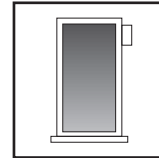


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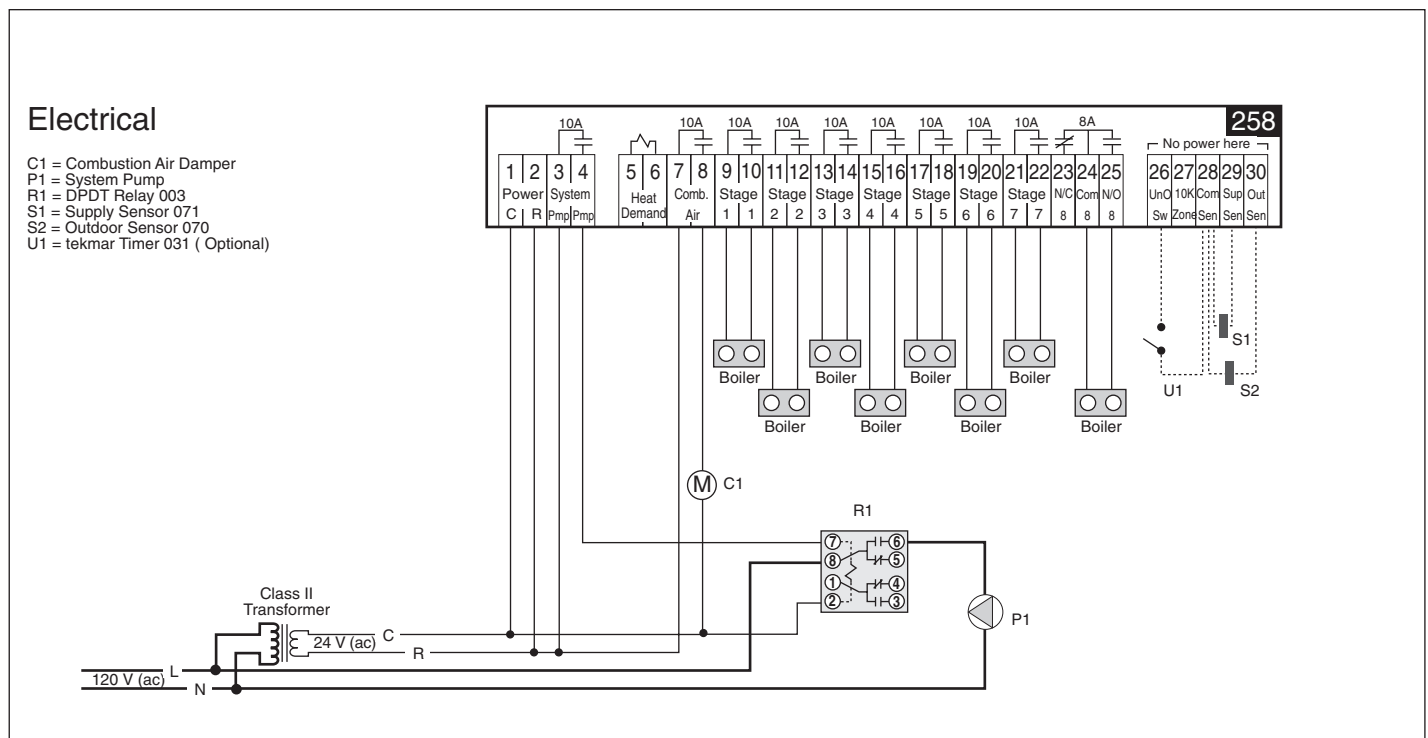
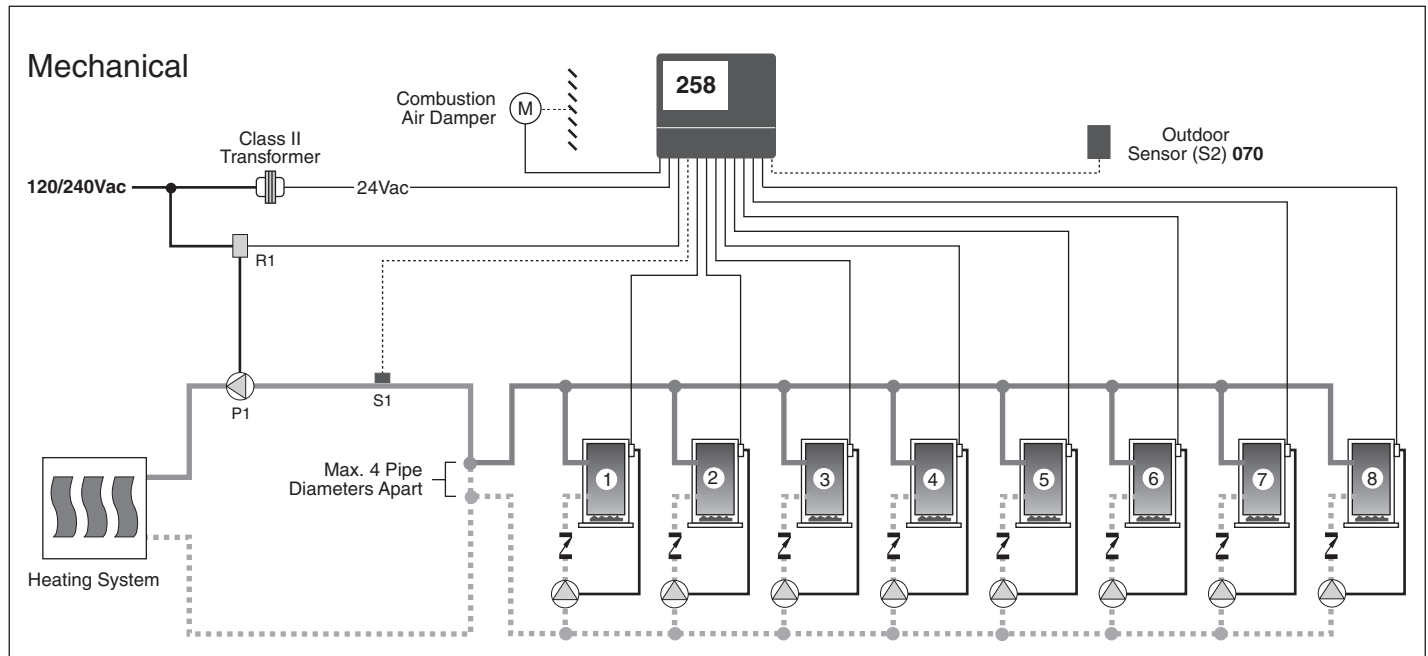
Eight Stage Boiler Control 258



A 258-1

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The Eight Stage Boiler Control 258 regulates the heating system supply water temperature based on the outdoor air temperature by cycling the boilers on and off. The System Pump and boilers are turned off in warm weather. The combustion air damper is opened before any of the boilers are fired.



Note: This is only a concept drawing. Designers must determine whether this system will work in each application and must ensure compliance with code requirements. Necessary auxiliary equipment and safety devices must be added.

Specifications

The following are minimum recommended specifications for the control in this application.

- The heating system supply water temperature shall be calculated based on the outdoor air temperature and the control's Heating Curve (reset ratio) and Occupied or Unoccupied settings.
- The control shall have both Occupied and Unoccupied (setback) operating modes.
- The control shall have a programmable 7 day digital clock and a remote Unoccupied signal input option for switching between Occupied and Unoccupied modes.
- The control shall have a Combustion air damper output that shall be energised for at least 1 minute before any boiler stage is turned on.
- The boiler(s) shall be turned off unless the outdoor air temperature is colder than the control's Warm Weather Shut Down (WWSD) temperature setting.
- The Occupied or Unoccupied temperature setting shall be the control's WWSD temperature setting.
- During WWSD the System Pump shall be operated for 20 seconds every 3 days to prevent seizure during longer idle periods.
- The control shall have an adjustable Minimum Supply water temperature limit to help prevent condensation of flue gases and subsequent corrosion and blockage of the boiler's heat exchanger and chimney.
- The control shall have an adjustable Boiler Differential and shall calculate time delays between boiler cycles and stages to prevent short operating cycles of the boiler.
- The options for rotating the boiler firing sequence shall be based on the boiler's running time.
- The control shall display all eight boiler running times.
- The control shall display the outdoor, system supply, calculated target supply and room temperatures.
- The control shall continuously monitor it's temperature sensors and provide an error message upon control or sensor failure.
- The control shall be microprocessor-based and have isolated relay contacts for outputs.
- The control shall have a test button which activates a pre-programmed test sequence, testing all sensors and control outputs.
- The control enclosure shall be compatible with standard North American wiring hardware.
- The location of the control must be within its specified temperature and humidity ranges with the installer ensuring that the control and its wiring are isolated and/or shielded from strong sources of electromagnetic noise.
- The control system component required from tekmar is an Eight Stage Boiler Control 258.

Settings

Eight Stage Boiler Control 258

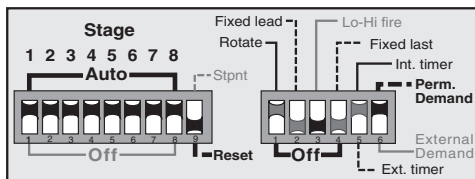
Occupied room temp.
Unoccupied room temp.
Heating Curve
Minimum Supply
Boiler Differential
Setback schedules

Adjustment Range

35 to 105°F (2 to 41°C)
35 to 105°F (2 to 41°C)
0.4 to 3.6
Off, 80 to 170°F (27 to 77°C)
2 to 42°F (1 to 23°C)
6 pre-programmed, 1 program-
mable — 7 day, 2 events per day

Recommended Initial Settings

Eight Stage Boiler Control 258 DIP switch settings for this application.



= required setting for this application.



= optional setting for this application.

(see Data Brochure D 258)

Additional Information

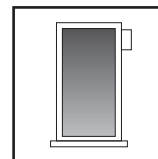
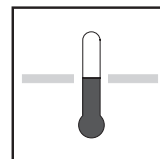
- For control installation and testing instructions see Brochure D 001 and D 258.
- For other control applications see Application Register A 000.
- For control theory and system integration details see Essays E 001 and E 002.



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Eight Stage Boiler Control 258

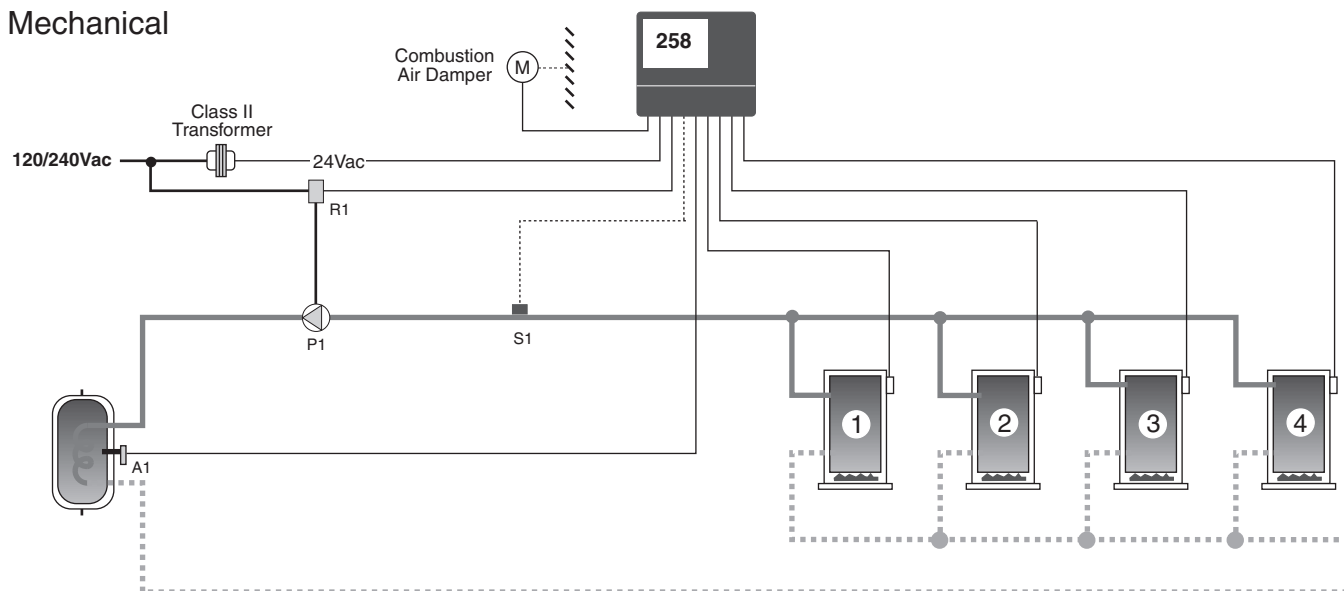


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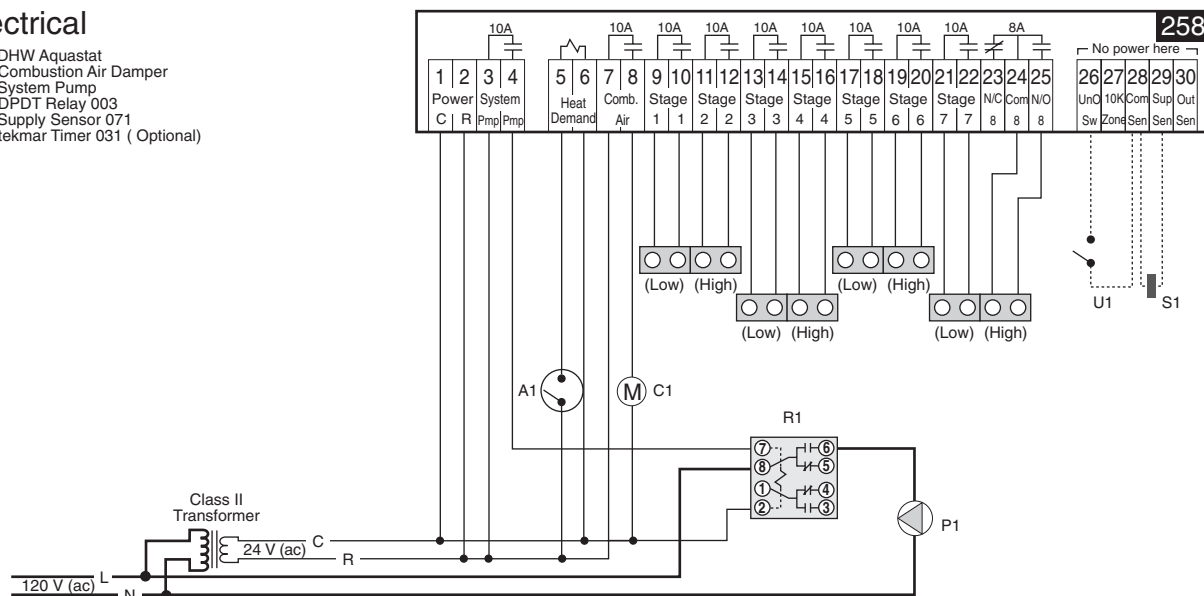
The Eight Stage Boiler Control 258 turns on the DHW pump and cycles the Lo-Hi fire boiler stages on and off to control the supply temperature to the DHW tank whenever there is a setpoint demand signal from the aquastat. The combustion air damper is opened before any of the boilers are fired.

Mechanical



Electrical

A1 = DHW Aquastat
C1 = Combustion Air Damper
P1 = System Pump
R1 = DPDT Relay 003
S1 = Supply Sensor 071
U1 = tekmar Timer 031 (Optional)



Note: This is only a concept drawing. Designers must determine whether this system will work in each application and must ensure compliance with code requirements. Necessary auxiliary equipment and safety devices must be added.

Specifications

The following are minimum recommended specifications for the control in this application.

- The supply water temperature shall be based on the Occupied and Unoccupied Setpoint settings.
- The control shall have a programmable 7 day digital clock and a remote Unoccupied signal input option for switching between Occupied and Unoccupied modes.
- The control shall have a Combustion air damper output that shall be energised for at least 1 minute before any boiler stage is turned on.
- The pump and boilers shall be turned off until there is a Heat Demand from the DHW Aquastat.
- The control shall have an adjustable Minimum Supply water temperature limit to help prevent condensation of flue gases and subsequent corrosion and blockage of the boiler heat exchanger and chimney.
- The control shall have an adjustable Boiler Differential and shall calculate time delays between boiler cycles and stages to prevent short operating cycles of the boilers.
- The options for rotating the boilers firing sequence shall be based on the boiler's running time.
- The control shall display all eight boiler running times.
- The control shall display the actual and target supply temperatures.
- The control shall continuously monitor its temperature sensors and provide an error message upon control or sensor failure.
- The control shall be microprocessor-based and have isolated relay contacts for outputs.
- The control shall have a Test button which activates a pre-programmed test sequence, testing all sensors and control outputs.
- The control enclosure shall be compatible with standard North American wiring hardware.
- The location of the control must be within its specified temperature and humidity ranges, with the installer ensuring that the control and its wiring are isolated and/or shielded from strong sources of electromagnetic noise.
- The control system component required from tekmar is an Eight Stage Boiler Control 258.

Settings

Eight Stage Boiler Control 258

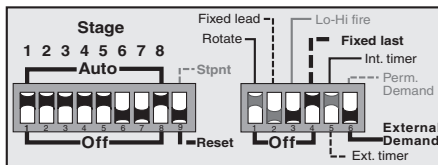
Occupied Setpoint temp.
Unoccupied Setpoint temp.
Minimum Supply
Boiler Differential
Setback schedules

Adjustment Range

70 to 248°F (21 to 120°C)
70 to 248°F (21 to 120°C)
Off, 80 to 170°F (27 to 77°C)
2 to 42°F (1 to 23°C)
6 pre-programmed, 1 program-
mable — 7 day, 2 events per day

Recommended Initial Settings

Eight Stage Boiler Control 258 DIP switch settings for this application.



= required setting for this application.



= optional setting for this application.



= does not matter, switch not used for this application
(see Data Brochure D 258)

Additional Information

- For control installation and testing instructions see Brochure D 001 and D 258.
- For other control applications see Application Register A 000.
- For control theory and system integration details see Essays E 001 and E 002.



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