



FLIPBOX

INSTALLATION INSTRUCTIONS

With a Flipbox from Powerbox, you can run twice the number of lights per ballast, and double your production. Since a typical flowering room has lights running for only 12 hours, when the lights go off, the ballasts sit idle for 12 hours. By adding a Flipbox to the equation, when the first cycle ends, the ballast output is switched to another set of lights in a second flowering room, so you can literally double your light output with the same number of ballasts, on the same electrical circuit. Flipboxes allow you to save money on ballasts, double your harvests, increase your yields, and avoid bringing in additional power circuits to run more ballasts. There is no better device for literally doubling the output of your garden! Powerbox Flipboxes work with any H.I.D. ballast, be it magnetic or electronic, when used with a Powerbox Lighting Controller.

When utilizing a Flipbox, it is recommended to power the ballasts off for 10 minutes during each flip cycle during the time the flip is set to occur. This allows the ballasts to rest for 10 minutes twice per day and it also times the Flip to occur when the ballast power is off. This prolongs the life of the Flipbox relays and it ensures the ballasts will ignite the bulb after changeover.

As an example, if you want the Flipbox to switch rooms at 12:00 AM and 12:00 PM, you would program your Powerbox lighting controller's timer to go off for 10 minutes twice per day, as follows:

Program Powerbox Lighting Controller as follows:

P1 ON Time: 12:05 PM, **P1 OFF Time:** 11:55 PM

P2 ON Time: 12:05 AM **P2 OFF Time:** 11:55 AM

Be sure to set both P1 and P2 for ALL days of the week.

Program the Flipbox timer as follows:

P1 ON Time at 12:00 AM and **P1 OFF Time** and 12:00 PM.

Be sure to set P1 for ALL days of the week.

See **TIMER PROGRAMMING INSTRUCTIONS** for full details on programming the timers on the Powerbox and the Flipbox.

INSTALLATION:

- 1.) Mount the Flipbox to a secure location before connecting wires.
- 2.) Referring to the diagram, plug the cords coming from the Flipbox into your individual ballasts where the lamps would normally plug in.
- 3.) Plug your lamp cords from Room A into the row of sockets on the Flipbox marked "BANK A" and plug your lamp cords from Room B into the row of sockets on the Flipbox marked "BANK B." For each ballast, you must have two matching bulb types and wattages.
- 5.) Plug the included power cord (female end) into the LSM left side inlet labeled "120V MAIN POWER." Plug the male end of the cord into a standard 120V outlet. If using an individual Flipbox, plug the trigger cord into the timer of your choice.
- 6.) For LSM-series Flipboxes, refer to **TIMER PROGRAMMING INSTRUCTIONS** to set the time on the timer, and the time your switching cycles will occur. If you wish to use the trigger cord to activate the Flip, instead of the built-in timer, pop-up the lid of the timer and change the small switch at the bottom to the OFF position. Now plug a standard 120-volt cord into the right side inlet marked "120V Trigger Cord." When the
- 7.) When ballast power is applied, "BANK A" lamps will ignite. When the Flipbox timer comes ON, the Flipbox will switch over to "BANK B." Set the **TIMER ON** time for the time you would like to switch over to "BANK B." Set the **TIMER OFF** time for the time you would like to switch back to "BANK A."
- 8.) Plug in your ballasts. If timer is currently ON, "BANK B" lamps will be lit. If timer is currently OFF, "BANK A" lamps will be lit.

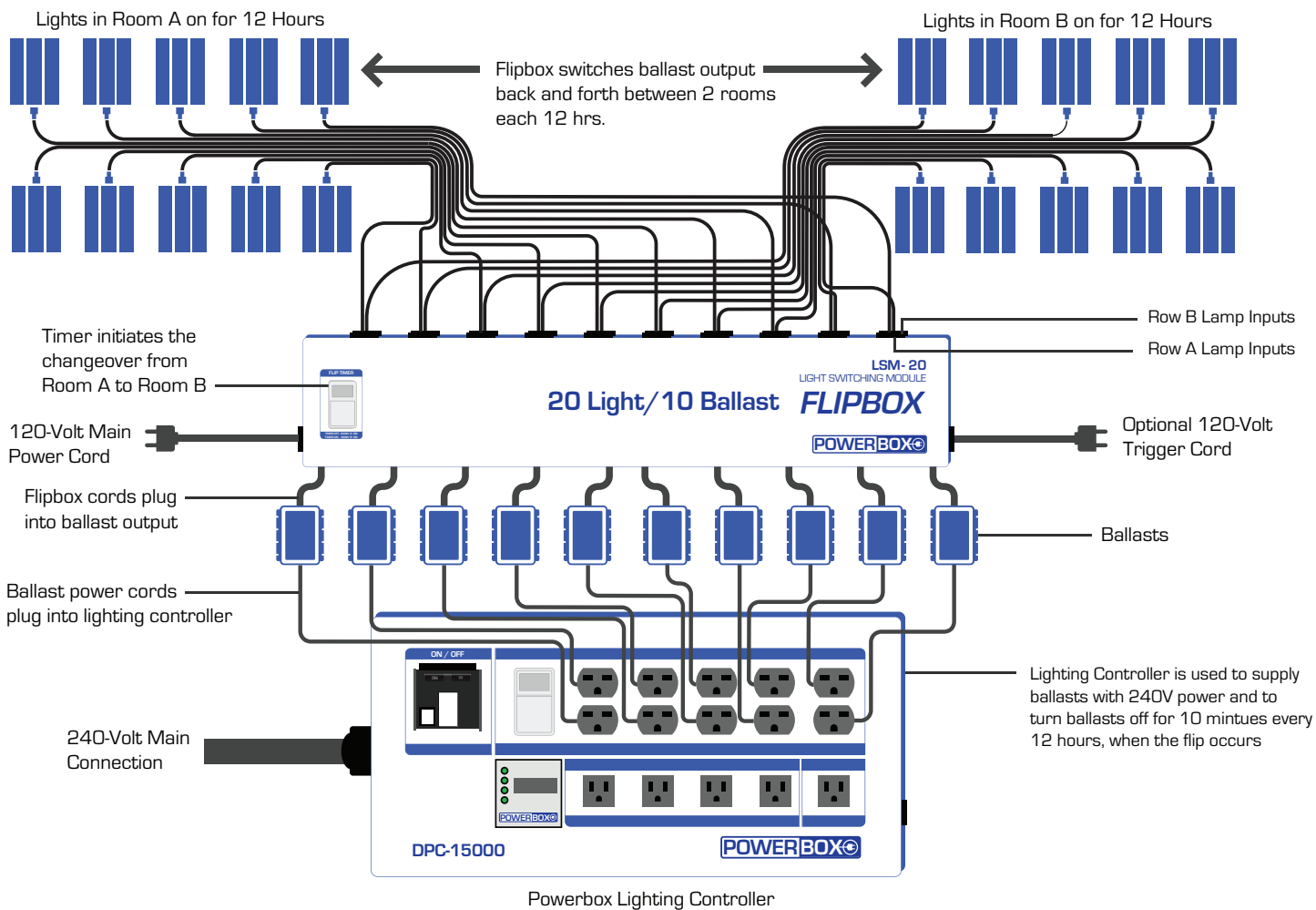
WARNING: MAKE SURE ALL LAMP AND BALLAST PLUGS ARE FIRMLY FITTED INTO OUTLETS. FAILURE TO FIT ALL CORDS FIRMLY CAN RESULT IN OVERHEATING AND POSSIBLE DAMAGE TO THE UNIT.

WARNING: DO NOT OPERATE UNLESS LAMPS ARE PLUGGED INTO BOTH OUTLETS "BANK A" AND "BANK B."

WARNING: DO NOT MISMATCH LAMP WATTAGES & TYPES. EACH BALLAST MUST HAVE THE SAME LAMP TYPE AND WATTAGE.

WARNING: ON SINGLE FLIPBOXES, NEVER PLUG YOUR BALLAST INTO THE OUTLET MARKED "120V SLAVE." THIS OUTLET IS RESERVED STRICTLY FOR DAISY-CHAINING MULTIPLE FLIPBOX TRIGGER CORDS TOGETHER.

FLIPBOX LSM-20 HOOKUP DIAGRAM



This diagram shows a Flipbox LSM-20 running 20 lights in 2 different rooms. Ten ballasts supply output to the Flipbox, which switches back-and-forth between the lights in each room at a time you specify when you program the digital timer in the Flipbox. A Powerbox DPC-15000 Lighting Controller supplies 240-volt power to run the ballasts and also allows you to program a rest period for the ballasts during each Flip cycle. The Powerbox connects to a 4-wire, 240-volt main connection that supplies 50 or 60 amps of power.

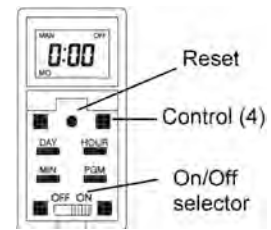
SECTION 3. TIMER PROGRAMMING INSTRUCTIONS

The built-in programmable digital timer is flexible and easy to setup. You can program up to 7 ON/OFF cycles for any individual day, or for every day of the week. For instance, it would take one program to set the Powerbox to go on and off once per day, every day of the week.

1. Pop open the door of the Digital Timer with a small screw driver.
2. Ensure the ON/OFF switch at the bottom of the Digital Timer is set to the ON position.
3. Reset the Digital Timer by using a small paperclip to depress the recessed RESET button (small round hole).

SETTING THE CLOCK

4. The Digital Timer displays the time in 24-hour format by default following a reset. To change to 12-hour format, press the MIN and HOUR buttons simultaneously and briefly (0:00 display = 24-hour format, 12:00 display = 12-hour format).
5. Set the time using the HOUR and MIN buttons. If you have selected the 12-hour format, ensure that PM appears on the screen when an afternoon time is displayed.
6. Set the day by using the DAY button.
7. Press one of the control buttons or close the Digital Timer door to return to normal operation.



PROGRAMMING THE DIGITAL TIMER

8. You can set up to 7 different programs with the digital timer. However, for a standard routine where the unit comes on and off at the same time every day, you only need to set one program, and select all days of the week. To set a program, you need to enter its start time (ON) and its end time (OFF).
 - a. Pry the Digital Timer door open using a small screwdriver.
 - b. Press the PGM button once, and program number 1 (P1) and its On time (ON) will appear. -- will appear instead of the time if the program is not set (inactive).
 - c. Press the DAY button to select the day to which you want to apply the program. If you want to apply the program to every day of the week, press DAY until all the days are displayed. This will count as only 1 program.
 - d. Press the HOUR and MIN buttons to set the ON time (time when you want devices to turn ON). If you have selected the 12-hour format, ensure that PM appears on the screen when an afternoon time is displayed.
 - e. After you have programmed the ON time, press the PGM button briefly to display the OFF time (time when you want the devices to turn OFF).
 - f. By default, the same DAY(s) you selected for the ON time will be displayed for the OFF time.
 - g. Press the HOUR and MIN buttons to set the OFF time (time when you want devices to turn OFF). If you have selected the 12-hour format, ensure that PM appears on the screen when an afternoon time is displayed.
 - h. To set another program, repeat steps (b) through (f). Programs that are not set will remain inactive.
 - i. Press one of the control buttons or close the switch door to return to normal operation.

SELECTING THE OPERATING MODE

9. The Digital Timer has 2 operating modes: manual (MAN) and automatic (AUTO). To switch modes, press and hold the switch door in for 3 seconds.
 - a. Manual Mode. The Digital Timer operates as a regular switch. Briefly press the switch door in to turn devices On or Off. The mode (MAN) and state (ON or OFF) are displayed.
 - b. Automatic Mode. The Digital Timer follows the programmed schedule. The mode (AUTO), state (ON or OFF) and current program number are displayed. To temporarily override the programmed schedule, briefly press the switch door. The new state (ON or OFF) will flash to show that this state is temporary. The override remains in effect until you press the switch door again or until the beginning of the next program.

PROGRAMMING FOR USE IN CONJUNCTION WITH FLIPBOXES

10. When using a Flipbox in conjunction with your Powerbox lighting controller, it is recommended to power the ballasts off for 10 minutes during each flip cycle during the time the flip is set to occur. For instance, if your light flip times are 12:00 AM and 12:00 PM, you would program your Powerbox lighting controller's timer as follows:

Program Powerbox Lighting Controller as follows:

P1 ON Time: 12:05 PM, P1 OFF Time: 11:55 PM
P2 ON Time: 12:05 AM P2 OFF Time: 11:55 AM
Be sure to set both P1 and P2 for ALL days of the week.

Program the Flipbox timer as follows:

P1 ON Time at 12:00 AM and P1 OFF Time and 12:00 PM.
Be sure to set P1 for ALL days of the week.

TROUBLE SHOOTING GUIDE

BLANK TIMER DISPLAY: Verify there is power to the unit. Ensure the ON/OFF selector switch on the Digital Timer is set to ON. Reset the Digital Timer using a small paperclip.

TIMER DISPLAY HARD TO READ OR APPEARS FADED OUT: Verify that the neutral wire is properly connected at the main panel and at the point where it connects to the Powerbox. If timer display still appears faint, the internal backup battery may need recharging. Leave the unit connected to the main power and make sure the recessed switch at the bottom of the timer is set to the ON position. Leave the unit on for 90 minutes to give the battery time to fully charge. Check the display again and it should appear normal.

PROGRAMS DO NOT RUN AS EXPECTED: Make sure the Digital Timer is properly programmed. Note that -- indicates an inactive program, 00:00 indicates midnight. If the Timer has been configured for 12-hour format, check that PM appears on the left side of the screen when an afternoon time is displayed. Make sure the timer is in AUTO mode.

CANNOT SWITCH BETWEEN 24-HOUR and 12-HOUR FORMAT: First, press one of the control buttons so that MAN or AUTO appears on the display.

TIMED OUTLETS DON'T WORK / WON'T TURN ON: Check that the main circuit breaker is turned on. Check that the recessed switch under the timer front panel is switched ON. Check that the timer display reads ON. Check the main connection and ensure that all wires are connected properly.

TIMED OUTLETS DON'T WORK / ONE CONSTANT OUTLET WORKS: One of the 120V hot legs is missing or improperly connected. Turn off the power at the main breaker and check all connections.