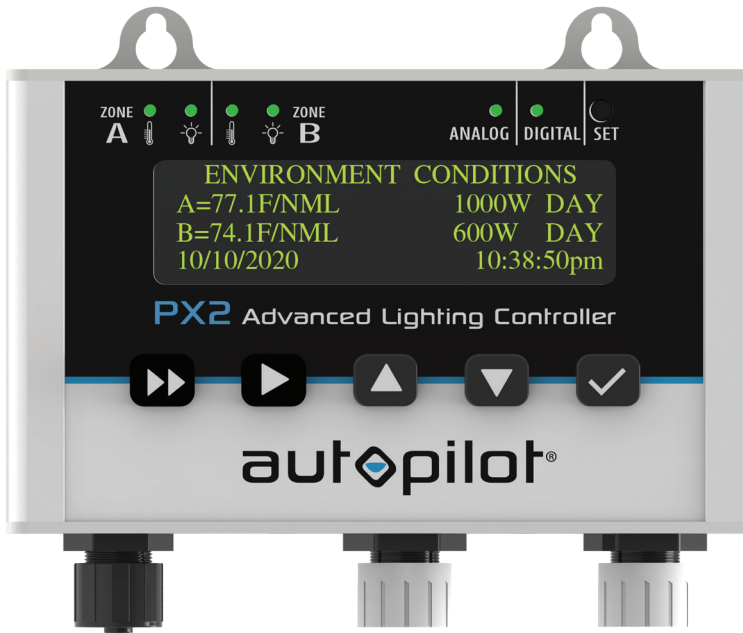


INSTRUCTIONS

# autopilot®

## PX2 ADVANCED LIGHTING CONTROLLER



APDPX2



# OVERVIEW

The **Autopilot PX2 Advanced Lighting Controller** provides precision photoperiod control of up to 512 fixtures in two independently controlled zones, all from one centralized location. Designed to work with any controllable Phantom or Core HID fixtures, as well as PHOTOBIO and Phantom LED fixtures, the **PX2** can control 512 digital HID fixtures (256 per zone), or 25–100 analog LED fixtures (depending on installation differences). The **PX2** offers the flexibility to operate both zones analog or digital, or one zone analog and the other digital. With this versatile, dual-zone configuration, growers can ...

- Optimize spectral treatments by checkerboarding lighting technologies within the same environment (e.g., HPS with CMH, LED with CMH)
- Save power by checker boarding identical fixtures while reducing output to one of the zones during the light cycle within the same environment
- Alternate rows and zones within the same environment
- Enhance uniformity by independent control over perimeter versus interior of the environment

### Powerful features, precise and independent controls

The **PX2** provides independent control of the following features in each of its dual zones:

- Photoperiod timing to control light and dark cycles
- Photosynthetic photon flux control to precisely schedule the PPF being emitted from fixtures during the light cycle (wattage or percentage)
- Auto-dimming when temperature exceeds set points
- Emergency auto-shutdown of lights upon user-defined over-temperature events
- Configurable restrike delay times to eliminate lamp-damaging hot starts
- Sunrise/sunset simulation settings to provide a gradual ramp-up and down at both ends of your photoperiod
- Built-in battery backup

### Two dedicated temperature sensors, one for each zone

These sensors provide real-time data for automated temperature-based dimming, as well as a high temperature shutdown feature that protects your garden. The **PX2** eliminates inrush current and replaces traditional lighting contactors, reducing infrastructure investment.

### Updated locking signal and data cables

All cables are shielded from electromagnetic interference to ensure uncompromising signal reliability and communication.

## WHAT'S IN THE BOX

### The Autopilot PX2 Advanced Lighting Controller (APDPX2) includes:

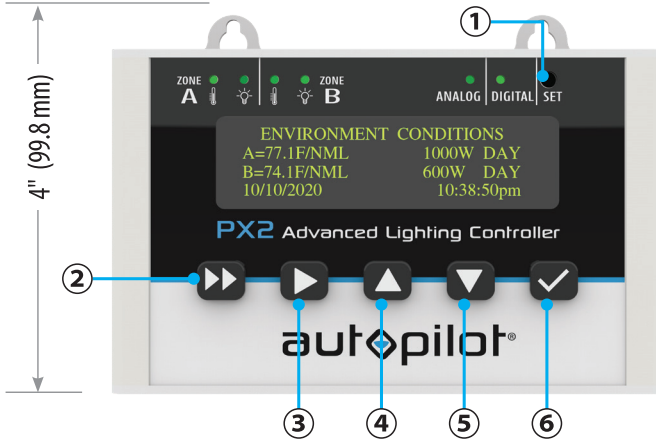
- |  |  |
|--|--|
| 1 – Autopilot PX2 w/locking mini 3P IP65 female connectors   | 1 – 5' 100V–240V, 50/60 Hz power adapter |
| 2 – 50' white temperature probes   |  |
| 2 – 20' locking mini 3P M-RJ 6P white RF shielded data cable (for controllable Phantoms with a USB port) | 2 – Mounting screws                      |
| 2 – 20' locking mini 3P M-2P white RF shielded data cable (for PHOTOBIO fixtures with an LLT connector)  | 1 – Instructions                         |

## SPECIFICATIONS

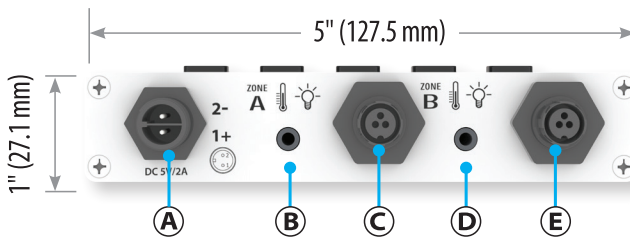
TECHNICAL PARAMETERS			
Voltage HID	100–240V	Qty of zones can be controlled	Max 2
Frequency	50/60Hz	Qty of HID fixtures can be controlled	Max 256 x 1 zone
Power source for controller	5V/2A	Qty of LED fixtures can be controlled	Max 25–50 x 1 zone (depending on driver)



# OVERVIEW



- 1 SET button
- 2 Turn the page
- 3 Cursor Right
- 4 Increase
- 5 Decrease
- 6 Menu/Confirm/Save



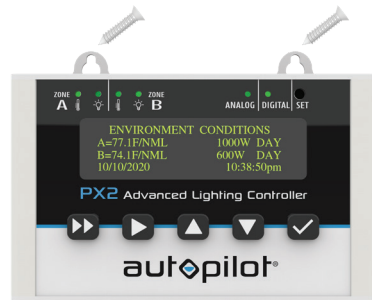
- A Power supply port
- B Temperature probe port Zone A
- C Signal port Zone A
- D Temperature probe port Zone B
- E Signal port Zone B

# INSTALLATION

## INSTALLING THE PX2

Mounting holes

1. Securely wall mount the **PX2** at eye level outside the growing environment, using the provided screws and mounting holes.
2. Plug the power adapter into an outlet and connect the other end to the **PX2** power supply port (A – see image above). Ensure threaded connection is tight.
3. Plug the temperature probes into the corresponding ports (B, D) and run your probe cables their full length up to and across the ceiling, toward the center of the grow space. Suspend the probes above the plant canopy. Take care not to stress or damage the probe cables when securing them to walls and ceilings.
4. Connect the zone signal cables (C, E).



**IMPORTANT:** A bare probe receiving direct light from a fixture can cause premature dimming and/or inaccurate temperature readings. When setting up the temperature probes, shield them from exposure to direct light.

# INSTRUCTIONS

## ANALOG/DIGITAL SETUP

Before starting the display setup, you must complete the **Analog/Digital** setup.

- Using a pen or other small object, press the recessed **SET** button ① to cycle through the following options.



### ANALOG SETUP:

Each zone can support a maximum of 50 HID fixtures (without repeater) or 500 fixtures with repeater bus, based on specified connection way. Each zone can support 25–50 LED fixtures.



### DIGITAL SETUP:

Each zone can support a maximum of 256 HID digital (RS-Protocol) fixtures.



### ANALOG AND DIGITAL SETUP:

Zone A = Analog  
Zone B = Digital

## SYSTEM SETTINGS

The **Systems Settings** screen is where the controller's overall settings are defined for both zones.

- Press **▶▶** to cycle to the **SYSTEM SETTING** menu.
- Press **▶** to highlight the value you want to change. Press **▲** or **▼** to select the correct setting, then press **✔** to confirm.



Value	Options
Temperature unit	F or C
Power unit	% or W
Hour format	12H or 24H mode
Time	Hours/Minutes (AM/PM will adjust automatically)
Date	Month/Day/Year
Reset	Resets to factory default settings

- Repeat step 2 to set all values.
- Press **✔** to save the settings.

# INSTRUCTIONS

## ZONE A SETUP

Press **▶▶** to cycle through the following options: **Zone A Setup**; **Zone A Output Schedule**; **Zone B Setup**; **Zone B Output Schedule**; and **System Setting**.

**NOTE: All settings must be saved by pressing **✓** for the controller to operate. Pressing twice will take you back to the ENVIRONMENT CONDITIONS home screen. 45 seconds of inactivity will automatically revert to home screen.**



1. Press **▶▶** and enter the **ZONE A** menu.
2. Press **▶** to cursor through the values and highlight the value you want to change. Press **▲** or **▼** to select the correct setting, then press **✓** to confirm.

Ensure zone Status is set to “OFF” prior to the initial time OUTPUT SCHEDULE programming on Zone setup.

Value	Description
<b>Type</b>	Type of lights installed in ZONE A (or B): 1000W MH, 1000W HPS, 1000W CMH, 945W CMH, 750W MH, 750W HPS, 630W CMH, 600W X 2 HPS, 600W X 2 MH, 600W MH, 600W-HPS, 400W-MH, 400W-HPS, 315W X 2 CMH, 315W CMH, 250W MH, 250W HPS, 680W LED, 600W LED, 480W LED, 440W LED, 330W LED, 320W LED, 240W LED, UNI-LED (0–10V LEDs not listed)
<b>Status</b>	Indicates current fixture wattage or percentage according to photo period timer (OUTPUT SCHEDULE). User can manually override timer to adjust output if needed and the W or % will be followed by “OVRD”. Fixtures will revert to timer schedule once next output time/setting is reached. Example: If manual override is adjusted from 100% down to 60% at 7:45 PM, the display will be “Status: 60% OVRD” and will remain until the next “OUTPUT” signal is sent by the controller. If “OUTPUT” at 8:00 PM is scheduled to send 100% signal, the fixture will revert to timer schedule.
<b>Dim</b>	The temperature limit at which the lights will auto-dim.
<b>Stop</b>	The temperature limit at which the lights will auto-shutdown.
<b>Delay</b>	(0–30 min) Hot start prevention to allow HID lamps adequate time to cool to prevent lamp damage. For HID, minimum setting should be 15 min. For LED, setting can be 0 min.
<b>R/S</b>	(0–30 min) The time lights will take to gradually reach full power (R=sunrise) or turn off (S=sunset). Longer is more gradual. This setting will affect the OUTPUT SCHEDULE. See page 6 for more details.

3. Repeat step 2 to set all values.
4. Press **✓** to save the settings.
5. Repeat steps for **ZONE B**.

# INSTRUCTIONS

## ZONE A OUTPUT SCHEDULE

The **PX2** lets you precisely schedule up to six timed output settings from the fixtures during the light cycle (by wattage or percentage). Checkmarks in front of the six timed output settings provide the ability to disable or enable. CHECK = Enabled.

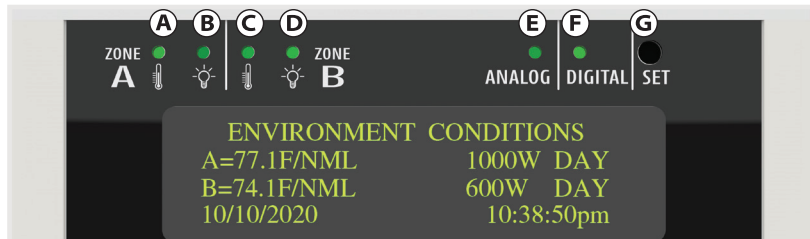
1. Press **▶** and enter the **ZONE A OUTPUT SCHEDULE** menu.
2. Press **⏏** to cursor through the time and output settings.
3. Press **▲** or **▼** to adjust, then press **✓** button to confirm.
4. Repeat steps 2–3 to set all values.
5. Press **✓** button to save the settings.
6. Repeat steps for **ZONE B**.



## IMPORTANT ZONE OUTPUT SCHEDULE NOTES

- Output adjustments **ONLY** take effect according to OUTPUT SCHEDULE and clock setting.
- Enabling more OUTPUT SCHEDULE settings is advisable for greater flexibility.
- Sunrise and sunset (R/S) time setting can impact OUTPUT SCHEDULE. Ensure these two settings do not conflict. Example: If R/S is set to 10 minutes, the timing between OUTPUT SCHEDULE signals should be set no less than 10 minutes.

# LED INDICATORS



Indicator	Meaning
<b>A, C</b>	<b>LED on green:</b> Normal status. Screen display: NML <b>LED on yellow:</b> Over-temperature dimming protection. Screen display: DIM <b>LED flashes red:</b> Over-temperature lamp-off protection or temperature exceeds 80°C. Screen display: SOS <b>LED flashes yellow:</b> Temperature control line is not inserted. Screen display: NO PROBE
<b>B, D</b>	<b>LED LIGHT ON:</b> Lamp on. <b>LED LIGHT OFF:</b> Lamp off.
<b>E</b>	If the <b>ANALOG</b> indicator is on, the controller outputs 0–10V signals for LED, 0–11.5V for HID.
<b>F</b>	If the <b>DIGITAL</b> indicator is on, the controller outputs RS485 signals.
<b>E, F</b>	The <b>ANALOG</b> and <b>DIGITAL</b> indicators are both on. <b>ZONE A</b> is the analog signal output, and <b>ZONE B</b> is the digital signal output.
<b>G</b>	The output signal mode can be switched by clicking the <b>SET</b> button with a pen.

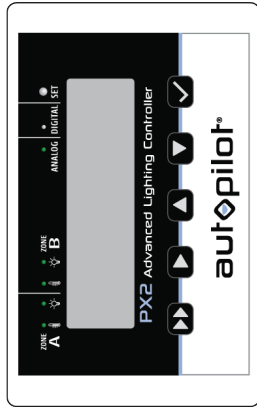
# TROUBLESHOOTING

PROBLEM	CHECK	SOLUTIONS
<b>Screen does not work after connecting power supply</b>	Check if the power supply/ adapter/controller works normally	Unplug DC connector from the controller momentarily then reconnect taking care to ensure the connector is fully inserted and tightened
<b>Controller does not control fixtures</b>	Check if the signal cable is connected well and is fully inserted/locked; check pin condition	Reconnect the signal cable and go fixture by fixture to identify communication loss point
<b>Controller does not show temperature after connecting with temperature probe</b>	Check if the temperature probe is inserted fully	Disconnect and reconnect the temperature probe
<b>Fixture status is different from the power set by controller</b>	Check if the fixture is under sunrise and sunset mode or if the temperature is under temperature protection mode	Adjust the time of sunrise and sunset or reset the temperature limits
<b>When connecting several fixtures, the first several fixtures work normally, while the following fixtures function abnormally</b>	Check if the signal cable is connected well, or if the pins of the connectors are damaged, or the LED status on fixtures	Reconnect the signal cable, or replace any damaged fixture
<b>Fixtures fail to turn off</b>	Check fixture quantity per zone. Too many fixtures will cause residual voltage in the cable system.	Reduce number of fixtures per zone

## CUSTOMIZING YOUR LIGHTING LAYOUT

See pages 8–23 for data link cable guides that show you how to customize your lighting setup with the same or multiple lighting technologies within the same environment.

LED Fixtures . . . . .	8
HID Fixtures	
Phantom with USB . . . . .	10
Core 2.0 . . . . .	12
Multiple Lighting Technologies	
LED + Dual CMH . . . . .	14
LED + DE HPS . . . . .	15
Dual Zone DE HPS . . . . .	16
DE HPS + Dual CMH . . . . .	20
DE HPS + DE MH . . . . .	22



### ZONE A

Controls 25–50 LED fixtures.

### ZONE B

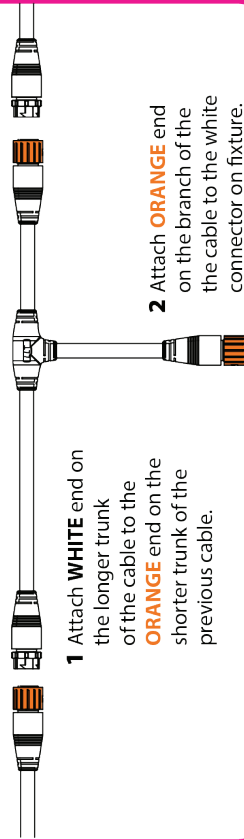
Controls 25–50 LED fixtures.



### PHOTO•LOC 0–10V Control Cable 8' Trunk + 5' Branch

PTBCC8850W (sold separately)

For use with PHOTOBIO•MX, TX and T. Drawing is not to scale.



**1** Attach **WHITE** end on the longer trunk of the cable to the **ORANGE** end on the shorter trunk of the previous cable.

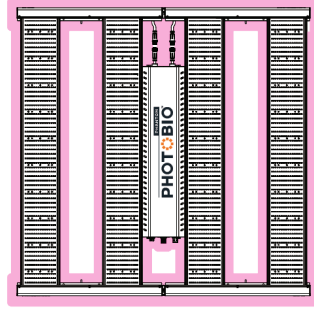
**2** Attach **ORANGE** end on the branch of the cable to the white connector on fixture.

## CABLE GUIDE

# Cable Guide

## LED Fixtures

### PHOTOBIO\*



\*PHOTOBIO•MX shown; cable guide also applies to PHOTOBIO•TX and T. Fixture is not shown to scale.

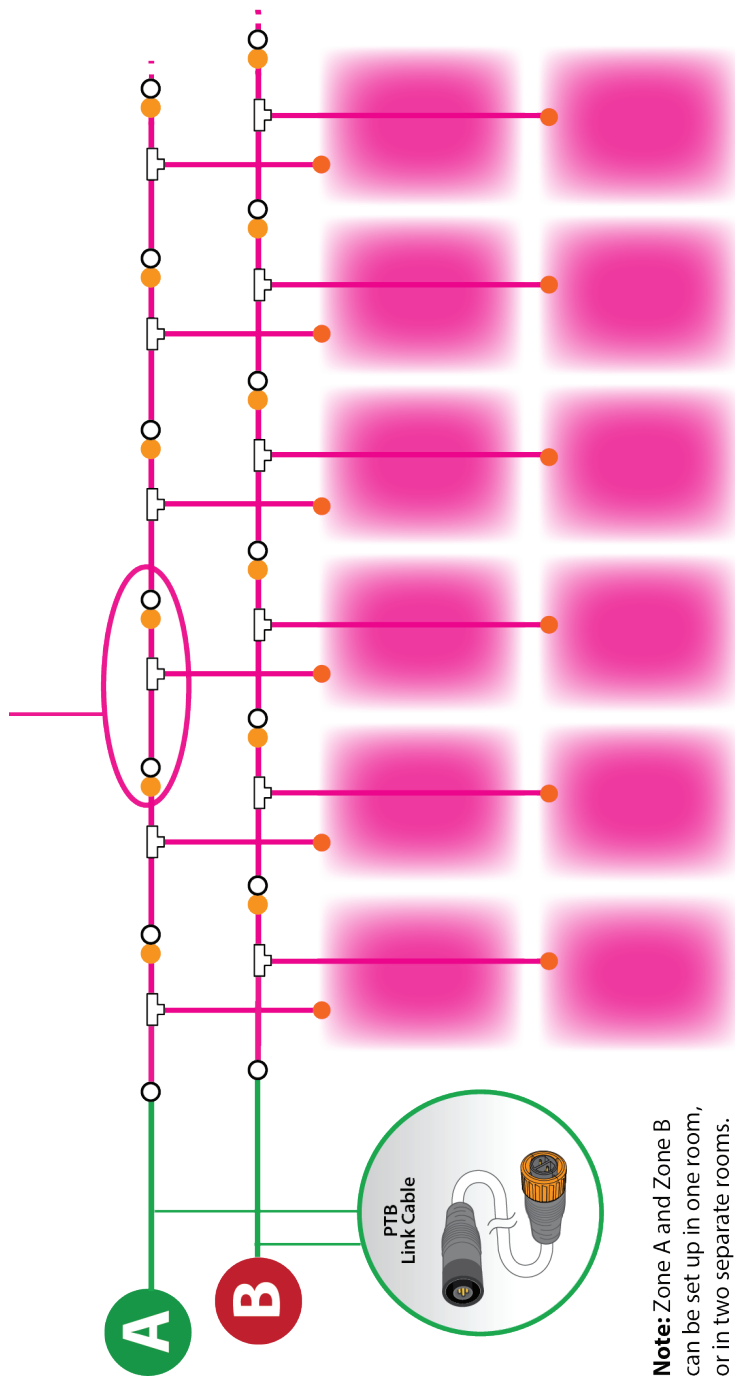
### LEGEND: LED Fixtures

- PTB Link Cable
- PHOTO•LOC Cable PTBCC8850W
- Male end
- Female end





# CABLE GUIDE



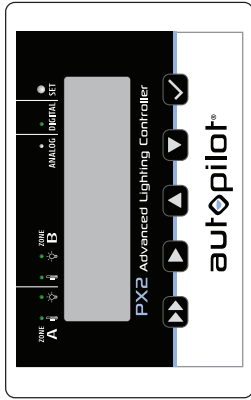
**Note:** Zone A and Zone B can be set up in one room, or in two separate rooms.

**IMPORTANT:** Do not attach data link cables to AC power cable. Always keep low voltage data cables and high voltage AC power harness as far as possible from each other for stable signal transmission. Avoid coiling data cables as well as AC harnesses in tight coils. Excess cable should be managed by creating long loops as opposed to tight coils.



# autopilot® PX2

Advanced Digital & Analog  
Lighting Controller (APDPX2)



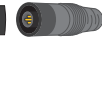
## ZONE A

Controls up to  
256 HID fixtures.

## ZONE B

Controls up to  
256 HID fixtures.

**A**

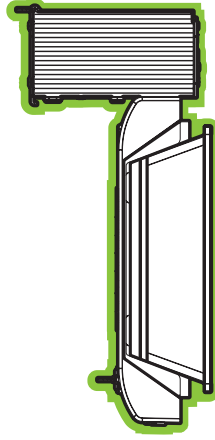


**B**

# Cable Guide

## HID Fixtures

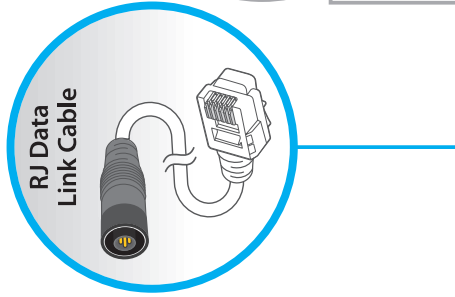
### PHANTOM with USB



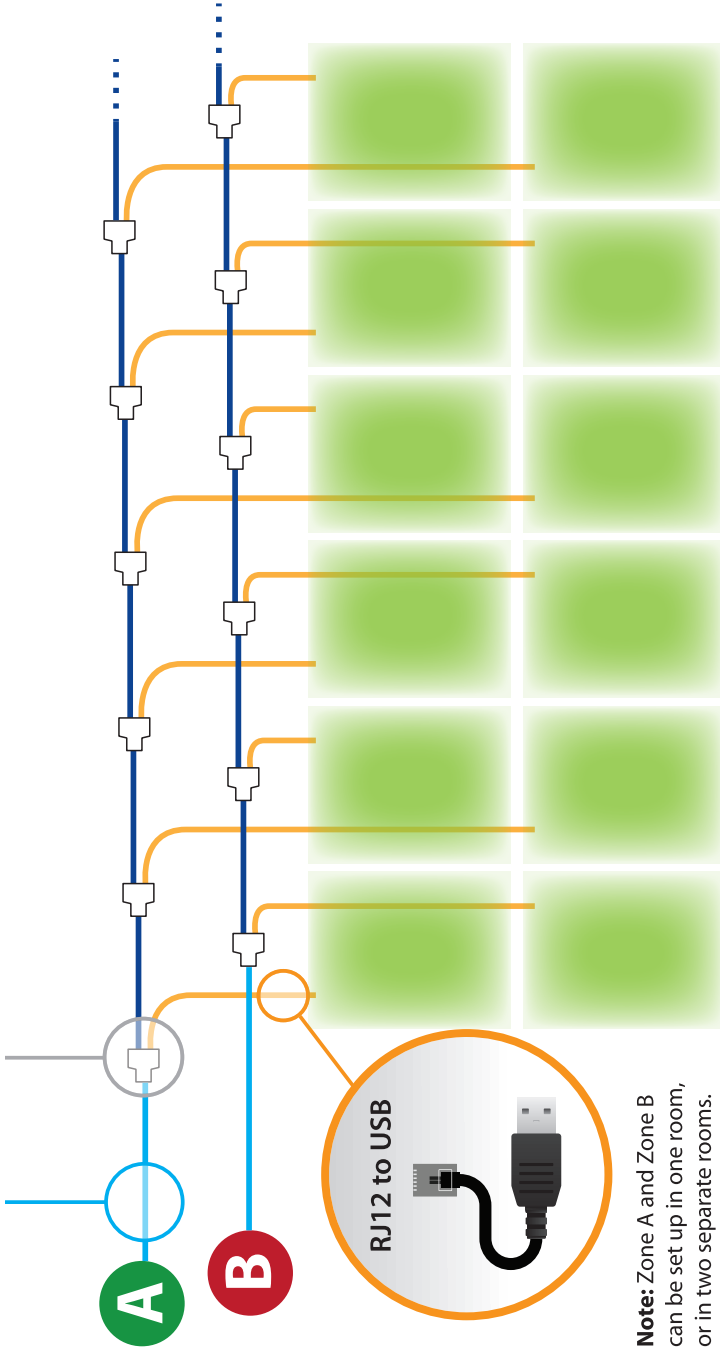
*Fixtures are not shown to scale.*

## LEGEND: HPS, MH & CMH

-  RJ Data Link Cable
-  RJ12 T-Connector
-  RJ12 to RJ12
-  RJ12 to USB



# CABLE GUIDE



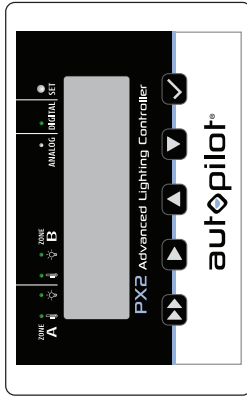
**Note:** Zone A and Zone B can be set up in one room, or in two separate rooms.

**IMPORTANT:** Do not attach data link cables to AC power harness as far as possible for stable signal transmission. Avoid coiling data cables as well as AC harnesses in tight coils. Excess cable should be managed by creating long loops as opposed to tight coils.



# autopilot® PX2

Advanced Digital & Analog  
Lighting Controller (APDPX2)



## ZONE A

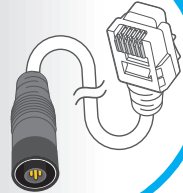
Controls up to  
256 HID fixtures.

## ZONE B

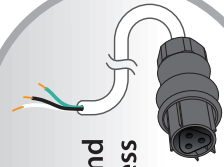
Controls up to  
256 HID fixtures.



## RJ Data Link Cable



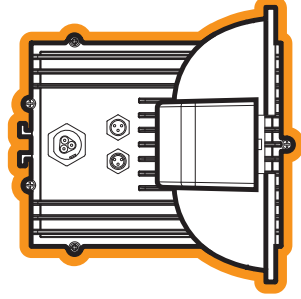
## Wieland Harness



# Cable Guide

## HID Fixtures

### CORE 2.0 DIMMABLE

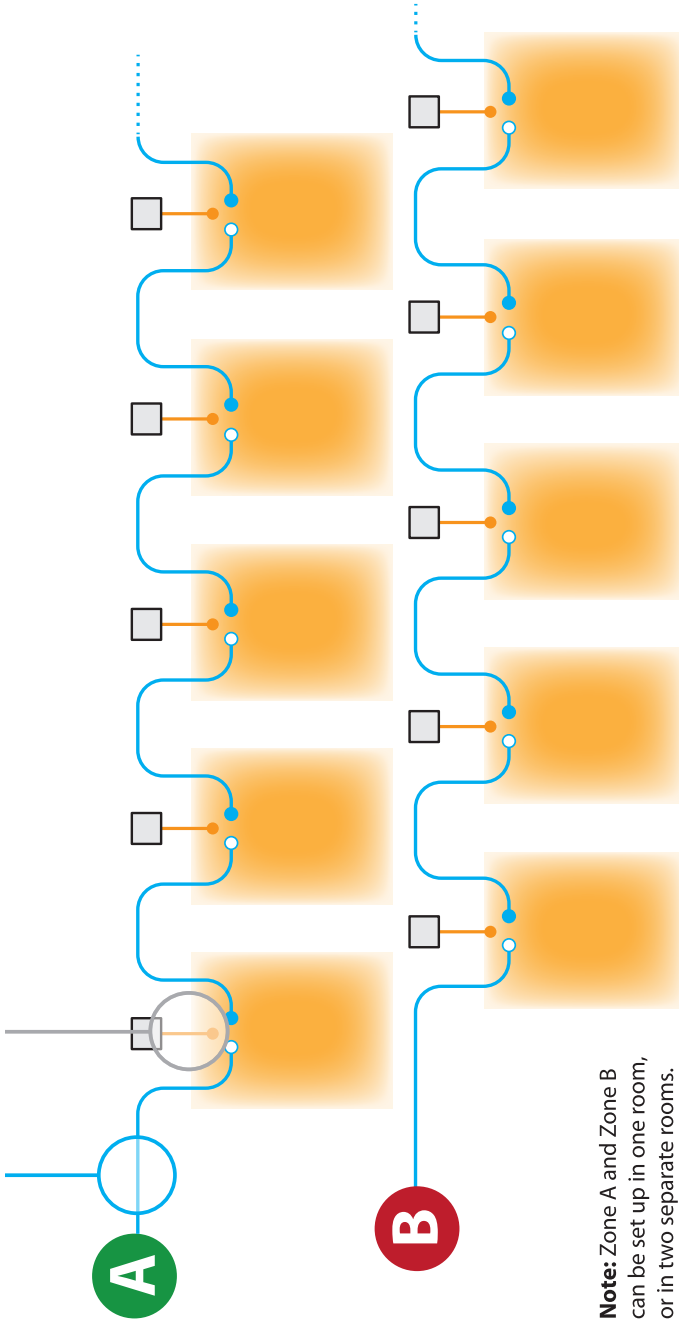


Fixtures are not shown to scale.

## LEGEND: Core 2.0 Dimmable

- Data Link Cable *CHC223108W*
- Wieland Harness\*
- Junction Box
- Input
- Output

# CABLE GUIDE



**Note:** Zone A and Zone B can be set up in one room, or in two separate rooms.

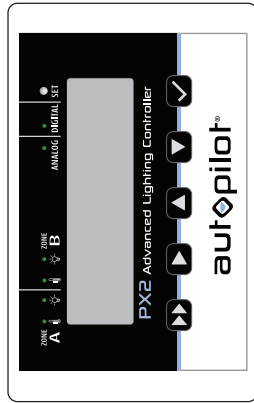
\* Wieland Harness: CHW363000W, CHW863000W, CHW843010W, CHW863015W, CHW873000W, CHW883020W, CHW883021W, CHW883025W, CHW883030W

**IMPORTANT:** Do not attach data link cables to Wieland harness. Always keep low voltage data cables and high voltage AC power harness as far as possible from each other for stable signal transmission. Avoid coiling data cables as well as AC harnesses in tight coils. Excess cable should be managed by creating long loops as opposed to tight coils.



# autopilot® PX2

Advanced Digital & Analog Lighting Controller (APDPX2)



## ZONE A

Controls 25–50 LED fixtures.

## ZONE B

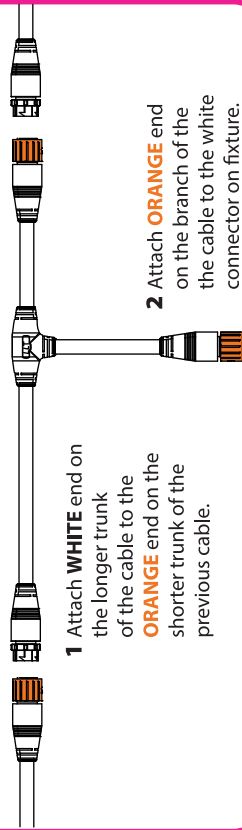
Controls up to 256 HID fixtures.



## PHOTO•LOC 0–10V Control Cable 8' Trunk + 5' Branch

PTBCC8850W (sold separately)

For use with PHOTOBIO•TX, T and MX. Drawing is not to scale.

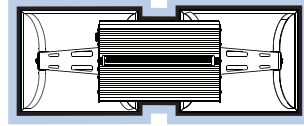


- 1 Attach **WHITE** end on the longer trunk of the cable to the **ORANGE** end on the shorter trunk of the previous cable.
- 2 Attach **ORANGE** end on the branch of the cable to the white connector on fixture.

# Cable Guide

## Checkerboard

**LED\*** + **DUAL CMH**



\*PHOTOBIO•TX shown; cable guide also applies to PHOTOBIO•T and MX. Fixtures not shown to scale.

### LEGEND:

#### LED Fixtures

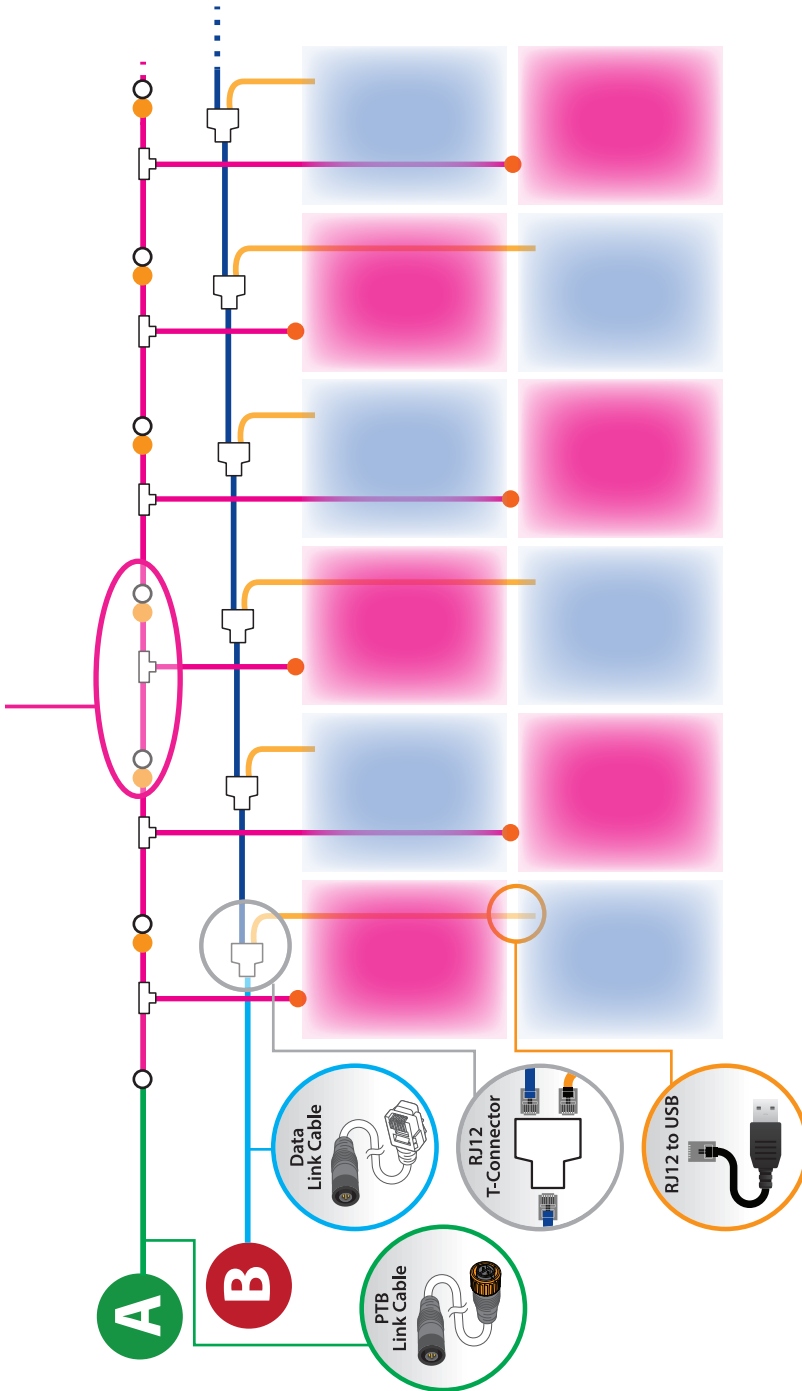
- PTB Link Cable
- PHOTO•LOC Cable PTBCC8850W
- Male end
- Female end

### LEGEND:

#### HPS, MH & CMH

- Data Link Cable
- RJ12
- T-Connector
- RJ12 to RJ12
- RJ12 to USB

# CABLE GUIDE

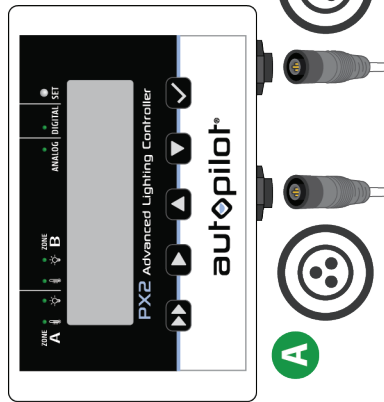


**IMPORTANT:** Do not attach data link cables to AC power cable. Always keep low voltage data cables and high voltage AC power harness as far as possible from each other for stable signal transmission. Avoid coiling data cables as well as AC harnesses in tight coils. Excess cable should be managed by creating long loops as opposed to tight coils.



# autopilot® PX2

Advanced Digital & Analog Lighting Controller (APDPX2)



## ZONE A

Controls 25–50 LED fixtures.

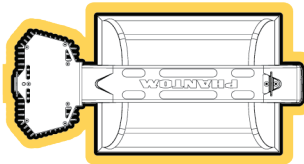
## ZONE B

Controls up to 256 HID fixtures.

# Cable Guide

## Checkerboard

LED\* + DE HPS



\*PHOTOBIO-TX shown; cable guide also applies to PHOTOBIO-T and MX. Fixtures not shown to scale.

### LEGEND: LED Fixtures

- PTB Link Cable
- PHOTO-LOC Cable PTBCC8850W
- Male end
- Female end

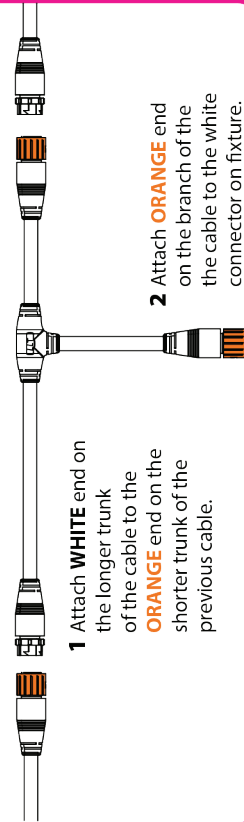
### LEGEND: HPS, MH & CMH

- Data Link Cable
- RJ12
- T-Connector
- RJ12 to RJ12
- RJ12 to USB

## PHOTO-LOC 0–10V Control Cable 8' Trunk + 5' Branch

PTBCC8850W (sold separately)

For use with PHOTOBIO-TX, T and MX. Drawing is not to scale.

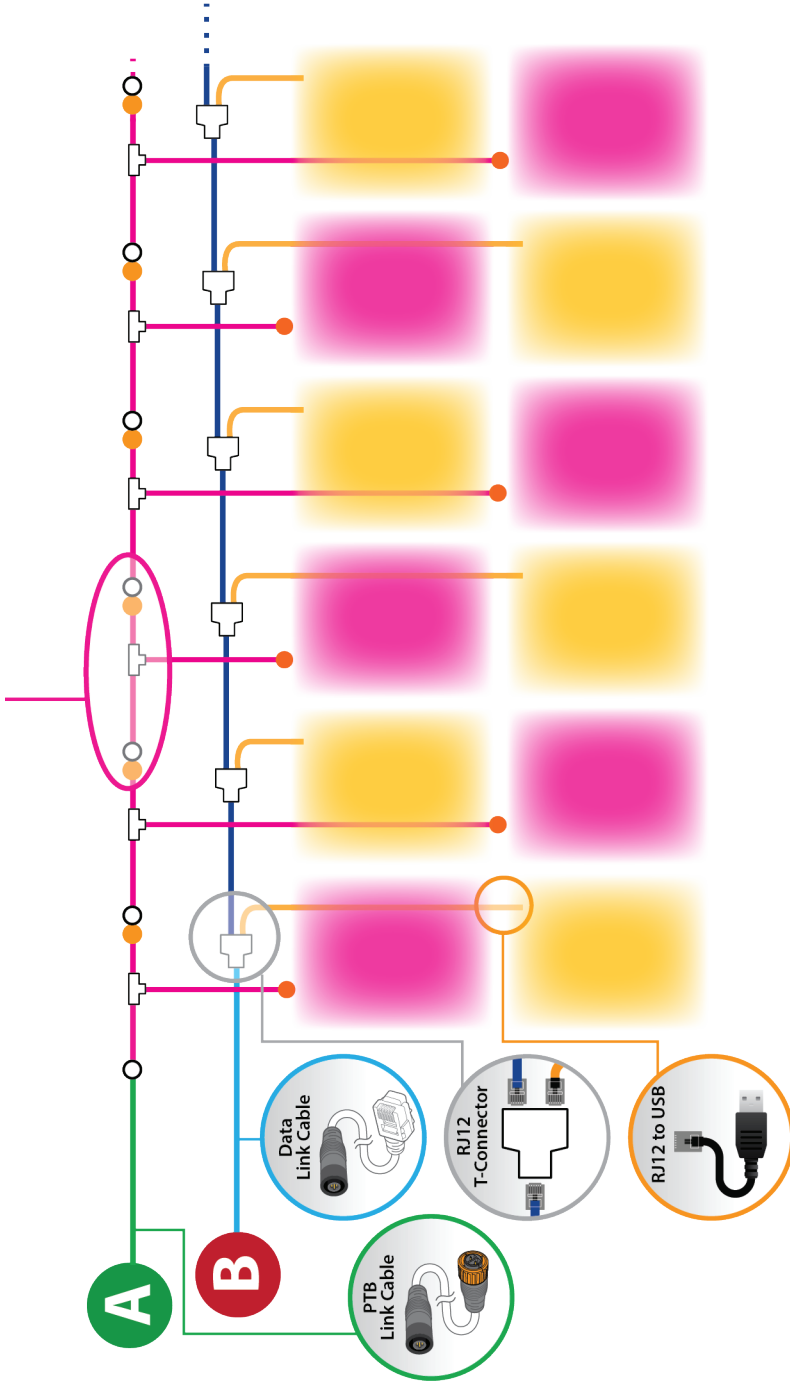


- 1 Attach **WHITE** end on the longer trunk of the cable to the **ORANGE** end on the shorter trunk of the previous cable.

- 2 Attach **ORANGE** end on the branch of the cable to the white connector on fixture.



# CABLE GUIDE

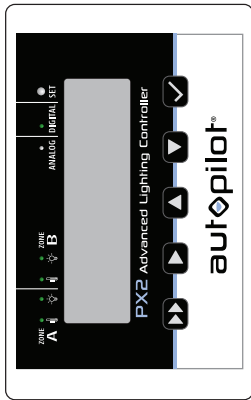


**IMPORTANT:** Do not attach data link cables to AC power cable. Always keep low voltage data cables and high voltage AC power harness as far as possible from each other for stable signal transmission. Avoid coiling data cables as well as AC harnesses in tight coils. Excess cable should be managed by creating long loops as opposed to tight coils.



# autopilot® PX2

Advanced Digital & Analog  
Lighting Controller (APDPX2)



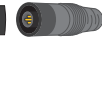
## ZONE A

Controls up to  
256 HID fixtures.

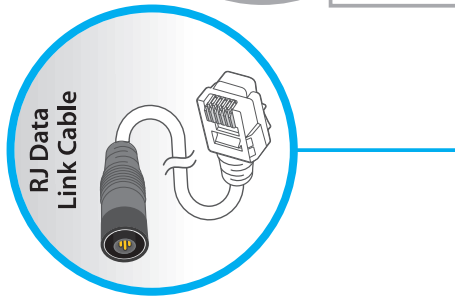
## ZONE B

Controls up to  
256 HID fixtures.

**A**



**B**



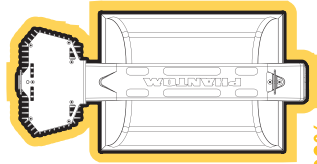
RJ12  
T-Connector

## CABLE GUIDE

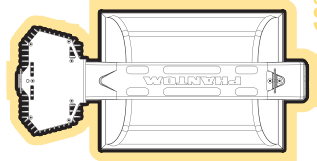
# Cable Guide

## Checkerboard

### DUAL ZONE DE HPS



**100%  
OUTPUT**



**60%  
OUTPUT**

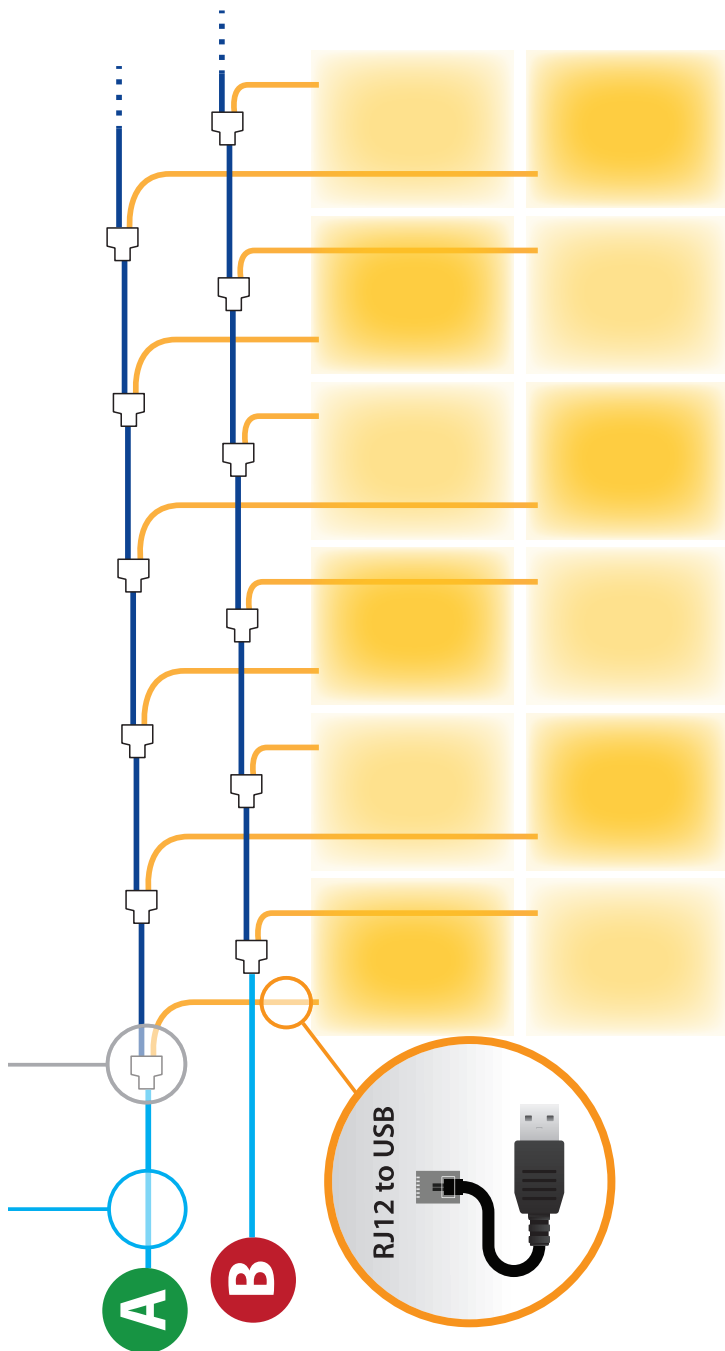
*Fixtures are not shown to scale.*

### LEGEND: HPS, MH & CMH

-  RJ Data Link Cable
-  RJ12 T-Connector
-  RJ12 to RJ12
-  RJ12 to USB



# CABLE GUIDE

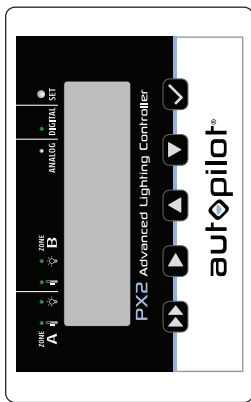


**IMPORTANT:** Do not attach data link cables to AC power cable. Always keep low voltage data cables and high voltage AC power harness as far as possible from each other for stable signal transmission. Avoid coiling data cables as well as AC harnesses in tight coils. Excess cable should be managed by creating long loops as opposed to tight coils.



# autopilot® PX2

Advanced Digital & Analog  
Lighting Controller (APDPX2)



## ZONE A

Controls up to  
256 HID fixtures.

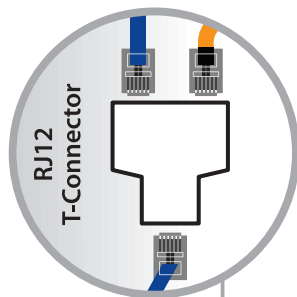
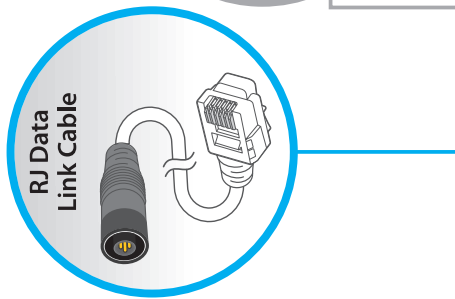
## ZONE B

Controls up to  
256 HID fixtures.

**A**



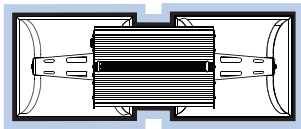
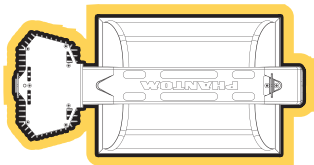
**B**



# Cable Guide

## Checkerboard

DE HPS + DUAL CMH

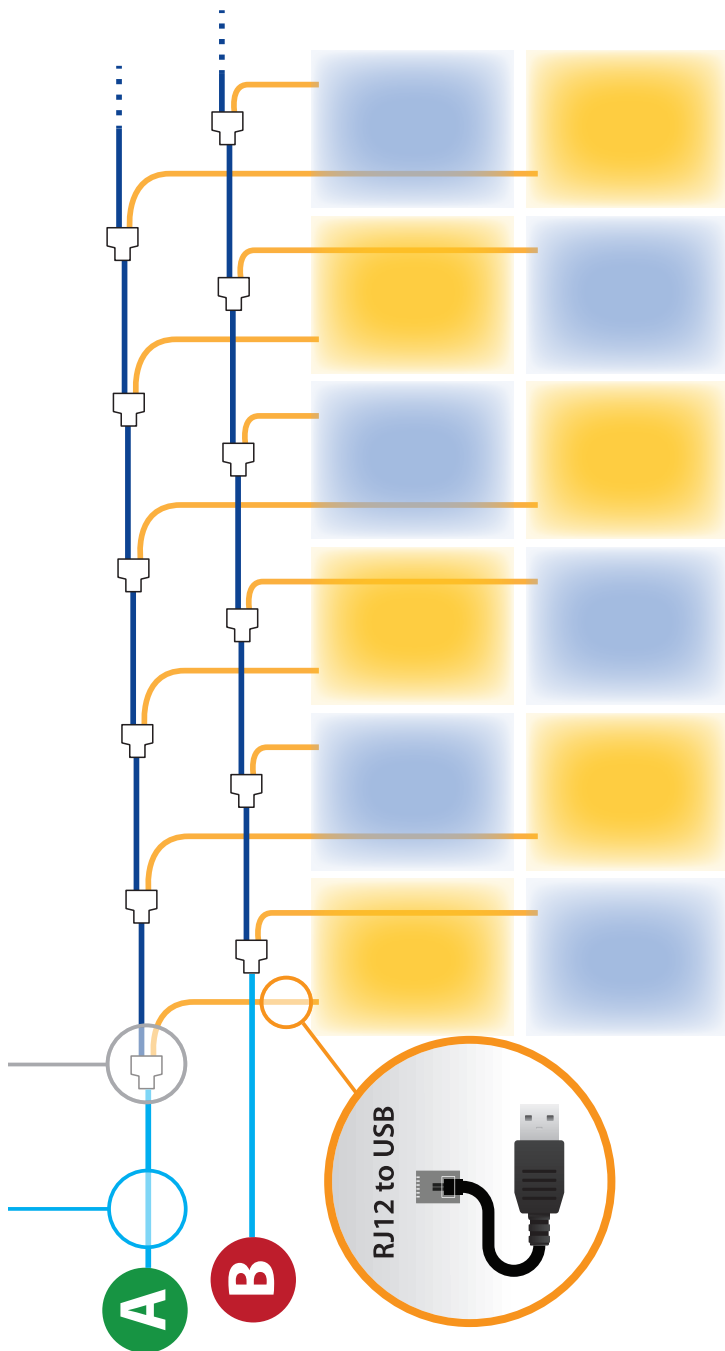


Fixtures are not shown to scale.

## LEGEND: HPS, MH & CMH

-  RJ Data Link Cable
-  RJ12 T-Connector
-  RJ12 to RJ12
-  RJ12 to USB

# CABLE GUIDE

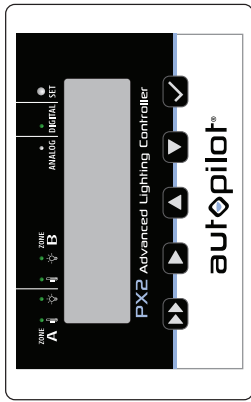


**IMPORTANT:** Do not attach data link cables to AC power cable. Always keep low voltage data cables and high voltage AC power harness as far as possible from each other for stable signal transmission. Avoid coiling data cables as well as AC harnesses in tight coils. Excess cable should be managed by creating long loops as opposed to tight coils.



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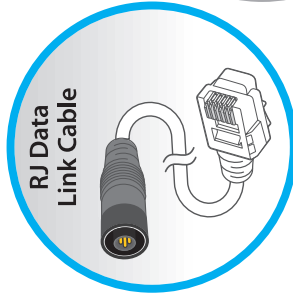
## ZONE B

Controls up to  
256 HID fixtures.

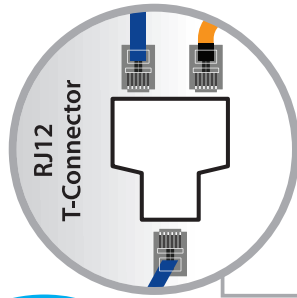
**A**



**B**



RJ Data  
Link Cable

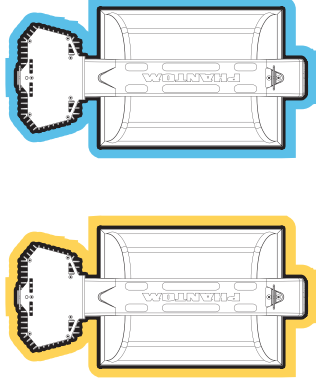


RJ12  
T-Connector

# Cable Guide

## Checkerboard

DE HPS + DE MH

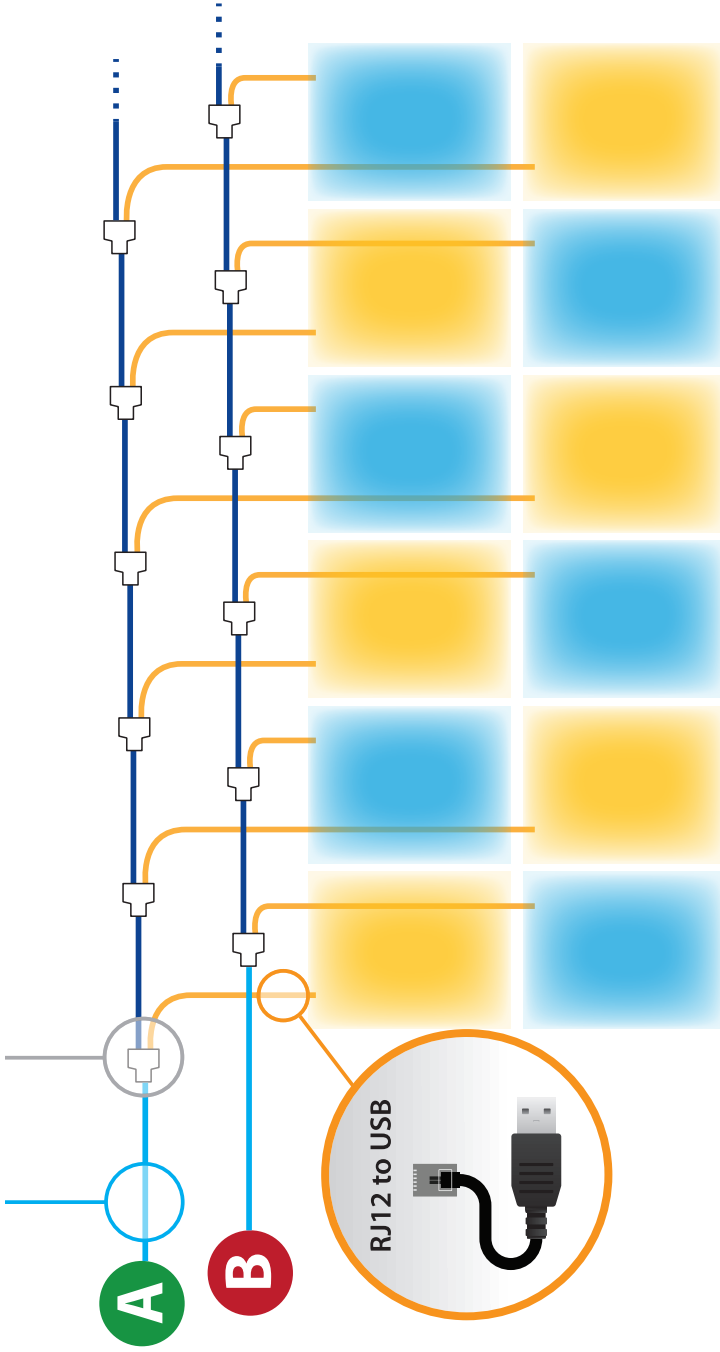


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# CABLE GUIDE



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## WARRANTY

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### LIMITED WARRANTY

Hydrofarm warrants the **APDPX2** to be free from defects in materials and workmanship. The warranty term is for 3 years beginning on the date of purchase. Misuse, abuse, or failure to follow instructions is not covered under this warranty. Hydrofarm's warranty liability extends only to the replacement cost of the product. Hydrofarm will not be liable for any consequential, indirect, or incidental damages of any kind, including lost revenues, lost profits, or other losses in connection with the product. Some states do not allow limitation on how long an implied warranty lasts or the exclusion of incidental or consequential damages, so the above limitations or exclusions may not apply to you. Hydrofarm will, at our discretion, repair or replace the **APDPX2** covered under this warranty if it is returned to the original place of purchase. To request warranty service, please return the **APDPX2**, with original sales receipt and original packaging, to your place of purchase. The purchase date is based on your original sales receipt.

