PIXIE General Installation and Operational Requirements

For Electricians, Systems Integrators and Home Owners.

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The information below details the recommended installation and operational requirement for the SAL PIXIE Bluetooth smart home and lighting control system.

This information should be read in conjunction with each individual product's datasheet and installation manual, which also includes all necessary warranty information.

This information can be found on the SAL National website: sal.net.au

It is further recommended to refer to the PIXIE Product Matrix in the Appendices of this document for more detailed operational and functional capabilities of each of the PIXIE smart home products.

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Assumptions and Expectations

- All lighting that is to be controlled from an SAL PIXIE Dimmer (SDD350BT) is trailing edge compatible.
- No iron ballasts or drivers, or circuits with iron ballast or drivers terminated to them can be safely dimmed using the PIXIE Smart Dimmer (SDD350BT)
- Iron core fluorescent fixtures can be operated from the PIXIE Smart switch (SWL350BT) or PIXIE Smart Timer Switch (STS350BT) only, and then only if less than 80watt maximum load.

It is recommended to drive any iron drivers with the Smart Switch or Smart Timer Switch above this load via a contactor for reliable operation and switch longevity.

- No single dimmable lighting circuit or switched circuit can exceed the maximum rating of the PIXIE Smart Dimmer or PIXIE Smart Switch/ Timer Switch. (SWL350BT/ STS350BT)
    - Maximum load per dimmer is 350w – halogen or incandescent
    - Maximum load per dimmer is 200w – LED
- The PIXIE 600w Smart Switch (SWL600BTAM/ SWL600BTAM/BP) have the same limitations up to 600watts instead of 350watts.
- If switched circuits will exceed 350w, then the PIXIE Smart Switch and Smart Timer Switch can drive a contactor to operate the larger load.
- All SAL PIXIE dimmers and switches are 2 wire products and do not require a neutral at the switch-plate location for correct operation.
- Recommended for each dimming circuit - the INCLUDED capacitor is installed (across neutral and load).
- It is essential for all non lighting, switching circuits where the PIXIE Smart Switches and Smart Timer Switch are being used, the INCLUDED capacitor **MUST BE** installed (across neutral and load) for each switched circuit.
    - This also includes for low voltage garden lighting application
- All SAL PIXIE devices are IP20 rated and must be installed in a suitable electrical environment.

Installation Considerations

Dimming, Switching, LED control

Each lighting circuit that needs to be switched or dimmed must have an SAL PIXIE smart dimmer or smart switch/timer installed onto the circuit to provide access to the range of PIXIE automation functions.

Installation Locations:

1. **BLUETOOTH:** SAL PIXIE products use Bluetooth for communication between each other, the gateways and the mobile devices with the SAL PIXIE and SAL PIXIE PLUS Apps. Care needs to be taken so as not to install the PIXIE products into environments which are known to block radio waves such as:

    a. Any metal enclosure

    b. Any cupboard with a metal door

    c. Any wall plate with a metal front cover

    d. Metal wall boxes

2. **MOUNTING LOCATION**: PIXIE does not currently provide the ability to 'disable' the push buttons on the dimmers and switches. It should be noted that if these products are mounted in publicly accessible areas, anyone with access is able to operate the connected circuit. As PIXIE operates on the basis of 'last command takes precedence', operation of these devices will override any schedules, scenes, app control or voice commands issued.

3. **MOUNTING SPACING**: If the smart dimmers and switches are mounted in typical wall plates then they must be de-rated due to their proximity to each other and heat dissipation requirements for longevity of operation. All PIXIE products have circuit overload and heat overload protection designed to protect the homeowner's property in the even of an overloaded product.

    a. **1 – 350W/ 200VA**

    b. **2 – 240W/ 150VA**

    c. **3 – 180W/ 100VA**

Refer to the installation manual of specific devices for more detailed information.

Bluetooth Mesh Boosters

Depending on the installation method, installation location and building construction, one or more Bluetooth Boosters / amplifiers may be required to guarantee connectivity of all PIXIE devices across all areas in the home and provide the best smarthome experience.

A range of PIXIE products also include an additional built-in/ integral PIXIE Bluetooth Mesh Booster, and strategic use of these products throughout the home can obviate the need for separate USB Bluetooth Mesh Boosters.

Typical Integral Booster Products and Applications

Here are 3 typical applications where PIXIE products with an integral Bluetooth Mesh Booster will remove the need for a separate booster installation.

PIXIE Smart Plug (ESS105BT) & Bathroom Extractor Fans:

The PIXIE Smart plug is installed into a plug base in the ceiling. The extractor fan is plugged directly into the Smart Plug socket. This setup provides the full range of PIXIE smart control options for the extractor fan and provides a Bluetooth Mesh Booster into the bathroom and surrounding areas.

As bathrooms typically have thicker walls due to tiling and waterproofing requirements, they represent an ideal location for signal boosting.

PIXIE LED Controllers & Bathroom/Outdoor LED Strip Control:

LED strips in bathrooms are now on trend whether they be mounted behind mirrors, baths, or vanities. Using either the single colour PIXIE LED controller (LT8915/BT) or the PIXIE RGB LED controller (LT8915RGB/BT) provides full dimming control, and the full range of PIXIE smart control options for the LED strips and provides a Bluetooth Mesh Booster into the bathroom and surrounding areas.

As bathrooms typically have thicker walls due to tiling and waterproofing requirements, they represent an ideal location for signal boosting.

PIXIE Blind and Signal Controller (PC206BS/R/BTAM) & Blinds/ Garage Doors:

Automated blinds, awnings and roller shutters, as well as garage doors sometime call for the PIXIE controllers to be mounted in odd or more remote locations than normal.

If an installation calls for 1 or more PIXIE Blind and Signal controllers to be mounted remotely, such as close to the garage door motor, or close to the automatic awning motor, the integral Bluetooth Mesh Booster will act to ensure connectivity of this device to the mesh network and provide a boosted signal for other PIXIE devices to utilise to increase connectivity throughout the home.

As a 'rule of thumb' PIXIE devices that are mounted into switchplates (typically the dimmers, switches, timers) in a double brick home or concrete cast home will be able to communicate through 1 wall, but not 2. As each mesh device re-transmits the signals it receives, system messaging hops between devices.

This rule of thumb provides a simple design guideline to select the best range of integral boosted products or separate Bluetooth Mesh boosters if and as needed.

Simple portable USB Booster Installation (Part #: SGB/BT)

1. On a permanent active the electrician can install a 'plug base' at the identified location/s.
2. Into that plug base connect a standard phone charger with a USB connected, with at least 5v DC output.
3. Connect the USB charger to that phone charger via the USB port.
4. Installing this plug base near a downlight hole provides easy access for future servicing should it be required.
5. Marking these portable Bluetooth booster locations on your as-built plans for future servicing is recommended good practice.
6. Up to 10 SGB/BT booster can be installed into a single PIXIE home.

Remember all electrical work in Australia must be conducted by an authorised and certified electrician.

PIXIE Gateways

The PIXIE Gateway is needed for homeowners wishing to control their home remotely, from outside of their home and to provide voice control capabilities.

The PIXIE Gateway only works with the free PIXIE PLUS App, not the free PIXIE App which provides only in home control capabilities.

The SAL PIXIE Gateway connects the PIXIE system to:

- The Wifi network in the home
- The internet

The device literally acts as a bridge between the internet and the PIXIE Bluetooth Mesh in the home.

The gateway also provides a secondary connection method from the PIXIE PLUS App to the PIXIE Home.

WiFi connection ensures an alternate path redundancy for connection should a fault occur with Bluetooth and the system will choose the preferred communication method based on site conditions.

As these PIXIE Gateway devices connect wirelessly to the WiFi in the home, care should be taken to install these in a location where both connectivity to the facility's WiFi is possible AND connectivity to at least 1 of the SAL PIXIE bluetooth devices is possible.

Again, mounting of any device that depends on radio signals into metal enclosures will reduce the effective range of the communication of those devices.