Precisely regulates the flow of material to a gun in an automatic proportioning system. For professional use only.

Approved for use in explosive atmospheres only when used in conjunction with ProMix Electronic Proportioners.

190 psi (1.31 MPa, 13.1 bar) Maximum Fluid Working Pressure

Model 249849 Flow Control Module
With integrated air-operated fluid regulator.

Model 24H989 Flow Control Module
For use with a remotely mounted, air-operated fluid regulator (not included).

Important Safety Instructions
Read all warnings and instructions in this manual and in your ProMix instruction manuals. Save these instructions.
## Grounding

Your system must be grounded. See the **Grounding** instructions in your ProMix Installation manual.

### Installation (Model 249849)

The intrinsically safe flow control module (FC) is required to use flow control in your system. See Fig. 1.

1. Connect a 1/4 in. (6 mm) OD air supply line to the air inlet fitting of the flow control module (FC). Connect the other end of this line as follows:
   a. Wall Mount Systems: Connect to the air manifold at the rear of the wall mount fluid station.
   b. RoboMix Systems: Install a 1/4 in. (6 mm) OD tube tee at the air logic inlet of the RoboMix. Connect the flow control air line to one branch of the tee and the main air line to the other branch.

2. Connect a fluid line from the proportioner to the 1/8 npt(f) fluid inlet of the flow control module (FC).

3. Connect a fluid line from the 1/8 npt(f) fluid outlet of the flow control module (FC) to the spray gun inlet.

4. See the **Electrical Schematic** in your ProMix instruction manual. Connect the flow control cable to the fluid station control board and to the cable connector on the flow control module (FC).

### Related Manuals

<table>
<thead>
<tr>
<th>Manual</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>312778</td>
<td>ProMix 2KS Automatic System Installation</td>
</tr>
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<td>312779</td>
<td>ProMix 2KS Automatic System Operation</td>
</tr>
<tr>
<td>312780</td>
<td>ProMix 2KS Automatic System Repair-Parts</td>
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<td>ProMix 1KS Installation</td>
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<tr>
<td>3A1080</td>
<td>ProMix 1KS Automatic System Operation</td>
</tr>
<tr>
<td>3A1164</td>
<td>ProMix 1KS Repair-Parts</td>
</tr>
<tr>
<td>313881</td>
<td>ProMix 3KS Installation</td>
</tr>
<tr>
<td>313885</td>
<td>ProMix 3KS Automatic System Operation</td>
</tr>
<tr>
<td>313883</td>
<td>ProMix 3KS Repair-Parts</td>
</tr>
</tbody>
</table>

**Grounding**

---

*Fig. 1. 249849 Flow Control Module*
Installation (Model 24H989)

The intrinsically safe flow control module (FC) is required to use flow control in your system. It is for use with a remotely mounted, air-operated fluid regulator (FR, not included). See FIG. 2.

1. Connect a 1/4 in. (6 mm) OD air supply line to the air inlet fitting of the flow control module (FC). Connect the other end of this line as follows:
   a. Wall Mount Systems: Connect to the air manifold at the rear of the wall mount fluid station.
   b. RoboMix Systems: Install a 1/4 in. (6 mm) OD tube tee at the air logic inlet of the RoboMix. Connect the flow control air line to one branch of the tee and the main air line to the other branch.

2. Connect a 5/32 in. (4 mm) OD air supply line to the air outlet fitting of the flow control module (FC). Connect the other end of this line to the air inlet fitting of a remotely mounted fluid regulator (FR).

3. Connect a fluid line from the proportioner to the fluid inlet of the remote fluid regulator (FR).

4. Connect a fluid line from the outlet of the fluid regulator (FR) to the 1/8 npt(f) inlet of the pressure sensor (PS).

5. Connect a fluid line from the 1/8 npt(f) outlet of the pressure sensor (PS) to the spray gun inlet.

6. Connect the pressure sensor cable to the cable connector on the flow control module (FC).

7. See the Electrical Schematic in your ProMix instruction manual. Connect the flow control cable to the fluid station control board and to the cable connector on the flow control module (FC).

**FIG. 2. 24H989 Flow Control Module, with Remotely Mounted Fluid Regulator**
Service

Before Servicing

1. Flush system and follow **Pressure Relief Procedure** in your ProMix Repair-Parts manual.
2. Close main air shutoff valve on air supply line and on ProMix.
3. Shut off power (0 position). FIG. 3.
4. Shut off power at main circuit breaker.
5. Disconnect all air and fluid lines from the flow control module.
6. *Model 24H989 only:* Disconnect all fluid lines from the pressure sensor fitting (626).
7. Disconnect the flow control cable from the flow control harness (624). FIG. 4 or FIG. 5.

---

**NOTICE**
To avoid damaging circuit board when servicing, wear Part No. 112190 grounding strap on wrist and ground appropriately.

---

After Servicing

After servicing, be sure to follow the **Start Up** checklist and procedure in the ProMix Operation manual.

Servicing the Regulator and Pressure Sensor (Model 249849 only)

Regulator Service Kit 15G843 is available. Kit parts are marked with an asterisk, for example (602*). For best results, use all parts in the kit.

Sensor Service Kit 15G867 is available to service the pressure sensor only. Kit parts are marked with a symbol, for example (602‡). For best results, use all parts in the kit.

1. Follow **Before Servicing,** above.
2. Remove the four screws (605) and the nut (601) from the underside of the air plate (607). Separate the air plate and fluid plate. FIG. 4.
3. Unscrew the pressure sensor (620) from the fluid plate (606).
   
   **NOTE:** If you are only replacing the pressure sensor kit 15G867, skip to step 6.

4. Remove the plug (615) and o-ring (604) from the top of the fluid plate (606). Remove the parts of the diaphragm assembly (613, 610, 609, 612, 617, 616). Remove and discard the dowels (623).
5. Reassemble the diaphragm assembly using the new parts from the kit. Be sure the AIR SIDE of the diaphragm (617) faces down. Torque the nut (601) to 8-10 in-lb (0.9-1.1 N·m).
6. Install a new o-ring (602) on the pressure sensor (620) and screw the sensor into the fluid plate (606).
7. Reinstall the fluid plate on the air plate. Be careful not to pinch the pressure sensor cable. Torque the screws (605) to 30-40 in-lb (3.4-4.5 N·m).
8. Reconnect the three cables to J1, J2, and J4 on the circuit board (618). FIG. 6.
9. Reattach the air plate (607) to the housing (611). Torque the screws (605) to 30-40 in-lb (3.4-4.5 N·m).
10. Reattach the flow control cable and all air and fluid lines.
FIG. 4: 249849 Flow Control Module

⚠ Torque to 8-10 in-lbs (0.9-1.1 N•m)
⚠ Torque to 30-40 in-lbs (3.4-4.5 N•m)
⚠ Torque to 5-7 in-lbs (0.6 -0.8 N•m)
Servicing the Pressure Sensor
(Model 24H989 only)

2. Disconnect the pressure sensor (620) from the pressure sensor wire harness (620b). Fig. 5.
3. Unscrew the pressure sensor (620) from the pressure sensor fitting (626).
4. Install a new o-ring (602) on the new pressure sensor (620).
5. Reassemble in the reverse order.

Servicing the Pressure Sensor Wire Harness (Model 24H989 only)

2. Disconnect the pressure sensor (620) from the pressure sensor wire harness (620b). Fig. 5.
3. Remove the four screws (605) holding the air plate (607) to the housing (611). Unscrew the nut from the pressure sensor wire harness connector (620b).
4. Carefully lift the plate (607) off the housing. Disconnect the wire harness from J4 on the circuit board (618) and remove the wire harness. Fig. 6.
5. Install the new wire harness (620b) in the reverse order.
6. Reattach the air plate (607) to the housing (611). Torque the screws (605) to 30-40 in-lb (3.4-4.5 N•m).

Servicing the Flow Control Board (all Models)

2. Remove the four screws (605) holding the bracket (614) to the housing (611). Fig. 4 or Fig. 5.
3. Carefully separate the bracket from the housing and disconnect the three cables from J1, J2, and J4 on the circuit board (618). Fig. 6.
4. Remove the screws (621). Replace the old board with the new board. Install the screws (621).
5. Reconnect the three cables to J1, J2, and J4 on the circuit board (618). Fig. 6.
6. Reattach the bracket (614) to the housing (611). Torque the screws (605) to 30-40 in-lb (3.4-4.5 N•m).

Servicing the V/P Valve (all Models)

2. Remove the four screws (605) holding the bracket (614) to the housing (611). Fig. 4 or Fig. 5.
3. Carefully separate the bracket from the housing and disconnect the V/P valve cable from J2 on the circuit board (618). Fig. 6.
4. Remove the two screws (619a) and o-rings (619b). Install the new valve (619) with new screws and o-rings. Torque the screws to 5-7 in-lb (0.6-0.8 N•m).
5. Reconnect the V/P valve cable to J2 on the circuit board (618). Fig. 6.
6. Reattach the bracket (614) to the housing (611). Torque the screws (605) to 30-40 in-lb (3.4-4.5 N•m).
Torque to 30-40 in-lb (3.4-4.5 N-m)
Torque to 5-7 in-lb (0.6 -0.8 N-m)

Fig. 5: 24H989 Flow Control Module

Fig. 6: 249179 Flow Control Board
## Parts

### 249849 Flow Control Module

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Part No.</th>
<th>Description</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>601*</td>
<td>102980</td>
<td>NUT, full, hex; 4-40</td>
<td>1</td>
</tr>
<tr>
<td>602‡</td>
<td>---</td>
<td>O-RING; chemically resistant fluoroelastomer</td>
<td>1</td>
</tr>
<tr>
<td>603</td>
<td>112698</td>
<td>ELBOW; 1/8 npt(m) x 1/4 in. (6 mm) OD tube</td>
<td>1</td>
</tr>
<tr>
<td>604*</td>
<td>---</td>
<td>O-RING; chemically resistant fluoroelastomer</td>
<td>1</td>
</tr>
<tr>
<td>605</td>
<td>---</td>
<td>SCREW, cap, socket-hd; 10-32 x 1/2 in. (13 mm)</td>
<td>12</td>
</tr>
<tr>
<td>606</td>
<td>---</td>
<td>PLATE, fluid, regulator</td>
<td>1</td>
</tr>
<tr>
<td>607</td>
<td>15F799</td>
<td>PLATE, air, regulator</td>
<td>1</td>
</tr>
<tr>
<td>609*</td>
<td>---</td>
<td>SEAT, regulator</td>
<td>1</td>
</tr>
<tr>
<td>610*</td>
<td>---</td>
<td>RETAINER, seat</td>
<td>1</td>
</tr>
<tr>
<td>611</td>
<td>---</td>
<td>HOUSING, flow control</td>
<td>1</td>
</tr>
<tr>
<td>612*</td>
<td>---</td>
<td>SPACER, regulator</td>
<td>1</td>
</tr>
<tr>
<td>613*</td>
<td>---</td>
<td>NEEDLE, regulator</td>
<td>1</td>
</tr>
<tr>
<td>614</td>
<td>---</td>
<td>BRACKET, flow control</td>
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<tr>
<td>615</td>
<td>15F806</td>
<td>PLUG, regulator</td>
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</tr>
<tr>
<td>616*</td>
<td>168881</td>
<td>GASKET; acetal</td>
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</tr>
<tr>
<td>617*</td>
<td>178321</td>
<td>DIAPHRAGM, regulator</td>
<td>1</td>
</tr>
<tr>
<td>618</td>
<td>249179</td>
<td>BOARD, circuit assembly</td>
<td>1</td>
</tr>
<tr>
<td>619</td>
<td>120013</td>
<td>VALVE, proportional, V/P; includes items 619a and 619b</td>
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</tr>
<tr>
<td>619a</td>
<td>---</td>
<td>SCREW, cap, socket-hd; M3 x 0.5 x 44 mm</td>
<td>2</td>
</tr>
<tr>
<td>619b</td>
<td>---</td>
<td>O-RING, mounting</td>
<td>2</td>
</tr>
<tr>
<td>620‡</td>
<td>---</td>
<td>SENSOR, pressure control; includes ptfe o-ring</td>
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<tr>
<td>621</td>
<td>107295</td>
<td>SCREW, machine, pan-hd; 4-40 x 3/16 in. (5 mm)</td>
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<tr>
<td>622</td>
<td>104765</td>
<td>PLUG, pipe; 1/8 ptf</td>
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<tr>
<td>623*</td>
<td>192387</td>
<td>PIN, dowel</td>
<td>2</td>
</tr>
<tr>
<td>624</td>
<td>15G613</td>
<td>WIRE HARNESS, flow control</td>
<td>1</td>
</tr>
</tbody>
</table>

* Parts included in Regulator Service Kit 15G843. Purchase separately.
‡ Parts included in Sensor Service Kit 15G867. Purchase separately.

Parts labeled --- are not available separately.
## 24H989 Flow Control Module for Remote Fluid Regulator

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Part No.</th>
<th>Description</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>602</td>
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<td>O-RING; chemically resistant fluoroelastomer</td>
<td>1</td>
</tr>
<tr>
<td>603</td>
<td>112698</td>
<td>ELBOW, air inlet; 1/8 npt(m) x 1/4 in. (6 mm) OD tube</td>
<td>1</td>
</tr>
<tr>
<td>605</td>
<td>---</td>
<td>SCREW, cap, socket-hd; 10-32 x 1/2 in. (13 mm)</td>
<td>8</td>
</tr>
<tr>
<td>607</td>
<td>---</td>
<td>PLATE, air, regulator</td>
<td>1</td>
</tr>
<tr>
<td>608</td>
<td>114151</td>
<td>ELBOW, air outlet; 1/8 npt(m) x 5/32 in. (4 mm) OD tube</td>
<td>1</td>
</tr>
<tr>
<td>611</td>
<td>---</td>
<td>HOUSING, flow control</td>
<td>1</td>
</tr>
<tr>
<td>614</td>
<td>---</td>
<td>BRACKET, flow control</td>
<td>1</td>
</tr>
<tr>
<td>618</td>
<td>249179</td>
<td>BOARD, circuit assembly</td>
<td>1</td>
</tr>
<tr>
<td>619</td>
<td>120013</td>
<td>VALVE, proportional, V/P; includes items 619a and 619b</td>
<td>1</td>
</tr>
<tr>
<td>619a</td>
<td>---</td>
<td>SCREW, cap, socket-hd; M3 x 0.5 x 44 mm</td>
<td>2</td>
</tr>
<tr>
<td>619b</td>
<td>106560</td>
<td>O-RING, mounting, 007</td>
<td>2</td>
</tr>
<tr>
<td>620</td>
<td>24R099</td>
<td>KIT, sensor, pressure control; includes 620a and 620b</td>
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</tr>
<tr>
<td>620a</td>
<td>---</td>
<td>O-RING; ptf</td>
<td>1</td>
</tr>
<tr>
<td>620b</td>
<td>---</td>
<td>WIRE HARNESS, pressure sensor</td>
<td>1</td>
</tr>
<tr>
<td>621</td>
<td>107295</td>
<td>SCREW, machine, pan-hd; 4-40 x 3/16 in. (5 mm)</td>
<td>4</td>
</tr>
<tr>
<td>624</td>
<td>15G613</td>
<td>WIRE HARNESS, flow control</td>
<td>1</td>
</tr>
<tr>
<td>626</td>
<td>---</td>
<td>FITTING, pressure sensor; two 1/8 npt(f) ports</td>
<td>1</td>
</tr>
</tbody>
</table>

*Parts labeled --- are not available separately.*
# Dimensions and Mounting Hole Layouts

<table>
<thead>
<tr>
<th>Module</th>
<th>A Overall Length in. (mm)</th>
<th>Overall Width in. (mm)</th>
<th>B Overall Height in. (mm)</th>
<th>Mounting Dimensions, Length (C) x Width (D) in. (mm)</th>
<th>E Mounting Hole Size in. (mm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>249849 Flow Control Module</td>
<td>7.13 (181.1)</td>
<td>2.52 (64.0)</td>
<td>3.86 (98.0)</td>
<td>6.63 x 1.50 (168.4 x 38.1)</td>
<td>0.25 (6.3)</td>
<td>3.9 (1.78)</td>
</tr>
<tr>
<td>24H989 Flow Control Module</td>
<td>7.13 (181.1)</td>
<td>2.52 (64.0)</td>
<td>3.86 (98.0)</td>
<td>6.63 x 1.50 (168.4 x 38.1)</td>
<td>0.25 (6.3)</td>
<td>2.5 (1.13) [includes pressure sensor and fitting]</td>
</tr>
</tbody>
</table>

### 249849 Flow Control Module

![Diagram of 249849 Flow Control Module](TI18018a)

### 24H989 Flow Control Module

![Diagram of 24H989 Flow Control Module](TI18018a)
Technical Data

Maximum fluid working pressure ............... 190 psi (1.31 MPa, 13.1 bar)
Maximum working air pressure ................. 100 psi (0.7 MPa, 7 bar)
Air supply ........................................ 75 - 100 psi (0.5 - 0.7 MPa, 5.2 - 7 bar)
Air inlet size ...................................... 1/8 npt(m) x 1/4 in. (6 mm) OD tube
Air outlet size (Model 24H989 only) .......... 1/8 npt(m) x 5/32 in. (4 mm) OD tube
Fluid inlet and outlet sizes ...................... 1/8 npt(f)
Wetted parts ....................................... Model 249849: 303 Stainless Steel, chemically resistant fluoroelastomer, titanium, ptfe
                                           Model 24H989: 316 Stainless Steel, chemically resistant fluoroelastomer, titanium, ptfe
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Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco’s written recommendations.

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Phone: 612-623-6921 or Toll Free: 1-800-328-0211 Fax: 612-378-3505

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