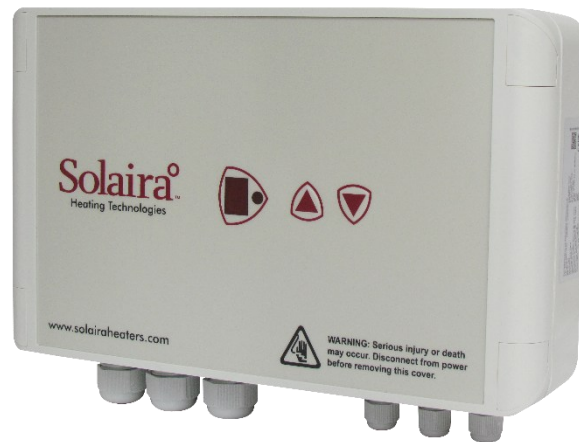


SMART Control Series

SMART 34-DV

SMART 16-DV



SAFETY AND INSTALLATION MANUAL

Single zone, variable heater control with waterproof / IP rating and soft-start technology to extend lamp life. Power with additional accessories for additional control logic.

This manual is for the following models:

PART NUMBER	VOLTAGE	MAXIMUM CURRENT	TEMPERATURE LOCKOUT	DIMENSIONS
SMART34-DV	120, 208, 240V	34A	ONBOARD	11" x 8" x 3"
SMART16-DV	120, 208, 240V	16A	ACCESSORY REQUIRED	11" x 8" x 3"

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. **IMPORTANT!** Always use appropriately rated conductors. Ensure conductors are appropriately sized for loads and run lengths.
4. Always torque connections to appropriate loads to ensure strong electrical contact.
5. 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. Use shielded low voltage wire to prevent electrical interference on control signals.
6. **WARNING!** To prevent a possible fire or premature control failure, do not install this control in a corner. Always maintain appropriate clearances to walls and ceiling.
7. 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.
8. Installation **MUST** be performed by a licensed electrician and must conform to local, state, provincial or national electric codes.
9. 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.

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INTRODUCTION


The Solaira SMART series control series is an all-in-one solution for small installations requiring a single control, or large installations requiring multiple, single zone heating control. The control allows for variable output with 5 heating levels and features temperature lockout and occupancy sensing capabilities with additional accessories. The control can be paired with a handheld remote control or wall mounted decora switch if the installer intends to put the control in a hard to access location or in a mechanical room.


SPECIFICATIONS


ELECTRICAL AND INSTALL SPECIFICATIONS


PART NUMBER	SMART34-DV	SMART16-DV
Input Voltage	120V, 208V, 240V	120V, 208V, 240V
Max Amperage (A)	34A	16A
Ambient temperature range	-20°C to +30°C (-4F to +86F)	20°C to +30°C (-4F to +86F)
Weatherproof Rating	IP 65, for wet exposed locations	IP 65, for wet exposed locations
Outbound terminals	2X heater Load terminals	1X heater Load terminal
Control Features, onboard	<ul style="list-style-type: none"> Variable Control Temperature sensor (Temperature lockout function) 	<ul style="list-style-type: none"> Variable Control
Control Accessory Function (sold separately)	<ul style="list-style-type: none"> Wall Switch (<i>SM-WSD</i>): adds remote wall switch, allowing timer function and hides the main control Handheld remote (<i>SMRTVTEM-R</i>): line of sight remote control to wall switch or main control Temperature Sensor (<i>SMRTVTEM-R</i>): add temperature lockout function Occupancy Sensor (<i>SMRTVOCC</i>): add occupancy sensing function 	
Control dimensions	11" x 8" x 3"	11" x 8" x 3"

ACCESSORIES

Wall Switch: Decorative wall switch and timer function		Part number: SM-WSD
	Description	The remote wall switch allows users to control the heaters locally, while having the control installed in an electrical room or area out of sight of the heaters. The wall switch functions the same as the up/ down arrows on the SMART control, and allows the user to start a timer to turn the heaters off after a set period of time.
	Timer range	1-60 minutes
	Usage	INDOORS ONLY! If outdoors, single gang weatherproof receptacle cover required!

Temperature Sensor: Temperature Lockout function		Part number: SMRTVTEM-R
	Description	Onboard temperature lockout dial. Heaters will turn on only when temperature drops below the number set on the lockout dial
	Lockout range	5 – 25°C (41 – 77F), Factory set at 20°C (68F).
	Usage	Indoor or outdoor use
	Sensors	SMART34-DV includes onboard Local sensor which senses temperature where control is installed. Remote temp sensor is required when control is installed in mechanical room or away from heaters.

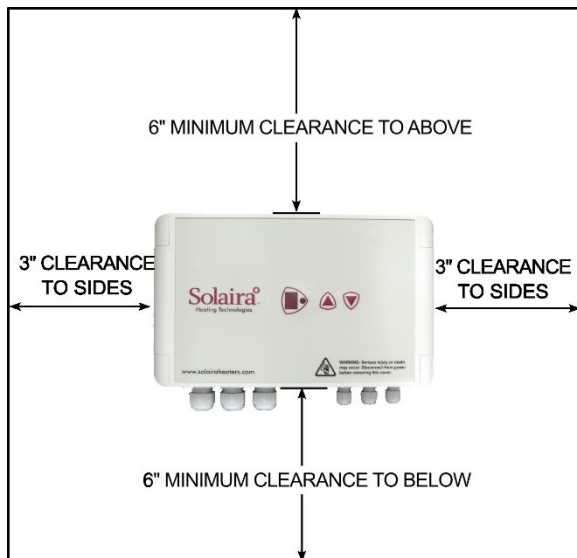
Occupancy Sensor: Occupancy sensing function		Part number: SMRTVOCC
	Description	Occupancy sensing function. When someone walks into the space, heaters will come on for the pre-time set on the control board
	Sensing Characteristics	220° detection angle, range of 12m (40')
	Usage	Indoor or outdoor use

Handheld remote control		Part number: SMRTVRMT
	Description	Handheld remote control. Requires line of sight to the and must be pointed at the SMART unit or the wall decora switch to function

INSTALLATION

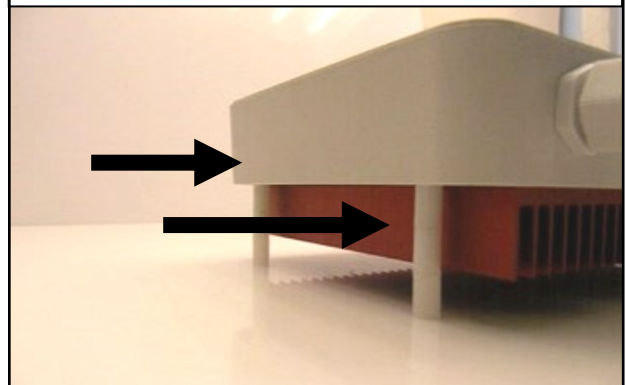
- **⚠️ WARNING!** Installation must be performed by a licensed electrician and must conform to local, state, provincial or national electric codes.
- **⚠️ DANGER!** Do not install the control in a corner or a confined space! The control generates significant heat, incorrect installation could result in a fire or premature failure of the control.
- **⚠️ WARNING!** Do not mount the control directly on any flammable material. Control must be installed with standoffs when installed on flammable surfaces such as wood, laminate, etc.
- **⚠️ WARNING!** Do not recess the control into any a wall or ceiling!
- **⚠️ WARNING!** Do not cover cooling fins on the back of the SMART34-DV unit!
- **IMPORTANT!** Do not drill holes in the enclosure back plate! Drilling holes through the control back plate may allow water entry, premature failure of the control, and will void the warranty. Use the 4 mounting holes provided in each corner of the control.
- **IMPORTANT!** Do not remove the PCB board from the back plate! Removing the PCB board from the back plate will void the control warranty!
- **IMPORTANT!** Watertight connections must be used! Removal of watertight connections will void the control warranty!

MINIMUM MOUNTING CLEARANCES



⚠️ DO NOT MOUNT DIRECTLY ON FLAMMABLE SURFACE!

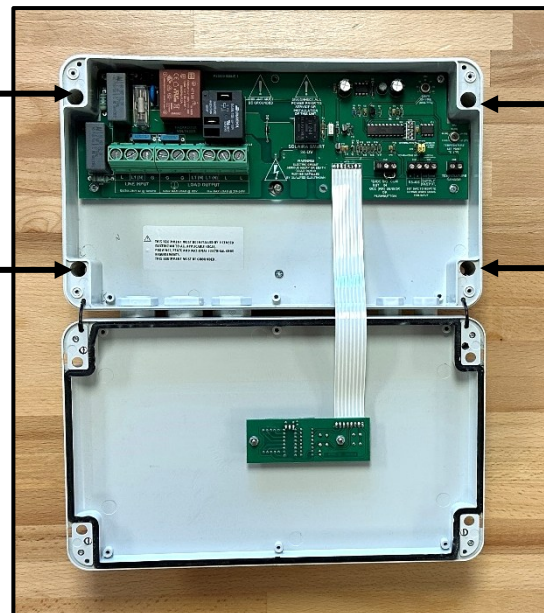
Installer to provide 1.5" long standoffs when mounting on wood or other flammables.



MOUNTING THE CONTROL

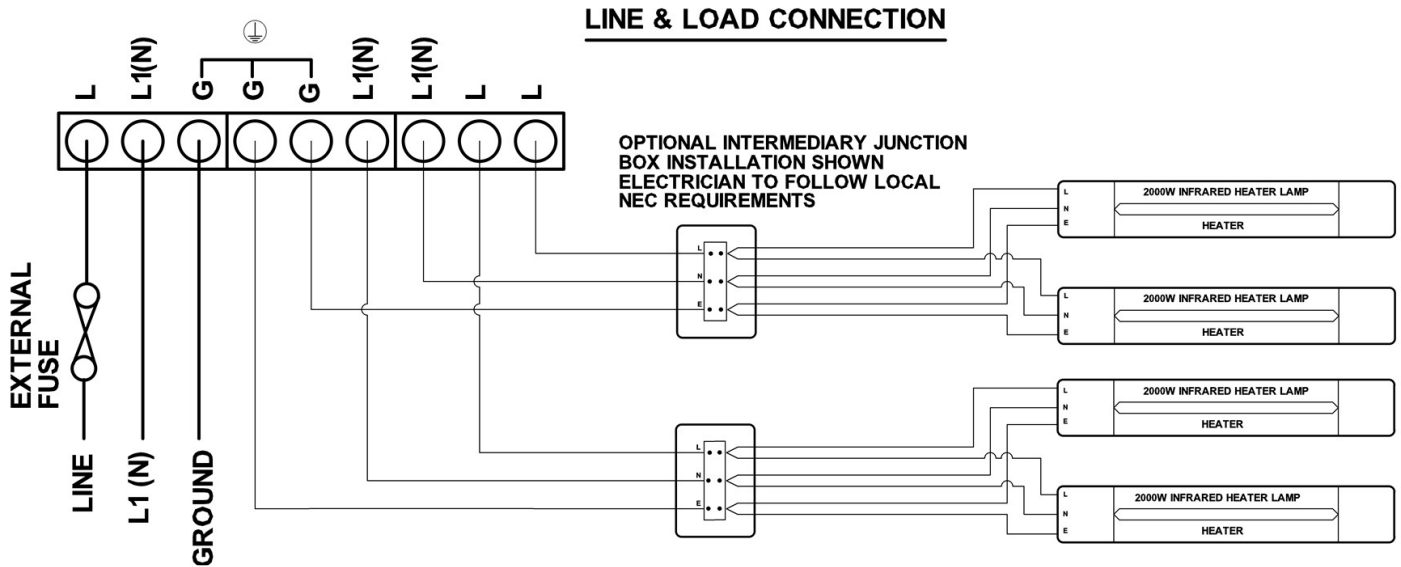
⚠️ DO NOT DRILL HOLES IN THE BACK PLATE OF THE CONTROL! Use the holes provided to mount the control unit.

Drilling holes in the back plate will remove the waterproof rating and will void the control warranty!

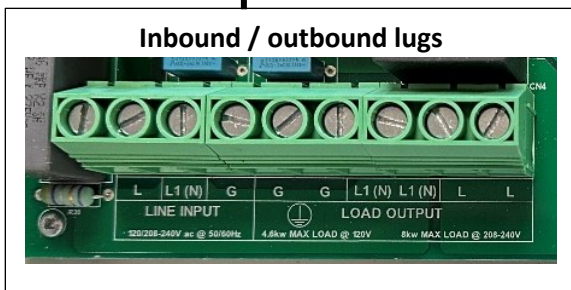
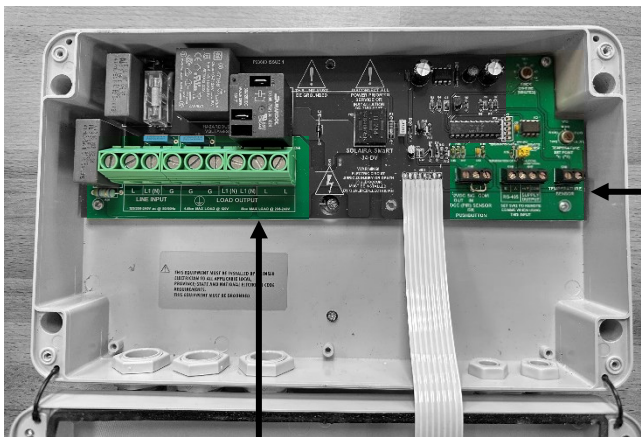


ELECTRICAL AND ACCESSORY WIRING

- **⚠ WARNING!** CONTROLS AND HEATERS MUST BE GROUNDED!
- **⚠ WARNING!** Installation must be performed by a licensed electrician and must conform to local, state, provincial or national electric codes.



PCB BOARD FUNCTIONS AND ACCESSORY INPUTS



Accessory function adjustment

Instructions continued in accessory setup

Timer set time dial
*Requires SM-WSD wall switch

Temperature set dial
*Requires SMRTVTEM-R temperature sensor. SMART34-DV includes onboard temp. sensor.

Wall Switch engagement
*Requires SM-WSD wall switch

Occupancy sensor input

Wall Switch input
*Requires SM-WSD wall switch

Temp sensor input

VR1 20 30 40 50 60
TIMER ON-TIME (MINUTES)

VR2 15 (5) 20 (68) 25 (77)
TEMPERATURE SET POINT °C (°F)

SW1 LOCAL (FRONT K/PAD)
SW2 SET SW2 TO REMOTE COMMS WHEN USING THIS INPUT

12VDC SIG **COM** **OUT** **IN**
OCC (PIR) SENSOR **OR** **PUSHBUTTON**

RS-485 **SUPPLY OUTPUT**

TEMPERATURE SENSOR

CONTROL SETUP – STANDALONE CONTROL UNIT



1. Wire inbound load lines and outbound lines to heaters. Use appropriately sized conductors per NFPA 70 or CSA22.1
2. Switch the yellow “Remote – Local” dip switch to “Local” setting. “Remote – Comms” setting is for the wall switch accessory.

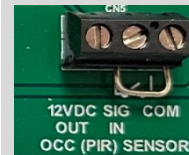


Switch to “LOCAL”

WALL SWITCH SETUP



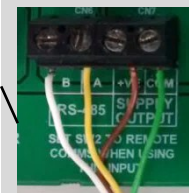
1. **IMPORTANT! Do not install the wall switch in an outdoor exposed location! The switch has no waterproof protection. Installing the wall switch outdoors without waterproof box protection will void the warranty.**
2. Install the wall switch indoors, in a standard single gang outlet box. If installed outdoors, the switch must be installed in a waterproof box and must be protected from any moisture.
3. Wire inbound load lines and outbound load lines to heaters. Use appropriately sized conductors per NFPA 70 or CSA22.1.
4. Remove the jumper connecting “SIG – COM” to enable the timer capability
5. Switch the yellow “Remote – Local” dip switch to “Local” setting. “Remote – Comms” setting is for the wall switch accessory.
6. Select appropriately rated low-voltage shielded communication wire and connect the wall switch to the RS-485 and supply output terminals.
7. Set timer dial to preferred heater run time. The timer function will only operate when the timer button is pressed on the wall switch.
8. **SMART34-DV ONLY!** Set temperature dial to preferred minimum operating temperature. Default is 20°C / 68F. The control will only allow heaters to engage when the ambient temperature is **BELOW** the temperature set on this dial.



Remove wire jumper



Switch to “REMOTE – COMMS”



On SMART unit



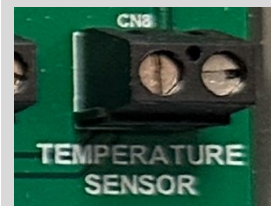
On wall switch



REMOTE TEMPERATURE SENSOR SETUP



1. The SMART34-DV control comes with an onboard, local temperature sensor. If the control is installed in a different location or in an area with a different ambient temperature, the remote temperature sensor is required.
2. Using appropriate low voltage communication wire, connect the temperature sensor to the temperature sensor inputs on the PCB board.



OCCUPANCY SENSOR SETUP



1. Remove the wire jumper.
2. Using appropriate low voltage communication wire, connect the Occupancy sensor to the “SIG” and “COM” inputs.



Remove wire jumper

OPERATING THE CONTROL

ADJUSTING HEATER OUTPUT



SINGLE PRESS: Turns the heaters to full output.

PRESS AND HOLD: Increases output in increments

SINGLE PRESS: Turns the heaters off.

PRESS AND HOLD: Decreases output in increments

The control has 5 level settings, in 20% output increments. 0 indicates standby, F indicates full output.

TROUBLESHOOTING

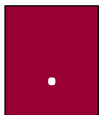
DISPLAY ERRORS – MAIN CONTROL



Heater not coming on, “t” on display:

Ambient temperature is above the lockout temperature on the PCB board.

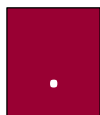
Solution: Open the control and adjust the temperature potentiometer to allow heaters to come on at a higher ambient temperature.



Display flashing “.” :

The timer has expired and is waiting to be re-activated by the wall switch or the occupancy sensor.

Solution: Check to see if the occupancy sensor is working correctly or check the wall switch. If wall switch is installed outdoors and not inside a waterproof cover, wall switch



Display holding “.” :

Control is in standby mode and is waiting for input from the wall switch.

Solution: when the wall switch is installed, there is a switch inside the main control unit which prevents users from adjusting the output of the heater from the main control. Heater output must be adjusted from the wall switch.

DISPLAY ERRORS – WALL SWITCH



Heaters not coming on, “E” on the wall switch display:

Wall switch cannot communicate with the main control.

Solution: when the wall switch is installed, there is a switch inside the main control unit which must be set to “REMOTE-COMMS”. This allows the wall switch to drive the main control.

PROBLEM	CAUSE	SOLUTION
No power to the control	Power not correctly supplied to the line terminal blocks	Double check G, L1 / L2 / N connections on the line input terminal block
Power on inbound lugs, front display does not come on	Fuse failed	Check fuse. If fuse has failed, new fuse required. P/N: 1A, 5mm x 20mm fast acting Ceramic fuse LITTELFUSE brand is stock fuse.
Heaters come on but heat output is insufficient	Incorrect supply voltage	Double check supply voltage, ensure Line inputs are correct and the voltage across the lines matches the voltage on the rating label on the back of the heater
LCD screen comes on, heaters will not turn on when UP/ DOWN is pressed on the front of control	Heaters not correctly wired on the Load output side	Double check G, L1 / L2 / N connections on the load output terminal block
“.” Shows on front display, but heater output can’t be adjusted	Yellow switch inside main control is set to “REMOTE-COMMS”, control is expecting input to come from the wall switch	Open front of the control If there is no wall switch installed, flip the yellow dip switch from “REMOTE-COMMS” to “LOCAL”. This will allow the main SMART control
“t” error on front display	Ambient temperature above the lockout temperature on the PCB board.	Open front of the control, adjust temperature set dial to a higher number to let the heaters come on if the ambient temperature is higher than the current temperature.
“E” error on wall switch display	Yellow switch inside main control is set to “LOCAL”.	Open front of the main SMART control, set the wall switch engagement to “REMOTE-COMMS”

LIMITED WARRANTY

Visit www.Solairaheaters.com for up to date warranty information.



Scan for warranty page: <https://www.solairaheaters.com/resources/warranty/>

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE

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