

AIR DISTRIBUTION PRODUCTS

price®
silentguard™

OPERATION & MAINTENANCE MANUAL



price®

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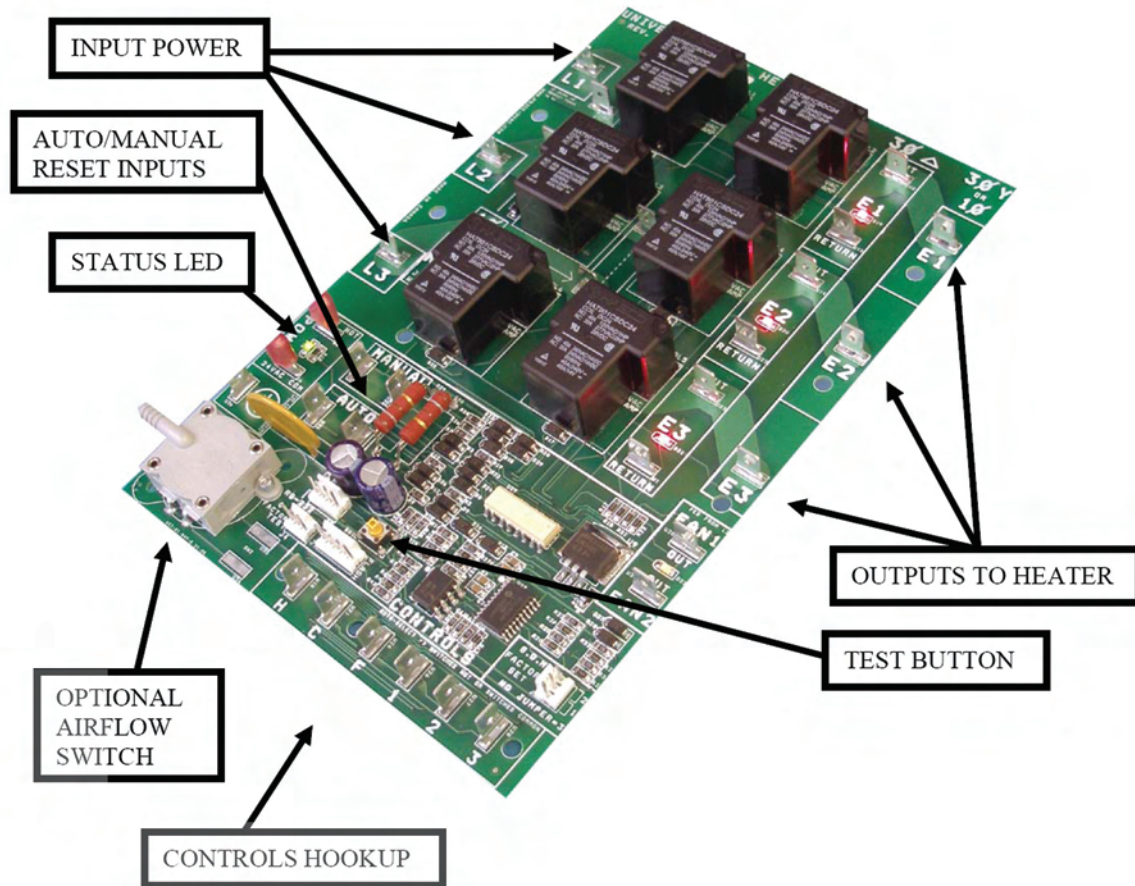
Introduction

The Price Silent Guard is a new assembly that allows quiet and reliable electric heater control.

The on board PCB relays are much quieter than standard magnetic contactors and indicator LED's show which relays are active. Also the CONTROLS inputs can accept either a switched HOT or COMMON 24VAC signal, allowing compatibility with any vendors controls.

Features:

- Quiet PCB relays
- Indicator LED's for each stage of heat and fan output
- Auto reset 24VAC fuse
- On board Digitally Filtered airflow switch
- Status LED  shows current status and helps troubleshooting (i.e.: not enough air, manual tripped, etc)



Controls Hookup

Power (24 VAC) for the Price Silent Guard is supplied to the 24 VAC HOT and 24 VAC COMMON ¼” spade tabs near the status LED labeled **POWER**.

Controls supplied by Price or others are connected via the six ¼” spade tabs labeled **CONTROLS**. The inputs are auto detecting for either switched HOT or COMMON inputs from relays or triacs.



Polarity of the 24 VAC HOT and COMMON must be observed and consistent throughout the system. Wiring errors will cause erratic operation of the heater control and zone controls.

Controls hookups are as follows:

- **H** – 24 VAC hot power output to controls (protected by auto-resetting thermal fuse) [Max 25 VA load]
- **C** – 24 VAC common power output to controls (protected by auto-resetting thermal fuse) [Max 25 VA load]
- **F** – Engages fan relay (note: only available/active on fan powered terminals)
- **1** – Engages heater stage (step) 1 (if airflow/fan conditions are met)
- **2** – Engages heater stage 2 (if airflow/fan conditions are met)
- **3** – Engages heater stage 3 (if airflow/fan conditions are met)

To verify operation of F,1,2,3 short ¼” terminal/tab to either 24 VAC HOT or COM. Relay should engage 1 second later.

Note: If fan powered unit, heating stages will not engage without a FAN (F) signal. For single duct units, heating stages will not engage without a STEADY airflow signal from airflow switch. Check status blinks for more information.

Stages of Heat Jumper

The stages of heat (SOH) jumper is typically factory set and does not need to be adjusted in the field. Please note the heater will be physically factory wired with a certain number of stages and this cannot be changed in the field. Below shows the heater operation using the SOH jumper.

Relays Energized by stage demand and SOH position			
Stage Demand:	1	2	3
SOH Jumper = 1	E1, E2, E3	-	-
SOH Jumper = 2	E1, E3	E2	-
SOH Jumper = 3	E1	E2	E3

Status LED

The green status LED next to the 24 VAC POWER input blinks out codes showing the current heater controller mode. This is helpful for testing and troubleshooting the controls.

BLINKS	Modes	Notes
1	Stage 1 of heating active	Controls/Thermostat are requesting 1 stage of heat <ul style="list-style-type: none"> To verify operation disconnect Controls/Thermostat and jumper Stage 1 terminal to either H or C (24 VAC hot or common). Relay(s) should click and red LED(s) should light. (see table on previous page)
2	Stage 2 of heating active	Controls/Thermostat are requesting 2 stages of heat <ul style="list-style-type: none"> To verify operation disconnect Controls/Thermostat and jumper Stage 1, 2 terminals to either H or C (24 VAC hot or common). Relays should click and red LEDs should light.(see table on previous page)
3	Stage 3 of heating active	Controls/Thermostat are requesting 3 stages of heat <ul style="list-style-type: none"> To verify operation disconnect Controls/Thermostat and jumper Stage 1,2,3 terminals to either H or C (24 VAC hot or common). Relays should click and red LEDs should light. (see table on previous page)
4	Fan (only) is engaged	Controls/Thermostat are requesting fan only <ul style="list-style-type: none"> To verify operation disconnect Controls/Thermostat and jumper F terminal to either H or C (24 VAC hot or common). Relay should click and FAN1 yellow LED should light.
5	Heat cannot engage due to lack of air.	<p>Single duct with Airflow Switch (AFS)</p> <ul style="list-style-type: none"> AFS must sense at least 0.05" W.C. of pressure for 15 seconds before it will engage AFS must be mounted vertically, it will not function properly if mounted horizontally <p>Fan Powered without Airflow Switch (AFS)</p> <ul style="list-style-type: none"> Heat will not engage unless Controls/Thermostat requests FAN Fan interlock prevents heat from engaging without airflow
6	Automatic Reset has tripped	Automatic Reset has tripped Automatic reset trips when it reaches 135°F. This will cut power to the Control Relays (E1, E2, E3). Automatic will reset after it cools.
7	Manual Reset has tripped	Manual reset trips when it reached 150°F. This will cut power to the Safety Relays (L1, L2). Manual reset requires service personal to reset. This typically means a major overheating condition has occurred in the heater. Re-check ductwork and design airflows.
8	All safeties are OK, with no call for heat/fan	No call for fan and/or heat. Controller is standing by.

Technical Specifications for Price Silent Guard

Power:	24 VAC +-10% @ 50/60Hz (10VA – required for Silent Guard + Controls Load)
Controls 24VAC output:	Thermal Fuse protection (with auto reset) – limited to 25 VA maximum
F, 1, 2, 3 inputs:	Auto detect switched HOT or COMMON 24 VAC
Operating Conditions:	0°C to 50°C (32°F to 122°F) 0% - 95% R.H. non-condensing
Storage Conditions:	-30°C to 50°C (-22°F to 122°F) 0% - 95% R.H. non-condensing
Processor:	8-bit flash microcontroller with on board Analog to Digital Converter
Inputs:	6 Analog custom, 2 digital
Outputs:	5 Digital custom
Relays:	277 VAC maximum, 30 Amps maximum resistive load
Connections:	¼" Spade Terminals – Recommend 18-22AWG copper wire
Dimensions:	5.5" by 8.55" (139.7 mm by 217.2 mm)
Shipping Weight:	0.67 lbs (303.9 grams)
Certification:	ETL listed product



Visit www.price-hvac.com for the latest information.

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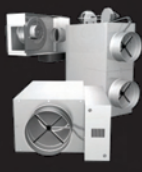
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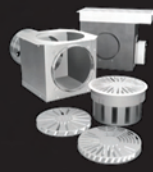
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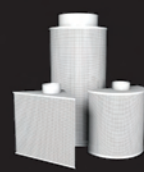
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