

SQ-ELITE HEATING CONTROL

Advanced Sequencing Control for Hydronic, Steam,
and Motorized Valve Systems

FEATURES



Hydronic Heating using Outdoor Reset or Set Point.



Multiple Rotation Options that promote even wear. There are three rotation options; Timed Rotation, Manual rotation, and First-On/First-Off.



Adding Stages. Controls up to eight stages. Optional Extension allows control for a total of 24 Stages.



Day and Night Scheduling allows adjustable heat levels resulting in fuel savings.



Domestic Hot Water. Various DHW call options along with DHW pump control.



DESCRIPTION

A Multi-Stage Output Sequencing Control for Hydronic, Steam, or Motorized Valve applications based on Outdoor Reset or a Set Point. The SQ-Elite comes in many models. It's available as an eight-stage hydronic or steam sequencing control. It is also available as a six-stage hydronic sequencing control with an additional motorized valve control. It incorporates many additional features and flexibilities that can be customized to each application's unique characteristics.

ADDITIONAL FEATURES

Parallel or Over-Sized-System (OSS) Sequencing: an advanced PID logic to provide an efficient and adjustable sequencing that can fit most heating and cooling applications whether the outputs are to sequence normally, Lo/Hi/Lo/Hi, or in parallel, Lo/Lo/Hi/Hi. OSS has been designed to satisfy applications where fast response is required to match the load, as with process applications.

Communicate with EMS (Energy Management Systems): The SQ-Elite with its built-in Shutdown and Prove inputs, is capable of connecting to and being controlled by an EMS.

Optional BACnet Communication: With the BACnet option, a SQ-Elite can act as a node in a BACnet network. A proprietary EMS/BMS can integrate the SQ-Elite through BACnet.

SQ - ELITE FEATURES

- **Built-in Outdoor Reset** - The outdoor reset combined with the PID sequencing makes the SQ-Elite the control of choice for a variety of Hydronic applications.
- **Remote Set Point** - Capable of accepting a remote 4-20mA set point when used with the 4-20mA EMS Interface (purchased separately).
- **Hydronic, Steam, and Motorized Valve Options** - The SQ-Elite offers multiple solutions to most applications. SQ-Elite models come as either a multi-stage hydronic sequencing control with DHW pump and stage-pump control, as a multi-stage steam sequencing control, or as a multi-stage hydronic control with additional outputs to control a floating motorized valve.
- **Multiple Rotation Options** - The SQ-Elite will rotate boilers using a variety of options. Either based on Time; ranging from 1 hour to 60 days in one hour increments, Last-On rotation; allows for the first boiler to fire to be the first boiler to turn off, or based on manual rotation.
- **Control Outputs and their Pumps or Valves** - The SQ-Elite can be configured to control either the individual unit-stages or control the unit-stages and their pumps or valves.
- **Normal PID and Over-Sized-System (OSS) Sequencing** - Depending on the application, two control logics will be available. Normal PID offers a sequencing that is based on the rate of change. It is best suited for building heating or cooling applications. OSS provides faster response based on a variable load, which can be adjusted to fit most process applications.
- **Built-In Combustion Air Damper Control** - When the Combustion Air relay is used, the Prove can be used to check damper status and activate output stages.
- **Standby Stage with Delay** - The SQ-Elite allows individual stages to be continuously On, Off, Automatic, or Standby with an adjustable delay.
- **External Setback/Scheduling** - External Setback signal acceptance has been provided as an option for applications that are not to follow a predetermined schedule. In addition, an adjustable Day/Night schedule has been provided primarily for building heating.
- **Domestic Hot Water Pump Control with Multiple Priority Options** - The SQ-Elite can accept either a dry-contact or input from the Optional DHW sensor, (purchased separately). On a DHW call the SQ-Elite will increase system target temperature and energize the DHW Pump relay. Depending on the Priority setting, the SQ-Elite will either dedicate all output to domestic hot water alone or in addition to heat (leaving system pump running during DHW call).
- **Built-in Prove and Shutdown** - The Prove can be used to check the status of other equipment, such as the end switch on a combustion air damper prior to firing the boilers. Furthermore, Shutdown can be activated from any safety control feedback.
- **Minimum Boiler Return**. An optional return sensor (purchased separately) can be connected to offer better management of return temperature to reduce boiler condensation and thermal shock.
- **System and Output Pumps with Adjustable Run-On Delay**. The SQ-Elite has a System Output Relay that can be configured to run a system pump. The relay can be adjusted to operate during unit operation or when below a specified Outdoor Cutoff.

ITEM DESCRIPTION	PART #
SQ-8T Elite - Hydronic	926730-00
SQ-MOV Elite - Hydronic / Valve	926728-00
SQ-8S Elite - Steam	926737-00
SQ -Elite Extension Panel	926732-00
ELITE Series 4-20mA EMS Module	926741-00
ELITE Series BACnet Module	926781-00

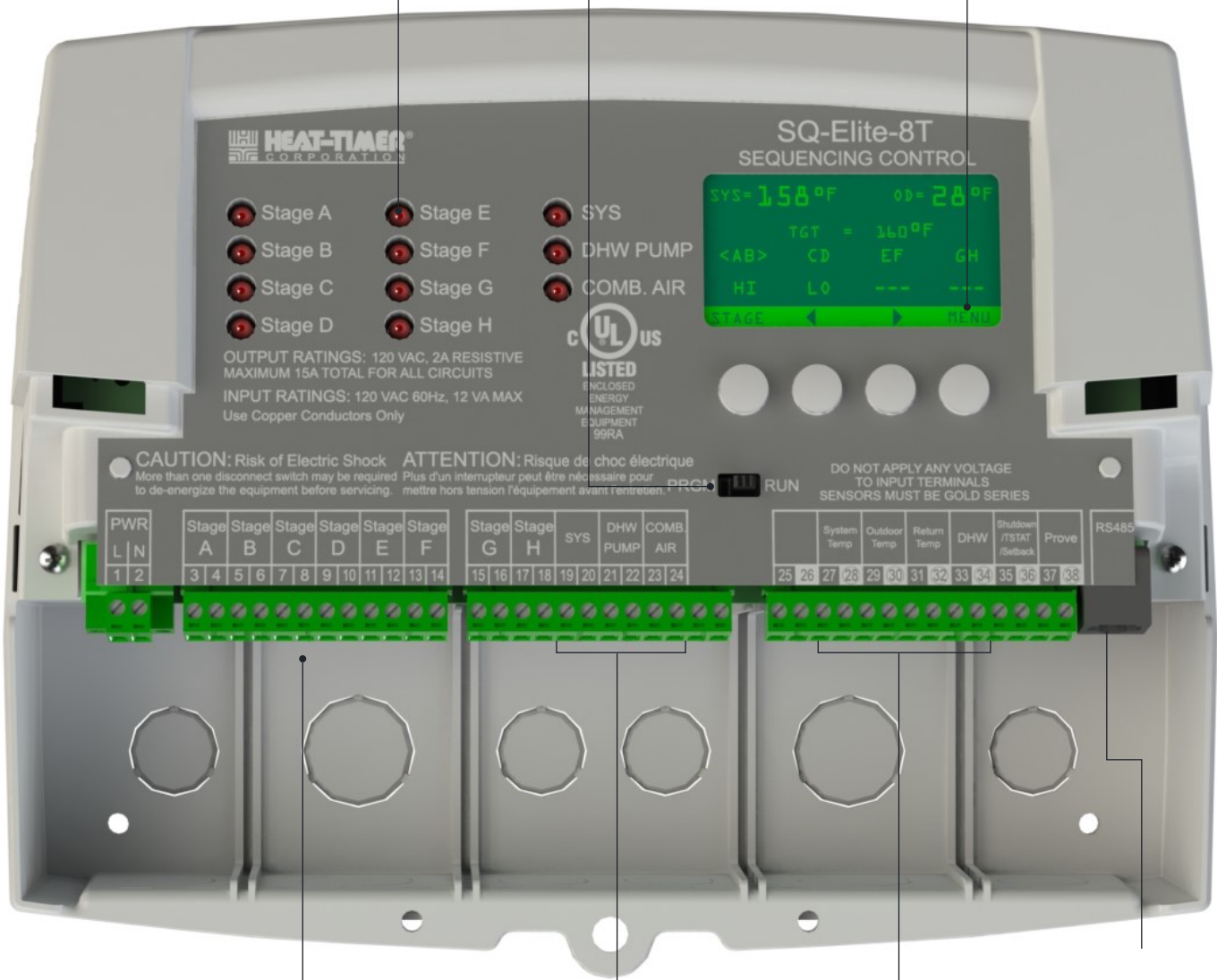


SQ-ELITE-8 PANEL

Program Switch to restrict access to function changes. This switch is covered with Enclosure Wiring Cover.

LEDs indicate associated relay's status.

Button functions are presented on Bottom Row of display.



System Output controls pumps, valves, or other system components. DHW Pump and Comb. Air relays are controlled when configured.

Connect to Extension panels to add additional stages or connect to 4-20mA EMS Interface for external set point.

Output Relays to manage the stages.

When connecting Temperature Sensors, no Polarity is observed. Prove terminals must be connected for SQ-Elite to operate stages.



SPECIFICATIONS

Voltage Input _____ 120VAC 60Hz
Power Consumption _____ 12 VA Max
Operating Temperature _____ 20°F/-7°C to 120°F/49°C
Operating Humidity _____ 20% to 80%
Dimensions (W x H x D) _____ 11"W x 9" H x 3 ¾ D
Weight _____ 2.5 pounds

SQ-ELITE SPECIFICATIONS

Lead Stage Rotation _____ Time (1 to 999 Hours (41 days)), Manual, First-On/First-Off
SQ-Elite-8 Outputs and LEDs _____ 11 N.O. S.P.S.T (8 Stages, 1 System, 1 DHW Pump, 1 Combustion Air)
SQ-Elite-MV Outputs and LEDs _____ 11 N.O. S.P.S.T (6 Stages, 2 System, 1 DHW Pump, 2 Motorized Valve)
SQ-Elite-8 Inputs _____ 1 Sys (Press), 1 Sys(Temp), 1 Outdoor, Return Temp, DHW Temp, Ext Setback/Shutdown, Prove
SQ-Elite-MV Inputs _____ 2 Sys(Temp), 1 Outdoor, Return Temp, DHW Temp/Prove, Ext Setback/Shutdown
Stage Modes _____ Auto, Standby, On, Off
Standby Time (PID only) _____ 1 to 60 minutes
Output Relay Ratings _____ 2 Amp inductive, 6 Amp resistive at 120 VAC 60 Hz
Add-On SQ-Extension Panels _____ up to two SQ-Extension Panels using RS485
Temperature Display _____ Fahrenheit or Celsius
Display _____ Graphical Alphanumeric (7 rows x 21 char. each)
Temperature Sensor Ranges _____ - minus 35°F/-37°C to 250°F/121°C
Pressure Sensor Ranges (-8S Only) _____ 0-30PSI, 0-100PSI, 0-200PSI, 0-300PSI, 0-30"Hg, 0-100% RH, 4-20mA
Outdoor Cutoff Range _____ 20°F/-7°C to 100°F/38°C, ON and OFF
Set Point _____ -10°F/-23°C to 230°F/110°C
External Set Point _____ -10°F/-23°C to 240°F/116°C using 4-20mA EMS Interface (optional)
Reset Ratio Range (Outdoor Reset Only) _____ (1:4) to (8:1) (Outdoor : System Water), and Custom Reset Ratio
Offset Adjustment (Outdoor Reset Only) _____ minus -40°F/-22°C to plus 40°F/22°C
Minimum Target (Outdoor Reset Only) _____ 70°F/21°C to 170°F/77°C
Maximum Target (Outdoor Reset Only) _____ 90°F/32°C to 240°F/116°C
Reaction Time (PID only) _____ 1 to 10 minutes
Minimum Run-Time (PID only) _____ 0 to 60 minutes
Purge Delay (PID only) _____ 0.0 to 10.0 minutes
Last Stage Hold (PID only) _____ 0°F/0°C to 30°F/17°C
Throttle Range (OSS only) _____ 2°F/1°C to 20°F/11°C
Domestic Hot Water Priority Options _____ Parallel Piping with Priority or without Priority and Primary Secondary
Pump Run-On _____ 0 to 60 minutes
Pump Exercise _____ Yes or No
Schedules _____ 1 Day and 1 Night (Setback) settings per day
Night Setback _____ 0°F/0°C to 80°F/44°C
Power Backup _____ Lithium coin battery, 100 days minimum 5 year replacement (Maintains Clock in power outages
Season _____ Winter and Summer

SQ-EXTENSION SPECIFICATIONS

Extension Numbering _____ Toggle Switch A or B
LED _____ 1 Power (Dual Color Green (A)/Red (B)), 1 Communication, 8 Stage Output relays (Dual Color Green (A)/Red (B))
Stage Outputs _____ 8 N.O. S.P.S.T.
Output Relay Ratings _____ 2 Amp inductive, 6 Amp resistive at 120 VAC 60 Hz
Connection to SQ-Elite and another SQ-Extension _____ Two RS485