Honeywell

M6063A Compact Rotary Mixing Valve Actuator

PRODUCT DATA

FEATURES:

- **24 Vac floating input for automatic control.**
- **Single screw attachment to V5442 valve body.**
- **Multi-poise mounting.**
- **Color-coded position indicator.**
- **Manual valve operator.**
- **Auxiliary end switch for cascade control outputs.**
- **Sealed assembly; flylead electrical connections.**

APPLICATION

The “Corona” series of Compact Rotary Valves and Actuators provide integrated mixing of boiler supply, boiler return, loop supply, and loop return water in hydronic heating systems.

The V5442 valve can mix both loop supply water and boiler return water simultaneously to control loop supply temperature and boiler shock or flue gas condensation protection. They may be plumbed in either a direct mixing or injection configuration. The effective Cv of the valves is increased when piped in an injection configuration.

The M6063 actuator enables automatic mixing operation when used with an AQ675A Aquatrol Outdoor Temperature Compensator, or T6984 proportional room thermostat.

Contents

95C-10887

SPECIFICATIONS

Important

The specifications given in this publication do not include normal manufacturing tolerances; therefore, an individual unit may not exactly match the listed specifications. Also, this product is tested and calibrated under closely controlled conditions and some minor differences in performance can be expected if those conditions are changed.

Models:
The M6063A actuator enables automatic control of the V5442N 4-way rotary mixing valve by tri-state (floating) controllers.

Electrical Ratings:
Power Supply: 24 Vac, 50/60 Hz, 3 VA, SPDT, or SP3T (tri-state) for proportional control.
Black cable: Blue = common; Brown = clockwise rotation; Black = CCW rotation.
Auxiliary Switches: 24 Vac, 3 A, 24 VA pilot duty, Class 2, normally closed. Gray cable.
S1 (black/gray pair) opens at left (CCW) end stop.
S2 (brown/pink pair) opens at right (CW) end stop.
Enclosure rating: double insulated, IP44 (exceeds NEMA 3)

Mechanical Specifications:
Dimensions: see Fig. 1.
Torque: 60 in-lb. (7 Nm)
Manual declutch.
Timing: 100 seconds for 90° (full) stroke.
Shipping weight: 1.3 lb. (0.6 kg)

Temperature Ratings:
Ambient: 32°F to 140°F (0° to 60°C)
Water: 36°F to 230°F (2° to 110°C)
Shipping: -40°F to 140°F (-40° to 60°C)

Humidity Ratings:
Less than 90% RH, non-condensing.

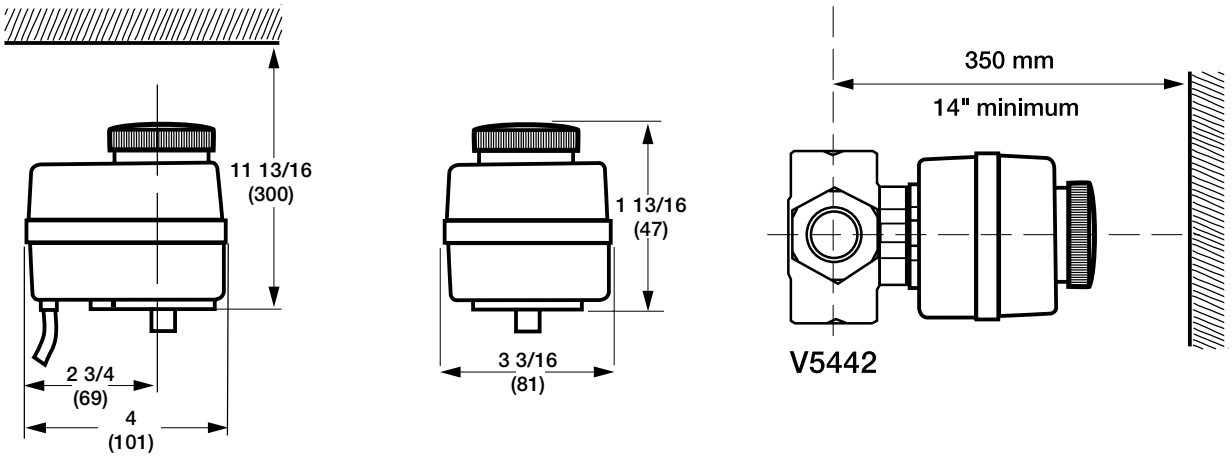
Electrical Connections:
Color-coded 40" (1 m) flyleads

Dimensions:
See Fig. 1.

Cross Reference:
M6063 functionally replaces Centra VRK10-24 valve actuator when used with V5442 valve body.

Controller Compatibility:
PI or PID tri-state control signal for proportional control action, such as supplied by AQ675 Outdoor Temperature Compensator, W964F Aquatrol reset controller, or T6984 floating commercial thermostat.

Fig: 1 M6063A dimensions in inches (mm).



ORDERING INFORMATION

When purchasing replacement or modernization products from your wholesaler or distributor, refer to the price sheets for complete ordering number.

If you have additional questions, need further information, or would like to comment on our products or services, please write or phone:
1. Your local Home and Building Control Sales Office (check white pages of your phone directory.)
2. Home and Building Control Customer Logistics
   Honeywell Inc. 1885 Douglas Drive North
   Minneapolis, Minnesota 55422-4386 (612) 951-1000

In Canada – Honeywell Limited-Honeywell Limitée, 155 Gordon Baker Road, North York, Ontario M2H 3N7.
International Sales and Service Offices in all principal cities of the world. Manufacturing in Australia, Canada, Finland, France, Germany, Japan, Mexico, Netherlands, Spain, Taiwan, United Kingdom, U.S.A.

INSTALLATION

When Installing this Product . . .

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After installation is complete, check out product operation as provided in these instructions.
5. Follow local codes for installation and application.

WIRING

Control

CAUTION

Electrical Shock or Equipment Damage Hazard.
Can shock individuals or short equipment circuitry.
Disconnect all power supplies before installation.

All wiring must comply with applicable local codes, ordinances and regulations. Refer to Fig. 3 through 8 for typical wiring diagrams. M6063A are extra low voltage, class 2 devices.

Mounting

Valve

We recommend that the reset controller be installed within 20" (0.5 m) of the valve body to keep wiring complexity to a minimum.

The valve must be oriented correctly towards the boiler supply water in order to work correctly. Boiler supply water may enter from the left or right of the valve to be used with an M6063 actuator. Mixed loop supply exits the valve from the top of the valve. The valve stem socket must not point to the floor to prevent water from falling on the M6063.

Actuator

1. If the boiler supply enters the valve body from the left side, orient the M6063 with the knob on the left end of the motor housing. If the boiler supply enters the valve body from the right side, orient the M6063 with the knob on the right end of the motor housing. See Fig.2.
2. Set the valve to position 5, then remove and discard the manual handle.
3. Orient the M6063 actuator so that the single long mounting screw threads into the same boss used to identify the boiler supply. Use the brass spacer to avoid case deformation. See Fig. 3.
4. Select the correct side of the position scale, and place in the manual adjustment knob of the actuator. See Fig. 3. Snap on the clear plastic cover.
5. Wire the actuator for operation. See Fig. 4 to 8.

Fig: 2 V5442 Valve and Actuator orientation.

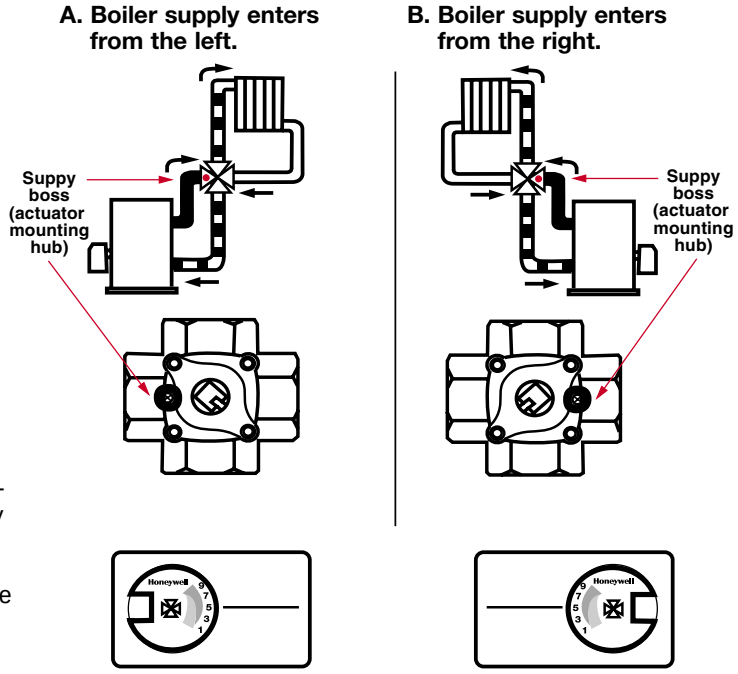


Fig: 3 M6063 actuator mounting on V5442N body.

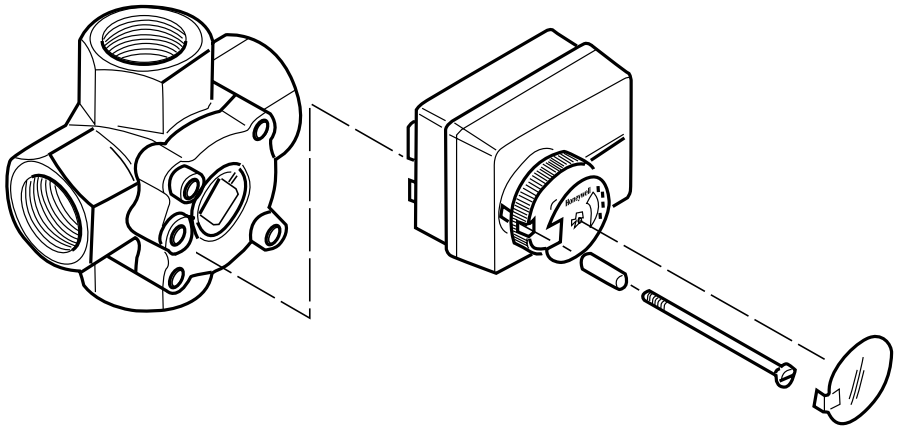


Fig. 4 M6063A basic wiring

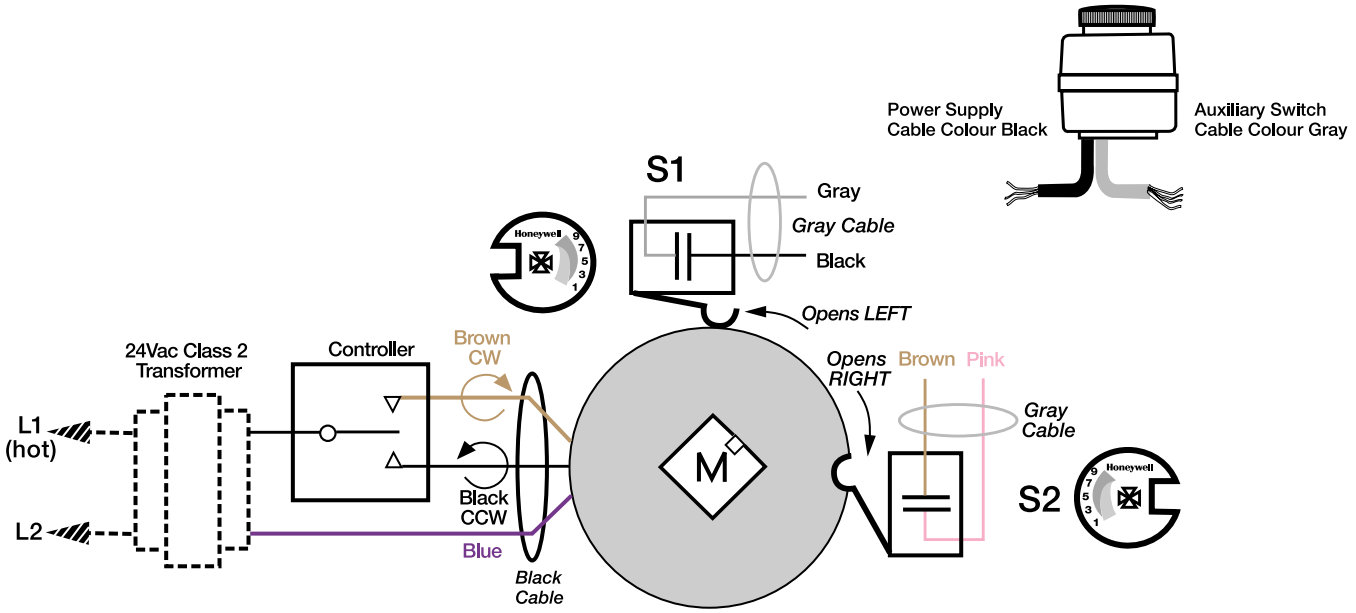


Fig. 5 M6063 wired to AQ675 Aquatrol Outdoor Temperature Compensator, left boiler water entry.

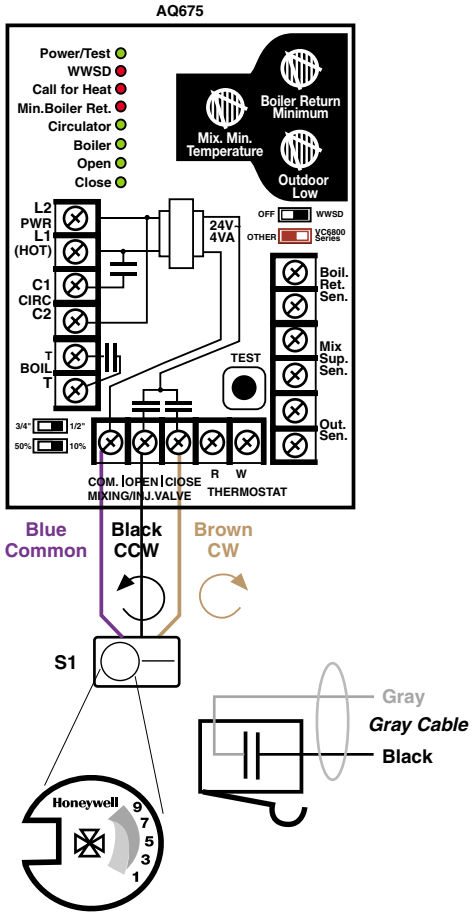


Fig. 6. M6063 wired to AQ675 Aquatrol Outdoor Temperature Compensator, right boiler water entry.

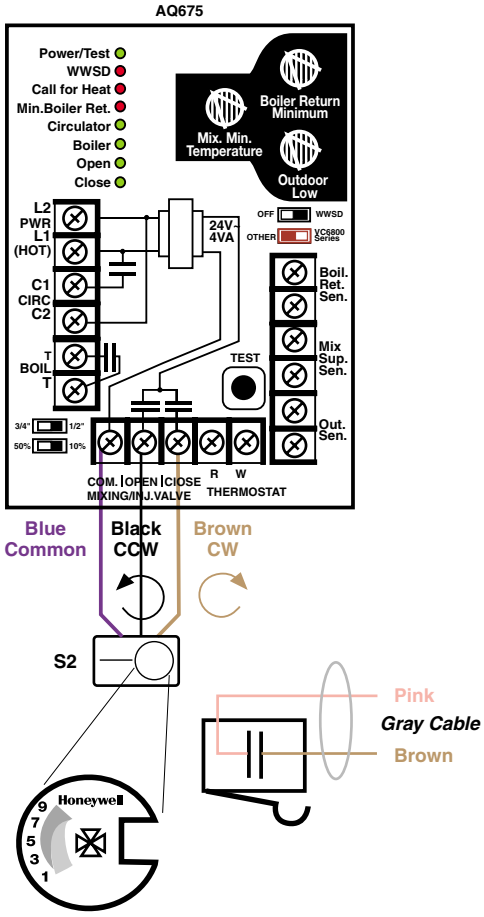
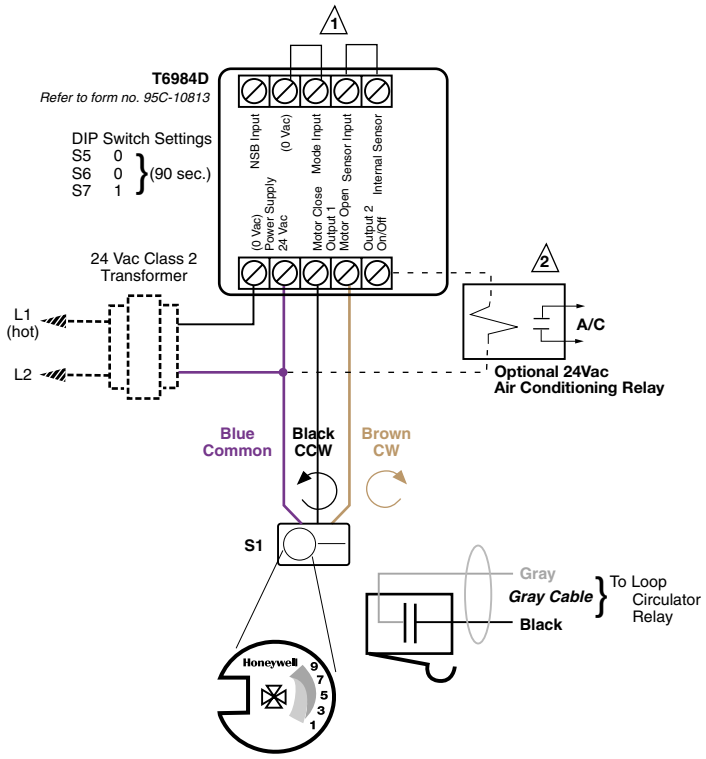


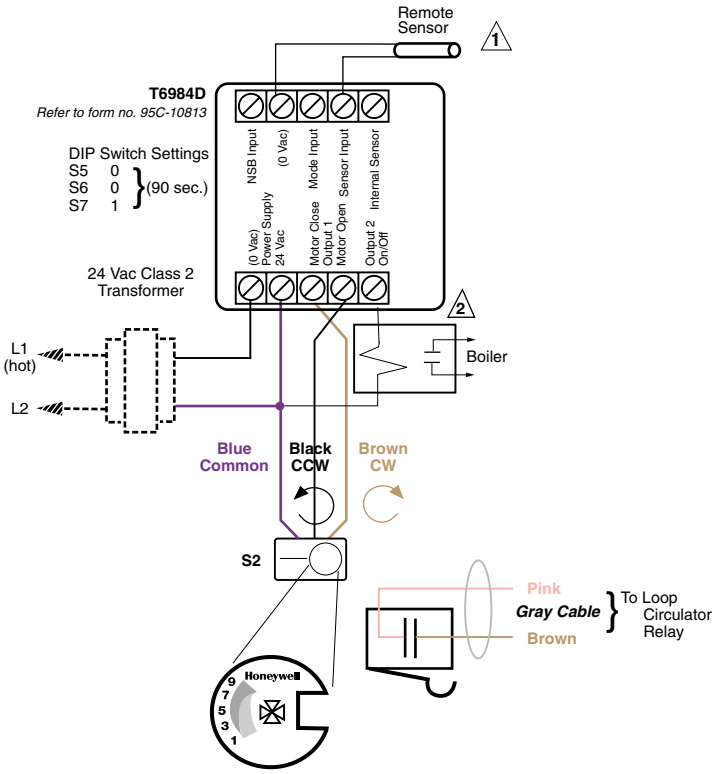
Fig. 7 M6063 wired to T6984D for room temperature control, boiler supply enters from left.



1 **Mode jumper sets Floating Output 1 to heating sequence. For 2-stage heating control, remove mode jumper and interchange motor's brown and black leads (see fig. 8).**

2 **If air conditioning interface used, set Output 2 cycle rate to 'Slow 4 cph' (S1=0), Zero Energy Band to '5°F/3°C' (S2=1), Setpoint Dial Definition to 'Centered' (S3=0, S4=0).**

Fig. 8 M6063 wired to T6984D for slab heating control with boiler feedback, boiler supply enters from right.



1 **T6984 control range is 55° to 90°F (13° to 32°C). If supply water temperature exceeds 90°F, install remote sensor on RETURN line and set thermostat to desired SPACE temperature**

2 **Set Output 2 cycle rate to 'Slow 4 cph' (S1=0), Zero Energy Band to 3°F/1.5°C (S2=0), Setpoint Dial Definition to 'Cooling' (S3=1, S4=0)**

SETTINGS

The indicator scale on the M6063 ranges from 1 to 9, where 1 (minimum) corresponds to no flow from boiler to loop and full return of boiler supply to boiler return. This scale is approximately proportional to radiation heat output, and inversely proportional to boiler return water temperature, but is not calibrated and intended for reference only. This scale matches the scale on the V5442 valve body.

Each auxiliary switch opens at one end of the actuator travel. The black/gray switch opens when the actuator runs fully counterclockwise (powered on the black control line). The brown/pink switch opens when the actuator runs fully clockwise (powered on the brown control line).

Either switch may be used to control auxiliary equipment such as a circulator relay when the valve is mixing supply water, but the appropriate switch must be chosen according to valve and actuator orientation.

OPERATION

The rotary control plug of the V5442 diverts boiler supply water to both the loop supply and boiler return. At the same time, the control plug also diverts loop return water to the boiler return and back to the loop supply. When the loop does not use much boiler water, most of it is returned to the boiler. The loop supply water temperature is the result of mixing boiler supply and loop return water, and boiler return water temperature is the result of mixing loop return water with boiler supply water.

The valve control plug has a modified equal percentage mixing characteristic on the mixed loop output to give linear heat output in the space. The plug uses a linear mixing characteristic on the mixed boiler return to give linear temperature control of boiler return water.

The M6063 may be used to control space temperature for comfort, boiler return water temperature to prevent boiler shock and condensation, or both simultaneously, depending on the sophistication of the control system.

CHECKOUT AND TEST

Checkout

1. Turn on loop and main circulators.
2. Depress the M6063 indicator knob to declutch the motor. Open the valve and verify that the loop is receiving full boiler supply. Check that equipment wired to the M6063 auxiliary switch comes on properly.
3. Close the valve to verify the loop is on 100% recirculation. Check that equipment wired to the M6063 auxiliary switch de-energizes in the valve closed position.
4. Turn off the circulators.
5. Set the controller to its maximum setpoint. Verify that the valve has opened to full flow from the boiler.
6. Set the controller to its minimum setpoint. Verify that the valve has opened to full flow from the loop return.
7. Restore the controller to its operating settings.

TROUBLESHOOTING

Table 2. Troubleshooting

Symptom	Possible Causes	Action
Space temperature too low.	1. Thermostat set too low. 2. Mixed supply water not hot enough.	1. Turn up thermostat. 2. Set V5442 to higher number
Boiler return temperature too low.	1. Boiler Aqustat control set too low. 2. Mixed return water not hot enough. 3. Aquatrol minimum temperature too low.	1. Turn up Aquastat. 2. Set V5442 to lower number 3. Increase Aquatrol minimum temperature setting
Space gets colder as higher valve settings selected	Loop supply and boiler return pipes are reversed.	Switch control handle to opposite scale.

SERVICING

The M6063 contains no serviceable parts. If defective, replace the actuator.
In automatic control systems where the V5442 has been motorized with an M6063 actuator, the V5442 should be operated every 3 days or so during the off season to ensure the valve does not seize up.

Home and Building Control
Honeywell Inc.
1885 Douglas Drive North
Minneapolis, MN
55422-4386

Honeywell Limited-Honeywell Limitée
155 Gordon Baker Road
Toronto, ON
M2H 3N7

Honeywell