Standard Control Options

Duct Heaters are available with a wide variety of control options to fit any application. The Control Systems listed in this flyer are the four standard control configurations offered. We also custom configure controls. Most Duct Heaters will utilize a method of energizing the heat in stages or steps. The most common types of methods are shown below.

Electronic Step Controllers

Solid state electronic step controllers will switch up to ten contactor holding coils each. They may be wired in series for a maximum of 30 steps. They are available with a single input from all commonly used thermostat input signals. The step controller automatically cycles to the Full-Off position in the event of a power interruption.

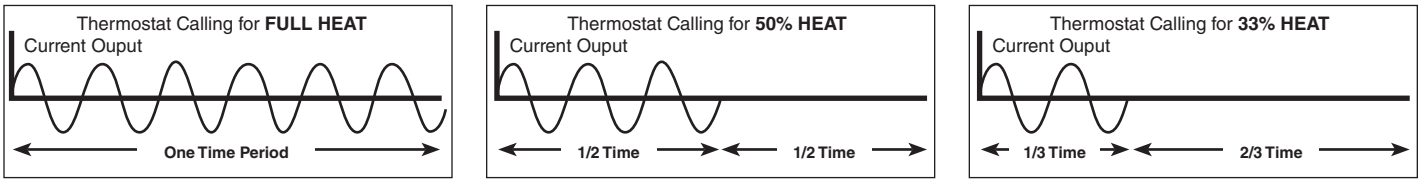


Figure 1

SCR Control

Silicone Controlled Rectifiers (SCRs) are used to provide tight heat control and/or silent operation for critical areas such as laboratories, computer rooms and executive offices. An SCR is a solid state device with no moving parts which will provide 100% step-less and noiseless modulation. The SCR has a heat sink mounted such that it protrudes through the terminal box to maximize convection cooling. Power and heat output are precisely controlled from zero to 100% in direct response to the modulating thermostat signal. See Fig. 1 which illustrates how the output is controlled. All commonly used thermostat input signals will be accepted by the SCR without a special interface. A safety contactor must be installed with the unit. All elements in the heater are simultaneously controlled, thus avoiding an air stratification problem. Zero angle firing interrupts the full wave AC cycle only when current passes through zero, minimizing radio frequency interference.

SCR Vernier

SCR Vernier systems are used on larger kW heaters where very tight heat control is required. The SCR Vernier system employs a combination of SCR and non-SCR steps. For electric/electronic controls, a step controller energizes the non-SCR steps; for pneumatic controls, adjustable differential PE switches energize the non-SCR steps. This is accomplished by satisfying most of the heat requirement through non-SCR steps and then the last portion of the heat requirement is “fine-tuned” by the modulating SCR con troller. The SCR step is 1/3 the total load and balance being divided into 4 steps. The system is more economical for larger kW heaters than a full SCR control, while providing the tight heat control as the full SCR system.

Thermostats

Thermostats are utilized with any duct heater, regardless of the number of steps or how those steps are controlled. The table below details the various thermostats available for use with these duct heaters. Please note that specifications are subject to change without notice.

Single or multi-step heaters with de-energizing magnetic contactors for each step, fusing per NEC, and a 24V transformer can be controlled by the following: 1) a single/multiple stage room or duct thermostat, 2) remote step controller and modulating room thermostat or 3) duct thermostat or a signal from various electronic building system controls. Standard options include disconnecting magnetic contactors, interlocking disconnect switch and remote control panel. For other options, consult with factory or your local sales representative.

CATALOG NUMBER	SPECS	TYPE	TEMPERATURE RANGE CELSIUS	TEMPERATURE RANGE FARENHEIT	VOLTAGE	NO. STAGES
RT-1030	ROOM 10/30 C/F	Modulating	10° C- 30° C	50° F - 86° F	Thermistor resistance	Modulating
DT-1040	DUCT 10/40 C/F	Modulating	10° C - 40° C	50° F - 104° F	Thermistor resistance	Modulating
CTH291	0-10vdc roomstat	Modulating	10° C - 55° C	50° F - 131° F	0 - 10 VDC	Modulating
CSR141	C/w DS 600 Sensor	Modulating	Duct Sensor	Duct Sensor	0 - 10 VDC	Modulating
CTH010	1 STAGE ROOM STAT (C / F)	ON/OFF	4.5° C - 32° C	40° F - 90° F	24V	1-stage
CTH020	2 STAGE ROOM STAT (C / F)	ON/OFF	4.5° C - 32° C	40° F - 90° F	24V	2-stage
CTH030	1 STAGE DUCT STAT (C)	ON/OFF	-15° C - 35° C	-	24V	1-stage
CTH035	1 STAGE DUCT STAT (F)	ON/OFF	-	0° F - 100° F	24V	1-stage
CTH070	2 STAGE DUCT STAT (C)	ON/OFF	-5° C - 35° C	-	24V	2-stage
CTH075	2 STAGE DUCT STAT (F)	ON/OFF	-	0° F - 100° F	24V	2-stage
DT - 3265	DUCT 32/65 C/F	Modulating	32° C - 65° C	70° F - 150° F	Thermistor resistance	Modulating
DT - 1815	DUCT 18/15 C/F	Modulating	-18° C - 15° C	5° F - 60° F	Thermistor resistance	Modulating
DT- 037	DUCT - 0/37 C/F	Modulating	0° C - 37° C 32°	F - 98° F	Thermistor resistance	Modulating
RADS-1815	REMOTE DS C/F	Modulating	-18° C - 15° C	5° F - 60° F	Thermistor resistance	Modulating
RADS-1040	REMOTE DS C/F	Modulating	10° C - 40° C	50° F - 104° F	Thermistor resistance	Modulating
RADS-3265	REMOTE DS C/F	Modulating	32° C - 65° C	70° F - 150° F	Thermistor resistance	Modulating
RADS-6590	REMOTE DS C/F	Modulating	65° C - 90° C	149° F - 194° F	Thermistor resistance	Modulating
RADS-037	REMOTE DS C/F	Modulating	0° C - 37° C	32° F - 98° F	Thermistor resistance	Modulating