

## BPI® Digital 4- and 5 Stroke Gradient Systems

For use only by qualified  
personnel in a  
laboratory environment.

Due to high operating  
temperature, access  
should be restricted.

### Specifications

The BPI® Digital 4-Stroke and 5-Stroke Gradient Systems give automatic timer control of gradient lenses. Setting the timer starts the process of dipping lenses into the dye bath. Motion continues with dips of varying depths while the timer is running. When time expires, the cycle continues until the highest point in the cycle is reached (lenses out of the bath). The 5-Stroke Gradient System also does solid tints under timer control. When operating in the 5-Stroke mode, it lowers lenses into the dye bath, pauses while the timer is running, and automatically removes lenses when the set time expires.

The gradient is for indoor use at altitudes below 2000 meters in a maximum ambient temperature of 40°C. The maximum relative humidity near the gradient should be 92%. Power supply mains fluctuations should be no more than ±10%. The gradient is in installation category II with pollution degree (2). If the equipment is used in a manner not specified in this manual, the protection provided by the equipment may be impaired.

BPI® Digital 4 Stroke Gradient™: (120v. 60Hz)

BPI® Digital 5 Stroke Gradient™: (120v. 60Hz)

### Unpacking

When unpacking your gradient system, please check to ensure that no concealed damage occurred in transit. If such is noted, save the shipping carton and immediately notify the shipping company's damage control inspector in your area so a claim may be processed. Failure to do this may void any future claim and replacement. Also, call BPI® Customer Service so arrangements for a replacement may be made.

### Setting up

Fit the 12" stand (pole) into the gradient opening on the top of the unit. A mounting flange is provided in cases where there is no gradient opening on the dye system (most BPI® systems of recent manufacture have a gradient opening). Use the flange to mount the gradient either directly onto the work counter or onto a piece of plywood or similar material which can then be slid underneath the dye system. The weight of the dye system will hold the gradient in place. It is important in all cases that the dye system be LEVEL.

Bolt one arm of the scissors to the top of the pole; fasten the other arm to the underside of the gradient head. Notice as you look at the front of the gradient unit, that there is a slot in the face of it. The ¼" rod is to be screwed into this slot. Slide the L-rod through the swivel which is attached to the ¼" aluminum rod. The bottom of the L-rod forms a right angle to hold the Lens Holder II in place. The thumbscrew tightens the swivel to secure the L-rod. Be careful not to over-tighten or you may strip the threads of the swivel.

Adjust the "L" rod which holds the lens holder until it is in the vertical position and swinging freely. Then plug the gradient into a standard 115 volt - 60Hz outlet or into the receptacle at the back of your BPI lens coloring system.

On the 5-Stroke unit, set the switch to the gradient position. For both the 4 and 5-Stroke units, set the timer for 1 minute and move the switch from "OFF" to "Start Cycle": The gradient will go through its cycle and turn off after the minute has elapsed at the end of the 4th 'Step'. This is a test of the turn-off limit switch.

BPI® Digital  
4- and 5  
Stroke Gradient™  
Systems

### Using The Gradient

The 4-Stroke System and the 5-Stroke in the gradient mode (switch in the upper position) start moving when the timer switch is moved from the "OFF" position (where all the power is removed from the gradient and the arm immediately stops) to the "Start Cycle" position. Set the timer for approximately 8 minutes for the dark colors and about 3 minutes for light gradient tints. These times are only suggestions and the user will quickly develop his (her) own time selections. Minutes are programmed using the left two counters, press the "+" button below the number to raise it or the "-" button above it to lower it. The right two counters are for seconds, the middle (Red) buttons change the timing function, "M" counts down from your preset value of minutes and seconds, while "H" counts up to it. Periods in hours can be timed in the "H" position.

The 5-Stroke System in the solid mode (switch in the lower position) also starts moving when the timer cycle is started. Motion continues until the lowest point of the cycle is reached, pauses (with the lenses in the dye) while the timer is running, and finally returns to the top position (removes the lenses from the dye) when the timer reaches zero. Different times can be programmed in (even while the unit is running) but won't take effect until a cycle is started or restarted.

The gradient is supplied with a Lens Holder II™, which has a top that slides onto the "L" rod. Mount the lenses upside down taking care to align the gradient axis with the horizontal axis of the lenses. Lenses that are cut and edged are preferable to those which are not; however, better results may be obtained with complex shapes if they are gradient tinted before they are edged to aid in the alignment of the two axes. Adjust the starting position of the lens holder so that the bottom edge of the lens is about ¼" above the surface of the dye.

The lens gradation should extend from the top of the lens to about the middle of the lens. Overall height adjustment is made by moving the "L" rod up or down. This adjustment should be made on the first cycle into the dye, and then secured by the thumbscrews. The amount of vertical movement depends on the position of the "L" rod on the ¼" aluminum rod. The further out on the aluminum rod the "L" rod is positioned, the greater the vertical distance (or dip) traveled and the more subtle the gradient. Due to evaporation, the dye level will change somewhat from one operation to another, so it will probably be necessary to make occasional adjustments in the starting height of the arm. It is advisable to add water to the dye from time to time to bring the level back up to a convenient height for the gradient.

### A Few Tips

For single gradients, a more pleasing cosmetic appearance and reduction in edge glare may be obtained by a quick total immersion of the lenses in the dye solution for a few seconds.

If lines of demarcation are noted, decrease the temperature. If surface residue of dye remains on the lens, cold Neutralizer II will effectively remove it. Readjusting the "L" rod about 5 mm about half way through the coloring operation will provide a more subtle gradient. For more information on the art of coloring lenses, refer to the BPI® booklet entitled 'The Practical Guide to Lens Tinting'.

- This gradient should be cleaned with a damp cloth.

### Questions?..

If you have any questions about the use of your gradient system or any other BPI® product, or would like to order supplies, please give us a toll-free call using the number for your area.

HEIGHT	WIDTH	LENGTH	VOLTAGE	WEIGHT	FUSE	AMPERAGE
7 in. (18 in on pole)	6 in.	6 in.	120v. 60 Hz.	7 lbs	1 amp/250v.	0.7 amp
17.78 cm (45.7cm on pole)	15.24 cm	15.24 cm		3.175 kg		
THE SET-UP KIT INCLUDES THE FOLLOWING PRODUCTS:						
<ul style="list-style-type: none"> <li>• One nylon swivel</li> <li>• Two thumbscrews</li> <li>• One ¼ inch rod</li> </ul>		<ul style="list-style-type: none"> <li>• One BPI® Lens Holder II™</li> <li>• One L-rod</li> <li>• One gradient tip</li> </ul>		<ul style="list-style-type: none"> <li>• One scissor arm and bolts</li> <li>• Gradient pole. With or without flange</li> <li>• Instruction manual</li> </ul>		