

Quantum DEH-65



This is it! The most advanced and user friendlier hydronic heating system for RV and marine applications available today. Quantum DEH-65 it is a compact hydronic heating and hot water system capable of providing continuous "on demand" hot water and cabin heat for the largest coaches and pleasure boats manufactured today.

The revolutionary heat management design of Quantum heating systems can accommodate an unlimited number of hydronic heaters (electric, diesel, propane, natural gas or solar) and can distribute heat to an unlimited number of heating zones. A state of the art electronic control board is standard for all Quantum heating systems and the remote panel (user interface) comes in three different options.

Product Characteristics and Specifications

QUANTUM DEH-65 Characteristics

· Diesel and Electric Hydronic Heating System.
· Patented operation
· Self-contained
· ComfortHot electric back-up heater included
· ConstaHot continuous, on demand, domestic hot water
· Heating solution level sensor
· Electronic Control System
· Single input control capability
· Automatic switching for heat sources
· Engine pre-heat timer
· 4-Zone unlimited expandable
· "Plug and Play" connectivity

QUANTUM DEH-65 Specifications

• Dimensions	30L X 17W X 11.5H inches		
• Weight	110 lbs. (dry), 160 lbs. (wet)		
• Heat Output electric heaters	15,000 BTU/H		
• Voltage electric heaters	110Vac		
• Amperage per heater	16.3A		
• Total amperage electric heaters	32.6A		
• Electric heaters	2		
• Heat Output diesel heater	55,000 BTU/H		
• Controls operating Voltage	12 Vdc or 24 Vdc		
• System Average DC Current	Item	12 Vdc	24 Vdc
	Heater	4.2A	2.1A
	Circulation Pump (one)	3.5A	
	Cabin fans (up to 10)	1A each	
	Engine pre-heat pump	2A	
	Total average current	16A	2.1A
• Burner	High temperature Stainless Steel burner tube		
• Fuel Consumption	0.5 gal/hr.		
• Fuel Types	Diesel #1, #2 or Arctic		
• Exhaust Size	2 3/4 inch		
• CO output	less than 60 ppm		
• System Coolant	50/50 Water/Anti-freeze (Ethylene Glycol)		
• Required Flow Rate	Minimum 3 GPM, Maximum 6 GPM		
• Capacity heating solution	average 6 gallons		
• Connections heating loops	3/4" Hose barb		
• Connections hot water lines	5/8" PEX tube or 3/4" brazed hose		
• Operating pressure	Maximum 7 PSI		
• Domestic Water Output	2.5 GPM continuous @ 55 degree F dT		

QUANTUM 55-XLT

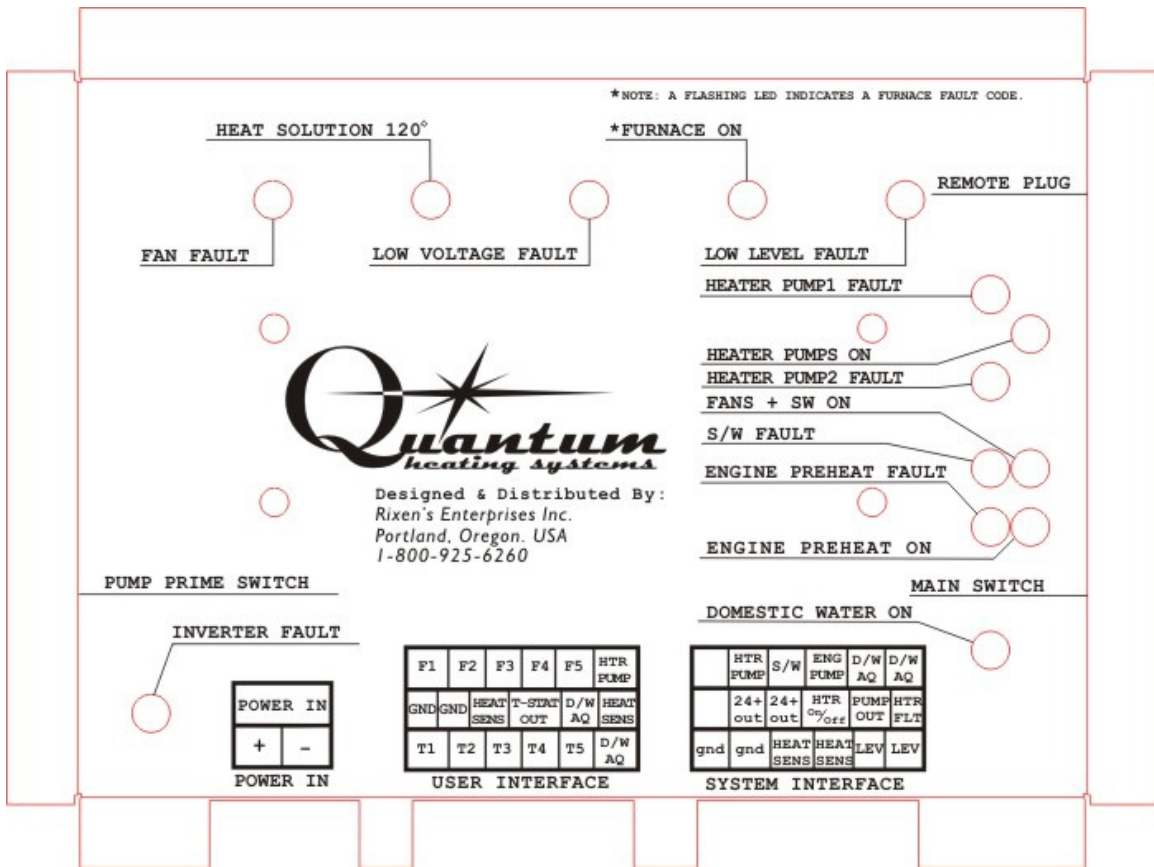
QUANTUM 55-XLT represents a stand alone diesel fired heater that works in conjunction with the electronic controls specific to any Quantum heating system. It offers to the end user access to our state of the art electronics and a friendly user interface.

Product Characteristics and Specifications

QUANTUM 55-XLT Characteristics

Diesel Hydronic Heating System
Electronic Control System
Single input control capability
System monitoring information
5-Zone unlimited expandable
Plug and Play connectivity

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- FAN FAULT**----- A SHORT IN ANY FAN CIRCUIT ----- **RED LED**
HEAT SOLUTION 120*----- AT THIS TEMPERATURE THE FANS WILL TURN ON-----**GREEN LED**
LOW VOLTAGE FAULT----- BELOW 11 VOLTS DC UNIT WILL SHUT DOWN----- **RED LED**
FURNACE ON----- FURNACE RUNNING IN NORMAL OPERATION----- **GREEN LED**
FURNACE LED FLASHING CHECK PATTERN OF FLASHES TO INDICATE THE FAULT. THERE IS A TWO SECOND PAUSE AND THE FLASHING SEQUENCE WILL REPEAT.
LOW LEVEL FAULT----- COOLANT IN EXPANSION TANK UNDER 7 LB----- **RED LED**
RADIATOR CAP IS LOW
HEATER PUMP 1 FAULT---- SHORT IN PUMP 1 ----- **RED LED**
HEATER PUMP 2 FAULT---- SHORT IN PUMP 2 ----- **RED LED**
HEATER PUMPS ON----- POWER TO BOTH HEATER PUMPS ----- **GREEN LED**
FANS + SW ON----- POWER TO FANS AND SUMMER/WINTER CIRCUIT----- **GREEN LED**
S/W FAULT----- SHORT IN SUMMER/WINTER CIRCUIT----- **RED LED**
ENGINE PREHEAT FAULT-- SHORT IN PRE HEAT PUMP ----- **RED LED**
ENGINE PRE HEAT ON----- ENGINE PRE HEAT PUMP RUNNING ----- **GREEN LED**
AUTO SHUT DOWN IN 15 MINUTES
DOMESTIC WATER ON----- AQUA STAT CLOSED TO HEAT----- **GREEN LED**
DOMESTIC WATER 140* OFF 125* ON
INVERTER FAULT----- NO 24 VOLT DC POWER TO ESPAR BURNER----- **RED LED**
- REMOTE PLUG**----- 8 PIN PHONE CORD CONNECTS TO REMOTE SWITCH IN COACH
- MAIN SWITCH**----- POWER FOR SYSTEM
- PUMP PRIME SWITCH**----- MOMENTARY SWITCH TO CHECK PUMP AND FLUID FLOW IN EXPANSION TANK
- POWER IN**----- MAIN POWER IN MUST BE ON A FUSE OR BREAKER (20 AMP MIN.) MUST HAVE AT MIN 10 GAUGE WIRE
- USER INTERFACE**----- OUTPUT TO FANS, THERMOSTATS, DOMESTIC WATER, HEAT SENSORS AND HEATER PUMP
- SYSTEM INTERFACE**----- OUTPUT TO FURNACE

System operating instruction

System Controls

Main switch	This switch is located on the side of the main control board near the heating system. It must be "on" for the system to operate. It is used to troubleshoot and disable the heating system.
Remote switch	This square switch is located inside the coach on the remote panel of the heating system and will turn the diesel fired heater ON and OFF. The LED light part of the switch will display the status of the heater.
Thermostats	There is a thermostat for each heating zone in your coach or boat. You set these to the desired temperature in each heating zone.
Domestic Hot Water switch (optional)	The Domestic Hot Water switch is electrically wired in series with the domestic hot water aquastat. Mounted inside the coach on the remote control panel of the heating system, it is used to disable the request for hot water.
Engine Pre-Heat switch (optional)	This switch would be located inside the coach on the remote panel of heating system. It activates for 30 minutes a circulation pump to pre-heat the engine coolant if there is heat available in the system.
Electric Heater 1 Electric Heater 2 switches (optional)	These switches are located on the remote panel of the heating system and are used to control the two electrical heaters built in to the ComfortHot part of the QUANTUM DEH-65, QUANTUM DEH-65-S and QUANTUM SLS -15.

Additional system functions

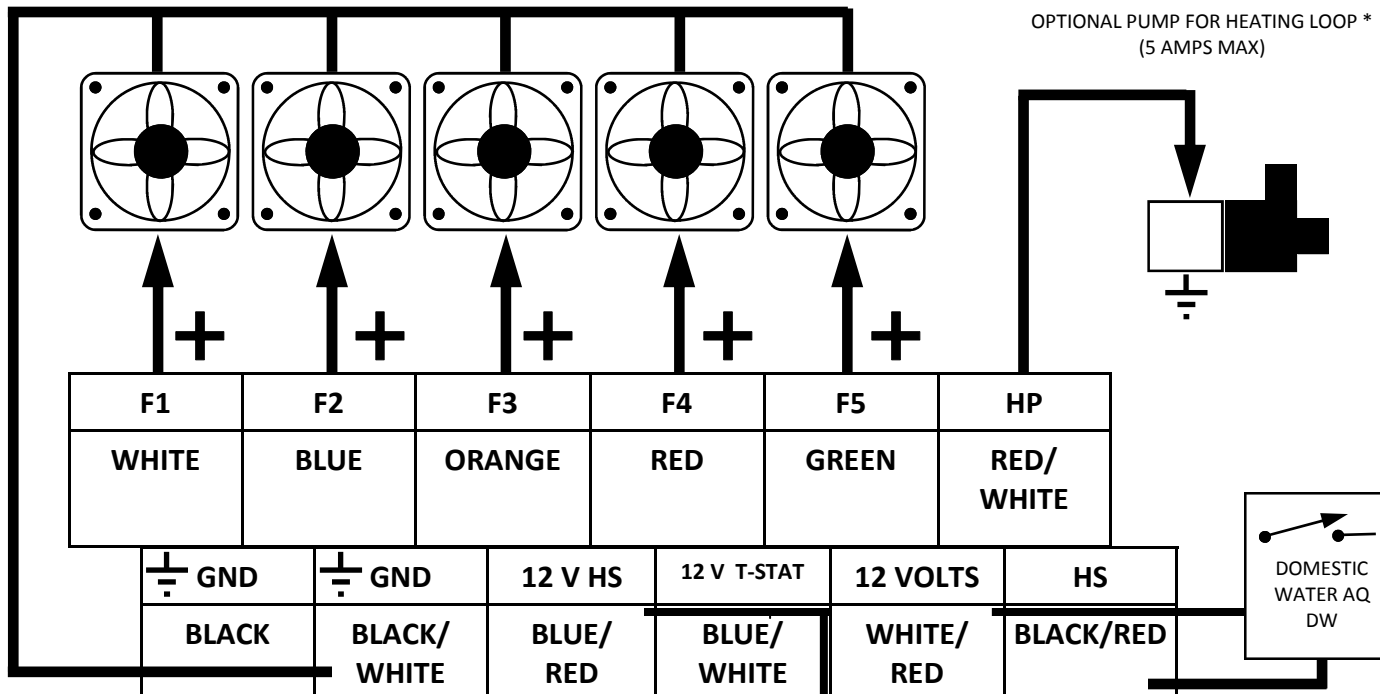
Engine waste heat	When traveling the engine coolant is circulated through an exchanger to heat the coolant in the heating system. The control board part of Quantum heating systems will automatically distribute this heat to the activated heat zones or domestic hot water.
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Operating Instructions

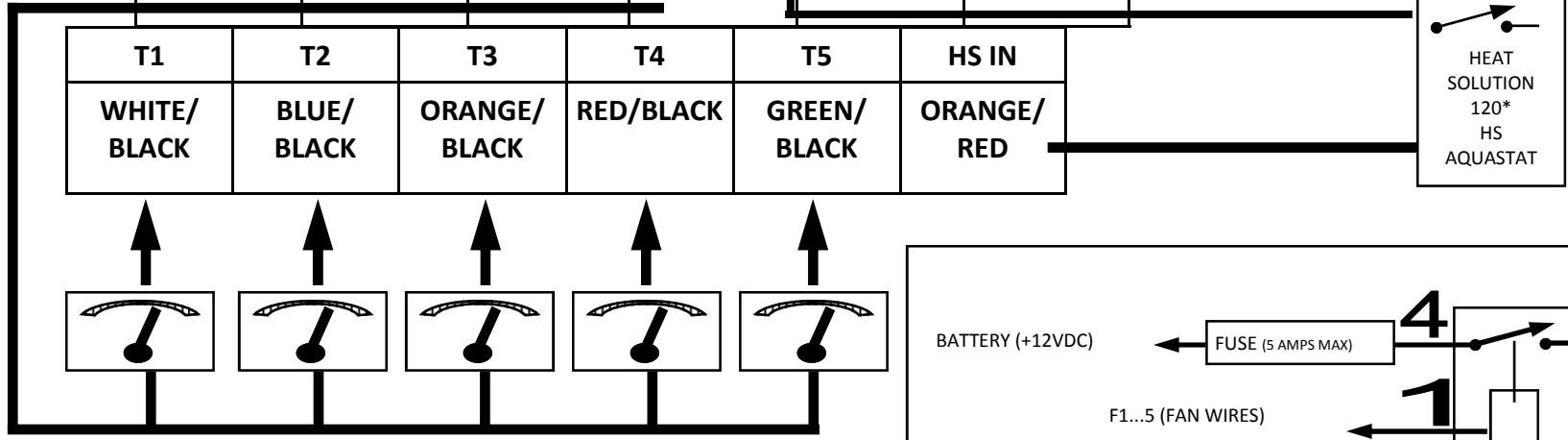
Interior Heating	<ul style="list-style-type: none"> - Turn On the Main switch at control board - Turn on Main switch at remote panel - Turn ON the Furnace switch (to activate the diesel fired heater) or turn On the switches for electric heaters (to activate the electric heaters) - Set the thermostats to your desired temperature. - Turn on the fan units and select the fan speed in each zone. <p>Note: The heater coolant has to come to temperature before the fan units will blow warm air.</p>
Domestic Hot Water	<ul style="list-style-type: none"> - Turn On the Main switch - Turn ON the Furnace switch (to activate the diesel fired heater) or turn On the switches for electric heaters (to activate the electric heaters) - Turn On the Domestic Hot Water switch.
Engine Pre-heat (optional)	<ul style="list-style-type: none"> - Turn on Main switch. - Turn on the Engine Pre-heat switch. If heat is available in the system the engine pre-heat pump will run for 30 minutes. To reactivate the engine pre-heat function place Engine Pre-heat switch in OFF position wait 2 seconds and switch it back in ON position.

USER INTERFACE WIRING

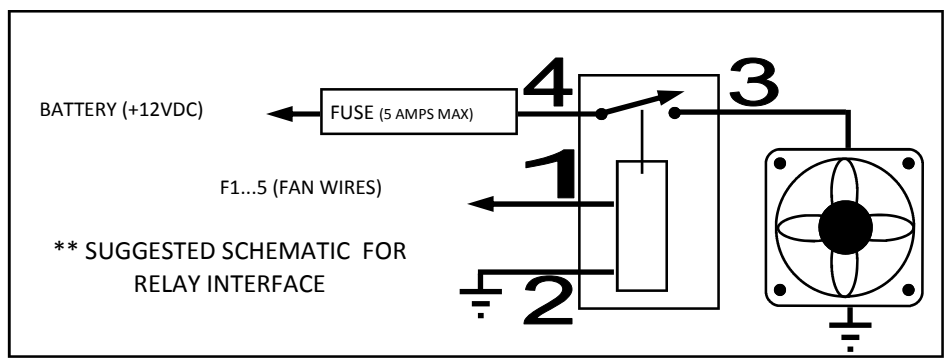
CABIN FANS (5 AMPS MAX)



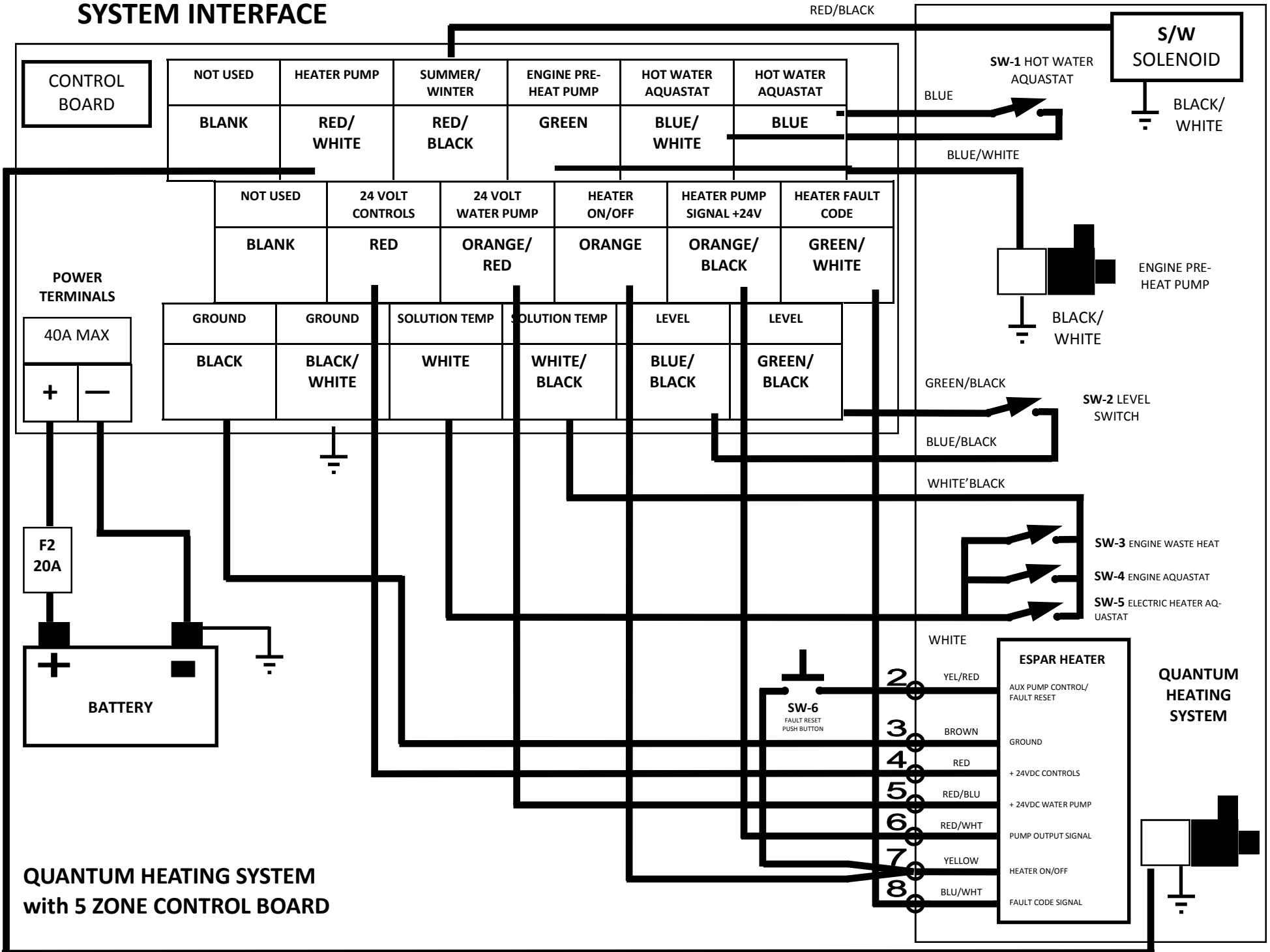
NOTES:
 * A SECOND WATER PUMP MUST BE INSTALLED IN THE HEATING LOOP IN ALL APPLICATIONS WHERE MAIN PUMP CANNOT PRODUCE AT LEAST 2 GPM THROUGH CABIN LOOP.
 ** A RELAY INTERFACED MUST BE USED WHEN FAN(S) OR PUMP(S) DRAW MORE THAN 5 AMPS OF CURRENT. REFER TO SUGGESTED SCHEMATIC BELOW.



CABIN THERMOSTATS



SYSTEM INTERFACE



ComfortHOT Diagrams

