

OMNIS VARIABLE Single zone variable control
OMNIS CUSTOM Multi zone ON/ OFF or variable control



SAFETY AND INSTALLATION MANUAL

This manual is for the following models:

OMNIS VARIABLE					
PART NUMBER	PASCR30-1-DIN	PASCR90-1-DIN	PASCR90-1-PLUS	PASCR165-1-DIN	OMNIS-CUSTOM
Max Amperage (A)	30	90	90	165	PROJECT SPECIFIC
Input Voltage (V)	120/208/240				

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE

WARNING

All persons involved with the installation, operation and maintenance of the control must read and understand all the information in this manual.

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read and understand the installation, operating and maintenance instructions thoroughly before installing or servicing this control.

SAFETY SYMBOLS

Important safety messages have been provided in this manual. Always read and obey all safety messages.



This is the safety alert symbol.

This symbol alerts you to potential hazards that can result in death or severe injury to you and others.

All safety messages will follow the safety alert symbol and either the word “DANGER”, “WARNING”, “CAUTION” or “IMPORTANT”. These words mean:

DANGER

You can be killed or seriously injured if you don't immediately follow instructions.

WARNING

You can be killed or seriously injured if you don't follow instructions.

CAUTION

You can be seriously injured if you don't follow instructions.

IMPORTANT

Notifies the specifier, installer or user about practices not related to physical injury, but to important items such as equipment, housekeeping or security.

IMPORTANT SAFETY+ RELIABILITY INSTRUCTIONS

1.  **Read all instructions carefully before installing, servicing, or using this control unit.**
2. **WARNING!** Do not operate any heater or control after it malfunctions. Disconnect power at service panel and have control inspected by a licensed electrician before reusing.
3. **WARNING!** Do not insert or allow foreign objects to enter any ventilation or exhaust opening as this may cause an electric shock or fire or damage the control.
4. **IMPORTANT!** For custom, 3 Phase controls, failure to perform 3-Phase sequencing during installation may cause permanent damage to the control
5. **IMPORTANT!** Always use appropriately rated conductors. Ensure conductors are appropriately sized for loads and run lengths.
6. Always torque connections to appropriate loads to ensure strong electrical contact.
7. Do not run excessive amounts of wire inside or around this panel. The panel is a control panel, not a distribution panel. High voltage lines can cause interference on low voltage control components and cables.
8. **WARNING!** To prevent a possible fire or premature control failure, do not block air intakes or exhaust in any manner. Always maintain appropriate clearances to walls and ceiling.
9. A control panel has live electrical conductors inside. Do not use it in areas where gasoline, paint or flammable vapors or liquids are used or stored.
10. Installation **MUST** be performed by a licensed electrician and must conform to local, state, provincial or national electric codes.
11. This control must be installed indoors in a well-ventilated area. It is NEMA 1 rated.
12. Use this control as described in this manual. Any other use not recommended by the manufacturer may cause fire, electric shock or injury to persons.

SAVE THESE INSTRUCTIONS

WARNING: CALIFORNIA PROPOSITION 65

This product can expose you to chemicals which are known to the state of California to cause cancer and cause birth defects or other reproductive harm.

WARNING: RISK OF FIRE

DO NOT INSTALL THIS CONTROL INSIDE A WALL OR ENCLOSED ROOM. This control produces heat when operating.

WARNING: RISK OF INJURY

Improper installation, adjustment, alteration, service or maintenance can cause property damage, serious injury or death. Read and understand the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

CONTENTS

SAFETY AND INSTALLATION MANUAL	1
SAFETY SYMBOLS	2
IMPORTANT SAFETY+ RELIABILITY INSTRUCTIONS	3
CONTENTS.....	4
INTRODUCTION	5
SPECIFICATIONS	5
INSTALLATION WARNINGS.....	6
INSTALLER SIGN OFF	7
LOAD VERIFICATION	7
3-Phase Sequencing/Rotation	8
Wire Gauges and Lengths.....	8
Low Voltage Interference.....	8
Wire Runs Inside the Panel	8
Tightening Torque	9
Panel Clearances, Fan Ventilation and Normal Operating Temperatures	9
STANDARD PANEL WIRING AND OPERATION	10
OMNIS VARIABLE – PASCR[30/90/165]-1-DIN	10
OMNIS VARIABLE – PASCR90-1-PLUS.....	11
Multi-function timer setup.....	12
Installing the Multi-function timer	12
BACNET INTEGRATION.....	13
SMART HOME INTEGRATION	13
PASCR + PASCR PLUS variable control integration	13

INTRODUCTION

The Solaira Omnis Control series are intended for use with resistive heater loads. Variable controls allow the user to vary the heater output from 0-100% output. All models can be paired with various accessories to meet any control needs, and can be integrated into BACnet various home automation systems.

Please read the following instructions carefully before use. The safety of this control is guaranteed only by its correct usage in accordance with these instructions, therefore they should be retained for future reference.

SPECIFICATIONS

OMNIS VARIABLE

The Omnis Variable Control Series integrates advanced phase angle SCR technology with a variable DC control (0-10Vdc). The soft start and high inrush protection features increase your Solaira Heater Infrared lamp longevity.

PART NUMBER	PASCR30-1-DIN	PASCR90-1-DIN	PASCR90-1-PLUS	PASCR165-1-DIN	OMNIS-CUSTOM
Max Amperage (A)	30	90	90	165	As Requested (Contact Solaira for Further Guidance)
Input Voltage (V)	120/208/240				
Input Phase	Single Phase				
Output Amperage (A)	0-100% Variable				
Output Voltage (V)	120/208/240				
Output Phase	Single Phase				
Fused Output	No	No	Yes (4 x 30A – 2P)	No	
Zone Quantity	Single Zone				
Accessories Included	PASCR-POT	PASCR-POT	PASCR-POT, PSST-MAXTIM	PASCR-POT	
Home Automation Integration	Yes	Yes	Yes	Yes	
Enclosure Rating	NEMA 1				
Certification	UL508A, Canada and USA				
Panel Dimension	16”H x 16”W x 6.25”D	16”H x 16”W x 6.25”D	20”H x 20”W x 12.25”D	20”H x 20”W x 12.25”D	
Clearances	A minimum side clearance of 3” (0.08m), front clearance of 39” (1m), and 12” (0.3m) above/below fans must be maintained on all installations. Must be installed in a dry, well-ventilated area.				

INSTALLATION WARNINGS



WARNING



ALL PERSONS INVOLVED WITH THE INSTALLATION, OPERATION AND MAINTENANCE OF THE CONTROL PANEL MUST READ AND UNDERSTAND ALL INSTALLATION WARNINGS. INSTALLATION MUST BE PERFORMED BY A CERTIFIED ELECTRICIAN TO PROVINCIAL, STATE AND NATIONAL ELECTRICAL CODE (NEC) STANDARDS

IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE OR MAINTENANCE CAN CAUSE CRITICAL FAILURE IN HIGH VALUE CONTROL COMPONENTS AND DOWNSTREAM HEATERS. READ AND UNDERSTAND THE INSTALLATION WARNINGS, OPERATING AND MAINTENANCE INSTRUCTIONS THOROUGHLY BEFORE INSTALLING OR SERVICING THIS CONTROL PANEL.

FAILURE TO FOLLOW THE FOLLOWING INSTALLATION WARNINGS WILL VOID WARRANTIES AND MAY RESULT IN FAILURE OF CONTROL COMPONENTS



WARNING



3-PHASE CONTROLS: PHASE ANGLE ROTATION MUST BE PERFORMED!

FAILURE TO PERFORM PHASE ANGLE ROTATION MAY PERMANENTLY DAMAGE DOWNSTREAM HEATERS, CONTROL COMPONENTS OR THE ENTIRE CONTROL! SEQUENCE/ROTATION MUST BE CLOCKWISE ORIENTATION.

PLEASE NOTE DAMAGE DUE TO FAILING TO PERFORM PHASE SEQUENCING WILL NOT BE COVERED UNDER THE MANUFACTURER'S WARRANTY.



WARNING



DO NOT MODIFY THE CONTROL PANEL!

MODIFICATION OF THE ENCLOSURE, COMPONENTS OR INTERNAL WIRES WILL IMMEDIATELY VOID WARRANTY. PANELS ARE ENGINEERED TO MEET SPECIFICATIONS OF CONSULTING ENGINEERS, CHANGING WIRES OR COMPONENTS WILL AFFECT CONTROL FUNCTION.

INSTALLER SIGN OFF

Installer Name:	
Install Date:	
Installing Company:	
State Electrical License number:	
Project Name:	
Project Location:	
Building Supply Voltage:	

- ☐ I have performed phase sequencing/rotation and loads are balanced
- ☐ I have run an appropriate wire gauge between the building supply and control panel and voltage drop and ampacity is within NEC standards.
- ☐ I have run cables such that interference will not occur with low voltage components
- ☐ I have torqued all connections to specifications listed on the terminal blocks
- ☐ I have installed the panel with appropriate clearances to sides, above and below
- ☐ I have installed the panel in a well ventilated room and understand that the control panel must operate at the design temperature of 77F and 95F (25°C and 35°C)
- ☐ Check this box if any fuses have been replaced during the commissioning process

After the control has been installed, run heaters at full output and record current load per zone. Check to make sure the measured loads do not exceed the design loads.

LOAD VERIFICATION

ZONE	HEATER KW LOAD	CURRENT AT FULL LOAD
ZONE 1		
ZONE 2		
ZONE 3		
ZONE 4		
ZONE 5		
ZONE 6		

*For multi zone controls, record load in kW for each zone. If only one zone, record load for that zone.

I acknowledge that I have read and fully understood these warning instructions prior to installing the control panel at this location. I understand that if these warnings are not followed, premature failure of the control may occur.

Name: _____

Signature: _____

3-PHASE SEQUENCING/ROTATION

Only applicable for 3-phase controls. The phase sequence (or phase rotation) in a 3-phase system determines how the current is distributed among the three lines feeding an unbalanced load. Correct phase rotation is essential; improper rotation can lead to severe damage to the controller and any connected equipment, such as heaters. Potential damage includes **permanent damage to emitters or control components**, burnt-out wiring harnesses or shortened emitter life. To prevent issues, we advise following the correct phase sequencing procedures. Basic equipment like the Fluke 9040 3-Phase Rotation Indicator can be used for phase testing.

- Phase angle sequencing/rotation must be performed!
- **Failure to perform phase angle sequencing may permanently damage downstream heaters, control components or the entire control!**
- **Solaira 3-phase controls are clockwise orientation. P1 = RED, P2 = BLACK, P3 = BLUE.**
- Please note damage due to failing to perform phase sequencing will not be covered under the manufacturer's warranty.

WIRE GAUGES AND LENGTHS

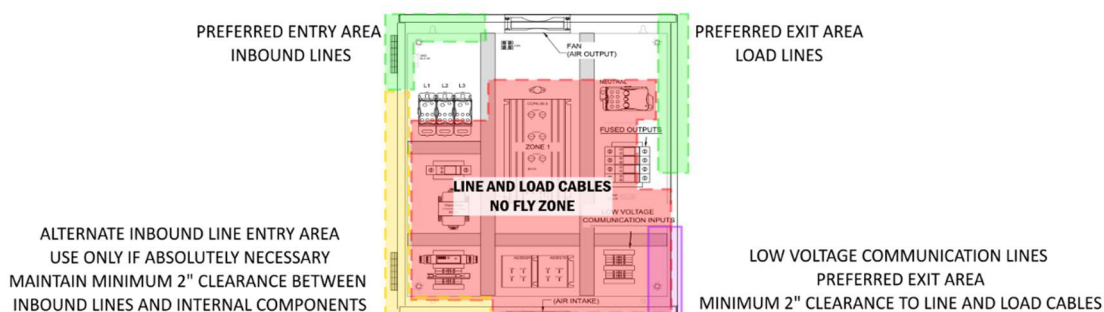
- **⚠WARNING!** Undersize load and line cables entering and exiting this panel will generate additional heat and could lead to premature failure of components inside this control panel. Failure to size wires appropriately may result in failure of inbound distribution blocks, fused outputs, terminal blocks or other components.
- Master installing electrician is responsible for following National Electric Code, Canadian electric Code or other Code requirements for cable sizing and selection. Cables must be appropriately rated for the run length.
- This panel carries a UL 508A rating. Cables and components inside the panel are appropriately sized to manage loads marked on the panels rating label. For custom controls, cables and components have been sized based on specifications made by the consulting engineer for this specific project.
- Master electrician is responsible for appropriately sized low voltage communication wires. Insufficient conductor size will cause communication problems over long distances.

LOW VOLTAGE INTERFERENCE

- **⚠NOTICE!** The loads carried by load and line cables can induce false low voltage signals on control wires, causing unpredictable output behavior.
- Always maintain 2" spacing between load, line cables and low voltage communication/ control wires.
- Consider using metal foil shielded low voltage communication wire to protect against induction of the 0-10V communication cable.

WIRE RUNS INSIDE THE PANEL

- **⚠NOTICE!** This is a control panel, not a distribution panel. Long wire runs inside the panel should be avoided as they will damage components and cause interference with low voltage wiring and low voltage components.
- Inbound lines should enter the panel from the top of the control panel, or immediately adjacent to the distribution blocks intended for inbound line connection. Avoid running inbound lines through the bottom of the control panel.
- Outbound (Load) lines should exit the panel as close to the outputs as possible. Avoid running outbound lines over long distances within the control panel. Long run lengths inside the control panel contribute to excessive heat buildup inside the panel and could result in premature failure of control components.



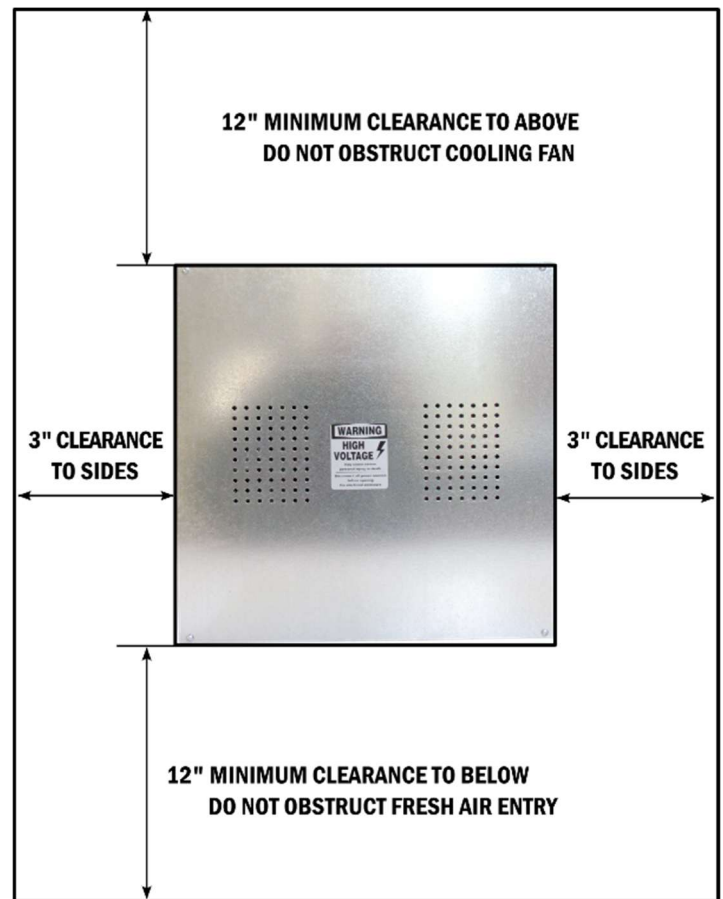
TIGHTENING TORQUE

- This control panel has been torqued to specification using calibrated tools at our assembly plant. Installer is responsible for re-torquing all factory connections prior to running the control.
- The installer is responsible for ensuring that load and line landing lugs are torqued to specifications listed on the terminal block, distribution block, or fused output. Failure to apply the correct torque will generate additional heat on components and could lead to premature failure.
- **⚠ NOTICE!** Torque connections to torque specification listed on the components inside the control panel. Torque guidelines are listed below.

COMPONENT	TIGHTENING TORQUE	
Fuse holder (Fused Output)	22 in-lb	
Eriflex Line Distribution Blocks	UD125A	57 in-lb
	UD160A	75 in-lb
	UD250A	168 in-lb
	UD400A	221 in-lb
	UD400212	120 in-lb
Eriflex Load Side (all models)	31 in-lb	

PANEL CLEARANCES, FAN VENTILATION AND NORMAL OPERATING TEMPERATURES

- **⚠ WARNING!** DO NOT INSTALL THIS CONTROL PANEL IN A CONFINED SPACE! The panel should be installed in a large, well-ventilated room.
- Always maintain 12" clearance above and below the panel, ensure that the fresh air inlet and fan outlet are clear of obstruction.
- The panel must be wall mounted.
- If there are directional arrows on the rating label inside the control, follow the direction indicated as "up".
- The control panel is designed to run between 77F and 95F (25°C and 35°C)



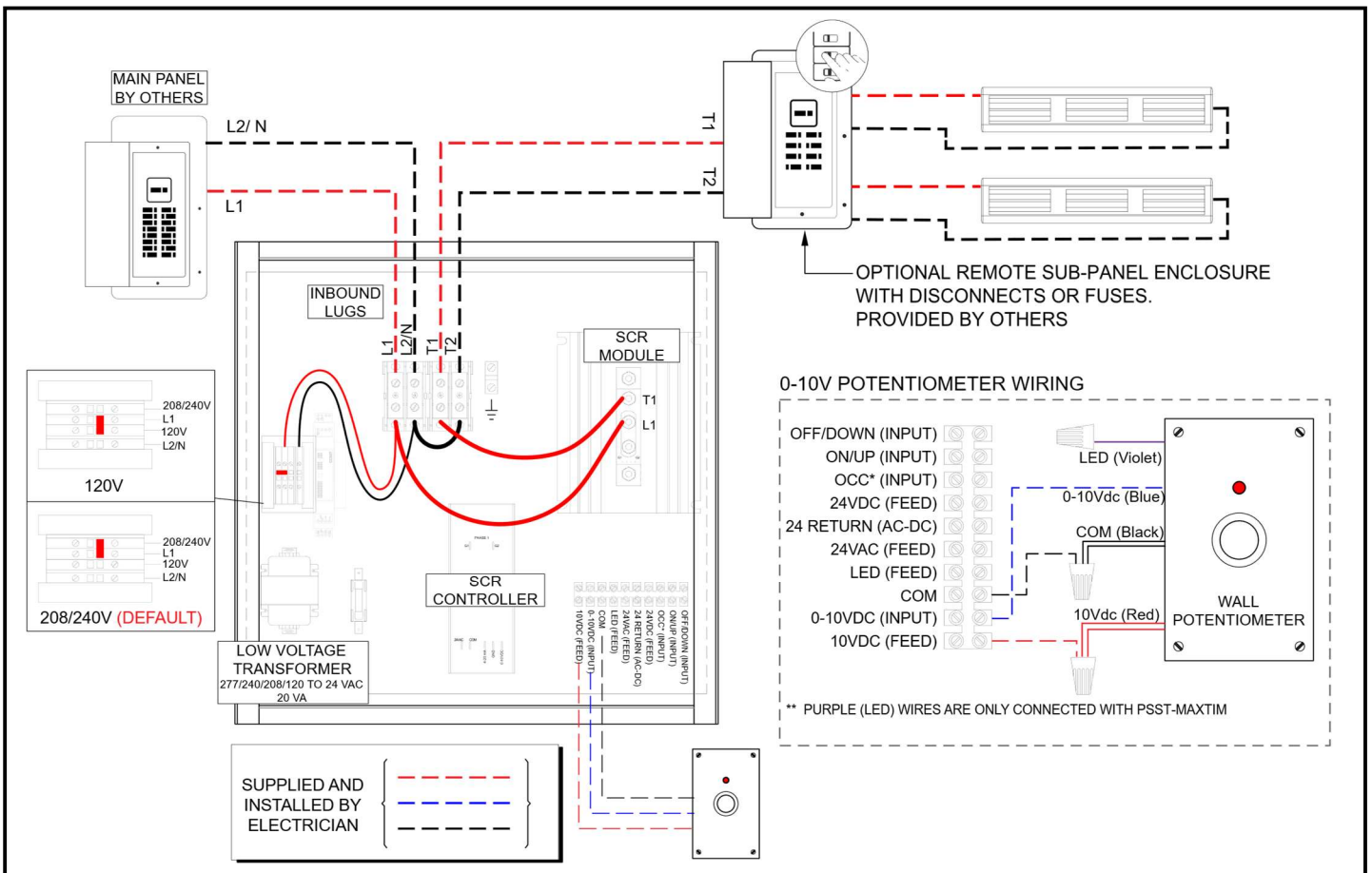
STANDARD PANEL WIRING AND OPERATION

OMNIS VARIABLE – PASCR[30/90/165]-1-DIN

Description

The Omnis PASCR[30/90/165]-1-DIN is a variable output control for single zone applications. Multiple accessories available to increase capability such as timers, lockout thermostat, variable thermostat or occupancy sensors. Local code may require sub panel between control and heaters for circuit protection. The Control comes ready to wire for 208 and 240V applications and is supplied with a 24V wall dial (potentiometer) to turn the heaters up and down. When using the control on 120V, change the transformer jumper position so jumper covers the 120L terminal and the center terminal. The output is controlled through 24V or 0-10V inputs.

Wiring for 120, 208 and 240V



Operation

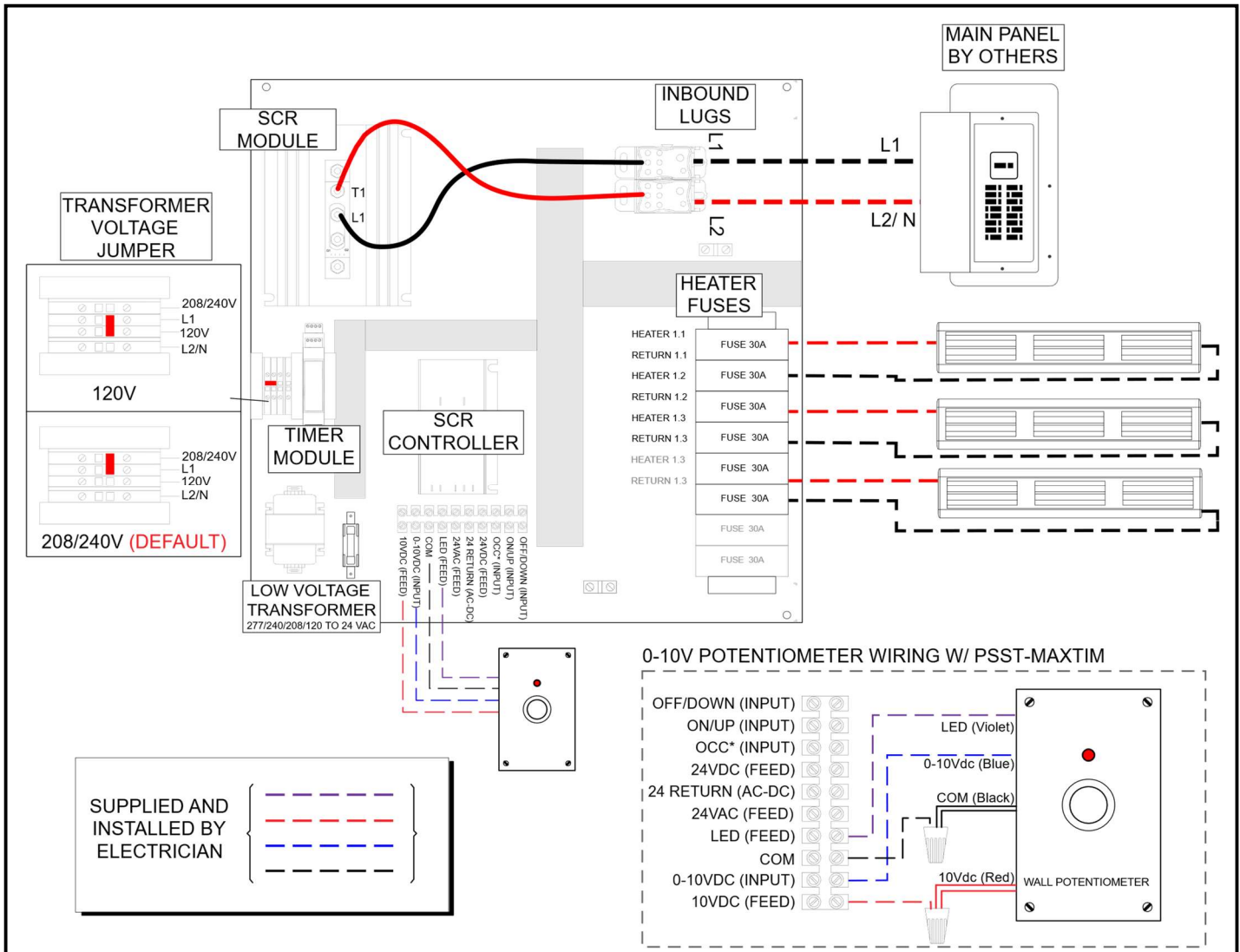
The wall potentiometer turns the heaters up and down. To turn the heaters off, the Potentiometer must be turned counter clockwise until a “click” is felt and the red indicator LED turns off.

OMNIS VARIABLE – PASCR90-1-PLUS

Description

The Omnis PASCR90-1 Plus is a variable output control for single zone applications. The control comes pre-wired with the PSST-MAXTIM to provide auto shutoff after a defined time, and fused outputs to protect heater circuits. The control comes pre-wired for 208 and 240V applications and is supplied with a 24V Wall dial (Potentiometer) to turn the heaters up and down. To Wire the control for 120V applications, refer to the steps outlined in the PASCR [30/90/165]-1-DIN wiring on the previous page. Refer to accessory section for PSST-MAXTIM Timer setup

Wiring for 120, 208 and 240V



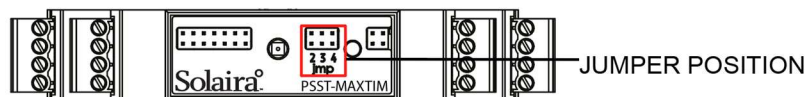
Operation

The wall potentiometer determines the heaters output. When the output is adjusted, heaters come on and the timer starts after positioning the knob. After the pre-defined run time on the PSST-MAXTIM, the heaters turn off. To re-start the heaters, adjust the knob. After positioning the knob, the timer countdown begins again.

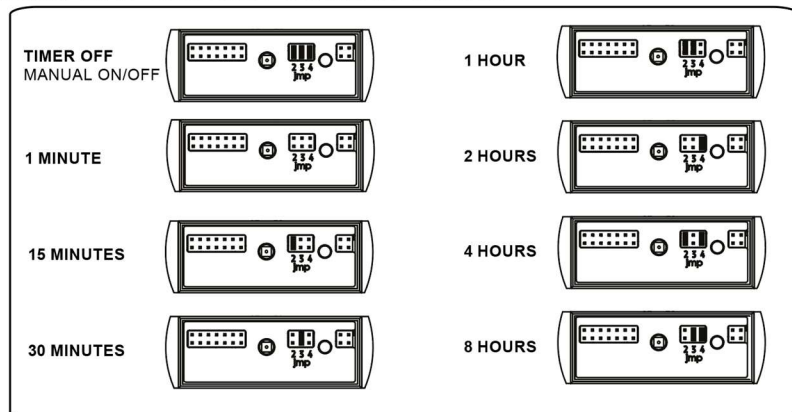
MULTI-FUNCTION TIMER SETUP

For PLUS control models, the PSST-MAXTIM multi function input timer is included in the panel. The timer must be pre-set with various jumper combinations to determine the allowable run time. If you have purchased this component as an accessory, refer to the accessory wiring document.

Selecting control run time - timer setup



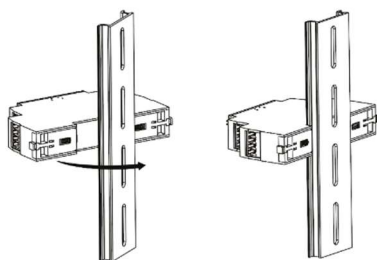
JUMPER POSITION COMBINATIONS



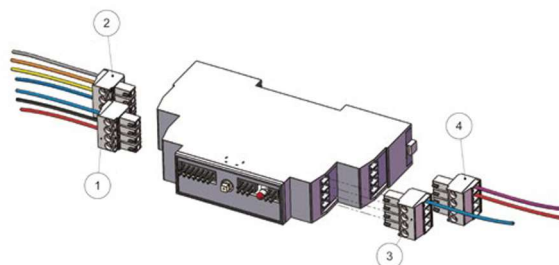
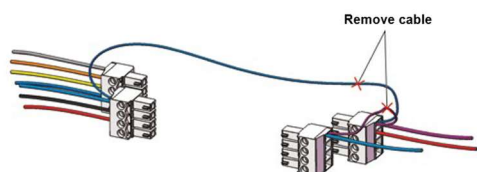
INSTALLING THE MULTI-FUNCTION TIMER

The multi function timer (PSST-MAXTIM) can be installed on standard OMNIS panels to allow timer capabilities.

1. Turn off the control Panel.
2. Clip the PSST-MAXTIM on the DIN rail.
4. Plug the connectors into the PSST-MAXTIM as shown:

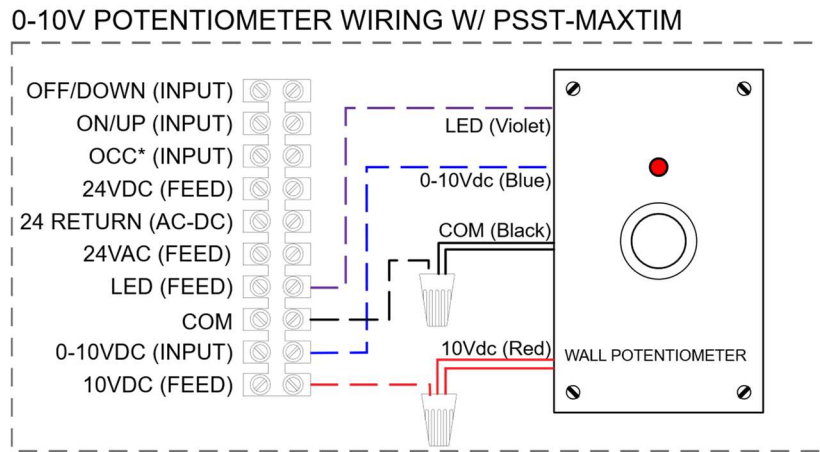


3. Remove the blue and purple jumper cable.



5. Place the jumpers to adjust the preferred run time. This is the amount of time the heaters will remain in the ON state. When paired with additional accessories, each time the PSST-MAXTIM receives an "ON" input signal, the timer will re-start. This includes adjusting the wall potentiometer, each time the knob is adjusted the timer will re-start. Jumpers can be moved without re-booting the control. After moving the jumpers, press the button on the front PSST-MAXTIM to set the new heater runti

- After the PSST-MAXTIM is installed, the wall potentiometer must be re-wired to function correctly.



BACNET INTEGRATION

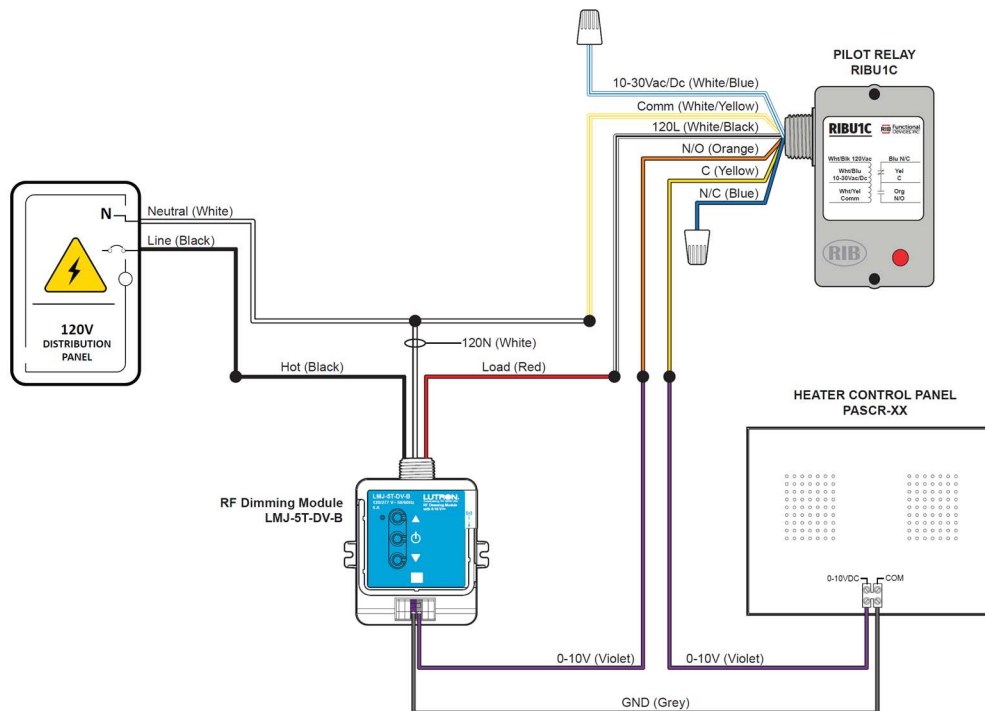
Solaira Omnis control series can be tied into BACnet systems using one of the Solaira BACnet ready accessories. Refer to BACnet ready accessories for integration information.

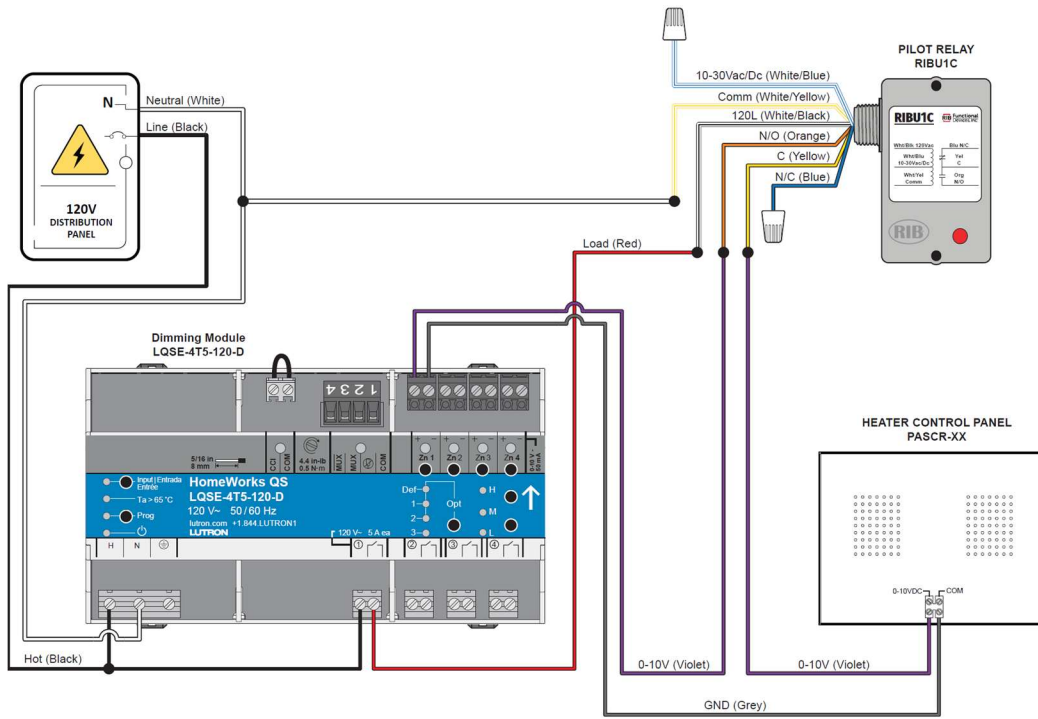
SMART HOME INTEGRATION

Solaira Omnis series controls can be integrated into smart home systems. It is the responsibility of the installer and specifier to determine compatibility of Solaira controls with existing building automation systems. Each 3rd party control type has a slightly different integration method.

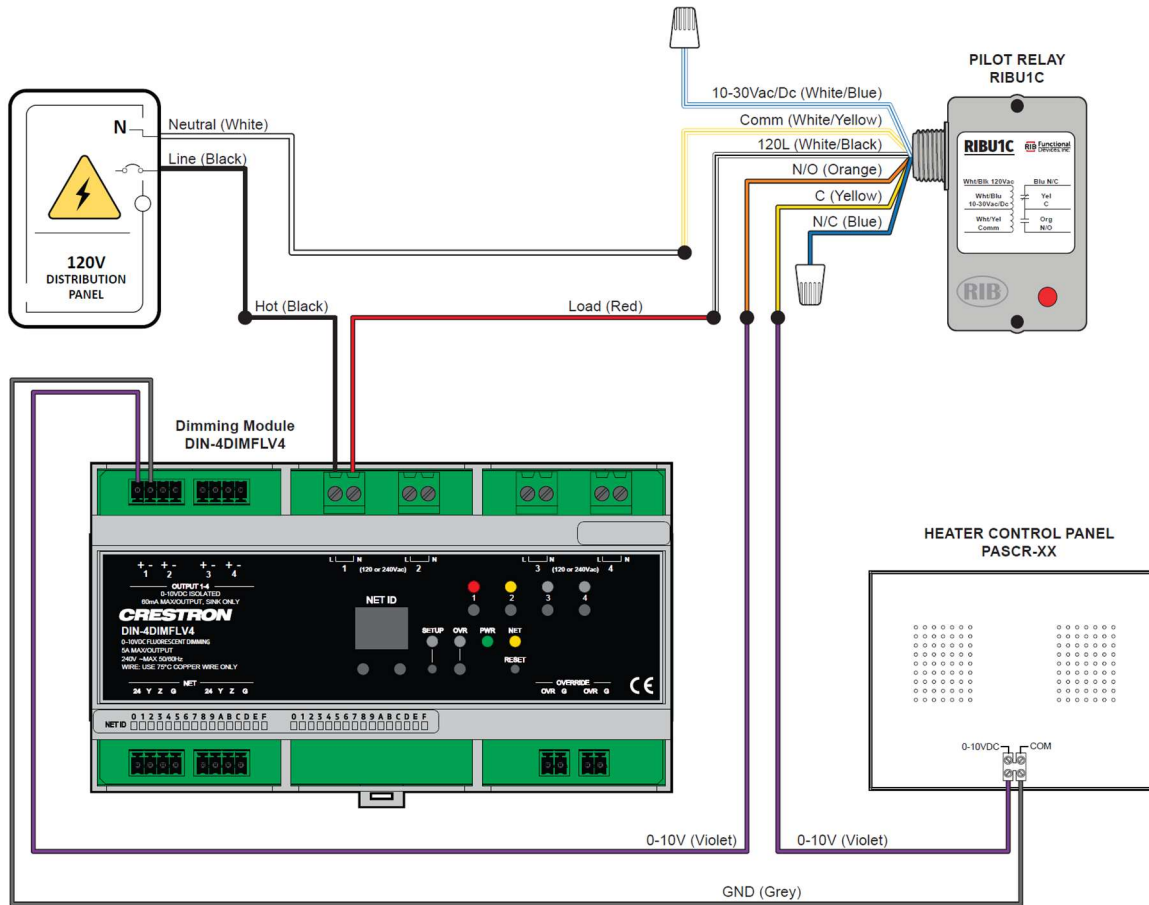
PASCR + PASCR PLUS VARIABLE CONTROL INTEGRATION

LUTRON INTEGRATION

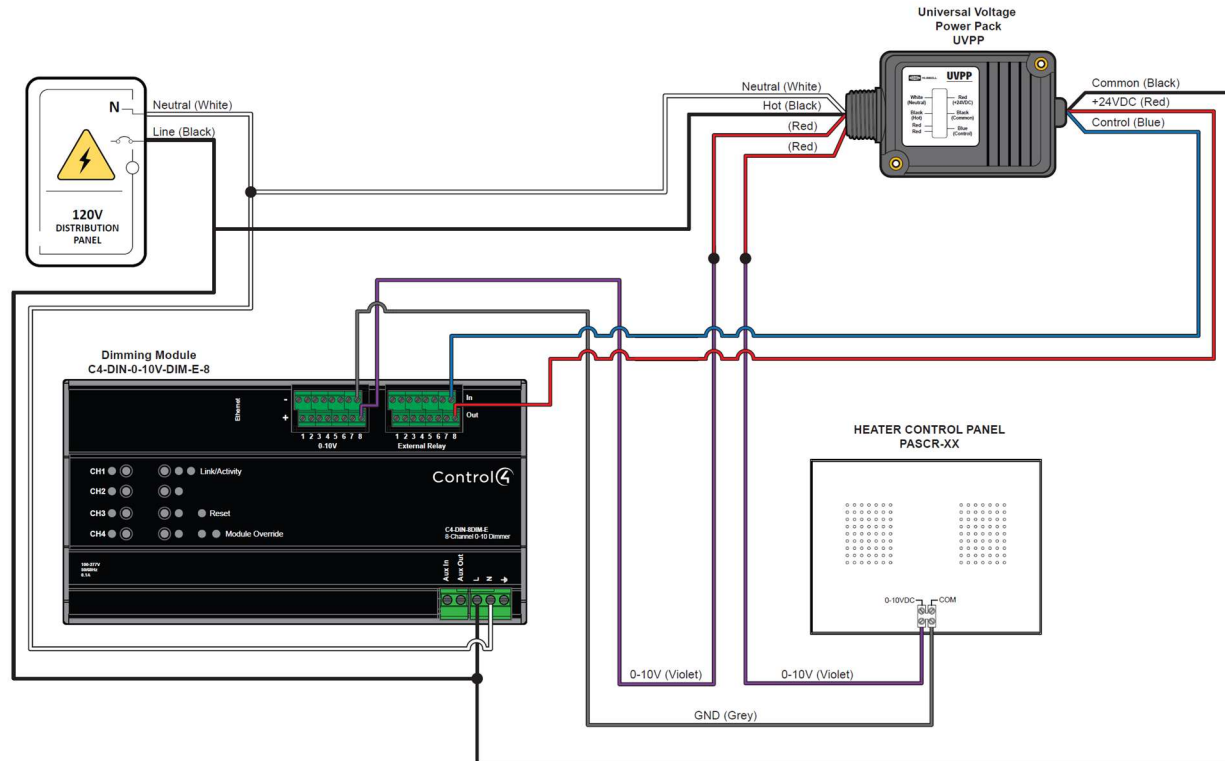




CRESTRON INTEGRATION



CONTROL 4 INTEGRATION



Wiring for 277V

The Omnis series is wired with 300V rated components and can handle 277V loads. PER UL 508, the rating label on the control panel must match the wiring in the control. If the installer deems it acceptable, the control will operate on 277V circuits, but the transformer must be re-wired. Re-wiring of the transformer is the responsibility of the installer, and if re-wiring is completed incorrectly the control warranty will be void.

Before using the control on 277V circuits, the transformer wiring leads must be changed.

1. Disconnect the orange wire from the transformer wiring DIN Rail connector.
2. Remove the wire nut from the brown wire, and connect the wire to the 240L terminal.
3. Isolate orange wire using a wire nut.

