



**Mod Electric Heat
Install
I/O/M manual**

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SCR POWER CONTROLS

Power modules installation

Important.

All external safety devices like: contactors, relays, flow switch & thermal protections are to be supplied and installed by other.

When the SCR is installed inside a panel, the enclosure needs to be adequately louvered for proper ventilation and heat dissipation. Call the factory for the derating amperage curves for these specific applications.

Electronic controls require special care for wiring and startup. To avoid problems, carefully follow the procedures below.

Look at the wiring diagrams, and study them carefully. Be sure that you understand how the system is supposed to work.

A) Location:

- 1- Can be installed inside a louvered approved cabinet or with the heatsink mounted externally.
- 2- Must be installed away from excessive heat source.
- 3- Nothing must restrain air circulation to the heatsink.

B) Installation:

- 1- If installed completely inside a cabinet, use the mounting tabs on the heatsink to secure the SCR to the back plate of the panel.
- 2- If installed with heatsink outside the cabinet, use the proper model mounting template for the cut out dimensions and to check for mounting obstructions.
- 3- Respect mounting orientation
(this side up).
- 4- Mount the heatsink vertically on the side of the cabinet for proper heat dissipation.
- 5- Do not relocate the power switching modules on the heatsink.

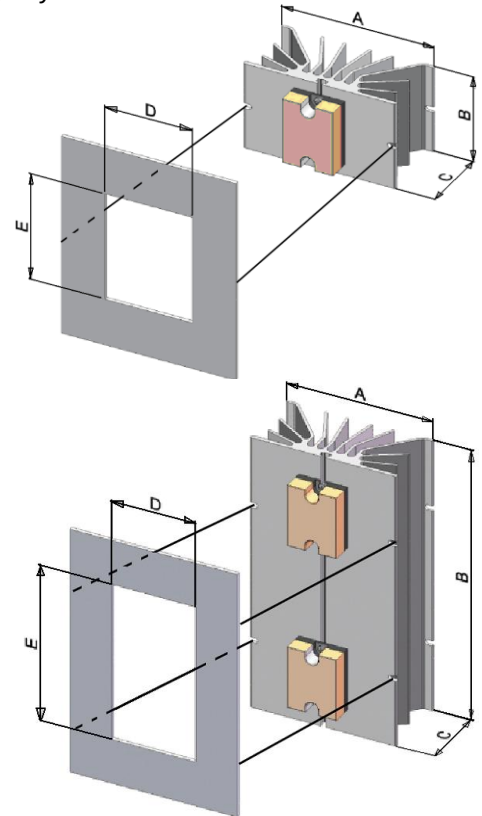
SCR POWER CONTROLS - CON'T

R820 Installation and Dimensions

- Mounting instructions & templates are available from the factory.
- The cutout templates include holes position for heatsink attachment to the electrical cabinet
 - ❖ Single phase R820 will have 2 mounting screw, 1 on each side.
 - ❖ Three phase R820 will have 4 mounting screw, 2 on each side.
- Respect mounting orientation (this side up).
- Mount the heatsink vertically on the side of the cabinet for proper heat dissipation.
- If mounted on top or bottom of the cabinet, derate maximum usable amperage by 25%.
- Do not relocate the power switching modules on the heatsink.

R820 single phase	A	B	C	D	E	Weight
R820-211-REV2	5.25 "	4.50 "	2.56"	3.00 "	3.75 "	1.80
R820-321-REV2	5.25 "	4.50 "	2.56"	3.00 "	3.75 "	1.80
R820-341-REV2	5.25 "	6.50 "	2.56"	3.00 "	3.75 "	2.40
R820-421-REV2	5.25 "	4.50 "	2.56"	3.00 "	3.75 "	1.80
R820-441-REV2	5.25 "	6.50 "	2.56"	3.00 "	3.75 "	2.40
R820-471-REV2	5.25 "	10.00 "	2.56"	3.00 "	3.75 "	3.50
R820-621-REV2	5.25 "	4.50 "	2.56"	3.00 "	3.75 "	1.80
R820-641-REV2	5.25 "	6.50 "	2.56"	3.00 "	3.75 "	2.40
R820-671-REV2	5.25 "	10.00 "	2.56"	3.00 "	3.75 "	3.50

R820 three phase	A	B	C	D	E	Weight
R820-213-REV2	5.25 "	6.50 "	2.56"	3.00 "	5.75 "	2.60
R820-323-REV2	5.25 "	6.50 "	2.56"	3.00 "	5.75 "	3.70
R820-343-REV2	5.25 "	10.00 "	2.56"	3.00 "	5.75 "	3.70
R820-423-REV2	5.25 "	6.50 "	2.56"	3.00 "	5.75 "	2.65
R820-443-REV2	5.25 "	10.00 "	2.56"	3.00 "	5.75 "	3.70
R820-623-REV2	5.25 "	6.50 "	2.56"	3.00 "	5.75 "	2.65
R820-643-REV2	5.25 "	10.00 "	2.56"	3.00 "	5.75 "	3.70



SCR POWER CONTROLS - CON'T

24 Vac Power& Wiring

- It is not necessary to ground any leg of the transformer to earth with the controller card.
- The controller uses internally a half wave rectifier bridge. On 0 to 10 Vdc control signal, the reference of the control signal is the Common of the power supply of the SCR controller card.
- Use a Class 1 (properly fused) or Class 2, CSA or UL recognized transformer.

High voltage Wiring

General cautions:

- High voltages are present on the terminals of these devices. Please read all the instruction in this manual carefully.
- The 45 & 75 Amps models need to be wired with the supplied high voltage lugs. **Attach the wire to the lug first**, and then screw the lug to the power module.
- Have the wiring done by a qualified and skilled professional.
- High voltage and amperage can be fatal.
- All wiring must conform to national electrical code regulations.
- The instrument must be wired before applying power.
- Protect circuits with semi conductor fuses.
- For in panel installation, derating amperage curves are available from the factory.

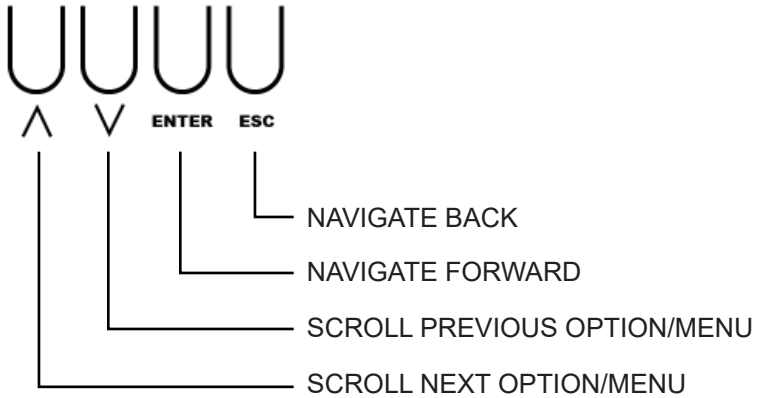
Specifications

Operating Conditions: 0°C to 80°C (32°F to 176°F) / 0 % to 95 % R.H. non-condensing
See power derating curves document

Thermostatic protection: Self-resetting. Auto shut off when SCR ambient temp. is above 82°C (180°F)

Power supply: 24 Vac -15%, +10% 50/60 Hz; 2 VA
Use a Class 1 (properly fused) or Class 2, CSA or UL recognized transformer.

NAVIGATING ON AN iAIRE CONTROLLER



POWER ON THE CONTROLLER AND THE FIRST MENU IS **STATUS MENU**. TO NAVIGATE THROUGH THE OPTIONS, PRESS THE **UP ARROW** KEY. PRESS **ENTER** TO MAKE CHANGES IN ANY SUB MENU. TO GO BACK TO THE MAIN STATUS MENU, PRESS THE **ESC** BUTTON.

MENU SCREENS BEGIN ON THE FOLLOWING PAGE.

STATUS MENU

OPERATING STATUS

W1 0-1
DAT 60 - 120
HEAT % 0 - 100%

MOD HEAT WAIT
STATUS

RANGE: DEFAULT:
000s - 030s 030s

TEST MODE MENU

MOD HEAT TEST

RANGE: DEFAULT:
0 - 100% 000%

SETPOINTS MENU

HEAT SETPOINT

RANGE: 60 F_120 F DEFAULT: 95 F

CONFIGURATION MENU

CONTROLLER MODE CONFIGURATION

OPTION: DAT MODE
 RANGE: N/A DEFAULT: [enabled]
 NOTE: Discharge Air Temp Controlled.

OPTION: SPACE MODE
 RANGE: N/A DEFAULT: [disabled]
 NOTE: 0-10vdc Space Sensor Controlled.

GAS / ELECTRIC CONFIGURATION

RANGE: GAS_ELECTRIC DEFAULT: ELECTRIC

MODULATED HEAT GAIN

RANGE: -20 _ 20 DEFAULT: 04
 NOTE: % Modulating heat signal = (((Act temp - setpoint temp) + Mod Heat Offset) / Modulated Heat Gain) * Mod Heat Multiplier.

MOD HEAT OFFSET

RANGE: -10 _ 10 DEFAULT: 01
 NOTE: % Modulating reheat signal = (((Act Temp - Setpoint Temp) + Reheat Offset) / Reheat Gain) * Reheat Multiplier.

MOD HEAT MULTIPLIER

RANGE: 0.1 _ 1 DEFAULT: 01

HEAT MIN %

RANGE: 000% _ 100% DEFAULT: 000%

HEAT MAX %

RANGE: 000% _ 100% DEFAULT: 100%

MOD HEAT WAIT TIME

RANGE: 000S _ 300S DEFAULT: 030S

LOAD DEFAULTS

Note: If "Check SP" displayed, load defaults

ROOM TEMP TYPE

OPTION: GreyStone
 RANGE: N/A DEFAULT: [enabled]
 NOTE: Allows user to select what type of space sensor is being used.

OPTION: User Defined
 RANGE: N/A DEFAULT: [disabled]
 NOTE: Allows user to create custom curve to utilize their own space sensor. Signal is 0-10V.

OPTION: Tongdy 32F-122F
 RANGE: N/A DEFAULT: [disabled]
 NOTE:

OPTION: Tongdy 32F-140F
 RANGE: N/A DEFAULT: [disabled]
 NOTE:

ROOM TEMP LOW

RANGE: -040 _ 080 DEFAULT: 032

ROOM TEMP HIGH

RANGE: 000 _ 140 DEFAULT: 095

ROOM SETPOINT SOURCE

OPTION: I/O
 RANGE: 60 F_90 F DEFAULT: [enabled]
 NOTE: When this is enabled, unit is getting room setpoint temperature for iAIRE provided space sensor.

OPTION: Remotely
 RANGE: BAS Controlled DEFAULT: [disabled]
 NOTE: When this is enabled, unit is getting room setpoint temperature from BAS system.

OPTION: User Interface
 RANGE: 60 F_90 F DEFAULT: [enabled]
 NOTE: When this is enabled, unit is getting room setpoint temperature from iAIRE controller in unit.

ROOM SETPOINT LOW

RANGE: 050 _ 082 DEFAULT: 062

ROOM SETPOINT HIGH

RANGE: 062 _ 130 DEFAULT: 082

