INSTALLATION

DRC Awning Control System

CONTROL SYSTEM FOR CAREFREE 12V AND 110V MOTORIZED AWNINGS WITH BLUETOOTH® WIRELESS TECHNOLOGY

Read this manual before installing or using this product. Failure to follow the instructions and safety precautions in this manual can result in personal injury and/or cause the product to not operate properly.

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NOTICES AND DISCLAIMERS

TRADEMARKS

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Other trademarks and trade names are those of their respective owners.

STATEMENTS OF COMPLIANCE

The DRCHUB contains transmitter module FCC ID:2AA9B04; IC:12208A-04.

FCC COMPLIANCE

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) These devices may not cause harmful interference and, (2) These devices must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

IC COMPLIANCE

This device complies with Industry Canada license exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

FCC/IC RADIATION EXPOSURE STATEMENT

This equipment complies with FCC and IC radiation exposure limits for an uncontrolled environment. The minimum distance between the radiator and people is designed to be 20mm when operated.

Cet équipement est conforme aux limites d'exposition aux radiations FCC et IC pour un environnement non contrôlé. La distance minimale entre le radiateur et les personnes est de 20mm (à l'exclusion des extrémités: mains, poignets, pieds et chevilles) lors de l'utilisation.

Electric components in this product have been tested by the following agencies:

Motor:	**UL Recogonized** (USA) **CSA Approved** (Canada)
Controls:	**ETL Listed** (USA & Canada)

DISCLAIMERS

The DRC12 and DRC110 Awning Control Systems and the Carefree Connects Mobile Apps are products of Carefree of Colorado, located in Broomfield, Colorado, USA. The information contained in or disclosed in this document is considered proprietary to Carefree of Colorado. Every effort has been made to ensure that the information presented in the document is accurate and complete. However, Carefree of Colorado assumes no liability for errors or for any damages that result from the use of this document.

The information contained in this manual pertains to the current components and software listed on the title page. Carefree of Colorado reserves the right to cancel, change, alter or add any parts and procedures, described in this manual, without prior notice.

SERVICE AND SUPPORT

	www.carefreeofcolorado.com **www.carefreeofcolorado.com/rv-products/carefree-connects/**
	customerservice@carefreeofcolorado.com
	Carefree of Colorado **2145 W. 6th Ave.** **Broomfield, CO** **80020**

SAFETY INFORMATION

	This is the safety alert symbol. It is used to alert individuals to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible personal injury or death.
WARNING	**Indicates a hazardous situation, which if not avoided, could result in death or serious bodily injury.**
CAUTION	**Indicates a hazardous situation, which if not avoided, may result in minor or moderate bodily injury.**
NOTICE	**Indicates a situation that may result in equipment-related damage.**

General Safety:

California Proposition 65

WARNING This product can expose you to chemicals including Di-isodecyl phthalate (DIDP), Vinyl Chloride and Formaldehyde, which are known to the state of California to cause cancer or birth defects or other reproductive harm. For more information visit www.P65warnings.ca.gov

WARNING SHOCK HAZARD. Always disconnect battery or power source before working on or around the electrical system.

WARNING Always wear appropriate safety equipment (i.e. goggles).

CAUTION Always use appropriate lifting devices and/or helpers when lifting or holding heavy objects.

NOTICE When using fasteners, do not over tighten. Soft materials such as fiberglass and aluminum can be "stripped out" and lose the ability to grip and hold.

OVERVIEW

The DRC Awning Control System provides flexibility for 12V or 110V awning controls for a single patio awning or for multiple awnings including 12V patio, window and door (OtD) awnings.

MOBILE APP

The DRC system can be configured and operated by the mobile app Carefree Connects 110. Please refer to the mobile app manual 070040-002 “Carefree Connects 110 Mobile App”. Awning control, LED light control and Firmware Updates are available through the app.

ISOLATED DRC110 SYSTEM

This is the base system for 110V awning control. This system requires DRCMoLED, DRCHUB, and DRC110. This system can be expanded to include additional awnings (110V and 12V Patio, window and door (OtD) awnings) in the *Interconnected Complex System.*

ISOLATED DRC12 SYSTEM

This is the base system for 12V awning control. This system requires DRCHUB, and DRC12. DRCMoLED is optional.

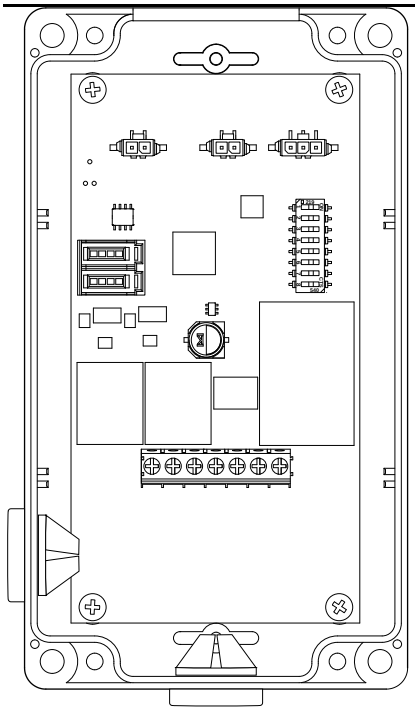
INTERCONNECTED COMPLEX SYSTEM

The DRCHub allows additional awnings to be interconnected using the RV Can main bus line or independently linked using cables between the modules. The Carefree app provides individual controls for each awning and allows multiple awnings and lights to be grouped to operate simultaneously. In addition, the awning and lights can be controlled through standard RV-C commands via the coach’s main command center

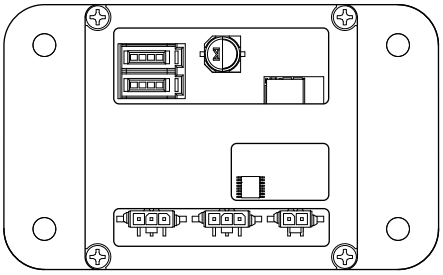
*** NOTE:** Window and door (OtD) awnings do not use the auto-retract feature. Patio awnings with DRC MoLED do. The DRCMoLED module is mounted in the vehicle with the DRC12 module to provide 12V Patio awning control, LED connections and control options through the app. Standard LED wiring is required from the awning to the module.

Electric components in this product have been tested by the following agencies:

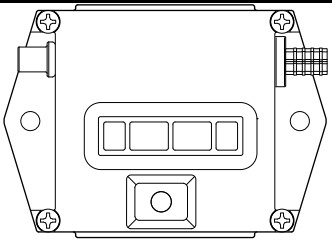
Motor:	**UL Recogonized** (USA) **CSA Approved** (Canada)
Controls:	**ETL Listed** (USA & Canada)



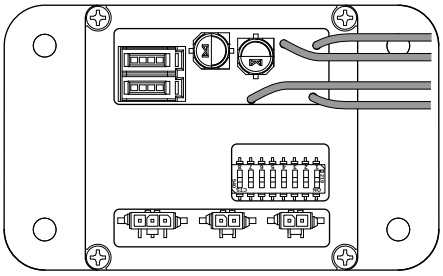
DRC110
110Vac Control Module
(Lid removed for illustration)



DRCHub



DRCMoLED
Mounted In Lead Rail *
Motion Sensing / LED Connection



DRC12
12Vdc Control Module

DRC007

INSTALLATION

WARNING SHOCK HAZARD. Always disconnect battery or power source before working on or around the electrical system.

NOTICE Failure to follow the wiring instructions in this publication may void the warranty.

NOTICE All wiring must conform to NEC (National Electrical Code) and local codes.

NOTICE The SO cable from the 110V awning motor can only pass directly through a wall, it can not be laid up in the wall and must be connected to NM wire or individual wires in conduit no more than 6 inches past the point of entry.

The installer must provide enclosed junction boxes for all 110V wire splices. Boxes are required in conformance with prevailing construction codes. Installers are required to furnish the UL approved electrical boxes where required.

NOTICE DO NOT wire two or more motors to one motor controller.

NOTICE At the control box location, 110V input is required for DRC110. It is recommended that the installer provide a dedicated circuit for the awning system that is protected by an appropriate sized fuse/circuit breaker. Each 110V patio awning draws a maximum of 3 amps, each 12V patio or companion awning draws a maximum of 15A.

NOTICE The motion sensor (DRMoLED) for the auto-retract system is mounted in the patio awning lead rail for cassette or box style patio awnings and in the drive side head for vertical arm patio awnings. The cable will require a routing path to the control box.

NOTICE To comply with 2018 NFPA 1192 RV Standard, Section 6.4.7, switches must be mounted as follows:

For travel trailers and 5th wheels:

a) Installed in a dedicated switch cabinet with a latching door; or,
b) Installed with the optional covered bezel available from Carefree; or,
c) Installed in a cabinet with a latching door where the switch is protected and CANNOT be activated by any items or cargo that may move or shift during transit; or,
d) Installed with an interrupt circuit connected to the “IGN LOCK”.

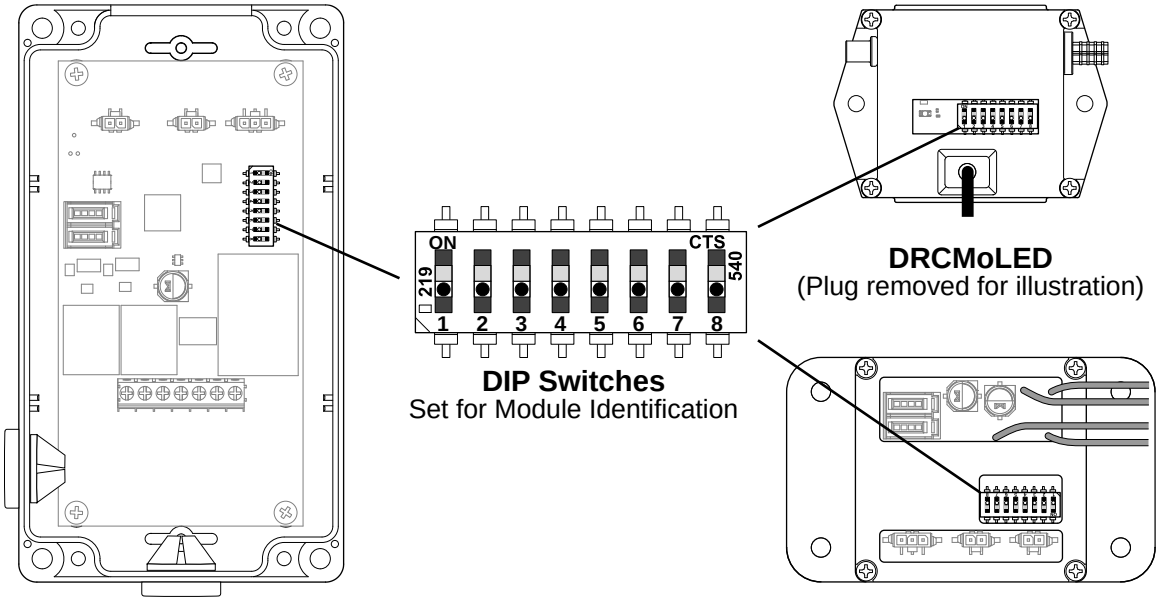
For motorized coaches (Class A, Class B and Class C):

a) Installed with an interrupt circuit connected to the “IGN LOCK”.

The DRC110 and DRC12 modules provide an ignition lockout option. Refer to page 11 for install options and details for connections.

SETTING THE DIP SWITCHES

Each module requires a unique electronic identification when installed. These identifications are set using the DIP switches located on the boards in the modules.



DRC110
110Vac Control Module
(Lid removed for illustration)

DIP Switches
Set for Module Identification

DRCMoLED
(Plug removed for illustration)

DRC12
12Vdc Control Module

DRC011

Coordinate the Settings:

It is recommended that when setting the DIP switches to use a progressive method to track multiple awnings. Example: Set Awning 1 control module as Awning Instance 1; set the DRCMoLED module as MoLED Instance 1. Set Awning 2 control module as Awning Instance 2; set the DRCMoLED module as MoLED Instance 3 and so on. The default settings in firmware allow for 3 MoLEDs per awning, meaning that MoLED instances 1,3 and 5 talk only to Aning Instance 1. MoLED instances 7,9 and 11 talk only to Awning Instance 2, and so on.

NOTE: MoLED Instances are always odd numbers (i.e. 1, 3, 5, 7 etc.)

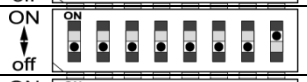
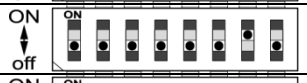
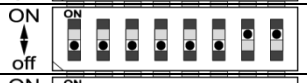
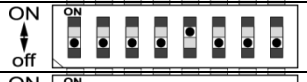
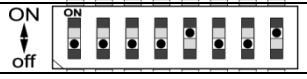
NOTE: DO NOT set multiple modules with the same DIP switch settings. The system will not be able to distinguish the individual awnings and would operate them as one awning.

IN THE CHARTS BELOW, OFF = SWITCH DOWN; ON = SWITCH UP; - = NOT USED (SETTING DOES NOT MATTER).

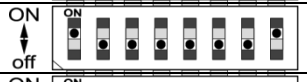
Settings for DRC110

The DIP switches are located inside the module and accessible when the lid is removed.

MIRAGE, MIRAGE 2-STAGE, APEX, APEX 2-STAGE

Awning Instance	Switch Position								
	1	2	3	4	5	6	7	8	
1	off	-	-	-	off	off	off	off	
2	off	-	-	-	off	off	off	**ON**	
3	off	-	-	-	off	off	**ON**	off	
4	off	-	-	-	off	off	**ON**	**ON**	
5	off	-	-	-	off	**ON**	off	off	
6	off	-	-	-	off	**ON**	off	**ON**	
7	off	-	-	-	off	**ON**	**ON**	off	
8	off	-	-	-	off	**ON**	**ON**	**ON**	
9	off	-	-	-	**ON**	off	off	off	
10	off	-	-	-	**ON**	off	off	**ON**	

PARAMOUNT

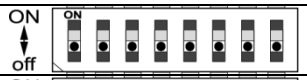
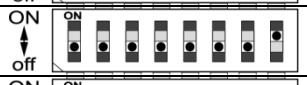
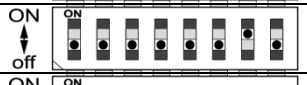
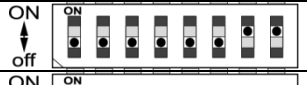
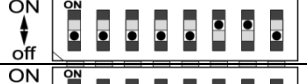
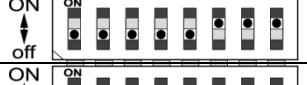
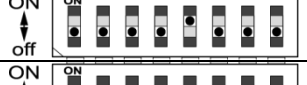
Awning Instance	Switch Position								
	1	2	3	4	5	6	7	8	
1	ON	-	-	-	off	off	off	off	
2	ON	-	-	-	off	off	off	**ON**	
3	ON	-	-	-	off	off	**ON**	off	
4	ON	-	-	-	off	off	**ON**	**ON**	
5	ON	-	-	-	off	**ON**	off	off	
6	ON	-	-	-	off	**ON**	off	**ON**	
7	ON	-	-	-	off	**ON**	**ON**	off	
8	ON	-	-	-	off	**ON**	**ON**	**ON**	
9	ON	-	-	-	**ON**	off	off	off	
10	ON	-	-	-	**ON**	off	off	**ON**	

IN THE CHARTS BELOW, OFF = SWITCH DOWN; ON = SWITCH UP; - = NOT USED (SETTING DOES NOT MATTER).

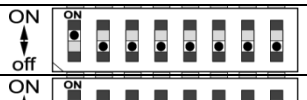
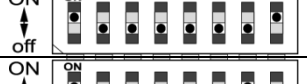
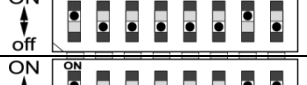
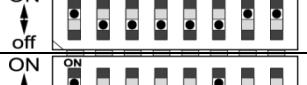
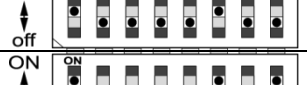
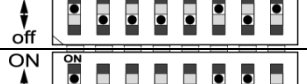
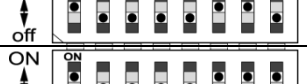
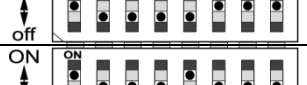
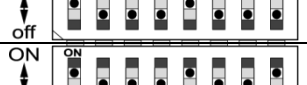
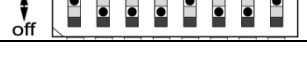
Settings for DRC12

The DIP switches are located inside the module and accessible when the lid is removed.

ALTITUDE, COMPASS, TRAVEL'R, ECLIPSE, LATITUDE, SKYLINE

Awning Instance	Switch Position								
	1	2	3	4	5	6	7	8	
1	off	-	-	-	off	off	off	off	
2	off	-	-	-	off	off	off	**ON**	
3	off	-	-	-	off	off	**ON**	off	
4	off	-	-	-	off	off	**ON**	**ON**	
5	off	-	-	-	off	**ON**	off	off	
6	off	-	-	-	off	**ON**	off	**ON**	
7	off	-	-	-	off	**ON**	**ON**	off	
8	off	-	-	-	off	**ON**	**ON**	**ON**	
9	off	-	-	-	**ON**	off	off	off	
10	off	-	-	-	**ON**	off	off	**ON**	

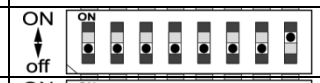
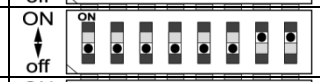
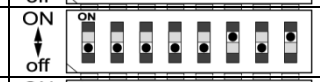
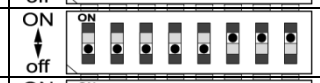
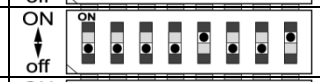
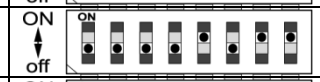
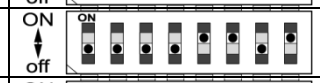
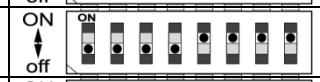
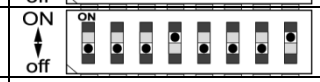
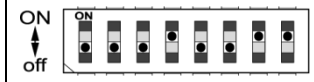
FREEDOM, MARQUEE BOX AWNINGS

Awning Instance	Switch Position								
	1	2	3	4	5	6	7	8	
1	ON	-	-	-	off	off	off	off	
2	ON	-	-	-	off	off	off	**ON**	
3	ON	-	-	-	off	off	**ON**	off	
4	ON	-	-	-	off	off	**ON**	**ON**	
5	ON	-	-	-	off	**ON**	off	off	
6	ON	-	-	-	off	**ON**	off	**ON**	
7	ON	-	-	-	off	**ON**	**ON**	off	
8	ON	-	-	-	off	**ON**	**ON**	**ON**	
9	ON	-	-	-	**ON**	off	off	off	
10	ON	-	-	-	**ON**	off	off	**ON**	

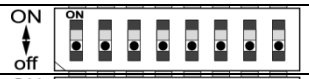
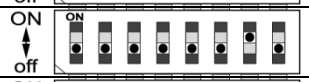
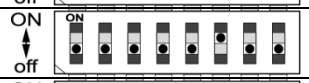
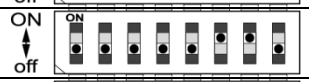
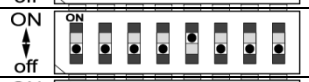
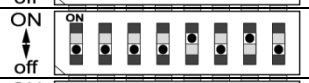
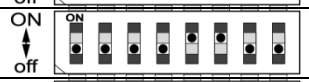
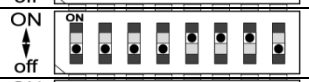
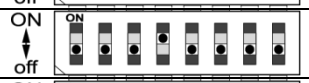
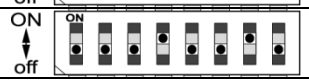
Settings for DRMotion

The DRMotion module is mounted in the awning lead rail. The DIP switches are accessible through the opening of the module top. Remove the plug to access the switches. Reinstall the plug after setting the switches.

PATIO AWNINGS WITH MOTION DETECTION

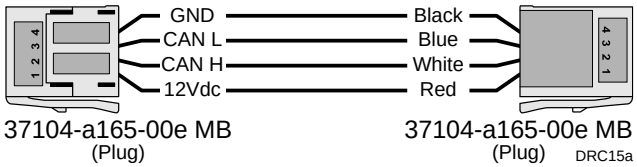
Default Settings	MoLED Instance	Switch Position 1	2	3	4	5	6	7	8	
Awning Instance 1	1	off	off	off	off	off	off	off	**ON**	
	3	off	off	off	off	off	off	**ON**	**ON**	
	5	off	off	off	off	off	**ON**	off	**ON**	
Awning Instance 2	7	off	off	off	off	off	**ON**	**ON**	**ON**	
	9	off	off	off	off	**ON**	off	off	**ON**	
	11	off	off	off	off	**ON**	off	**ON**	**ON**	
Awning Instance 3	13	off	off	off	off	**ON**	**ON**	off	**ON**	
	15	off	off	off	off	**ON**	**ON**	**ON**	**ON**	
	17	off	off	off	**ON**	off	off	off	**ON**	
Awning Instance 4	19	off	off	off	**ON**	off	off	ON	**ON**	
	NOTE: If switch #8 is set to off, the motion sensor is disabled. LED dimming is active.									

12V WINDOW AND DOOR (OTD) AWNINGS AND AWNINGS WITHOUT MOTION DETECTION

MoLED Instance	Switch Position 1	2	3	4	5	6	7	8	
1	off	off	off	off	off	off	off	off	
3	off	off	off	off	off	off	**ON**	off	
5	off	off	off	off	off	**ON**	off	off	
7	off	off	off	off	off	**ON**	**ON**	off	
9	off	off	off	off	**ON**	off	off	off	
11	off	off	off	off	**ON**	off	**ON**	off	
13	off	off	off	off	**ON**	**ON**	off	off	
15	off	off	off	off	**ON**	**ON**	**ON**	off	
17	off	off	off	**ON**	off	off	off	off	
19	off	off	off	**ON**	off	off	**ON**	off	
NOTE: If switch #8 is set to off, the motion sensor is disabled. LED dimming is active.									

COMMON CONNECTIONS

Interconnect Cables



Used with:

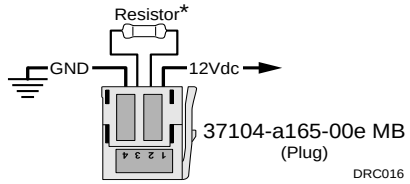
Isolated System

Interconnected Complex System with RV Can Bus Line

12V Power Connector

The power connector is used to provide 12V power for the DRMoLED module, LED lighting and circuit board functions.

The power connector is not used with interconnected complex system which uses the RV Can main bus line. 12V power is supplied through the RV Can main bus line.



* For the Isolated System the resistor = 60 ohms
For the Interconnected Complex System with Independent links
The resistor = 120 ohms

Ignition Lockout Connection

Two ignition lockout configurations are available with the DR110 system.

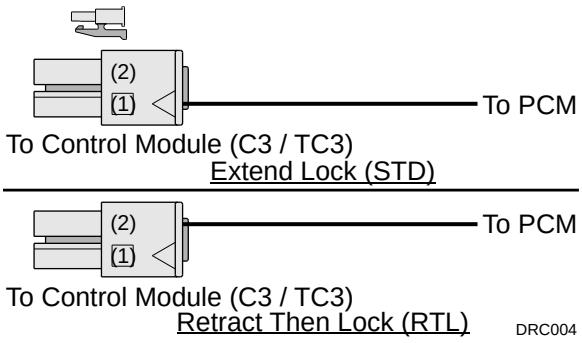
- The STD ignition lockout disables the extend function when the module receives a signal through a switched circuit.
- The RTL ignition lockout will fully retract the awning and disable the extend function when the module receives a signal through a switched circuit.

NOTE: The system can be set to trigger on three possible states; +12 VDC, GND or Float. The trigger can be set in a configuration file, +12 VDC is the default. See Appendix for configuration file information.

NOTE: A switched 12V source is a line that is "hot" when the ignition switch is in the on position; or, a 12V circuit through a relay that is "hot" when a specific condition is met (i.e. releasing the parking brake). Relays are not furnished.

1. *For STD Applications:*
   1.1. Attach a 20awg wire from the PCM and terminate with a 1445022-2 plug in the #1 pin position.
   1.2. Attach the plug to the control board.
2. *For RTL Applications:*
   2.1. Attach a 20awg wire from the PCM and terminate with a 1445022-2 plug in the #2 pin position.
   2.2. Attach the plug to the control board.

NOTE: Plugs (1445022-x) use a 794606-1 pins (20-24awg).



Switch Installation –Function and LED

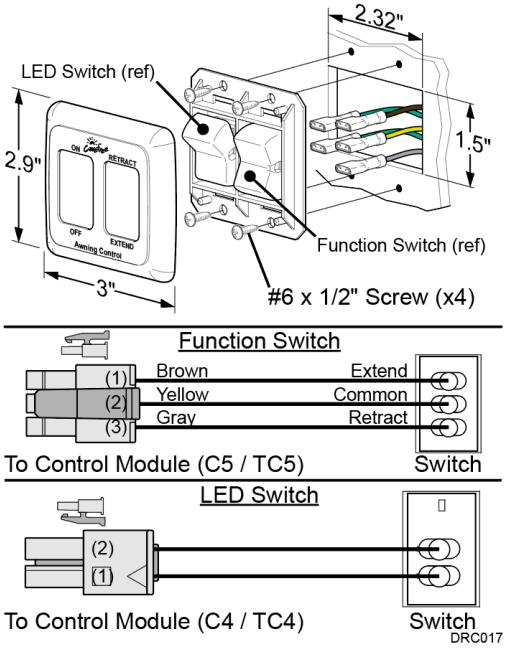
NOTE: Installers may choose to furnish the switches. The function switch must be a DC polarity reversing switch with dynamic brake.

1. Determine the location of the switch.
2. At the switch location cut a 2 5/16" [5.9cm) x 1 1/2" [3.8cm] hole.

   NOTE: Plugs (1445022-x) use a 794606-1 pins (20-24awg).

   FUNCTION SWITCH
3. Terminate three (3) 20awg wires at the switch with .187, 18-24 awg female disconnects and connect to function switch.
4. Terminate the other end with a 1445022-3 plug. If the distance from the switch to the control box exceeds the furnished wire, the installer must furnish wire and splice.

   LED SWITCH
   Optional factory installed LED lights are available. The strip is mounted in the lead rail; the LED strip connects to the DRCMoLED module; no separate LED harness is required for 110V awnings.
5. Terminate two (2) 20awg wires at the switch with .187, 18-24 awg female disconnects and connect to LED switch.



6. Terminate the other end with a 1445022-2 plug. If the distance from the switch to the control box exceeds the furnished wire, the installer must furnish wire and splice.
7. Press the wires and switch into the mounting hole. Secure the switch using four (4) #6 x 1/2" screws.
8. Snap the switch bezel over the switch frame.
9. Attach the plugs to the control board. Refer to the applicable wiring diagram.

DRCMoLED Module

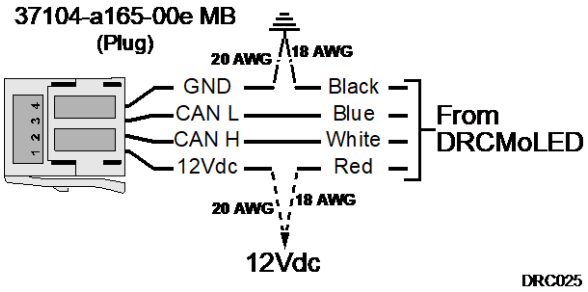
The DRCMoLED module is factory installed in the lead rail of the 12V or 110V patio awning. The wire harness is routed into the vehicle with the awning's motor wires.

For 12V window and door (OtD) awnings, the DRCMoLED module is optional and can be used for LED connections and controls. The module is not mounted in the awning lead rail and is mounted next to the DRC12 module. The auto retract function is not used with window and door awnings.

Terminate the wires from the DRCMoLED module with a 37104-a165-00e MB plug.

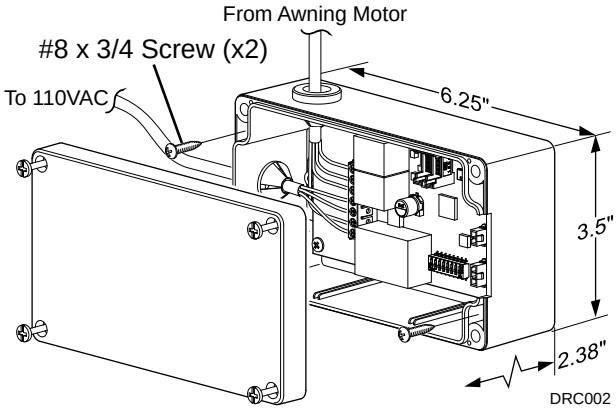
GND and 12Vdc wires require 18awg from DRCMoLED on a 5A fused circuit

Blue and White wires require 20awg



DRC110 CONTROL MODULE INSTALLATION

1. Determine the location of the control box.
2. Remove the lid from the control box.
3. Attach the box using a minimum of two (2) #8 x 3/4 screws. The screws should be mounted in opposite corners.
4. Route a 2-conductor 14AWG NM wire w/ ground from the AC power source to the box. It is recommended that the installer provide a dedicated AC circuit that is protected by an appropriate sized fuse/circuit breaker. Each patio awning draws a maximum of 3 amps. Connect wires to the control box as shown in the wiring diagram.
5. Splice the awning motor wires to a 3-conductor 14AWG NM wire w/ ground. (Refer to note 1 on the wiring diagram.)



6. Route the cable wire from the motor to the control box and attach the wires to the terminals as shown in the wiring diagram (Isolated System or Interconnected Complex System).

For Mirage, Mirage 2-Stage

RH MOTOR CONFIGURATION			LH MOTOR CONFIGURATION		
RED WIRE	goes to terminal	**(1)**	**RED WIRE**	goes to terminal	**(2)**
BLACK WIRE	goes to terminal	**(2)**	**BLACK WIRE**	goes to terminal	**(1)**

For Apex, Apex 2-Stage and Paramount

RH MOTOR CONFIGURATION			LH MOTOR CONFIGURATION		
RED WIRE	goes to terminal	**(2)**	**RED WIRE**	goes to terminal	**(1)**
BLACK WIRE	goes to terminal	**(1)**	**BLACK WIRE**	goes to terminal	**(2)**

7. Follow the appropriate wiring diagram and connect:
   - 7.1. Interconnect cables page 11
   - 7.2. 12V power connector page 11
   - 7.3. Ignition Lock-Out page 11
   - 7.4. LED Light Switch page 12
   - 7.5. Function Switch page 12
   - 7.6. DRCMoLED Module page 12
8. Do not install lid until all connections are made.

DRCHUB INSTALLATION

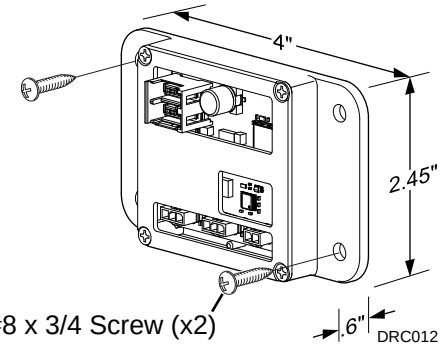
The DRCHub module expands the Isolated Systems to include BLUETOOTH® enabled controls through the Carefree app. DRCHub allows additional awnings with Interconnected Comples System controls to be interconnected using the RV Can main bus line or independently linked using cables between the modules.

NOTICE **Do not mount the unit near heat producing elements such as LP appliances or engine exhaust components.**

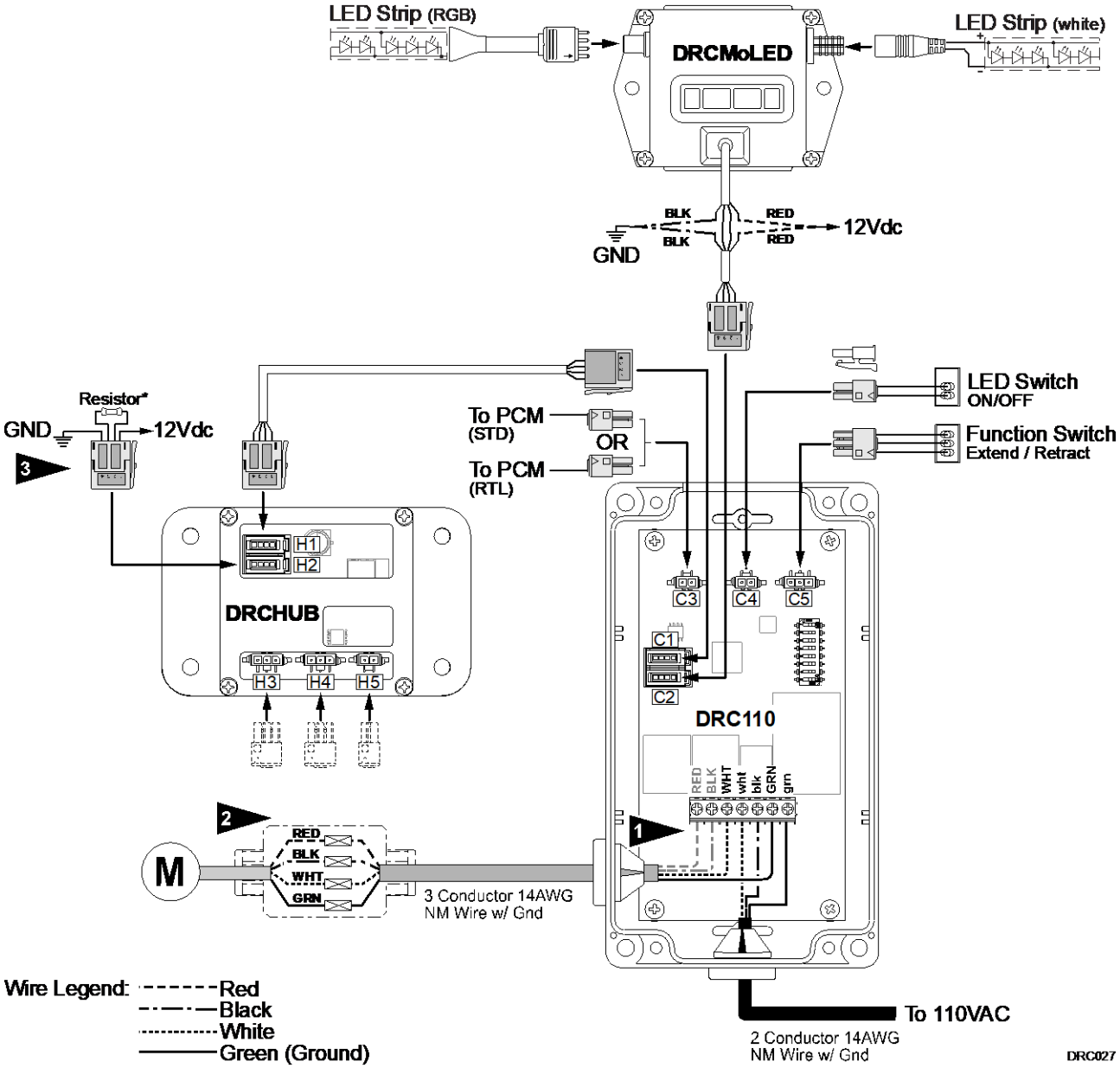
NOTICE **For best reception, do not mount the unit near or on a metal surface.**

1. Determine the location of the module.
   1.1. The module should be placed to access the RV Can main bus line for the interconnected complex system (page 17).
   OR
   1.2. The module should be placed to access the other system components for the isolated complex system (page 15) or the interconnected complex system with independent links (page 17).
2. Attach the box using a minimum of two (2) #8 x 3/4 screws. The screws should be mounted in opposite corners.
3. Follow the appropriate wiring diagram and connect:
   3.1. Interconnect cables page 11
   3.2. 12V power connector page 11

NOTE: Connections H3, H4 and H5 are reserved for future development and not used currently.



WIRING DIAGRAM – ISOLATED DRC110 SYSTEM



1 **For Mirage, Mirage 2-Stage**

RH MOTOR CONFIGURATION			LH MOTOR CONFIGURATION		
Red Wire	goes to terminal	**(1)**	**Red Wire**	goes to terminal	**(2)**
Black Wire	goes to terminal	**(2)**	**Black Wire**	goes to terminal	**(1)**

For Apex, apex 2-Stage and Paramount

RH MOTOR CONFIGURATION			LH MOTOR CONFIGURATION		
Red Wire	goes to terminal	**(2)**	**Red Wire**	goes to terminal	**(1)**
Black Wire	goes to terminal	**(1)**	**Black Wire**	goes to terminal	**(2)**

2 The SO cable from the 110V awning motor can only pass through a wall, it cannot be laid up in the wall and must be connected to NM wire or individual wires in conduit no more than 6 inches past the point of entry.

3 The 12V pigtail connector is configured with a 60ohm resistor in the middle ports of the connector. This is required for system integrity. This is not the same as used in the interconnected independent link system.

4 Strain reliefs must always be installed and replaced if missing or broken. Replacements must be the same approved strain relief.

DRC12 INSTALLATION

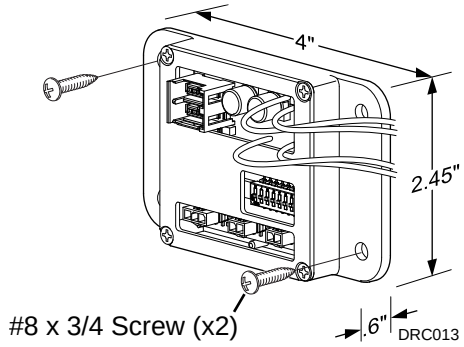
The DRC12 module allows installers to link 12V accessory awnings (i.e. window and door awnings) to the DR110 system to provide awning control with one-touch awning operation and BLUETOOTH® enabled controls through the Carefree app. The app provides awning control, adjustable white and RGB LED control.

NOTE: Window and door (OtD) awnings do not use the auto-retract feature. The DRCMoLED module is mounted in the vehicle with the DRC12 module to provide LED connections and control options through the app. Standard LED wiring from the awning to the DRCMoLED module is required.

1. Determine the location of the module.
   1.1. The module should be placed to access the other system components for the interconnected complex system with independent links (page 17).

   OR

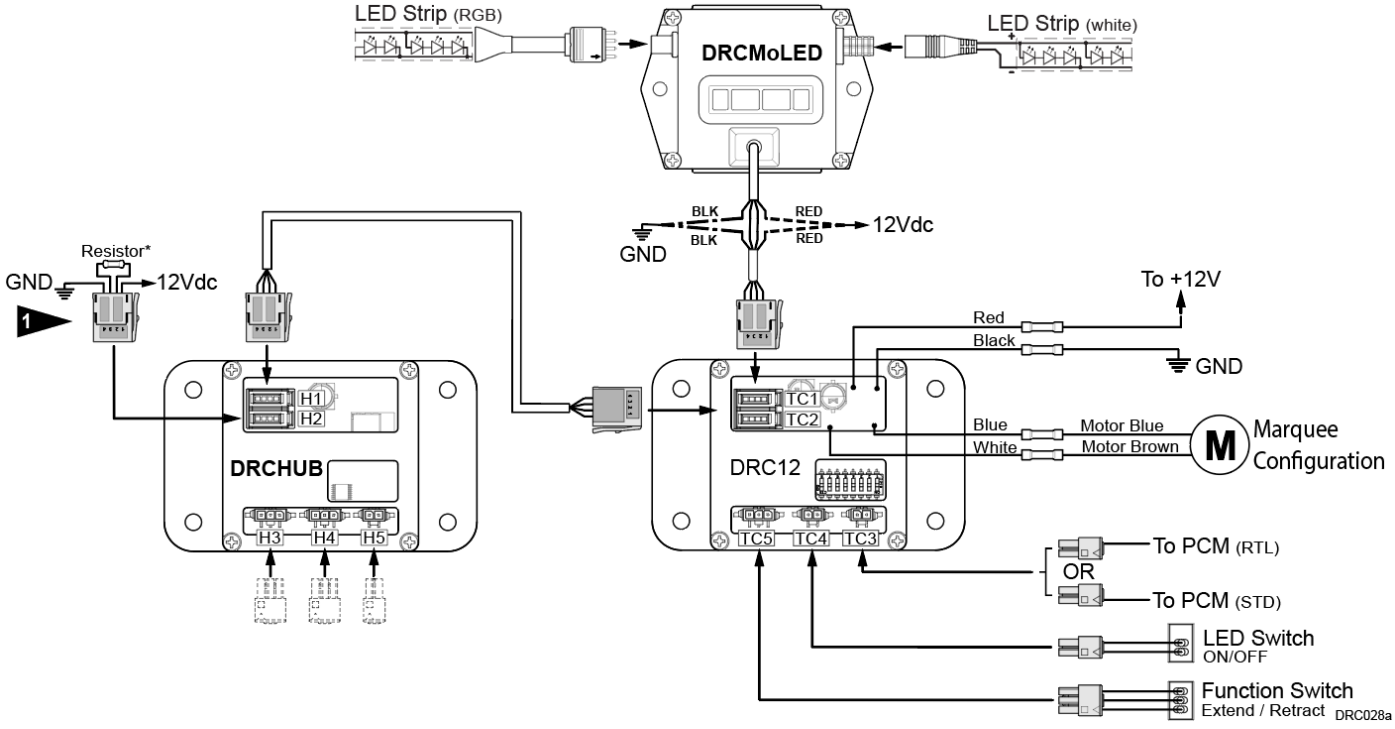
   1.2. The module should be placed to access the RV Can main bus line for interconnected complex system (page 17).
2. Attach the box using a minimum of two (2) #8 x 3/4 screws. The screws should be mounted in opposite corners.



3. Follow the appropriate wiring diagrams and connect:
   3.1. 12V power connection RED to +12V; BLACK to ground (14awg wire)
   3.2. Motor wires Module BLUE to motor BROWN; module WHITE to motor BLUE (14awg wire)

   NOTE: If the wire run is 30 feet or longer for +12Vdc and/or GND, use 12awg wire to prevent voltage drop. Use the appropriate butt splices for the wire size.
   3.3. PCM (Ignition Lockout) page 11
   3.4. LED Switch page 11
   3.5. Function Switch page 12
   3.6. Interconnect cables page 11
   3.7. DRCMoLED Module page 12

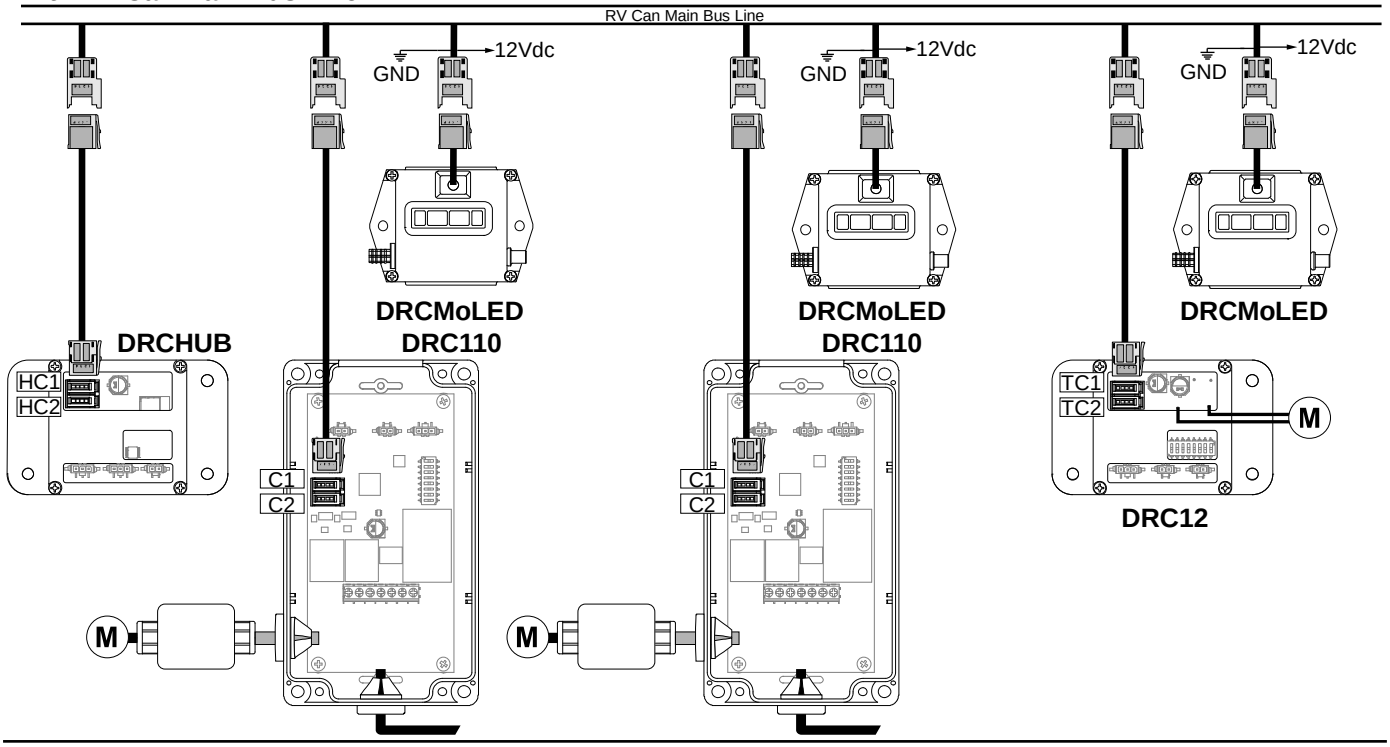
Wiring Diagram – Isolated DRC12 System



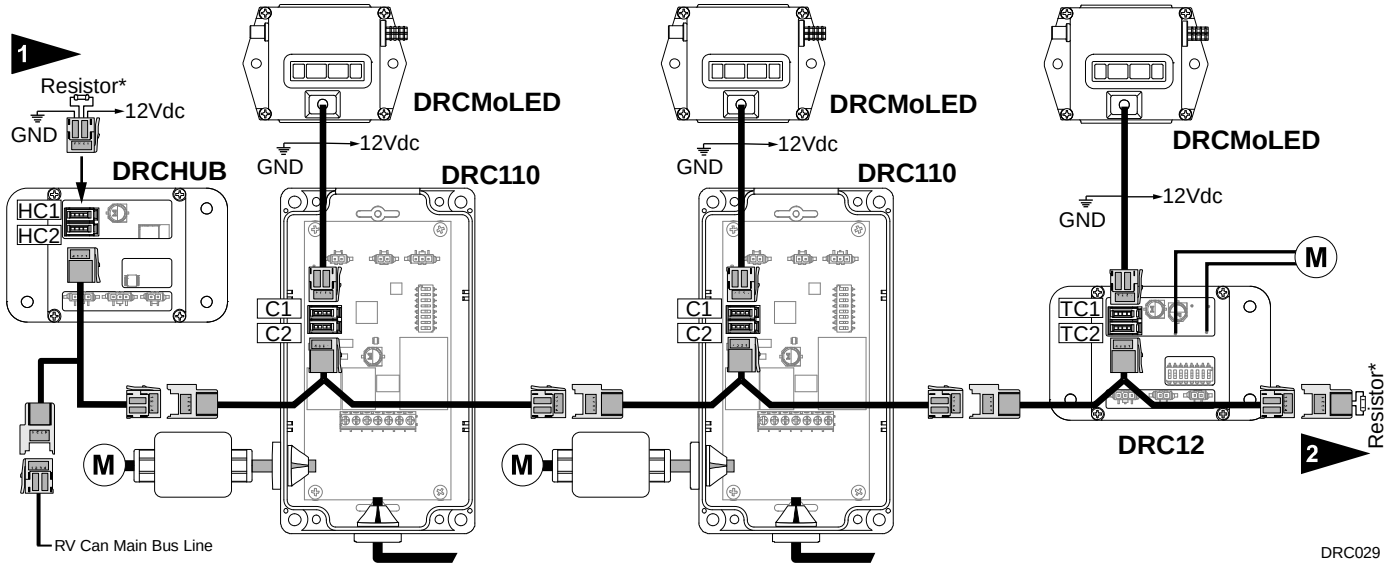
1 The 12V pigtail connector is configured with a 60ohm resistor in the middle ports of the connector. This is required for system integrity.

INTERCONNECTED COMPLEX SYSTEM

with RV Can Main Bus Line



with Independent Links



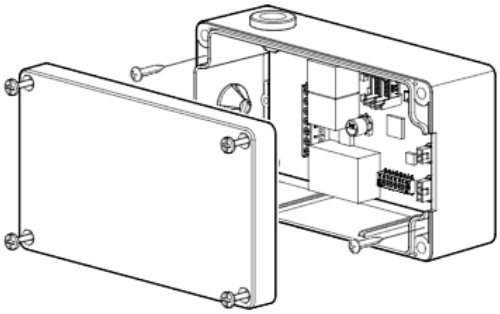
1 The 12V pigtail connector is configured with a 120ohm resistor in the middle ports of the connector. This is required for system integrity.

2 The last module in the linked system must have an end plug connector configured with a 120ohm resistor in the middle ports of the connector. This is required for system integrity.

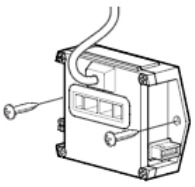
	CONNECTOR	RV Can Interconnect	Independent Link
DRC110	C1	RV Can Bus Line	DRCMoLED
	C2	n/a	Interlink Cable
DRCHUB	HC1	RV Can Bus Line	12V Pigtail
	HC2	n/a	Interlink Cable
DRCMoLED	Cable	RV Can Bus Line or DRC110 – C2	DRC110 – C1 or C2
DRC12	TC1	RV Can Bus Line	DRCMoLED
	TC2	n/a	Interlink Cable

Refer to the DRC110 and DRC12 diagrams for additional connections.

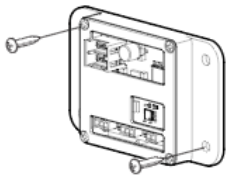
COMPONENT LISTING



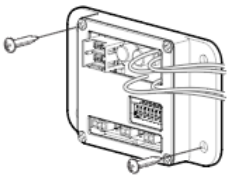
DRC110



DRCMoLED

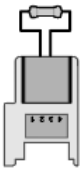


DRCHUB

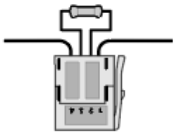


DRC12

RV Cable
(plug to plug)



Terminal Connector
(120ohm Resistor)



12V Pigtail Connector
(120ohm Resistor)

DRC501

APPENDIX

Configuration Files

A configuration file is a text file that is used to define the parameters that are specific to the awning that is being connected to the system. The configuration file is uploaded to the system wirelessly over Bluetooth via the DRCHub. Carefree is happy to provide configuration files to our customers. There will be one configuration file per floorplan. If desired, customers can create their own configuration files based on the information that follows. Note: not all of the information below has to be contained in the configuration file, only the information that is required to be different from the default

Configuration Parameters for Awning

Parameters	Values
Instance	1-16 (default = 1)
Awning location name	Letters, Numbers and Special Characters (ABC, 123, <#&), up to 16 characters
Awning model	DRC110, DRC12
Awning type	Roll, Box (default = Box)
Awning intermediate stages	NumStages, position 1 %, position 2 % (default = 0,0,0) Note: 0 indicates no intermediate stages (full extend/retract). Up to 2 intermediate stages supported (Paramount).
Awning global wind retract	Yes, No (default = No)
Nominal time to extend	1-65535 ms
Nominal time to retract	1-65535 ms
Extension lockout input active state	High, Low, Floating, Unused (default = High)
Retract and lockout input active state	High, Low, Floating, Unused (default = High)
Awning minimum safe rollback time	1-32767 ms
Awning maximum safe rollback time	1-32767 ms
Awning default rollback time	1-32767 ms

Extension lockout based on RV-C CHASSIS_MOBILITY_STATUS	One byte bitmask: b0-Reserved for future use(Set to 0) b1-Park brake (Extension lockout when park brake off) b2-Transmission lock (Extension lockout when engine free to start) b3-Engine lock status (Extension lockout when engine free to start) b4-Ignition switch status (Extension lockout when ignition switch On) b5-Accessory switch status (Extension lockout when accessory switch On) b6-Transmission current gear (Extension lockout when not in Park or Neutral) b7-Transmission gear selected (Extension lockout when not in Park or Neutral) Notes: Set bit location to 0 to disable, 1 to enable Written as 0b{b7}{b6}{b5}{b4}{b3}{b2}{b1}{b0}
Retract and lockout based on RV-C CHASSIS_MOBILITY_STATUS	One byte bitmask: b0-Reserved for future use(Set to 0) b1-Park brake (RTL when park brake off) b2-Transmission lock (RTL when transmission not locked) b3-Engine lock status (RTL when engine free to start) b4-Ignition switch status (RTL when ignition switch On) b5-Accessory switch status (RTL when accessory switch On) b6-Transmission current gear (RTL when not in Park or Neutral) b7-Transmission gear selected (RTL when not in Park or Neutral) Notes: Set bit location to 0 to disable, 1 to enable Written as 0b{b7}{b6}{b5}{b4}{b3}{b2}{b1}{b0}
Stall threshold	0-65535

Configuration Parameters for MoLED

Parameters	Values
Base Instance (white)	1-249 (default = 1) Note: MoLED's use 2 instances. This value is always odd numbered (even if using RGB only)
Connected LEDs	None, White, RGB, Both (default = White)
MoLED location name	ASCII, up to 16 characters
MoLED associated awning	Light (0-16), Wind Sensor (0,16) (default = 1,1) Note: 0 is disabled, 1-16 is the instance number of the associated awning
MoLED wind sensitivity	0-5 (default = 2) Note: 0 is disabled, 1 (Low motion trigger) through 5 (High motion trigger)

Configuration Example

Edit
Example Carefree RV-C network configuration file with one awning and two associated DRCMoLEDs

<Awning>
Instance = 5
Awning location name = Patio
Awning model = DRC110
Awning type = Box
Awning intermediate stages = 2, 33, 66
Awning global wind retract = Yes
Nominal time to extend = 15235
Nominal time to retract = 16860
Extension lockout input active state = High
Retract and lockout input active state = Unused
Awning minimum safe rollback time = 30
Awning maximum safe rollback time = 200
Awning default rollback time = 100
Extension lockout based on RV-C CHASSIS_MOBILITY_STATUS = 0b10000010
Retract and lockout based on RV-C CHASSIS_MOBILITY_STATUS = 0b00000000
Stall threshold = 5000

<MoLED>
Base Instance (white) = 7
Connected LEDs = Both
MoLED location name = Patio - Outer
MoLED associated awning = 5, 5
MoLED wind sensitivity = 4

<MoLED>
Base Instance (white) = 9
Connected LEDs = Both
MoLED location name = Patio - Inner
MoLED associated awning = 5, 0
MoLED wind sensitivity = 0