

Prolift Advanced Control Box

4-STOP PROGRAMMING GUIDE



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Introduction

This guide will allow you to program the show and service positions of your projector lift. To program the projector lift, you will need to know:

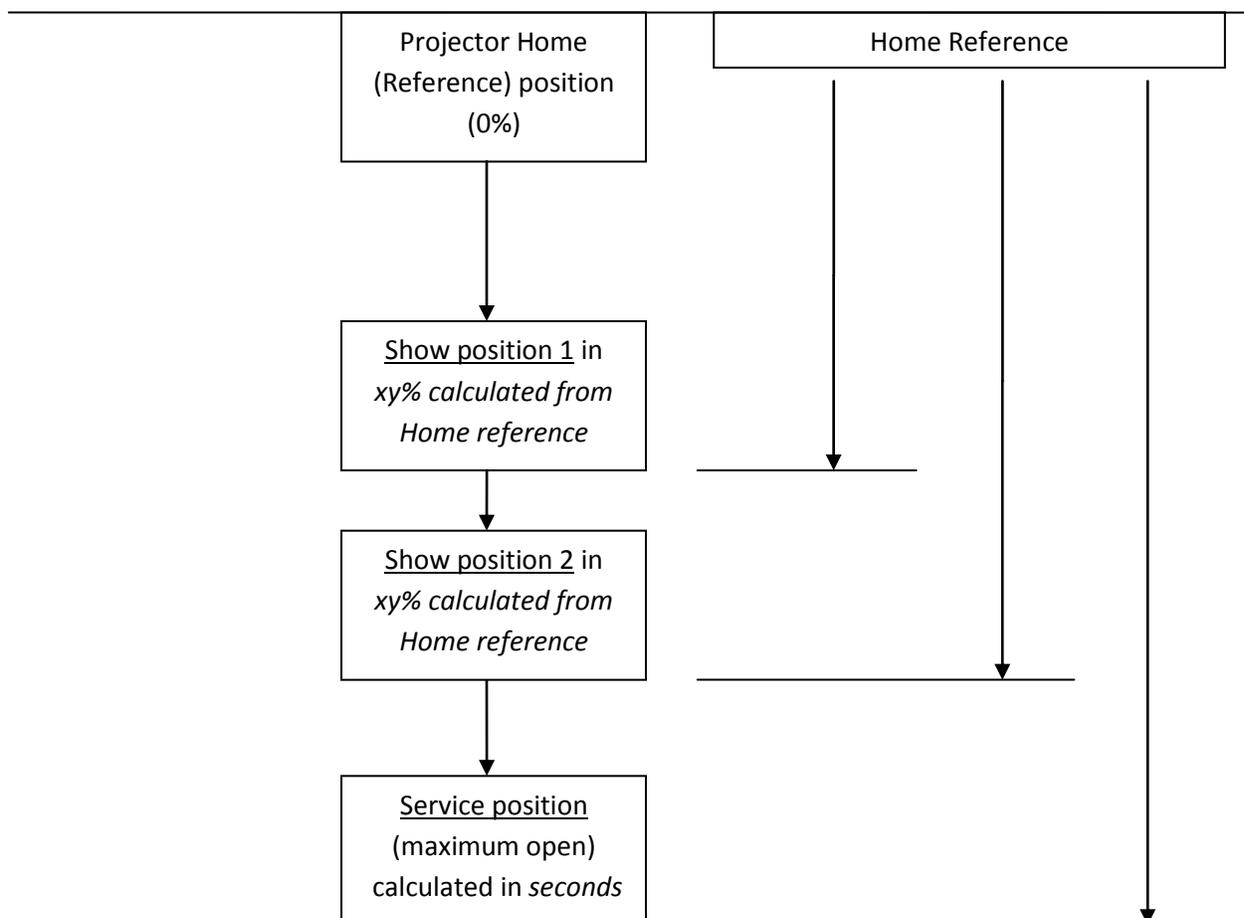
1. **Show position 1**
2. **Show position 2**
3. **The Service position** *or fully lowered position*

The following information is needed to calculate the rate at which the lift lowers (e.g. mm/sec). If the information below is absent, the rate can be calculated by timing the projector travel from the home position to the service position (fully lowered)

4. **Motor tube diameter**
5. **Motor rpm or turns/min**

A few calculations will enable you to calculate the two **Show positions** as a percentage of the total drop. It will also let you work out the equivalent time (in seconds) for the lift to get to the **Service position** (ie. Fully lowered). See illustration below.

Note: Since 2 drop motors run in series, travel times are divided by 2.



Programming Process

I. Key Information – provided as an example only – you need to determine values for each for your lift:

Motor tube diameter : **63.5** mm
 Motor rpm : **12** turns/minute
Show position 1 : **3895** mm from home/closed position (measured from bottom of the projector lift frame)
Show position 2 : **7195** mm from home/closed position (measured from bottom of the projector lift frame)
Service position : **8000** mm from home/closed position (measured from bottom of the projector lift frame)
 The Service position (*fully lowered*) is not programmed here. It is adjusted using the tubular motor internal limit switch. Please refer to the “Wiring-Adjusting Motor Limits” section of the Prolift Product Manual.

II. Calculations (note: Since 2 drop motors are connected in series, total travel time is divided by 2):

- Motor tube circumference = $\pi \times D = 3.14159 \times 63.5 = 199.49$ mm
- Rate of turn(sec) = rpm x result(1)/60 = 12 turns/min x 199.49 mm/turn divided by 60 sec = **39.90** mm/sec
- Show position 1 travel time (sec) = Show position 1/result(2)/2 motors = 3895 mm/**39.90/2** = 48.81 seconds
- Show position 2 travel time (sec) = Show position 2/result(2)/2 motors = 7195 mm/**39.90/2** = 90.16 seconds
- Maximum travel time (sec) = Service position/rate of turn/2 motors = 8000 mm/**39.9/2** = 100.25 or **100** seconds
- Show position 1 travel time, in %, away from reference = result(3)/result(5) = 48.81/**100** x 100 = 48.81 or **49** %
- Show position 2 travel time, in %, away from reference = result(4)/result(5) = 90.16/**100** x 100 = 90.16 or **90** %

III. Programming steps (see IV. Programming instructions using the 24-channel Programming IR/RF Remote Transmitter):

- On the programming line 7 below, enter the calculation result of number 5 above, i.e. **100**.
- On the programming line 8 below, enter the calculation result of number 6 above, i.e. **49**.
- On the programming line 12 below, enter the calculation result of number 7 above, i.e. **90**.
- Fine tune using steps 14 thru 17 below to adjust to desired viewing height.

	Command	Description
1	Stop+O7+C7>Open ALL (press & hold for >5 sec.)>Stop	Clears and restores all memory to factory default
2	Stop+O7+C7>O1>C1>O3>Stop	Assign the main channel to Channel 3 of remote transmitter(see Figure 2)
3	Stop +O7+C7>O3>C2>O1>Stop	Assign <u>Show Position 1</u> to Channel 1 of remote transmitter (see figure 2)
4	Stop +O7+C7>O3>C3>O2>Stop	Assign <u>Show Position 2</u> to Channel 2 of remote transmitter (see figure 2)
5	Stop +O7+C7>O3>C10>O2>Stop	Enable memory A & B to Channel 1 of remote transmitter (see figure 2)
6	Stop +O7+C7>O3>C10>O11>Stop	Change reference for travel time to bottom (or close position) limit
7	Stop +O7+C7>O3>C10>O13>O1>O10>O10>Stop	Set maximum travel time (001 to 299 sec). press Open 10 for zero
8	Stop +O7+C7>O3>C11>O4>O9>Stop	Set travel time of memory A (open button) to xy% away from reference
9	Stop +O7+C7>O3>C12>O10>O10>Stop	Set travel time of memory B (close button) to 0% away from reference
10	Stop +O7+C7>O3>C10>O8>Stop	Enable memory positions A & B on manual/dry contact input (see figure 1)
11	Stop +O7+C7>O3>C15>O3>Stop	Enable memory C & D to Channel 2 of remote transmitter (see figure 2)
12	Stop +O7+C7>O3>C16>O9>O10>Stop	Set travel time of memory C (open button) to xy% away from the reference
13	Stop +O7+C7>O3>C17>O10>O10>Stop	Set travel time of memory D (close button) to 0% away from reference
14	Stop +O7+C7>O3>C11>O11*>Stop	Nudge position of memory A 1/40 th second away from the reference
15	Stop +O7+C7>O3>C11>O12*>Stop	Nudge position of memory A 1/40 th second towards the reference
16	Stop +O7+C7>O3>C16>O11*>Stop	Nudge position of memory C 1/40 th second away from the reference
17	Stop +O7+C7>O3>C16>O12*>Stop	Nudge position of memory C 1/40 th second towards the reference

Note: * Press Open 11 or Open 12 as many times as desired before pressing STOP

IV. Programming instructions using the 24-channel Programming IR/RF Remote Transmitter:

1. Before we get started, the legend of the characters used are as follows:
 - a. **O** = Open
 - b. **C** = Close
 - c. **+** = Press and hold simultaneously
 - d. **>** = Indication to proceed to the next button to press
 - e. **#** = The channel to be programmed (1 to 60 channels)
2. The “**STOP+O7+C7>**” is a series of commands pressed on the 24-channel IR/RF remote transmitter as a first step to enter into programming mode (see figure 3). To execute this, press and hold the **STOP** button first, then press **OPEN7** and **CLOSE 7** simultaneously. You should see the front LED on the 24-channel programming transmitter blinking following this (indicating waiting for the next command). If not blinking, press **STOP** button and start again.
3. The “**STOP+O7+C7>O#**” represents the path of the channel to be programmed. By default, # is channel 1. If the sequence is performed correctly, you should see the red Program mode LED on the RP60ABMH motor controller come on (see figure 1).
4. The succeeding series of commands following the above sequence “**STOP+O7+C7>O#**” represents the various programming instructions, e.g. “**STOP+O7+C7>O1>C1>O3>STOP**” which means reassign or move the main programming channel from Channel 1 to Channel 3 of your remote transmitter. As the sequence is carried out, the red LED on the motor controller will come on after the **OPEN1 (O1)**, blinks one time after pressing **OPEN3 (O3)** and will go out after the **STOP (STOP)** button is pressed. Be sure to press **STOP** button every time to complete a programming line.
5. Writing program using the 24-channel Programming IR/RF remote transmitter (see figure 3):
 - a. During programming, ensure that the transmitter is aimed at the IR eye of the motor controller.
 - b. To access buttons/channel from 13 up to 24, press **SHIFT** button first, then press the desired button/channel (e.g. **SHIFT>OPEN1/13>SHIFT** which really means **OPEN13** on the transmitter). As **SHIFT** button is pressed, the red front LED on the transmitter will come on to indicate the transmitter buttons are now shifted to the channel 13 to 24 set. After pressing desired button or channel, ensure that the **SHIFT** button is pressed **AGAIN** (the red front LED light should go out to indicate button assignment is shifted back to the default channel 1 to 12 set) before proceeding to next step.
6. To modify the desired positions (viewing or service height), there is no need to re-write the whole program. Just execute any desired program line below after recalculating values following formulas on **II. Calculations above**:

	Command	Description
7	Stop +O7+C7>O3>C10>O13>Ox>Oy>Oz>Stop	Set maximum travel time (001 to 299 sec). press Open 10 for zero
8	Stop +O7+C7>O3>C11>Ox>Oy>Stop	Set travel time of memory A (open button) to xy% away from reference
12	Stop +O7+C7>O3>C16>Ox>Oy>Stop	Set travel time of memory C (open button) to xy% away from the reference
14	Stop +O7+C7>O3>C11>O11*>Stop	Nudge position of memory A 1/40 th second away from the reference
15	Stop +O7+C7>O3>C11>O12*>Stop	Nudge position of memory A 1/40 th second towards the reference
16	Stop +O7+C7>O3>C16>O11*>Stop	Nudge position of memory C 1/40 th second away from the reference
17	Stop +O7+C7>O3>C16>O12*>Stop	Nudge position of memory C 1/40 th second towards the reference

Note: * Press **O11** or **O12** as many times as desired before pressing **STOP**

7. Memory A & B positions take precedence on the dry contact input of motor controller. This means only the View height 1 is available on dry contact input. However, all four memories A, B, C, & D are available on the remote transmitter.

Reference figures

Figure 1: The RP60ABMH Motor Controller/IR receiver

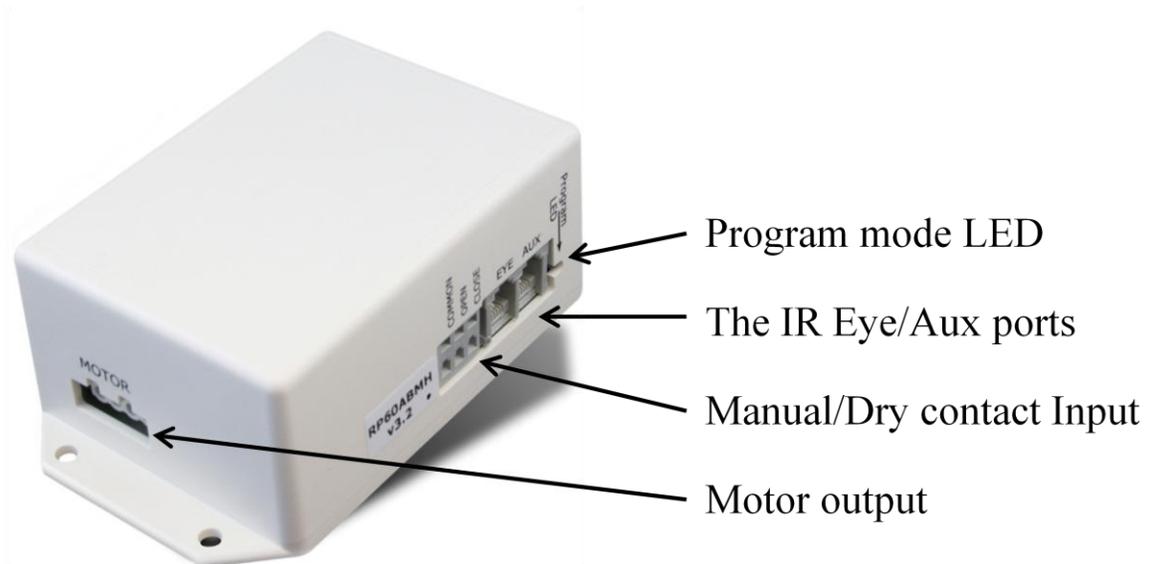


Figure 2: The 5-channel Remote IR transmitter

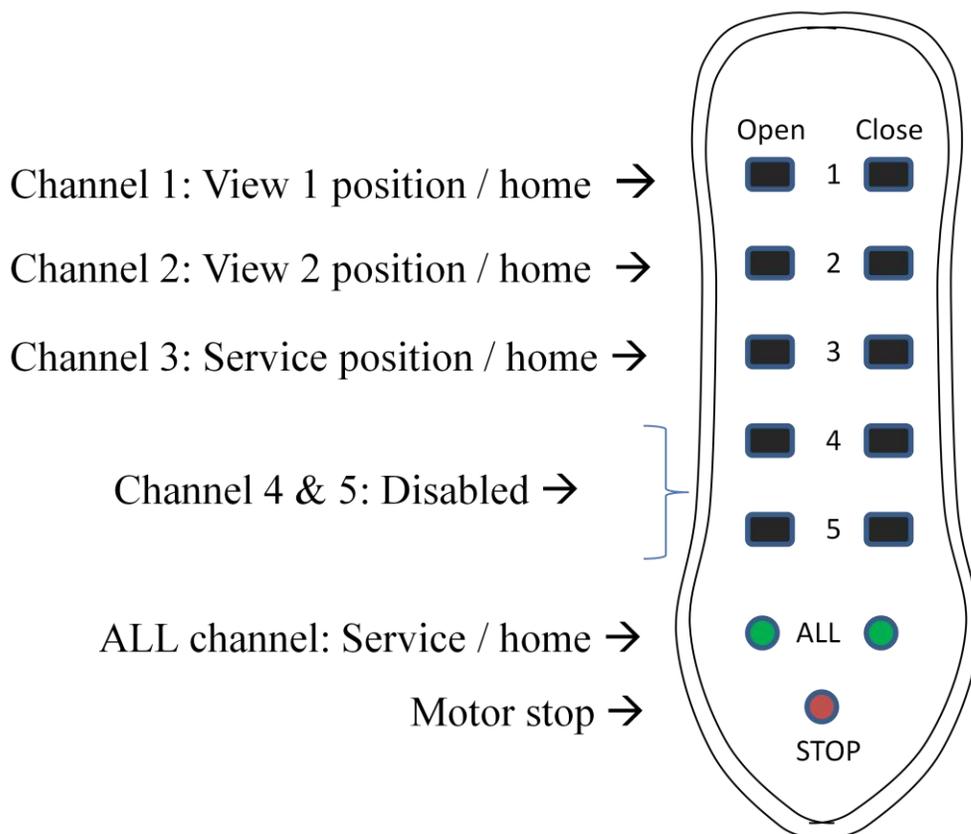
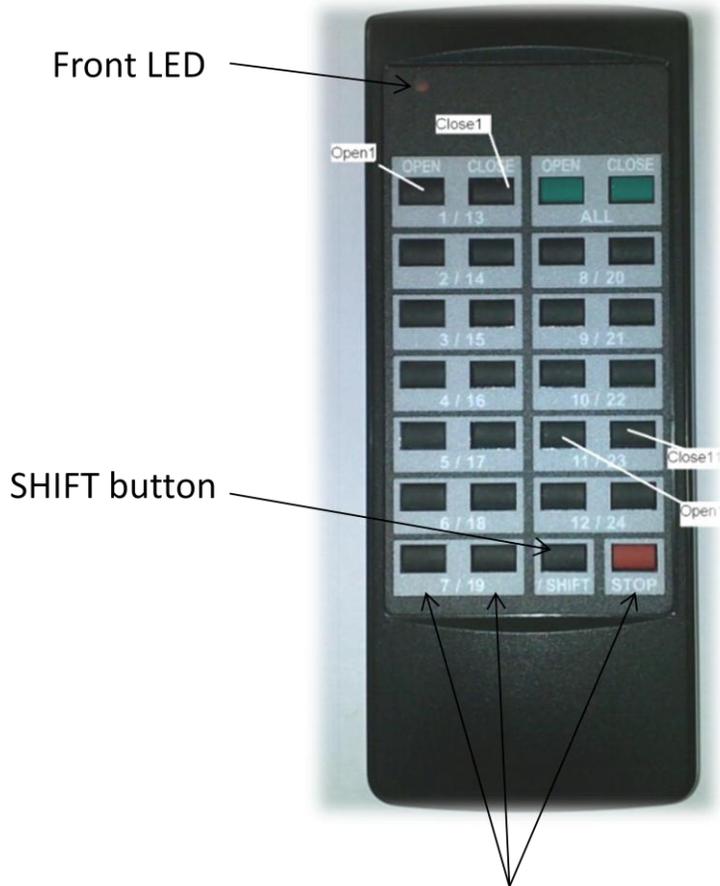


Figure 3: The 24-channel Programming Remote IR/RF transmitter



The "STOP+O7+C7" command

To execute this, press and hold the **STOP** button first, then press **OPEN7** and **CLOSE 7** simultaneously. You should see the front LED on the transmitter blinking following this (indicating waiting for the next command). If not blinking, press **STOP** button and start again.