

## Installation, Operation and Maintenance

# 2-Way Zone Valves

Models: 700F, 701FT, 701S, 701PR, 702FT, 702S, 702PR, 703FT, 703S, 703PR



### ⚠ WARNING



Please read carefully before proceeding with installation. Your failure to follow any attached instructions or operating parameters may lead to the product's failure.

Keep this Manual for future reference.

**tekmar**<sup>®</sup>

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## Introduction

The tekmar 2-Way Zone Valve regulates flow into heating and cooling zones in a hydronic heating / cooling system. The valves are normally closed and are electro-mechanically actuated, with a connection to an end switch.

# Important Safety Information

## WARNING

It is your responsibility to ensure that the valve is safely installed according to all applicable codes and standards. tekmar® is not responsible for damages resulting from improper installation and/or maintenance.

To avoid serious personal injury and damage to the equipment:



- Read Manual and all product labels BEFORE using the equipment. Do not use unless you know the safe and proper operation of this equipment.



- Keep this Manual available for easy access by all users.
- Replacement Manuals are available at [tekmarControls.com](http://tekmarControls.com)



This is a safety-alert symbol. The safety alert symbol is shown alone or used with a signal word (DANGER, WARNING, or CAUTION), a pictorial and/or a safety message to identify hazards. When you see this symbol alone or with a signal word on your equipment or in this Manual, be alert to the potential for death or serious personal injury.



This pictorial alerts you to electricity, electrocution, and shock hazards.



Double insulated.

## WARNING

This symbol identifies hazards which, if not avoided, could result in death or serious injury.

## CAUTION

This symbol identifies hazards which, if not avoided, could result in minor or moderate injury.

## NOTICE

This symbol identifies practices, actions, or failure to act which could result in property damage or damage to the equipment.

## WARNING

- It is the installer's responsibility to ensure that the valve is safely installed according to all applicable codes and standards.
- Improper installation and operation of the valve could result in damage to the equipment and possibly even personal injury or death.

## NOTICE

Do not attempt to service the valve. There are no user serviceable parts inside the valve. Attempting to do so voids warranty.

# Installation

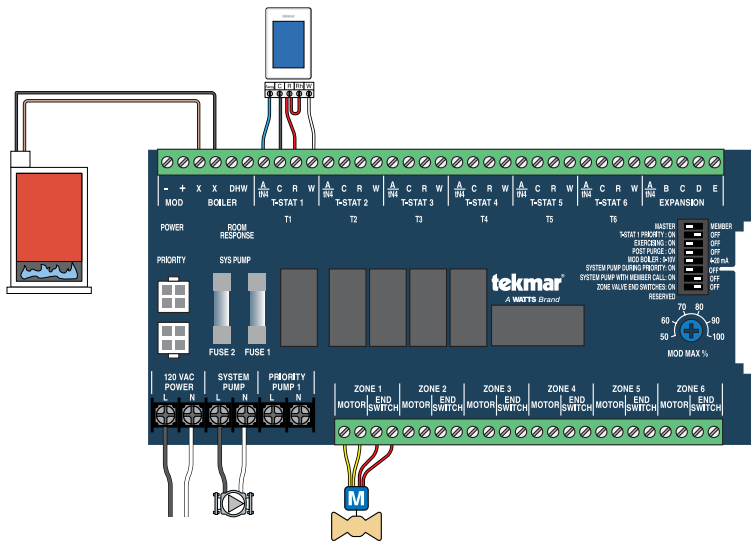
## Wiring Instructions

This section explains how to wire the zone valve.

### Using a tekmar® Zone Valve Control

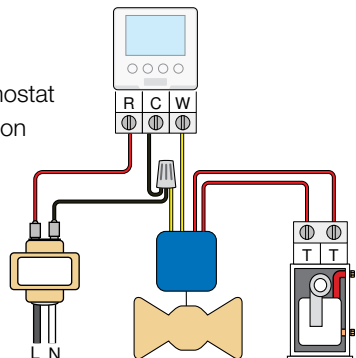
- Connect the 2 yellow wires to the 2 motor contacts on the zone valve control
- Connect the 2 red wires to the 2 end switch contacts on the zone valve control

Note: The connections are not polarity sensitive.



### Direct to a Thermostat & Boiler

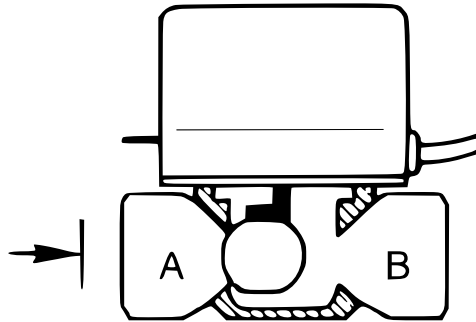
- Connect 24 V transformer R to thermostat Rh
- Connect 1 yellow wire to the W terminal on the thermostat
- Connect 1 yellow wire to the 24 V transformer common
- Connect the 2 red wires to the TT contact on the boiler



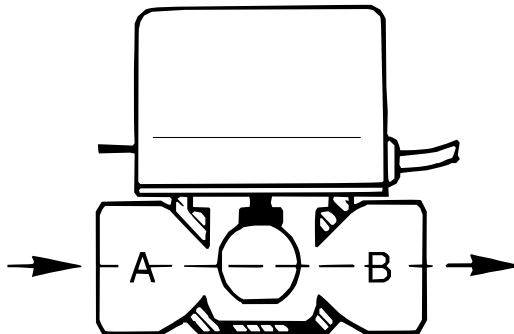
# Sequence of Operation

## Valve Operation

The valves are normally closed. A spring keeps the valve shut by pushing a ball to prevent the flow of water.



When power is provided, a motor pushes the spring and moves the ball to open the valve.



Once the power is unenergized, the spring pushes the ball back to close the valve, which takes about 4 seconds.

If power is interrupted the spring will close the valve.

## End Switch

Once the valve is fully open, the end switch closes to signal to the boiler to turn on.

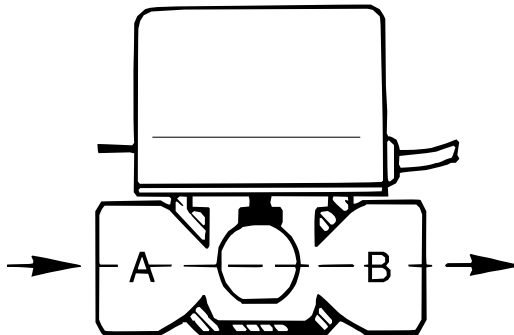
# Maintenance

## General Maintenance

The valve does not require specific maintenance and cleaning procedures. Check that the electrical supply is in good condition. If it is necessary to clean the valve make sure the electrical supply is off and that fluid is not passing through the valve.

## Manual Override

There is a lever on the side of the actuator that lets you open the valve by hand and keep it open even when the actuator is unenergized. This is helpful when testing the hydronic system. Once the actuator is energized, the valve automatically switches back to “Auto” mode from “Manual.”



### **NOTICE**

Push the manual lever slowly to prevent damaging the motor and gears.

### **NOTICE**

When sweating the valve make sure the valve is in the open position to avoid damaging the ball in the valve.

# Technical Data

Call customer support if you need assistance with technical details.

CHARACTERISTIC	VALUE
Standards	UL C US Recognized Component
Rated Supply Voltage	24 V (ac)
Power Consumption	8 VA
End Switch Rating	3A, 24 V (ac)
Maximum Operating Pressure	145 psi (10 bar)
Water Temperature	41 to 230°F (5 to 110°C)
Operating Temperature Range	41 to 140°F (5 to 60°C)
Normal Opening Time	10 s
Normal Closing Time	4 s
Weight	2.4 lb (1.1 kg)
Wire Length	3 ft (0.93 m)
Valve Body	Brass
Valve Ball	EPDM peroxide
Actuator Cover	ABS plastic
Return Springs	Stainless Steel
Fluid Media	Water, Glycol (max. 50%)

## CAUTION

Not approved for potable water.

PART NUMBER	PIPE SIZE	CONNECTION	CV VALUE	MAX PRESSURE DIFFERENTIAL	DIMENSIONS
700F	3/8"	Flare	4	20 psi (1.4 bar)	4 5/8" L x 2 5/8" W x 4" H (118 x 67 x 101 mm)
701S	1/2"	Sweat	4	20 psi (1.4 bar)	4" L x 2 5/8" W x 4" H (101 x 67 x 101 mm)
701FT	1/2"	Female NPT	4	20 psi (1.4 bar)	4" L x 2 5/8" W x 4" H (101 x 67 x 101 mm)
701PR	1/2"	Press	4	20 psi (1.4 bar)	6 7/8" L x 2 5/8" W x 4" H (175 x 67 x 101 mm)
702S	3/4"	Sweat	4	20 psi (1.4 bar)	4" L x 2 5/8" W x 4" H (101 x 67 x 101 mm)
702FT	3/4"	Female NPT	4	20 psi (1.4 bar)	4" L x 2 5/8" W x 4" H (101 x 67 x 101 mm)
702PR	3/4"	Press	4	20 psi (1.4 bar)	7" L x 2 5/8" W x 4" H (178 x 67 x 101 mm)
703S	1"	Sweat	9	13psi (0.9bar)	4" L x 2 5/8" W x 4 1/4" H (101 x 67 x 103 mm)
703FT	1"	Female NPT	9	13psi (0.9bar)	4" L x 2 5/8" W x 4 1/4" H (101 x 67 x 103 mm)
703PR	1"	Press	9	13psi (0.9bar)	7 5/8" L x 2 5/8" W x 4 1/4" H (194 x 67 x 103 mm)

# Limited Warranty and Product Return Procedure

**Limited Warranty** *The liability of tekmar under this warranty is limited. The Purchaser, by taking receipt of any tekmar product ("Product"), acknowledges the terms of the Limited Warranty in effect at the time of such Product sale & acknowledges that it has read & understands same. The online warranty for this product is located on Watts website (<https://www.watts.com/resources/warranty-information>) and in the event that the terms or conditions of this manual conflict with the online warranty, the terms and conditions of the online warranty shall control.*

The tekmar Limited Warranty to the Purchaser on the Products sold hereunder is a manufacturer's pass-through warranty which the Purchaser is authorized to pass through to its customers. Under the Limited Warranty, each tekmar Product is warranted against defects in workmanship & materials if the Product is installed & used in compliance with tekmar's instructions, ordinary wear & tear excepted. The pass-through warranty period is for a period of twenty-four (24) months from the production date if the Product is not installed during that period, or twelve (12) months from the documented date of installation if installed within twenty-four (24) months from the production date.

The liability of tekmar under the Limited Warranty shall be limited to, at tekmar's sole discretion: the cost of parts & labor provided by tekmar to repair defects in materials &/or workmanship of the defective product; or to the exchange of the defective product for a warranty replacement product; or to the granting of credit limited to the original cost of the defective product, & such repair, exchange or credit shall be the sole remedy available from tekmar, &, without limiting the foregoing in any way, tekmar is not responsible, in contract, tort or strict product liability, for any other losses, costs, expenses, inconveniences, or damages, whether direct, indirect, special, secondary, incidental or consequential, arising from ownership or use of the product, or from defects in workmanship or materials, including any liability for fundamental breach of contract.

The pass-through Limited Warranty applies only to those defective Products returned to tekmar during the warranty period. This Limited Warranty does not cover the cost of the parts or labor to remove or transport the defective Product, or to reinstall the repaired or replacement Product, all such costs & expenses being subject to Purchaser's agreement & warranty with its customers.

Any representations or warranties about the Products made by Purchaser to its customers which are different from or in excess of the tekmar Limited Warranty are the Purchaser's sole responsibility & obligation. Purchaser shall indemnify & hold tekmar harmless from & against any & all claims, liabilities & damages of any kind or nature which arise out of or are related to any such representations or warranties by Purchaser to its customers.

The pass-through Limited Warranty does not apply if the returned Product has been damaged by negligence by persons other than tekmar, accident, fire, Act of God, abuse or misuse; or has been damaged by modifications, alterations or attachments made subsequent to purchase which have not been authorized by tekmar; or if the Product was not installed in compliance with tekmar's instructions &/or the local codes & ordinances; or if due to defective installation of the Product; or if the Product was not used in compliance with tekmar's instructions.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WHICH THE GOVERNING LAW ALLOWS PARTIES TO CONTRACTUALLY EXCLUDE, INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY & FITNESS FOR A PARTICULAR PURPOSE, DURABILITY OR DESCRIPTION OF THE PRODUCT, ITS NON-INFRINGEMENT OF ANY RELEVANT PATENTS OR TRADEMARKS, & ITS COMPLIANCE WITH OR NON-VIOLATION OF ANY APPLICABLE ENVIRONMENTAL, HEALTH OR SAFETY LEGISLATION; THE TERM OF ANY OTHER WARRANTY NOT HEREBY CONTRACTUALLY EXCLUDED IS LIMITED SUCH THAT IT SHALL NOT EXTEND BEYOND TWENTY-FOUR (24) MONTHS FROM THE PRODUCTION DATE, TO THE EXTENT THAT SUCH LIMITATION IS ALLOWED BY THE GOVERNING LAW.

**Product Warranty Return Procedure** All Products that are believed to have defects in workmanship or materials must be returned, together with a written description of the defect, to the tekmar Representative assigned to the territory in which such Product is located. If tekmar receives an inquiry from someone other than a tekmar Representative, including an inquiry from Purchaser (if not a tekmar Representative) or Purchaser's customers, regarding a potential warranty claim, tekmar's sole obligation shall be to provide the address & other contact information regarding the appropriate Representative.



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All specifications are subject to change without notice

Tel: 1-800-438-3903 • Fax: (250) 984-0815

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