

## Introducing the SmartlockPro® Outlet Branch Circuit AFCI Receptacle

### Advanced technology helps protect against electrical fires resulting from arc-faults.

The U.S. Fire Administration (USFA) National Fire Incident Reporting System reported that in 2011, an estimated 47,700 home structure fires reported to U.S. fire departments involved some type of electrical failure or malfunction as a factor contributing to ignition. These fires resulted in 418 civilian deaths, 1,570 civilian injuries, and \$1.4 billion in direct property damage. According to the National Fire Protection Association (NFPA), arc-faults are “the principle electrical failure mode resulting in fire”.

Arc Fault Circuit Interrupters (AFCI) were developed to help combat the problems associated with arc-faults.

- AFCIs are designed to detect a wide range of arc-faults to help reduce the likelihood of the electrical system being an ignition source of a fire.
- AFCIs function by de-energizing the circuit downstream of the device upon which an arc-fault is detected; ideally preventing ignition and a resultant fire.
- AFCIs are now required by the National Electrical Code in most areas throughout the home.

Often unseen, arc-faults can occur anywhere in the home's electrical system including within walls, at loose electrical connections or within electrical cords accidentally damaged by impinging furniture. Leviton Outlet Branch Circuit (OBC) AFCI Receptacles are designed to identify arc-faults and to respond by interrupting power to help prevent arc-faults that may lead to a fire.

#### AFCI Receptacle

Whole house electrical safety is a tall order, but with the new SmartlockPro OBC AFCI Receptacle Leviton has developed a device to offer added protection from arc-faults. Previously, the only available option for providing the required AFCI protection against electrical fire hazards was through the use of AFCI breakers. And, even though there were some exceptions to the Code that would allow for the use of an AFCI receptacle with prescribed wiring techniques, there were no AFCI receptacles available on the market. That has recently changed.

Leviton's OBC AFCI Receptacle addresses the dangers associated with both types of potentially hazardous arcing – parallel and series arcing. Similar to GFCIs, AFCI receptacles provide feed-through protection and are able to detect downstream arc-faults, both parallel and series, as well as upstream series arc-faults. Utilizing an AFCI receptacle also offers homeowners the benefit of localized TEST and RESET.



**National Electrical Code**

The 2011 National Electrical Code® (NEC) (210.12) addresses the use of AFCIs in residences:

**“Dwelling Units.** (A) Where required. All 15A or 20A, 120V branch circuits in dwelling units supplying outlets in family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, or similar rooms or areas must be protected by a listed AFCI device of the combination type.

**Exception 1:** AFCI protection can be of the branch-circuit type located at the first outlet if the circuit conductors are installed in RMC, IMC, EMT or Type MC or steel armored Type AC cable meeting requirements of 250.118, and the AFCI device is contained in a metal outlet or junction box.

**Exception 2:** Where a listed metal or nonmetallic conduit or tubing is encased in not less than 2 in. of concrete for the portion of the branch circuit between the branch-circuit overcurrent device and the first outlet, an outlet branch-circuit AFCI at the first outlet is permitted to provide protection for the remaining portion of the branch circuit.

(B) Branch-Circuit Extensions or Modifications – Dwelling Units. Where branch-circuit wiring is modified, replaced, or extended in any of the areas specified in 210.12(A), the branch circuit must be protected by:

- (1) A listed combination AFCI located at the origin of the branch circuit; or
- (2) A listed outlet branch circuit AFCI located at the first receptacle outlet of the existing branch circuit.”

In accordance with the cited exceptions, Leviton’s SmartlockPro OBC AFCI Receptacles can be used to meet the requirements of the Code.

Leviton’s SmartlockPro OBC AFCI receptacle can also be used to meet the NEC requirements for replacement receptacles that take effect in 2014.

NEC 406.4(D) states, **“Arc-Fault Circuit-Interrupter Protection.** Effective January 1, 2014, where a receptacle outlet is supplied by a branch circuit that requires arc-fault circuit interrupter protection [210.12(A)], a replacement receptacle at this outlet must be one of the following:

- (1) A listed outlet branch circuit type arc-fault circuit interrupter receptacle
- (2) A receptacle protected by a listed outlet branch circuit type arc-fault circuit interrupter type receptacle
- (3) A receptacle protected by a listed combination type arc-fault circuit interrupter type circuit breaker.”

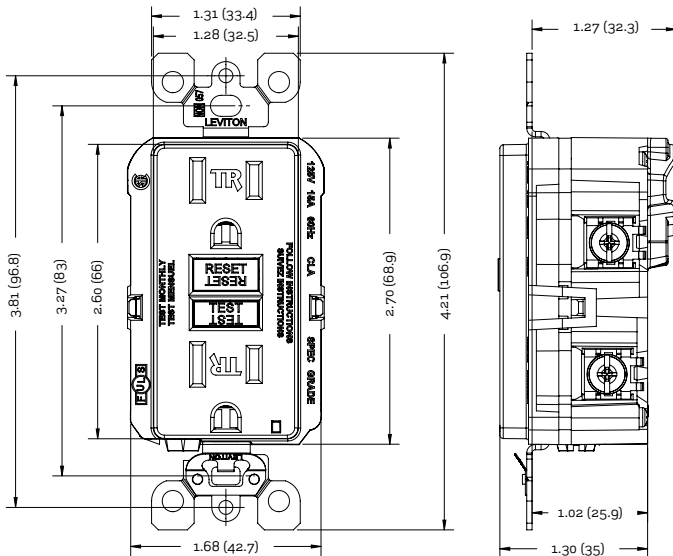
Meeting all of the requirements for an outlet branch-circuit type AFCI, Leviton’s new OBC AFCI Receptacle provides protection to both branch circuit wiring as well as extensions to branches such as appliances and cord sets.

**The 2014 Code for New Branch Circuits - 210.12 (A) - will allow AFCI Receptacle as alternative to AFCI breaker.**

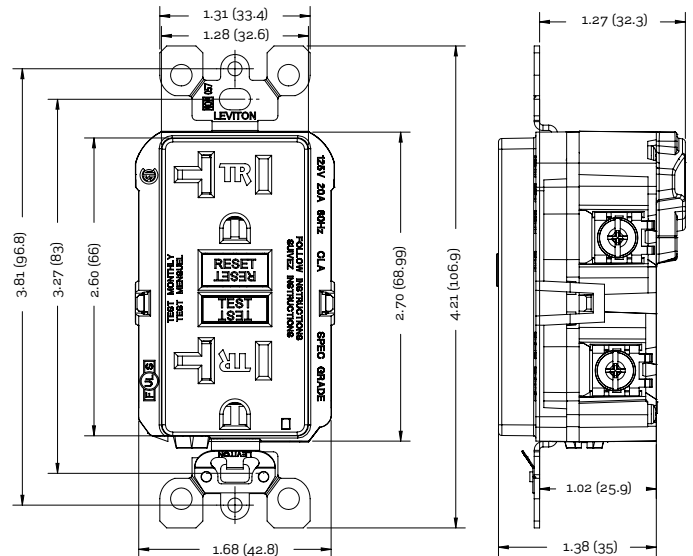
Exceptions to allow use of NM cable:

- Limited length of home run (50' for 14ga and 70' for 12ga)
- The standard breaker is approved for use with an AFCI Receptacle **OR**
- Special supplemental ARC protection circuit breaker
- AFCI Receptacle must be readily accessible

**Dimensional Drawings**



**15 AMP**



**20 AMP**

## Features and Benefits

### General

- Use of TEST and RESET buttons is similar to traditional GFCI receptacles of which consumers have become familiar with. This translates into greater acceptance of the technology and a more user-friendly platform
- Meets or exceeds UL requirements for tripping time on both series and parallel arcs
- Device design reduces nuisance tripping
- Impact-resistant thermoplastic cover and body
- Superior resistance to electrical surges and over-voltages
- Expanded wiring options with nine back-wire holes (two for each line and load connection plus one for ground with an internal clamp)
- Silver alloy contacts
- Compatible with all Decora® devices and wallplates; available in select colors
- Packed with coordinating wallplate
- Backed by Leviton's Limited Two-Year Product Warranty

### Tamper-Resistant

- TR symbol indicates the device's compliance with the latest NEC® requirements for tamper-resistant receptacles in residences and childcare facilities

### Lockout Action

- Automatically tests the AFCI every time the RESET button is depressed; the AFCI will not reset if the AFCI circuit is not functioning properly
- By blocking reset of the AFCI if protection has been compromised, the SmartlockPro OBC AFCI reduces the possibility of end-users incorrectly assuming that a reset AFCI is providing protection when its functionality has been compromised

- A line-load reversal diagnostic feature is provided which prevents the AFCI from being reset and stops power from being fed to the AFCI receptacle face or through to downstream devices; a green LED indicator on the AFCI's face also illuminates to alert the installer to a line-load wiring reversal when the device is in the tripped state
- The trip latching mechanism in the SmartlockPro OBC AFCI is a one-piece "T" design for efficient operation
- There are 4 sets of contacts for load terminals and face; the SmartlockPro OBC AFCI uses a patented bifurcated bridge contact for efficient operation

### Key Specifications



- **Amperage:** 15 Amp/20 Amp
- **Voltage:** 125 Volt
- **Feed-through:** 20 Amp protection
- **NEMA:** 5-15R
- **Pole:** 2
- **Wire:** 3
- **Indicators:** Reverse wiring/power
- **Termination:** Back & Side
- **Grounding:** Self-Grounding
- **Strap Material:** Galvanized Steel
- **Standards and Certifications:** UL/CSA
- **Warranty:** 2-Year Limited

## Specification Details

AC Horsepower Ratings	Electrical Specifications	Environmental Specifications	Material Specifications	Mechanical Specifications	Standards and Certifications
<b>At Rated Voltage:</b> 1 HP	<b>Dielectric Voltage:</b> Withstands 2000V per UL498  <b>Temperature Rise:</b> Max 30°C after 100 cycles OL at 150 percent rated current	<b>Flammability:</b> Rated V-2 per UL94  <b>Operating Temperature:</b> -35°C to +66°C	<b>Face Material:</b> Thermoplastic  <b>Body Material:</b> Polycarbonate  <b>Line Contacts:</b> Brass Double-Wipe .031 Thick  <b>Terminal Screws:</b> Plated Steel  <b>Self-Ground Clip</b>  <b>Grounding Screw:</b> Plated Steel  <b>Yoke:</b> Zinc-Plated Steel  <b>Clamps:</b> Brass	<b>Terminal ID:</b> Brass-Hot, Green-Ground, Silver-Neutral  <b>Terminal:</b> 14-10 AWG  <b>Product ID:</b> Ratings are permanently marked on device  <b>Wiring:</b> Use with copper or copper-clad wire. No aluminum wiring	<b>NEMA:</b> WD-6  <b>ANSI:</b> C-73  <b>UL498</b>  <b>NOM:</b> 057  <b>UL1699A:</b> File E342815  <b>UL Fed Spec WC-596</b>  <b>CSA Standard C22.2 No 42</b>  <b>CSA Technical Information Letter No. M-02A</b>

## Ordering Information

### SmartlockPro Consumer Product Safety Commission Outlet Branch Circuit AFCI Receptacles

Description	Rating	Cat. No.	Color
Tamper-Resistant Outlet Branch Circuit AFCI Receptacle with LED Indicator	15A-120V @ Receptacle, 20A-125V Feed-Through  NEMA 5-15R 	AFTR1-W AFTR1-I AFTR1-T AFTR1-GY AFTR1-E AFTR1	White Ivory Light Almond Gray Black Brown
Tamper-Resistant Outlet Branch Circuit AFCI Receptacle with LED Indicator	20A-120V @ Receptacle, 20A-125V Feed-Through  NEMA 5-20R 	AFTR2-W AFTR2-I AFTR2-T AFTR2-GY AFTR2-E AFTR2	White Ivory Light Almond Gray Black Brown

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