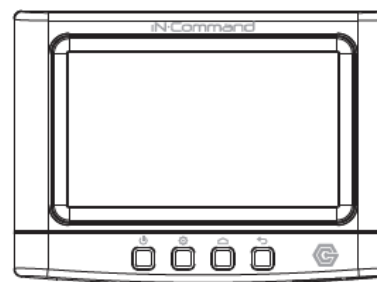
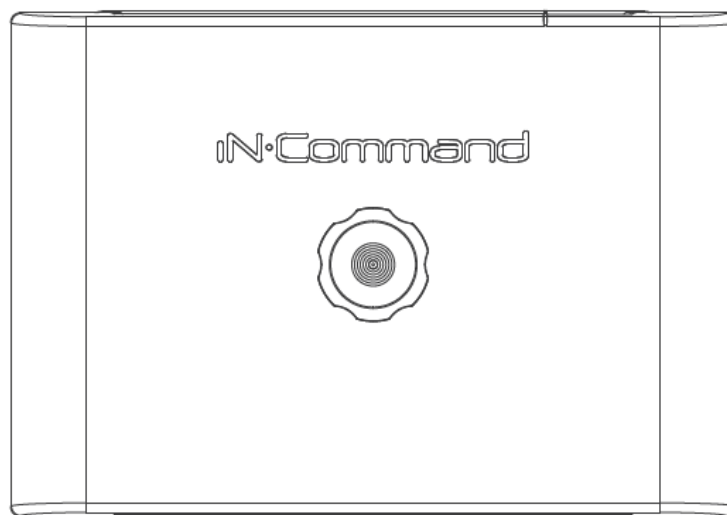


iN·Command[®]
CONTROL SYSTEMS

NCSP35

RV CONTROL AND MONITORING SYSTEM

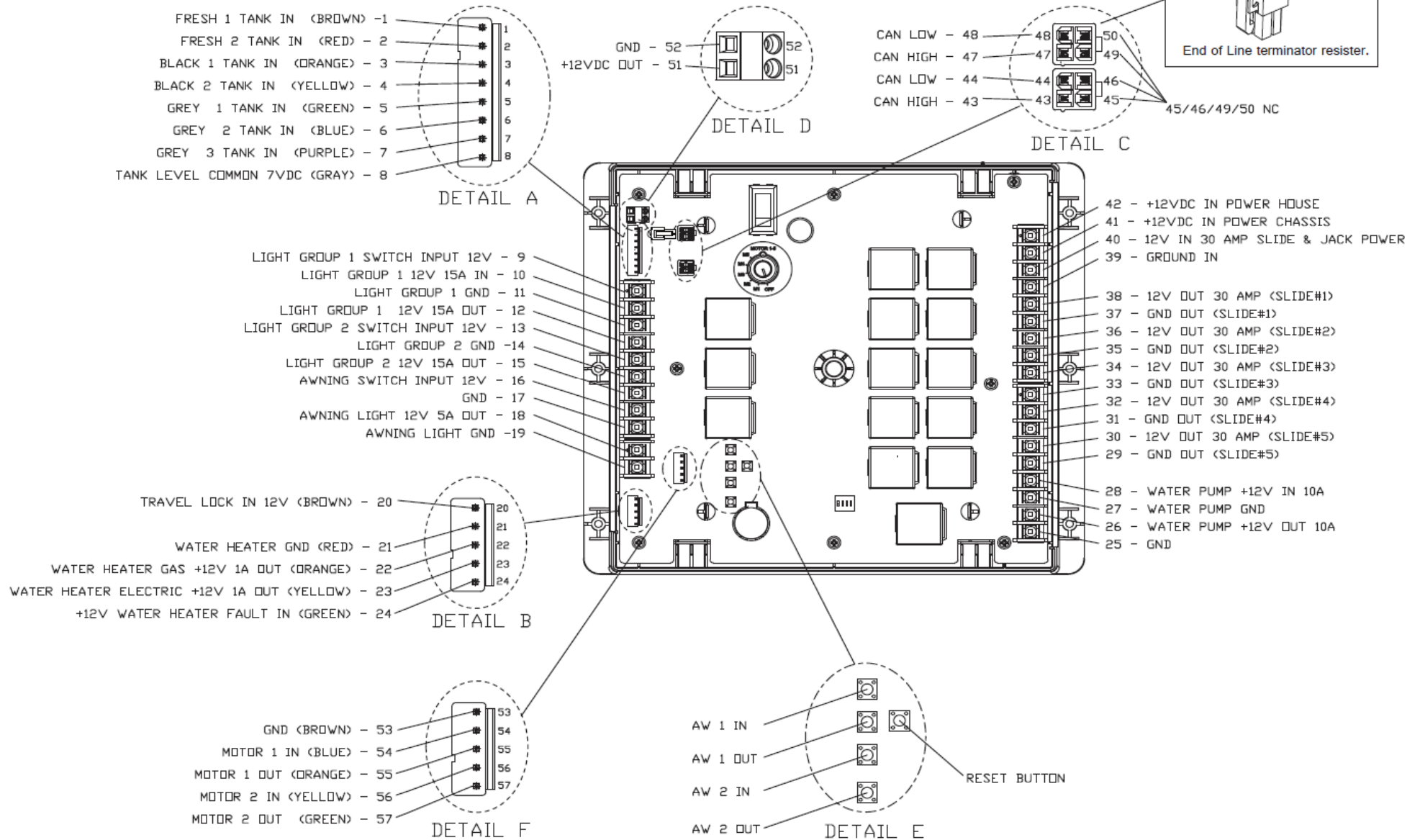
Troubleshooting Guide



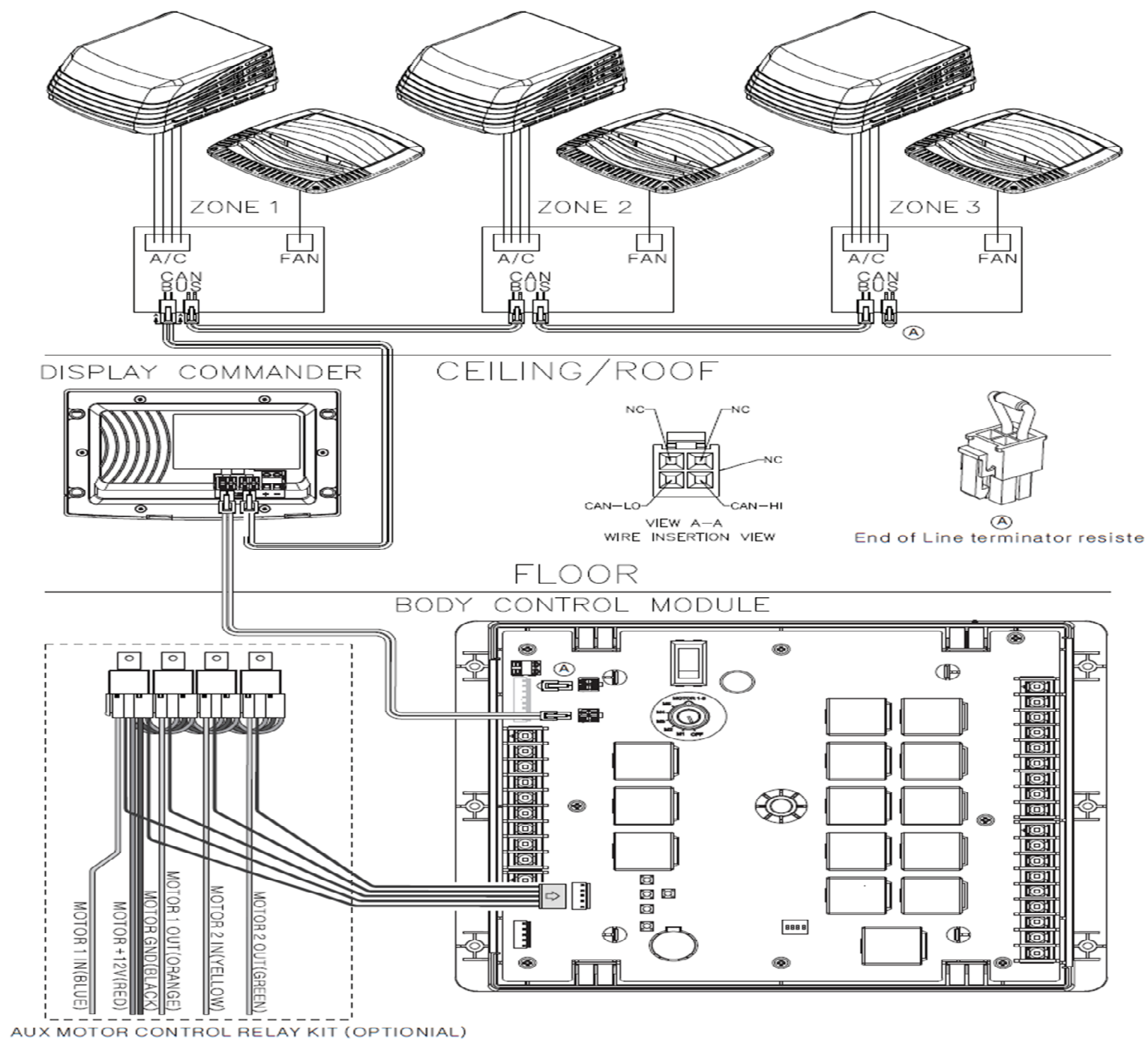
Patent # US 9,679,735

• WIRING

The Wiring Diagram Depicts All The Wiring Connections Required For Proper Operation Of The Unit.
Body Control Module (BCM) Connections



RV-C SYSTEM LAYOUT



BCM Pin Values

	Pin	Name	BCM Function	Note	A	DMM
Tanks	1	Fresh 1 Tank In	Input from Sending Unit	0-.74V = EMPTY (○○○) .75-1.74V = 1/3 (●○○) 1.75-3.59V = 2/3 (●●○) 3.6V = FULL (●●●) MEASURE FROM PIN 11 TO EACH INPUT		VDC
	2	Fresh 2 Tank In	Input from Sending Unit			VDC
	3	Black 1 Tank In	Input from Sending Unit			VDC
	4	Black 2 Tank In	Input from Sending Unit			VDC
	5	Gray 1 Tank In	Input from Sending Unit			VDC
	6	Gray 2 Tank In	Input from Sending Unit			VDC
	7	Gray 3 Tank In	Input from Sending Unit			VDC
	8	Tank Common	7VDC Output to all Tanks			7VDC
Lighting I/O's	9	Light Group 1 12V Switch Input	Input	From External Momentary Switch	15A	12VDC
	10	Light Groups 12V 15A In	Input for All Light Groups	From Main Breaker Box		12VDC
	11	Light Group 1 Ground	Common Ground			GND
	12	Light Group 1 12V 15A Out	Output			12VDC
	13	Light Group 2 12V Switch In	Input	From External Momentary Switch		12VDC
	14	Light Group 2 Ground	Common Ground			GND
	15	Light Group 2 12V 15A Out				12VDC
	16	Awning 12V Switch Input	Input	From External Momentary Switch	5A	12VDC
	17	Ground	Common Ground			GND
	18	Awning Light 12V 5A Out	Output			12VDC
	19	Awning Light Ground	Common Ground			GND
Travel Lockout	20	Travel Lockout 12V In	12V In from Tow Vehicle Brake Signal	Locks out all motor functions		12VDC
Water Heater	21	Water Heater Ground	Common Ground		1A	GND
	22	Water Heater Gas 12V 1A Out	12V Out to Gas Ignitor			12VDC
	23	Water Heater Electric 12V 1A Out	12V Out to Electric Ignitor			12VDC
	24	Water Heater 12V Fault In	Receive 12V Fault Signal			12VDC
Water Pump	25	Ground	Common Ground			GND
	26	Water Pump 12V 10A Out	Output		10A	12VDC
	27	Water Pump Ground	Common Ground			GND
	28	Water Pump 12V 10A In	Input	From Main Breaker Box	10A	12VDC

BCM Pin Values (Cont.)

	Pin	Name	BCM Function	Note	A	DMM
Electric Motors	29	Motor 5 Retract Out	Output	Reversing Polarity DC Motor	30A	12V/GND
	30	Motor 5 Extend Out	Output	Reversing Polarity DC Motor		12V/GND
	31	Motor 4 Retract Out	Output	Reversing Polarity DC Motor		12V/GND
	32	Motor 4 Extend Out	Output	Reversing Polarity DC Motor		12V/GND
	33	Motor 3 Retract Out	Output	Reversing Polarity DC Motor		12V/GND
	34	Motor 3 Extend Out	Output	Reversing Polarity DC Motor		12V/GND
	35	Motor 2 Retract Out	Output	Reversing Polarity DC Motor		12V/GND
	36	Motor 2 Extend Out	Output	Reversing Polarity DC Motor		12V/GND
	37	Motor 1 Retract Out	Output	Reversing Polarity DC Motor		12V/GND
	38	Motor 1 Extend Out	Output	Reversing Polarity DC Motor		12V/GND
Power	39	Ground In	From Chassis Ground			GND
	40	Electric Motor 12V 30A In	Input	From 12V 30A mini reset fuse	30A	12VDC
	41	Power Chassis 12V In	Input	From Chassis battery (motorized)		12VDC
	42	Main Power 12V 15A In	Input	From Main Breaker Box	15A	12VDC
RV-C (CAN Bus) Connection	43/47	CAN High	Send/Receive RV-C signal			VDC
	44/48	CAN Low	Send/Receive RV-C signal			VDC
	45/46/49/50	No Connection				
Power to DC	51	12V Out	Output	Optional 12V out to DC		12VDC
	52	Ground Out	Output	Optional GND out to DC		GND
AUX Motor Control	53	Ground				GND
	54	Aux Motor 1 Retract Out	Output	Reversing Polarity DC Motor	15/30A	12V/GND
	55	Aux Motor 1 Extend Out	Output	Reversing Polarity DC Motor		12V/GND
	56	Aux Motor 2 Retract Out	Output	Reversing Polarity DC Motor		12V/GND
	57	Aux Motor 2 Extend Out	Output	Reversing Polarity DC Motor		12V/GND

NCSP3 Functionality Test

The Body Control Module (BCM) should be wired correctly, without loose connections, and connected to 12 VDC at pin 42. A **RED** LED will indicate that the BCM is receiving 12 VDC.

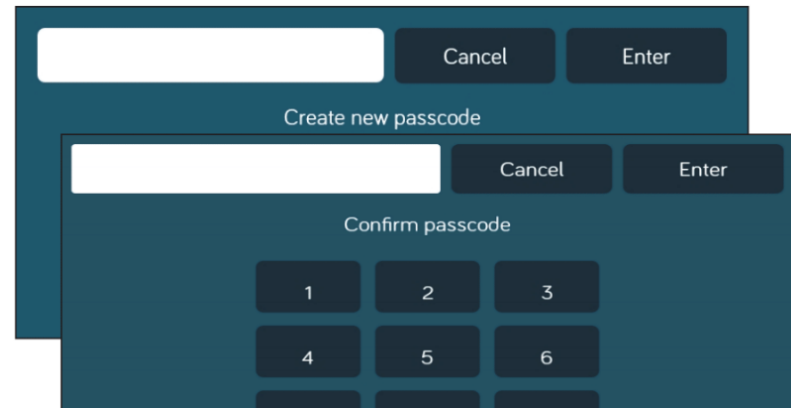


The BCM has override switches available. There is a knob and switch that correspond to motor functions 1 – 5. The knob chooses the motor and the switch actuates the motor to go in or out. There are also buttons labeled AW1 In & Out and AW2 In & Out that act as overrides for the optional AUX Motor Relay Control Kit. The switches and buttons are momentary and will activate the component only while pressed in either direction.

The BCM and Display Commander (DC) communicate with each other through an RV-C (CAN BUS) connection. This RV-C communication also allows the DC to connect to a third party AC translator module (gateway) so that you can perform the HVAC functions from the DC.

The DC will be mounted in an "all access" area near the entrance. On the DC, press and release the Power button (the left button) to wake up the DC. After a moment, the Passcode Screen will appear. Enter your Passcode. If this is the first time the DC has been powered on, an

End User License Agreement (EULA) screen will appear. Upon accepting the EULA, the "Enter New Passcode" screen will appear. Enter your new passcode and confirm.



The DC will now bring up the Home Screen If the Floor Plan has been loaded, all of the devices should be listed with corresponding activation buttons.

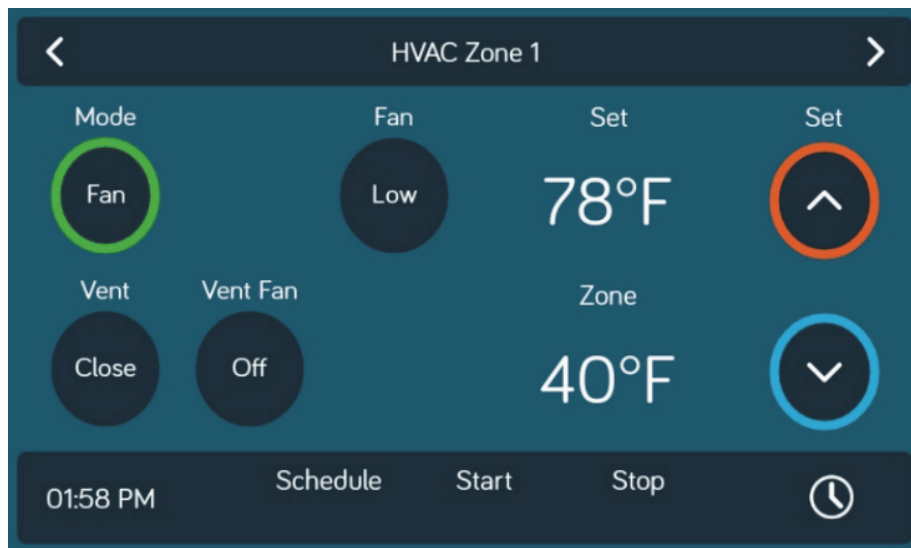
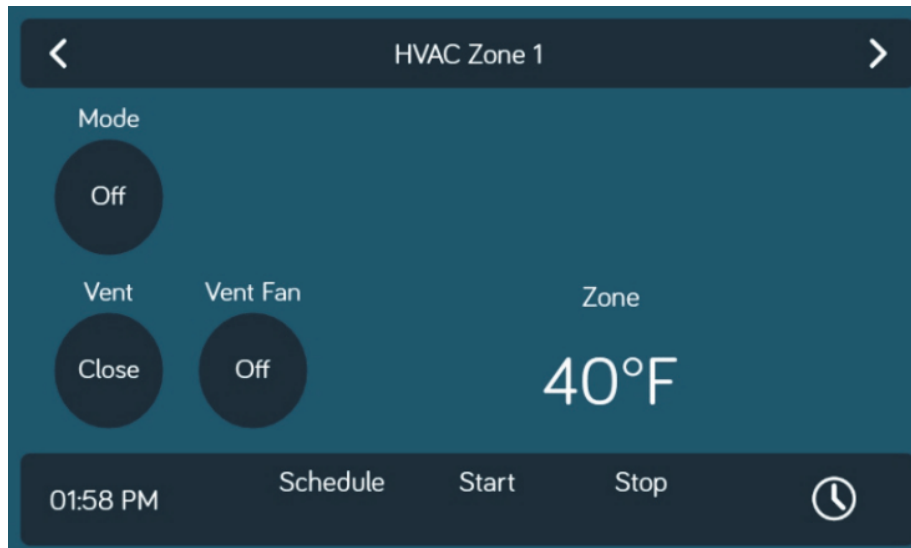


Go through all the functions and make sure they are operating properly. All the functions should be smooth and instantaneous. Ensure all the Home Page Hot keys actuate/turn on the corresponding functions.

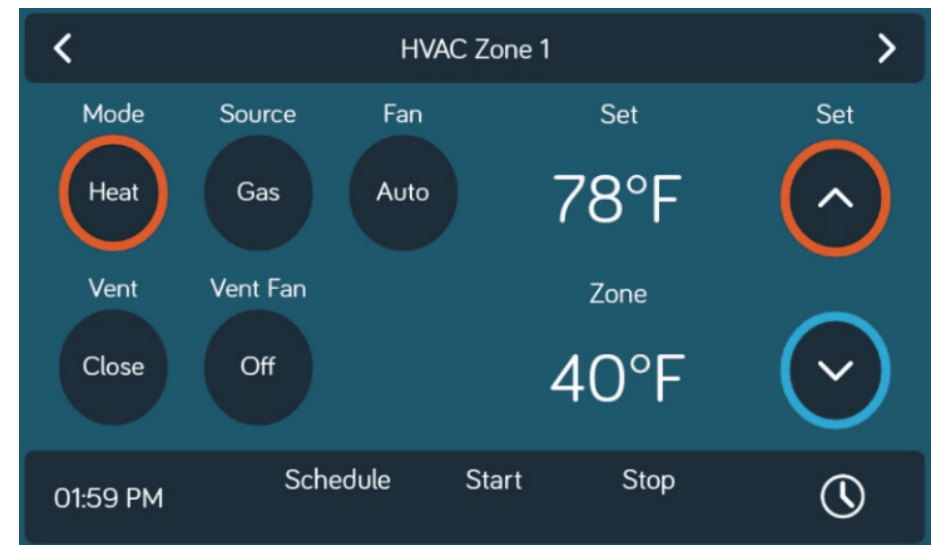
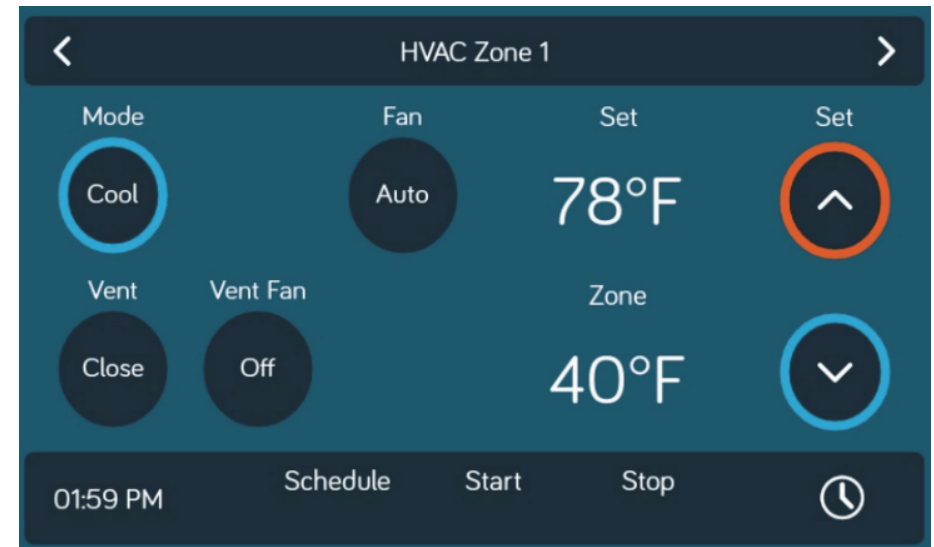


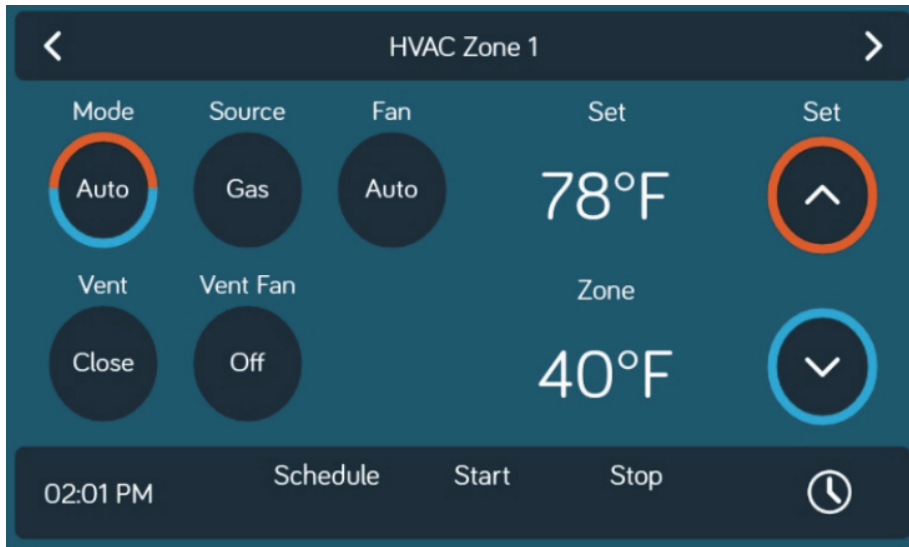
HVAC Testing

When testing the HVAC (Climate Function), make sure each “Zone” is displaying a room (Zone) temperature. Use the “Mode” button to cycle through Fan, Cool, Heat and Auto modes. (Heat and Auto modes availability depend on the floor plan.)



Use the “Set” temperature up and down arrows to set the desired temperature. The “Set” temperature can be adjusted between 55 to 90F.





Please review the NCSP35 User Manual for further HVAC operational instructions. You can scan the QR code shown below or use the following link: https://in-command.net/wp-content/uploads/2018/08/owners-manual_ncsp35.pdf



Troubleshooting

HVAC

- (Dometic Systems) If the room temp reads 100F, remove the room sensor cover and pull the room sensor out of the holding clip. The temp should read normally. Adjust the holding clip down on the room sensor so that it is not pinching it.
- (RVP Systems) If the room temp reads 111F, the room sensor was connected to the cool shed connections on the RVP control box. Swap the wires between the cool shed and room sensor pins. The room temp should start reading correctly without a reset.
- (Both Systems) If no HVAC function, check to see if the room (zone) temp is blank. If it is, make sure the RV-C cables are connected to the gateways and make sure there is an EOL (End of Line) terminator resistor at the last gateway in the line. Make sure the address on the gateway is correct. If that is correct, redo the power, ground and communication wires between the gateway and control box. Verify the gateway has proper +12VDC.
- (Dometic) If there are multiple rapid clicking sounds when operating the furnace function, the gateway has old software and needs to be swapped out.
- (Dometic) If a zone will not change functions (i.e. stuck on furnace mode), try adjusting the fan speed. Most likely it will show Auto, try and get it to either low or high. This indicates the gateway is in a locked state. If you can get the fan mode to change, you should then be able to change the zone function to off. Once it stays in off mode, try power cycling the system.
- If changing an HVAC function in a Zone, and the function changes in a different zone, the dip switches are not set correctly. The front AC is Zone 1, middle is Zone 2 and rear is Zone 3.

(RV-C) Communication issues

- Make sure the CAN-Low does not have a short to +12V.
- Make sure the CAN-High does not have a short to ground.
- Make sure there is not a short between CAN-Low and CAN-High.
- Check RV-C plugs and pins to make sure there is not a loose connection. Try and power cycle all the components.
- Make sure the RV-C connector is pinned correctly.
- Try a different RV-C cable.
- Press the reset button on the BCM.

No BCM Power

- Check if the Red Power indicator is lit.
- Press the Reset button on the BCM.
- Verify 12V on Pin 42 and Ground on pin 39.
- Check Fuse in Main Breaker Box.
- Cycle RV Power at the Main Breaker Box.

No DC Power

- Cycle power with the Power Button. (Press and hold the power button for 5 seconds.)
- Verify 12V and Ground at the back of the DC.
- Verify no blown fuses in the Main Breaker Box.

Electric Motors do not move

- Verify 12V on pin 40.
- If the Battery Disconnect switch is off, turn it on. (Some models pull the slide power through the battery disconnect.)

Aux. Motors do not move

- Verify the AUX motor Control Relay Kit's pigtail harness is connected and seated properly on the BCM.
- Make sure the Motor Ground (black) and Motor +12V (red) wires are connected and getting power.
- Check fuse in Main Breaker Box.

Water Tank

- Make sure the common pin (Pin 8) is outputting +7VDC. If no voltage, disconnect the tank harness and test the pin on the BCM. If there is voltage now, that indicates the common wire has a short to ground.
- If one of the tanks is reading, but another tank does not read, remove the wires from the bell caps and swap the tank wires. If the opposite tank now reads, that indicates the BCM is fine and there is an issue in the tank line.
- The tank level voltages are as follows:
 - o 1/3: .75 to 1.74
 - o 2/3: 1.75 to 3.59
 - o 3/3: 3.6

For additional troubleshooting, call ASA Electronics Technical Support at 1-877-845-8750, email info@asaelectronics.com or visit our iN-Command support page at <https://in-command.net/>



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