

SCHWANK ARENA CONTROL PANEL

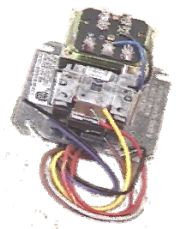
ARENA CONTROL PANEL CENTRALLY CONTROLS THE DURATION OF OPERATION OF SCHWANK HEATERS FOR ARENA SPECTATOR HEATING, OR ANY APPLICATION WHERE DURATION CONTROL OF MULTI-ZONE HEATING IS REQUIRED.

- Includes: A master timer that is adjusted by the operator to the desired duration of heating system operation; ensures heater system shut off and minimum duration of operation
- A master on/off switch with status light;
- Quantity of switches with status lights to match the number of zones/heaters being installed;
- All components mounted on an 11" x 13" x 4" deep control box with hinged front panel;
- Also included separately is a transformer relay (field installation required) to power the arena panel (24Vac)

Not included with the panel is any 120/24 Volt transformer required to power heaters, nor any external relay switches for tube heaters - these items vary by project. Refer to information below to separately include all necessary control system components.

NOTE: Indicate the number of heating zones required when ordering an Arena Panel.
 For arena applications, Schwank recommends one (or at most two) heaters per zone.
 For extraordinary projects contact Schwank.

<u>ARENA PANEL</u>	<u>NUMBER OF ZONES</u>	<u>PART #</u>
ACPT- 8	up to 8	JM-0408-XX
ACPT-12	up to 12	JM-0412-XX
ACPT-16	up to 16	JM-0416-XX



LUMINOUS HEATERS ONLY: ORDER SYSTEM TRANSFORMER

System transformer supplies 24VAC to heater controls: 40VA first heater + 20VA each additional heater

<u>QTY HEATERS</u>	<u>SIZE</u>		<u>PART #</u>
Up to 5	150 VA Transformer	Closed Type	JL-0779-XX
6 or 7	200 VA Transformer	Closed Type	JL-0780-XX
8 or 9	250 VA Transformer	Closed Type	JL-0781-XX
10 to 12	350 VA Transformer	Closed Type	JL-0781-AA
13 to 16	500 VA Transformer	Closed Type	JL-0781-BB

TUBE HEATERS ONLY:

ORDER EXTERNAL RELAYS

Order ONE Relay (24V/120V) for each active panel switch JS-0568-CC

Relay coil activates on 24V from system transformer and switches 120V to power heaters

One relay switch has capacity to activate one or two heaters from one panel switch



ORDER SYSTEM TRANSFORMER

Up to 24 Tube Heaters: 150 VA Transformer Closed Type JL-0779-XX

ARENA SPECTATOR 'COMFORT' HEATING

Contact Schwank Design for Arena Heating: Fax 1-866-724-9265; design@SchwankGroup.com

In community arenas, infrared spot heating is the most effective solution for spectator areas. Desired 'comfort' results directly from the contact of infrared radiant heat produced by an IR heating system.

In designing an arena spectator heating system, it is necessary to remember that "heat" in an ice-making facility is somewhat counter productive to the efforts of facility staff to produce and maintain both the ice and the facility structure.

Any convection heat produced by the IR system is detrimental to arena facility ice-making operations. The moisture in the products of combustion and higher humidity due to warmer air in the structure can have a negative impact on the structure by condensing on the cold interior surfaces of the building.

NOTE: Schwank does not recommend the use of tube heaters as an effective arena spectator heating solution. Tube heaters have lower radiant intensity and less focus or direction of the infrared heat output. However, tube heaters are often specified.

The optimum arena heating design must not only provide spectator comfort, but must also reduce the concerns of the arena staff regarding arena operation. Schwank luminous heaters meet and exceed these requirements:

		<u>Radiant Heat</u> <u>Output</u>	<u>Convection Heat</u> <u>Output</u>
Typical	High Intensity	35% to 40%	60% to 65%
Good	ecoSchwank	Up to 50%	50% to 53%
Better	primoSchwank	Up to 67%	33% to 37%
Best	supraSchwank	Up to 81%	19% to 23%

TYPICAL ARENA SPECTATOR HEATING APPLICATION					
COMPARISON: FUEL COST, FUNCTIONAL RADIANT HEAT and WASTE CONVECTION HEAT					
	Tube	Standard Luminous*	eco 18	primo 20	supra 20
INDIVIDUAL HEATER INPUT (BTUH)	100,000	75,000	71,500	56,000	44,000
NUMBER OF HEATERS	8	10	10	10	10
TOTAL SYSTEM INPUT (BTUH)	800,000	750,000	715,000	560,000	440,000
SYSTEM FUEL COST/HR**	\$8.00	\$7.50	\$7.15	\$5.60	\$4.40
INFRARED EFFICIENCY***	38%	35%	50.6%	63.2%	78.7%
INFRARED HEAT TO SEATS (BTUH)	304,000	262,500	361,790	353,920	346,280
CONVECTION HEAT (BTUH) (Waste Heat into Structure)	455,000	487,500	353,210	206,080	93,720
Pounds of Water Released to Structure per Full Hour Operation	??	68	65	51	40

* 35% infrared efficiency of traditional luminous heaters represents the ANSI certification requirement .
Dependent upon the age/state of repair of any existing equipment, I.R. efficiency could be less than 35%.

*** Based on Fuel Cost: \$1.00 / Therm (\$10 / Million Btu)

*** Schwank infrared efficiency test data from CSA International and other test agencies available upon request.
An independent test agency reported tube heater radiant efficiencies from 33% to 44% with steel tube heat exchangers.

ARENA CONTROL PANEL

Operating Guide

Each Arena heater control panel is complete with:

- Master Timer
- Master On (Reset) Button Switch with green indicator light
- Individual Heater/Zone Switches
'Up' = ON 'Down' = OFF
- Indicator Lights - Heater/Zone 'On/Off'

SETTING THE MASTER TIMER

The timer has four 'setting' adjustments:

1. - Leave in MODE 'E' - **DO NOT ADJUST**
2. - TIME UNITS adjustment: ie 'hrs', 'min', 'sec'
- Schwank recommends setting this at 'hrs'
3. - TIME AVAILABLE adjustment (number of hrs)
- Schwank recommends setting this at '1 to 12'
(numerals are visible at each 'tick' on the circle)
4. - TIME PERIOD adjustment - rotate pointer to desired duration

'Count-down' timing occurs within the Master Timer. The indicator pointer of the Master Timer dial remains in place at the selected time period – it does not move during the 'count-down'.

Rotate the Master Timer dial to select the desired time period for the heating system operation.

STARTING THE HEATING SYSTEM

Press the Master On (Reset) button switch. The green indicator light will illuminate indicating that power is provided to the Master Timer.

LUMINOUS SYSTEMS ONLY: Power through the Master Timer activates the system's exhaust fan(s). The exhaust air stream closes an air-proving pressure switch providing power back to the panel Heater/Zone switches.

Turning on a Heater/Zone switch will illuminate it's indicator light and activate the zone's heater(s).

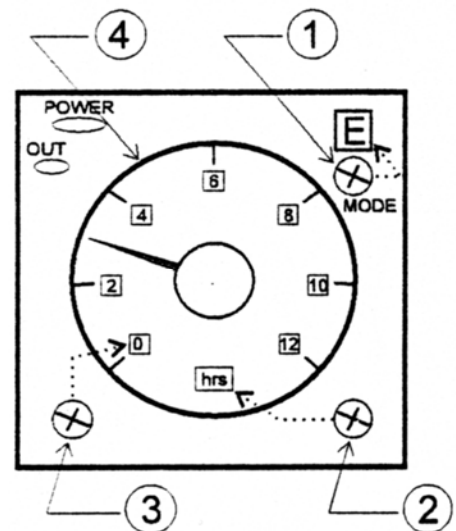
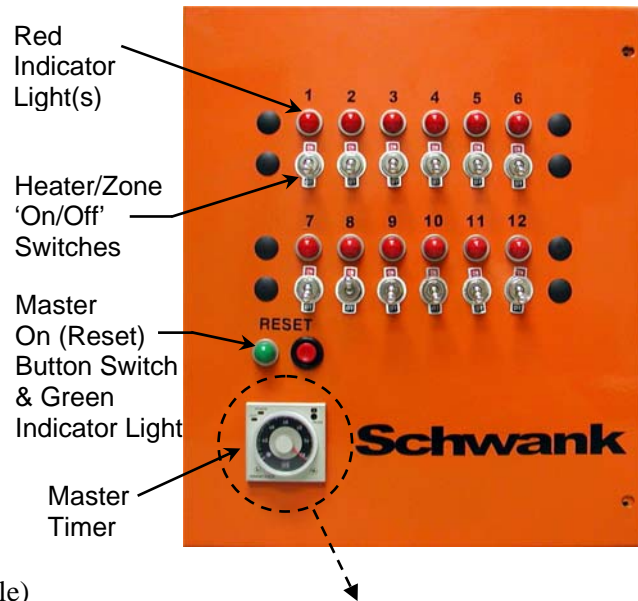
Note: A 'zone' may have one or two heaters, dependant upon original system design.

The heating system will shut down when the time period selected on the Master Timer has elapsed. To restart the heating system, press the Master On (Reset) button switch. The above sequence will reoccur. Any Heater/Zone switches that are in the 'On' (up) position will activate the heater(s) in that zone. Turn zones On/Off as desired. Once again the system will shut down when the selected time period has elapsed.

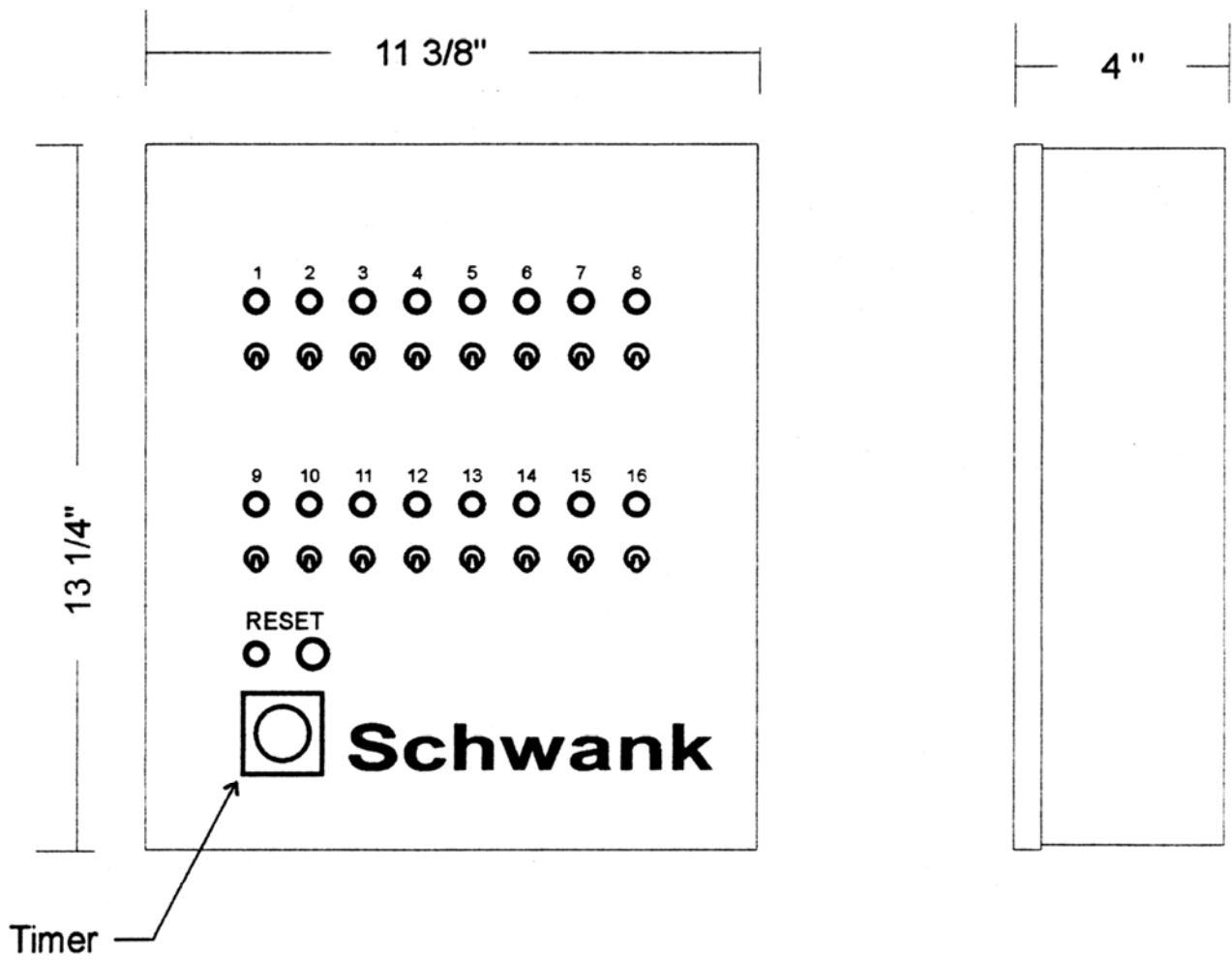
NOTE: If the heating system does not activate when Heater/Zone switch(es) are turned On:

- press Reset button switch and check that the Master On green indicator light is illuminated
- check Master Timer adjustments for correctness, and that the dial is set above the zero (0) point

Should the above actions not resolve the problem - system service is required by a qualified technician.



ARENA CONTROL PANEL DIMENSIONS

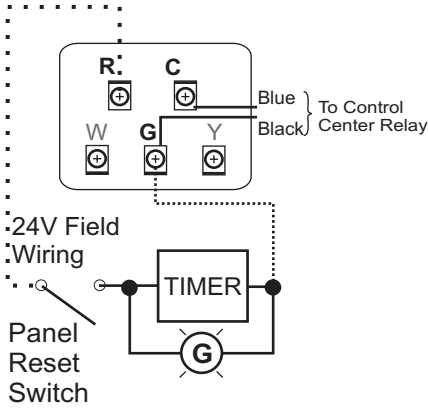


ARENA CONTROL PANEL - LUMINOUS HEATERS

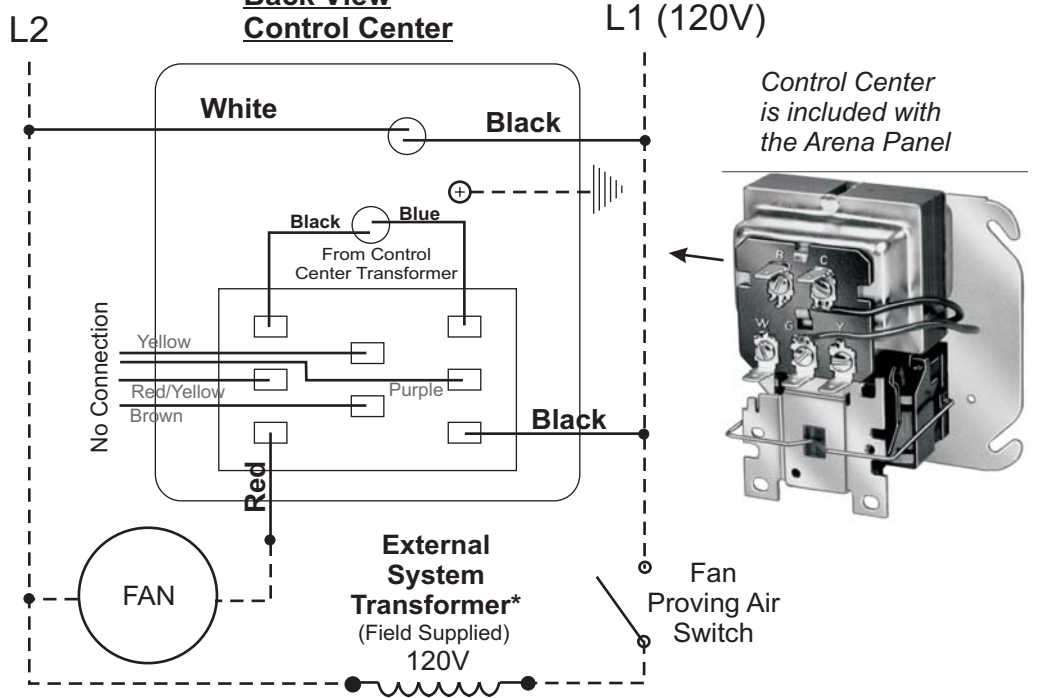
Note: Power supply: Provide disconnect means and overload protection as required.
 Maintain polarity at control module.

* Size system transformer: 40VA first heater + 20VA each additional heater

**Front View
Control Center
(Transformer)**

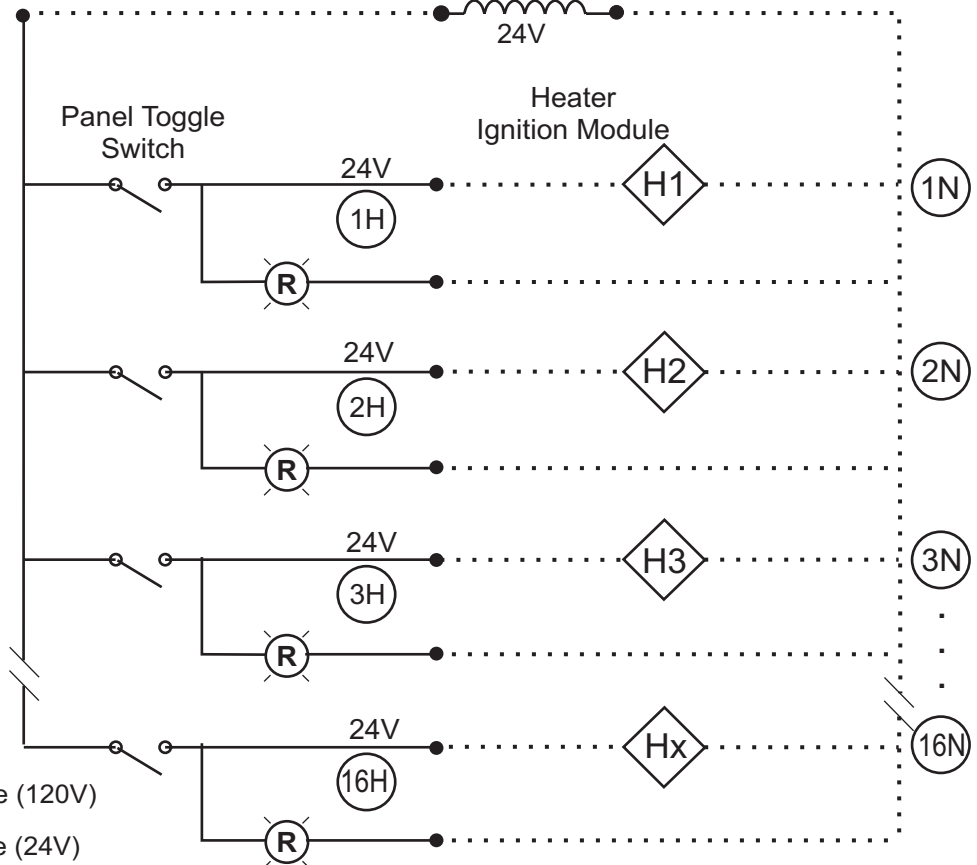


**Back View
Control Center**



Panel	Zones
ACPT-8	up to 8
ACPT-12	up to 12
ACPT-16	up to 16

System Transf'm'r	Zones
40 VA	1
100 VA	up to 4
150 VA	up to 6
200 VA	up to 9
250 VA	up to 11
350 VA	up to 16

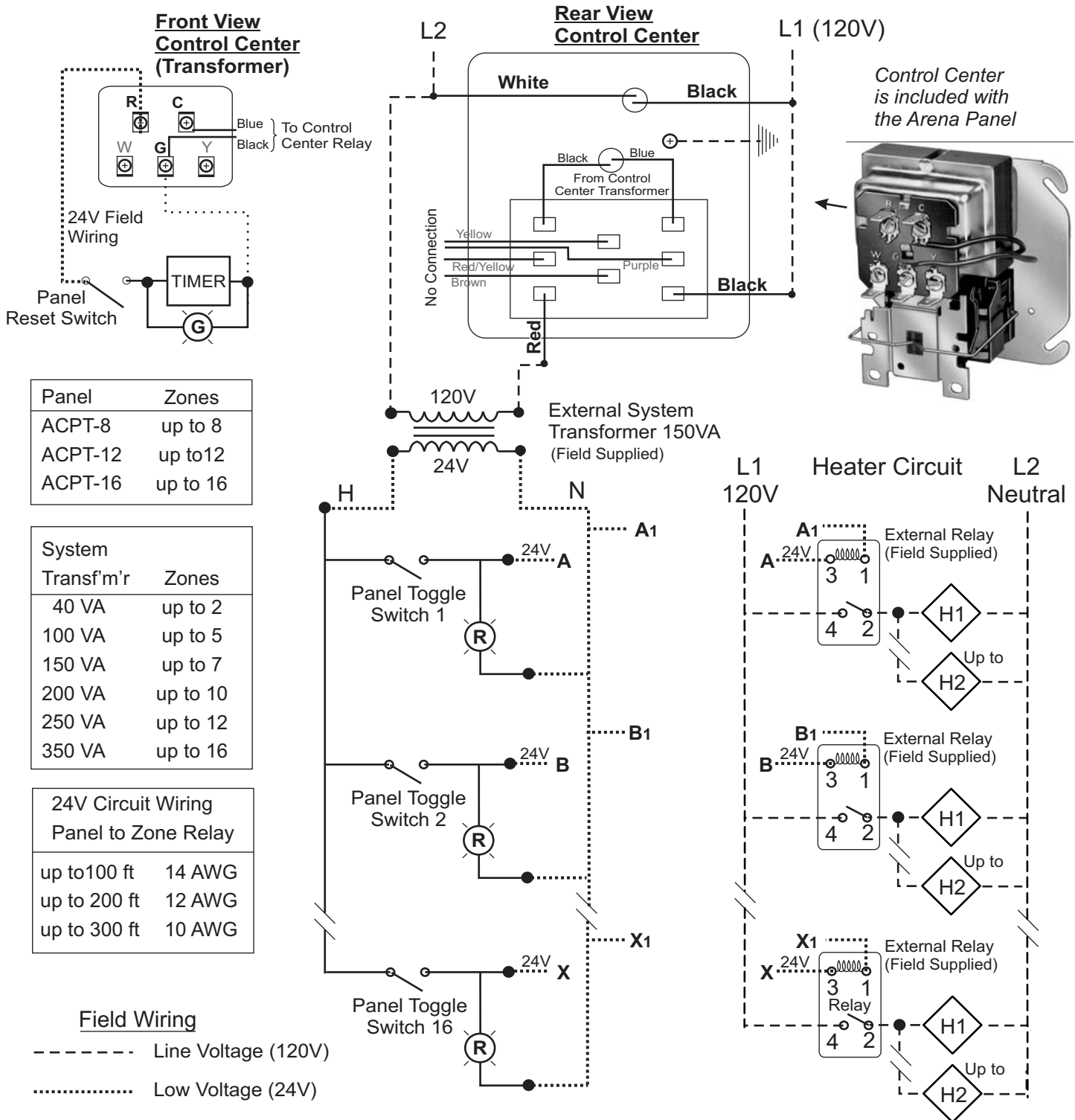


Field Wiring

- Line Voltage (120V)
- Low Voltage (24V)

ARENA CONTROL PANEL - TUBE HEATERS

- Notes:
- 1 Power supply: Provide disconnect means and overload protection as required.
 - 2 System Transformer: 8VA required for each External Relay; 150VA transformer recommended
 - 3 Use optional JS-0568-CC 24V/120V Relay Switch (120VAC, 24V Coil, 50/60 Hz, 12 Amps Full Load) to power up tube heaters
 - one relay switch required for each panel switch / zone
 - maximum two tube heaters per each panel switch / relay switch
 - 4 Size Heater Circuit(s) (120V, 60 Hz) for 145VA per tube heater.



Panel	Zones
ACPT-8	up to 8
ACPT-12	up to 12
ACPT-16	up to 16

System Transf'm'r	Zones
40 VA	up to 2
100 VA	up to 5
150 VA	up to 7
200 VA	up to 10
250 VA	up to 12
350 VA	up to 16

24V Circuit Wiring Panel to Zone Relay	
up to 100 ft	14 AWG
up to 200 ft	12 AWG
up to 300 ft	10 AWG