Light Dimmer Box
(Model : EDS 0-10V

CE-AS1 V1.0

Features :

1. LED Fixture 0-10V dimmable
2. NEMA 4x enclosure (Corrosion, water resistent & fire retardant)
3. Manual mode using potentiometer
   (not supplied)
4. 0-10V external source mode

Call Tel-514-418-0895 or email at info@edsmtl.com

CE-AS1 Installation Manual

Description

The CE-AS1 is an analog signal converter and conditioner that will accept a standard 0-10V source analog signal coming from an automation controller and convert it to a 0-10V analog sink signal compatible with 0-10V dimmable LED drivers.

Configurations

For all configuration options, please refer to the wiring schematics.

Basic Configuration:

The system is connected to a 0-10V source signal only and operates in automatic mode. The input signal is filtered, conditioned and then converted to a 0-10V sink output suitable to drive 0-10V dimmable LED lights.

Power Cutoff Configuration:

Some LED lights cannot turn off using the dim signal only and power must be cut off for these lights to turn off completely. The system uses its 24VAC output to drive a relay that controls the power to the LED lights. When the input voltage drops below 0.5V, the 24VAC output turns off which cuts the power to the LED lights. When the input signal goes back to 1V or above (this value can be adjusted using the minimum adjust potentiometer), the 24VAC relay will turn back on, restoring power to the LED lights.

Manual Operation

Manual operation is achieved by using a toggle switch in combination with a potentiometer that are connected to the corresponding terminals on the CE-AS1. There are three ways to use the manual mode.

Full On Override:

This mode will allow the user to turn on the lights at their maximum brightness by using only a toggle switch. When the switch is on, the lights will be at their maximum. When the switch is off, the lights will dim according to the 0-10V source signal. Full On Override Mode is achieved by connecting the switch to pins 2 and 3 of the switch terminals on the CE-AS1.

Manual Mode Override:

This mode allows the user to adjust the brightness using an external potentiometer by using a toggle switch. When the switch is on, the brightness will be controlled by the external potentiometer. When the switch is off, the lights will dim according to the 0-10V source signal. Manual Mode Override is achieved by connecting the switch to pins 1 and 2 of the switch terminals on the CE-AS1.

Combined Manual Modes:

Both manual modes can be combined by using a 3 position (ON – OFF – ON) toggle switch. Pins 1, 2, and 3 of the switch are connected to pins 1, 2 and 3 of the switch terminals on the CE-AS1. Pin 2 is the common pin.

Using two different switches is possible but not recommended, as the system may react erratically when both switches are on.

Minimum Adjust

You may notice that not all lights turn on at minimum level, or that some lights are brighter than others. When this happens, you need to adjust the minimum level by following these simple steps:

1- Set your source signal at 1V.

2- If all lights are on, turn the minimum adjust potentiometer counterclockwise until some of the lamps start to turn off.

3- Turn the minimum adjust potentiometer clockwise slowly until all lights are turned on.

This procedure may need to be repeated once in a while as electronic components will age and slightly shift their values.

Specifications

Main power : 24VAC, 50mA, 1.2VA, 50/60Hz, Class 2

Fuse F1 : Littelfuse TR5 Time Lag Fuse, 250VAC, 1A Part #: 37411000410 Replace fuse with same type and rating only. Always disconnect power before replacing fuse.

0-10V Source Input : Max voltage: 12VDC Impedance: > 250Kohm

0-10V Sink Output : Max voltage: 60VDC Max current: 960mA

Potentiometer : Minimum: 2Kohm Typical: 10Kohm Maximum: 100Kohm

Mode Switch Terminals : Voltage applied to the switch: 5VDC Current through the switch: < 1mA

24VAC Relay Output : Voltage: 24VAC Max Current: 400mA

Operating Temperature: Minimum: 0°C Maximum: 40°C

Max Humidity: 80% Non Condensing

Dimensions: External Enclosure: 182mm x 180mm x 90mm

Certifications

The enclosure complies with the following norms:

DLG (Ammonia resistance)

UL50 & CSA C22.2 No. 94.1-07 - Standard for Enclosures for Electrical Equipment, Non-Environmental Considerations **NEMA 4X**

UL50E & CSA C22.2 No. 94.2-07 - Standard for Enclosures for Electrical Equipment, Environmental Considerations, **NEMA 4X**

UL746C - Standard for Polymeric materials

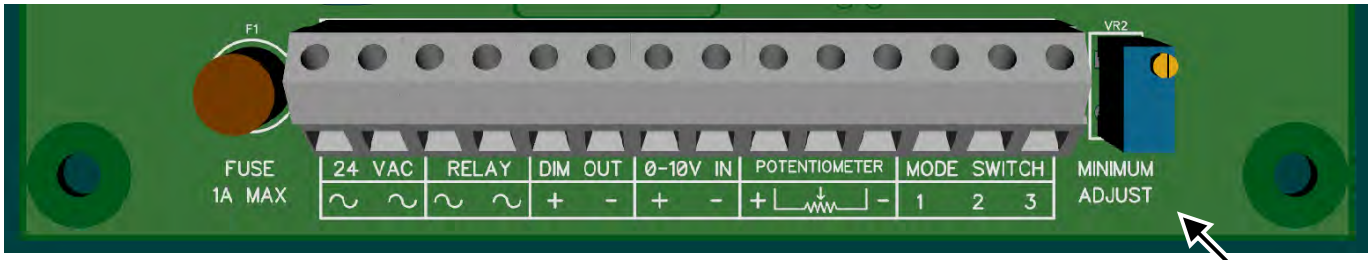
CSA C22.2 No. 0.17-00 - Standard for Evaluating of Properties of Polymeric Materials

The system is powered from a Class 2 current limiting transformer and therefore is exempt from certification according to rule 2-024 of the CEC (See also section 16-200 on Class 2 low energy power circuits). The transformer used to power the device must comply with all Class 2 requirements and must be approved CSA / UL or equivalent. It must comply with CAN/CSA-C22.2 No. 223, or CSA C22.2 No. 66.1 and CSA C22.2 No. 66.3

The installation of the system must follow all Class 2 circuit requirements and must follow all regulations found in the electrical code.

Wiring

Basic Configuration



24VAC
Transformer

\+ V -

External
0-10V Source

Dim + Dim -

120V AC
Input

LED Luminaire

120V AC Mains

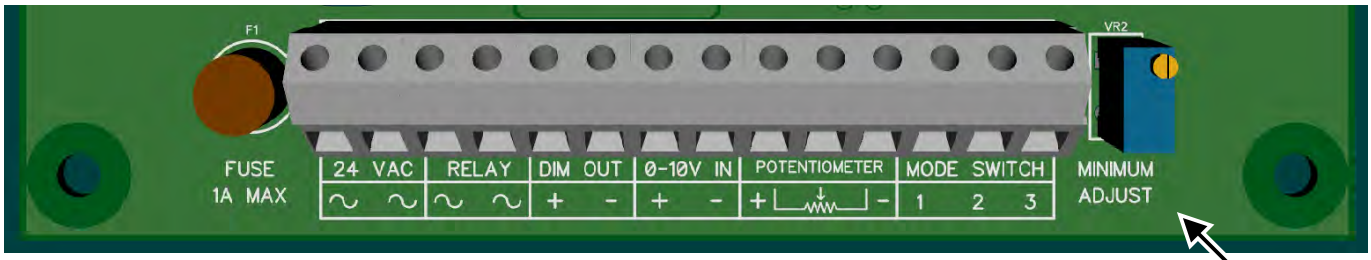
To adjust the minimum level:

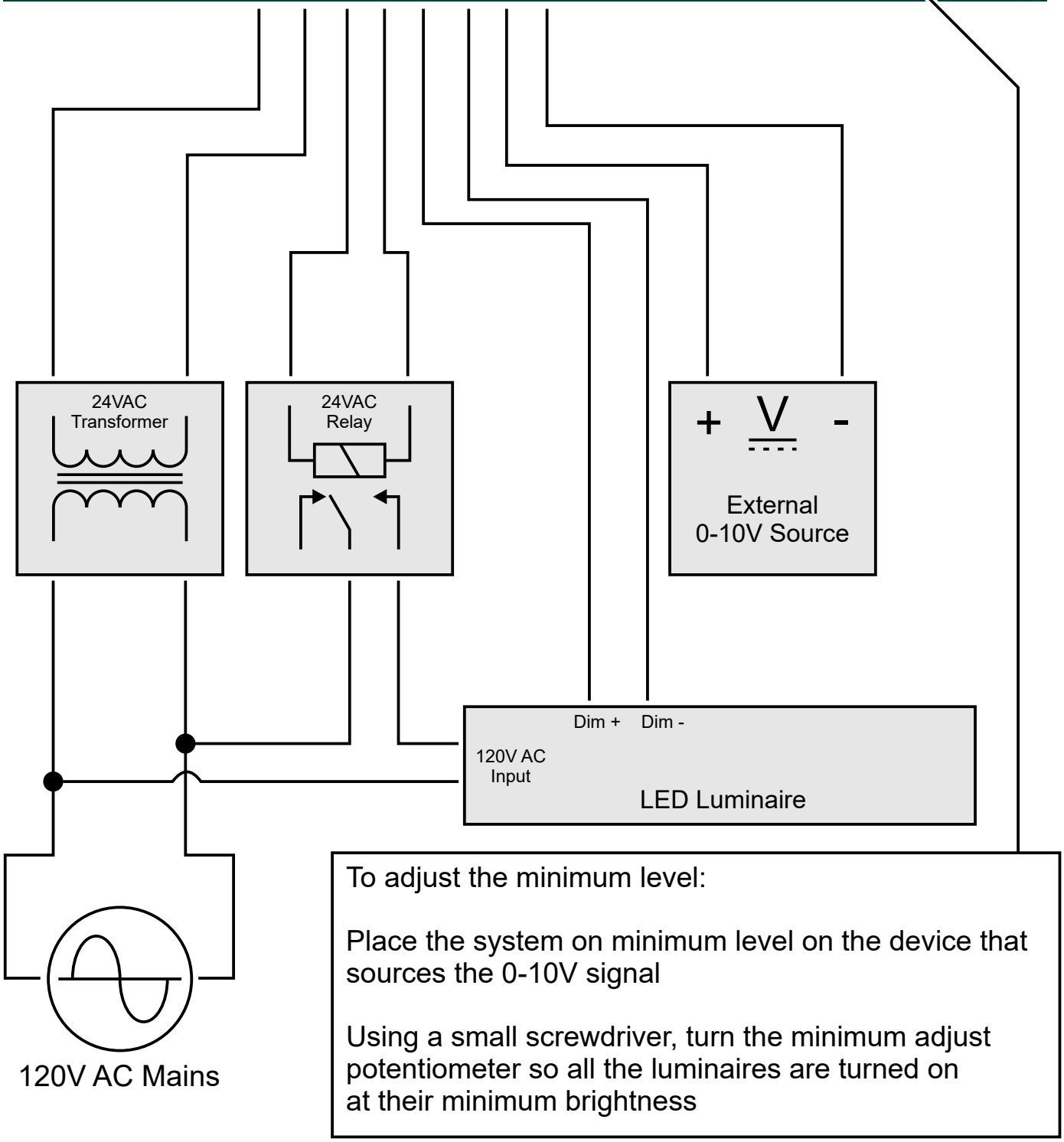
Place the system on minimum level on the device that sources the 0-10V signal

Using a small screwdriver, turn the minimum adjust potentiometer so all the luminaires are turned on at their minimum brightness

Wiring

Power Cutoff Configuration





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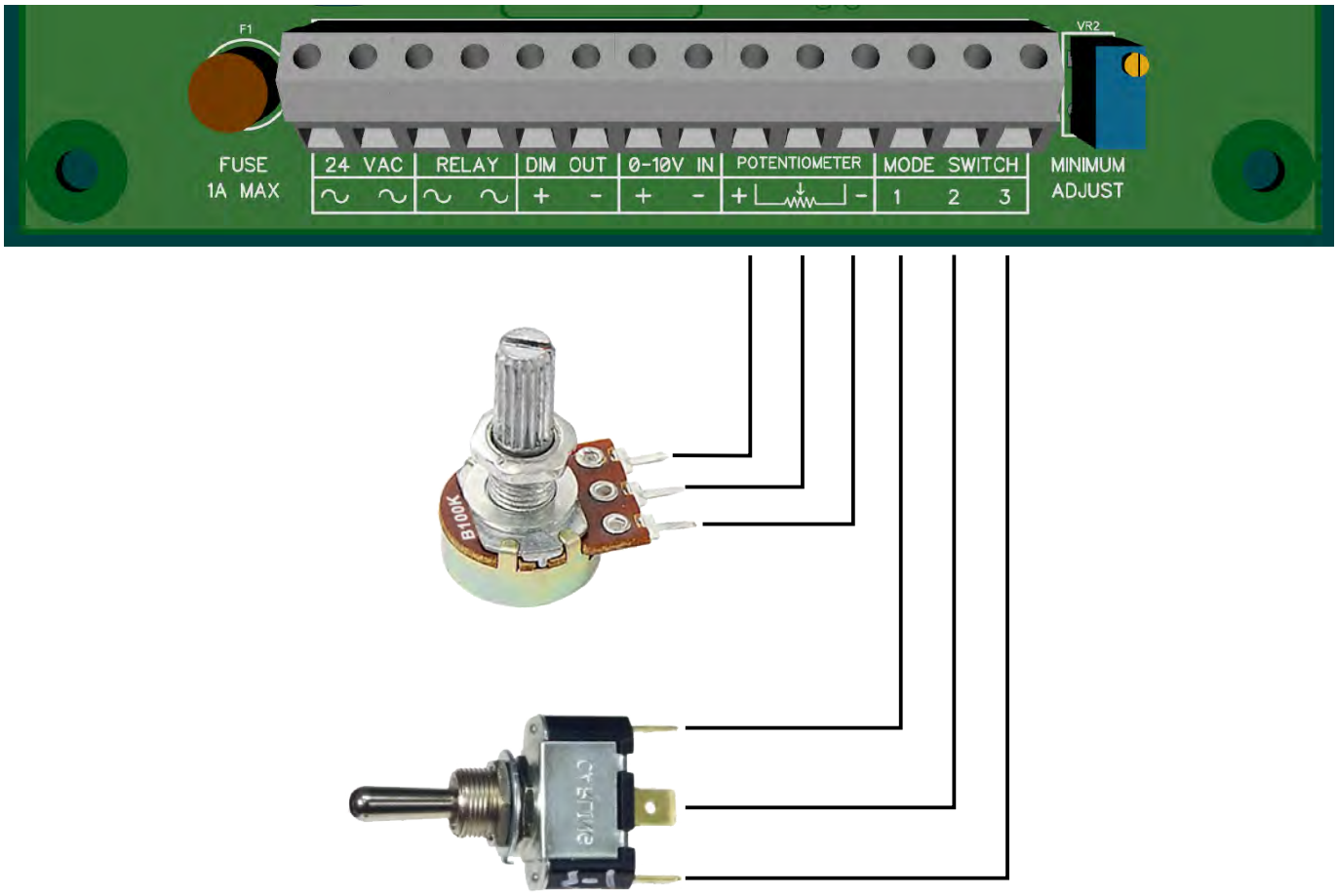
Wiring

Optional Components For Manual Operation



To reverse potentiometer direction, swap + and - pins

When switch closes pins 1 and 2, system is in manual mode using the potentiometer as a reference

When switch closes pins 2 and 3, system is full on

When switch is open, system is in automatic mode using the 0-10V input as a reference

If the “full on” mode is not required, a SPST toggle switch connected to pins 1 and 2 can be used for manual mode

If the manual mode is not required, a SPST toggle switch connected to pins 2 and 3 can be used for “full on” mode