

ESRN and ESRB

Features

Perfect for emergency lighting automatic load control applications.

- Automatic load control override
- Normal control of emergency lighting
- Coil input range: 120 Vac through 277 Vac
- LED indicators for normal voltage, emergency voltage, and load status
- 10 Amp and 20 Amp SPST magnetic ballast and tungsten ratings
- LED rating - Up to 16 Amp electronic ballast rating
- 0-10 Vdc dimmer override
- Remote control/test capability (model ESRTB)
- Nipple mount, wall mount, or ballast channel mount
- Made in the U.S.A.



Applications

By using our Automatic Load Control Relays, you are able to complete your emergency lighting applications.

- High contact ratings allow for multiple loads on a single relay unit.
- Emergency lighting can be controlled under normal conditions using the switch input.
- Under normal operation, emergency light can be controlled by a controller using the dry contact input.
- The dry contact output can be used to override 0-10 V dimmers to full brightness (or for feedback to controllers, etc.)
- The on-board local test button and LEDs allow for installation to be tested immediately.
- A two second self-test of the unit is performed every time the wall switch input is turned off.
- Remote test capability allows for a button, switch, controller, fire alarm panel, etc. to be conveniently mounted anywhere desired. [Class 2 acceptable] See model ESRTB (remote test button).
- Different housings allow for wall or nipple mount (model ESRN), or ballast channel mount (model ESRB).

UL924 Emergency Lighting Automatic Load Control Relays

Quick Reference Chart

Model #	UL	Coil Voltage			Contacts	Resistive	Test Procedures				Ballast Channel Mount	Nipple Mount
		AC/DC	AC				Local Test Button	Self Test	Remote Test	Dimmer Override		
ESRN	•		120-277		20 A	•	•	•	•		•	
ESRB	•		120-277		10 A	•	•	•	•	•		
ESRTB*	•					•						

UL = UL924; Emergency Lighting

* Remote Test Button accessory available separately.

Input and Output Characteristics

Electrical Specifications (ESRB, ESRN)

Normal Power Supply Voltage	120-277Vac
Normal Power Current Draw	24mA max
Normal Power Operating Frequency	50/60Hz
Emergency Power Supply Voltage	120-277Vac
Emergency Power Current Draw	118mA max
Emergency Power Operating Frequency	50/60Hz
Remote Test Input (Class 2, Dry Contact)	ESRTB or other switching method ^{1,2}
Feedback/Dimmer Contact Switching Capability (Dry Contact Output)	130mA @ 250V max
Relay Contact (ESRN) SPST	20A Magnetic Ballast @ 277V 16A Electronic Ballast @ 277V 10A Tungsten @ 120V
Relay Contact (ESRB) SPST	10A Magnetic Ballast @ 277V 10A Electronic Ballast @ 277V 10A Tungsten @ 120V

- 1:** If not using the ESRTB Remote Test Button (sold separately), switching methods should be rated for at least 24Vdc. External voltage should not be supplied to this input. No specific current rating is required.
- 2:** To maintain Class 2, a maximum of 45 total test inputs (ESRB and/or ESRN) can be wired in parallel per ESRTB.

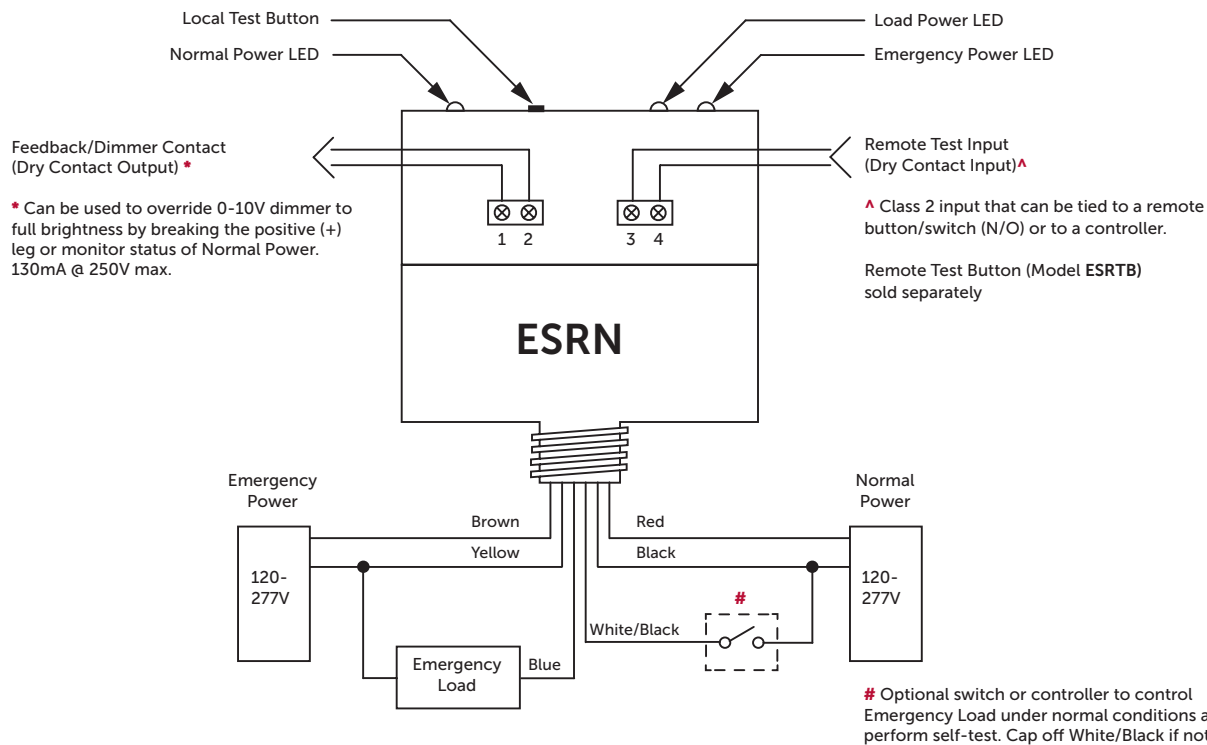
Mechanical Specifications

- Housing:** UL Accepted for use in Plenum, NEMA 1
- Wire:** 16" 600V Rated
- Weight:** 0.675 lbs. (ESRN)
0.430 lbs (ESRB)
- Operating Temperature:** -30° to 140° F (-35° to 60° C)
- Humidity Range:** 5 to 95% (noncondensing)
Rated for dry and damp locations only
- Approvals:** UL Listed, UL924, C-UL, CE, RoHS

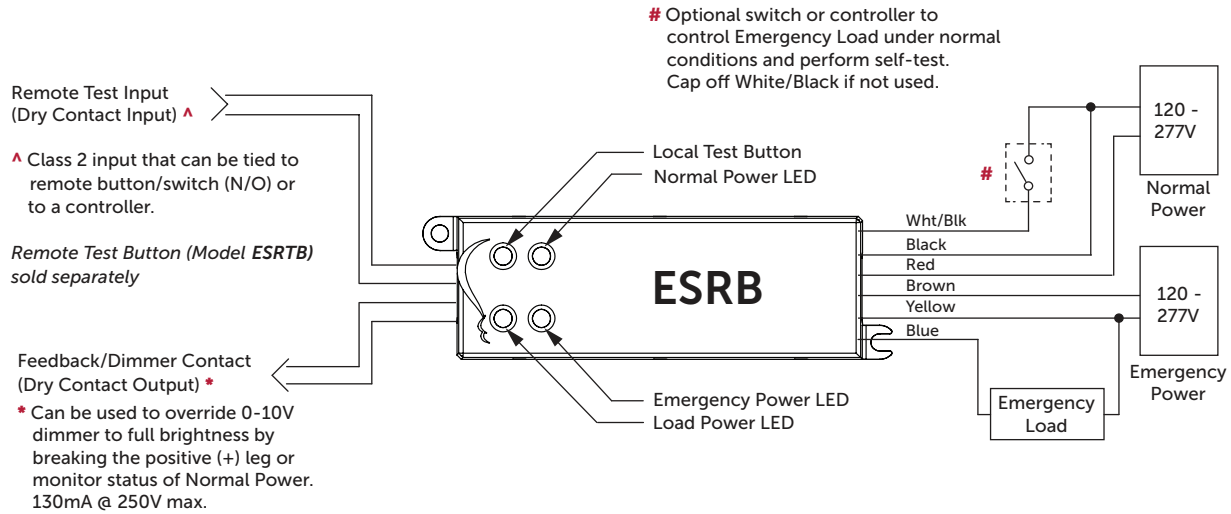
Wiring Information

Wiring Descriptions

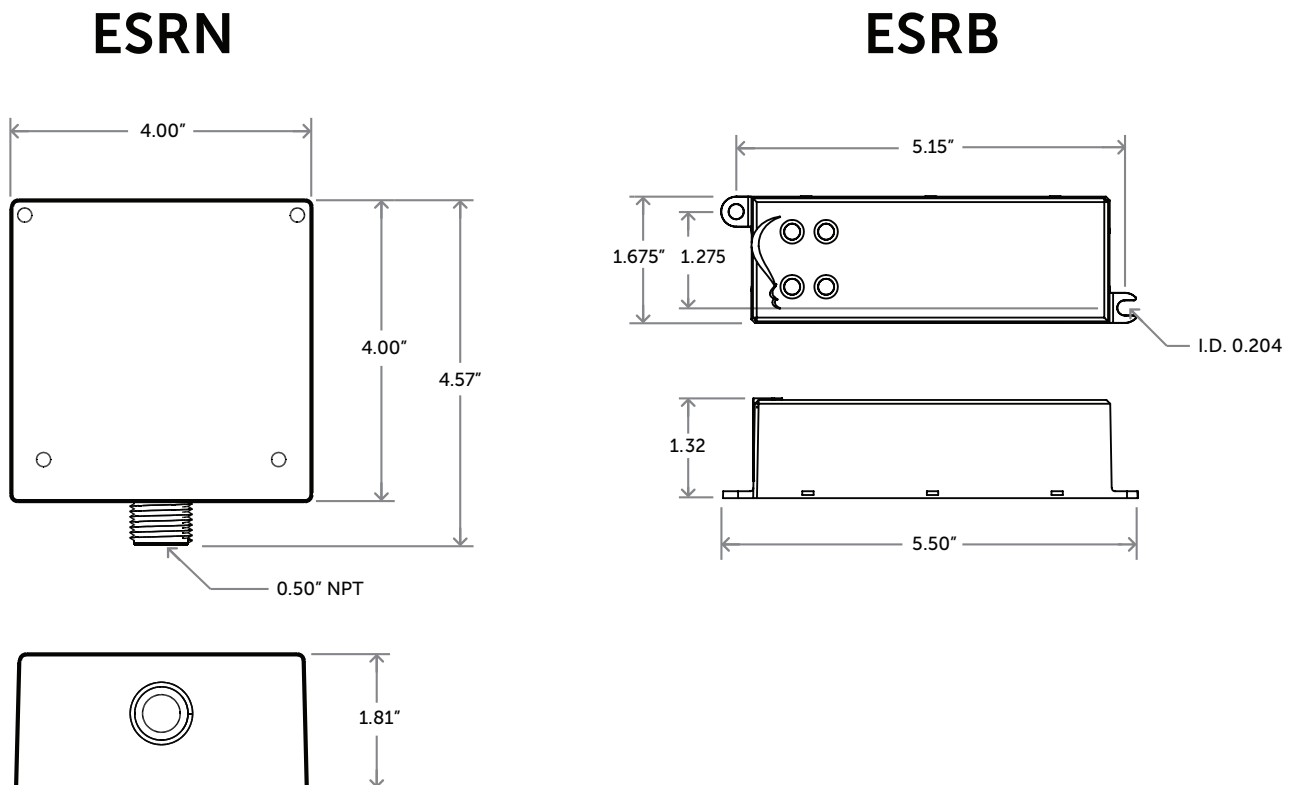
Wire Color	Description	Notes
BLACK	Normal Hot	Can be different voltage than Emergency.
WHITE/BLACK	Switch Input (Self-Test Input)	WHITE/BLACK wires must be from same branch circuit as BLACK and RED. When switched off, a two second delay keeps the load on to test emergency power. This does not test feedback/dimmer output.
RED	Normal Neutral or other Phase	Can be different voltage than Emergency.
BROWN	Emergency Hot	—
BLUE	Emergency Hot Switched to Load	Switches out the voltage from BROWN
YELLOW	Emergency Neutral or other Phase	—
WHITE/BLUE (ESRB) Terminal Screw 4 (ESRN)	Remote Test Input (Class 2, Dry Contact Input)	When wiring multiple units together, WHITE/BLUE or Terminal Screw 4 must be a shared common. Test is performed when Input is CLOSED.
WHITE/RED (ESRB) Terminal Screw 3 (ESRN)		
VIOLETS (ESRB) Terminal Screws 1, 2 (ESRN)	Feedback/Dimmer Contact (Dry Contact Output) Switch Input does not test this output.	Output is OPEN when normal power is absent or Remote Test Input is CLOSED. Output is CLOSED when normal power is present and Remote Test Input is OPEN.



Wiring Descriptions

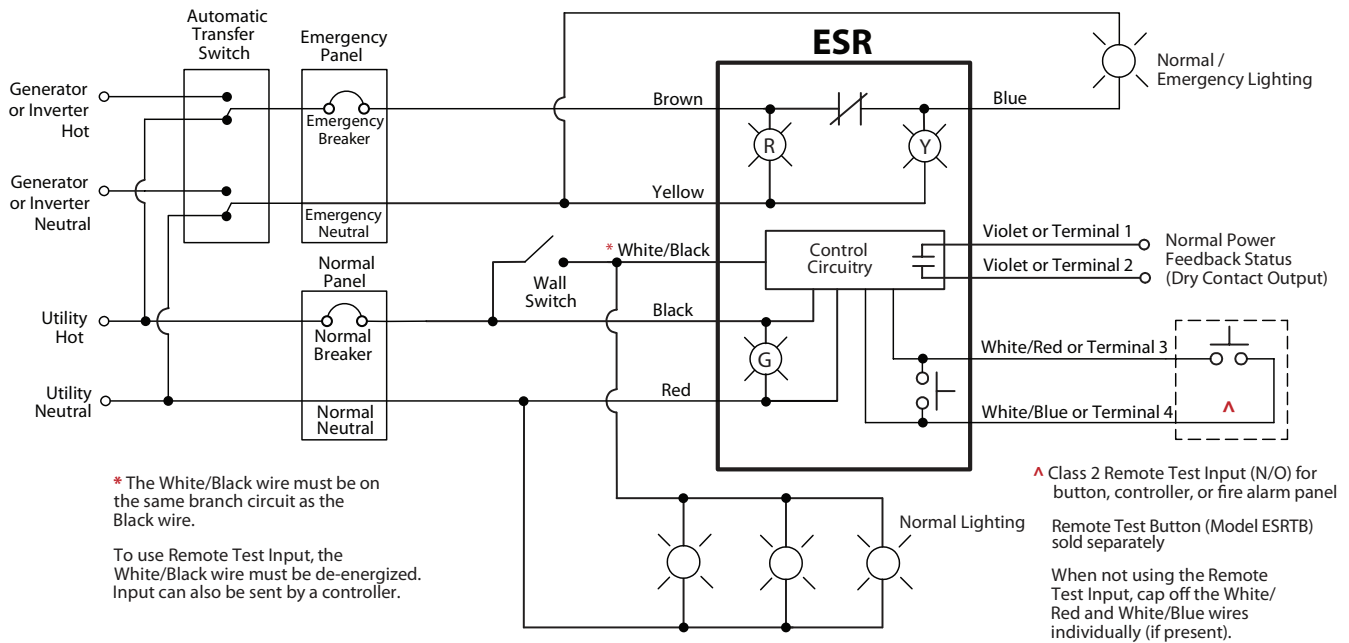


Dimensions

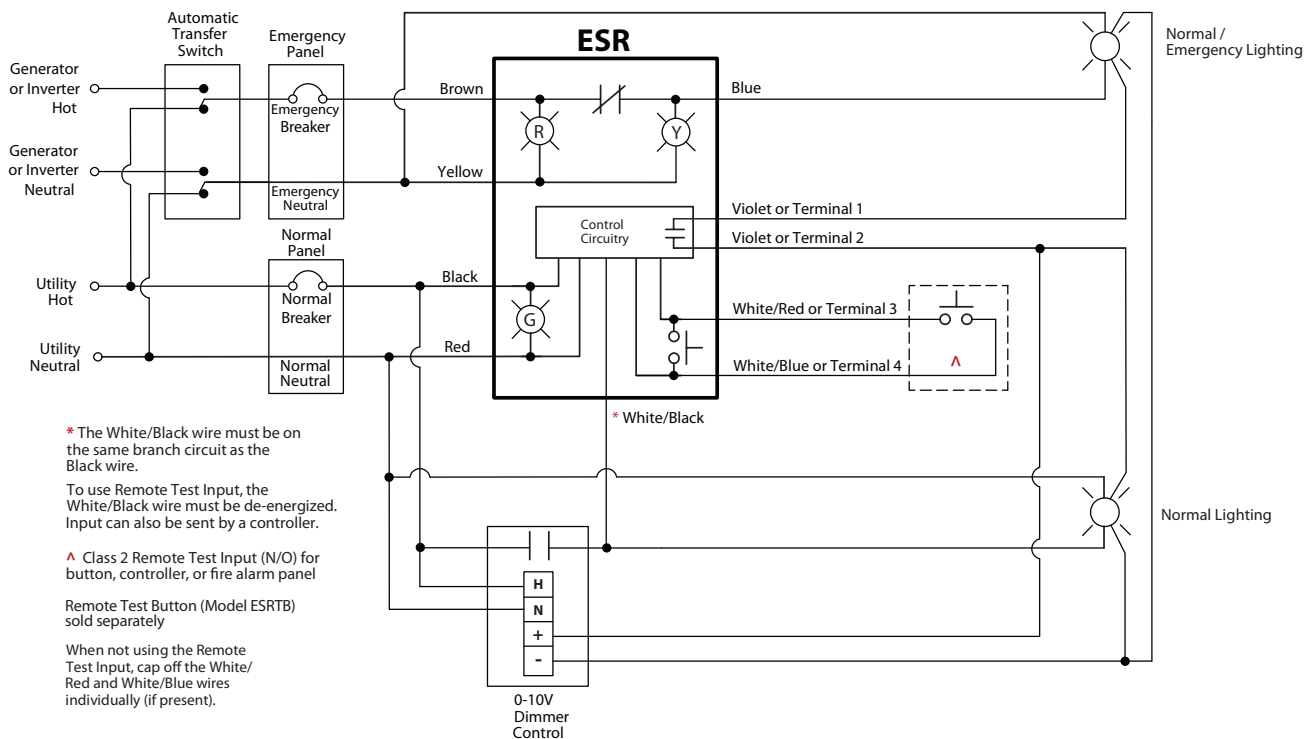


Typical Applications

Using Emergency Lighting as Normal Lighting (ESRN & ESRB)



Overriding a 0-10Vdc Dimmer (ESRN & ESRB)



Testing and Troubleshooting

Test Procedure: Four Options to Test the ESRB and ESRN After Installation:

Initial Test for Correct Wiring

Apply Emergency Power to the Emergency Power Input and Normal Power to the Normal Power Input. (If using the Wall Switch Input, apply Normal Power to the switch also, but keep the switch OFF/OPEN.)

- a. The Red LED (Emergency Power available) should be ON.
- b. The Green LED (Normal Power available) should be ON.
- c. The Yellow LED (Load Status) should be OFF.
- d. The Load should be OFF.
- e. The Feedback/Dimmer Contact should be CLOSED.

Local Test Button

1. Turn switched circuit OFF. Emergency light should be OFF.
2. Press and hold "Local Test Button"
3. Emergency light should turn ON.
4. Release "Local Test Button" and emergency light should turn OFF.

Remote Test Button (Model ESRTB - sold separately)

1. Turn switched circuit OFF. Emergency light should be OFF.
2. Press and hold "Remote Test Button"
3. Emergency light should turn ON.
4. Release "Remote Test Button" and emergency light should turn OFF.

Wall Switch or Controller Contact

1. Turn ON switch if not already on.
2. Emergency light should turn ON.
3. Turn wall switch OFF.
4. Emergency light will remain on for two seconds before turning OFF.

To test the ESRB and ESRN periodically, repeat the appropriate Test Procedure above in accordance with national and local codes.

Troubleshooting

Condition	Action
Red LED is OFF	<ul style="list-style-type: none"> • Check Emergency Power Input wiring (BROWN and YELLOW wires) and voltage.
Green LED is OFF	<ul style="list-style-type: none"> • Check Normal Power Input wiring (BLACK and RED wires) and voltage.
Yellow LED is ON but Load is OFF	<ul style="list-style-type: none"> • Check Load wiring (BLUE wire and Load's neutral). • Verify Load's operating voltage is the same as the Emergency Power Input Voltage. • Check bulbs and ballast. • Replace unit.
Load is ON but Yellow LED is OFF	<ul style="list-style-type: none"> • Replace unit.
Yellow LED and Load do not turn on when being tested	<ul style="list-style-type: none"> • Check bulbs and ballast. • Check wiring connections if using a remote test option. • Press local test button on the unit. • Replace unit.
Yellow LED and Load will not turn OFF	<ul style="list-style-type: none"> • Verify status of Normal Power Input. • Open Wall Switch Input. • Verify that no test inputs are stuck closed. (i.e. Remote Test Input is not closed).

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6. WARRANTY; DISCLAIMER. Products are warranted to be free from manufacturing defects under normal use and conditions for five (5) years (the “**Warranty Period**”).

The warranty does not apply to: (a) Damage caused by accident, abuse, mishandling, or dropping; (b) Products which have been subjected to unauthorized repair, opened, or taken apart; (c) Products not used in accordance with directions; (d) Damages exceeding the cost of such Product; and (e) Damages caused by lightning, water, or condensation. If warranty service is required during the Warranty Period, and if examination shall disclose to Seller’s satisfaction

that such Product was originally defective, then Seller will at its option repair or replace the product without charge upon prepaid delivery of such Product to Seller’s facility with proof of date of purchase. Corrections of such defects by repair to or supplying of replacements for defective parts shall constitute fulfillment of all obligations of Seller.

Seller shall not be liable for loss, damage, or expense directly or indirectly caused from the failure of Products to perform as expected.

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For warranty service, call factory for RA number and send such Product prepared with sales receipt to: FUNCTIONAL DEVICES, INC., 101 COMMERCE DRIVE, SHARPSVILLE, IN 46068.

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9. CANCELLATIONS: Cancellation or deferment of all or part of an order is subject to acceptance by the Seller. If accepted, any reduction in quantity of any item to less than 85% of the original item quantity is subject to a 15% cancellation charge. If an order cancellation is accepted, the Buyer will make delivery and pay for all material manufactured and in stock or in process at time of notice for such order, and for any special materials on orders for which the Seller must take delivery.

10. EXPORTS. Buyer agrees that it will comply with any and all U.S. Export Controls and will not pay for, resell, transfer or knowingly sell Products in violation of U.S. Export Controls. If Buyer resells Products within or exports Products to a country or region which imposes upon Seller and/or Buyer an obligation to fund or undertake reuse, recycling, composting, recovery of Products, or any similar obligation (e.g., the European Union’s Waste Electrical and Electronic Equipment Directive, EC 2002/96/EC) (the “**Obligations**”), Buyer shall wholly undertake the Obligations or duties and shall be entirely responsible for all associated costs therewith. Seller shall have no obligation to reimburse Buyer for execution of the Obligations. In the event that Seller is named in a proceeding based upon the Obligations, Buyer shall indemnify, defend and hold Seller harmless from all actions related thereto, including all civil and governmental actions.

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