SWITCHEX®

DIMMER + DRIVER

INSTALLATION SHEET

Richelieu

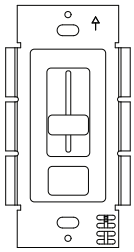
c UL us LISTED | FC | DRY LOCATION | DIMMABLE | 12 VDC | 24 VDC

SAFETY AND WARNINGS

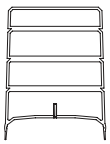
1. UNLIKE TRADITIONAL DIMMING CONTROLS, SWITCHEX REQUIRES UNIQUE WIRING STEPS. READ ALL WARNINGS AND INSTALLATION INSTRUCTIONS THOROUGHLY.
2. Install in accordance with national and local electrical code regulations.
3. This product is intended to be installed and serviced by a qualified, licensed electrician.
4. NEC Code 725.136: Class 1 and Class 2 circuits in same enclosure must be separated by a barrier unless Class 2 circuit conductors are installed in accordance with 725.41 Class 1 Circuits.
5. Only install compatible 12 V or 24 V Constant Voltage DC fixtures or warranty will be void.
6. Do not modify product beyond instructions or warranty will be void.

SUPPLIED ACCESSORIES

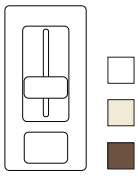
SWITCHEX



Barrier



Face Plate (3)*

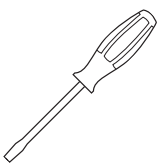


Twisted Wire Connector (4)

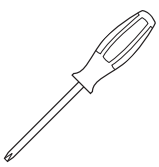
Mounting Screw (2)

TOOLS FOR INSTALL

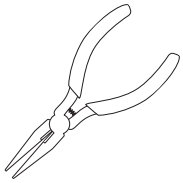
Flat-head screwdriver



Phillips-head screwdriver



Pliers



DIMMER MODELS

No.	Input Voltage	Output Voltage	Max. Load
D11260	120 VAC	12 VDC	60 W
D124100		24 VDC	100 W

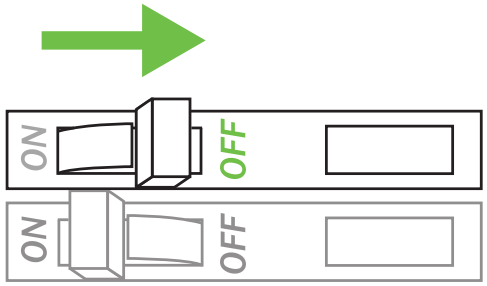
APPROVED LED FIXTURES

SWITCHEX is compatible with LED solid color 12 V and 24 V tape light and fixtures.

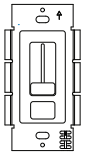
INSTALLATION

1 TURN POWER OFF AT CIRCUIT BREAKER

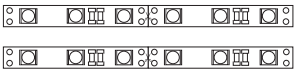
SHOCK HAZARD! May result in serious injury or death.
Turn power OFF at circuit breaker prior to installation.



2 DETERMINE LOCATION TO INSTALL COMPONENTS



SWITCHEX



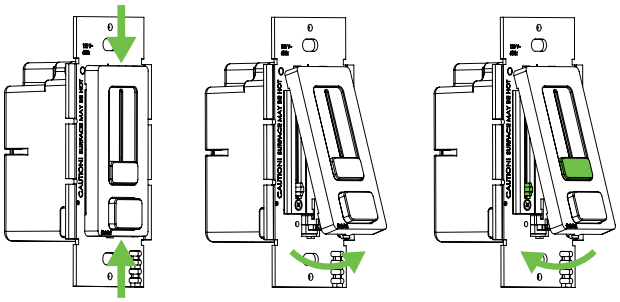
Low Voltage Tape Light / Fixture

INSTALLATION (CONT.)

3 REMOVE EXISTING SWITCH (IF NECESSARY)

A. Remove trim plate and switch mounting screws.
B. Pull switch from wall.
C. Identify wires connected to switch and mark wires if desired.
D. Disconnect wires from switch.

4 CHOOSE FACE PLATE FINISH (IF NECESSARY)



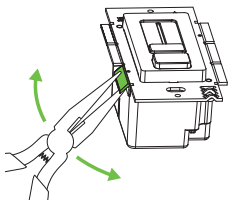
A. Gently squeeze top and bottom of face plate.

B. Lift face plate from housing.

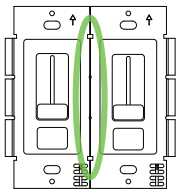
C. Insert replacement face plate into top housing groove. Position housing slider and face plate slider at min brightness (bottom level) and pop on face plate.

5 REMOVING FINS (IF NECESSARY)

It's required to break off dimmer fins when ganging multiple dimmers in same wall box.



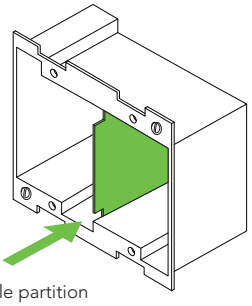
Grip with pliers. Bend back and forth until fin breaks off.



Fins have been removed.

ZERO LOAD DERATING
Unlike standard high voltage AC controls, removing SWITCHEX fins does not reduce the dimmer's maximum wattage rating.

Install gang boxes that include vertical partitions (available at local electrical distributor) unless Class 2 circuit conductors are installed in accordance with 725.41 Class 1 Circuits.



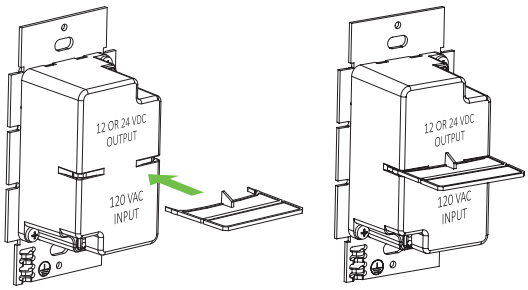
Removable partition

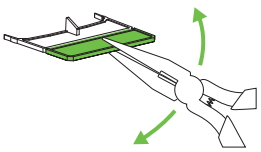
INSTALLATION (CONT.)

6 ATTACH VOLTAGE PARTITION (BARRIER)

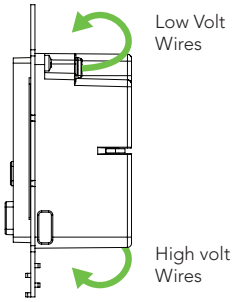
A voltage barrier is provided, which separates high voltage and low voltage wires in the wall box. Attach before mounting.

NEC CODE 725.136
Class 1 and Class 2 circuits in same enclosure must be separated by a barrier unless Class 2 circuit conductors are installed in accordance with 725.41 Class 1 Circuits. For example, Non-Metallic (NM) cable is considered a Class 1 circuit conductor. Therefore, if both high voltage and low voltage circuits are installed with NM cable then the voltage barrier is not required for installation.





For shallow boxes, barrier can be shortened. Grip with pliers. Bend back and forth until fin breaks off.

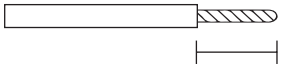


For extra shallow wall boxes it's acceptable to use the dimmer housing as a barrier. Tuck wires on top and bottom sides of dimmer housing.

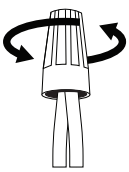
7 WIRE DIMMER

SPECIAL WIRING INSTRUCTIONS!
SWITCHEX requires unique wiring steps. Read thoroughly.

A. Strip wires on dimmer.



B. Wire dimmer. **Ensure main power is OFF.**

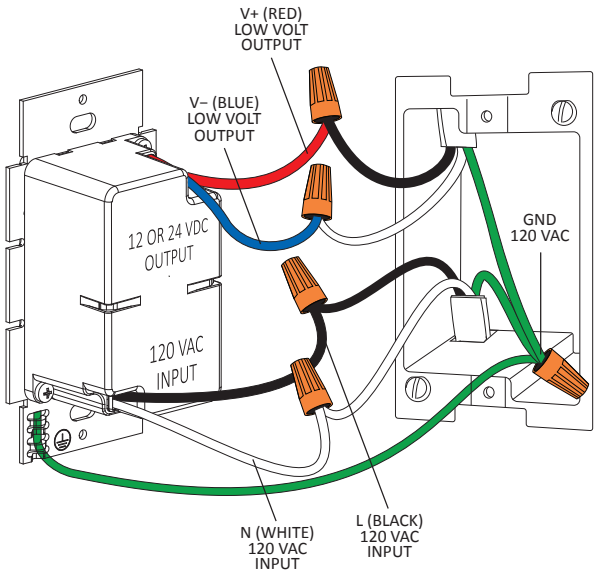


- GND (GREEN): To ground wire in box
- V+ (RED): To low voltage V+
- V– (BLUE): To low voltage V–
- N (WHITE): To 120 V Neutral
- H (BLACK): To 120 V Line Hot

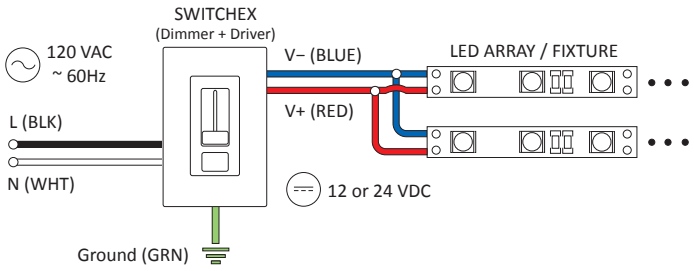
INSTALLATION (CONT.)

7 WIRE DIMMER (CONT.)

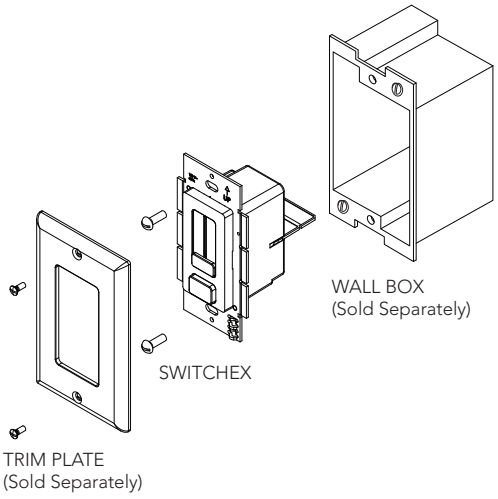
VOLTAGE DROP
See VOLTAGE DROP CHARTS at end of this guide for wire gauge recommendations installed between dimmer and fixture.



SYSTEM DIAGRAM

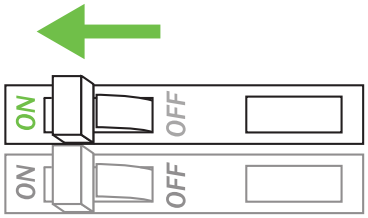


8 MOUNT DIMMER TO WALLBOX AND ATTACH TRIM PLATE



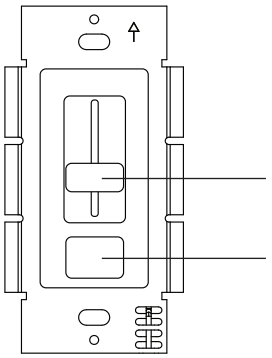
INSTALLATION (CONT.)

9 TURN POWER ON AT THE CIRCUIT BREAKER



SYSTEM WORKING IMPROPERLY?
Turn power OFF at circuit breaker and verify all connections. Review WIRING and TROUBLESHOOTING or call Diode LED Technical Support at 877.817.6028.

OPERATION



TROUBLESHOOTING

Symptom	Common Cause
Fixture does not illuminate	• Incorrect wiring. Polarity of Low Voltage V+ and V- are reversed. • Circuit breaker is OFF or tripped. • Incorrect voltage pairing of dimmer and fixture. 12 V dimmer models will not power a fixture with a higher voltage rating.
• Different fixtures do not dim in sync. • Fixture turns off at low dim level. • Fixture strobes/flickers at low dim level. • Dimmer buzzes excessively	• Only install 12 V or 24 VDC tape lights on the compatibility list.
Fixture heats up excessively	• Incorrect voltage pairing of dimmer and fixture. Do not attach a 12 V fixture to a 24 V dimmer. • Fixture is not compatible.

VOLTAGE DROP CHARTS

For best performance and lumen output, ensure proper wire gauge is installed to compensate for voltage drop of low voltage circuits.

EXAMPLE: 12 V VOLTAGE DROP & WIRE LENGTH DISTANCE CHART

Wire Gauge	5W .42A	10 W .8 A	20 W 1.7 A	30 W 2.5 A	40 W 3.3 A	50 W 4.2 A	60 W 5.0 A
22 AWG	27 ft	14 ft	7 ft	4.5 ft	3.5 ft	2.8 ft	2.2 ft
20 AWG	43 ft	18 ft	9 ft	6 ft	5 ft	4 ft	3 ft
18 AWG	68 ft	34 ft	17 ft	11 ft	8 ft	6 ft	5 ft
16 AWG	110 ft	54 ft	27 ft	18 ft	13 ft	10 ft	9 ft
14 AWG	170 ft	86 ft	43 ft	29 ft	21 ft	17 ft	14 ft
12 AWG	275 ft	134 ft	68 ft	45 ft	34 ft	27 ft	22 ft
10 AWG	430 ft	199 ft	99 ft	66 ft	49 ft	39 ft	33 ft

1. Determine load size. Let's assume load is 55 W. Round up to nearest load.
2. Determine distance from SWITCHEX to load. Let's assume the distance is 20 ft.
3. It's recommended to install 12 AWG to eliminate excess voltage drop.

12 V VOLTAGE DROP & WIRE LENGTH DISTANCE CHART

Wire Gauge	5W .42A	10 W .8 A	20 W 1.7 A	30 W 2.5 A	40 W 3.3 A	50 W 4.2 A	60 W 5.0 A
22 AWG	27 ft	14 ft	7 ft	4.5 ft	3.5 ft	2.8 ft	2.2 ft
20 AWG	43 ft	18 ft	9 ft	6 ft	5 ft	4 ft	3 ft
18 AWG	68 ft	34 ft	17 ft	11 ft	8 ft	6 ft	5 ft
16 AWG	110 ft	54 ft	27 ft	18 ft	13 ft	10 ft	9 ft
14 AWG	170 ft	86 ft	43 ft	29 ft	21 ft	17 ft	14 ft
12 AWG	275 ft	134 ft	68 ft	45 ft	34 ft	27 ft	22 ft
10 AWG	430 ft	199 ft	99 ft	66 ft	49 ft	39 ft	33 ft

24 V VOLTAGE DROP & WIRE LENGTH DISTANCE CHART

Wire Gauge	5 W .2 A	10 W .42 A	20 W .83 A	30 W 1.3 A	40 W 1.7 A	50 W 2.1 A	60 W 2.5 A	70 W 2.9 A	80 W 3.3 A	90 W 3.75 A	100 W 4.2 A
22 AWG	107 ft	52 ft	27 ft	17 ft	13 ft	10.5 ft	9 ft	7.5 ft	6.8 ft	6 ft	5.3 ft
20 AWG	170 ft	85 ft	43 ft	27 ft	21 ft	17 ft	14 ft	12 ft	11 ft	9 ft	8 ft
18 AWG	270 ft	134 ft	68 ft	45 ft	33 ft	27 ft	22 ft	19 ft	17 ft	15 ft	14 ft
16 AWG	430 ft	215 ft	109 ft	72 ft	54 ft	43 ft	36 ft	31 ft	27 ft	24 ft	22 ft
14 AWG	680 ft	345 ft	174 ft	115 ft	86 ft	69 ft	57 ft	49 ft	43 ft	39 ft	36 ft
12 AWG	1090 ft	539 ft	272 ft	181 ft	135 ft	108 ft	90 ft	77 ft	68 ft	61 ft	56 ft
10 AWG	1730 ft	784 ft	397 ft	263 ft	197 ft	158 ft	131 ft	112 ft	98 ft	97 ft	82 ft

VOLTAGE ADJUSTMENT

SWITCHEX can provide a 1V boost if the fixture is receiving noticeable light degradation.

A. Pop off face plate as shown in Step 4 of INSTALLATION.
B. Use a small screwdriver to adjust output voltage by turning adjustment dial clockwise.