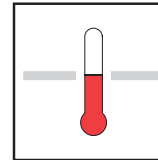


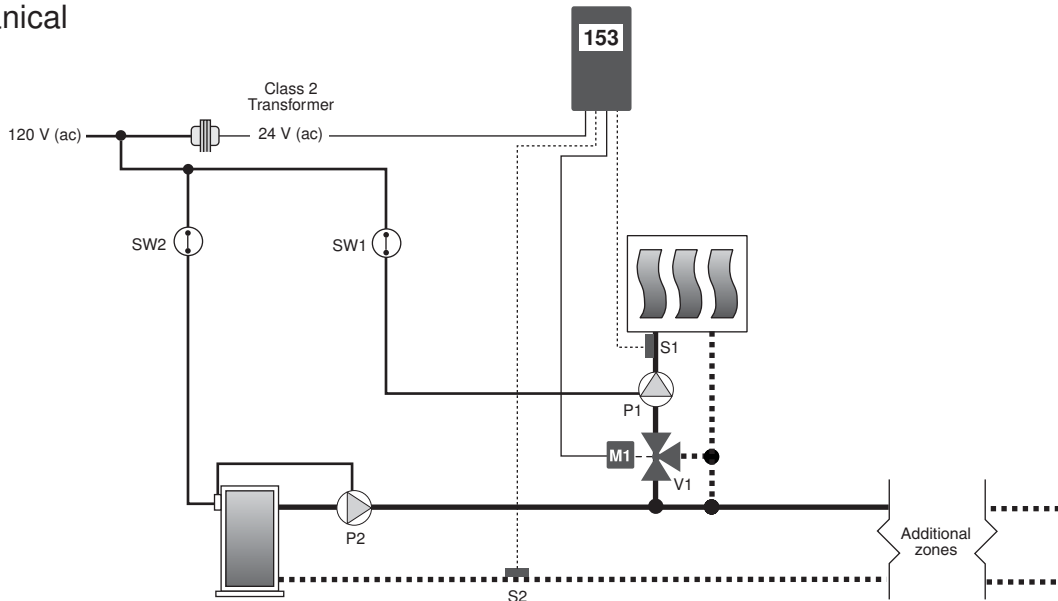
tekmar® - Application

Mixing Setpoint Control 153



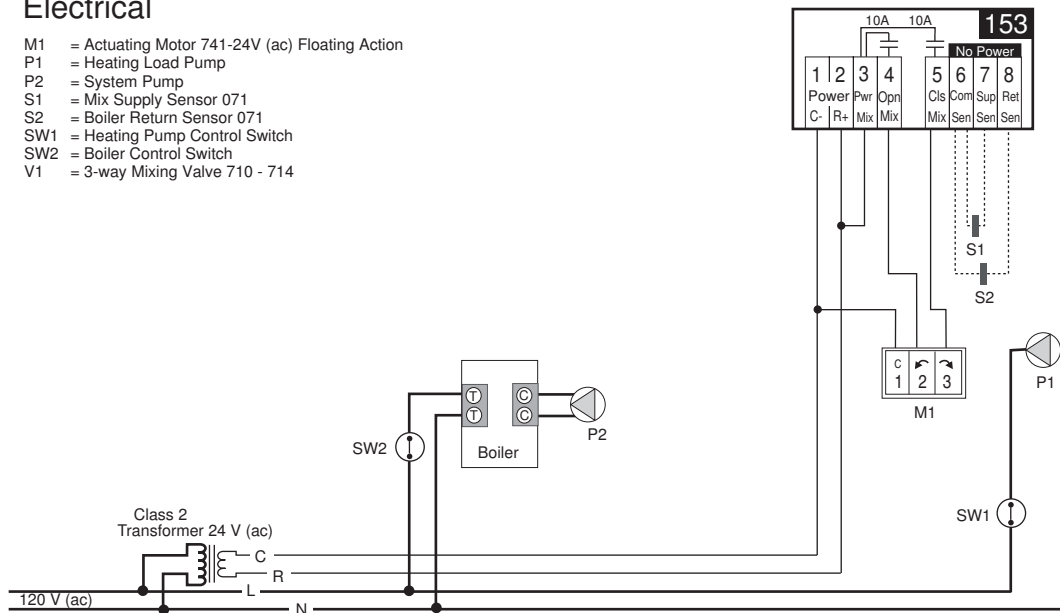
A 153-1
12/08

Mechanical



Electrical

- M1 = Actuating Motor 741-24V (ac) Floating Action
- P1 = Heating Load Pump
- P2 = System Pump
- S1 = Mix Supply Sensor 071
- S2 = Boiler Return Sensor 071
- SW1 = Heating Pump Control Switch
- SW2 = Boiler Control Switch
- V1 = 3-way Mixing Valve 710 - 714

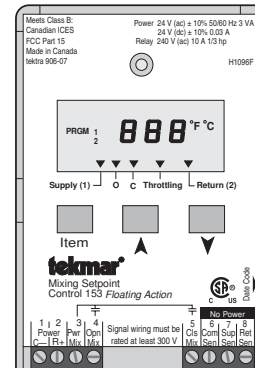


Note: This is only a concept drawing. The designer must determine whether this application will work in his system and must ensure compliance with code requirements. Necessary auxiliary equipment, isolation relays (for loads greater than the specified tekmar internal relay ratings), and other safety and limit devices must be added.

Technical Data

Mixing Setpoint Control 153 *Floating*

Literature	— A 153's, D 153, D 001, D 070
Control	— Microprocessor control; This is not a safety (limit) control .
Packaged weight	— 0.66 lb. (300 g), Enclosure C, PVC plastic
Dimensions	— 4-3/4" H x 2-7/8" W x 7/8" D (120 x 74 x 22 mm)
Approvals	— CSA C US, CSA 22.2 No 24 and UL 873, meets class B: ICES & FCC Part 15
Ambient conditions	— Indoor use only, -20 to 120°F (-30 to 50 °C), < 90% RH non-condensing.
Power supply	— 24 V (ac) ±10%, 50/60 Hz, 3 VA or 24 V (dc) ± 10%, 0.03 A
Relays	— 240 V (ac) 10 A, 1/3 hp
Sensors	— NTC thermistor, 10 kΩ @ 77°F (25°C ±0.2°C) β=3892
included:	Universal Sensor 071
optional:	Universal Sensor 071
Programmed settings	— Ten year memory backup
Control accuracy	— ±0.5°F (±0.3°C) with up to 500 feet (150 m) of 18 AWG wire to sensors.
Temperature display	— -85 to 302°F (-65 to 150°C)
Supply (1) Setpoint	— -40 to 239°F (-40 to 115°C)
Throttling Range	— 16 to 66°F (9 to 37°C)
Boiler Return (2)	— -40 to 239°F (-40 to 115°C)
Temperature display	— Fahrenheit / Celsius



System Operation & Specifications

The Mixing Setpoint Control 153 controls a 4-way mixing valve in order to maintain a preset mixed supply temperature. With the addition of the optional Universal Sensor 071 (S2) on the boiler return, the 153 also provides Boiler Return Protection.

Piping and Heat Source Details The system is piped in a primary - secondary arrangement using a 4-way mixing valve. The boiler and the boiler loop pump (P1) are controlled by the boiler's control package. The system pump (P2) operates continuously providing flow through the system.

Mixing Operation The 153 modulates the mixing valve using a Floating Action Output. The installer / operator is required to set the *Supply* temperature, *Throttling* range and *Return* temperature limits using the digital display in the control. With this information, the control modulates the mixing valve in order to maintain the desired setpoint.

Boiler Protection As the boiler return temperature approaches the *Return* temperature setting, the 153 begins closing the valve in order to limit the amount of cool water returning to the boiler. In this situation, the protection of the boiler takes priority over maintaining the supply temperature.

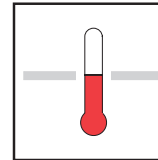
Additional Functions Additional control functions are listed in the table in the Setpoint Controls section of the Product Catalog I 000.



tekmar Control Systems Ltd., Canada
 tekmar Control Systems, Inc., U.S.A.
Head Office: 5100 Silver Star Road
Vernon, B.C. Canada V1B 3K4
Tel. (250) 545-7749 Fax. (250) 545-0650

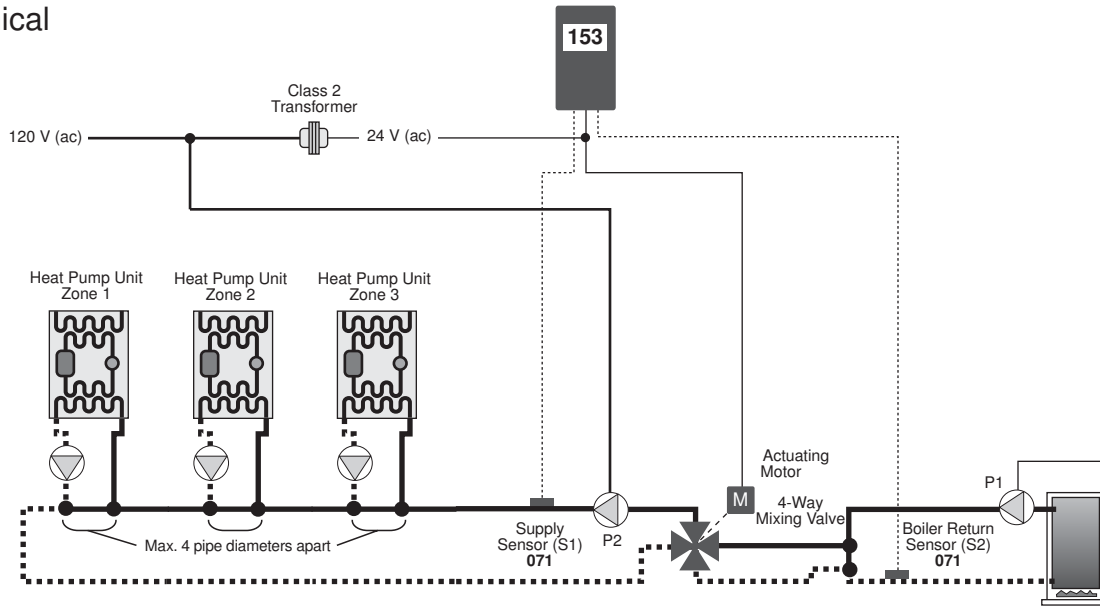
tekmar® - Application

Mixing Setpoint Control 153



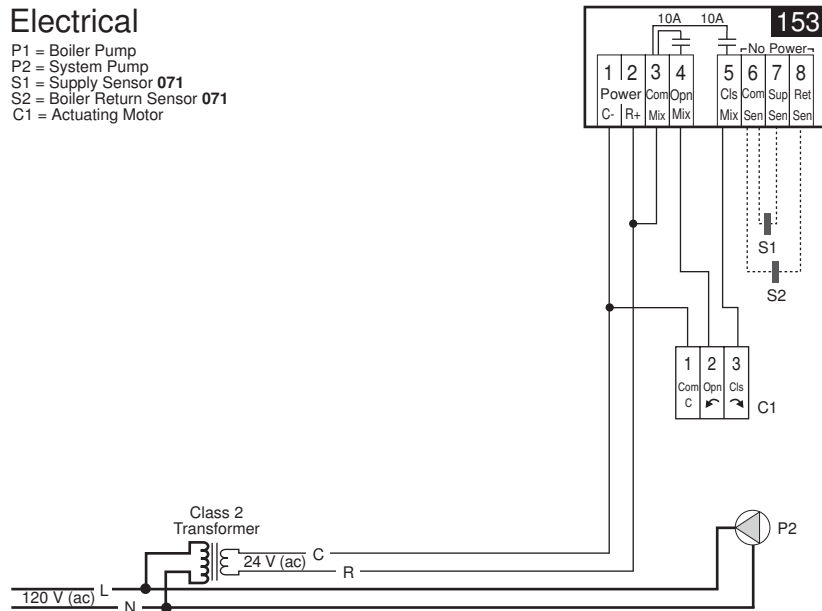
A 153-2
12/08

Mechanical



Electrical

- P1 = Boiler Pump
- P2 = System Pump
- S1 = Supply Sensor 071
- S2 = Boiler Return Sensor 071
- C1 = Actuating Motor

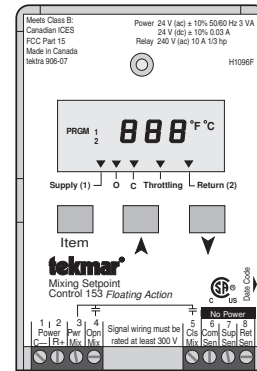


Note: This is only a concept drawing. The designer must determine whether this application will work in his system and must ensure compliance with code requirements. Necessary auxiliary equipment, isolation relays (for loads greater than the specified tekmar internal relay ratings), and other safety and limit devices must be added.

Technical Data

Mixing Setpoint Control 153 *Floating*

Literature	— A 153's, D 153, D 001, D 070
Control	— Microprocessor control; This is not a safety (limit) control .
Packaged weight	— 0.66 lb. (300 g), Enclosure C, PVC plastic
Dimensions	— 4-3/4" H x 2-7/8" W x 7/8" D (120 x 74 x 22 mm)
Approvals	— CSA C US, CSA 22.2 No 24 and UL 873, meets class B: ICES & FCC Part 15
Ambient conditions	— Indoor use only, -20 to 120°F (-30 to 50°C), < 90% RH non-condensing.
Power supply	— 24 V (ac) ±10%, 50/60 Hz, 3 VA or 24 V (dc) ± 10%, 0.03 A
Relays	— 240 V (ac) 10 A, 1/3 hp
Sensors	— NTC thermistor, 10 kΩ @ 77°F (25°C ±0.2°C) β=3892
included:	Universal Sensor 071
optional:	Universal Sensor 071
Programmed settings	— Ten year memory backup
Control accuracy	— ±0.5°F (±0.3°C) with up to 500 feet (150 m) of 18 AWG wire to sensors.
Temperature display	— -85 to 302°F (-65 to 150°C)
Supply (1) Setpoint	— -40 to 239°F (-40 to 115°C)
Throttling Range	— 16 to 66°F (9 to 37°C)
Boiler Return (2)	— -40 to 239°F (-40 to 115°C)
Temperature display	— Fahrenheit / Celsius



System Operation & Specifications

The Mixing Setpoint Control 153 controls a 4-way mixing valve in order to maintain a preset mixed supply temperature. With the addition of the optional Universal Sensor 071 (S2) on the boiler return, the 153 also provides Boiler Return Protection.

Piping and Heat Source Details The system is piped in a primary - secondary arrangement using a 4-way mixing valve. The boiler and the boiler loop pump (P1) are controlled by the boiler's control package. The system pump (P2) operates continuously providing flow through the system.

Mixing Operation The 153 modulates the mixing valve using a Floating Action Output. The installer / operator is required to set the *Supply* temperature, *Throttling* range and *Return* temperature limits using the digital display in the control. With this information, the control modulates the mixing valve in order to maintain the desired setpoint.

Boiler Protection As the boiler return temperature approaches the *Return* temperature setting, the 153 begins closing the valve in order to limit the amount of cool water returning to the boiler. In this situation, the protection of the boiler takes priority over maintaining the supply temperature.

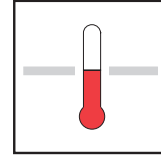
Additional Functions Additional control functions are listed in the table in the Setpoint Controls section of the Product Catalog I 000.



tekmar Control Systems Ltd., Canada
 tekmar Control Systems, Inc., U.S.A.
Head Office: 5100 Silver Star Road
Vernon, B.C. Canada V1B 3K4
Tel. (250) 545-7749 Fax. (250) 545-0650

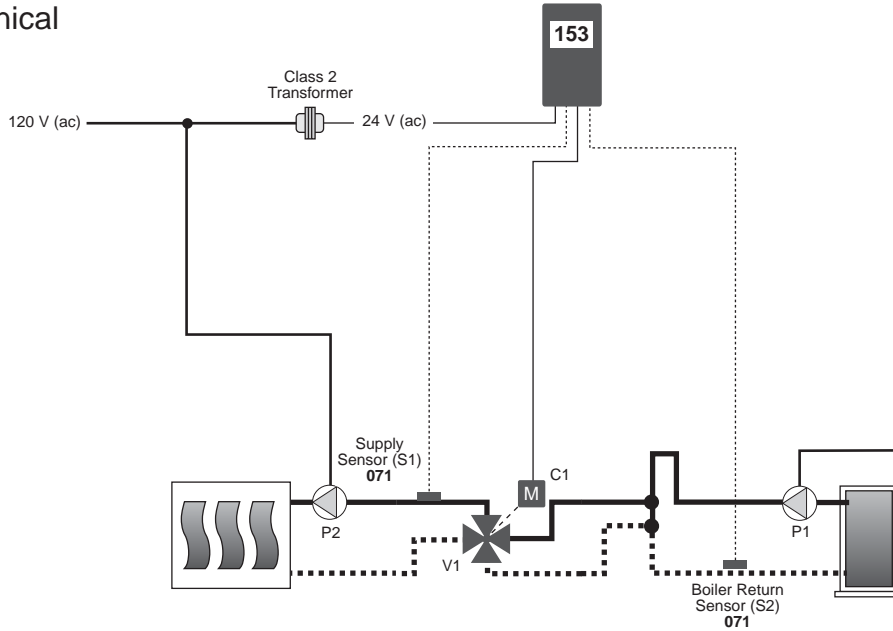
tekmar® - Application

Mixing Setpoint Control 153



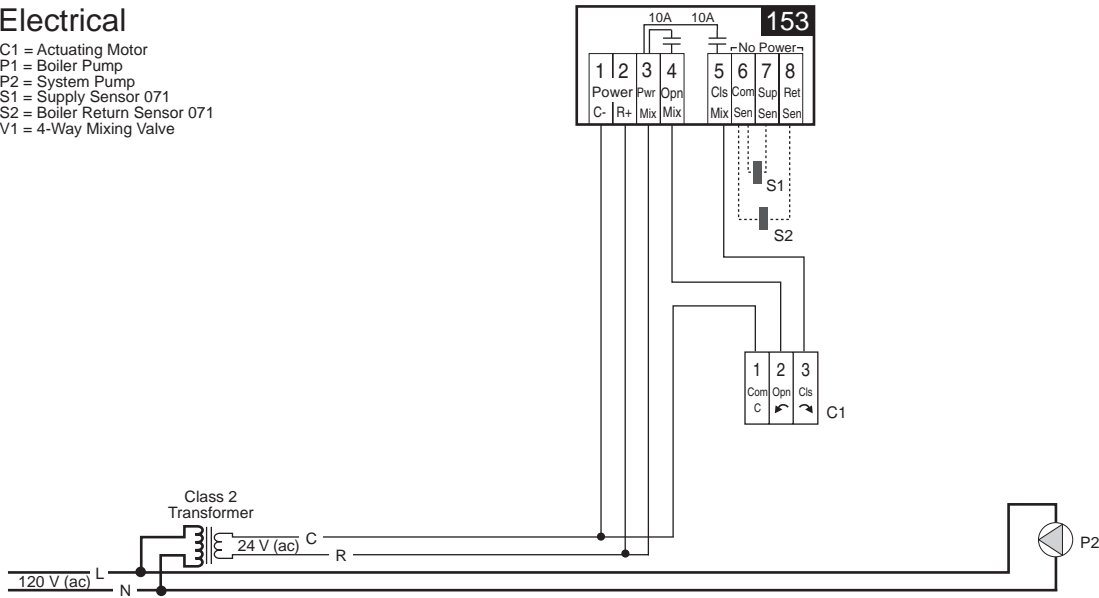
A 153-3
12/08

Mechanical



Electrical

- C1 = Actuating Motor
- P1 = Boiler Pump
- P2 = System Pump
- S1 = Supply Sensor 071
- S2 = Boiler Return Sensor 071
- V1 = 4-Way Mixing Valve

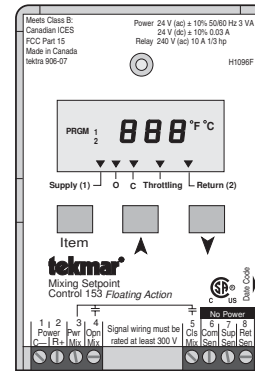


Note: This is only a concept drawing. The designer must determine whether this application will work in his system and must ensure compliance with code requirements. Necessary auxiliary equipment, isolation relays (for loads greater than the specified tekmar internal relay ratings), and other safety and limit devices must be added.

Technical Data

Mixing Setpoint Control 153 *Floating*

Literature	— A 153's, D 153, D 001, D 070
Control	— Microprocessor control; This is not a safety (limit) control .
Packaged weight	— 0.66 lb. (300 g), Enclosure C, PVC plastic
Dimensions	— 4-3/4" H x 2-7/8" W x 7/8" D (120 x 74 x 22 mm)
Approvals	— CSA C US, CSA 22.2 No 24 and UL 873, meets class B: ICES & FCC Part 15
Ambient conditions	— Indoor use only, -20 to 120°F (-30 to 50 °C), < 90% RH non-condensing.
Power supply	— 24 V (ac) ±10%, 50/60 Hz, 3 VA or 24 V (dc) ± 10%, 0.03 A
Relays	— 240 V (ac) 10 A, 1/3 hp
Sensors	— NTC thermistor, 10 kΩ @ 77°F (25°C ±0.2°C) β=3892
included:	Universal Sensor 071
optional:	Universal Sensor 071
Programmed settings	— Ten year memory backup
Control accuracy	— ±0.5°F (±0.3°C) with up to 500 feet (150 m) of 18 AWG wire to sensors.
Temperature display	— -85 to 302°F (-65 to 150°C)
Supply (1) Setpoint	— -40 to 239°F (-40 to 115°C)
Throttling Range	— 16 to 66°F (9 to 37°C)
Boiler Return (2)	— -40 to 239°F (-40 to 115°C)
Temperature display	— Fahrenheit / Celsius



System Operation & Specifications

The Mixing Setpoint Control 153 controls a 4-way mixing valve in order to maintain a preset mixed supply temperature. With the addition of the optional Universal Sensor 071 (S2) on the boiler return, the 153 also provides Boiler Return Protection.

Piping and Heat Source Details The system is piped in a primary - secondary arrangement using a 4-way mixing valve. The boiler and the boiler loop pump (P1) are controlled by the boiler's control package. The system pump (P2) operates continuously providing flow through the system.

Mixing Operation The 153 modulates the mixing valve using a Floating Action Output. The installer / operator is required to set the *Supply* temperature, *Throttling* range and *Return* temperature limits using the digital display in the control. With this information, the control modulates the mixing valve in order to maintain the desired setpoint.

Boiler Protection As the boiler return temperature approaches the *Return* temperature setting, the 153 begins closing the valve in order to limit the amount of cool water returning to the boiler. In this situation, the protection of the boiler takes priority over maintaining the supply temperature.

Additional Functions Additional control functions are listed in the table in the Setpoint Controls section of the Product Catalog I 000.



tekmar Control Systems Ltd., Canada
 tekmar Control Systems, Inc., U.S.A.
Head Office: 5100 Silver Star Road
Vernon, B.C. Canada V1B 3K4
Tel. (250) 545-7749 Fax. (250) 545-0650