

UPB 101

Lighting Controls

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EHX Spring 2006



UPB 101 Course Objectives



- UPB Technology and Hardware
 - About Simply Automated
 - UPB Technology Comparison
 - Available Products
 - Installing UPB Products
 - Benefits of UPB and Lighting Control
- UPStart Software
 - Creating Your Own UPB Network
 - Product Review
 - Tech Talk



Simply Automated Inc. “Who are we?”

- **Founded in 2003**
- **Members of the Consumer Electronics Association (CEA) – Tech Home Division**
- **Objective:** create lighting control products that simplify home automation for the installer and for the homeowner
- **Core strength:** significant expertise in electronic design and manufacturing
- **CTO Fred Kiko...**
 - Holder of 35 patents in communications and design
 - Revolutionized self-installation methods for residential DSL broadband service
- **Product Safety Testing & Certification**
 - All Simply Automated products are tested and approved to **UL** and **CSA** standards. The products are Listed by **ETL**, a nationally recognized test lab, to meet these standards.
- **Trade Show and Industry events in which we actively participate are:**
 - EHXpo (Electronics House Expo)
 - TBX (TechHome Builders Expo)
 - PCBC (Pacific Coast Builders Conference)
 - The Remodeling Show.



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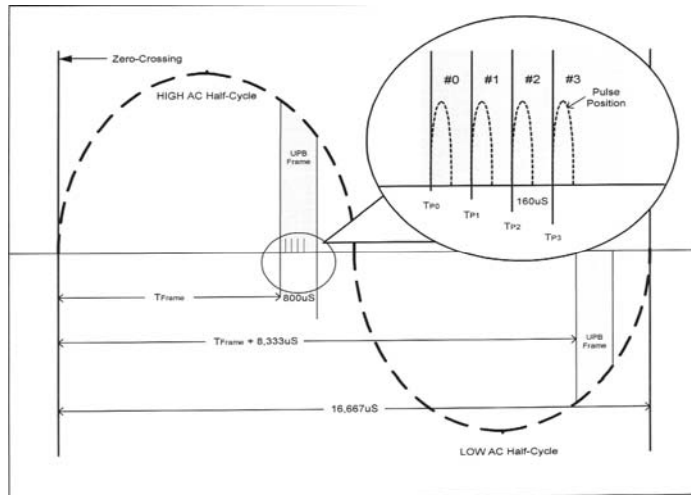
UPB Technology

- **Robust and reliable communications**
 - Pulse Position Modulation, not Powerline carrier
 - Excellent signal strength, minimal interference issues
 - Lower-band spectral energy means less attenuation
 - Wide address range... no crosstalk with neighbors
 - Bi-directional capability
- **Flexible architecture**
 - Stand-alone or server-controlled
 - Manual or PC-based programming
 - Rich feature set
- **Low Maintenance**
 - Fewer service calls = lower installed cost
 - Higher customer satisfaction



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Pulse Position Modulation



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How does UPB stack up?

	UPB	X10	CE bus
Description	PPM, designed for commercial & residential	PLC, designed for simple home automation	Full 7-layer network over various media (incl PLC)
Signal Level	40-60V	5-7V	3-7V
Signal Frequency	None (PPM)	120kHz bursts	100-400kHz sweep
Data Rate	400bps	120bps	7kbps
Commands/sec	10	1	???
Addresses	62,500 (250 networks x 250 devices)	256 w/o extended codes	4 billion (65k networks x 65k devices)
2-way Communication	Yes	Only on special high-end devices	Yes
Phase Coupling	Required only in a small percentage of large homes (>6500 sq. ft.)	Always required; phase repeater required in larger homes	Always required



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How does UPB stack up?

	UPB	Mesh RF	Mixed RF/PLC
Description	PPM, designed for commercial & residential	Mesh network, designed for light commercial and home automation	Mesh and PLC, designed for home automation
Signal Level	40-60V	Not Applicable	4-5Vpp
Signal Frequency	None (PPM)	900MHz (carrier)	120kHz (carrier)/ 900MHz
Data Rate	400bps	9600 bps	2880 bps
Commands/sec	10	50mSec/Command (20?)	10
Addresses	62,500 (250 networks x 250 devices)	254 devices per system	16 million
2-way Comm	Yes	Yes	Yes
Point to Point transmission distance	5000 feet	90 feet, 4 repeat limit	150 feet, not specified for power line carrier
Phase Coupling	Required only in a small percentage of large homes (>6500 sq. ft.)	Not required, mesh networks operate best when many units are installed	Phase couplers required in most applications, RF repeaters are also available for improved reliability.



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Simply Brilliant™

Standard Dimming Transceiver

SimplyBrilliant™ UPB Dimming Transceiver Switches provide ultra-reliable control of new and existing lighting fixtures, lamps, and fans.

Each unit has one switch that controls a single load of up to 900W. All rockers and buttons are transmitters and receivers able to communicate with UPB plug-in modules and/or other UPB devices to control virtually anything.



- ON/OFF control, 200 dimming steps and Resume Dim
- Contoured heat sink delivers cooler operation
- Interchangeable rocker assemblies – change color in the field (order ZS11 Universal faceplate in desired color)
- Dedicated Remote Switch provides inexpensive 3 or more-way control*
- Color: White (Gloss Finish)

Complete Switches/Controllers, 900W

US11-30-W Dimming Transceiver Switch

USR1-W Dedicated Remote Switch



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Universal Dimming Transceiver

Simply Automated's SimplyBrilliant™ Universal Dimming Transceiver Switches provide the same ultra-reliable control as our Standard Dimming Transceiver Switches, while offering greater flexibility. Each unit has one switch that controls a single load of up to 900W, and can be field-configured to accept single, double, triple, and quad rockers, as well as 4 and 8-button face plates. And, all faceplates are interchangeable in the field without ever having to untwist a single wire nut!



- ON/OFF control, 200 dimming steps and Resume Dim
- Contoured heat sink delivers cooler operation
- Interchangeable rocker assemblies – change color and functionality in the field
- Dedicated Remote Switch provides inexpensive 3 or more-way control*
- Standard Faceplate Colors: White, Almond, Ivory, Black, Brown
Color-matched to Leviton® Decora® wall plates.

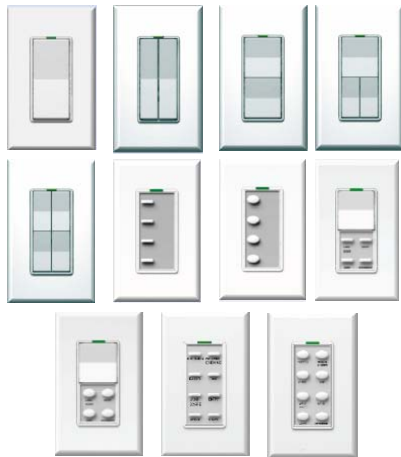
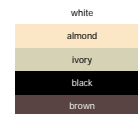
Switch Bases (Require Faceplates)

- US2-40 Universal Transceiver/Controller Base
- USR Universal Dedicated Remote Base
(compatible w/ZS11 and ZS12 faceplates only)



Transceiver Rocker Faceplates (Specify Color)

- ZS11 Single
- ZS12 Dual (tall)
- ZS22 Dual (short)
- ZS23 Triple
- ZS24 Quad



In-Wall Controller Faceplates (Specify Color)

- ZS24B 4 Buttons, thin bar
- ZS24O 4 Buttons, oval
- ZS25B 4 Buttons, w/1 rocker, thin bar
- ZS25O 4 Buttons, w/1 rocker, oval
- ZS28B 8 Buttons, thin bar
- ZS28O 8 Buttons, oval





Dedicated Remote Transceiver



SimplyBrilliant™ UPB Universal Dedicated Remote Switch works with Standard and Universal Transceiver Switches to provide ultra-reliable 3 or more way control of new and existing lighting fixture, lamps, and other electrical devices connected to Universal Powerline bus (UPB) plug –in modules, or fixture modules anywhere in the home.

- **Interchangeable Rocker Assemblies**
 - Change color and functionality in the field
 - Compatible with Single (ZS11)
 - Reduce Inventory costs
- **True Rocker action**
 - Both ON/OFF and dimming capabilities
- **Thinner depth profile allows easy installation**
- **Provides inexpensive 3 or more-way control**
- **Colors:** White, Almond, Ivory, Black, Brown

Complete Switches/Controllers
USR1-W Dedicated Remote Switch, White



Plug-In Modules



UML
Lamp Dimming

UML – This plug-in module is designed to provide ON/OFF dimming control of 120VAC incandescent lamps.



UMA
Appliance Relay

UMA – This plug-in module is designed to provide ON/OFF control to 120VAC appliance, motors and fluorescent lamps.

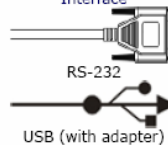


UMI
Input/Output low-voltage

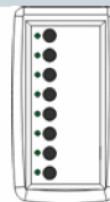
UMI – This plug-in module is designed to transmit the status of low-voltage inputs and contact closures. To provide ON/OFF controls of low-voltage devices such as door strikes, drapery control, central vacuum controls, electric fireplace actuators, garage door openers, sprinkler valves, etc.



UMC
Computer Interface



UMC - This plug-in module enables computer –based configuration and control of household lighting, appliances, and other devices. Receives and transmits UPB digital commands and converts these signals to a serial RS232c interface format.



UCT
Tabletop Controller 8-Button

UCT - This 8-button, plug-in controller can be linked to UPB switches and modules throughout the home to enable remote control of devices and lighting scenes.



Wire-In (Fixture) Devices



URD
Receptacle
Relay



UFD
Fixture
Dimming



UFR
Fixture
Relay

URD – A wire-in duplex receptacle designed to control the operations of 120VACappliances and lighting based on digital commands received over the Powerline. Provides ON/OFF control for lighting and appliance up to 13A. Easy to install – fits into standard J-Box and connects directly to existing household wiring. Power to the top outlet is controlled by UPB commands and bottom outlet is always powered.

UFD / UFR - UPB Fixture Dimmers and Fixture Relays are wire-in modules designed to control remote lighting and ceiling fans. Fixture Dimmers deliver ON/OFF and dimming control for lamps up to 300W. Fixture Relays deliver ON/OFF control for lighting and appliance up to 12A. These modules fit easily inside a standard outlet box. Fixture modules connect directly to the existing household power wiring. The devices connected to the module can be operated manually using a UPB wall switch or multi-button controller or automatically via PC or home automation controller.



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Universal Phase Couplers



ZPCW
Universal Phase Coupler,
Wire in



ZPCB
Universal Phase Coupler,
Breaker-Box Mount

Universal Phase Couplers

To ensure a reliable installation every time, one phase coupler is recommended for every UPB system in a two-phase home. These devices will also pass X10 and broadband signals between the two power phases!

- Two Packaging styles: Wire-in and Breaker Panel Mount.
- LED's indicate proper phase connection and operation.



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Table Top Pedestal



- Simple Plug-in Installation
 - Locate anywhere in the home
- Provides all the features of the Universal Switch
 - Except local load control
- Create beautiful lighting scenes
 - Each button can be configured to control one or more devices
- Custom labeling available with ZLK-01 custom label kit
- Available in black or white with or without switch



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UPB Scheduler-Timer



- Easy to use, only two displays to create events and add devices
- Supports 99 events and 250 devices
- Power line synchronized to ensure maximum accuracy
- Non-volatile program memory and internal power storage for time
 - Keeps time for 1 week without power
- Celestial Clock calculates leap year, daylight savings and sunrise sunset
- On / Off, Random and Dimming
- CIM mode for computer interface to network
- Available May 2006



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Pocket Programmer



- Convenient Handheld UPB configuration device
 - Eliminates need for PC at job sites
- Supports the majority of UPStart functions
- Configures UPB network, changes devices, settings and links
- Includes trouble shooting tools to monitor network activity
- Doubles as a Computer Interface Module
- Available April 2006



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Custom Label Kit



- Model ZLK-01
 - Template and die cut labels to create Custom Labels for multi-button switches
 - Allows user to print labels on demand
 - Match switch colors and choose any desired font
 - Provides maximum flexibility and creativity to satisfy customers quickly
 - 10 die-cut sheet labels per kit
 - Can be reused in desk jet or bubble printers
 - Ivory and Almond labels kits available in April



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Product Evaluation Package

- “PEP Kit” provides a cost effective, plug and play solution to help evaluate and compare UPB



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Installing UPB Devices

- UPB Devices were developed to support both new and retrofit installation
- Most UPB switch control the local load
- To ensure success, qualify a home before quoting an installation
 - Validate power phases: one, two or three phase power
 - Phase couplers and three-phase repeaters are available
 - Use UPStart, CIM and Lamp Module to test rooms and phases
 - Identify problematic devices
 - Compact florescent lights, some electronic ballasts and dimmers
 - CIM and Lamp Module Test will help identify issues, when they are on
- Simply Automated has resolved every installation issue brought to our attention

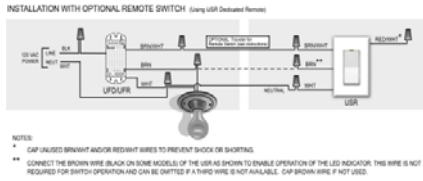


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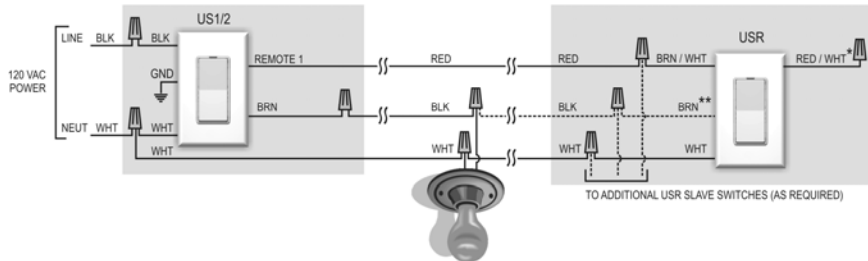
Installing UPB Devices

- Wiring diagrams and step by step instructions are provided in user guides
 - A great way to learn the ins and outs of product solutions



STANDARD 3-WAY (OR MULTI-WAY) INSTALLATION

This diagram shows a 3-way wiring configuration in which a USR slave switch controls the load connected to a US1 or US2 switch. Additional USR slave switches may be added in parallel for multi-way control.



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Benefits of UPB and Lighting Control

- UPB provides a reliable way to enable lighting control and home automation
 - Low frequency transmission and high voltage signaling is the key to reliable performance.
 - Wherever there are wires there is a reliable UPB solution
 - No RF dead spots
- UPB is supported by a long list of controller and software suppliers, enabling a wide variety of solutions
- UPB is an established defacto standard because of its reliability, availability of products and affordability



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Benefits of UPB and Lighting Control

- Lighting Controls enable a whole host of new applications.
 - Safety – light stairways and dark areas with sensor based control and UPB wall switch, fixture or lamp modules
 - Security – “all on” functions with panic button or alarms, timed events while on vacation or in landscape lighting, event monitoring with controllers while in the home or away
 - Convenience – multi button controllers can enable lighting where previously unavailable by controlling lamps or fixtures; timers can be scheduled to turn on or off lights in the morning or night
 - Comfort – create beautiful lighting scenes for entertaining, relaxing or watching your favorite movie



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Benefits of UPB and Lighting Control

- New homes: lighting control adds substantial value to a new home at a relatively low cost (e.g. less than 1% of home's purchase price).
- Retrofit: enables multiple lighting solutions and controls where none existed before – benefits are endless – creating a luxury home.
- Lighting control is an affordable luxury...
 - Lighting controls can be realized in a home for less than the cost of remodeling a bathroom or kitchen... and in some cases even less than the cost of a new flat screen TV



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Increase Revenue and Profits



- 77 % Reduction in Inventory Cost (removable faceplates)
- UPB Technology Reduce Expensive Call Backs
- 99.9% Reliability increases profit and customer acceptance
- Value Proposition (Price/Performance) increases profit
- Real Time Deliveries reduces inventory cost



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Questions ?



....THANK YOU!



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