

iN·Command™

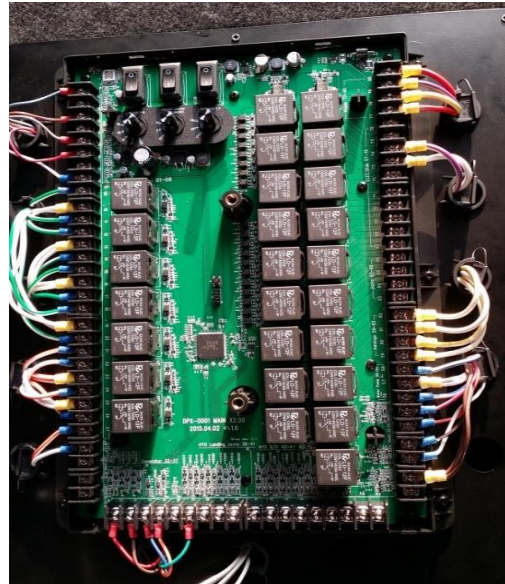
CONTROL SYSTEMS

TROUBLESHOOTING GUIDE

This guide is made to ease troubleshooting the iN-Command system. It will cover the wiring code and where those wires are connected to the Body Control Module (BCM) and Display Commander (DC), system functions, and what to look for to discern where a problem could be.



Display Commander (DC)



Body Control Module (BCM)

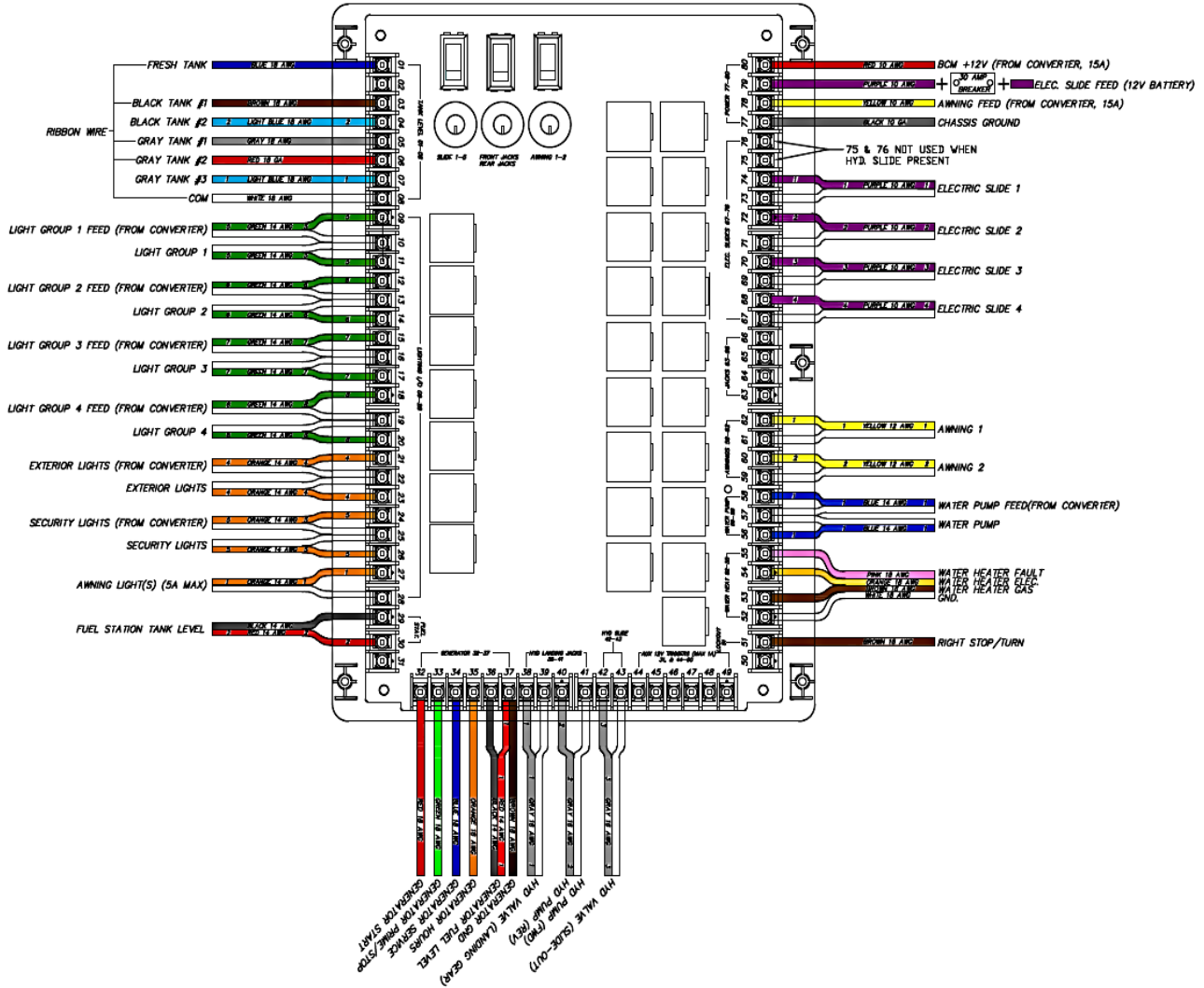
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Keystone 12 VDC Wire Standard

Item	Color	Wire Ga & # Label
(+) 12 VDC Positive Conductor	RED	2 ga, 4 ga, 6 ga, 8 ga, 10 ga
(-) 12 VDC Negative Conductor Return	BLACK	2 ga, 4 ga, 6 ga, 8 ga, 10 ga
(+) 12 VDC Electric Slide-Out Power	PURPLE	10 ga.
(+) 12 VDC Power Awning	Yellow	10 ga.
(+) 12 VDC Awning Light	Orange	14 ga.
(-) 12 VDC Negative Conductor Return	White	10 ga, 14 ga
Marker, Tail, & License Lights	GREEN	16 ga
Left Stop & Turn	RED	16 ga
Right Stop & Turn	BROWN	16 ga
Electric Brake	BLUE	Varies (Use Existing)
Common Ground	WHITE	10 ga
Battery Charge	BLACK	10 ga
Center Auxiliary	YELLOW	16 ga
Gray Tank #2 Fresh Tank Gray Tank #1 Tank Level Ground Black Tank #1	BONDED RIBBON 	18 ga 18 ga 18 ga 18 ga 18 ga
Gray Tank #3	1 1 1	LT BLUE 1 18 ga
Black Tank #2	2 2 2	LT Blue 2 18 ga
Water Heater GND Water Heater Gas Signal Water Heater Electric Signal Water Heater Fault Signal	BONDED RIBBON 	18 ga 18 ga 18 ga 18 ga
Generator Start Generator Prime/Stop Generator Service Generator Hours Generator GND	ONAN HARNESS 	OEM Harness Come in various Lengths.
Numbered Circuit Groups:		
The following Color Groupings are numbered per Circuit. The Positive Conductor (Colored Conductor) will indicate the circuit number for the group. Numbers are repeated down the entire length of the wire. The numbers correspond to the items on that circuit.		
Interior 12 VDC Zone Circuits	(+) # # # (-)	GREEN/WHITE w/# 10 ga - 1 14 ga - 1, 2, 3, 4, 5, 6, 7, 8
12 VDC Accessory Circuits	(+) # # # (-)	PINK/WHITE w/# 10 ga - 1 14 ga - 1, 2, 3
Holding Tank Heaters	(+) # # # (-)	TAN/WHITE w/# 10 ga - 1, 2, 3, 4
Bed Lift Circuits	(+) # # # (-)	DK GREEN/WHITE w/# 10 ga - 1, 2
12 V Relay Signal	(+) # # # (-)	PINK/BLACK w/# 18 ga - 1, 2, 3, 4, 5, 6, 7, 8
Electric Slide	(+) # # # (-)	PURPLE/WHITE w/# 10 ga - 1, 2, 3, 4, 5
Electric Awning	(+) # # # (-)	YELLOW/WHITE w/# 12 ga - 1, 2, 3
Electric Stabilizer Jacks	(+) # # # (-)	BROWN/WHITE w/# 10 ga - 1, 2
Exterior Light Circuits	(+) # # # (-)	ORANGE/WHITE w/# 14 ga - 1, 2, 3, 4, 5
Hydraulic 12VDC Control Circuits	(+) # # # (-)	GRAY/WHITE w/# 16 ga - 1, 2, 3
Fuel Tank Level (Sending Units)	GND Signal # # #	RED/BLACK w/# 14 ga - 1, 2
Water Pump	(+) 1 1 1 (-)	BLUE 1/WHITE 14 ga
Interior 12 VDC Zone Circuits: Zone Order is Front (Zone 1) to Back Electric Slide: Slide Order from Front, Start (Slide 1) Front ODS then counterclockwise to Front DS Electric Awning: Order Front to Back Electric Stabilizer Jacks: Order Front To Back		

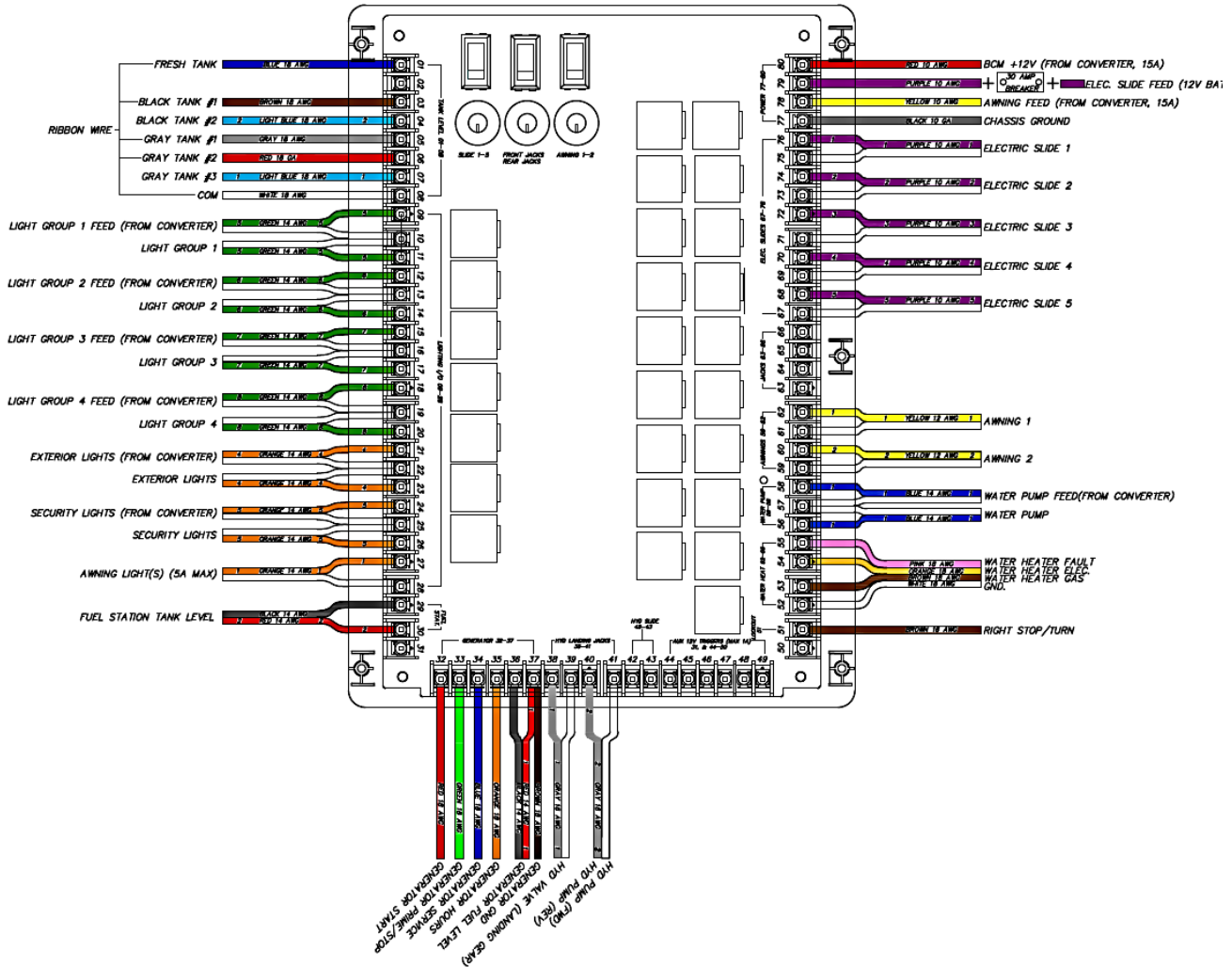
Hydraulic Wiring Guide for the BCM

BCM Pins 1-31 are on the Left side, ascending from Top to Bottom
BCM Pins 32-49 are on the Bottom and ascend from Left to Right
BCM Pins 50-80 on the Right side, ascending from Bottom to Top



Electric Wiring Guide for the BCM

BCM Pins 1-31 are on the Left side, ascending from Top to Bottom
 BCM Pins 32-49 are on the Bottom and ascend from Left to Right
 BCM Pins 50-80 on the Right side, ascending from Bottom to Top



BCM Pin Values

	Pin	NAME	BCM FUNCTION	NOTE	A	DMM
TANK LEVEL	1	FRESH 1 TANK IN 0-185KOHM	INPUT FROM SENDING UNIT SINGLE WIRE WORKS ON RESISTANCE	0-.74V = EMPTY (ooo) .75-2.2V = 1/3 (●oo) 2.21-4.1V = 2/3 (●●o) 4.2V = FULL (●●●) MEASURE FROM PIN 10 TO EACH INPUT		VDC
	2	FRESH 2 TANK IN 0-185KOHM	INPUT FROM SENDING UNIT SINGLE WIRE WORKS ON RESISTANCE			VDC
	3	BLACK 1 TANK IN 0-185KOHM	INPUT FROM SENDING UNIT SINGLE WIRE WORKS ON RESISTANCE			VDC
	4	BLACK 2 TANK IN 0-185KOHM	INPUT FROM SENDING UNIT SINGLE WIRE WORKS ON RESISTANCE			VDC
	5	GREY 1 TANK IN 0-185KOHM	INPUT FROM SENDING UNIT SINGLE WIRE WORKS ON RESISTANCE			VDC
	6	GREY 2 TANK IN 0-185KOHM	INPUT FROM SENDING UNIT SINGLE WIRE WORKS ON RESISTANCE			VDC
	7	GREY 3 TANK IN 0-185KOHM	INPUT FROM SENDING UNIT SINGLE WIRE WORKS ON RESISTANCE			VDC
	8	TANK COMMON	7VDC OUTPUT			
LIGHTING I/O	9	LIGHT GROUP1 12V 15A IN	INPUT	FROM MAIN BREAKER BOX	15A	12VDC
	10	LIGHT GROUP1 GND	JUST A TERMINAL NO PCB TRACE NEEDED			GND
	11	LIGHT GROUP1 12V 15A OUT	OUTPUT 12VDC FROM ZONE1 LIGHT IN 12V			12VDC
	12	LIGHT GROUP2 12V 15A IN	INPUT	FROM MAIN BREAKER BOX		12VDC
	13	LIGHT GROUP2 GND	JUST A TERMINAL NO PCB TRACE NEEDED			GND
	14	LIGHT GROUP2 12V 15A OUT	OUTPUT 12VDC FROM ZONE2 LIGHT IN 12V			12VDC
	15	LIGHT GROUP3 12V 15A IN	INPUT	FROM MAIN BREAKER BOX		12VDC
	16	LIGHT GROUP3 GND	JUST A TERMINAL NO PCB TRACE NEEDED			GND
	17	LIGHT GROUP3 12V 15A OUT	OUTPUT 12VDC FROM ZONE3 LIGHT IN 12V			12VDC
	18	LIGHT GROUP4 12V 15A IN	INPUT	FROM MAIN BREAKER BOX		12VDC
	19	LIGHT GROUP4 GND	JUST A TERMINAL NO PCB TRACE NEEDED			GND
	20	LIGHT GROUP4 12V 15A OUT	OUTPUT 12VDC FROM ZONE3 LIGHT IN 12V			12VDC
	21	EXTERIOR LIGHT 12V 15A IN	INPUT	FROM MAIN BREAKER BOX		12VDC
	22	EXTERIOR LIGHT GND	JUST A TERMINAL NO PCB TRACE NEEDED			GND
	23	EXTERIOR LIGHT 12V 15A OUT	OUTPUT 12VDC FROM EXTERIOR LIGHT 12V IN			12VDC
	24	SECURITY LIGHT 12V 15A IN	INPUT	FROM MAIN BREAKER BOX		12VDC
	25	SECURITY LIGHT GND	JUST A TERMINAL NO PCB TRACE NEEDED			GND
	26	SECURITY LIGHT 12V 15A OUT	OUTPUT 12VDC FROM INTERIOR LIGHT 12V IN			12VDC
	27	AWNING LIGHT 12V 3A OUT	POWER FROM 15A INPUT	JUST LIKE SECURITY LIGHT FUNCTION		3A
	28	AWNING LIGHT GND	GND PASS THROUGH CONNECTION			GND

FUEL STATION	29	Fuel Station Tank Level IN 33-240 Ohm	INPUT FROM SENDING UNIT SINGLE WIRE WORKS ON RESISTANCE	33 OHM= FULL (●●●), 49 OHM= 2/3 (●●○) 127 OHM= 1/3 (●○○), 240 OHM= Empty (○○○)		Ω
	30	FUEL STATION GND	GND PASS THROUGH CONNECTION			GND
AUX TRIGGER	31	AUX1 +12V OUT	PROGRAMMABLE 12V LATCH OR MOMENTARY		1A	12VDC
GENERATOR	32	GENERATOR START GND OUT	OUTPUT GND UNTIL BUTTON IS RELEASED			GND
	33	GENERATOR PRIME/STOP GND OUT	OUTPUT GND			GND
	34	GENERATOR SERVICE 12V IN	12V PULSES INPUT			12VDC
	35	GENERATOR HOUR METER 12V IN	12V INPUT TRIGGERS TIMER TO START			12VDC
	36	GENERATOR FUEL LEVEL IN 33-240 OHM	INPUT FROM SENDING UNIT SINGLE WIRE WORKS ON RESISTANCE	33 OHM= FULL (●●●), 49 OHM= 2/3 (●●○) 127 OHM= 1/3 (●○○), 240 OHM= Empty (○○○)		
	37	GENERATOR GND	GND PASS THROUGH CONNECTION			GND
HYD LANDING JACKS	38	+12V HYDRAULIC VALVE 1.5A (Landing Gear)	OUTPUT 12V		1.5A	12VDC
	39	GND HYDRAULIC VALVE 1.5A (Landing Gear)	GND PASS THROUGH CONNECTION			GND
	40	HYDRAULIC EXTEND OUT 12V 2A	OUTPUT 12V FOR RETRACT VALVE		2A	12VDC
	41	HYDRAULIC RETRACT OUT 12V 2A	OUTPUT 12V FOR EXTEND VALVE			12VDC
HYD SLIDE	42	+12V HYDRAULIC VALVE 1.5A (Hyd slide sol)	OUTPUT 12V		1.5A	12VDC
	43	GND HYDRAULIC VALVE 1.5A (Hyd slide sol)	GND PASS THROUGH CONNECTION			12VDC
AUX 12V TRIGGERS	44	AUX2 +12V OUT	PROGRAMMABLE 12V LATCH OR MOMENTARY		1A	12VDC
	45	AUX3 +12V OUT	PROGRAMMABLE 12V LATCH OR MOMENTARY			12VDC
	46	AUX4 +12V OUT	PROGRAMMABLE 12V LATCH OR MOMENTARY			12VDC
	47	AUX5 +12V OUT	PROGRAMMABLE 12V LATCH OR MOMENTARY			12VDC
	48	AUX6 +12V OUT	PROGRAMMABLE 12V LATCH OR MOMENTARY			12VDC
	49	AUX7 +12V OUT	PROGRAMMABLE 12V LATCH OR MOMENTARY			12VDC
	50	AUX8 +12V OUT	PROGRAMMABLE 12V LATCH OR MOMENTARY			12VDC
TRAVEL LOCK	51	LOCKOUT SIGNAL IN 12V	12V INPUT FROM TOW VEHICLE BRAKE	LOCK OUT SLIDES, JACKS & AWNINGS WHEN PRESENT		12VDC
WATER HEATER	52	WATER HEATER GND	GND PASS THROUGH CONNECTION		1A	GND
	53	WATER HEATER GAS +12V 1A OUT	OUTPUT 12VDC TO GAS			12VDC
	54	WATER HEATER ELECTRIC +12V 1A OUT	OUTPUT 12VDC TO ELECTRIC			12VDC
	55	+12V WATER HEATER FAULT IN	RECEIVE 12V FAULT SIGNAL			12VDC
WATER PUMP	56	WATER PUMP +12V OUT 10A	Output 12V to WATER PUMP		10A	12VDC
	57	WATER PUMP GND	JUST A TERMINAL NO PCB TRACE NEEDED			GND
	58	WATER PUMP +12V IN 10A	INPUT	FROM MAIN BREAKER BOX		12VDC

AWNINGS	59	GND OUT (AWNING#2)	OUTPUT 12V POWER & GROUND	REVERSING POLARITY DC MOTOR	15A	12V/GND
	60	12V OUT 15 AMP (AWNING#2)	OUTPUT 12V GROUND & POWER	REVERSING POLARITY DC MOTOR		12V/GND
	61	GND OUT (AWNING#1)	OUTPUT 12V POWER & GROUND	REVERSING POLARITY DC MOTOR		12V/GND
	62	12V OUT 15 AMP (AWNING#1)	OUTPUT 12V GROUND & POWER	REVERSING POLARITY DC MOTOR		12V/GND
JACKS	63	GND OUT (REAR JACKS)	OUTPUT 12V IN POWER & GROUND	REVERSING POLARITY DC MOTOR	30A	12V/GND
	64	12V OUT 30 AMP (REAR JACKS)	OUTPUT 12V IN GROUND & POWER	REVERSING POLARITY DC MOTOR		12V/GND
	65	GND OUT (FRONT JACKS)	OUTPUT 12V IN POWER & GROUND	REVERSING POLARITY DC MOTOR		12V/GND
	66	12V OUT 30 AMP (FRONT JACKS)	OUTPUT 12V IN GROUND & POWER	REVERSING POLARITY DC MOTOR		12V/GND
ELEC. SLIDE 1 - 5	67	GND OUT (SLIDE#5)	OUTPUT 12V IN POWER & GROUND	REVERSING POLARITY DC MOTOR	30A	12V/GND
	68	12V OUT 30 AMP (SLIDE#5)	OUTPUT 12V IN GROUND & POWER	REVERSING POLARITY DC MOTOR		12V/GND
	69	GND OUT (SLIDE#4)	OUTPUT 12V IN POWER & GROUND	REVERSING POLARITY DC MOTOR		12V/GND
	70	12V OUT 30 AMP (SLIDE#4)	OUTPUT 12V IN GROUND & POWER	REVERSING POLARITY DC MOTOR		12V/GND
	71	GND OUT (SLIDE#3)	OUTPUT 12V IN POWER & GROUND	REVERSING POLARITY DC MOTOR		12V/GND
	72	12V OUT 30 AMP (SLIDE#3)	OUTPUT 12V IN GROUND & POWER	REVERSING POLARITY DC MOTOR		12V/GND
	73	GND OUT (SLIDE#2)	OUTPUT 12V IN POWER & GROUND	REVERSING POLARITY DC MOTOR		12V/GND
	74	12V OUT 30 AMP (SLIDE#2)	OUTPUT 12V IN GROUND & POWER	REVERSING POLARITY DC MOTOR		12V/GND
	75	GND OUT (SLIDE#1)	OUTPUT 12V IN POWER & GROUND	REVERSING POLARITY DC MOTOR		12V/GND
	76	12V OUT 30 AMP (SLIDE#1)	OUTPUT 12V IN GROUND & POWER	REVERSING POLARITY DC MOTOR		12V/GND
POWER	77	GROUND IN	INPUT	FROM CHASSIS GROUND		GND
	78	12V IN 15 AMP AWNING POWER	INPUT	FROM MAIN BREAKER BOX	15A	12VDC
	79	12V IN 30 AMP SLIDE & JACK POWER	INPUT	FROM MAIN BREAKER BOX	30A	12VDC
	80	+12VDC IN POWER	READ VOLTAGE ON INPUT(+12VDC IN POWER)	FROM MAIN BREAKER BOX		12VDC

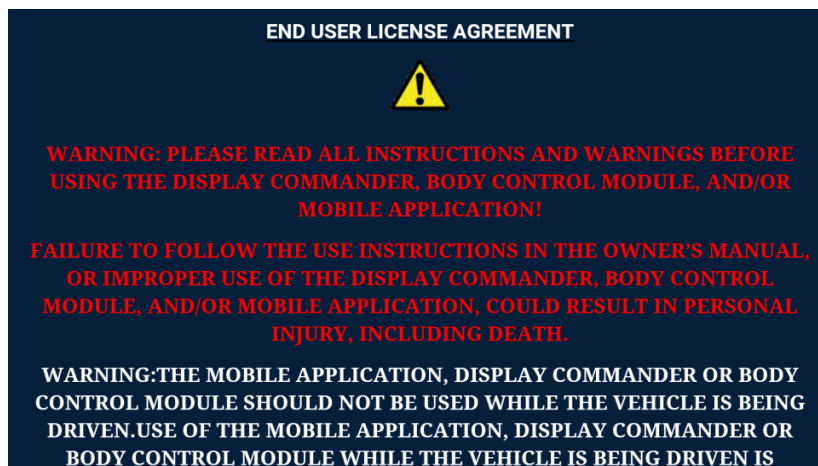
iN-Command Pairing and Functionality Test

The BCM should be wired correctly, without loose connections, and connected to 12 VDC at pin 80.

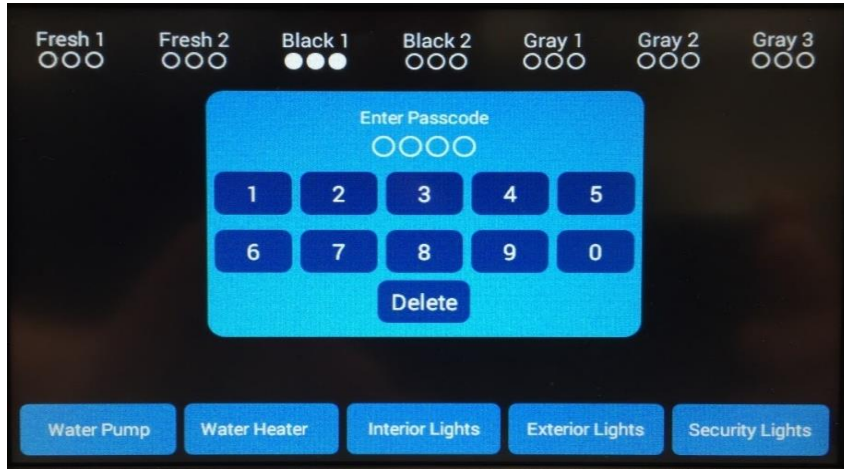
A **RED** LED will indicate that the BCM is receiving 12 VDC. A **BLUE** LED will indicate that Bluetooth communication is working. (Note: BLUE LED will not be lit until the DC is turned "on" & connected to the BCM)



The 3 toggle switches on the BCM correspond to the 3 dials underneath them. (In the event where communication between the DC and BCM is non-functioning, these switches will enable "manual" functions of the selected devices) The Left switch and knob are used for Electric Slides 1-5. The Middle switch and knob are used for Front and Rear Electric Jacks (Hydraulic Jacks are manually controlled at the Hydraulic Pump. See the Hydraulic Pump Manual Override in the RV owner's manual), and the Right switch and knob are used for Awnings 1 and 2.



The DC will be mounted in a "all access" area near the entrance. On the DC, hold down the Power button (the left button) for 5 seconds. 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, a Enter New Passcode screen will appear. Enter your new passcode twice.



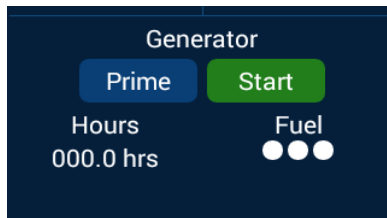
The DC will now Pair with the BCM and bring up the Home Screen If the Floor Plan has been loaded, All the devices should be listed with corresponding actuation buttons



Starting with the Lights, cycle ON/OFF, IN/OUT each device. All the functions should be smooth and instantaneous. Ensure all the Home Screen Main Buttons actuate/turn on the corresponding devices.



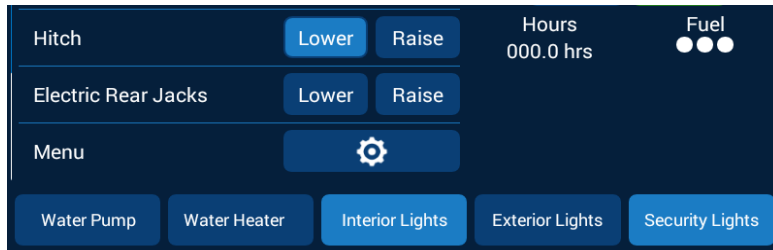
When turning on the Water Pump, open the Kitchen Faucet and listen for the pump to turn on. The Water Pump is pressure controlled and will cycle based on demand. During this time the Water Pump button will stay highlighted. Cycle the Generator. When the Generator is being cycled for the first time (or if it has been a while since it has been used), it will need to be primed. Hold the Prime button down to 2-5 seconds (it will never "over prime") then hold the Start button down until the generator starts.



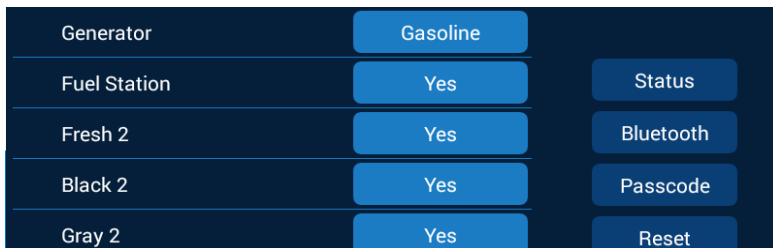
The Start Button should turn Red and display Stop. Hold the Stop Button to stop the Generator.

If the DC is working correctly, a Handheld Device can now be added.

On the Home Page, scroll down the list of actuations (swiping UP on the left side of the screen) to the

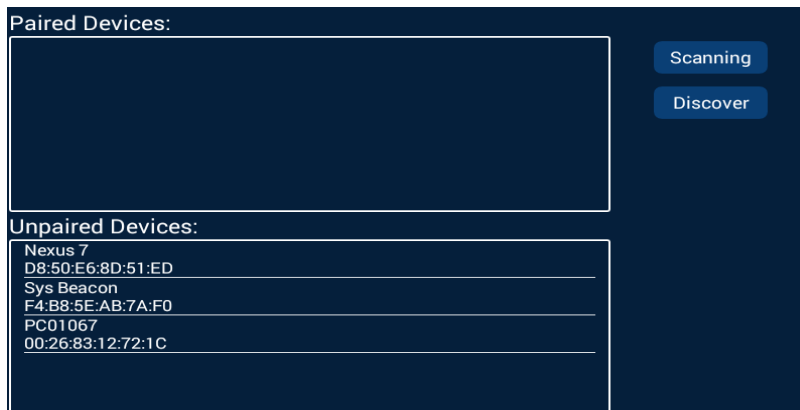


Select the Bluetooth button.

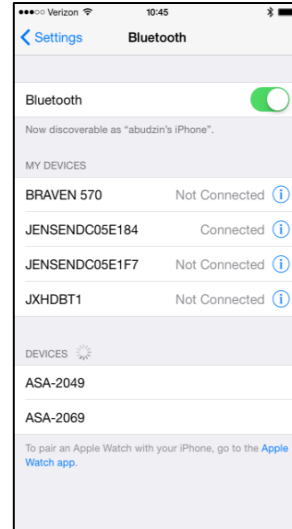
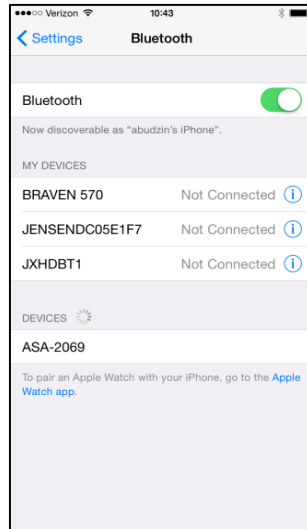
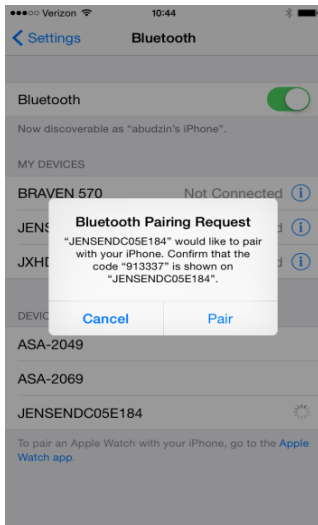


The Pairing Screen will appear:

On the **iOS Device**, go to Settings and turn on Bluetooth. The iOS device will automatically begin broadcasting a signal and it will show up in the Unpaired Devices list. Select the device. On both the iOS device and the DC, a Pairing Request screen will appear. Accept the pairing request. The BCM will now be listed in the iOS Device's Bluetooth menu (i.e.: JENSENDC05E1F7). Select the BCM on the iOS device, it will show "Connected" on the device's Bluetooth list, and the iOS device will show up in the DC's Paired Devices list. Now open the iN-Command App on the device. It will pair and show the Home screen.



Display Commander

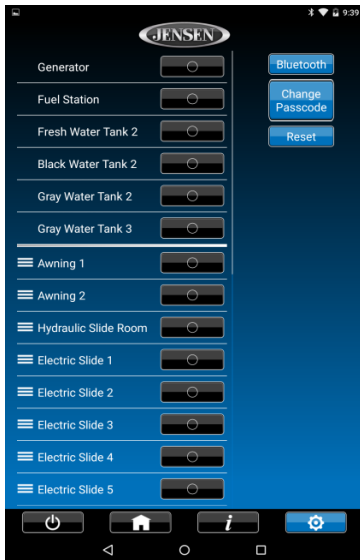


iOS (Apple) Device

The Android Devices pair a little differently:

When the Pairing Screen is open on the DC, ensure that Bluetooth is functioning on the Android device, and open the iN-Command App. Select the Menu button the Android App and then the Bluetooth button. On the DC press Discover and on the Android device press Scan. The BCM (i.e.: JENSENDC05E1F7) will show in the Android's Unpaired list. Select the BCM. A Pairing Request will show on the DC and the Android device, accept both. The BCM will now appear in the Android's Paired List with yellow font (indicating that it is **Actively** paired with the BCM. There can be more than 1 BCM paired to a Android OR iOS device). Select the Home button, the DC Pairing screen will appear, then the App will show the Home screen.

Android Device



The iOS and Android device Apps need to have the correct floorplan downloaded from the BCM to display the Trailer's functions. On either device (iOS or Android) go to the Settings screen and select the Reset button. The Reset Menu will appear. Select Floorplan. The functions will populate on the App's Menu screen. Press the Home button. Tanks and Generator functions will be listed (if a generator is in the floorplan). Press the Function List button. The Functions will be listed with an activation button next to them. The iOS or Android Device is now ready for use.

The iN-Command system can only be paired to 7 devices (4 Android and 3 iOS) and only 4 of them can be active (3 Androids and 1 iOS). "Active" meaning they can activate functions and receive data. *Apple programming dictates that only 1 iOS device can be actively paired.* To use another iOS device that is paired to the iN-Command system, simply push the iOS App's Power button and shut the App down. This will disconnect the device from the BCM without having to go to the iOS device's Bluetooth list and disconnecting it. The new iOS device will need to have the BCM selected in its Bluetooth settings before opening the App.

3 Android devices are able to be used at one time. If a user wishes to use the 4th paired Android device, simply use the Power button on the device's App. The Android device will disconnect to allow the other device to be active.

To verify that the Handheld device is connected to the DC, select the Interior Lights button. All the Interior Lights should cycle with each button press and the corresponding buttons on the handheld device and DC should cycle from OFF to ON and vice versa.

Using the handheld device, cycle through all the functions previously tested on the DC. Ensure the DC display correlates with the handheld device's. While testing the handheld device, push buttons on the DC. Lights should function while using a Motor Function (slide, awning, etc.). Other Motor Functions should NOT be able to actuate while a Motor Function is in use. A System Busy message should appear.

Using the DC, cycle through all the functions and ensure the corresponding buttons on the handheld device mirror the DC's as well.

Disconnect Shore Power and start the Generator. Retest the DC and handheld device. If the RV/Trailer has a 12VDC battery installed, Turn off the generator and retest the DC and handheld device. Motor Functions will stop at 10.7 VDC. Lights will cease functioning at 10 VDC and the DC will shut down.

When connecting multiple handheld devices, connection should be smooth, no other devices should be kicked off, actuation of systems on one device should correspond to the buttons on other devices, and only the non-motorized functions should be able to be actuated by any device while motorized functions are being actuated on one device.

Troubleshooting

Troubleshooting The iN-Command system is pretty painless. The BCM and DC simulate all the lights, gauges, and switches on the old control panels. The **BCM Pin Vales** portion of this guide will clear most issues. Basically, if the BCM does not have the desired voltage, or signal, input, it will not be able to function or read tanks. Also, if the BCM has the correct output voltage or signal , but nothing is functioning, the problem lies elsewhere.

Symptom	Solution
Display Commander (DC) will not turn ON or no front panel operation	Try cycling the DC with the Power button.
	Check main fuse in Distribution Panel.
	Check 12V+ on wire to DC using a Digital Multimeter.
	Check Ground wire to DC.
No power to the Body Control Module (BCM), The Red Light is off	Try cycling power using the RV main breaker.
	Check the Red power LED is off,
	Check the fuse in the Distribution Panel.
	Check 12V+ on wire at pin 80.
	Disconnect wire from 8, if BCM powers up, there is a short on the wire. Correct wiring.
Check Ground wire at pin 77.	
DC screen flashing on and off after installation	Disconnect 12V+ and Ground wires from the back of DC.
	Shut off all power to the BCM and DC.
	Reconnect 12V+ and Ground wires from the back of DC.
	Return power to BCM and DC.
Awnings do not move	First, check the fuse in the main breaker box then look for 12V+ at Pin 78.Ensure the relay activates*.
Slide Rooms do not move	First check the fuse in the main breaker box then look for 12V+ at Pin 79. Ensure the relay activates*.
*Relay not activating	Replace the relay with one from an unused circuit by gently pulling it off the board.

Any issues that are related to iN-Command that cannot be cleared using the above list will be tied to the BCM and DC hardware and software. Careful inspection of the BCM will need to be done (possibly blowing the BCM board with air to remove any dust and debris or conductive material). If the BCM looks clean and undamaged (no burnt or cracked components) with all the wires secure and not touching each other, troubleshooting the program is needed.

Contact an ASA representative 1-877-845-8750