

General Commands for Lumen200Pro.

Identify which Filter Wheel port the Shutter and Filter Wheel are connected to using the “?” command described below.

Command	Arguments	Response (All end with <cr>)	Description
\$	a	decimal number	<p>Reports status as a decimal number and gives motion status of the Filter Wheel or Shutter of the Lumen Attached to the controller.</p> <p>After binary conversion convention is as follows:-</p> <pre>F2 F1 A Z Y X D05 D04 D03 D02 D01 D00</pre> <p>Parameters “\$,a” where a is the axis or resource</p> <ul style="list-style-type: none"> F - Filter wheels F1 - Filter wheel 1 F2 - Filter wheel 2 <p>When the optional parameter is used the binary word is just for the axis requested. F is for filters (both Filter Wheel and Shutter) and would return 0 to 3 depending on if they are in use.</p>
?	None	Text string	<p>Reports information about the peripherals currently connected to the controller. The information end is always a line saying END This allows for the addition of extra fields of information without effecting application software. Users should always read lines in until the END is seen.</p> <p>A typical response is shown below</p> <pre>OPTISCAN INFORMATION DRIVE CHIPS 11111 JOYSTICK ACTIVE STAGE = NONE FOCUS = NONE FILTER_1 = LLG_SHUTTER FILTER_2 = LLG_FILTER SHUTTERS = 000 END</pre>

The filter wheel installed in the Lumen Pro accepts the following commands.

Command	Arguments	Response (All end with <cr>)	Description
7	w, f	if f = F the current filter else R If no wheel is fitted E,17 will be returned.	If f is a number move filter wheel w to filter position f. if f is a 'N' move filter wheel w to next filter. If f is a 'P' move filter wheel w to previous filter. If f is a 'F' report current filter on filter wheel w. if f is a 'H' performs a home routine. If f is 'A' wheel will auto home on controller startup If f is 'D' wheel will NOT auto home on startup (default)
FILTER	w	Text string	Prints information about filter wheel w. The information end is always a line saying END This allows for the addition of extra fields of information without effecting application software. Users should always read lines in until the END is seen to keep in order to maintain compatibility. Example FILTER_1 = LLG_FILTER TYPE = 3 PULSES PER REV = 262500 FILTERS PER WHEEL = 6 OFFSET = 223500 HOME AT STARTUP = FALSE END
FPW	w	n	Reports the number n of filters on wheel 'w'.
SAF	w	a	Report the current filter wheel w acceleration setting.
SAF	w, a	0	Sets the current filter wheel w, acceleration to a. Range is 4 to 100
SMF	w	m	Report the current filter wheel w maximum speed setting m
SMF	w, m	0	Sets the current filter wheel w maximum speed to m. Range is 1 to 100

Lumen 200Pro Standard Shutter Commands.

The Lumen 200Pro Shutter accepts the standard commands for a Filter Wheel, Position 1-10 provide a standard range of light output from 0-100%.

Command	Arguments	Response (All end with <cr>)	Description
7	w, f	if f = F the current filter else R If no wheel is fitted E,17 will be returned.	If f is a number move filter wheel w to filter position f. if f is a 'N' move filter wheel w to next filter. If f is a 'P' move filter wheel w to previous filter. If f is a 'F' report current filter on filter wheel w. if f is a 'H' performs a home routine. If f is 'A' wheel will auto home on controller startup If f is 'D' wheel will NOT auto home on startup (default)
FILTER	w	Text string	Prints information about filter wheel w. The information end is always a line saying END This allows for the addition of extra fields of information without effecting application software. Users should always read lines in until the END is seen to keep in order to maintain compatibility. Example FILTER_1 = LLG_SHUTTER TYPE = 3 PULSES PER REV = 262500 FILTERS PER WHEEL = 10 OFFSET = 223500 HOME AT STARTUP = FALSE END
FPW	w	n	Reports the number n of filters on wheel 'w'.
SAF	w	a	Report the current filter wheel w acceleration setting.
SAF	w, a	0	Sets the current filter wheel w, acceleration to a. Range is 4 to 100

SMF	w	m	Report the current filter wheel w maximum speed setting m
SMF	w, m	0	Sets the current filter wheel w maximum speed to m. Range is 1 to 100
Command	Arguments	Response (All end with <cr>)	Description

The following are a list of commands specific to the Lumen 200Pro.

Command	Arguments	Response (All end with <cr>)	Description																						
LIGHT		a	Reports a the output of light from the shutter in %. The command automatically locates LGG_SHUTTER. (Liquid Light Guide Shutter). Error 20 reported if no shutter detected.																						
LIGHT	n	0	Sets the output from the shutter to n, where n can be set between 1-100%. The command automatically locates LGG_SHUTTER. (Liquid Light Guide Shutter). If n is "h" the shutter will perform a home routine.																						
LIGHT	P,n	0	Sets the filter wheel position P to n % light output. i.e., LIGHT,4,45 Sets position 4 to 45% light output. Use 7,n,4 to move filter to position 4, where n is the Filter Wheel port which the shutter is attached. STANDARD 10 Position Shutter settings are: <table border="0"> <thead> <tr> <th>Position</th> <th>% Light output</th> </tr> </thead> <tbody> <tr><td>1</td><td>0</td></tr> <tr><td>2</td><td>11</td></tr> <tr><td>3</td><td>22</td></tr> <tr><td>4</td><td>33</td></tr> <tr><td>5</td><td>44</td></tr> <tr><td>6</td><td>55</td></tr> <tr><td>7</td><td>66</td></tr> <tr><td>8</td><td>77</td></tr> <tr><td>9</td><td>88</td></tr> <tr><td>10</td><td>100</td></tr> </tbody> </table>	Position	% Light output	1	0	2	11	3	22	4	33	5	44	6	55	7	66	8	77	9	88	10	100
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6	55																								
7	66																								
8	77																								
9	88																								
10	100																								
LIGHT	P, ?	n	Reports n, the %output of position p.																						