# LEVNET RF QUICK SELECTION AND APPLICATION GUIDE
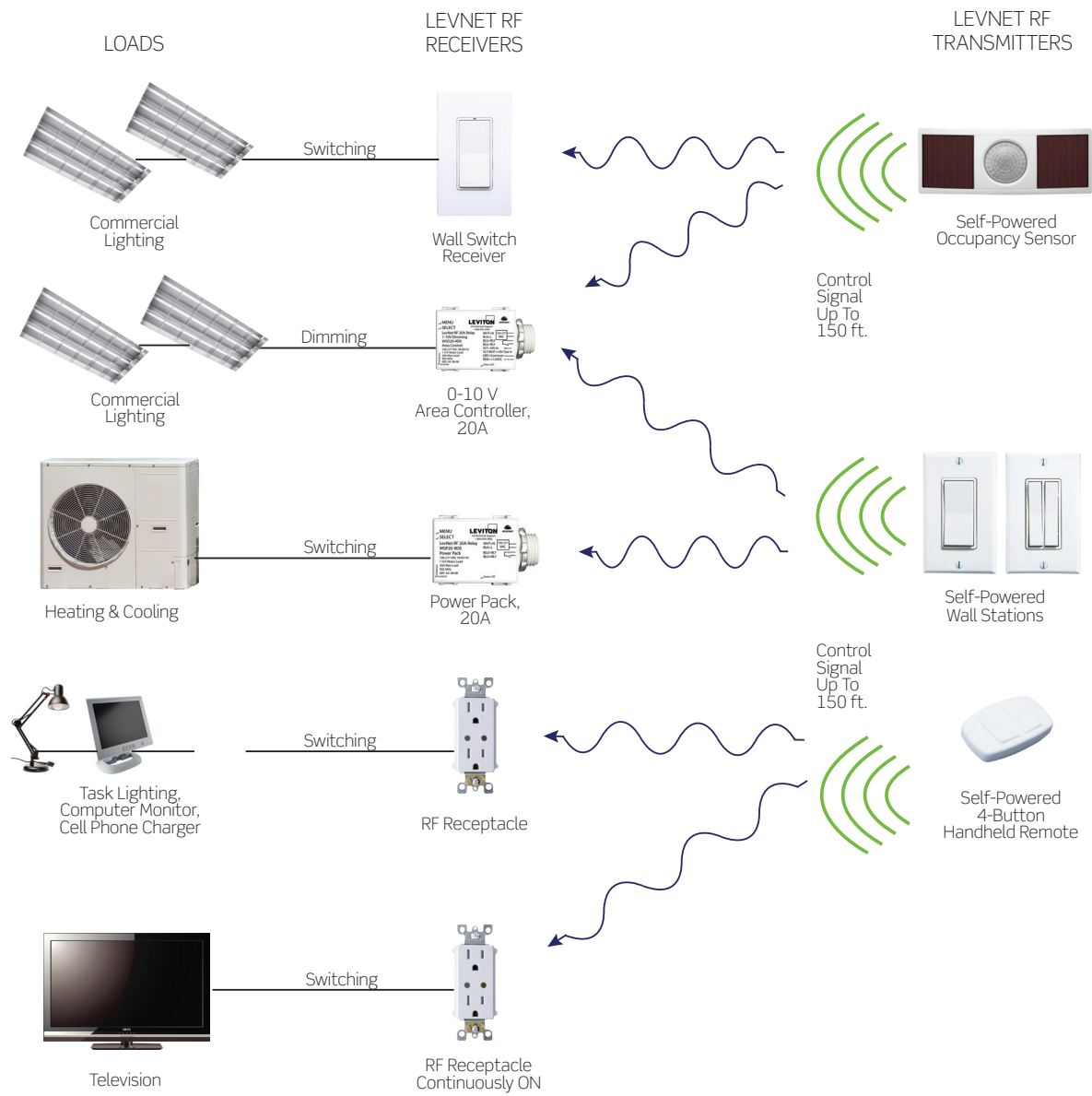
**LEVITON®**

## HOW TO PUT IT ALL TOGETHER

*TIP: A good way to visualize your wireless system is to imagine that the "wires" connecting each device are invisible wires or "unique addresses."*

LOADS

LEVNET RF RECEIVERS

LEVNET RF TRANSMITTERS

Commercial Lighting — Switching — Wall Switch Receiver — Self-Powered Occupancy Sensor

Control Signal Up To 150 ft.

Commercial Lighting — Dimming — 0-10 V Area Controller, 20A — Self-Powered Wall Stations

Heating & Cooling — Switching — Power Pack, 20A

Control Signal Up To 150 ft.

Task Lighting, Computer Monitor, Cell Phone Charger — Switching — RF Receptacle — Self-Powered 4-Button Handheld Remote

Television — Switching — RF Receptacle Continuously ON

**STEP 1** Determine what LOADS you want to control — lighting, HVAC, lamp, TV, etc.

**STEP 2** Pick the appropriate RF RECEIVER
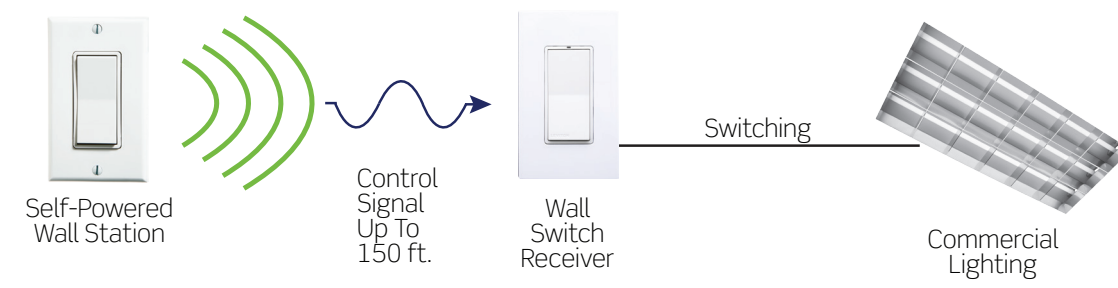
### LevNet RF Wireless/Wired-In Receivers

Receives One Way Communication
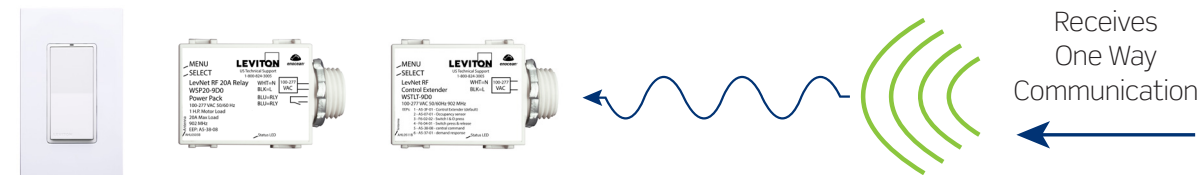
**STEP 3** Pick the appropriate Wireless Self-Powered RF TRANSMITTER (sensor or switch)

### LevNet RF Self-Powered Wireless Transmitters

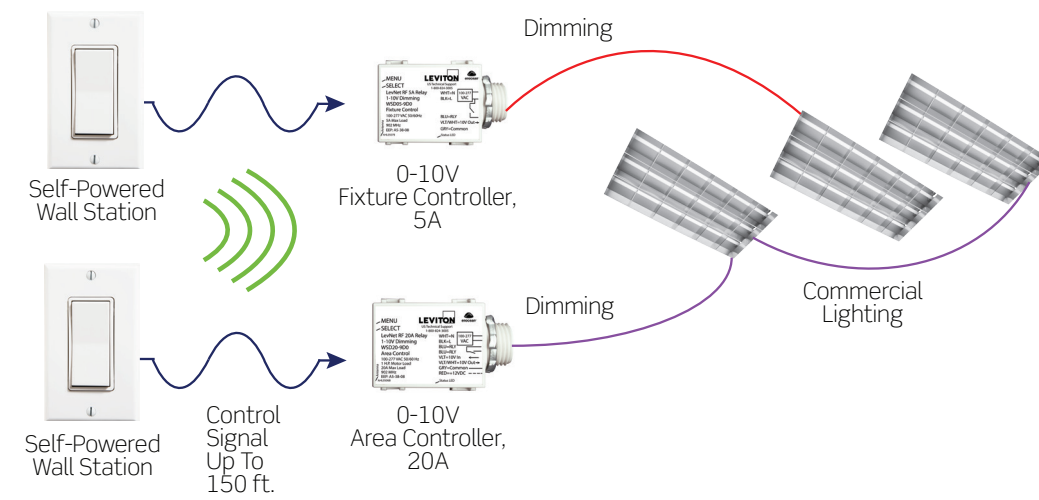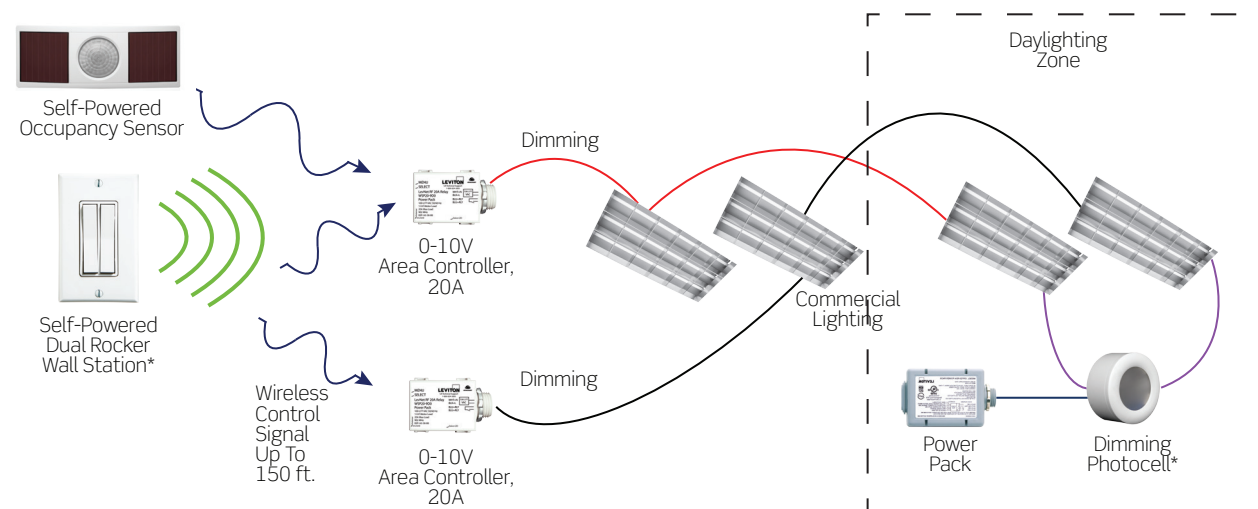One Way Communication

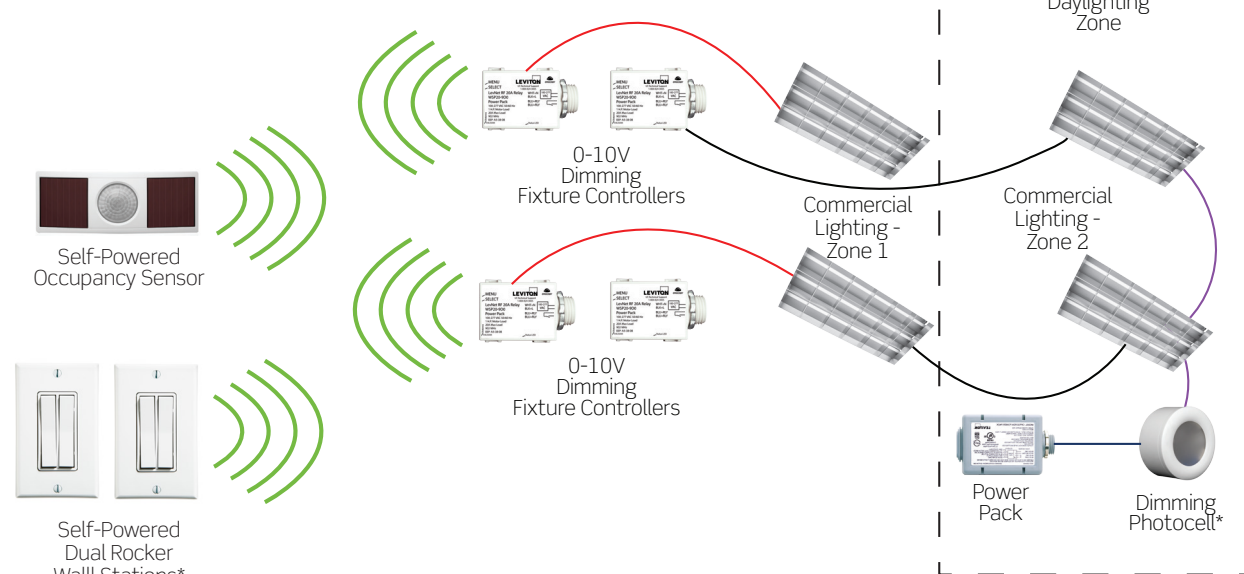## BASIC LEVNET RF SOLUTIONS

### 3-Way or Multi-Location Switching

Self-Powered Wall Station — Control Signal Up To 150 ft. — Wall Switch Receiver — Switching — Commercial Lighting

### 1-10V Dimming

Self-Powered Wall Station — Dimming — 0-10V Fixture Controller, 5A

Self-Powered Wall Station — Control Signal Up To 150 ft. — 0-10V Area Controller, 20A — Dimming — Commercial Lighting

### Dimming with Occupancy and Daylighting - Hybrid Area Control

Self-Powered Occupancy Sensor

Self-Powered Dual Rocker Wall Station* — Wireless Control Signal Up To 150 ft.

Dimming — 0-10V Area Controller, 20A

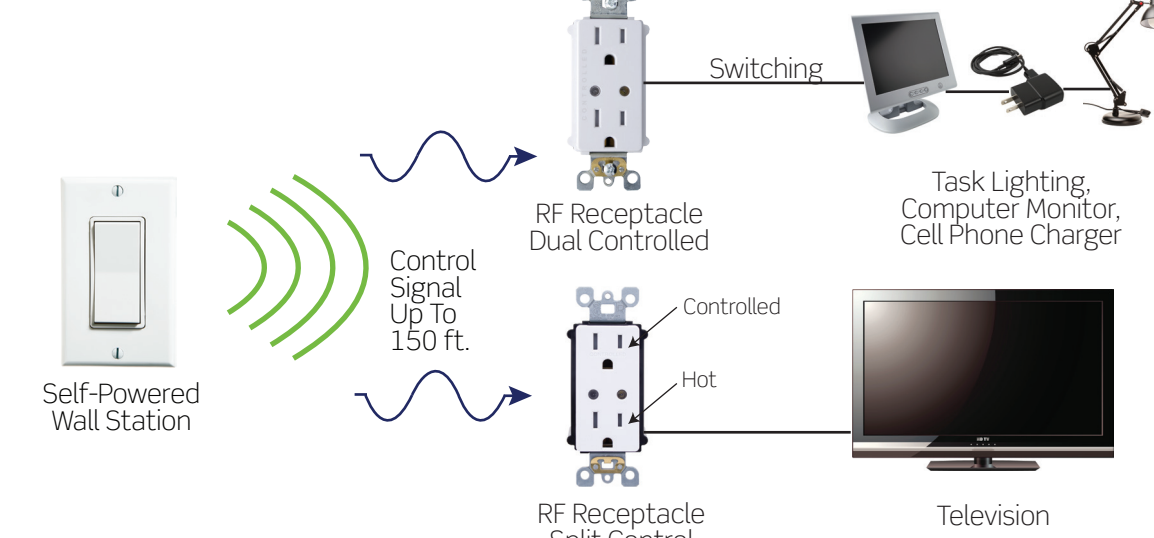Dimming — 0-10V Area Controller, 20A — Commercial Lighting

Daylighting Zone — Power Pack — Dimming Photocell*

*Priority given to the lowest daylighting level

### Dimming with Daylighting - Hybrid Individual Fixture Control

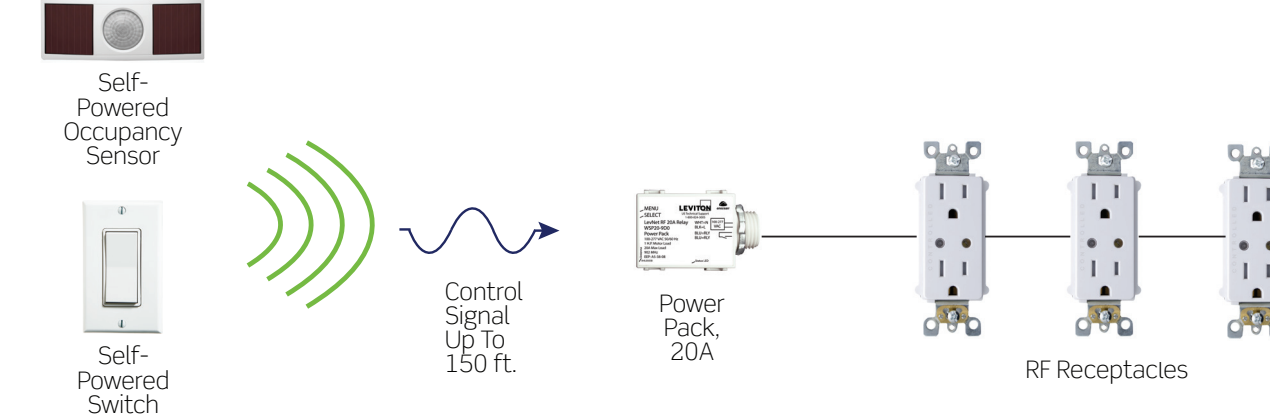Self-Powered Occupancy Sensor

Self-Powered Dual Rocker Wall Stations*

0-10V Dimming Fixture Controllers — Commercial Lighting - Zone 1

0-10V Dimming Fixture Controllers — Commercial Lighting - Zone 2

Daylighting Zone — Power Pack — Dimming Photocell*

*Priority given to lowest daylighting level

### Plug Load Control Options

Self-Powered Wall Station — Control Signal Up To 150 ft.

RF Receptacle Dual Controlled — Switching — Task Lighting, Computer Monitor, Cell Phone Charger

RF Receptacle Split Control — Controlled / Hot — Television

### Energy Code Compliant Plug Load Control

Self-Powered Occupancy Sensor

Self-Powered Switch — Control Signal Up To 150 ft. — Power Pack, 20A — RF Receptacles

### Motor Load Control

Self-Powered Wall Station — Control Signal Up To 150 ft. — Power Pack, 20A — Switching — Motor Load/ Shade Control
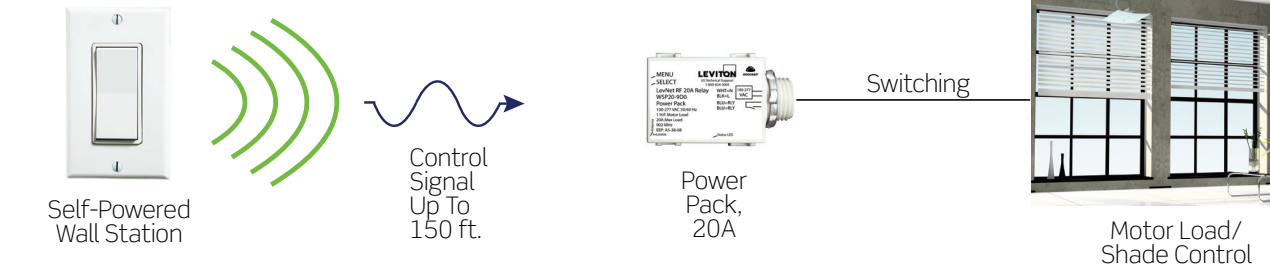
### Transmitter Hybrid Control

Wall Switch Occupancy Sensor — Control Transmitter — Switching — Power Pack, 20A — Commercial Lighting

Toggle Switch — Control Transmitter — Control Signal Up To 150 ft. — Power Pack, 20A — Switching — Commercial Lighting

**LevNet RF™ 902 MHz Wireless Self-Powered Solutions Product Guide**

**LEVITON**

**THE FUTURE IS ON™**

## Contact your Leviton representative for additional smart energy saving solutions to expand and upgrade your system.

**SERVICE AND SUPPORT DURING EVERY STEP OF THE PROCESS.**
Only Leviton has the service and support to help you create a lighting control system that does exactly what you want it to do while saving electricity, meeting codes and standards, and even garnering rebates.

**EXCLUSIVE WEALTH OF RESOURCES:**

- **Dollars & Sensors® Online Energy Audit Tool** — makes energy audits easier than ever — use your smart device (Android, Apple, Windows or Blackberry) to meter audit information and your desktop to generate ROI reports, analyses, Bill of Materials, and a submittal package — go to www.leviton.com/dollarsandsensors

- **Occupancy Sensor Layout Services** — have a team of experts create occupancy sensor layouts directly on your CAD drawings, complete with a list of equipment at no cost — go to portal.leviton.com

- **ez-Learn™** — get Leviton smart from the comfort of your home or office with this exclusive 24/7 online training — go to www.leviton.com/ezlearn

- **ASAP Lighting Design Software** — point-and-click software allows you to quickly and simply design, specify and enter orders — go to www.leviton.com/asap

- Find more exclusive, no-cost design tools at www.leviton.com/lesdesign:
  - Lighting control specialists at your disposal
  - Field service engineers for top-level support
  - Factory commissioning service
  - Dedicated technical support via phone at 1-800-959-6004

# LEVNET RF 902 MHZ WIRELESS SELF-POWERED SOLUTIONS

**LEVITON®**

## SELF-POWERED + RADIO FREQUENCY = TRUE WIRELESS

Self-powered LevNet RF transmitters operate indefinitely without external power or batteries. Transmitters communicate with LevNet RF receivers via radio frequency. Operating in the 902 MHz band provides minimal competing traffic, enhanced reliability and greater transmission range over other wireless technologies.

## GREEN SOLUTIONS

### Energy Savings
- Lowest power consumption on wireless receivers at less than one Watt per device
- Place virtually anywhere and control any compatible wireless device within range
- Self-powered and self-charging, uses zero external power consumption to operate

### Material Savings
- Reduce materials and time spent on installation with no new wires to run
- Reduce monthly testing and maintenance costs

* Leviton is part of the EnOcean Alliance. LevNet RF Solutions are compatible with other EnOcean Alliance wireless devices.

## WIRED VS. WIRELESS COSTS



Legend: Parts, Labor, Re-Paint, Drywall Patching
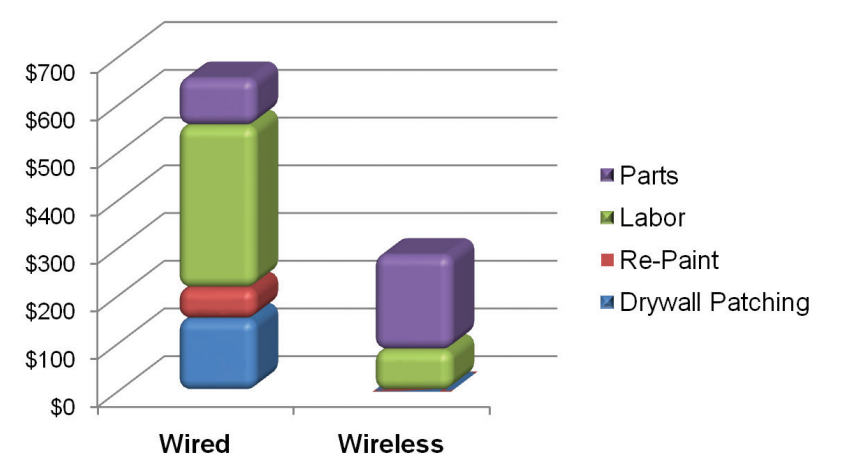
## PUTTING TOGETHER A LEVNET RF 902 MHZ SYSTEM

**STEP 1** Determine what **LOADS** you want to control - lighting, HVAC, lamp, TV, etc.

**STEP 2** Pick the appropriate **RF RECEIVER** mounting style

**STEP 3** Pick the appropriate wireless self-powered **RF TRANSMITTER** (sensor or switch)

**STEP 4** **PAIR** the devices to communicate with each other

| LevNet RF Self-Powered Wireless Solutions | |
|---|---|
| Frequency | 902 MHz |
| Range | 50-150 feet (Design to 75 feet) |
| Listings | FCC Certified for Wireless Communication (U.S.), I.C. Certified (Canada) |
| Warranty | Limited 5-year |

## RECEIVERS

### WALL SWITCH

| ADVANCED WALL SWITCH RECEIVERS with Color Change Kit WSS20-N9N | WSS20-G9N Use for larger rooms with multiple loads. Pairing for rocker, momentary and toggle. | |
|---|---|---|
| Input Voltage | 120-230-277VAC |
| Power Consumption | 120V < 1/2 Watt;  277V < 2/3 Watt |
| Memory | Stores up to 20 Transmitter IDs |
| Button Pairing Modes | Rocker, Momentary and Toggle |
| Vacancy Confirmation | 30 seconds |
| Mode | Presentation/Viewing |
| Time Delay | 2 min (test); 10, 20, 30 min |
| Load Rating | **General Duty:** 10A<br>**LED:** 400W @ 120V<br>**Incandescent:** 800W @ 120V<br>**Fluorescent Ballasts:** 1200VA @ 120V, 2700VA @ 277V<br>**Motor:** 1/4 HP Load @ 120V<br>For non-neutral models: 25W minimum load required |
| Additional Listings | ETL/cETL: UL508, can be used to comply with IECC, ASHRAE 90.1, and 2016 Title 24, Part 6 area controls and shut-off controls requirements, CAN/CSA C22.2 #14 |

All WSS20 models ship with a Color Change Kit which includes a White, Ivory and Light Almond faceplate. Gray and Ebony faceplates available in quantities of 25.

## PRODUCT COMPATIBILITY MATRIX

| | SENSORS | | SWITCHES | | | CONTROL EXTENDER |
|---|---|---|---|---|---|---|
| | WSC12-M9N | WSWDR-H9W | WSS0S-S9 | WSS0S-D9 | WSS0S-R9W | WSTLT-9D0 |
| Wall Switch Receivers | x | x | x | x | x | x |
| Relay Receivers | x | x | x | x | x | x |
| RF Receptacles | x | x | x | x | x | x |
| Dimming Controllers | x | x | x | x | x | — |

X - Indicates compatibility

## RECEIVERS

### POWER PACK

| LINE VOLTAGE POWER PACK WSP20 | |
|---|---|
| Memory | Stores up to 20 Transmitter IDs |
| Power Supply Input | 100-277VAC, 50/60 Hz |
| Max Loads/ Contact Rating | **General Duty:** 20A<br>**Tungsten (Incandescent):** 20A<br>**Fluorescent Ballast:** 20A<br>**Motor Load:** 1HP<br>**Power Up State:** Selectable N.O. or N.C. |
| Output Channels | 1 FORM A Latching Relay, N.O. or N.C. |
| Time Delay | 15 min |
| Additional Listings | ETL (U.S.) UL 60730, UL 2043 Plenum rating, ETL (Canada): CSA C22.2 #1405, CE (International): IEC 60730 |

### RF RECEPTACLE

| | SPLIT DUPLEX RECEIVER WSG15-S9W | DUPLEX RECEIVER WSG15-D9W |
|---|---|---|
| Power Supply | 125VAC, 60Hz, 15A | |
| Power Consumption | 120VAC @ 10mA AC (320mW typical) | |
| Switched Side: Max Loads/ Constant Ratings | **General Use/Resistive:** 15A<br>**Incandescent:** 1800W<br>**Inductive:** 1800VA<br>1/2HP, 120VAC | |
| Controlled | Single (Top) | Dual |
| Listings | Can be used to comply with IECC, ASHRAE 90.1, and 2016 Title 24, Part6 receptacle control requirements, TR Receptacle | |

### 1-10V DIMMING CONTROLLERS

| | 5A FIXTURE CONTROLLER WSD05-9D0 | 20A AREA CONTROLLER WSD20-9D0 |
|---|---|---|
| Memory | Stores up to 20 Transmitter IDs | |
| Power Supply Input Rating | 100-277VAC, 50/60 Hz | |
| Output Rating | — | 10mA source |
| Input Channels | — | 1 - 1-10V input signal 1 mA source |
| Output Channels | 1 - latching FORM A relay, selectable N.O. or N.C. power up state 1 - 1-10V output signal (sink 100mA, source 1mA) | |
| Load Rating | 5A | 20A |
| Additional Listings | UL 60730 and UL 2043, C-ETL: CSAc22.2#14-05, can be used to comply with IECC, ASHRAE 90.1 and 2016 Title 24, Part 6 0-10V dimming, daylight harvesting, demand response, switching and occupancy sensing requirements | |
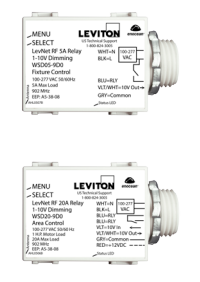
## TRANSMITTERS

### SENSORS

| | CEILING MOUNT OCCUPANCY SENSOR WSC12-M9N | WALL MOUNT OCCUPANCY SENSOR WSWDR-H9W |
|---|---|---|
| Coverage | 1,200 SF | 1600/2200 SF |
| Power Consumption | Zero (Self-Powered) | |
| Transmission | 60 seconds (+/- 10 sec) | 30 minutes @ 0.5FC (5 LUX); 15 minutes @ 1.0FC (10 LUX); 30 seconds @ 20FC (200 LUX) |
| Minimum Light Required | 5FC (50 LUX for auto-OFF only) | 1.5FC (15 LUX) |
| Minimum Charge Time to Begin Operation | 1 minute @ 20FC (200 LUX) | 1 minute @ 1.5FC (15 LUX); 5 seconds @ 20FC (200 LUX) |
| Maintain Charge Time | 3 hours per 24 hours @ 20FC (200 LUX) | |
| Operating Life at Full Charge | 80 hours | 48 hours |
| Additional Listings | Can be used to comply with IECC, ASHRAE 90.1, and 2016 Title 24, Part 6 occupancy sensing requirements, FCC Certified for Wireless Communication (U.S.), I.C. Certified (Canada) | |
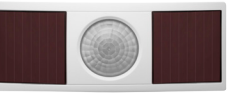
### WALL STATIONS

| | SINGLE ROCKER DECORA® WALL STATION WSS0S-S9x | DUAL ROCKER DECORA WALL STATION* WSS0S-D9x | HANDHELD 4-BUTTON REMOTE WSS0S-R9W |
|---|---|---|---|
| Buttons | 2 Buttons (1 Rocker) | 4 Buttons (2 Rockers) | 4 Buttons (2 Rockers) |
| Output Channels | Only limited by number of Receivers in range | | |
| Addressing | Factory set unique ID (1 of 4 billion) | | |

* Available in White (-W), Ivory (-I), Light Almond (-T), Gray (-G) and Ebony (-E).
**Note:** Wall Stations are both switches and dimmers depending on the receiver they are paired to - see the Wall Station data sheet for details.

### CONTROL EXTENDER

| CONTROL TRANSMITTER WSTLT-9D0 Communicates with receivers that control virtually any ON/OFF device | |
|---|---|
| Power Supply Input | 100-277VAC, 50/60 Hz |
| Addressing | Factory set unique ID (1 of 4 billion) |
| Additional Listings | UL 60730 (Safety), UL 2043 (Plenum), CSA C22.2#14-05 (Safety), CE-IEC 60730, can be used to comply with IECC, ASHRAE 90.1 and 2016 Title 24, Part 6 occupancy/vacancy sensing, daylight harvesting, partial-ON, partial-OFF, demand response and receptacle control requirements |

## ADD DAYLIGHTING*

| | DIMMING PHOTOCELL ODCOP-D0W | POWER PACK OPP20-RD4 |
|---|---|---|
| Power Supply Input | 12-24VDC | 120-230-277VAC, 50/60 Hz |
| Additional Listings | Can be used to comply with IECC, ASHRAE 90.1 and Title 24, Part 6 0-10V dimming and daylight harvesting requirements and NYC LL48, UL 916 listed, FCC certified | Can be used to comply with NY LL48, IECC, ASHRAE 90.1 and Title 24, Part 6 daylight harvesting, demand response, bi-level switching and receptacle control requirements |
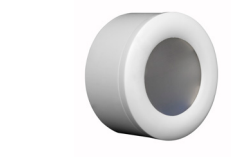
*To add daylighting to a LevNet RF System, the solution must include a dimming photocell and power pack

## DID YOU KNOW?

LevNet RF wireless self-powered sensors and switches use **zero power for zero utility cost.**

In standby power consumption alone, LevNet RF **saves 70% over the competition** month after month after the install. LevNet RF uses less than one Watt in standby mode to operate a receiver.

LevNet RF offers a **no-neutral design for ALL retrofit installations.**

You receive **LEED points for wireless control AND no batteries** when you install LevNet RF wireless self-powered sensors.