

## **INSTALLATION MANUAL**

Motorized Non-Tab Tension Projection Screen

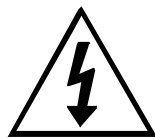
### **IMPORTANT: BEFORE YOU BEGIN**

- To avoid staining or scratching the screen, wash your hands and clean the work area before starting.
- Do not use knives or sharp objects to open the packing boxes.
- To avoid a serious fire hazard, DO NOT install the screen over an electrical outlet or switch.

# 1. Important Safety Precautions and Warnings

**Warning:** To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

1. Read and follow all instructions and warnings in this manual. Keep for future reference.
2. Do not use this apparatus near water.
3. Clean the screen housing only with a dry Microfiber cloth ONLY.
4. Do not block any ventilation openings. Install according to manufacturer's instructions.
5. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
6. Do not override the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades - one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
7. Protect the power cord from being walked on or pinched particularly at plug, convenience receptacles, and the point where it exits from the apparatus.
8. Only use attachments/accessories specified by the manufacturer.
9. Use only with a cart, stand, tripod, bracket or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
10. Unplug this apparatus during lightning storms or when unused for long periods of time.
11. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
12. Do not expose this equipment to dripping or splashing; ensure that no objects filled with liquids, such as vases, are placed on the equipment.
13. To completely disconnect this equipment from the AC mains, disconnect the power supply cord plug from the AC receptacle.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of un-insulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



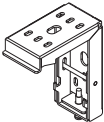
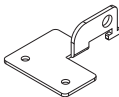

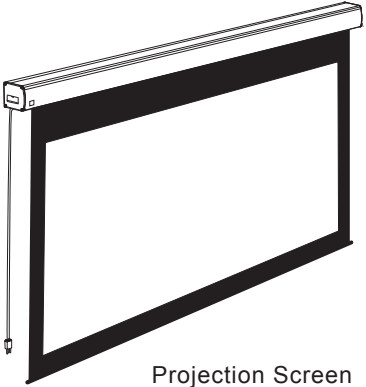
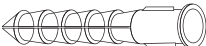




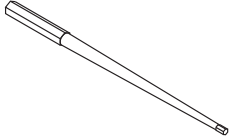
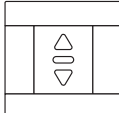






Before you unpack the projection screen, read the entire manual to become familiar with the steps involved for installation and operation. If you feel uncomfortable performing any of the steps required, stop and consult a qualified installation professional. Dragonfly is not responsible for any damage or injury that occurs from incorrect installation or operation.

## 2. Overview

Thank you for purchasing a Dragonfly™ Motorized Projection Screen. These projection screens can be hidden away when not in use and are designed to be easy to operate and reliable.

They feature several convenient mounting methods, can be controlled manually or automatically by a control system or projector, and are fully adjustable. The screen material includes a black, light-proof backing and adjustable tension tabs along each side to keep the screen perfectly flat during use. This screen is guaranteed to provide years of maintenance-free operation and enjoyment.

## 3. Package Contents

				
Wall Bracket A (2)	Hanging Bracket A (2)	Hanging Bracket Screws M5 x 13mm (5, includes 1 spare)	Projection Screen (1)	
				
Mounting Bracket Masonry Anchor ø8mm x 40mm (8)	Mounting Bracket Screw M5 x 42mm (8)	External IR Receiver 18" Cable (1)	DC 12V Trigger Cable 33' (1)	RJ12 Control Cable 10' (1)
				
Screen Adjustment Tool (1)	Wall Switch (1)	Wall Switch Mounting Screw M4 x 30mm (4)	Wall Switch Mounting Anchor ø6mm x 30mm (4)	IR Remote (1)
				
IR Remote Battery AAA (2)	Remote Bracket (1)	IR Remote Bracket Mounting Screw M3 x 15mm (2)		

## 4. Pre-Installation

Before installing the projection screen, review this section thoroughly to be sure that no additional work is needed to prepare the job for mounting and controlling the screen.

### 4.1. Required for Installation

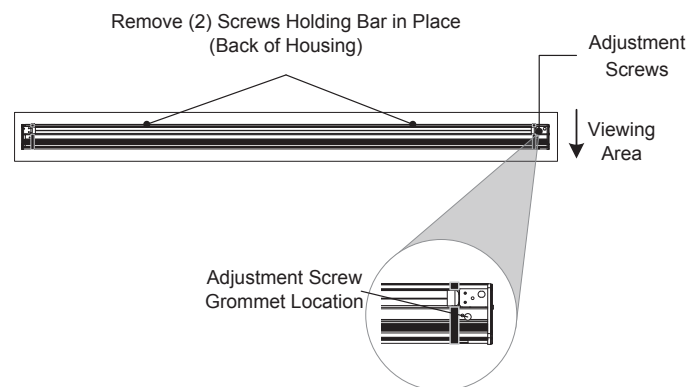
Have an assistant help with installation to prevent damage or injury. The following tools will be needed to complete the installation:

- Phillips Screwdriver
- Level
- 2 Step Ladders
- 7/32" Masonry Drill Bit to install 8mm concrete anchors
- Electric or Cordless Drill
- 5/32" Drill Bit to install 6mm Wall Switch Screw anchors (optional)
- Marker

### 4.2. Unpacking the Projection Screen

As you unpack the projection screen:

- Remove all accessories from the box before discarding any packaging. Use the Package Contents section to verify that everything has been removed.
- After the screen is removed from the packaging, be sure to remove the screws holding the bottom rail of the screen in the housing.
- While unpacking and preparing the projection screen for installation, take note of the location of the adjustment screws and grommet as it may be difficult to locate them after the screen is hung from the mounting brackets.
- **Do not turn the adjustment screws until the screen is mounted and ready to be adjusted.**



### 4.3. Powering the Screen

Operating Voltage: 120 Volts AC

Amperage: .97 Amps

The screen has a five foot power cable permanently attached to the left side of the screen as seen from the viewing area. Install or locate a receptacle close enough to plug the screen in prior to installation.

### 4.4. Mounting Considerations

The design of the brackets allows for wall, ceiling, or hanging mounting. Plan the final height of the screen's viewing surface prior to installation. Make sure there is enough room for the screen to hang freely below the mounting location when extended.



**Warning!** *The building structure and material in the mounting location must be capable of safely supporting the weight of the projection screen. Included hardware is only meant for use with wood, surfaces with wood bracing behind them, or concrete surfaces. Confirm with an engineer or contractor that the building material will safely support the weight of the screen using the included mounting hardware.*

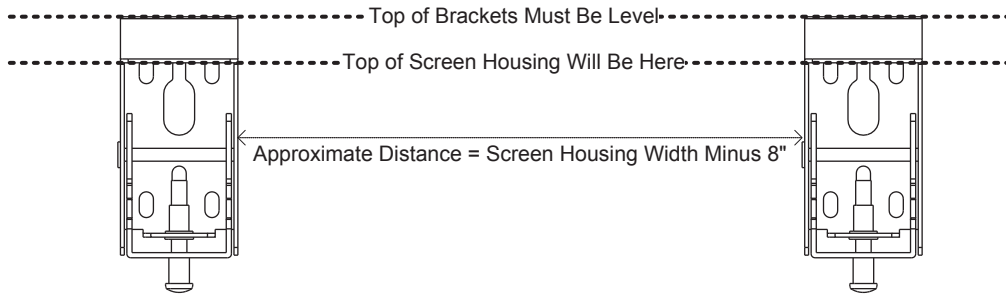
### 4.5. Control Method

Dragonfly motorized screens can be controlled via manual wall switch, IR remote, 12 volt trigger, or RS232. Complete instructions for each method are described in the Control Setup section (Page 9). Decide on the method that will be used before installation begins to avoid any issues with control later. Pre-wire any cables from projectors or control systems prior to closing the walls or ceiling.

## 5. Installation

### 5.1. Installing the Brackets

#### 5.1.1. Mounting Brackets



*The mounting rail allows the mounting brackets to attach anywhere on the screen housing, but they should be about 4" from each end to ensure that vibration or noise is prevented during operation.*

1. Measure the width of the Projector Screen Housing (Dim. "B" in Section 12. Screen Dimensions and Weight) and subtract 8" to estimate the distance the brackets should be mounted apart.
2. Mark the location of one bracket on the mounting surface, and measure over to the planned location of the second bracket. Adjust the general location of each bracket to allow for both to mount securely to wood or concrete. Be sure that wall-mounted brackets are level before installation.
3. Mark the screw holes for each bracket and install them:

#### Mounting to Wood Joists or Studs

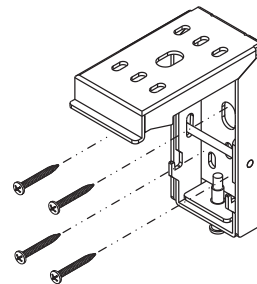
Use the included mounting screws to secure the projector mount brackets to the surface.

- No pre-drilling is necessary for most applications.
- Use 4 of the 8 included screws to mount each bracket as pictured.

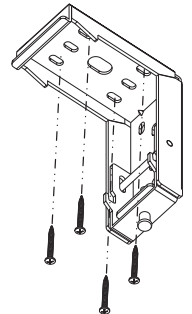


**Warning!** If holes are pre-drilled, use no larger than a 5/32" bit. Larger holes will not properly grip the threads, and the projection screen could fall.

#### Wall Mount



#### Ceiling Mount

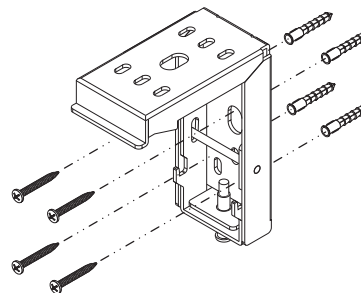


#### Mounting to Concrete Ceiling or Wall

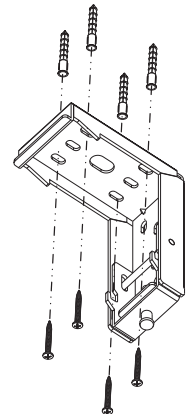
Use the included anchors for the mounting holes and install the screws into the anchors.

- Use a 7/32" masonry bit to drill a hole for each screw.
- Insert the anchors into the holes until they are flush.
- Do not install anchors into mortar joints.
- Use 4 of the 8 included screws to mount each bracket as pictured.

#### Wall Mount



#### Ceiling Mount

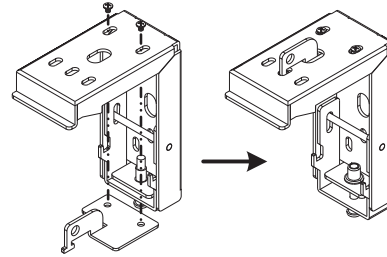


### 5.1.2. Hanging Mount

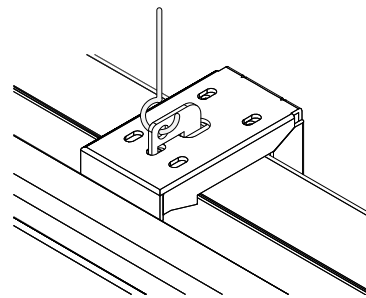
This screen includes optional adapters for converting the projector mounting brackets into hanging brackets. To hang the projection screen, a suspension system (not included) must be installed and attached to the ceiling structure that is rated for use in the location. Consult with local building code enforcement to determine the best suspension method to use before installing the screen.

1. Install suspension system per manufacturer instructions and local building codes.
2. Assemble each bracket according to the illustration. Pull the adapter up through the bottom and insert the screws from the top. Tighten the screws securely.
  - a. For 123" and smaller models, there are three screws to attach each adapter.
  - b. For 130" and above screens, there are two screws to attach each adapter.
3. Hang one bracket from the suspension system at the desired height.
4. Using a level, attach the second bracket to the suspension system at the same height as the first bracket.

#### Hanger Adapter Assembly

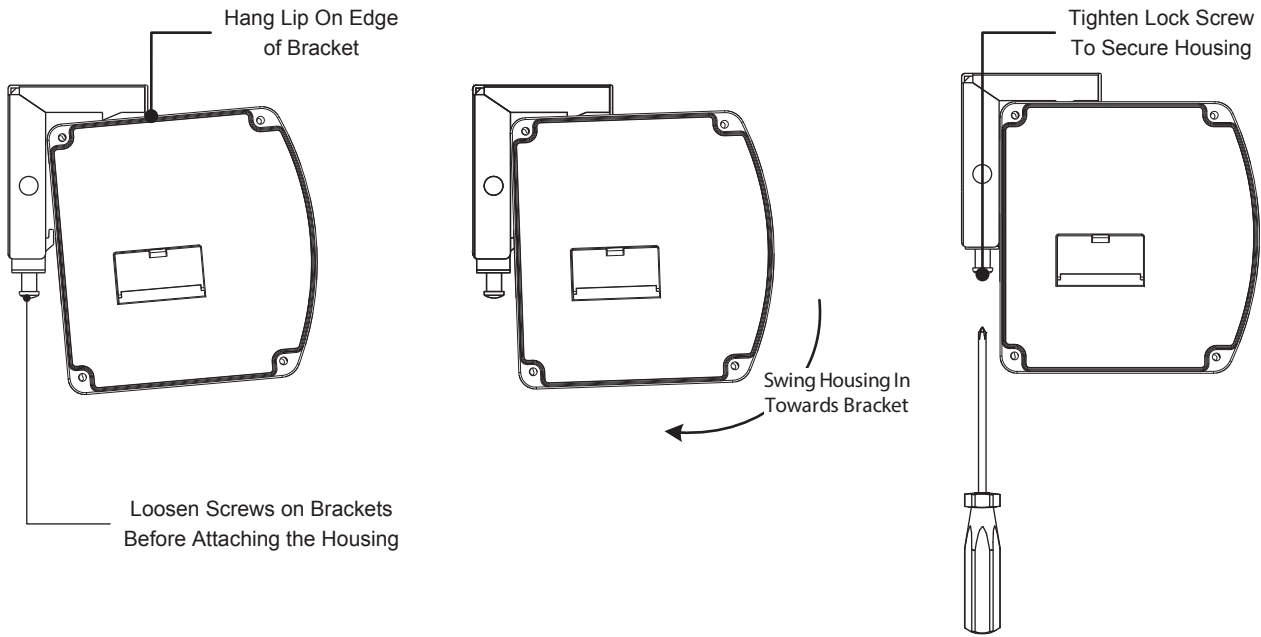


#### Example of Bracket Installed



## 5.2. Installing the Screen on the Brackets

After the brackets are installed, have an assistant help lift and mount the projection screen.

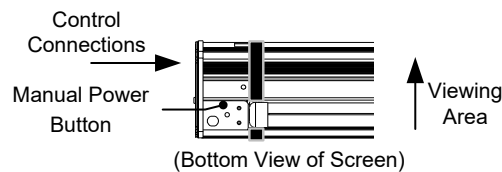


1. Loosen the lock screw on the bottom of each bracket completely.
2. Set the screen on the brackets according to the diagram. The screen will hang from the brackets before they are tightened.
3. Check the position of the screen and make any left or right adjustments as necessary.
4. Tighten the lock screws at the bottoms of the brackets and then check the screen housing using a level. Make any adjustments necessary.
5. Leave any control wiring separate for the moment, and plug the power cord into a 120V AC outlet.

## 5.3. Test the Screen

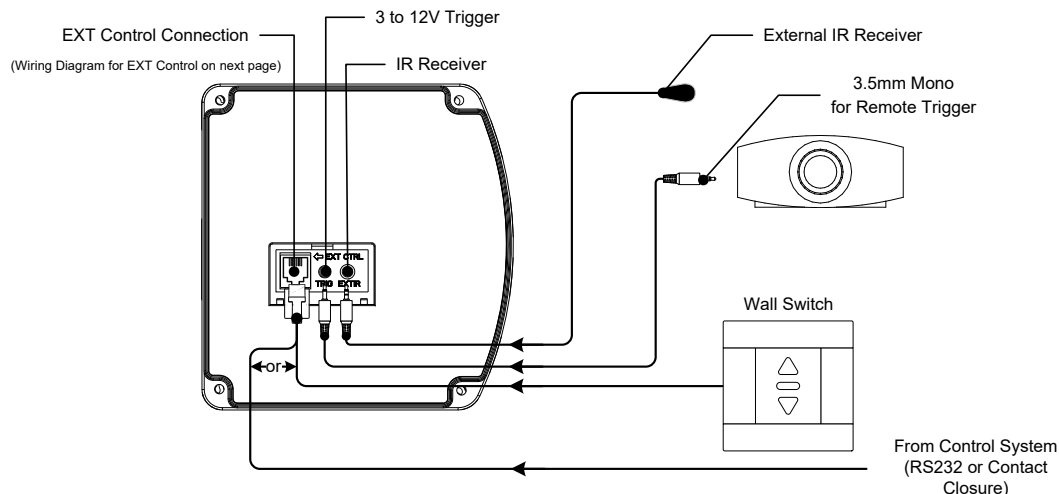
After the screen is secured to the mounting brackets, the unit can be tested. First, make sure the bottom bar of the screen is moving freely in the housing. If the packing screws/tape were not removed prior to installation, they must be removed before trying to move the screen position.

At the left bottom side of the screen housing, find the manual test switch. Press the switch once and the screen should begin moving. If nothing happens, make sure that 120 Volts AC is present at the plug being used. Allow the screen to move down until it stops on its own, then press the button again. The screen should close and stop with the bottom bar back in the original position. If everything is working correctly, continue with the installation. For any issues see the Troubleshooting section on page 12.



## 6. Control Setup

### 6.1. Control Wiring Diagram



### 6.2. IR Control (With Optional IR Receiver Extension)

The IR receiver built into the front of the screen works with remotes up to 26ft away at a maximum angle of 30°. The included external IR receiver can be connected to the EXT IR port if additional range is needed.

To use the external receiver, plug it into the screen and have an assistant hold the receiver in different mounting locations until the remote works reliably from where it will be used most. Mount the IR receiver using the adhesive foam tape on the back.

**Note:** The included external IR receiver is proprietary to Dragonfly projection screens. Other IR receivers will not work correctly.

### 6.3. 12 Volt DC Trigger Cable

Screens may be lowered and raised by 12 volt trigger signal sent from other equipment like a projector. A proprietary, 33ft cable is included for connecting a standard 1/8" (3.5mm) mono mini 12 volt trigger port to the TRIG port of the projection screen.

12 volt trigger operates by sending a 3-12V DC signal to the screen when the projector turns on. The screen will lower and remain lowered until the projector is turned off and the voltage drops to 0v (zero). Other control methods may be used with 12V trigger. However, the screen will remain lowered for use if voltage is present on the trigger while an attempt is made to close the screen.

**Important!** The projection screen still requires external AC power for operation. The 12 volt trigger connection will NOT power the screen. Plug the AC power cord into a suitable outlet supplying 120V AC.

### 6.4. Manual Wall Switch

The included wall switch may be surface mounted near the projection screen for manual control. A 10ft RJ12 cable is included to connect the switch to the screen. This cable may be replaced with a custom Cat5e/6 cable if longer runs are required due to the location of the switch. See the next page for complete instructions.

### 6.5. RS232 Serial Control

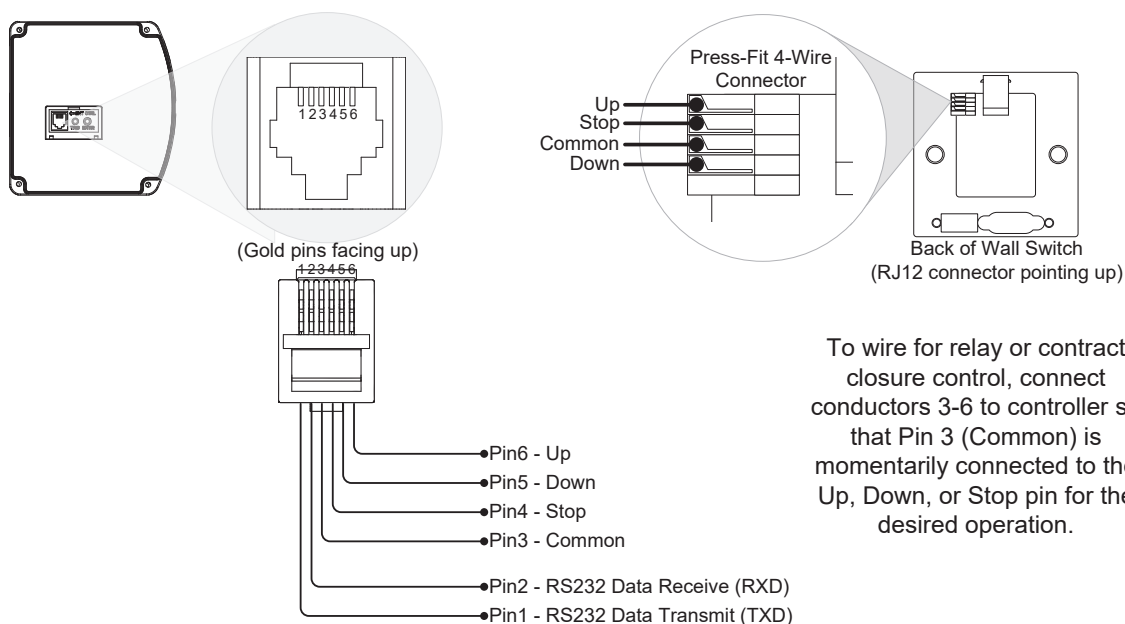
Pins 1 and 2 on the EXT CTRL port may be connected to a control system serial output for one-way control. Please see the DFM Motorized Screen Control Protocol for driver and command information, available on the Support tab at the DFM-NTT product page at [www.SnapAV.com](http://www.SnapAV.com). The diagram illustrating the correct pins to use for RS232 and instructions to extend the wiring from the screen to the control system are on the following page.

### 6.6. Contact Closure/Relay Control

The Dragonfly motorized screen may also be controlled via contact closure or relay control. Using the same conductors that are used for the wall switch, momentarily short the Common wire to the Up, Down, or Stop wire for the desired operation. The diagram illustrating the correct pins to use and instructions to extend the wiring from the screen to the control system are on the following page.



## 6.7. EXT CTRL Port Wiring Diagram



## 6.8. Extending Control Wiring

### 6.8.1. Wall Switch

1. Run a Cat5e/6 cable from the projection screen EXT CTRL port to the switch location. Install the cable into the wall at the switch location, and cut a 1" hole at the desired switch height. Pull about 6" of cable out of the hole for attachment to the wall switch.
2. Remove the knockout from the switch back-box and mount it over the cable with the RJ12 port opening pointing down. Use the supplied screws and anchors to secure it to the wall.
3. Cut the RJ12 control cable. Leave about 12" of cable attached to the connector. Splice four of the Cat5e/6 conductors to the appropriate wires as shown above at the projection screen. Then, plug the RJ12 into the EXT CTRL port. Insulate the ends of the unused RJ12 conductors 1 and 2 to prevent short circuits.
4. Strip the insulation from each of the four conductors used in the Cat5e/6 cable about ¼". Locate the press-fit connector on the switch assembly and terminate the conductors as shown above. Make sure to match the pin-out correctly between the screen and the wall switch.
5. Mount the wall switch to the back-box so that the up and down buttons face the right directions.

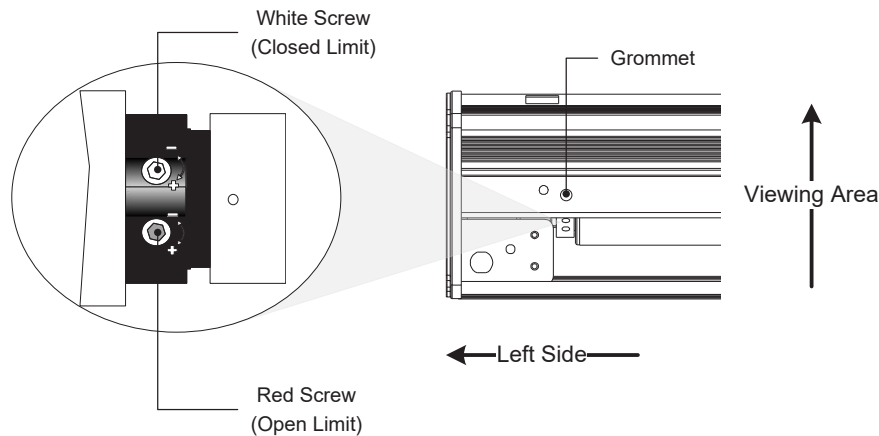
### 6.8.2. Contact Closure or RS232 Control

1. Run a Cat5e/6 cable from the control system processor location to the projection screen.
2. Cut the RJ12 cable and leave about 12" of cable attached to the connector.
3. Terminate conductors in the Cat5e/6 to the desired pins of the RJ12 connector as shown in the diagram above. Insulate the ends of the unused RJ12 conductors to prevent short circuits.
4. Terminate the same conductors to the appropriate wires on the RS232 port or contact/relay connection of the control system processor.

## 7. Screen Adjustments

### 7.1

**Before making any changes to the screen limit adjustment screws, read this section entirely.** Turning the wrong screw may cause the screen to bind under certain conditions, possibly resulting in permanent damage. Damage of this type is NOT covered under warranty.



#### 7.1.1. OPEN Limit Adjustments

The RED screw (away from the viewing area) adjusts how far down the screen moves for viewing an image and how much of the black material above the viewing area is seen when the screen is in use.

- Access the red screw by placing the adjustment tool into the housing through the screen opening, and bending it back toward the screw until it can be inserted.
- Turning the RED screw COUNTERCLOCKWISE will REDUCE the black space visible above the viewing area.
- Turning the RED screw CLOCKWISE will INCREASE the black space above the viewing area.
- Turning the screw two complete revolutions will change the amount of black material seen approximately 1 inch.

#### 7.1.2. CLOSED Limit Adjustments

The WHITE screw (toward the viewing area) adjusts how far down the bottom bar of the screen hangs when the screen is rolled up into the closed position.

**By default, the screen is set so the bottom bar will hang flush with the opening in the screen housing.**

**Adjust this setting only if the bottom of the screen must hang lower than the default setting when closed.** Changing this setting incorrectly may damage the screen and is NOT covered under warranty.

- Access the screw by placing the adjustment tool into the housing through the access hole after removing the white grommet in the bottom of the screen housing.
- Turning the white screw COUNTERCLOCKWISE will cause the bottom rail to sit LOWER when the screen is closed.
- Turning the white screw CLOCKWISE will cause the bottom rail to sit HIGHER when the screen is closed. **Do not turn the white screw clockwise unless the bar is already sitting too low after adjustment.**
- Turning the white screw two complete revolutions will change the amount of screen left hanging approximately 1 inch.

After setting is complete, check the full range of motion again using the manual switch so that the screen can be quickly stopped if there is any issue.

## 8. Using the Screen

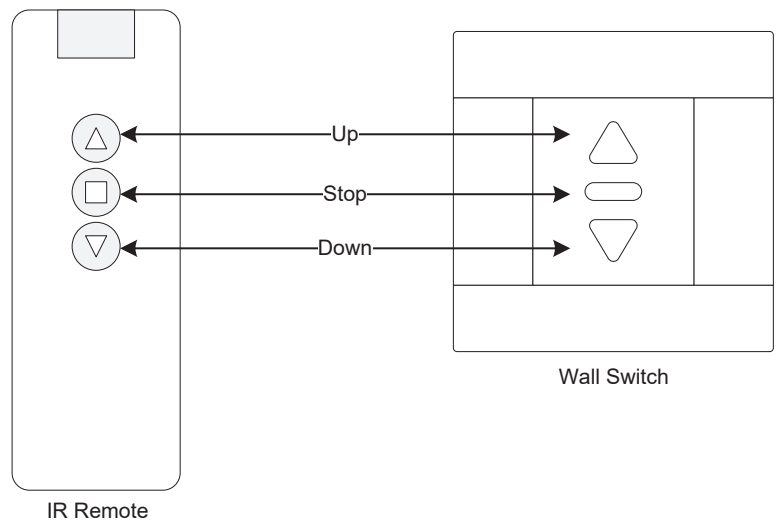
### 8.1. Automated Control

After installation, unless the manual switch or IR remote is being used for control, the projection screen should automatically open and close when the projector is turned on and off.

### 8.2. Manual Control

If the IR remote or the wall switch is used, operation is as follows:

- Press the Up button to close the screen after use.
- Press the stop (middle) button on the pad to stop the screen in its current position.
- Press the Down button on the pad to open the screen for use. It will automatically stop when the set "open "limit is reached.



**Warning!** If the screen is repeatedly reversed while in motion, it may stop moving and reacting to any control method. This is a safety feature that keeps the motor from overheating. If this occurs, stop testing for a moment and unplug the power cord. Wait about 5 minutes, and plug the screen back in. The motor will continue to function as normal.

## 9. Cleaning the Projection Screen

Dragonfly screens are designed to provide many years of trouble-free use. After the screen is installed and adjusted, no further maintenance is required for the operation of the screen, unless the viewing surface gets dirty. Follow these guidelines to clean any marks or residue from the viewing surface:

- Do not clean the screen case with water.
- Use a dry Microfiber cloth to clean dust and dirt from the housing and screen on regular occasions.

## 10. Troubleshooting

Dragonfly screens are designed to function trouble-free for years of enjoyment. Most problems occur due to simple issues. If you have trouble, check the installation while reviewing all instructions. Some of the most common issues and solutions are also listed below. If you continue to have trouble, please contact an authorized Dragonfly dealer, or Dragonfly support at [Info@dragonflyscreens.com](mailto:Info@dragonflyscreens.com) or (866)838-5052

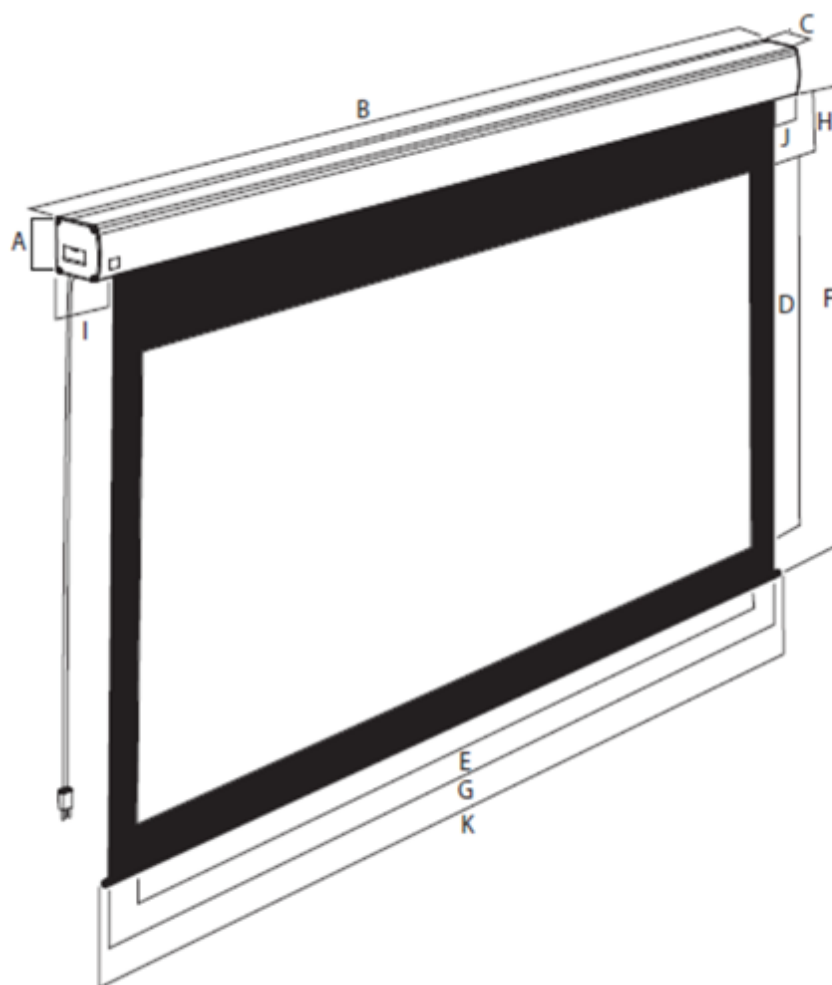
Issue	Solution
<b>Screen does not react to any form of control.</b>	<ul style="list-style-type: none"> <li>• If the screen is repeatedly reversed while in motion, it may stop moving and reacting to any control method. This is a safety feature that keeps the motor from overheating. If this occurs, stop testing for a moment and unplug the power cord. Wait about 5 minutes, and plug the screen back in.</li> <li>• Check the film screen power cable and receptacle. The receptacle may not be correctly wired, or may not be powered. Use a voltmeter to check for power and that polarity is correct.</li> <li>• Try disconnecting any control cables and using the manual control switch on the bottom left side of the screen housing. If this works, check the normal control method for operation for problems. Check the wiring and control codes being used, or consult with the controller manufacturer to confirm that all settings are correct. If this doesn't work, check power as indicated above.</li> </ul>
<b>Viewing surface is too high or too low.</b>	<ul style="list-style-type: none"> <li>• See Section 7. Screen Adjustments.</li> </ul>
<b>IR control does not work but other modes do.</b>	<ul style="list-style-type: none"> <li>• Change the batteries in the remote. (2x AAA alkaline)</li> <li>• Try using the remote at different ranges and angles. There may a lot of interference in the room, or the line of sight from the remote to the IR receiver is being obscured. The IR receiver extension cable may be necessary. See Section 6. Control Setup.</li> <li>• If using the extended IR receiver, check the connection and the wire leading into the connection port for damage, and make sure the plug is pushed in completely. Make sure the location of the remote receiver can "see" the commands sent by the remote from the normal area of use.</li> </ul>

## 11. Specifications

<b>Screen Material</b>	PET
<b>Frame Construction</b>	Aluminum Alloy
<b>Gain</b>	Ambient Light Rejecting (ALR) = .8
<b>Motor</b>	120V AC/.97A

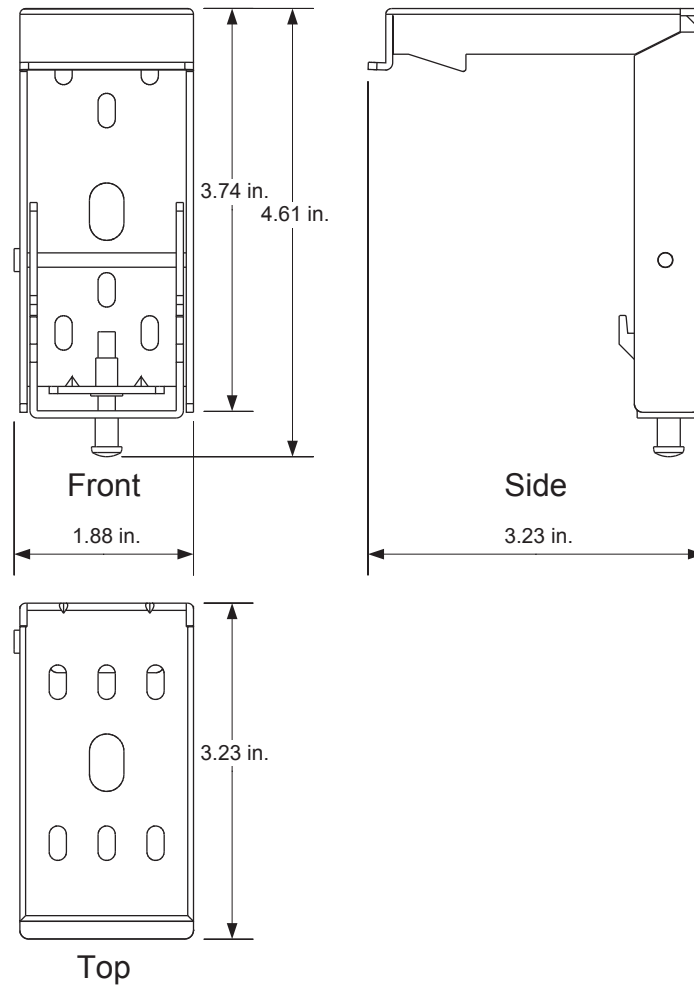
## 12. Dimensions

### 12.1. Screen and Housing



Model #	Size	Dimensions (inches)										
		Casing			Viewing				Top border	LEFT	Right	Bottom Bar
		A	B	C	D	E	F	G				
DFM-NTT-100-ALR	100"(16:9)	4.5	100.67	4.1	49.02	87.17	67.76	91.1	15.75	4.78	4.78	93.46
DFM-NTT-110-ALR	110"(16:9)	4.5	109.37	4.1	53.93	95.87	72.76	99.8	15.75	4.78	4.78	102.17
DFM-NTT-120-ALR	120"(16:9)	4.5	116.34	4.1	57.83	102.83	76.65	106.77	15.75	4.78	4.78	109.13

## 12.2 Mounting Brackets



## 13. Warranty



### **2 Year Limited Warranty**

Dragonfly Motorized and Tab-Tension Motorized Projection Screens have a 2-Year Limited Warranty. This warranty includes parts and labor repairs on all components found to be defective in material or workmanship under normal conditions of use. This warranty shall not apply to products which have been abused, modified or disassembled. Products to be repaired under this warranty must be returned to SnapAV or a designated service center with prior notification and an assigned return authorization number (RA).

## 14. Contacting Technical Support

Phone: (866) 838-5052

Email: [Techsupport@snapav.com](mailto:Techsupport@snapav.com)



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