

 **Assembly instructions**

***X-SERIES***

**Exposure Units**

**RXP (optional lid) & X-Vector Vacuum**



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**Set-Up & Preparation: UV Exposure Unit:** First, have a light safe room. Light safe, must be an area sealed from UV rays. Place the unit on a flat surface and plugged in. Separate the unit from the wash out area, with space or a shower curtain to prevent over spray in a tight space.

**Step 1. Prep For Exposure:** Always clean the glass prior to exposing a screen. For lidless units, make sure the foam, that came with the unit, is cut to fit the inside of your frames, trim if needed.

**RXP without lid:** Cut a board to the size of the foam and place on top of the foam. Weigh down evenly with four gallon containers (50-60 pounds). Set a timer and expose.

**X-VECTOR:** Connect the vacuum hose to nipple on blanket and tighten clamps. There are eight exposure bulbs and two yellow safe lights (place on the far end of the unit), test bulbs before installing glass. For possibly dirty, reclaimed frames, use muslin cloth to protect the vacuum blanket. Place the rope into the frame along the edge. This allows the vacuum to pull all the air out, for full film to screen contact.

**Step 2. Film:** The image on the film must be 100 percent opaque (no light shines through positive area). Hold your films up to the light; there shouldn't be any light seen through the image (black) area. If light comes through, print another copy and stack them together or go over the films with a film opaque pen. With laser printers, apply toner aid to enhance the darkness of the toner on the film.

**Step 3. Exposure Time:** Unfiltered black light (HUV) exposure tables expose coated screens by wavelength and strength of UV light. If you're not using one of these light sources, check the step-wedge instructions. After exposing the image on the screen will be viable prior to washing out. It's recommend to use a dual cure emulsion with these units. After taping the screen artwork, clean the glass and place the screen on the units.

**RXP without lid:** Place foam pad inside screen frame. Set board on top of pad and add minimum 40 pounds weight to top. This creates positive contact between screen, film and glass. Turn unit on. When finished exposing, the unit will turn itself off. Take the positive off, remove any tape and store accordingly. Wash out screen according to instructions provided.

**X-VECTOR:** Place one end of the rope along the inside of the frame. Check the blanket for tears (cause suction loss). Close and lock the lid, and turn on the vacuum switch. After all the air has been removed and the timer has been set, turn on the exposure switch.

**Note:** The switch activates the exposure then resets for the next exposure, to interrupt the exposure you will need to unplug the unit. When the timer expires, turn off the vacuum, unlock the lid and remove screen from the unit.

**Step 4. Wash Out (use a light safe area):** Gently wet both sides of the screen, and let sit for 30 seconds. Now spray the shirt side forcefully until image start to clear. Rinse both sides with a gentle spray until no soft / slimy emulsion is left. Lay the screen down as if you were printing, lay a single sheet of newspaper inside and BLOT excess water with newsprint quickly. DO not rub the inside as it is still soft. If the newspaper sticks, simply wet again to remove, then repeat the process.

**Step 5. Pin Holes, Block-Out & Touch-Up:** While the screen is still slightly damp but not soaking you can apply blockout with a plastic applicator to the shirt side. Apply thin to seal the screen edges and possible pinholes, let dry completely before post hardening (re-exposing for strength).



**Option 1:** Use Red Coat Block out to cover the pin hole or areas needed. Let dry for about 15 minutes or until completely dry to the touch. This is also an option on press when breakdown occurs. Option 1 is preferred.

**Option 2:** Use a block out pen to cover the pin hole or areas needed. Let dry for about 15 minutes or until completely dry to the touch. This is also an option on press when breakdown occurs.

**Option 3:** Use scotch tape or screen tape, to block out pin holes on the shirt side of the screen, tape will pick up ink stains after wiping and transfer;

**Step 6. Screen Taping:** Apply solvent resistant tape on the outside and inside edges of the screen. This will block ink from getting stuck in the corners of the screen or passing through to the substrate accidentally.

## Troubleshooting: Screen Exposure Variables

### Mesh

1. Mesh tension: Too low or too high. Higher tensioned screens will expose faster.
2. Mesh count / color: Higher mesh counts will expose slower. Dyed mesh will have a bit longer exposure than a white mesh. Approximately 15-20 percent more.

### Coating

1. Scoop coater size ratio to open mesh area: If the coaters edges are too close to the frame they will be held up on the mesh due to the tension of the mesh as it approaches the frame. This results with more emulsion deposited in the center of the screen from tension sagging.
2. Exact coating thickness: Multiple coats will increase the exposure time. The more layers of emulsion, the longer it will have to expose for.
3. Scoop coater: The two sides deposit different amounts of emulsion per stroke. The more rounded side will deposit more emulsion per pass requiring a longer exposure time.
4. Speed of stroke: A slower stroke will deposit more emulsion.

### Emulsion

1. Sensitize: Pre-sensitized emulsions expose faster than diazo emulsion.
2. Solids content: Higher solid content emulsions penetrate screen mesh better and give edge definition.
3. Age: Expired emulsions have erratic results, always check expiration before use. Pre-sensitized emulsions generally have a one year shelf life. Diazo emulsions have a 4-6 week window of use after mixing.
4. Moisture in emulsion layer: Humidity is key, using a dehumidifier is best practice. The humidity level should be between 30-40 percent. Emulsions that aren't completely dry can bubble and peel away from the screen in the wash out. It's recommended, to dry screens in a humidity controlled area for 6 hours (minimum) prior to exposing.

### Exposure unit

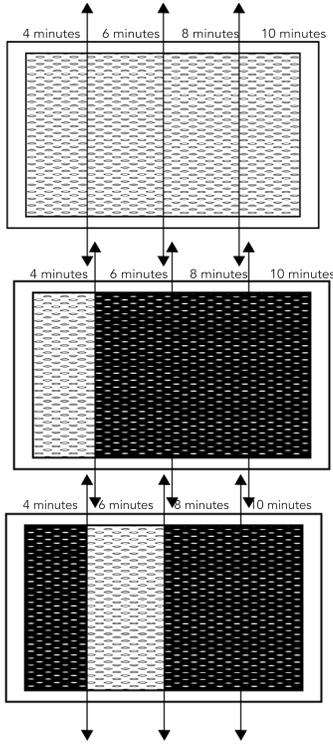
1. Bulb type: Exposure times vary whether you are using a 500W bulb up to a metal halide unit.
2. Bulb age: Over time and have less UV output. Exposure times lengthen with bulb age.
3. Lamp distance to stencil: The closer the screen is to the bulbs, the faster the exposure will be.

### Not all of the image washes out

1. Over exposed: Check the film for opacity. If they aren't opaque enough light will pass through, reduce the exposure time. Use an exposure calculator or step wedge test to determine the correct time.
2. If you are using an open face exposure unit make sure you are using the correct amount of weight, evenly distributed over the image. Uneven pressure causes a poor and uneven exposed screen.

## Too much of the image washes out

1. The screen is under exposed, increase the time. Use a step wedge test or exposure calculator to determine correct time. Plus, check the bulbs, they will weaken over time and will need replaced.
2. Ensure you are using the correct mesh count for the amount of detail required. If your image has halftones choose your screen count by multiplying the halftone line count (LPI) by 5. *Example: 35 LPI x 5 = 175 mesh 45 LPI x 5 = 225 mesh 55 LPI x 5 = 275 mesh.*



**Step-Wedge Test – Used to determine exposure times:** If you're unsure of an exposure time perform a "Step-Wedge" test, by dividing the screen into four sections and marking each with a specific exposure time, then increasing in increments of two minutes per section.

Mark the screen and at the top of each section write 4 minutes, 6, 8 and 10. Produce a piece of art with type, shapes and even some halftones and place it in the 4 minute section, cover the remaining three sections with the black sheet; expose for 4 minutes.

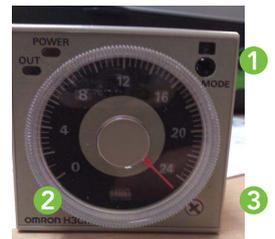
After the first exposure, move your art and sheet to the next section, covering the 4 minute section with a light safe sheet as well. Expose only this section for 6 minutes and follow this procedure until ALL four sections have been exposed at the times indicated. Wash out the screen as normal.

**IMPORTANT:** Always wash out from the SHIRT side of the screen. To determine the best exposure, look for: edge definition and degrees of unexposed emulsion. Properly exposed screen will have less slime. After you have found your time, washed, dried and blocked out your screen and are ready to tape. Post-harden your screen for strength and longevity by exposing for another 10 - 15 minutes or placed in sun light for 5 minutes.

## Timer Settings & Differences:

These are the controls underneath the cover of the timer.

1. Mode: This should always be set to E.
2. Left control: Changes the time increments. Options for: 0-24; 0-60; 0-2.4; 0-6.
3. Right control: Changes from minutes to seconds.



## Digital Upgrade Timer Instructions:

These are the controls underneath the cover of the timer.

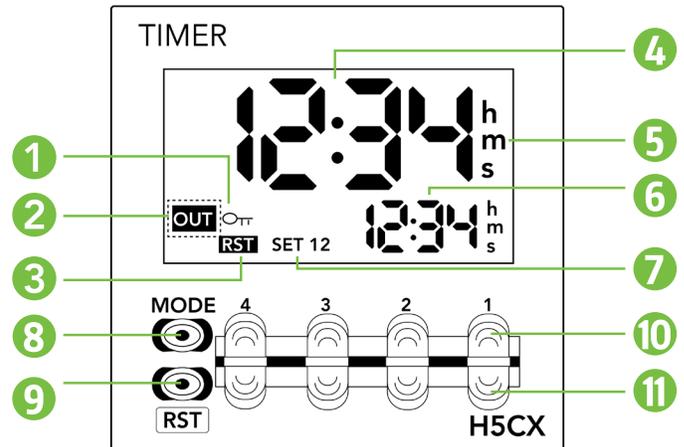
1. Mode.
2. RST.
3. Left control: Changes the time increments. Options for: 0-24; 0-60; 0-2.4; 0-6.
4. Right control: Changes from minutes to seconds.



## Timer Operation Key:

**Note:** The time is set-up from manufacturing and it isn't recommended to change the standard settings.

1. Key protect: Orange.
2. Control output: Orange.
3. Reset: Orange.
4. Present value: Main display. Character height, 12 mm, red. This mode can be switched between red, green and orange.
5. Time: If the timer range is 0 minute, 0.0 minute, 0 hour, 0.0 hour or 0 hour 0 minute, they will flash to indicate timing operation.
6. Set value: Sub-display, character height: 6 mm, green. Character height 6 mm, green.
7. Set value: 1, 2 indicator
8. Mode key: Change modes and settings items.
9. Reset key: Resets present value and output.
10. Up keys 1 to 4.
11. Down keys 1 to 4



**Vacuum Exposure Units:** To the left of the timer are three switches, the first is to activate the exposure time, the second is for the yellow inspection lights. The third and final switch is for the vacuum pump.

**Example:** 4,3,2,1 are for minutes and seconds. Four and 3 are for the minutes, so to get twelve minutes you would press the 4 up once, and the 3 up twice. For 12:45s, you would press up on the number 4 once, press up on the 3 twice, press up on the 2 four times and press up on the 1 five times.

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## Ryonet Corporation 3-year Electrical Limited Warranty

### What is covered?

The Ryonet Corporation warrants any Ryonet Branded electronic equipment to be free from defects in materials and workmanship for a period of 3 years from the original date of purchase. This Warranty covers all Ryonet Branded/Manufactured electrical equipment, excluding standard consumables, to be protected against defects, damages, or malfunctions under normal use during the Warranty period. If you discover a defect in a product covered by this warranty, we will replace the part or repair the product, using new or refurbished components, or if repair is not possible, replace the item, free of charge.

### What does this Warranty not Cover?

Shipping or travel associated with a replacement or repair. Any problem that is caused by abuse, misuse, or any “Act of God” circumstance (such as a flood) is not covered. Also, replacement of any standard consumables that have a natural wear and tear rate that will eventually result in that item needing to be replaced is not covered.

This Warranty is non-transferable and can only be used by the original purchaser.

If Standard Consumables are faulty or damaged upon receipt Ryonet will need to be notified within the first 48 hours.

ITEMS	COVERED	NOT COVERED
<b>Light Table</b>	Frame, Power chord & push button.	Light bulbs & ballasts
<b>Fluorescent Units</b> ( 16x20, 20x24, 25x36 X-Vactor and X-Vactor XL )	Timer, lamp posts, frame, vacuum, push buttons, power cord, gas shock & lid frame.	Light bulbs, ballasts, neoprene & glass.
<b>LED Units</b> ( LFX, FX )	LED power supplies, amber LED power supply, tablet charger power supply, tablet, relays, power chord, frame & lid frame.	Glass, fuses, neoprene, LED light, amber LEDs & shocks.
<b>Backlight System</b> ( for washout booth only )	Light switches, frame, power cord & electrical box.	Light bulbs & ballasts
<b>Fan Banks</b>	All items covered ( fans, buttons, frame and power supplies ).	
<b>Drying Cab</b>	All components covered.	

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