ● without  ■ Impulse

SUBBASE: Single subbase with lateral connection M5 - model number : 882 63 002
Single or joinable subbase with instant fittings or 1/8
Multiple subbase, consult factory
MINI VALVE WITH STD. CONNECTOR

Weight: 0.05 Lbs. (24 g) without connector
0.07 Lbs. (34 g) with connector

PROPORTIONAL VERSION

NOTE: The current must be limited by a serial resistor greater than 30 ohms.

MINI VALVE ON SINGLE SUBBASE 882 63 002

Weight: 0.15 Lbs. (68 g)

CONSTRUCTION REFS. 1, 2 & 3

MOUNTING FACE
Subbase for mini piezo-valve
CNOMO E06.36.120N (size 15)

3 x 1.5mm dia.
3 x M3

SINGLE SUBBASE CONNECTION
Outlet (2) can be connected on the left or the right of subbase;
closed unused port with a M5 dia. plug (supplied).
1. Connector size 15 rotatable by 90° CM6 (Pg 7P)
2. Manual override by impulse
(*) + 10 mm for clearance
NOTE : port 3 not used

CONSTRUCTION REFS. 1, 2 & 3

<table>
<thead>
<tr>
<th>Constr Ref.</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>in.</td>
<td>mm</td>
<td>in.</td>
<td>mm</td>
<td>in.</td>
<td>mm</td>
<td>in.</td>
<td>mm</td>
</tr>
<tr>
<td>1</td>
<td>2.5</td>
<td>63</td>
<td>1.9</td>
<td>48</td>
<td>.18</td>
<td>4.5</td>
<td>.73</td>
<td>18.5</td>
</tr>
<tr>
<td>2</td>
<td>2.5</td>
<td>63</td>
<td>.78</td>
<td>20</td>
<td>.60</td>
<td>15</td>
<td>2.6</td>
<td>66</td>
</tr>
<tr>
<td>3</td>
<td>.45</td>
<td>11.5</td>
<td>.15</td>
<td>3.8</td>
<td>.15</td>
<td>3.8</td>
<td>.25</td>
<td>6.3</td>
</tr>
</tbody>
</table>
SERVOVALVE
SERVOTRONIC
Electropneumatic 3-Port Servo Valve for Flow-rate Control

GENERAL SPECIFICATIONS
CONTROLLED FLUIDS: Air or inert gas filtered to 5 µm, without condensate, lubricated or dry
CONNECTION: G1/4
MAXIMUM AIR PRESSURE (MAP): 145 PSI (10 bar)
FLOW RATE: 1400 l/min (ANR), when fully open
MAX. LEAKAGE: 50 l/min (ANR) (setpoint at 0V)
TEMPERATURE (FLUID): 40°F - 105°F (5°C - 40°C)
TEMPERATURE (AMBIENT): 40°F - 105°F (5°C - 40°C)
VOLTAGE: 24VDC +/- 10% (max. ripple 10%)
SET-POINT (ANALOG): +/-10 Volts (impedance 100K Ohms)
MECHANICAL RESPONSE TIME: 5 ms (at 50% amplitude)
BANDWIDTH: 150 Hz (at -3 dB, and at 50% amplitude)

CONSTRUCTION
VALVE TYPE: Direct acting spool valve
HOUSING: Treated light alloy
INTERNAL PARTS: Treated light alloy

INSTALLATION
ASSEMBLY POSITION: Any direction

OPTION
010 643 ... : Floating input (Common mode voltage accepted: +/- 24V to ground)

SELECTED CHART

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>Current function</th>
<th>Load pressure (psi)</th>
<th>Max. flow (Cv)</th>
<th>Model Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>Pressure released (open center)</td>
<td>0 - 145</td>
<td>1.4</td>
<td>607 00 005</td>
</tr>
<tr>
<td>1/4</td>
<td>Flow held (closed center)</td>
<td>0 - 145</td>
<td>1.4</td>
<td>607 00 006</td>
</tr>
</tbody>
</table>

ELECTRICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Ports</th>
<th>Max. Power (W)</th>
<th>Max. Current (mA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>30</td>
<td>1250</td>
</tr>
</tbody>
</table>

INSULATION CLASS: Type F
PROTECTION: IP 65
CONNECTION: Plug-in connector 7 pins DIN 43651

Electromagnetic compatibility: electrostatic discharge IEC 61000-4-2 fast electrical transience (coupling clip) IEC 61000-4-4
PNEUMATIC SERVOVALVE
SERVOTRONIC

Electropneumatic 3-Port Servo Valve for Pressure Control

GENERAL SPECIFICATIONS

CONTROLLED FLUIDS: Air or inert gas filtered to 5 µm, without condensate, lubricated or dry
CONNECTION: G1/4
CONTROL RANGE: 0-1.5 to 0-230 PSI (0-0.1 to 0-16 bar) (see table below)
MAXIMUM AIR PRESSURE (MAP): (see table below)
FLOW RATE: 1400 l/min (ANR), when fully open
MAX. LEAKAGE: 50 l/min (ANR) (setpoint at 0V)
TEMPERATURE (FLUID): 40°F - 105°F (5°C - 40°C)
TEMPERATURE (AMBIENT): 40°F - 105°F (5°C - 40°C)
VOLTAGE: 24VDC +/- 10% (max. ripple 10%)
SET-POINT (ANALOG): +/- 10 Volts (impedance 100K Ohms)
SET-POINT (DIGITAL-OPTIONAL): 8 bits + memory function
HYSTERESIS: < 0.5% of the PMR
INDEPENDENT LINEARITY: < 0.1% of the PMR

CONSTRUCTION

VALVE TYPE: Direct acting spool valve
HOUSING: Treated light alloy
INTERNAL PARTS: Treated light alloy

INSTALLATION

ASSEMBLY POSITION: Any direction

OPTIONS

010 644: Analog set-point 0 - 20mA (input impedance 500 Ohms)
010 645: Analog set-point 4 - 20mA (input impedance 500 Ohms)
010 819: Floating input of set-point 0 - 20 mA (1)
010 820: Floating input of set-point 4 - 20 mA (1)
010 646: Pressure information output 0 - 20 mA (max. load 500 Ohms)
010 647: Pressure information output 4 - 20 mA (max. load 500 Ohms)
010 648: PNP pressure switch if set-point reached
010 649: NPN pressure switch if set-point reached
010 817: PNP pressure switch if set-point not reached
010 818: NPN pressure switch if set-point not reached
010 650: Digital set-point (8 bits + memory function)
010 651: Digital set-point (8 bits + pressure reset)
010 652: Additional spool control loop (2)

ELECTRICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Ports</th>
<th>Max. Power (W)</th>
<th>Max. Current (mA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>30</td>
<td>1250</td>
</tr>
</tbody>
</table>

INSULATION CLASS: Type F
PROTECTION: IP 65
CONNECTION: Plug-in connector 7 pins DIN 43651

Electromagnetic compatibility: electrostatic discharge IEC 61000-4-2 fast electrical transience (coupling clip) IEC 61000-4-4

SELECTION CHART

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>Current function</th>
<th>Max. flow (Cv)</th>
<th>MRP control range (psi)</th>
<th>MAP (psi)</th>
<th>Model Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>Pressure released (open center)</td>
<td>1.4</td>
<td>0 - 1.5</td>
<td>30</td>
<td>607 00 007</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0 - 7.5</td>
<td>30</td>
<td>607 00 008</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0 - 15</td>
<td>30</td>
<td>607 00 009</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0 - 45</td>
<td>115</td>
<td>607 00 010</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0 - 90</td>
<td>175</td>
<td>607 00 011</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0 - 145</td>
<td>175</td>
<td>607 00 012</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0 - 230</td>
<td>260</td>
<td>607 00 013</td>
</tr>
<tr>
<td></td>
<td>Flow held (closed center)</td>
<td>1.4</td>
<td>0 - 1.5</td>
<td>30</td>
<td>607 00 014</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0 - 7.5</td>
<td>30</td>
<td>607 00 015</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0 - 15</td>
<td>30</td>
<td>607 00 016</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0 - 45</td>
<td>115</td>
<td>607 00 017</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0 - 90</td>
<td>175</td>
<td>607 00 018</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0 - 145</td>
<td>175</td>
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<td>0 - 230</td>
<td>260</td>
<td>607 00 020</td>
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</table>
SERVOTRONIC 607

Weight: 2.4 Lbs. (1.1 kg)

DIMENSIONS

<table>
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<tr>
<th>Port</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
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<td>Size</td>
<td>in.</td>
<td>mm</td>
<td>in.</td>
<td>mm</td>
<td>in.</td>
<td>mm</td>
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<td>2.2</td>
<td>55</td>
<td>2.5</td>
<td>63</td>
<td>1.7</td>
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<td>5.1</td>
<td>130</td>
<td>7.9</td>
<td>201</td>
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CONNECTION OF OPERATING VOLTAGES

Version: Analog set-point

View on soldered side of female connector

Flow control
1. +24V power supply
2. Ground (power supply)
3. + set-point input
4. Ground (set-point)
5. Not connected
6. Not connected
7. Not connected

Pressure control
1. +24V power supply
2. Ground (power supply)
3. + set-point input
4. Ground (set-point)
5. 12V stabilized voltage output (30 mA max)
6. Pressure signal (pressure sensor output 0-10V for the pressure range in question)
7. Not connected (standard)
   On option: pressure switch output connection NPN or PNP (500 mA max)

Version: Digital set-point

View on soldered side of female connector

Pressure control

A. +24V power supply
B. Ground (power supply)
C. Bit 1 (LSB)
D. Bit 2
E. Bit 3
F. Bit 4
G. Bit 5
H. Bit 6
I. Bit 7
K. Bit 8 (MSB)
L. Memory function (option 010650)
M. Pressure reset function (option 010651)
N. Not connected
O. Not connected
P. Pressure signal (pressure sensor output 0-10V for the pressure range in question)
R. Not connected

The digital set-point version is not proposed in the flow control mode.
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