

0 - 10V PROTOCOL

1.1 0-10V Best Wiring Practice

Any manufacturer that makes a dimmer that sinks will work with Lumenetix modules since we source the voltage.

0-10V is a topology defined by the International Electrotechnical Commission (IEC) 60929 Annex E standard and uses a varying DC voltage between 1 and 10V to determine the lighting level. The fixture outputs a minimum light level below 1V which is defined as low-end. Between 1 and 10V, the signal corresponds to levels between the minimum and maximum output level. A signal above 10V corresponds to the maximum light level. Sometimes it is referred to as 1-10V, as that is the actual range in which the light levels will vary. Each dimmer will have their own distinct dimming profile.

Best practice is to limit the distance run for the analog control wiring from the controller to the last driver to 300'. This is based on 18 AWG wire. It is possible to extend the run to 400' by using 16 AWG wire, but that should be considered carefully as an exception to best design practice.

Whenever any part of the control circuit (the driver, dimer, or wire used) is designed for use in a Class 2 installation, it is critical that the entire control circuit be kept separate from Class 1 line voltage wiring per the requirement of National Electric Code, section 725.136. The electrical drawings must be very clear that class 1 and class 2 wiring cannot be combined. There must be separation because: a) it is possible for higher voltage wiring to induce an AC voltage in to the low voltage signal wiring; and, b) undesirable visual artifacts in the dimmed lighting can be caused when the line and low voltage wiring is run together (especially for long distances). We do not recommend installing the low voltage signal wiring in the same conduit or raceway as line voltage wiring even when all elements of the control circuit are listed for Class 1 wiring methods.

NOTE: Lumenetix modules operate between 1-10V. All dimmers that have minimum and maximum trim pots should be set at a minimum of 1 volt and a maximum of 10 volts, measuring the voltage at the end of the line.

0-10V Dimmers (recommended list)*

Crestron

ETC

Fresco

Legrand

Leviton

Lutron

Nexlight

N-Light

Pass & Seymour

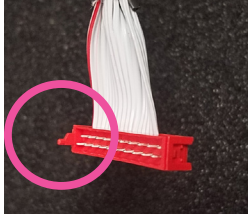
Vantage

Wattstopper

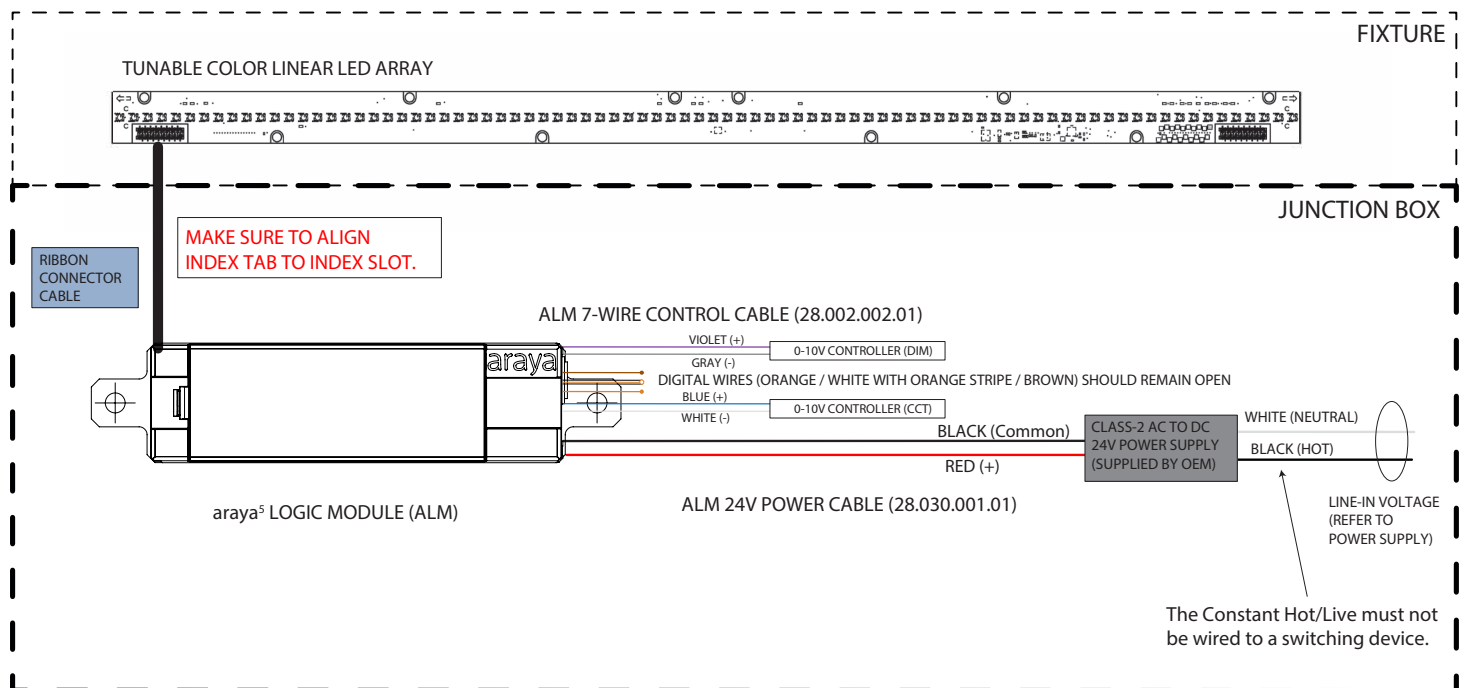
*Recommendations are subject to change. Consult your Lumenetix representative for the most updated list.

0 - 10V WIRING DIAGRAMS

2.1a LTM2 Linear Array - 24V

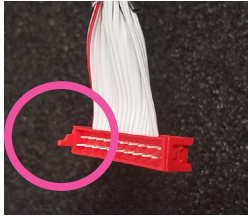


INDEX TAB ON RED END OF CABLE CONNECTOR SHOULD LINE UP WITH INDEX SLOT ON ALM.

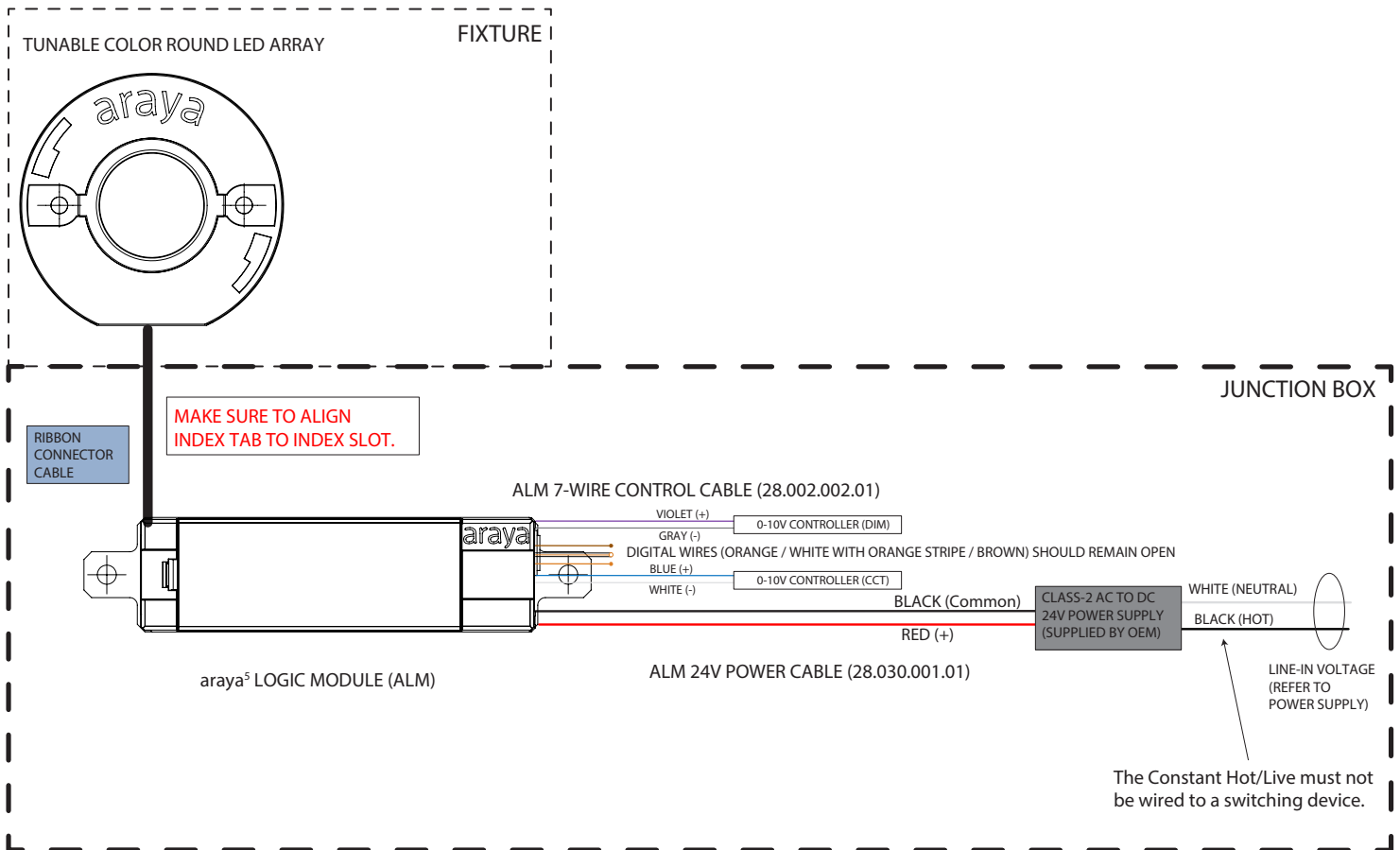


0 - 10V WIRING DIAGRAMS

2.1b CTM2 / DDM2 Round Array - 24V

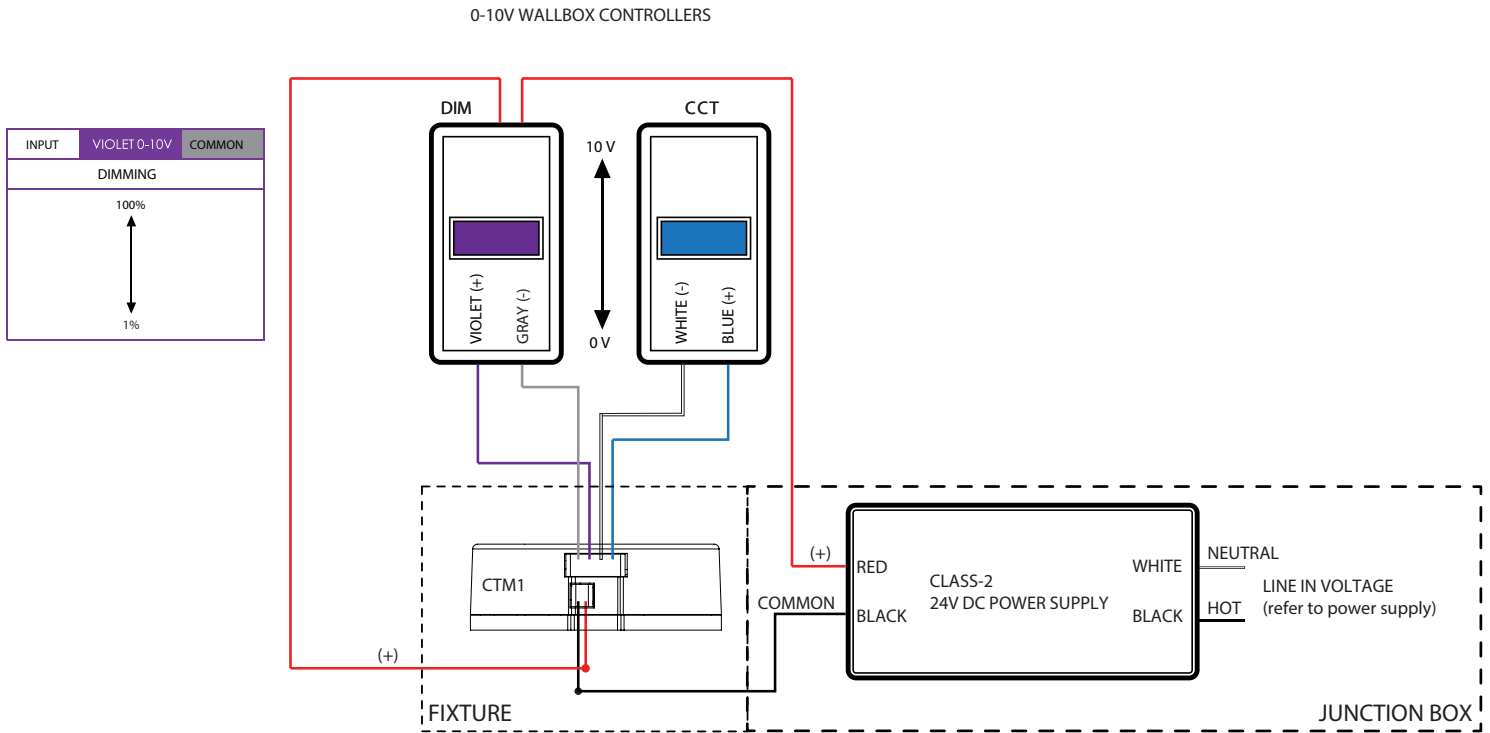


INDEX TAB ON RED END OF CABLE CONNECTOR SHOULD LINE UP WITH INDEX SLOT ON ALM.



0 - 10V WIRING DIAGRAMS

2.2a CTM1 24V — 0-10V Analog Control of CCT and Dimming



Lead Color and Input

Lead Color	Input
Red	Power 24V DC (+)
Black	Power Common (-)
Violet	0-10V Dimming (+)
Gray	Signal Common for 0-10V Dimming (-)
White	Signal Common for 0-10V Color (-)
Blue	0-10V Color (+)

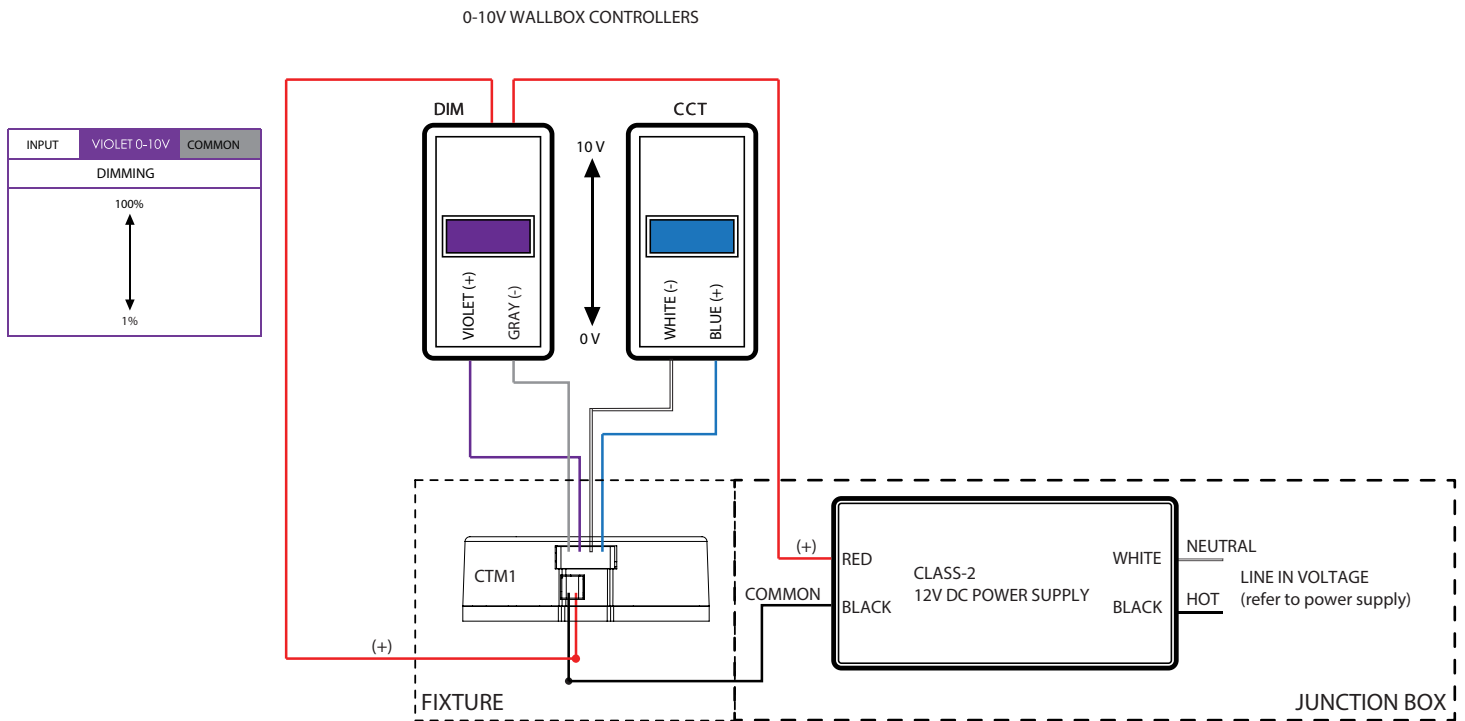
Lumenetix part #s:
 28.002.001.01 (power cable assembly)
 28.002.002.01 (control cable assembly)

Notes:

1. If 0-10V control is not being used for dimming, the violet control lead must be grounded to gray common lead.
2. CTM1 sources current to 0-10V control at 0.2mA nominal capacity.
3. *If using a wall box dimmer, power only the DIM unit. The CCT unit does not get line-in voltage.

0 - 10V WIRING DIAGRAMS

2.2b CTM1 12V — 0-10V Analog Control of CCT and Dimming



Lead Color and Input

Lead Color	Input
Red	Power 12V DC (+)
Black	Power Common (-)
Violet	0-10V Dimming (+)
Gray	Signal Common for 0-10V Dimming (-)
White	Signal Common for 0-10V Color (-)
Blue	0-10V Color (+)

Notes:

1. If 0-10V control is not being used for dimming, the violet control lead must be grounded to gray common lead.
2. CTM sources current to 0-10V control at 0.2mA nominal capacity.
3. *If using a wall box dimmer, power only the DIM unit. The CCT unit does not get line-in voltage.

Lumenetix part #s:

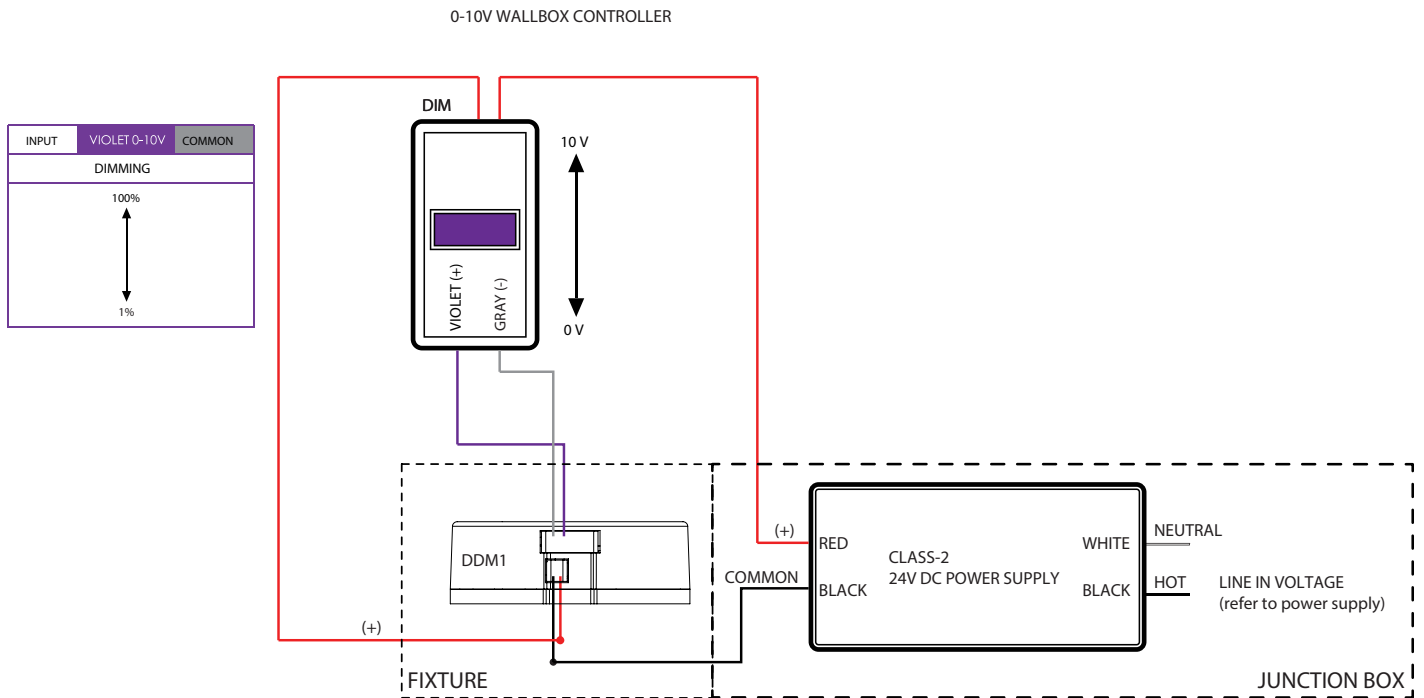
28.002.001.01 (power cable assembly)

28.002.002.01 (control cable assembly)

0 - 10V WIRING DIAGRAMS

2.3a DDM1 24V — 0-10V Analog Control of Dimming

0-10V Dimming Control Only. Remove power from the DDM. Connect a 0-10V control device to violet (+) and gray (-) wires. When the DDM is powered up, the 0-10V control device will adjust Dimming from 100-1%. Preset controls are not available in this configuration.



Lead Color and Input

Lead Color	Input
Red	Power 24V DC (+)
Black	Power Common (-)
Violet	0-10V Dimming (+)
Gray	Signal Common for 0-10V Dimming (-)

Notes:

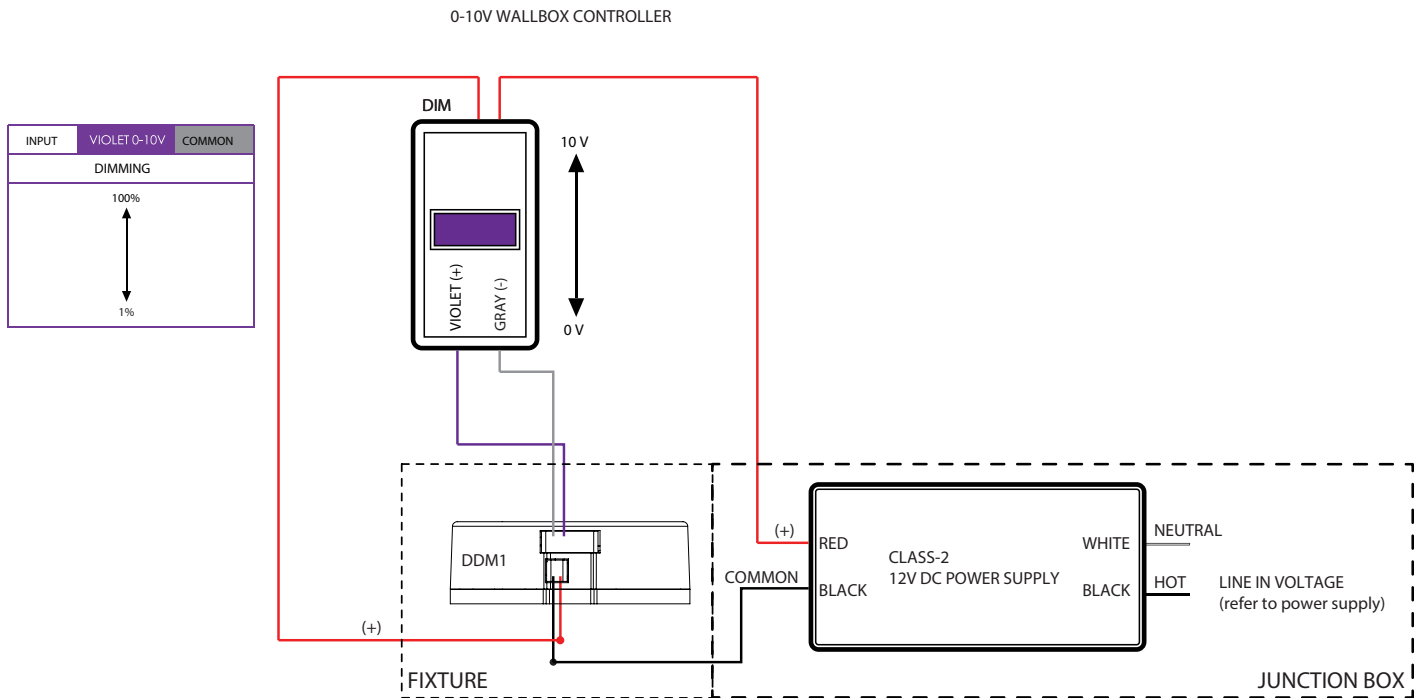
1. DDM sources current to 0-10V control at 0.2mA nominal capacity.
2. Only pins 1 and 6 are used in the control cable assembly.

Lumenetix part #s:
 28.002.001.01 (power cable assembly)
 28.002.002.01 (control cable assembly)

0 - 10V WIRING DIAGRAMS

2.3b DDM1 12V — 0-10V Analog Control of Dimming

0-10V Dimming Control Only. Remove power from the DDM. Connect a 0-10V control device to violet (+) and gray (-) wires. When the DDM is powered up, the 0-10V control device will adjust Dimming from 100-1%. Preset controls are not available in this configuration.



Lead Color and Input

Lead Color	Input
Red	Power 12V DC (+)
Black	Power Common (-)
Violet	0-10V Dimming (+)
Gray	Signal Common for 0-10V Dimming (-)

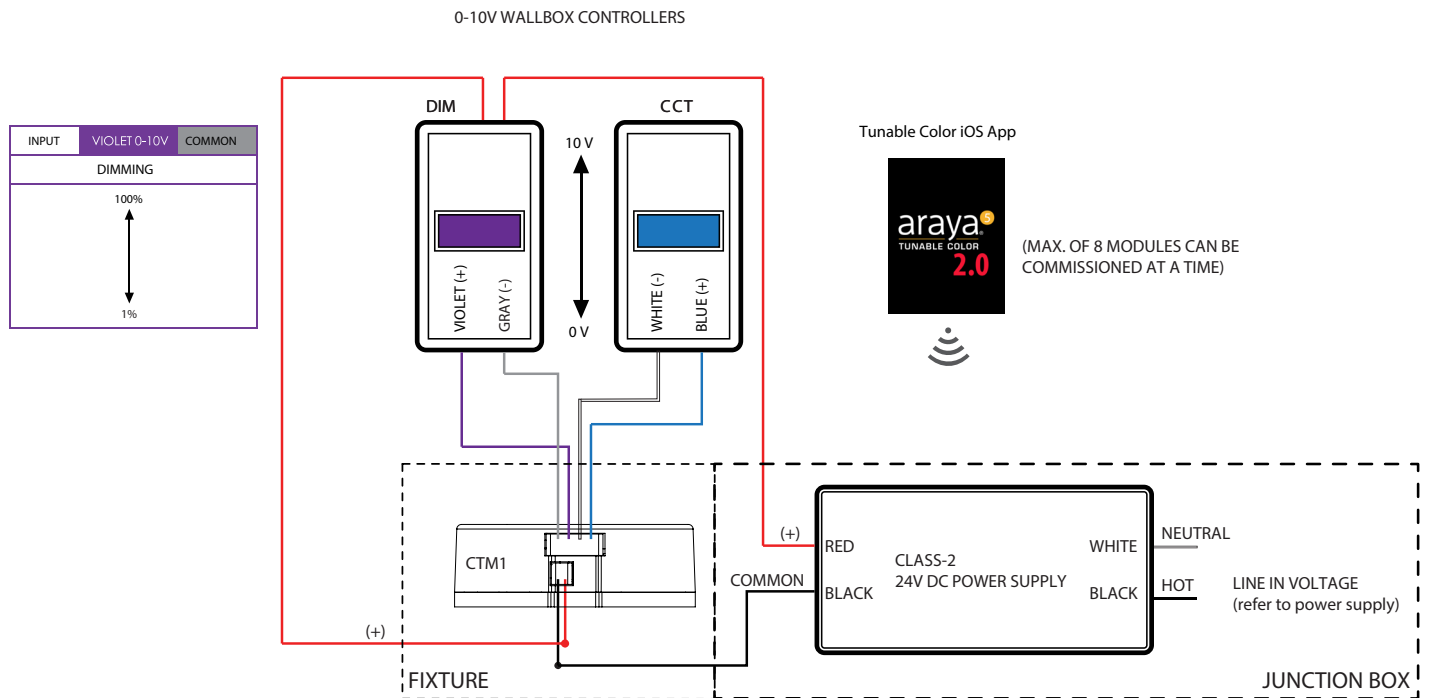
Notes:

1. DDM sources current to 0-10V control at 0.2mA nominal capacity.
2. Only pins 1 and 6 are used in the control cable assembly.

Lumenetix part #s:
 28.002.001.01 (power cable assembly)
 28.002.002.01 (control cable assembly)

0 - 10V WIRING DIAGRAMS

2.4a CTM1 24V (Bluetooth-integrated) — 0-10V Analog Control of Scenes / araya⁵ Tunable Color iOS App to Set or Amend Scenes



Lead Color and Input

Lead Color	Input
Red	Power 24V DC (+)
Black	Power Common (-)
Violet	0-10V Dimming (+)
Gray	Signal Common for 0-10V Dimming (-)
White	Signal Common for 0-10V Color (-)
Blue	0-10V Color (+)

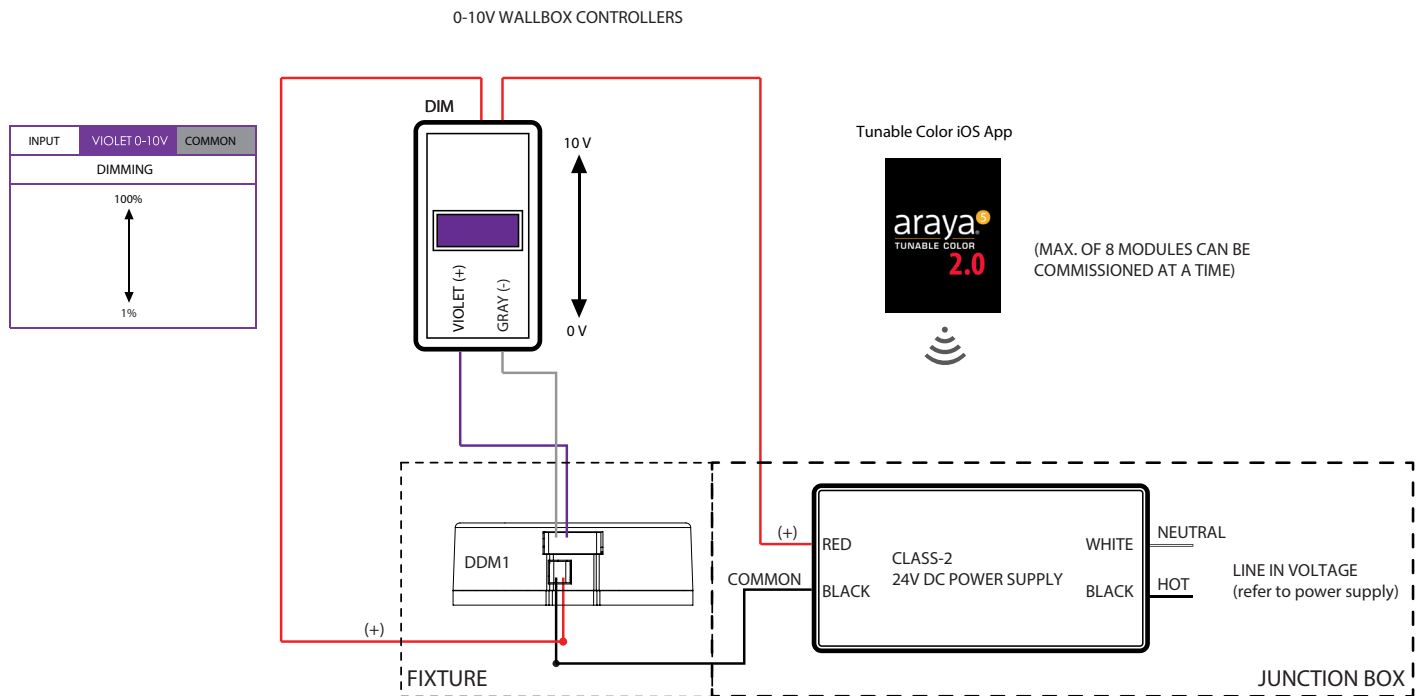
Lumenetix part #s:
 28.002.001.01 (power cable assembly)
 28.002.002.01 (control cable assembly)

Notes:

1. When the lamp is connected to a 0-10V line, the default is control of the continuous CCT range. The 0-10V line can instead be set to control scene set by sliding the Stored Scenes button to the "on" position in the araya⁵ Tunable Color iOS App. In this mode, the 0-10V control will toggle the light between up to 5 preset scenes. A scene is comprised of a CCT, Dim, Saturation & Hue level. Individual preset scenes can also be modified and activated with the iOS app. See araya⁵ Tunable Color Instruction Manual for more instructions.
2. If 0-10V control is not being used for dimming, the violet control lead must be grounded to gray common lead.
3. CTM sources current to 0-10V control at 0.2mA nominal capacity.
4. *If using a wall box dimmer, power only the DIM unit. The CCT unit does not get line-in voltage.

0 - 10V WIRING DIAGRAMS

2.4b DDM1 24V (Bluetooth-integrated) — 0-10V Analog Control of Scenes / araya⁵ Tunable Color iOS App to Set or Amend Scenes



Lead Color and Input

Lead Color	Input
Red	Power 24V DC (+)
Black	Power Common (-)
Violet	0-10V Dimming (+)
Gray	Signal Common for 0-10V Dimming (-)

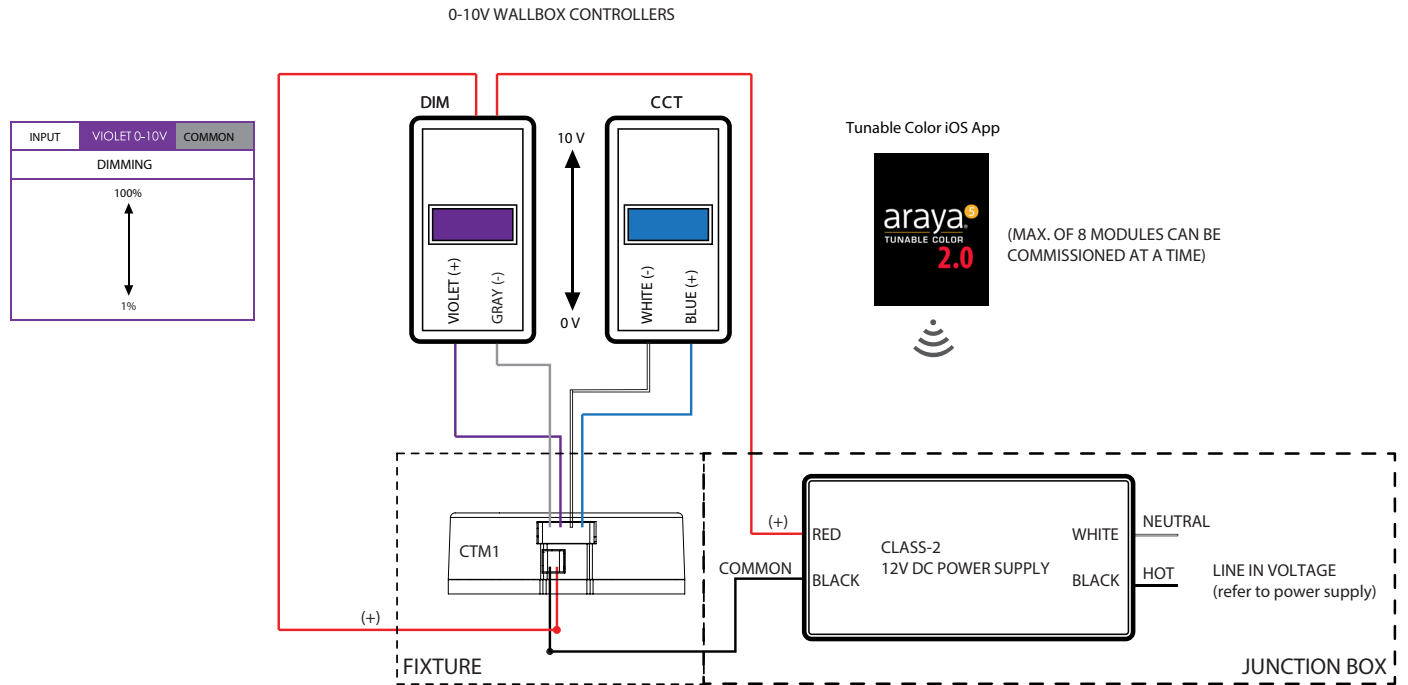
Lumenetix part #s:
 28.002.001.01 (power cable assembly)
 28.002.002.01 (control cable assembly)

Notes:

1. The 0-10V line can be set to control scene set by sliding the Stored Scenes button to the "on" position in the araya⁵ Tunable Color iOS App. In this mode, the 0-10V control will toggle the light between up to 5 preset scenes. A scene is comprised of a Dim level. Individual preset scenes can also be modified and activated with the iOS app. See araya⁵ Tunable Color Instruction Manual for more instructions.
2. DDM sources current to 0-10V control at 0.2mA nominal capacity.
3. Only pins 1 and 6 are used in the control cable assembly.

0 - 10V WIRING DIAGRAMS

2.5a CTM1 12V (Bluetooth-integrated) — 0-10V Analog Control of Scenes / araya⁵ Tunable Color iOS App to Set or Amend Scenes



Lead Color and Input

Lead Color	Input
Red	Power 12V DC (+)
Black	Power Common (-)
Violet	0-10V Dimming (+)
Gray	Signal Common for 0-10V Dimming (-)
White	Signal Common for 0-10V Presets (-)
Blue	0-10V Presets (+)

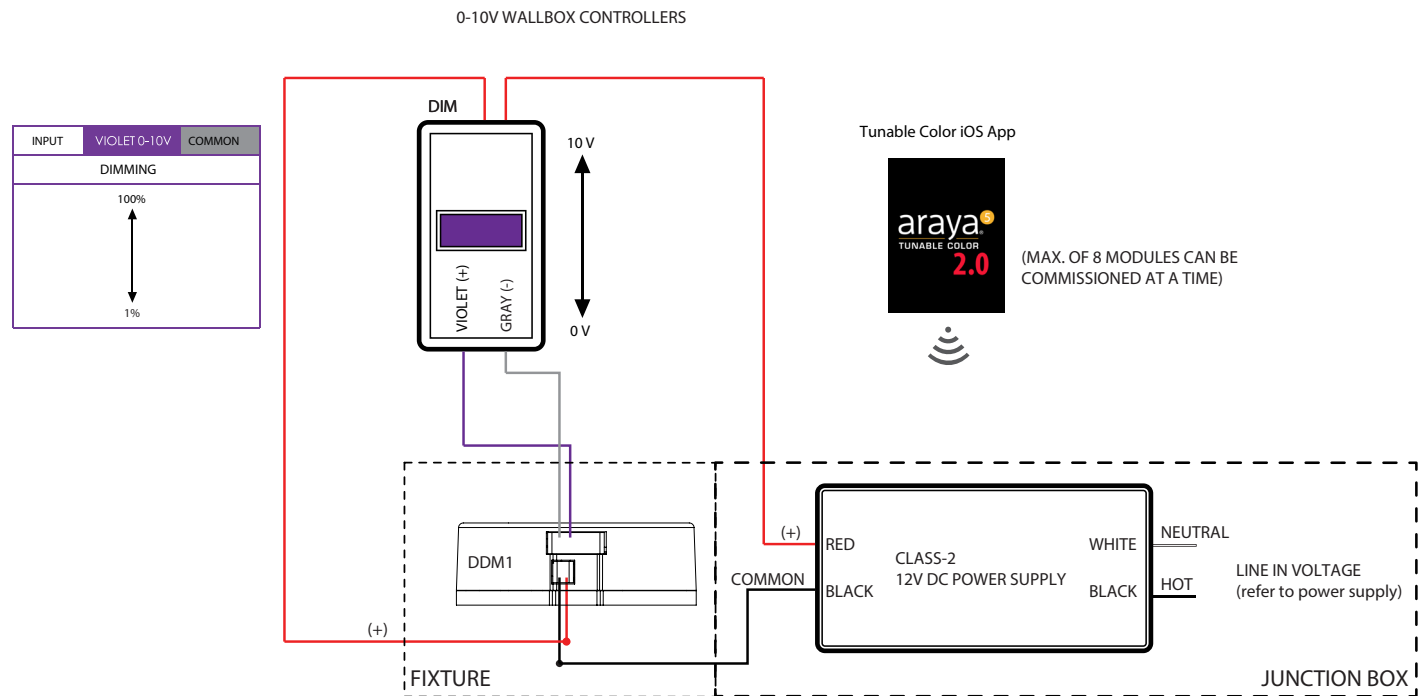
Lumenetix part #s:
 28.002.001.01 (power cable assembly)
 28.002.002.01 (control cable assembly)

Notes:

1. When the lamp is connected to a 0-10V line, the default is control of the continuous CCT range. The 0-10V line can instead be set to control scene set by sliding the Stored Scenes button to the "on" position in the araya⁵ Tunable Color iOS App. In this mode, the 0-10V control will toggle the light between up to 5 preset scenes. A scene is comprised of a CCT, Dim, Saturation & Hue level. Individual preset scenes can also be modified and activated with the iOS app. See araya⁵ Tunable Color Instruction Manual for more instructions.
2. If 0-10V control is not being used for dimming, the violet control lead must be grounded to gray common lead.
3. CTM sources current to 0-10V control at 0.2mA nominal capacity.
4. *If using a wall box dimmer, power only the DIM unit. The CCT unit does not get line-in voltage.

0 - 10V WIRING DIAGRAMS

2.5b DDM1 12V (Bluetooth-integrated) — 0-10V Analog Control of Scenes / araya⁵ Tunable Color iOS App to Set or Amend Scenes



Lead Color and Input

Lead Color	Input
Red	Power 12V DC (+)
Black	Power Common (-)
Violet	0-10V Dimming (+)
Gray	Signal Common for 0-10V Dimming (-)

Lumenetix part #s:
 28.002.001.01 (power cable assembly)
 28.002.002.01 (control cable assembly)

Notes:

1. The 0-10V line can be set to control scene set by sliding the Stored Scenes button to the "on" position in the araya⁵ Tunable Color iOS App. In this mode, the 0-10V control will toggle the light between up to 5 preset scenes. A scene is comprised of a Dim level. Individual preset scenes can also be modified and activated with the iOS app. See araya⁵ Tunable Color Instruction Manual for more instructions.
2. DDM sources current to 0-10V control at 0.2mA nominal capacity.
3. Only pins 1 and 6 are used in the control cable assembly.