

---

# Normal Power Relay with Emergency Bypass Relay R20D-EM and WR20D-EM Installation Instructions

---

## IMPORTANT SAFEGUARDS

When using electrical equipment, basic safety precautions should always be followed, including those listed below:

### READ AND FOLLOW ALL SAFETY INSTRUCTIONS

1. CAUTION – The Fixture, Normal power relay and Emergency Bypass Relay (R20D-EM, WR20D-EM) is powered by more than one power source. To reduce the risk of electrical shock, disconnect both normal and emergency sources by turning off the A.C. branch circuit breakers.
2. Caution – Installation and servicing should be performed by a **qualified person only**. De-energizing all circuits before servicing.
3. Do Not Use Outdoors. The device is for use with grounded, UL Listed, indoor fixtures. Not for use in wet or hazardous locations. Install to a ½" Ko in a standard j-box or enclosure, suitable for plenum mounting.
4. Do not mount near gas or electric heaters.
5. Refer to product cut sheet for additional operating environment specifications.
6. The device requires an unswitched A.C. normal power source of 120 to 277 volts A.C. 50/60Hz for the normal lighting loads, and an unswitched Emergency A.C. power source to be controlled by the Shunt relay portion of the device for the Emergency lighting loads.
7. When used with 0-10V dimming drivers the two dimming control connections should be wired as indicated to the normal and emergency lights independently.
8. The device should be mounted in a location and at heights where it will not be readily subject to tampering by un-authorized personnel, but still accessible to an electrician for testing and maintenance.
9. Do not use this equipment for other than its intended use.
10. The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition, void warranty, and result in non-compliance with UL specifications.
11. Install in accordance with National Electrical Code and local regulations.
12. Test all connections and verify operation.

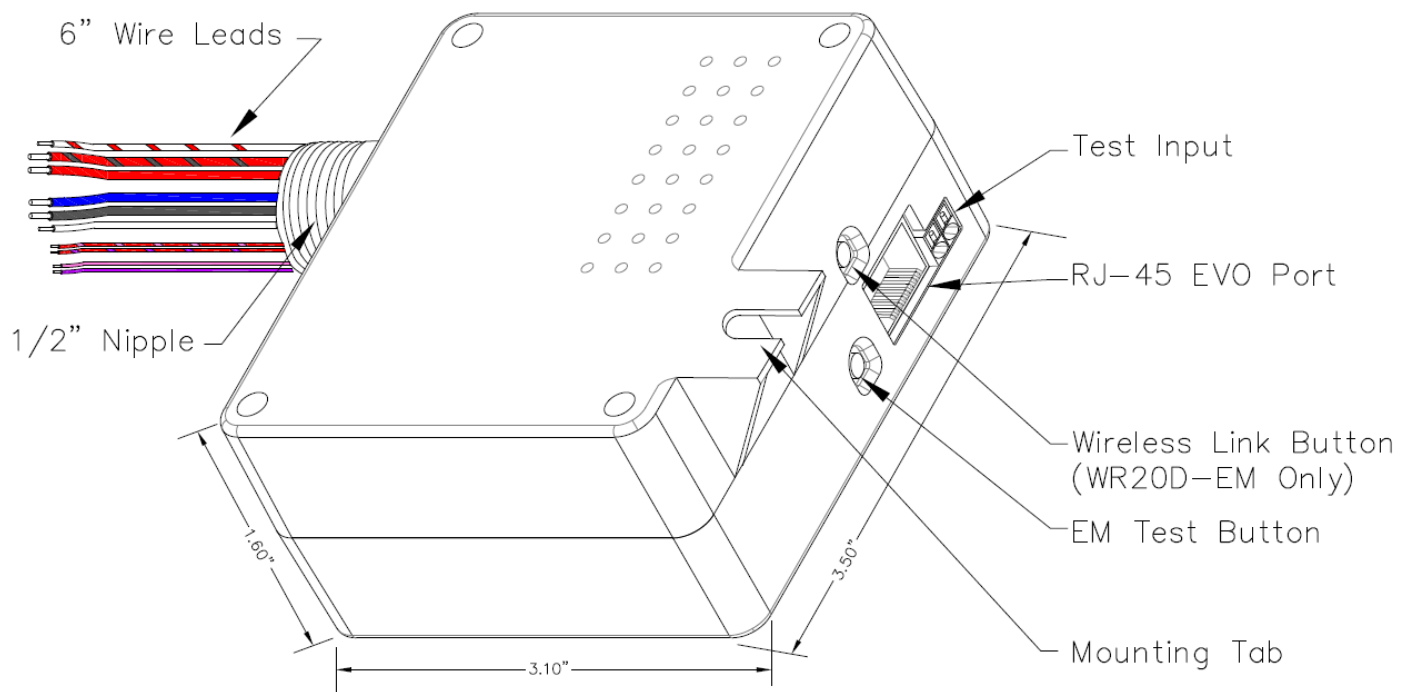
**SAVE THESE INSTRUCTIONS  
INSTALLATION INSTRUCTIONS**

## 1. FIXTURE CONTROLLED

The R20D-EM or WR20D-EM relay is a combination of a normal power control relay and a UL924 rated shunt trip bypass device that can be used with most lighting fixtures including LED, incandescent, or fluorescent loads. The device is rated for 20 Amps at 120 and 277VAC with independent wiring leads for both Normal and Emergency power and dimming control.

## 2. MOUNTING

Mount the device to a standard junction box or enclosure using a 1/2" KO and locking nut provided, and secure with the mounting tab as shown in Detail 1. Always mount the device in a location where it will not be readily subject to tampering by un-authorized personnel but still accessible to an electrician for testing and maintenance.



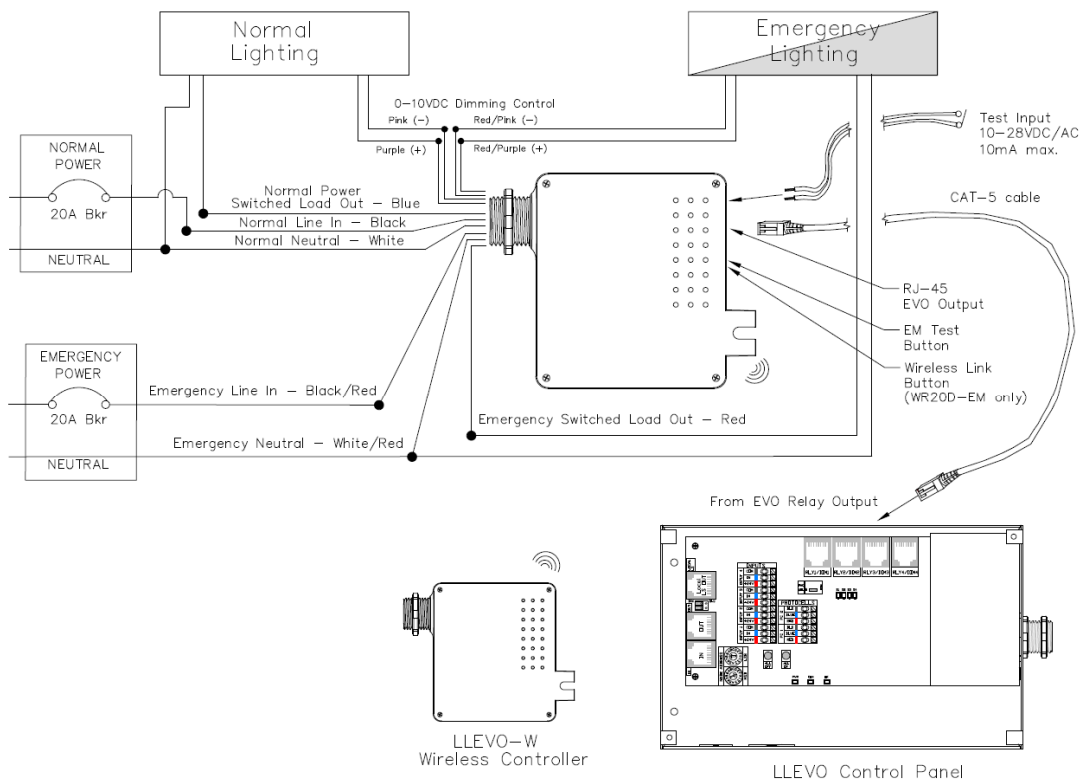
**Detail 1**

### 3. WIRING

- Connect the normal power leads to the normal power source and lighting fixtures to be controlled.
- Terminate the normal power 0-10VDC dimming leads to the normal power fixtures.
- Connect the Emergency power leads to the emergency power source and lighting fixtures to be controlled.
- Terminate the Emergency power 0-10VDC dimming leads to the Emergency fixtures.
- Connect a CAT-5 data cable from the RJ-45 terminal to the EVO panel. The Wireless WR20D-EM will have a Link button for establishing the radio connection to ILC wireless control device.
- Turn On the Emergency and Normal power sources and test the operation of the device.
- If used, pull 2 wires from the Fire alarm system or remote test switch, connect to the test input terminal. This input accepts a 10-28VDC/AC signal and draws 10mA maximum to trigger the input.

#### Caution:

The device is powered by more than one power source. To reduce the risk of electrical shock, disconnect both normal and emergency sources by turning off the AC branch circuit breakers. The 0-10V Dimming leads from a LED driver can have AC Leakage voltage, test for both AC and DC voltage on dimming control wires and handle wiring appropriately.



**Wiring Detail 2**

#### 4. OPERATION

The device is a combination normal power control and UL-924 emergency shunt bypass relay device that will automatically bypass to emergency power to an On state when normal power is lost. With normal power present the emergency portion will automatically track the on/off state of the normal power load relay, switching the emergency powered bypass relay on/off to match. The EM dimming control will also track the normal dimming and will automatically open when normal power is lost causing the EM dimming control to go to a 100% non-dim state.

#### 5. LABELING

Label all wire connection and record the circuit number for both Normal and Emergency power for future maintenance.

#### 6. TESTING AND MAINTENANCE

The R20D-EM and WR20D-EM is a maintenance free unit, however periodic inspection and testing is required. Follow Life Safety Codes and local ordinances requirements, test the device on a schedule and keep written records of the test if required.

To test the device, press the EM Test button to force the device into an On-Override state, or by shutting Off the normal power circuit breaker to simulate a “BLACK OUT”. The device will automatically turn On the EM load and dimming control will go to a 100% non-dim state. The device will no longer respond to control. When normal power is returned, the device will return to normal operation and track current relay control and dimming.

This test can be done using the normal power breaker panel feeding the device, or by simulating a building wide power loss during a Generator or UPS system test.

The device is also provided with a test input that can be activated by triggering an alarm event at the fire alarm/security system or by activating the remotely mounted test station refer to the wiring detail for test input requirements.

**SERVICING SHOULD BE PREFORMED BY QUALIFIED PERSONEL.  
SAVE THESE INSTRUCTIONS**