PIXIE Blind and Signal Controller Configuration Manual

(Part #: PC206BS/R/BTAM)

PIXIE Smart Home Integration Trilogy - Product Companion Document

Also includes information for:

1) PIXIE Dual Relay Controllers (Part #: PC206DR/R/BTAM)
2) PIXIE Dry Contact Interface Device (Part#: PC100T/R/BTAS)

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Introduction

The PIXIE Blind and Signal Controller (PC206BS/R/BTAM) provides PIXIE smart home owners the experience of integrated control of their motorised blinds within the PIXIE smart home solution.

In addition to motorised blinds this product can be used for control of a range of automated garage doors, automatic gates as well as integration to other 3rd party products such as alarm systems, depending on the specification and requirements of those 3rd party products.

In this way, the PIXIE Blind and Signal controller can be used to create a smart home and integrate more devices around the home to create a more cohesive smart home experience for homeowners from a single PIXIE solution.

This document provides wiring diagrams, instructional how-tos and application examples of using the PIXIE Blind and Signal Controller, the PIXIE Dual Relay Controller and the PIXIE Translator (dry contact input device).

The reader should also note that whilst this document references blinds and blind motors, this same principles, and often wiring, apply to curtains, awnings and other motorised shading appliances commonly found in smarthomes.

Buttons and terminals:

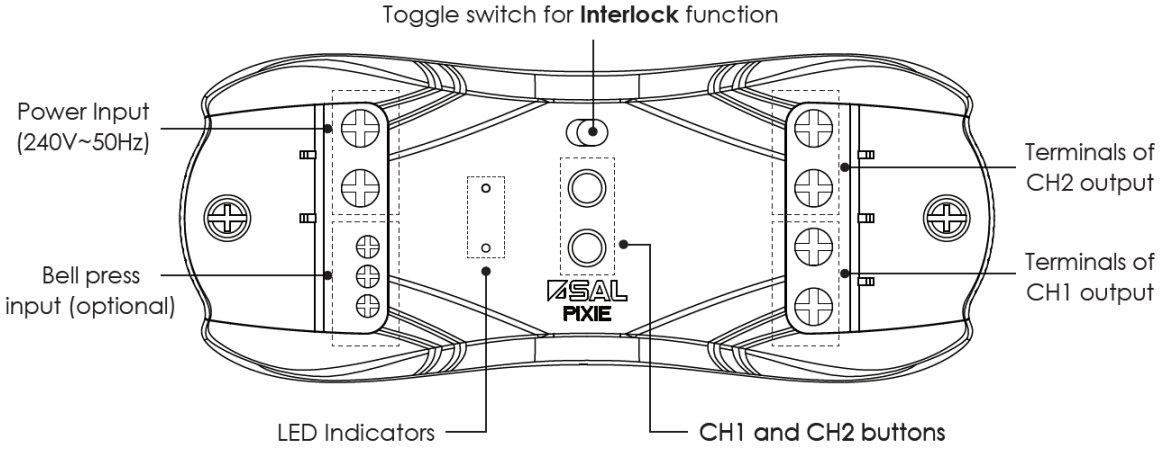


Figure 1

Blind and Signal Controller (L110mm x W40mm x D26mm)

PIXIE App Setup and Control

Setting up the applications described in this document are all performed in the PIXIE Apps. This delivers full control of individual blinds, groups of blinds or blinds as part of any scene recall from any PIXIE control location.

PIXIE Control Locations:
These are broadly described as App, Wall, Voice - Tap Touch Talk.

- App control - PIXIE or PIXIE PLUS App
- PIXIE Wall Plate Scene Control (using the SMF/BT Multifunction Controllers)
- Mechanical Bell Press Mechs (Using Bell Press inputs on new devices)
- Voice Control - with the PIXIE PLUS App and PIXIE Gateway Installed

PIXIE and PIXIE PLUS Apps are available for both iOS and Android. Motorised Blind and System integration control is especially useful when using the PIXIE PLUS iPad App which operates in landscape mode making it easy to mount an iPad to a wall and use it as a central smart home controller.

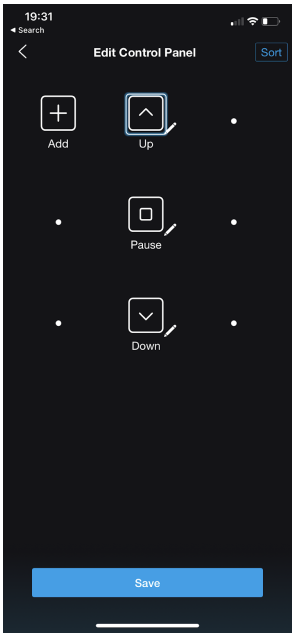
New Control Concepts for PIXIE

The Blind and Signal Controller introduces some new control paradigms for the PIXIE smart home Apps. These new concepts are critical to understand and ensure that a fast and simple set up of the PIXIE smart home is achievable.

These new concepts are explained below and it's recommended to understand these prior to reading further in the document.

Control Panel

Control Panels are a new PIXIE and PIXIE PLUS App interface that also provides a sophisticated interface to set up the advanced control scenarios now possible with these integration products.

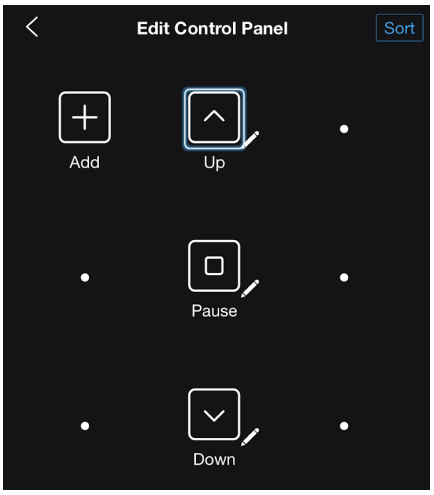


Each Blind and Signal Controller will have a Control Panel created by the electrician or users and this can be modified at any time after setup for maximum future flexibility.

This Control Panel has 2 primary purposes:

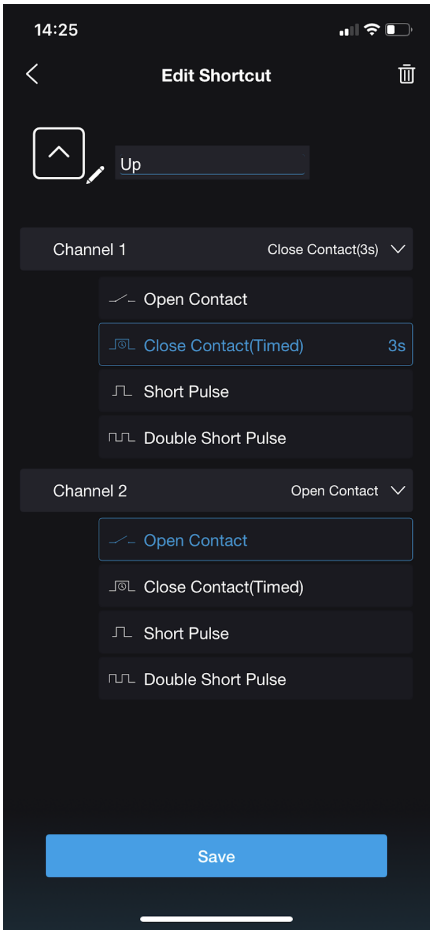
1. Creation of **Shortcuts** which provides users fast and easy access to control blinds and other integrated systems with a range of commands accessible from a single button press
2. An intuitive interface for **control and creation** of the complex commands that may need to be created to perform the sophisticated control and integration needed.

Each of the 9 buttons available on the Control Panel can have a Shortcut created and there are 9 Shortcuts which can be created for each Control Panel (Blind and Signal Controller device.)



The Control Panel has three standard templates which correspond with typical scenarios such as Roller Blind control, Garage Door control or Custom. Each template pre-populates a standard Control Panel for speed and faster modification.

Once the Control Panel is populated, editing the function of each button is achieved simply by pressing the little pencil attached to the bottom of each icon. This creates what is known as a **Shortcut**.



Shortcuts

Shortcuts are literally as the word describes.

A **Shortcut** is a method to simply recall a combination of the relay operations on each of the PIXIE Blind and Signal Controllers.

As there are 2 relays in each device and a Shortcut can include just 1 or both relays depending on the desired switching scenario needed.

The relays used in the Blind and Signal Controller are normally open relays so the default action is Open Contact.

There are 4 functions available for each relay which will be performed when the SHortcut is activated.

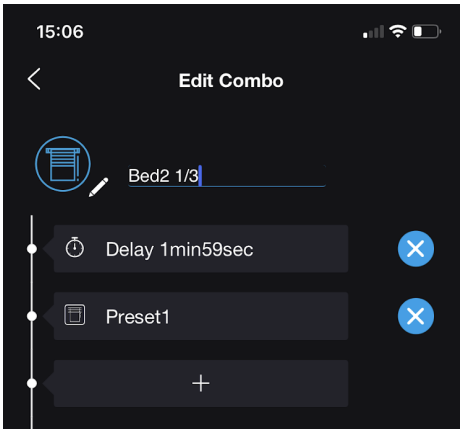
- Open Contact
- Close Contact (Timed) - up to 60 seconds
- Short Pulse - less than 1 sec
- Double Short Pulse

The shortcuts can be activated via the Apps, by paring a shortcut to a PIXIE Multifunction Controller or PIXIE Remote Button, included in a COMBO and included in a scene.

This scene capability means that voice control of these Shortcuts is possible. Activating multiple Shortcuts simultaneously across devices as part of a scene achieves whole house operation of multiple blinds, for example.

COMBO

COMBOS are a feature which allows the user to recall a sequence of **Shortcuts** from a single button press.



COMBOS can be built with delays at any step in the sequence.

1. Maximum delay time of 1minute and 59 seconds is possible.
2. Delays can be stacked to create longer delays.
3. A maximum of 6 Actions per COMBO are permitted.
4. 3 COMBOS can be created per Blind and Signal Controller

The COMBOS then become available on the Control Panel screen as a way to recall more complex operations simply. These Combos can also be synced to a scene, providing an additional level of sophistication to the home automation.

Scenes (Updated)

Scenes have the unique ability to operate across all PIXIE devices and recall different states - on or off or dimmed to a level, a colour selected (for RGB LED strips) - simultaneously

Scenes can now also include both **Shortcuts** and COMBOS.

Using COMBOs within a scene provides a sophisticated way in which to delay operation of connected devices instead of activating everything the moment the scene is recalled.

Groups

Blind and Signal controllers cannot be grouped in the traditional sense of PIXIE Smart dimmers, switches, timers, LED controllers.

Typically group control provides a collection of items (a group) the ability to be turned on/off and/ or dimmed. As there is no ON/OFF/DIM function per-se with the Blind and Signal Controller - hence there is no grouping function.

However, creation of scenes with multiple **Shortcuts** from individual Blind and Signal Controllers provides the necessary control paradigm.

Motorised Blind Control - 3 Wire Blind Control

The PIXIE Blind and Signal controller can be used to control a range of manufacturers motorised blinds. It is always recommended that the electrical contractor undertakes due diligence in understanding the operation of the blind motors from different manufacturers.

In this document we detail the typical wiring configurations of the PIXIE Blind and Signal controller with **Somfy** brand of blinds.

There are 2 primary methods to control Somfy motorised blinds, curtains, awnings etc. and this depends on the Somfy motors used.

The PIXIE Blind and Signal control is capable of controlling blinds via dry contact interface through a supplier's interface module OR direct 240volt control. The latter varies greatly depending on the blind manufacturer and then also from model to model.

It is important to first understand what model of motors are being used to then determine the method of control.

Wiring diagram (Typical dry contact signal output)

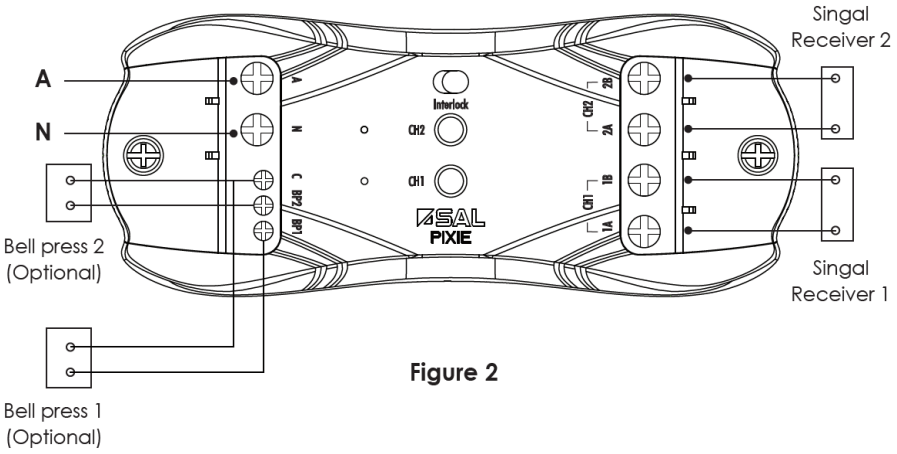


Figure 2

What's in this Section?

Signal Control with Somfy

When using Somfy RTS enabled motors - 3 Wire Motors - which are wirelessly controlled - the PIXIE Blind and Signal controller device is used to interface to the Somfy DCT2RTS interface gateway, which in turn communicates to the Somfy wireless motors.

“DCT2RTS gateway provides communication between third party home automation systems and RTS motors through simple dry contact input interface. ”

This is often the simplest and easiest way to integrate PIXIE with Somfy motorised blinds as the electrician simply wires the blind motors with standard 240v wiring for 3 wires blinds and then control is provided by both the integration with the PIXIE Blind and Signal controller and the Somfy DCT2RTS and via the standard Somfy hand held remote control.

This enables homeowners to integrate their blinds and curtains within their PIXIE home for:

- mobile App control,
- scheduled operation,
- voice control
- wall plate control
- as well as enabling use of the Somfy standard remote control.

We recommend the electrician read the product user manual for the Somfy DCT2RTS or the blind and motor providers undertake the initial setup and commissioning of each blind prior to integration with the PIXIE Blind and Signal controller.

Equipment Considerations

The Somfy DCT2RTS is powered via a supplied AC adapter which plugs into a standard GPO and allows up to 5 individual blind motors to be controlled per interface gateway.

For each motor that requires control it is necessary to use 1 PIXIE Blind and Signal controller which is terminated to the dry contact input of the corresponding channel on the DCT2RTS.

There are 5 channels available on each device and therefore 5 PIXIE Blind and signal controllers can be used.

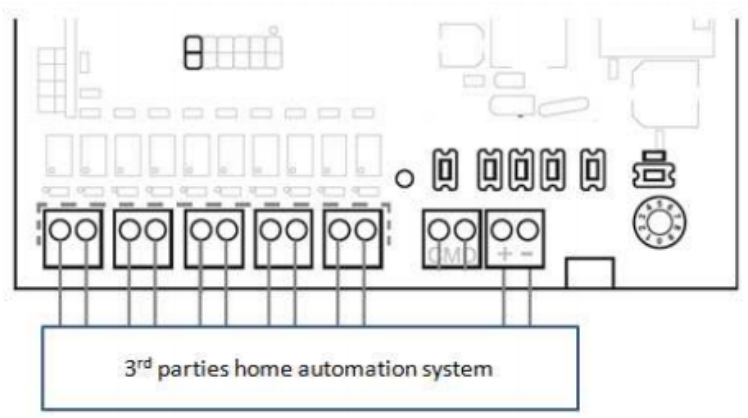


Fig.3 Home automation system directs connect to DCT2RTS interface wiring

Connection Diagram for Dry Contact Signal Control of Somfy Blinds using DCT2RTS

To control 5 motors you would need the following:

- 1 x Somfy DCT2RTS
- 5 x PIXIE PC206BS/R/BTAM

To control 15 motors you would need the following:

- 3 x Somfy DCT2RTS
- 15 x PIXIE PC206BS/R/BTAM

This arrangement would provide the ability to control each blind individually and group these blinds via PIXIE scenes to be controlled in any other configuration the homeowner desired. The number of devices can be reduced if individual control of each blind/motor is not needed and the Somfy Controller has some grouping capability separate to PIXIE.

Mounting Considerations

There are 2 important considerations when mounting the Somfy and PIXIE devices.

- Firstly the Somfy interface gateway has a wireless range of 20m with 2 concrete walls.
- The PIXIE Blind and Signal Controller has a range of 15m and acts as a bluetooth mesh booster for the PIXIE mesh.

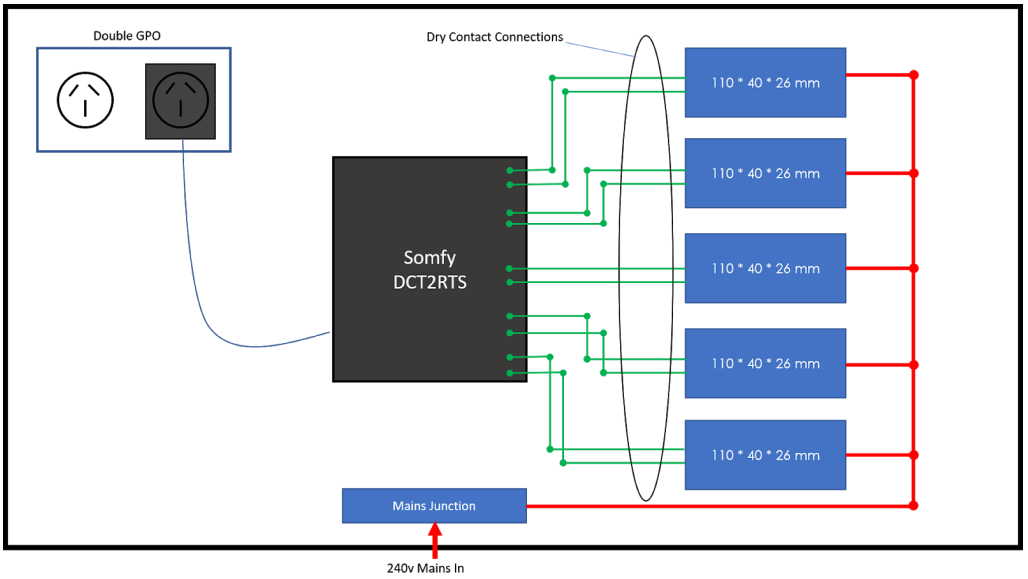
As both of these devices are wireless transmitters/ receivers it is important that these **are <u>not</u> installed in**:

- A metal enclosed box
- An area of the home that will inhibit the radio signals from transmitting to the nearby blinds and/or PIXIE devices.

As a result it may be necessary, depending on the home design, layout and construction to nominate more than a single location for installation of both the PIXIE and the Somfy devices for correct operation

Each device, the Somfy gateway and the PIXIE controller, require a 240v supply.

- Somfy is provided with an AC Adapter which plugs into a standard GPO
- PIXIE devices can have up to 5 devices wired in parallel for mains supply.



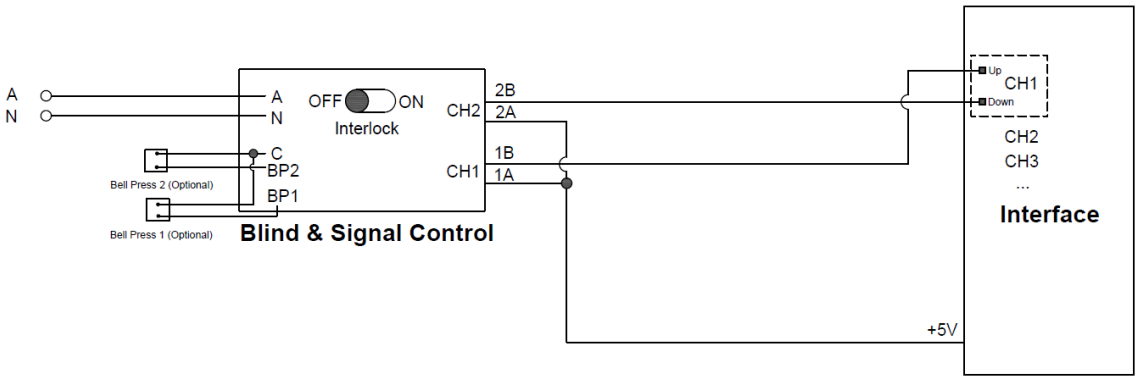
Typical Blind Controller board example.

These blind controller boards in the example above, created by the electrician using the Somfy interface device and the PIXIE Blind and Signal Controllers, may be mounted in numerous locations around the home in areas such as the top of built in robes etc. and adhering to the mounting location recommendations to optimise Bluetooth signal reach.

Wiring Configuration

The diagram below describes the basic wiring from the PIXIE Blind and Signal Controller to the Somfy interface gateway. This wiring configuration is specific to the Somfy DCT2RTS. If you are using a different manufacturer's interface device or gateway please check with the manufacturer for correct wiring requirements.

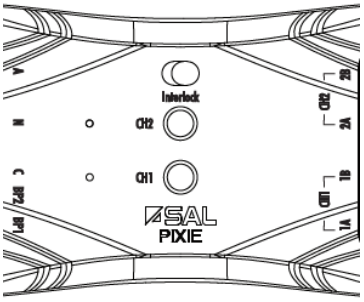
With this specific Somfy interface, this setup provides the ability to drive the synced blinds up, down and stop via the PIXIE App and from wall plate and voice control if using the PIXIE PLUS App with a voice assistant connected.



Typical Dry Contact Wiring Diagram Figure 1 - See Appendix for larger version

Testing Operation Before Setting Up in App

Each PIXIE Blind and Signal Controller must be set up in the PIXIE Apps to ensure they provide the desired operation.



Prior to setup, the hardware devices can be tested via the CH1 (channel 1) & CH2 (channel 2) buttons to ensure they are wired to the Somfy controller correctly and performing the desired operation.

There is a test button for each of the 2 outputs on the controller to enable simple testing.

As previously detailed, it is important that the Somfy motors are set up in the Somfy Environment, to be operated by the DCT2RTS prior to testing or operation via the PIXIE Blind and Signal Controller.

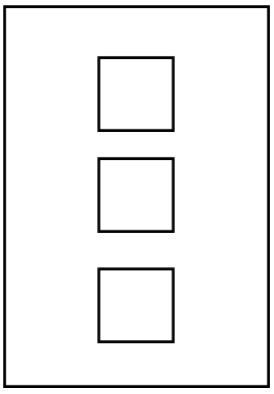
Scenarios for Controlling Blinds from Wall Plates

There are 2 primary methods to provide control of either individual motors or groups of motors using a wall plate with either a Multifunction switch (SMF/BTAS) or momentary press mechs from any manufacturer.

This assumes that the blind controllers have been set up to provide the appropriate up, stop, down operation already and the Somfy blinds and DCT2RTS have been synced.

PIXIE Multifunction switch (SMFBT) Group Control

The PIXIE Multifunction controllers can be used to control either a single blind motor or a group of blind motors simultaneously. The example below describes how to control a group of motors.



Picture a 3 gang wall plate, where each switch is a PIXIE multifunction switch (SMFBT).

Top = UP; Middle = STOP; Bottom = DOWN

For example, in a bedroom there may be 3 windows each with its own blind/motor.

All of the blinds in this room can be added to a Scene in the PIXIE App and then controlled as a single scene, instead of individually from the wall.

The homeowner can still control each blind motor individually from the App as a single device, so no fine control is lost by performing this scene control.

The three scenes would include:

1. Each of the blind's open **Shortcuts**
2. Each of the blind's close **Shortcuts**
3. Each of the blind's stop **Shortcuts**

Finally, pair each of these scenes to the corresponding multifunction switches', single click function via the App pairing process.

The homeowner can then control all blinds in this example bedroom from a wall plate together - up, down and stop.

Alternate - Individual Blind Operation - Multifunction Switch SMFBT

An alternate operation for this same bedroom with 3 blinds and the same 3 gang wall plate would provide **individual control of each blind, up and down only- fully closed or fully open.**

In this instance simply create a scene for each individual controller, into which the correct blind controller **Shortcut** is included.

*Whilst it's possible to pair each of the individual blind controller's **Shortcuts** directly to the PIXIE Multifunction controllers, it is not possible to provide a single click and double click functionality from a single button - which is the desired operation with this example to have a 3 gang plate on the wall - hence creation of scenes is necessary.*

Then, pair each multifunction switch so that a single click function is paired to the Open scene for 1 of the blinds and the double click function is paired to the Close scene for the same blind.

Repeat this process for the other 2 blinds and buttons, to provide identical operation for each blind from each button.

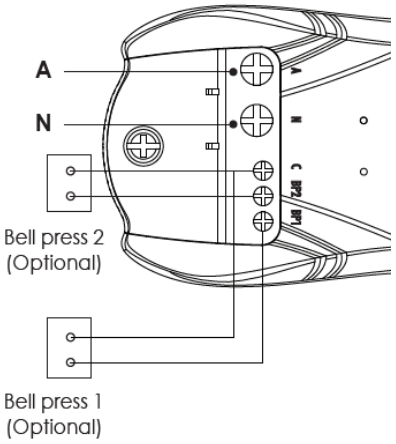
Then the homeowner has control of each blind - open and close - individually from the wall.

Momentary mechanical press mechs/ bell press mechs

It is also possible to provide direct control of the PIXIE Blind and signal controller by using mechanical momentary press mechs or commonly known as bell press mechs.

To deliver this function, these momentary press mechs are required to be connected directly to the PIXIE Blind and Signal controller and mounted into a wall-plate.

The length of cable from the momentary press mech/ bell press mech to the Blind and Signal controller bell press inputs, must not exceed 20 metres each and this should be considered when using this method for control.



***Important**: This provides direct activation of the blind and signal controller and provides up, down and stop control when the outputs are wired accordingly.*

This example assumes use of the Somfy DCT2RTS, which accepts a Short Pulse function from the corresponding relay, to start the open and close blind operations.

This direct control operation is possible with both 4 Wire controlled blinds as well as blinds that are controlled via the Somfy DCT2RTS device, although the Control Panel in the PIXIE apps have slightly different settings. This is covered in the 4 Wire Motor control section.

Controlling Multiple Blinds via Momentary Press mechs/ bell press mechs

As a result of this direct bell-press wiring capability it is possible to control multiple blinds together in this manual way by simply wiring in parallel between each of the PIXIE Blind and signal controller's BP1 and BP2 inputs, which can then be controlled from a single set of momentary mechanical press mechs.

How to Open Blinds to a Specific Level

Sometimes homeowners do not want to *only* automatically open and close their motorised blinds completely and would instead prefer to partially open or close their blinds for a variety of reasons.

Of course this is possible with the PIXIE Blind and Signal Controllers as already described above using momentary press mechs

As its possible to set the relay closure time, it's therefore possible to create a number of preset open/close levels for a blind, a group of blinds or all blinds.

This is achieved using **Shortcuts and COMBOS**, two additional features available to the PIXIE Blind and Signal Controller via the PIXIE Apps and is described in more detail below.

This capability also means homeowners can issue voice commands to partially open blinds when the PIXIE PLUS App and PIXIE Gateway is being used.

Scheduling blinds to be partially opened or closed is also an effective way to save energy and live in a really smart home.

Imagine the rear patio blinds partially closing automatically, at just the right time, to exactly the right level, every afternoon/evening to stop the sun blinding you as you enjoy a quiet bevvy on your patio.

Now that's smart!

Somfy Favourite Function

It should be noted that when using Somfy blinds these devices have the ability to recall a favourite scene. This favourite scene is created by the Somfy installer during installation and setup of the Somfy DCT2RTS device.

To recall this favourite scene using the Blind and Signal Controller with Somfyis achieved in 2 steps.

1) This can only be activated if the Somfy motors are not in motion
2) A Short Pulse from both relays which are wired into the Somfy DCT2RTS will recall the pre-programmed Somfy favourite.

It should also be noted that when the blinds are moving a Short Pulse from both relays will STOP the Somfy motors.

As described below assigning both of these functions to a Shortcut is the easiest way to implement this control functionality.

Creating Shortcuts for Partially Open/ Closed Blinds

The information below describes how to create a partially-closed blind application.

It must be noted that for this to work effectively every time, the blinds must be either fully open or fully closed when issuing commands.

The following instructions may appear quite long, however, when implemented once, it's very easy to remember how to repeat this process. As this product introduces some new concepts for PIXIE operation, this is a detailed step by step explanation.

STEP 1: TIMING
To get started, you will need to know how long it takes for your blinds to completely close when completely open, and completely open when completely closed.

Ideally you would time this with a stopwatch for maximum accuracy as this will remove frustration when setting up timing later. Measuring both directions allows you to compare for accuracy and understand if different timing is needed, depending on the desired open or close action.

STEP 2: BASIC MATH
Once you have your absolute travel times it's possible to accurately determine how long the PIXIE Blind and Signal Controller would need to be set up to close the blinds 25% of the way, half way etc.

STEP 3: CREATE THE TIMING
We are assuming this timing is being created for a single blind /motor and a SOMFY DCT2RTS is being used as the interface device in the operational description below.

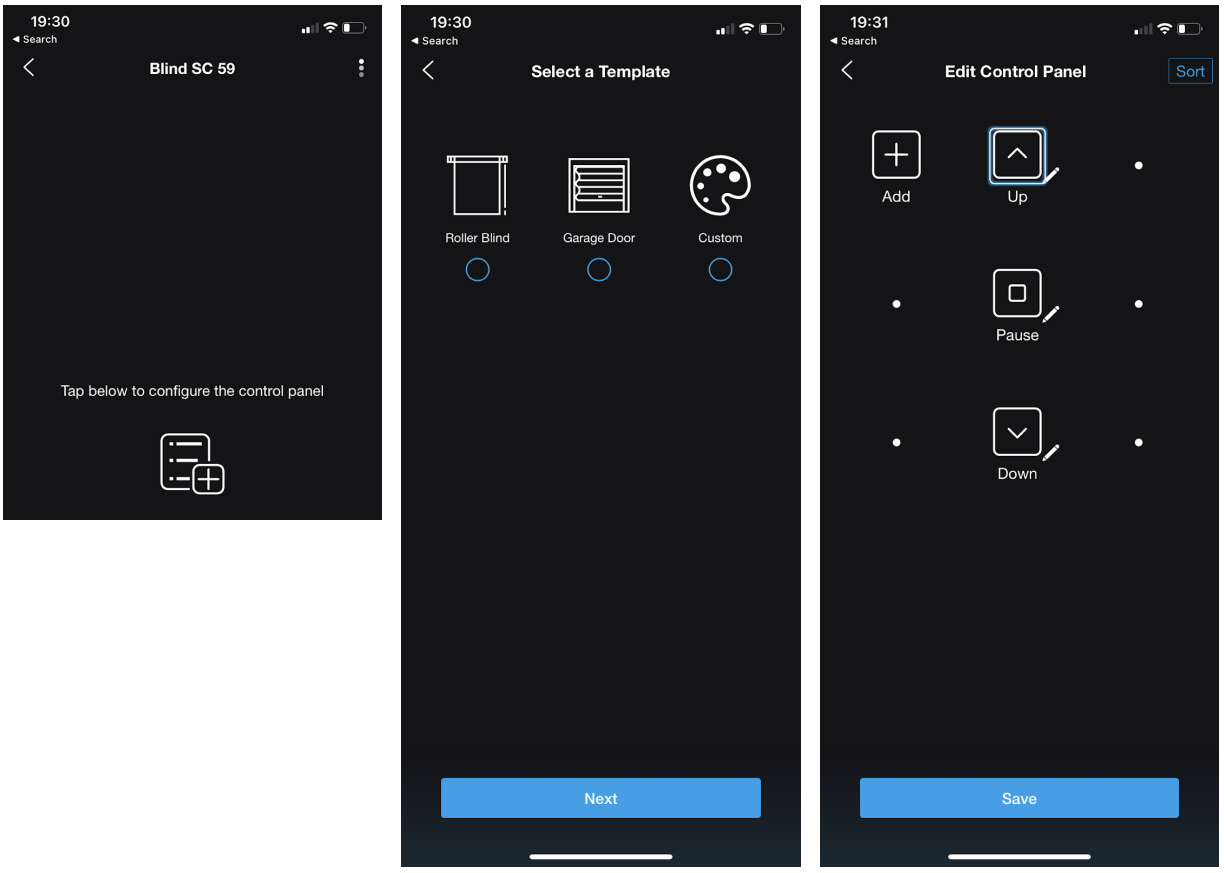
<u>This process consists of 3 distinct steps</u>:

- **First**, create the Blind and Signal Controllers **Shortcuts** for up, stop, down on each of the Blind Controller's control panels in the App.
- **Second**, create the **COMBOS** needed for the timing needed for this specific application for the preset blind levels desired.
- **Third**, create **Scenes** to enable easy activation of these functions.

To get started, in the PIXIE PLUS App, navigate to the PIXIE Blind and Signal Controller from the devices list. It will be called Blind SC XX (where XX = a number).

1) If this is the first time you are using this controller simply press on the icon to configure a control panel.

2) Then select the template closest to the type of device you are controlling - in this case select Roller Blind.



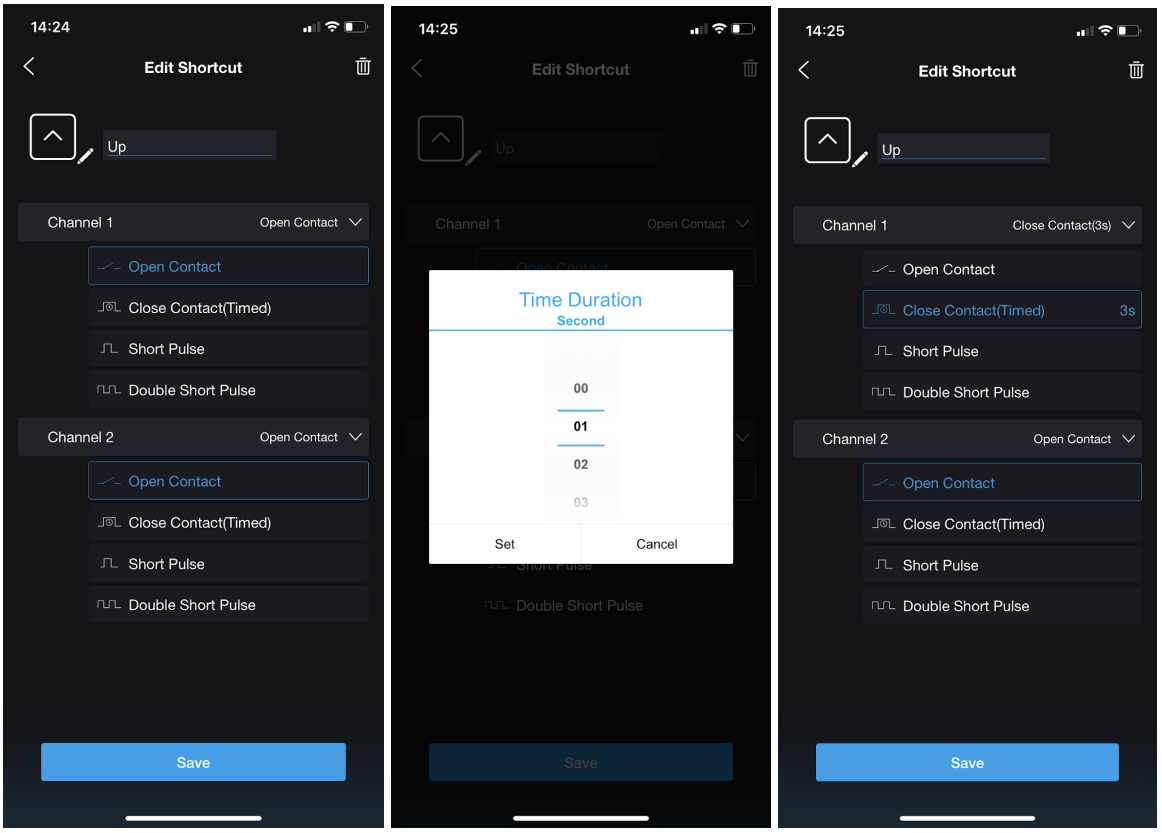
This control panel provides both a way to control the blinds with a range of different commands directly from the App and the ability to assign these commands for recall from other parts of the PIXIE system.

3) On the Edit Control Panel page you are presented with a typical Roller Blind control panel, for easy control from the App. It is possible to press on the little pencil next to any of the pre-filled icons, or select the + Add icon to create a separate Shortcut.

It is recommended to first create the UP, STOP/PAUSE, DOWN **Shortcuts** and then create a **COMBO.** It is recommended to provide a descriptive name for each control panel action for easy selection later in the process.

Next, configuring the timing set when these **Shortcuts** are activated.

Depending on how the PIXIE Blind and Signal controller has had the outputs to the blind manufacturer's controller wired, will determine what your settings are on this next page.



The Blind and Signal controller has 2 outputs and depending on the direction you are driving the blinds (or stopping them), will determine which relay output is open or closed and for how long.

If using the SOMFY DCT2RTS, wired as per the included wiring diagram setup each of the shortcuts as follows:

UP

- Relay 1 is named UP and set for Short Pulse
- Relay 2 is Open Contact

Down

- Relay 1 is Open Contact
- Relay 2 is named Down and set for Short Pulse

Stop

- Relay 1 is named STOP and set for Short Pulse
- Relay 2 is named STOP and set for Short Pulse

Once you have set these Shortcuts to suit your system with the correct configuration/timing you're ready to make a COMBO. Note with the presumption of the Somfy DCT2RTS, these are 'Short Pulse' settings.

Short Pulse means, less than one second.

COMBOS

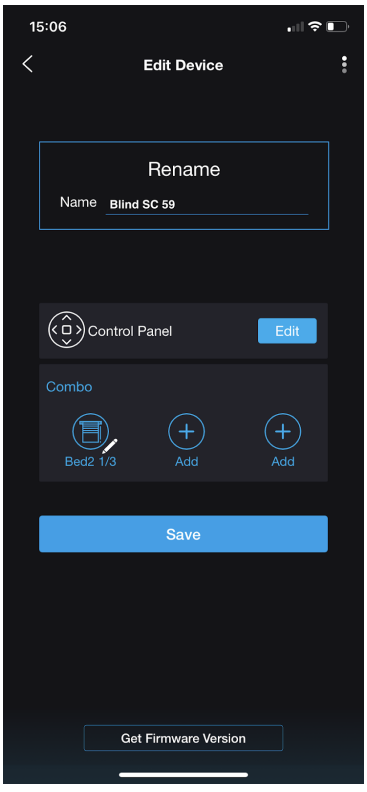
COMBOS are a feature which allows the user to recall a sequence of Shortcuts from a single button press.

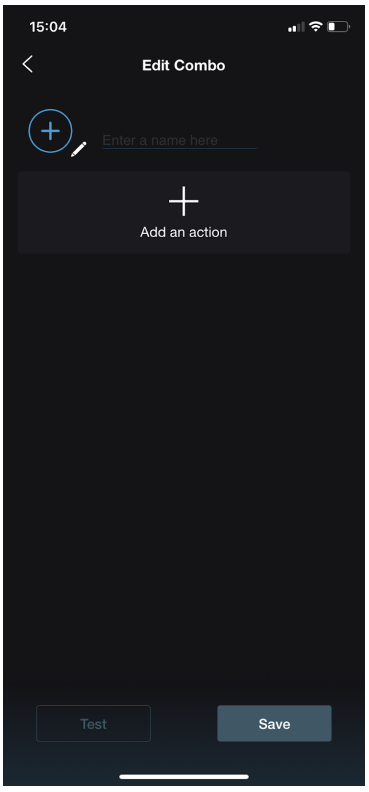
COMBOS can be built with delays at any step in the sequence

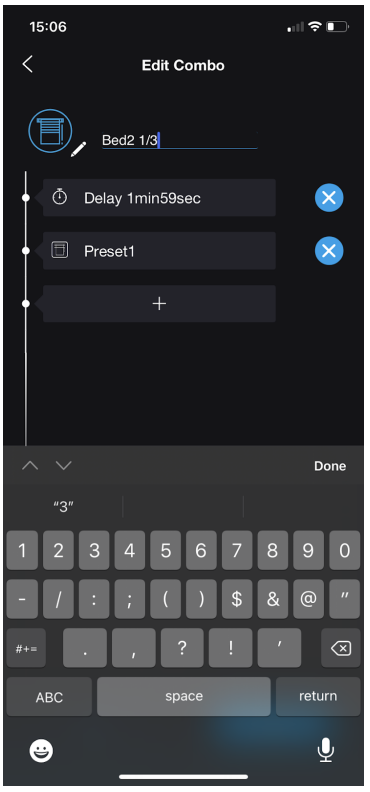
5. Maximum delay time of 1minute and 59 seconds is possible.
6. Delays can be stacked to create longer delays.
7. A maximum of 6 Actions per COMBO are permitted.
8. 3 COMBOS can be created per Blind and Signal Controller

These Combos can also be synced to a scene, providing an additional level of home automation.

In the PIXIE PLUS App, from the devices page, select the Blind and Signal Controller where the COMBO will be created. And press the Blue + circle in the Combo section.







Give the Combo a short name and add a step in the sequence by pressing the ‘Add an Action’ button where selection of a ‘delay’ or any Control Panel assigned function can be selected and included in the COMBO.

In the scenario of partially closing a blind from the FULLY OPEN position the COMBO created would be as follows:

1. Recall Shortcut A - Start closing
2. Delay for 4 seconds
3. Recall Shortcut B - Stop/pause

Finally connecting these COMBOS to a Scene helps deliver this functionality via App scene control, voice or a Multifunction Controller on the wall.

Whilst it is possible to access these COMBOS directly - either from the App or synced to a Multifunction Controller - to provide voice control capabilities it is necessary to take the extra step of creating a Scene.

Remember, PIXIE Scenes can be linked with iOS SIRI directly from the iOS App and scenes can also be recalled via the other voice assistants or even a PIXIE Remote Button controller (part #: SMC/BT)

To assign the COMBO to a Scene:

- Navigate to the Scene section in the PIXIE PLUS App
- Press the 3 little dots in the top right hand corner
- Select + Add Scene
- Name the scene, select the Blind and Signal controller where the COMBO has been setup and select the COMBO from the control panel displayed
- Save

If you would like multiple blinds to operate together, simply set up all of the separate PIXIE Blind and Signal controllers with their Shortcuts and COMBOS, and then navigate to the “SCENES” section in the PIXIE PLUS App to create a scene with the relevant Shortcuts and COMBOS included.

A Little Bit More

Sometimes blinds need just a little bit more up or down travel to be in the exact position on a particular day. Whilst this is of course possible to fine control this from a wall plate or from the App, voice control of blinds is a superior way to enjoy this functionality in a smart home.

Imagine asking Google to close the blinds to your favourite ‘Afternoon setting’, but this afternoon you want just a little bit more … closure.

It's possible to create a scene which can be used to provide just a little bit more up or down with a voice command.

This concept is a simple variation on the Shortcuts and COMBO already created in the section above for partially opening and closing blinds.

Simply head back to the control panel and create a new COMBO. Depending on how fast the blinds travel and how much of a 'little bit more' is needed from this command by the homeowner, will determine the Shortcuts and delay time used.

Remember you will need a *"Up a little bit more"* and a *"Down a little bit more"* Shortcut or COMBO for each blind and signal controller you wish to implement this for.

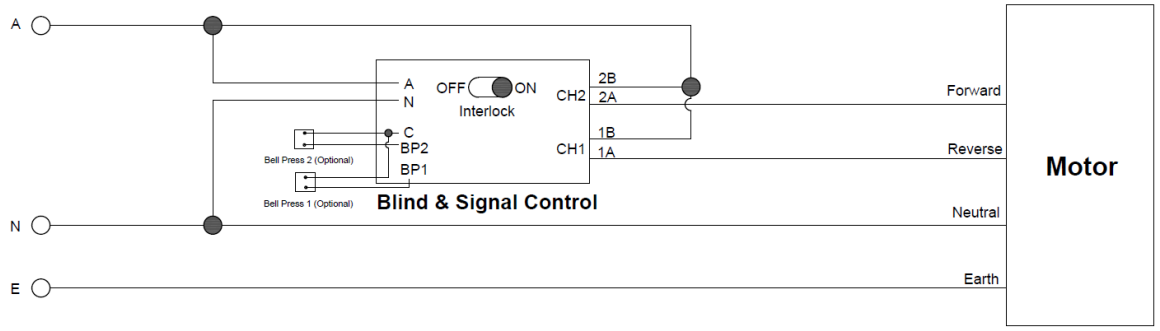
Then these new Shortcuts or COMBOS can be linked to a scene if you want to control more than a single blind or have voice control, remote button control or wall plate control of this function.

240v Mains Blind Control 4 Wire Blind Motor Control.

Whilst every blind motor manufacturer typically provides their own wiring diagram, and these should be adhered to, the following wiring diagram is representative of a typical 4 wire blind motor.

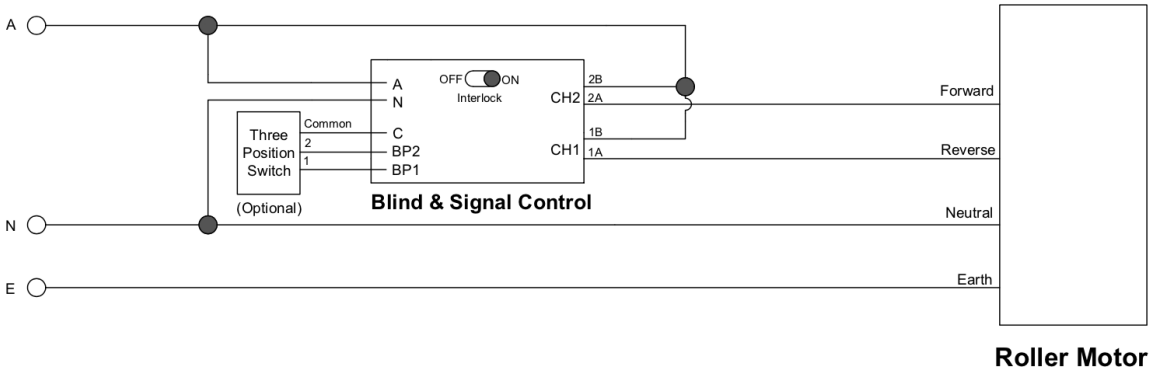
As the PIXIE Blind and Signal Controller also has an **"INTERLOCK"** feature, which is activated by sliding the **interlock switch** on the controller itself, this provides protection to 4 wire motors when wired as per the diagram below, as this inhibits the motor being driven both up and down at the same time. If this *were* to happen, damage to the blind motors is likely, hence the inclusion of this feature.

This **interlock feature** is of significant importance to protect the longevity of the blinds. No matter where the signal to control the blinds is received - from a PIXIE multifunction controller, from a bell-press-mech directly wired into the bell-press inputs or from the App, it's simply not possible to damage the motor in this way.



4 Wire Motor Wiring with the PIXIE Blind and Signal Controller in INTERLOCK Mode

A larger version of these wiring diagrams can be found in the Appendix for sending directly to electricians, blind and motor manufacturers, builders and system integrators.



4 Wire Motor Wiring with INTERLOCK Mode & 3 Position Switch

As per the applications described in the 3 Wire motor section, users can set up the PIXIE smart home system to control blinds individually and as scenes from the wall; from their mobile devices; from a remote control button; and by using their voice when the PIXIE PLUS App and PIXIE Gateway is installed.

Of course controlling blinds on schedules is also possible as all PIXIE master devices, like the Blind and Signal Controller, come complete with 24 hour 7 day scheduling.

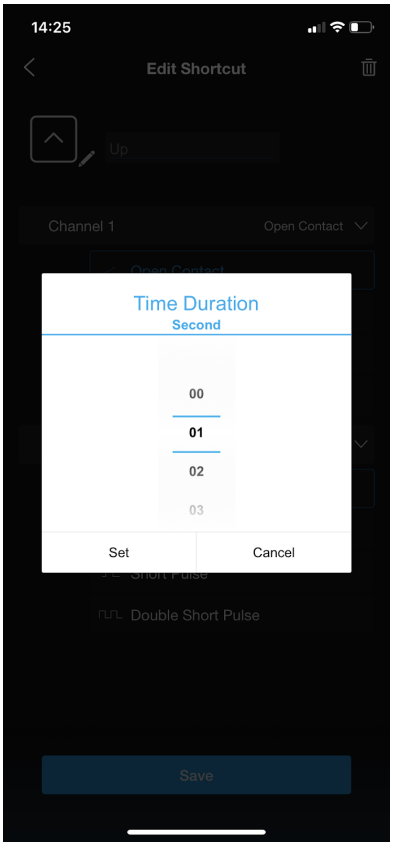
This scheduling can be for a single blind, a group of blinds or all blinds. Additionally these schedules could be used to fully or partially open or close blinds using the detailed instructions provided already in the 3 Wire Motor section.

One Big Difference with 4 Wire Motors

The biggest difference when using the PIXIE Blind and Signal controller on 4 Wire motors versus 3 Wire motors - other than the wiring configuration - is related to the creation of Shortcuts and consequently COMBOS.

As previously described Shortcuts define the operation of the the 2 relays on the device and assign this operation to a control panel button in the PIXIE PLUS App.

With 3 Wire motors, which are typically controlled through an additional interface or gateway which accepts Short Pulses to activate an up, down motion, 4 Wire motors typically will require one or both relays to be held in a position for the entire length of the blind open or close process.



This difference then is a ‘Short Pulse’ for 3 wire versus a ‘Close Contact (Timed)’ for 4 wire.

The PIXIE Blind and Signal Controller supports this function from the Control Panel section, where the Close Contact (Timed) option is selected.

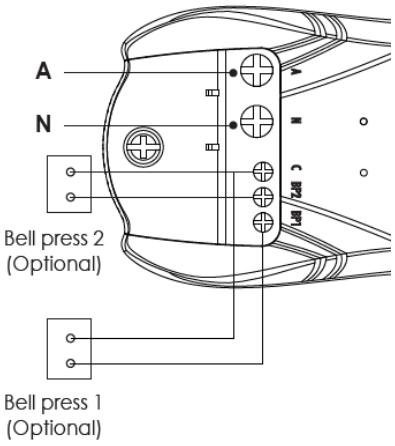
This can be set to close the relay for up to XX seconds for both relays, independently, to ensure the blinds can travel to fully close and open.

This operation assumes that the blinds have had their limit-switches set for the final position of the blinds when fully open and closed.

This operation also requires that the timing for a full open or close is known, else when setting this feature up the maximum close time would need to be used, and dependence on the limit switches to ensure the blind stops in the correct position.

As a result of the INTERLOCK function provided to prevent damage to the motors, it is not possible to set both relays to a Close Contact (timed) feature on the same Control Panel function at the same time when INTERLOCK is engaged.

Bell Press Mech Control



The controller can also accept direct Bell Press connection wired directly into the Bell Press inputs on the device.

This means that no PIXIE device is required in a wall plate to control the blinds and instead a simple bell-press mech can be used without inhibiting any of the App, voice, schedule or remote control capabilities.

Whilst this method is similar to the 3 Wire motor control scenario, this operation for 4 Wire motors requires constant user input during blind operation.

In this case the user must continue to press and hold the up or down button for the blinds to fully open or close. Releasing that button at any time will cause the blinds to stop.

This means that a STOP button is not required on the wall plate.

The INTERLOCK feature of the PIXIE Blind and Signal Controller also operates when implementing direct Bell press control. It is not possible to activate both relays at the same time when INTERLOCK is engaged.

Controlling Multiple Blinds via Momentary Press mechs/ bell press mechs

As a result of this direct bell-press wiring capability it is possible to control multiple blinds together in this manual way by simply wiring in parallel between each of the PIXIE Blind and signal controller's BP1 and BP2 inputs, which can then be controlled from a single set of momentary mechanical press mechs.

Controlling Automatic Garage Doors and Gates

Integrating PIXIE with automatic garage door openers is a simple process with the PIXIE Blind and Signal Controller.

It doesn't matter what the type of materials the garage door is manufactured from - roller door, panel door etc. - what determines the controllability is the moritised controller and its capabilities.

This means that the concept below also applies to automatic gates as this control is dependent on the control mechanism not the gate or door itself.

To integrate PIXIE with the motorised controller it would need to have a dry contact input to which the PIXIE Blind and Signal controller's output is terminated.

Whilst a range of Garage doors and gates now have their own App, by integrating PIXIE and your garage door together provide a single App interface with which to control your entire smart home and deliver the ability to issue Welcome Home style commands which also includes control of the garage door.

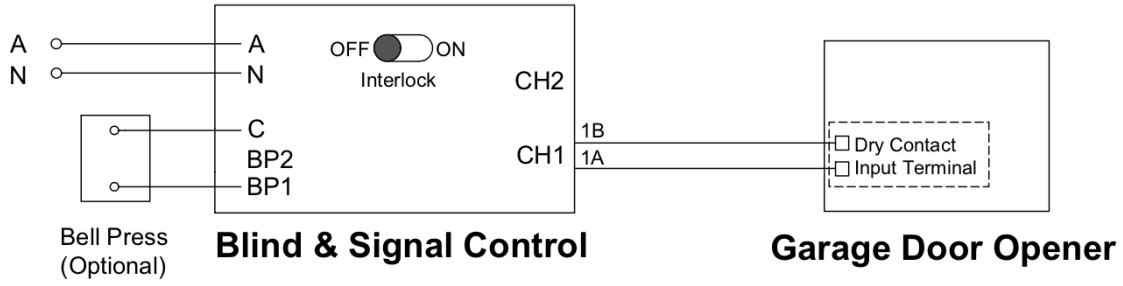
There is typically a 'key-switch' input available on these motors which would provides the ability to physically connect a key switch to the garage door controller for manual control.

Instead of a key switch, the PIXIE Blind and Signal controller is directly connected as per the wiring diagram below.

If the garage door opener does not have this Key Switch type of capability then integration between PIXIE and the controller will not be possible directly.

If the Key Switch function is not available and depending on the motor's connect capabilities, it may still be possible to integrate PIXIE and the garage door together, by using the Voice Assitant's App - such as Amazon Echo - which provides the function to create routines. In this case the Voice Assistant App is acting as the master controller for both PIXIE and the Garage Door.

As each motorised door controller will be slightly different this diagram below should be considered a reference only and the installation documentation from the controller's manufactured cross reference for compatibility.



See the Appendix for a larger version of this diagram

Depending on the motorised controller unit, the PIXIE Blind and Signal controller can be configured to:

- Fully Open
- Fully Close
- Partially Open/Closed - Sometimes called PET MODE
- Stop

It is important to understand that the PIXIE solution does not keep track of the status (how open or closed the door/gate is).

The typical keyswitch input uses an OSC paradigm - **O**pen **S**top **C**lose.

OSC - Open Stop Close

The OSC input is the common operation terminology used for the key switch input to which the PIXIE Blind and Signal controller is terminated.

The operation described below is typical but not always in use by every manufacturer.

This OSC is a simple interface that cycles through operation each time it is pulsed, where a pulse is less than 1 second contact closure from the PIXIE Blind and Signal Controller.

- Each time the input on the motor is pulsed the garage door cycles through the OSC operation. Open | Stop | Close *(some exclusions to this operation below)*

- If the motor is **in transit** - opening or closing - and a pulse is sent from the PIXIE Blind and Signal Controller, then the motor **stops**. The next pulse after that will send it in the opposite direction.

- If the motor is **not** in transit and a pulse is sent THEN either a pulse is sent for either an Open or Close operation. This will always be opposite to whatever the last

command was. If the last command was OPEN then a CLOSE will be issued and so on.

- Some garage door motors from some manufacturers provide a RESET function which closes the door, no matter its position in some circumstances.
    - This is typically achieved by sending a sustained pulse to the OSC inputs on the motor - but the exact length of the pulse and access to this feature varies from motor to motor, manufacturer to manufacturer.

As each manufacturer's motors are a little different in their operation, it's best to check with them first to understand the motors capabilities.

App Set up

Setting up these different configurations is achieved using the Control Panel for the PIXIE Blind and Signal controller and creating a Shortcuts for Operation - in this case a Short Pulse.

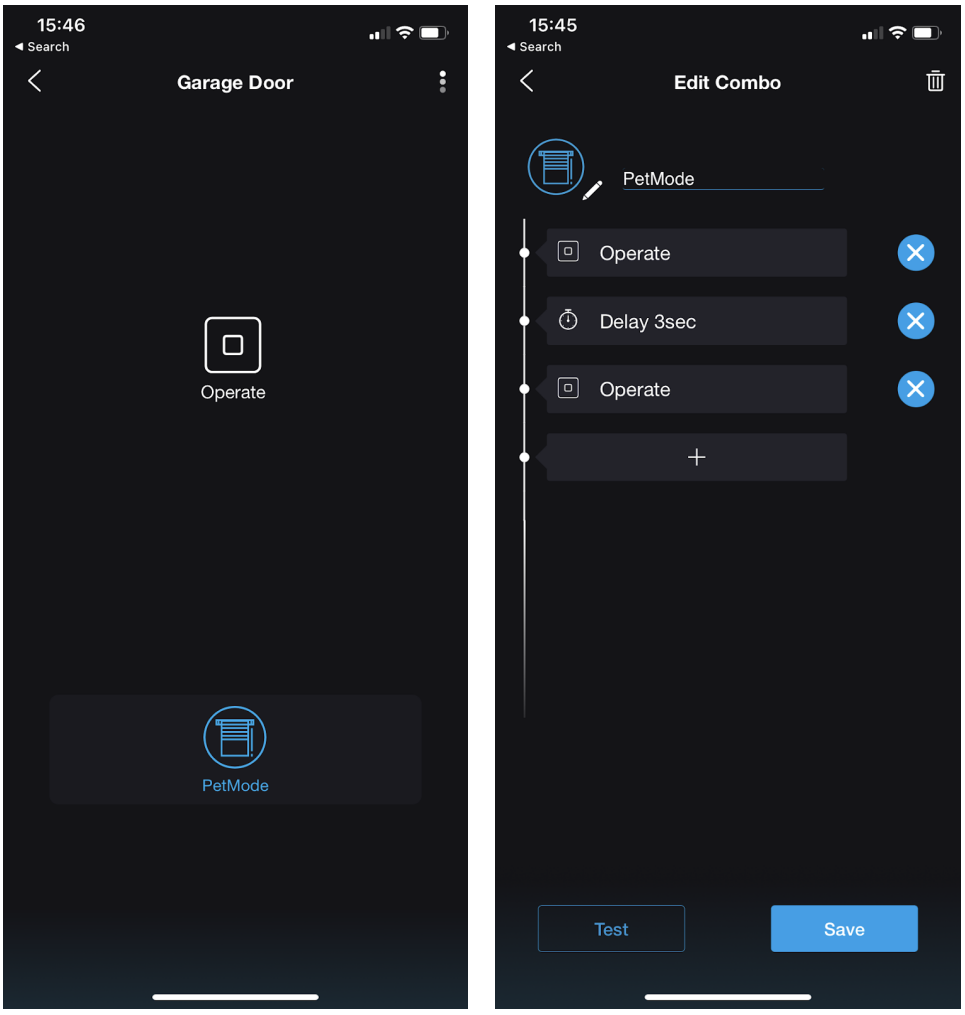
The set up described below should be read in conjunction with the wiring diagram above and noted that if the motorised controller that is being integrated requires a different wiring configuration, hence the setup in the PIXIE Apps will be different to.

There is just one Shortcut to make and will provide:

- Fully Open
- Fully Close
- Partially Open/Closed - Sometimes called PET MODE
- Stop

The Control Panel will have 1 Shortcut Button and 1 COMBO

...continue to next page...



1. Open/Stop/Close - Short Pulse (Operate)

2. Pet Mode COMBO - Open/Close Short Pulse | Delay for *n* seconds | Stop Short Pulse - This Pet Mode assumes operation from a closed position.

These Control Panel buttons will be used for both manual day to day operation from the Apps and integration with other PIXIE scenes such as Welcome Home and Pet Mode.

This is important if a partially open command is used as this will be based on timing - how long it takes the door to fully open and fully close.

App, Wall, Voice Control, Remote Control

As with most functions in PIXIE, use of the Blind and Signal controller provides the homeowner the ability to control the garage door in a number of ways.

- **From the App** via the Control Panel and as a/ part of a Scene - Welcome Home for example to provide a totally integrated smart home environment

- **From a wall plate**
    - a) By using a PIXIE Multifunction Controller to recall a Shortcut
    - b) By using mechanical Bell Press Mechs wired directly to the Bell press inputs on the PIXIE Blind and Signal controller/s.

- **From a Voice Command** - welcome home for example *“Hey SIRI, I’m Home”* - Garage door opens, lights turn on and hallway pathway to kitchen from Garage is lit.

- **From a Remote Control Button** (PIXIE part #: SMC/BT) - on the keyfob in a car for example used to activate the Welcome Home scene when within Bluetooth distance of the home.

Security System Integration

Security System integration is possible using both the PIXIE Blind and Signal Controller and the PIXIE Translator Device.

1. The PIXIE Blind and Signal Controller is used to transmit signals **TO** the Security system
2. The PIXIE Translator Device (part#: PC100T/R/BTAS) is used to receive signals **FROM** the security system. This is a Secondary PIXIE device and will not appear in the App as a device to add)

As each security system operates differently it is recommended to read the instruction manuals and be familiar with the capabilities of each of these systems to be sure they provide this capability described.

This operation has been tested and operates as expected using a BOSCH security system.

Sending Information **TO** the Security System

There are certain scenarios when it is advantageous for the security system to receive a signal from the PIXIE system.

For example:

1. The home homeowner suspects an intruder and wants to activate the alarm with a voice command, or using the App on the mobile phone next to the bed.
2. The homeowner wants an integrated ALL OFF scene which also ARMS the alarm from a single button press or voice command.

Whilst these 2 examples are very simple they provide a sophisticated level of safety and security using smart home technology. Using the PIXIE Blind and Signal Controller these 2 scenarios are simple to create.

Wiring diagram (Typical dry contact signal output)

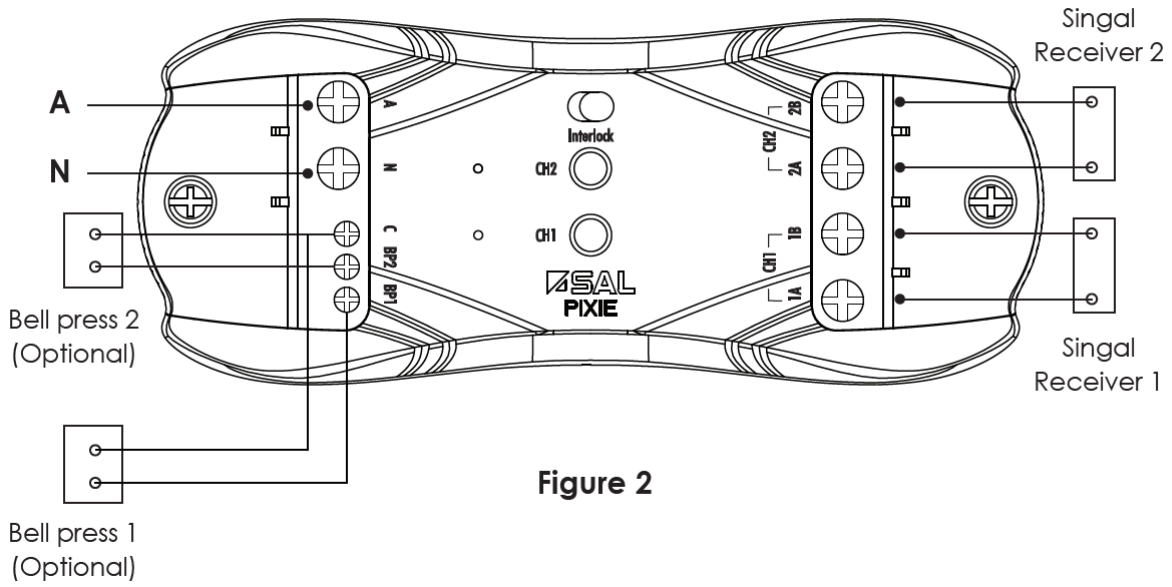


Figure 2

The PIXIE Blind and Signal controller has 2 dry contact outputs enabling each device to potentially provide 2 separate signals to the security system.

Essentially the PIXIE Blind and Signal Controller will be sending the security system a dry contact input, into the appropriate input on the security system. Depending on the security system this input pulse time frequency and duration may differ and using the PIXIE controller it is possible to support a wide range of pulses and Close Contact (Timed) settings.

The security system will need to be configured to perform the correct action when receiving this dry contact input signal by the security system provider. If the security system has not been set up to perform any function in receipt of these dry contact inputs then no action or an unexpected action may occur.

This assumes the security system in use has the ability to receive 1 or more dry contact inputs, and can assign custom actions when these signals are received.

The wiring diagram below is indicative only as each Security system will have specific requirements.

App Set Up

In the PIXIE Apps the concept is to create a Shortcut and then link this Shortcut either directly to a Multifunction Controller or to a scene. Connecting to a Scene provides voice control access for broader integration capabilities..

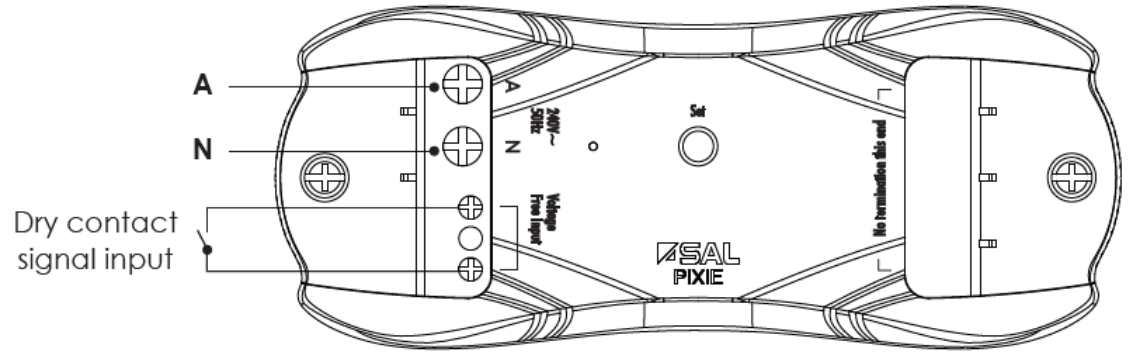
This can be activated simply by using a bell-press mech wired directly into the Bell press inputs on the Blind and Signal controller, if something simpler is needed.

Receiving Information **FROM** the Security System

There are certain scenarios when it is advantageous for the security system to send a signal to the PIXIE system.

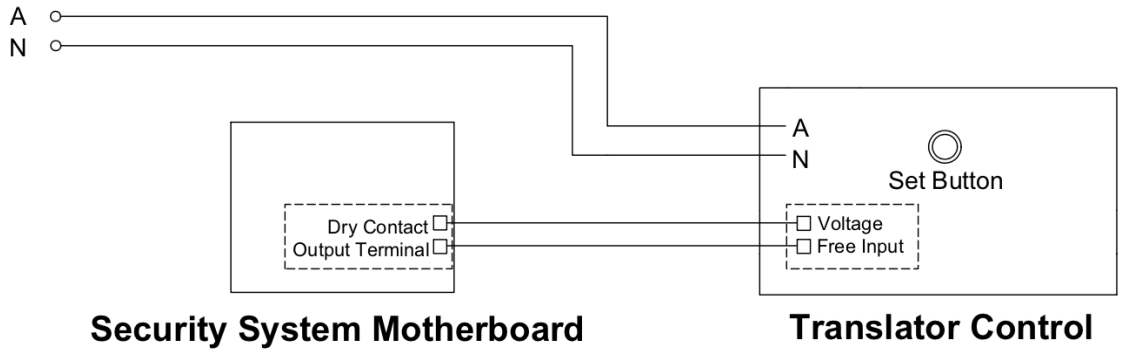
For example:

1. The alarm has been triggered and all outside and inside lighting needs to turn on to 100%.
2. The alarm has been activated so turn all the lights on - now the alarm has been deactivated so turn all the lights off.



The PIXIE Translator device is a mains powered PIXIE Secondary device. It has a single dry contact input which can be configured to transmit PIXIE commands to:

- A single device - to a State or Toggle
- A group of devices - to a State or Level/Colour (dimmable products/RGB products)
- Recall a PIXIE scene



This can be achieved from:

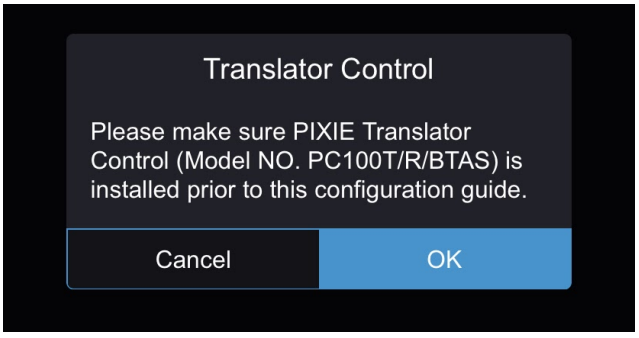
- A Pulse - of a defined duration up to 20 seconds
- A Latch - when Latching AND/OR when Unlatching

App Set Up

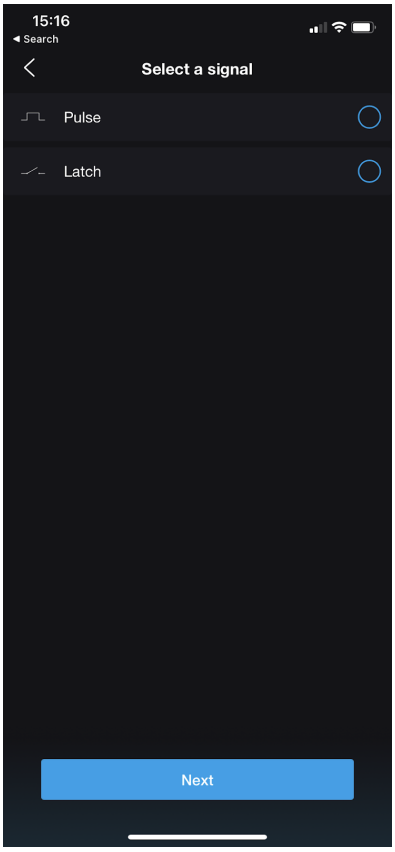
As the PIXIE Translator is a secondary device it does not appear in the devices list and is instead found under the “Advanced” section on the PIXIE Apps.

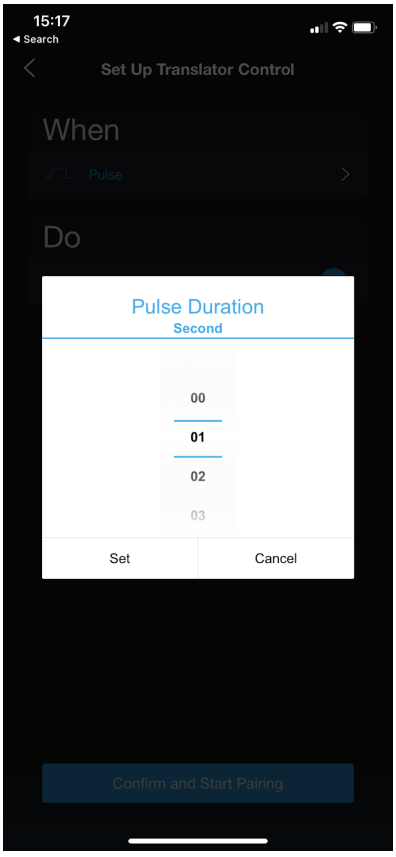
To access the configuration guide for the PIXIE Translator:

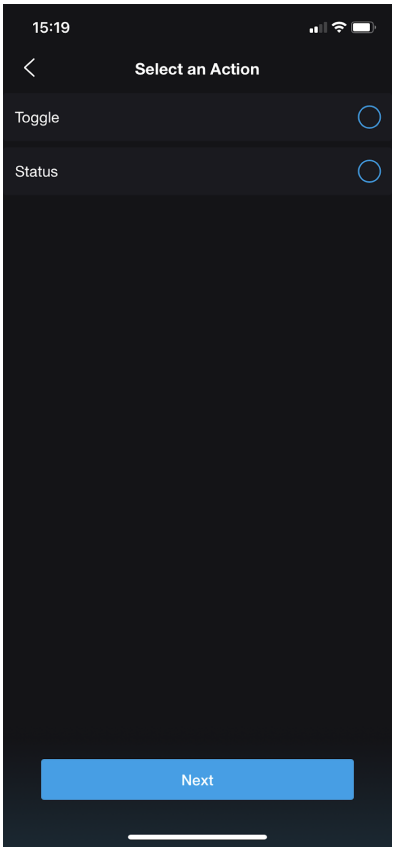
1. Press on the Cog in the top right hand corner of the PIXIE Apps
2. Select Advanced
3. Select Translator Control Configuration



If using a PULSE function select Pulse and set the Pulse Duration required for an action to be taken by the PIXIE system.







Next, if the Action chosen was for a single PIXIE device, select what the action will be when the correct duration Pulse is received by the PIXIE Translator - a Toggle or Status.

‘Status’ permits the user to select:

- An On/Off state for switchable products
- A dimmed level for dimmable products
- A colour, level or animation for RGB products

A Toggle literally toggles the state of the individual device on and off, depending on its state at the time.

This creates a sequential logic function for the input.

If the DO function was to recall a scene, that scene could also include the PIXIE Blind and Signal controller which in turn can provide interfacing to additional systems as well.

In this way, the combination of these 2 PIXIE Integration devices, provides a wide range of sophisticated possibilities when integrated with compatible security systems.

Integrating PIXIE ‘Homes’ together in a Single Residence.

Due to the (soft) limit-range of 32-42 **Master** PIXIE devices in single homes with non “AM”-type PIXIE devices, larger homes are often delivered with more than 1 PIXIE Gateway. However syncing control between these gateways can be challenging.

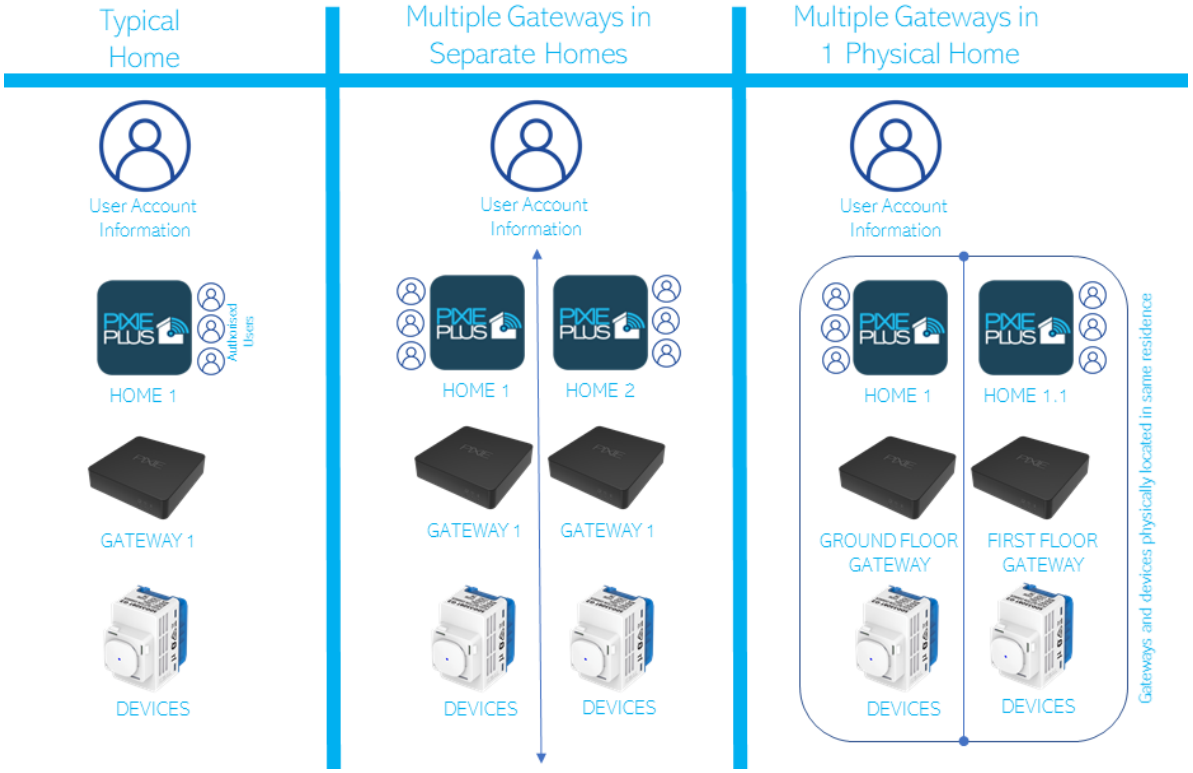
Whilst the Home Swap feature in the PIXIE PLUS App provides a very simple method for the home owners to swap control between floors, wings or areas when multiple PIXIE Gateways are used, this does present some challenges when whole home control is desired across these areas.

Two of these challenges are:

1. Any common schedules throughout the home would need to be duplicated in each ‘Home/ Gateway’ for a unified and whole house integrated experience.
2. Providing a true ALL OFF function from a single button press is not possible

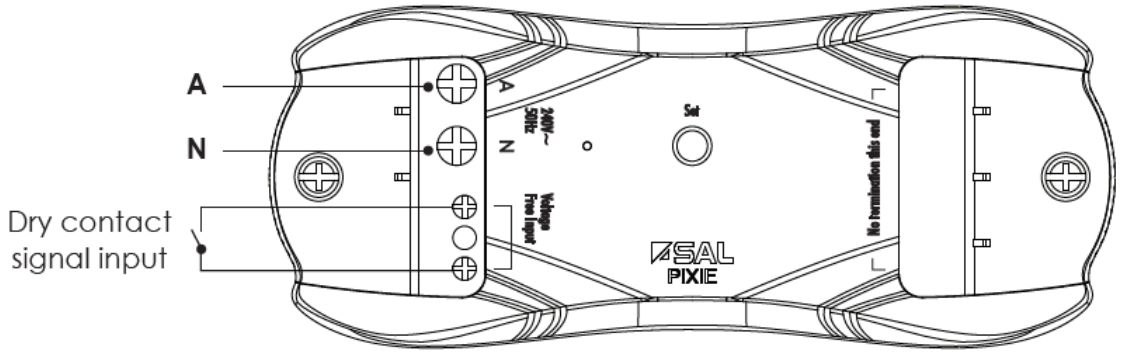
These gateways represent different PIXIE 'Homes' and most often provide division in the home between floors, indoors and outdoors or wings of the home. The number of PIXIE Gateways depends on the total number of master devices and how the installer has chosen to split the devices into PIXIE Homes.

The diagram below explains the connection between PIXIE Gateways and PIXIE PLUS to control a whole home when multiple gateways are needed due to the number of Master PIXIE devices being used.



See the Appendix for a larger version of this diagram.

The PIXIE Blind and Signal controller, paired with the PIXIE Translator (PC100T/T/BTAS) solves these challenges and enables cross-gateway control and integration.



PIXIE Translator Control

Let's use the example of a single button at the front door for a Goodbye scene which will turn off all lighting, exhaust fans, close all blinds, arm the alarm and shut down all PIXIE Smart GPO's which control the Audio Visual equipment power in the home.

Whether this is a single physical button on a wall plate or a single scene on the iPad App, which is being used in the home as the central controller, the setup is the same.

In this example let's assume that we have 4 separate PIXIE Gateways in a very large home with more than 150 PIXIE Master devices in total.

In such a large residence the ability to shut down the home quickly and reliably with as little effort as possible is a valuable smart home implementation.

In this example we will use just a single PIXIE Blind and Signal Controller and 3 x PIXIE Translators - 1 for each Gateway/ Floor. The simplified diagram below demonstrates this configuration.

Control Concepts

The basic control concept is based on recalling a scene from one PIXIE Home + gateway to in-turn recall a similar but different scene in each of the other PIXIE Home + gateways.

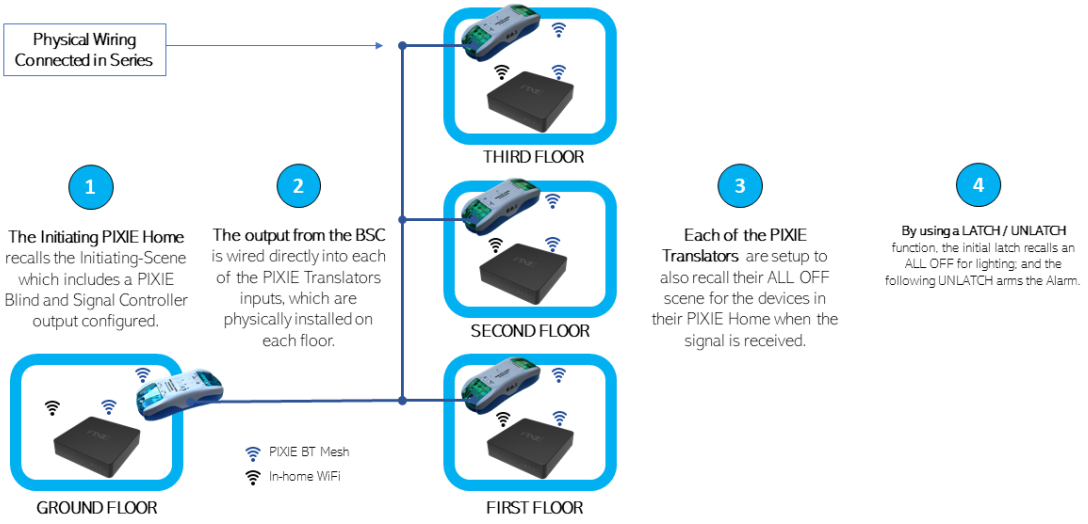
Aside from this initiating-scene controlling the lighting, exhaust fans, GPO's etc. in the initiating-home, this scene also uses a single PIXIE Blind and Signal Controller to interface via the dry contact input to the three PIXIE Translators which are physically installed and located on the other floors.

The PIXIE translator control accepts a ‘dry-contact’ input signal from any suitably configured device, including the PIXIE Blind and Signal Controller. The action that occurs upon receipt of this dry contact signal is configured in the PIXIE and PIXIE PLUS Apps - in this case recalling the ALL OFF Scene for the relevant PIXIE Home + Gateway.

Important Considerations

The proximity of the PIXIE Translator to each of the separate Bluetooth Mesh networks represented as PIXIE Homes + gateways is critical to ensure reliable operation. As the PIXIE Translator will transmit its ALL OFF scene via Bluetooth Mesh to the PIXIE Home+ gateway to which it is synced when the input is received.

That is, if a PIXIE Translator is intended to recall an ALL OFF scene for the second floor, this device will ideally be mounted/installed on the second floor within Bluetooth signal reach of those other PIXIE Bluetooth devices and connected to that separate gateway.



Cross-Gateway Hardware Interface for True House ALL OFF.
A larger version of this diagram is available in the Appendix

Wiring Considerations

In this scenario a single PIXIE Blind and Signal controller is being used to interface to three PIXIE Translators. In this way it is possible to provide integration across the whole home simply, for an ALL OFF Scene.

Addressing the other challenge - creating identical schedules for all areas of the home regardless to which PIXIE Gateway/Home they are linked - can be addressed in 2 ways.

1) Simply setup identical schedules in the PIXIE PLUS App for each PIXIE Gateway/Home. This is cost effective as no additional hardware or wiring is needed, just some additional App setup time and future updates if schedule modification is desired.

2) Replicate the cross-gateway hardware interface as described above, which allows for a single set of schedules to be created and which act as the master Home Schedules BUT which requires installation of additional hardware for each schedule.

Either method will work and this depends on the final outcome and budget of the project.

Without this integration method the homeowner would have to:

1. Install at least 2 x PIXIE Multifunction controllers, and press both buttons* OR
2. Open their App, switch between homes and recall the ALL OFF scene in both homes

** Note that this also assumes the 2nd multifunction switch is within range of the 2nd floor PIXIE bluetooth network - without which operation would not be successful.*

Integrating PIXIE to Existing Home Automation Systems.

PIXIE can be integrated to a range of existing home automation systems such as CBUS™, Dynalite™, Control4™ and KNX™ just to name a few.

As demonstrated in the previous section, interfacing between systems is easily achieved using a combination of PIXIE dry-contact devices for low-level interfacing.

As PIXIE has been designed to provide control back to the home owner and reduce reliance on 3rd party companies if smart home changes are needed and with this, reduce ongoing maintenance costs, it needs to be possible to integrate a PIXIE smart home with a range of existing smart home solutions.

- Perhaps the homeowners are undertaking an extension and want home automation to be continued throughout the new home and operate seamlessly with the existing legacy smart home system.
- Perhaps the homeowners are renovating and want to add functionality to existing parts of the home but don't want to bear the costs of system programming and changes now and in the future.

Using the PIXIE Blind and Signal Controller and the PIXIE Translator device its possible to provide this integration to:

1. Control the existing smart home system from with the PIXIE Apps and in combination with PIXIE smart home devices.
2. Control the PIXIE system from the legacy home automation system and in combination with legacy smart home devices

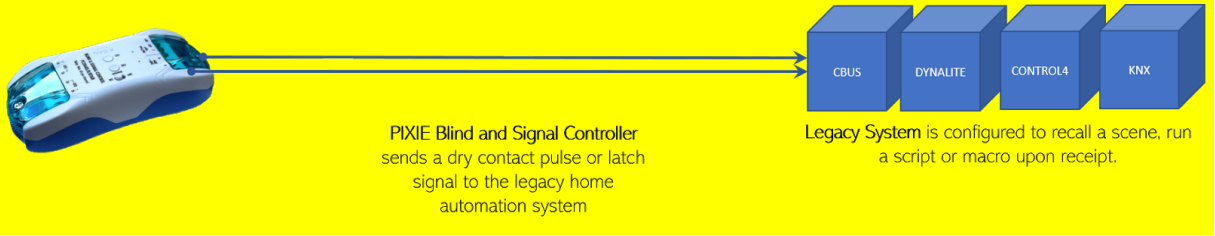
Use of these 2 solutions provides a physical, on-site integration that is not dependent on an internet connection or a cloud service for in-home operation from the PIXIE App or a PIXIE wall plates.

This ensures that if the house has power, the integration between the PIXIE system and other home automation systems will operate together no matter that state of the internet.

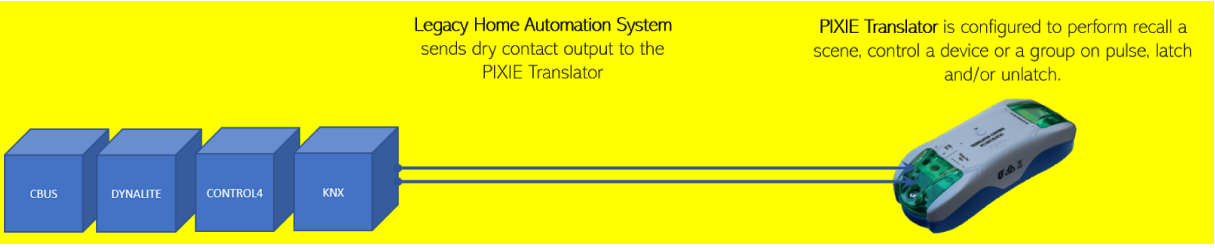
Integration Concepts

The integration concepts are based on dry contact, low level interfacing between the 2 or more systems and based on the following assumptions.

Assumption 1:
The legacy smart home system will have the ability to receive dry contact signals and upon receipt operate a device, channel, scene or run a task/script; and the **PIXIE Blind and Signal Controllers** activate these dry contact output signals from any control device - Apps, voice, wallplate, schedule.



Assumption 2:
The PIXIE smart home system has the capability to accept dry contact signals from the legacy home automation system using the **PIXIE Translator** device and/or PIXIE devices with a Bell Press function (like the SMF/BTAS-BP - Multifunction controller) and upon receipt operate a device, group, scene, Shortcut or COMBO.



2 Simple Examples

To demonstrate how to implement the concepts 2 examples are provided. These examples assume that the reader understands how to create PIXIE Control Panels, Shortcuts, COMBOs and Scenes.

Example 1: SIMPLE

Scenario: 2 Storey home - ground floor is controlled by a legacy home automation solution of traditional light sources/blinds; 1st floor is controlled by PIXIE - dimmable LED lights/LED strips/Smart GPO's/Blinds.

Desired Operation: Goodbye Scene - A single button at the front door and/or a voice command will shut down the whole home - turn off all lighting, close all blinds, turn off all first floor GPO's

Step 1:
To begin, create a PIXIE scene called Goodbye which includes all lighting, LED strips, Smart GPO's and Blinds. The Blind Shortcuts would be the Close Blind calls for all relevant blinds.

Step 2:
Add a PIXIE Blind and Signal Controller to the system with at least 1 of the outputs terminated to a dry contact input on the legacy control system. Include the Shortcut for this output in the Scene created in Step 1.

Remember if using unshielded cable for this termination/connection, limit this cable run to less than 20 metres. Be sure this PIXIE Blind and Signal Controller device is within Bluetooth range of the PIXIE device installed in the home.

Step 3:
Install a PIXIE SMF/BTAS Multifunction controller at the front door.

This device only needs an active and a neutral from any permanent active.

Pair this device to the Scene created in Step 1 using the PIXIE Apps "Pair" function.

Be sure this device is within Bluetooth range of the PIXIE device installed in the home.

Consider installing one or more Bluetooth mesh boosters - SGB/BT to bridge the distance between the Multifunction Controller at the front door and the PIXIE devices on the 1st floor if needed.

Step 4:
Have the legacy system configured to activate a goodbye scene within the legacy system's ecosystem, when the dry contact is received.

Now when the single button at the front door is pressed the whole house will shut down and blinds will close - both ground floor and first floor.

Example 2: STILL SIMPLE :)

Scenario: An existing home has lighting controlled by a legacy home automation system; PIXIE is controlling newly installed automatic blinds, an outdoor sensor light and a garage door motor.

Desired Operation: Good Morning Scene linked to sunrise/sunset to open blinds each morning 5 minutes before sunrise; Voice activation of a welcome home scene to open Garage door and light a pathway to the kitchen; Provide the ability to switch between manual and automatic operation of the outdoor sensor light.

Depending on the control needed, the legacy system and the PIXIE system will be the master controller.

PART 1 Good Morning Sunrise/Sunset Blinds (Legacy as Master)

Step 1:
In the legacy system create a sunrise/sunset event which includes a single dry contact output to the PIXIE smart home system. This will recall a scene in PIXIE.

Step 2:
Create a Scene in PIXIE which includes all the Shortcuts to open the relevant blinds which need to be opened in the morning.

Step 3:
Install and configure a PIXIE Translator device. The PIXIE Translator receives the dry contact from the legacy system 5 minutes before sunrise. The Translator is set up to transmit the Scene created in Step 2.

OR Install a PIXIE SMF/BTAS Multifunction controller, Pair the Single Click function to recall the Scene created in Step 2, terminate the dry contact output from the legacy system to this.

PART 2 Welcome Home Scene to Open Garage Door and Light a Pathway to the Kitchen

(PIXIE as MASTER)

Unlike some legacy systems, as PIXIE has no ongoing costs associated with Voice Control and Voice Assistant integration, PIXIE is provided as the master controller in this situation.

Step 1:
Install one PIXIE Blind and Signal controller and terminate its two outputs to two separate locations.

- One is connected to the Garage door motor
- One is connected to a dry contact input on the legacy system

Step 2:
Create the Shortcuts in the PIXIE Blind and Signal Controller's Control Panel - 1 for each of the devices to which it is interfaced.

Create a COMBO which includes a sequence of:

- Recall Shortcut 1 - Open Garage Door
- Delay for 2 seconds
- Recall Shortcut 2 - Activate Welcome home pathway lighting scene.

Step 3:
Create a PIXIE Scene which recalls this COMBO and if using iOS, link this scene to SIRI from the Scene page in the PIXIE PLUS App.

Step 4:
Have the legacy system configured to activate the welcome home scene within the legacy system's ecosystem, when the dry contact is received from the PIXIE COMBO activation.

Now as the homeowners approach they are able to issue a voice command "Hey SIRI, I'm home." and the garage door will open and a lighting pathway lit to guide them safely to their kitchen.

PART 3 Sensor Light Manual /Automatic Mode Swapping (Both Master)

As part of the system the electrician installed an SAL Stargem III outdoor floodlight with sensor. This product can be configured to operate in manual override (always on) mode or automatic mode.

The home owner wants to be able to swap between these operating modes both from a voice command and from a button on the legacy systems touch-screen.

Step 1:
Install a PIXIE Blind and Signal Controller and a PIXIE Translator. Terminate the Blind and signal controller to the SAL Stargem III outdoor floodlight. Terminate a dry contact output from the legacy system to the PIXIE Translator.

Step 2:
Within the legacy system configure the dry contact output to be a latching configuration. When the legacy system's touch screen is used to activate Override Mode the system latches the PIXIE Translator device. When the on-screen button is pressed again the output unlatches to return the floodlight to Automatic Mode.

Step 3:
Create a Control Panel in the PIXIE Blind and Signal controller with 2 Shortcuts

- Override Mode - Double Pulse
- Automatic Mode - Close Contact (10 seconds)

Step 4:
In this PIXIE App, configure the PIXIE Translator as a LATCH.

- Configure the WHEN LATCHING variable to the Override Mode Shortcut
- Configure the UNLATCHING variable to the Automatic Mode Shortcut

Step 5:
Create two scenes - one which includes the Override Mode Shortcut and one which includes the Automatic Mode Shortcut. As scenes can be activated with voice commands this capability is now available.

Now the homeowner is able to swap the operation of the floodlight sensor from Override Mode to Automatic Mode either by issuing a voice command or by using the legacy system touch screen.

REMEMBER:

Use of these 2 solutions provides a physical, on-site integration that is not dependent on an internet connection or a cloud service for in-home operation from the PIXIE App or a PIXIE wall plate.

This ensures that if the house has power the integration between the PIXIE system and other home automation systems will operate together no matter the state of the internet.

Integrating switchDim Controlled Lighting Sources with PIXIE

switchDim control is possible using drivers from OSRAM, TRIDONIC, eldoLED and TCI. These drivers are often supplied with a wide range of luminaires for dimming control.

switchDim is sometimes called Touch DIM or Push Dim depending on the manufacturer of the drivers.

SAL PIXIE smart dimmers are designed for trailing edge, phase dimmable loads such as LED downlights, tungsten and halogen lighting loads and cannot control switchDim drivers directly.

However often in high end homes, hospitality environments and commercial offices, drivers are used which have switchDim or Touch DIM type of control capability.

By using the SAL PIXIE Blind and Signal controller it is possible to integrate this type of lighting into a PIXIE home or facility and provide full dimming/on/off capability, from the PIXIE Apps.

Without this implementation, simple on off control of these loads would only be possible using the PIXIE smart switches (SWL350BT G2, SWL600BTAM)

Once implemented, these switchDimmed lights can be included as part of a scene and a group with any other lighting circuit or controlled loads, within the PIXIE smart home ecosystem.

Effectively this solution provides all of the PIXIE features, including:

- Dimming
- Schedules
- Timers
- Scenes

This control can be achieved from:

- App - Mobile device control
- Wall switch control
- Voice control

This solves the problem in high-end homes where without this functionality, the homeowners would have to either use 2 different systems, exclude this lighting from their smart system or choose only to turn the lighting on and off thereby surrendering dimming capability and in-home experience.

Practical Uses for Integrating switchDim and PIXIE

For example a simple way to provide mobile App control, wall plate control and and even voice control to an office meeting room and enable these environments simply by using the PIXIE PLUS App and PIXIE Gateway.

Another example is a restaurant or bar that is using primarily phase dimmable lights and LED strips, which are all controllable from the PIXIE, as well as some lights that need to be controlled using DALI.

So long as the DALI drivers in this example also have the ability to operate as a group via switchDim, it's possible to integrate these lights with the rest of the restaurant lighting, providing seamless control from the PIXIE Apps.

Off Peak Ripple Fixer

The other advantage of using these types of drivers is related to the off-peak hot water tone injection, that impacts all phase dimmable LED lights in NSW and South East Queensland specifically.

That is, when using a switchDim enabled driver, the typical flickering of LED lights as a result of this injected tone in the evening that many homes suffer from, will not occur.

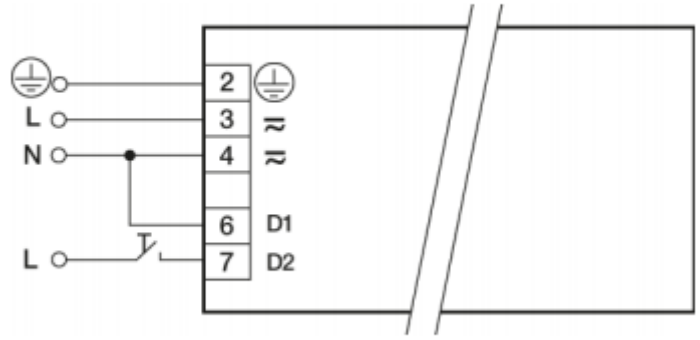
How Does switchDim/ Touch DIM Work?

switchDim(™) is provided on a wide range of LED drivers from both TRIDONIC and OSRAM as well as TCI drivers.

For example a range of TRIDONIC drivers known as O4A (One4All) or PO4A (Powered One4All) are capable of providing DALI, DSI, switchDim(TM) and ReadytoMains.

Four-pole wiring

Configuration:



Phase (L), neutral (N), earth (PE), control line (L')

Dimming occurs through the use of a "normally open" type push button switch - in this case the push button switch is in fact the PIXIE Blind and Signal Controller output relays.

In this way, it is possible to control a single light fixture or a group of light fixtures together for dimming control, on and off operation.

This is useful when the lights on a project have been supplied with this type of driver rather than a phase dimmable driver.

There are a few preconditions to be aware of for the PIXIE Blind and Signal controller to operate successfully with the switchDim(™) / Touch Dim.

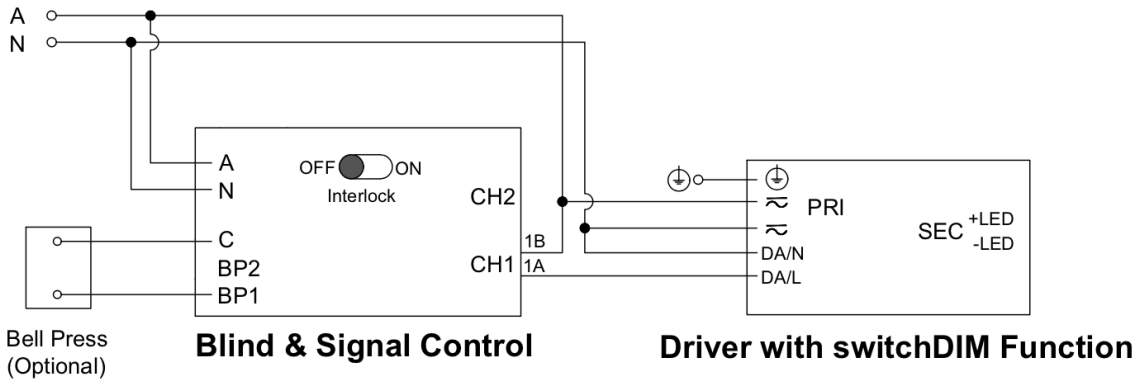
1. The driver is enabled with this functionality
2. All lights that are required to be operated together are wired (daisy chained) together via the switchDim terminals according to the manufacturers recommendations.
3. There is a recommended limit of approx 25 switchDim drivers per line for Tridonic equipment.

Once the drivers are wired correctly and connected to the PIXIE Blind and signal controller, it is possible to provide dimmable lighting control through multiple methods.

1. **From the App** - directly, as part of a group or as a scene.
2. **From a wall-plate** using bell press mechanisms.
3. **From a wall-plate using a PIXIE multifunction switch in MIMIC mode** to control on/off and dimming. This option is very useful where the wall-plate location may be remote from the PIXIE Blind and signal controller and option 2 would not be feasible.
4. **From a wall-plate using a PIXIE multifunction switch in SCENE mode** to recall scenes for a range of different lighting simultaneously.
5. **Voice control activation** of lighting scenes when using the PIXIE PLUS App and PIXIE Gateway.

As previously mentioned, this also integrates these lighting sources to the full capability of the PIXIE smart home ecosystem with scheduling, grouping and scene recall capabilities.

The image below demonstrates a typical wiring configuration from the PIXIE Blind and Signal Controller Controller for operation of the switchDim capability.



See the Appendix for a larger version of this diagram

How to Setup Control using the App and Multifunction Controller

When using this integrated switchDim(™) method of control with the PIXIE Blind and Signal controller, it is important to ensure the homeowners are able to control their lights in the way that suits them best.

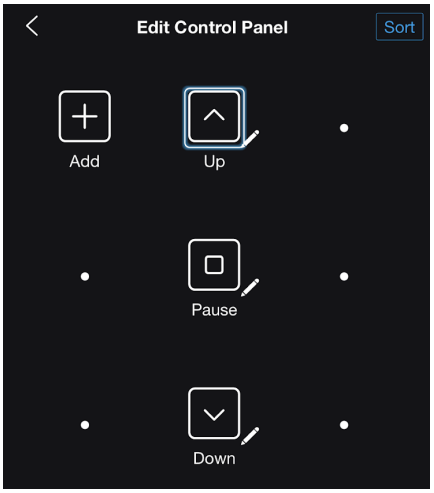
The basic operation of the Blind and Signal controller is best delivered via the combinations of App and a multifunction controller (SMFBT) for wall plate control.

Setting up the multifunction controller to act as a mimc switch for the switchDim load is the simplest way for manual control. This is done using the standard PIXIE pairing methods in the app or from the devices themselves.

Once paired the mimic switch will provide the following operation:

- short press on,
- short press off,
- press and hold to dim down,
- press and hold to dim up.

However, if using the App for control is preferred by the homeowner it is necessary to set up a Control Panel in the App with Shortcuts created specifically for controlling these loads.



The in App image shows the control panel screen for the Blind and Signal controller.

The 3 button setup is similar to controlling blinds - up down and stop - except on this occasion the up button is dim up, there is no STOP button needed specifically, and the down button is dim down.

Exactly how to set up these Shortcuts for the Control Panel are explained at the beginning of this companion document.

Setting lights to a level with a scene using switchDim(™)

Its is also possible to include these lighting sources as part of a scene and set a level for that scene.

Simply create the scene normally in the PIXIE or PIXIE PLUS App and add the appropriate shortcut which has been setup for the dimmed level required.

Setting the correct light output for switchDim operational lights is a matter of closing the relay on the PIXIE Blind and Signal controller for the correct amount of time to achieve the dimmed level.

As the PIXIE Apps allow the close time to be set and bound to a shortcut, it is possible to create a range of shortcuts which achieve different lighting levels.

This is exactly the same as setting up a Partially OPEN or Partially CLOSE scenario for 4 Wire blind operation, the only difference being the controlling device is a drivers instead of a motor. The concept is identical.

Reset Sync Operation

Sometimes switchDim drivers get out of sync - when 1 light turns on another turns off; when one light dims down another dims up. Whilst this is relatively rare it is recommended to provide the homeowner a single reset button for each circuit of switchDim being controlled to avoid any callbacks.

This RESET SYNC can be created as part of the Control Panel for each Blind and Signal Controller that is being used to control switchDIM drivers. If multiple instances of this implementation are being used, these can all be assigned to a single scene, which would SYNC RESET all switchDim devices across the home.

If using Tridonic One4All drivers, this is achieved by closing the control relay for >10 seconds. This 10 seconds close Shortcut can be created, bound to a Control Panel and then recalled from a scene, or a Control Panel in the PIXIE App.

If the homeowner wants a physical button to provide this RESET SYNC, simply create a Scene for 1 or many Shortcuts and use a Multifunction Controller (SMF/BT) to sync this scene to a button in the wall.

Why This is a Good Idea

Readers who are familiar with switchDIM, know that simply mounting a bell-press mech on the wall provides direct on/off/dimming control of switchDIM lighting without the introduction of the PIXIE Blind and Signal Controller.

Whilst true, the addition of the PIXIE solution introduces significant automation capabilities to what is otherwise a ‘dumb’ or manual solution and the performance in dimming control is the same.

These extra capabilities includes:

- Control from a single App Interface for multiple users, from anywhere in the world
- Schedules & timers
- Inclusion in whole-house scene recall for setting the right level instantly from a single button press - such as welcome home, goodbye, party etc.

Additionally and importantly, the basic operation of a bell press mech on the wall can also be maintained.

Operational Recommendation for each Manufacturer's switchDim capability.

Each manufacturer has a different method to ensure correct operation. We have detailed 3 manufacturers limitations below.

Tridonic (switchDIM(™)):
Basic Operation: Short press On, Short press off, Long press dim up - release - long press dim down - release.
Number of Fixtures: Recommend a maximum of 25 ballasts per switchDIM system
Max. Length of Cables: Unlimited due to 230/240V potential
Reset if out of Sync: In the case of a new installation or new ballast/driver installed into an existing installation it is possible that not all ballasts/drivers will be synchronous.

In operation some ballasts will be switched off whilst others are switched on and the dimmed levels of the ballasts may not be the same.

With a push on the switch **longer than 10 seconds** all ballasts will synchronise at a 50% light level and have the same point of departure for dimming. This process can be applied at any time during normal operation if any individual is unsynchronised.

We recommend setting up this shortcut scene in the PIXIE Apps to ensure the end user can perform this function from the Apps from a single button press.

OSRAM (Touch DIM):
Basic Operation: Switch the light on/off: Short press (< 0.5 s); Dim the light: Long press (> 0.5 s), the dimming direction is changed with each press. The switch-on value is always the last dimming level before the light was switched off
Number of Fixtures:Touch DIM installations for max. 20 DALI drivers and
Total Length of Cables:Up to 25 m cable length
Reset if out of Sync:

Refer to the online document from OSRAM for more information:
https://www.osram.com/ds/app-guides/4_touch_dim_and_corridor_function.jsp

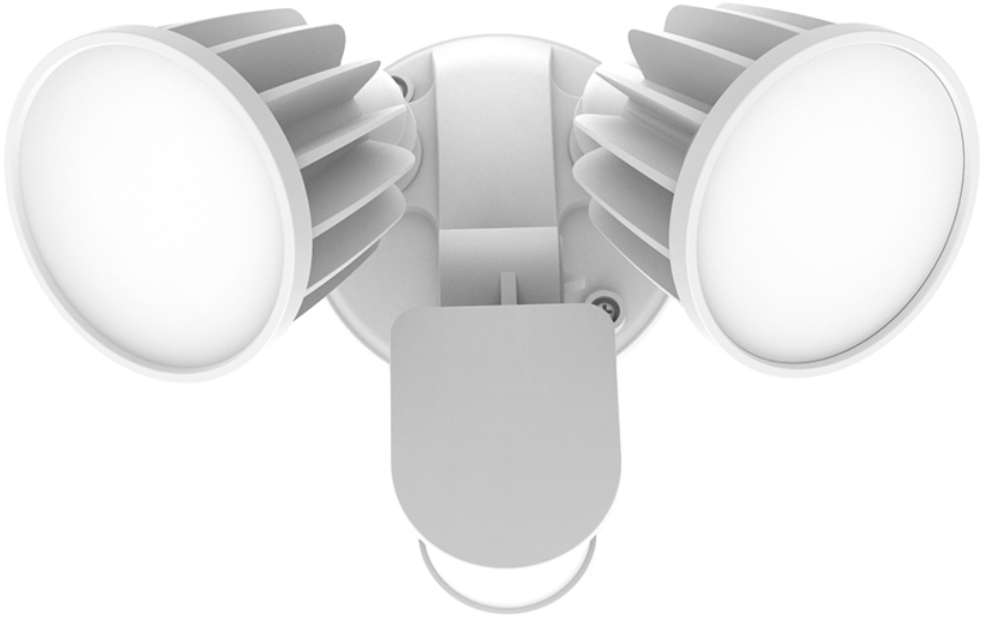
TCI:
Basic Operation: - a short push to turn on and off; - a longer push to increase or decrease light intensity; - regulation automatically stops at minimum and maximum values
Number of Fixtures: With TCI drivers this varies from driver to driver and we recommend checking the datasheet from TCI for the driver provided. Additionally TCI drivers will require and additional SYNC cable between luminaires when more than a predetermined number of drivers need to be controlled together. Again we recommend checking the TCI data sheet for clarity.
Total Length of Cables:
Reset if out of Sync:

Sensor Light Override/ Return to Automatic Operation

Some outdoor spot lights/ security lights which also come with a built in motion sensor allow the user to manually alternate the operation of the sensor lights from automatic to manual.

This is often treated as an override function. That is, day to day homeowners would like the sensor to operate automatically - when motion is detected, activate the spotlights. However when this function is overridden, turn the lights on - and keep them on - irrespective of motion.

The typical manner in which many manufacturers use to provide the override mode is via a quick double pulse on to the main side of the fixture to swap between the 2 modes.



The SAL Stargem III LED Floodlight with Manual Override (SES70802TC)

https://www.sal.net.au/products/exterior-led-lighting/led-floodlights/stargem-iii-ses7080-2tc

> Using the SAL Stargem III as an example to enable ‘Manual Override’ or ‘Permanent On’, simply switch off and on twice within six seconds.
>
> The lights will now stay on permanently. To return to ‘Automatic Mode’, switch the unit off and after ten seconds switch on again. The unit will resume normal operation.

The PIXIE Blind and Signal Controller is the ideal controller for providing this functionality from the App, from a wall plate or from voice control.

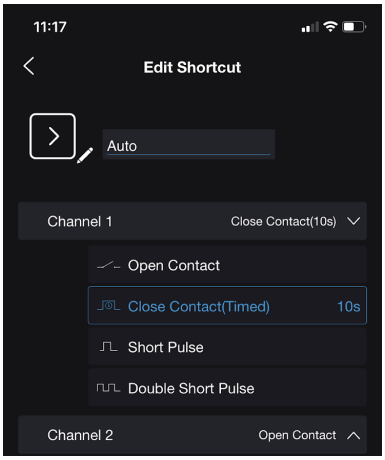
The PIXIE Blind and Signal Controller provides the ability to create Shortcuts in the PIXIE Apps to provide the control necessary.

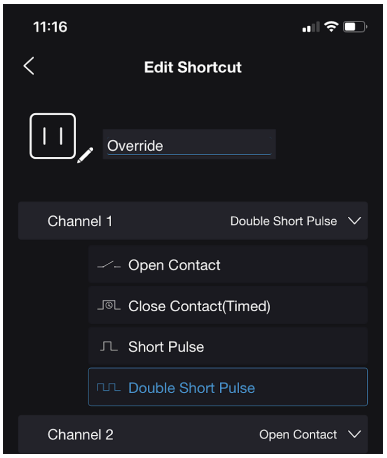
A Shortcut is a pre-configured operation for one or both relays, which can be bound to an on-screen button in the App Control Panel for each device. Additionally these Shortcuts can be bound to scenes for recall from multifunction switches (SMF/BT) and voice control.

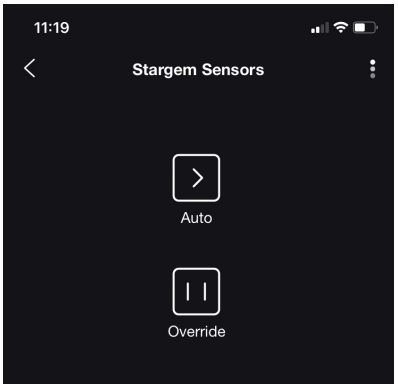
COMBOS are a combination of sequenced Shortcuts which will occur from a single command and which can be bound to the range of PIXIE control options.

In this Stargem example creating two shortcuts archives an Automatic or Manual (override) operation.

1. One for the double pulse to activate override mode
2. One for the return to Automatic mode

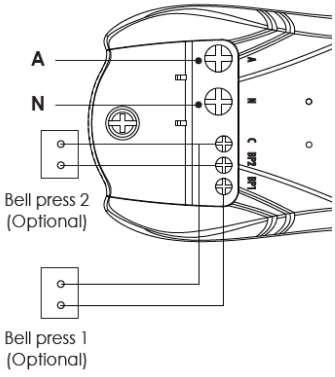






Depending on the manufacturer's requirements to swap between Automatic mode and Manual mode, would determine the settings for the shortcuts. The following setup is compatible with the SAL Stargem III.

Integrating Mechanical Bell Press Mechs with PIXIE for Automatic /Manual



As the PIXIE Blind and Signal Controller also accepts inputs directly to the Bell Press inputs on the device, its possible to directly connect a mechanical momentary/ bell-press mech.

This provides an inexpensive way for the user to interact directly with the controller and sensor light without sacrificing any automated control, voice control or scheduling delivered by the PIXIE smart home ecosystem.

It should be noted that a cable not longer than 20metres, unless shielded, is recommended for direct connection to the Bell Press inputs on the PIXIE Blind and Signal controller.

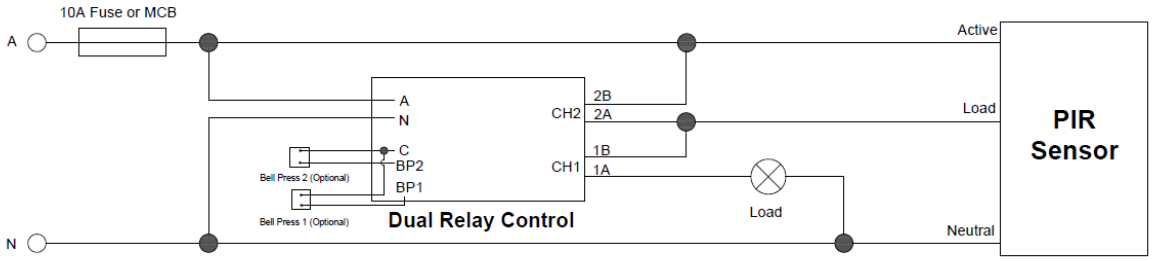
Integrating PIXIE with 3 Wire Sensors

(Using the Dual Relay Controller - Part #PC268DR/R/BTAM)

As SAL PIXIE does not currently provide a separate motion detection sensor, it is necessary to provide this functionality to the homeowner for safety and security purposes.

By using the PIXIE Dual Relay controller with a 3 wire sensor from a range of manufacturers, it is possible to provide the homeowner the ability to activate different operation modes for their sensors.

1. Sensing mode - When motion is detected operate the lighting
2. Override Mode - Turn the lights connected to the sensor on all the time
3. Disabled Mode - Disable the sensor completely and turn the lights off.



Typical 3 Wire Sensor Wiring Diagram

Each of the different modes is activated by choosing to open or close the 2 relays in different directions.These operations are created in the Apps as shortcuts when wired as per the above diagram.

This means the homeowner now has the ability to activate any of these 3 modes from any of the normal methods with PIXIE including:

- From the App
- From a multifunction wall switch - Single Click Override mode, Double Click Sensing Mode
- From a voice command when using the PIXIE PLUS App and PIXIE Gateway. For example *'SIRI Deactivate Sensor'*

If a home had multiple sensors and there was a need to collectively swap between these different modes - to all sensors, creation of a Group which included the relevant Dual Relay controllers, can provide universal activation and deactivation of these sensors.

Integrating CASAMBI and PIXIE in Your Smarthome

In many high-end smarthomes lighting is not always provided with a phase dimmable driver and instead the fixtures are provided with a CASAMBI dimmable module or driver.

Many European suppliers such as EGOLUCE and LOMBARDO from Italy, and distributed in Australia by SAL Commercial, supply a huge range of their high end architectural lighting and one of the dimming options is CASAMBI.

CASAMBI is also a popular Bluetooth lighting control system adopted by many European lighting manufacturers, however it operates using a different Bluetooth encryption and protocol to PIXIE, so the two systems cannot communicate wirelessly.

CASAMBI has no voice control capabilities at the time of writing either.

Even though SAL PIXIE dimmers are only recommended for dimming trailing edge phase controllable loads, there is a simple method for integrating the 2 wireless systems together to provide a seamless operation for the home owners using the PIXIE Blind and Signal Controller.

Additionally as PIXIE PLUS provides voice control when using the free PIXIE PLUS App and the purchased PIXIE Gateway, any CASAMBI enabled lighting can now be controlled using voice, simply and easily.

The Problem

- Lighting has been specified and delivered to the home project for installation.
- The PIXIE smart home solution has been selected as the ideal, cost effective smart home system.
- Some of the lighting delivered can only be controlled using CASAMBI and the project needs to deliver a single smart home control interface with full dimming capabilities for all dimmable lighting loads.
- Voice control of lighting is also part of the smart home specification.
- The SAL PIXIE and CASAMBI systems need to be integrated together and be able to be controlled from the PIXIE PLUS App.

The Solution

Integrating the PIXIE smart home solution and CASAMBI is simply achieved using the PIXIE Blind and Signal controller, part#: PC206BS/R/BTAM

This device provides two individually controllable relays which are capable of dry contact output functionality and which can provide variable timing for relay-close-duration and COMBOS (sequences) which are setup in the PIXIE PLUS App.

The PIXIE Blind and Signal controller is paired with 1 or 2 CASAMBI CBU-ASD Control Units or a Tridonic basciDim Wireless modules (Article no. 28002212).

This device is mains powered and is configurable in the CASAMBI or Tridonic 4remote BT App to provide the necessary operation.

In this way these devices are essentially operating as a **powered CASAMBI remote control interface** and used to communicate CASAMBI messages wirelessly to the other CASAMBI devices on site when the PIXIE controller provides a dry contact input command.

Each of the 2 outputs from the PIXIE Blind and signal controller would control a single CASAMBI module providing a ratio of 1:2 - 1 PIXIE Blind and Signal Controller for 2 CASAMBI Push Button configured modules.

Follow this link to download the Tridonic User Guide for the 4remote BT App.
https://www.tridonic.se/se/download/technical/Documentation_Tridonic_4remote_BT_EN.pdf

To deliver this functionality you will first need to configure the CASAMBI devices using the CASAMBI or TRIDONIC App[and then use the PIXIE App to set up the integration. Once setup the homeowner can simply use the PIXIE PLUS App to provide a single app, seamless experience.

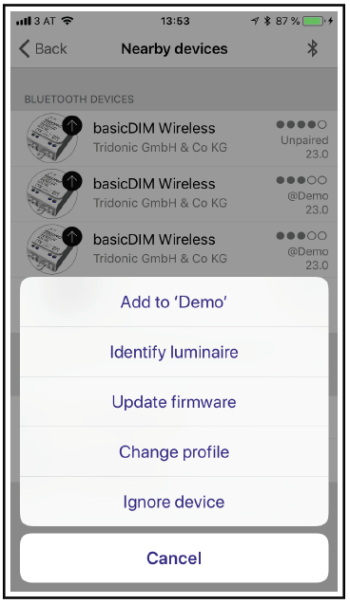
CASAMBI device configuration

The CASAMBI device requires some configuration to provide the necessary operation. Essentially the device needs to have its profile changed to “basicDIM Wireless (Push Button)” by starting with the Change Profile Option.

To find this Change Profile option the CASAMBI device must be un-paired and not part of a network.

Once the Profile for the CASAMBI device has been updated to a Push Button interface its precise operation can be completed.

The CASAMBI Push Button devices can be configured in a number of different ways including individual control of each



device, scene control of multiple devices to different dimmed levels and more.

Prior to configuring the CASAMBI PUSH button device, it is necessary to discover all of the CASAMBI devices in the home, and ensure they are added to the CASAMBI network. This is done using the CASAMBI or 4 remote BT App from Tridonic as just 2 examples of CASAMBI configuration Apps.

Ensuring this step is done first is one of the important planning steps which determine how many CASAMBI Push Button devices are required for integrating with the PIXIE smart home system and how many PIXIE Blind and Signal Controllers are needed.

How Many Devices of Each Type are Needed?

Understanding how many of each device is needed will depend on the control methodology chosen.

- Direct control of a 'circuit' of CASAMBI lighting devices - on/off dim.
- Scene control of multiple CASAMBI devices
- Individual control of CASAMBI devices
- Schedule control of CASAMBI devices
- Voice Control of CASAMBI

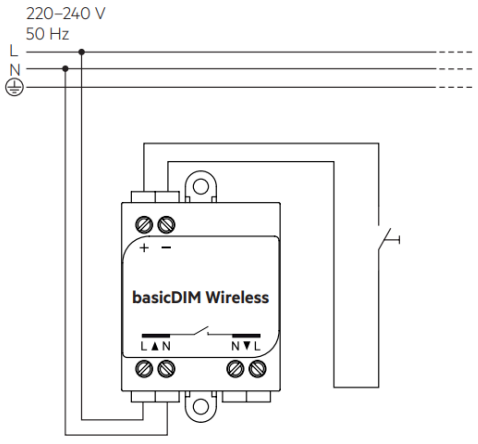
As the goal with this integration is to provide a single unified interface on mobile apps, an iPad central controller mounted to the wall, wall plates and voice control; ensuring this operation is understood prior to installation will ensure the desired functionality can be delivered.

These methods are not mutually exclusive and can be intermixed as there is likely to be overlapping with respects to scene control, schedule control and voice control, for example.

That is, the same scene could be used as a schedule, activated from the App and a voice command, meaning that only a single CASAMBI Push Button interface is needed to provide multiple methods of control of the same CASAMBI devices.

Wiring Configuration

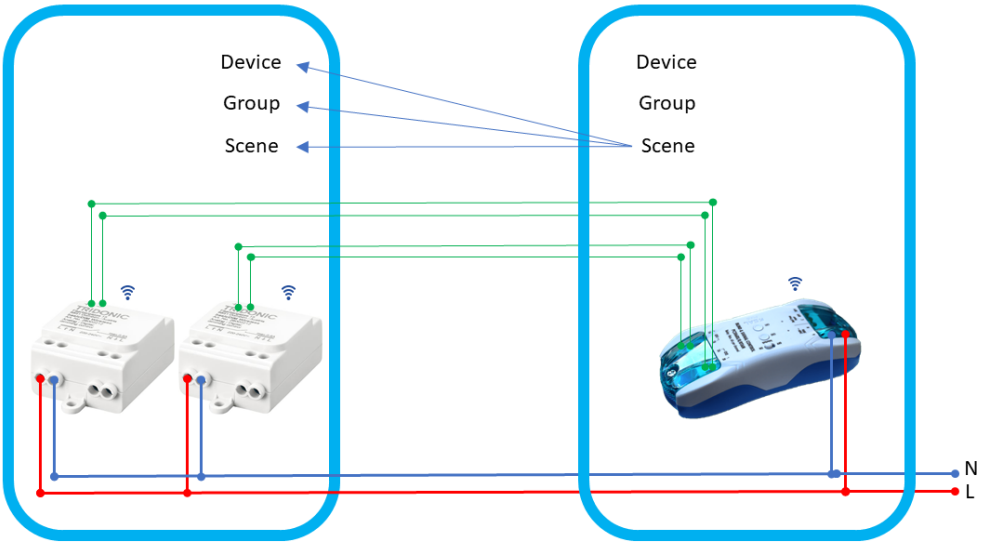
Integrating a CASAMBI Push Button device with PIXIE is achieved using the PIXIE Blind and Signal Controller with 1 or 2 CASAMBI Push Buttons.



For each PIXIE Blind and Signal controller, 2 CASAMBI Push Buttons can be controlled. With each CASAMBI Push button comes the ability to control the other CASAMBI devices in the home as required via 3 different methods:

- A single device - With on/off/dim up/fade down capability
- A group of devices - With on/off capabilities
- As a scene - multiple dimmed levels

The integration capabilities from PIXIE to CASAMBI are simply described in the diagram below.



A larger version of this included in the Appendix.

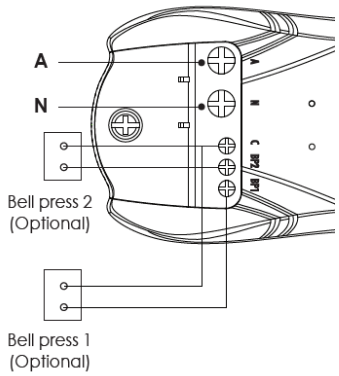
App Setup

As the CASAMBI Push Button interface essentially acts the same as the switchDIM operations already described in this companion document, specific details of how to integrate CASAMBI can be found in that section.

This process in short:

1. Discover and add PIXIE Blind and Signal Controllers with the PIXIE Apps
2. Ensure your CASAMBI devices are configured to transmit the appropriate commands using the CASAMBI App, when they are activated from the PIXIE interface integration.
3. Configure the Control Panel and Shortcuts in the PIXIE Apps to provide a simple control interface from the PIXIE Blind and Signal controller and the CASAMBI Push Button devices.
4. Create PIXIE scenes with the Shortcuts and COMBOs as needed to provide App, wallplate and voice control.

Integrating Mechanical Bell Press Mechs with PIXIE



As the PIXIE Blind and Signal Controller also accepts inputs directly to the Bell Press inputs on the device, it is possible to directly connect up to 2 two mechanical momentary/ bell-press mechs, one for each of the connected CASAMBI Push Button configured devices.

This provides an inexpensive way for the user to interact directly with the controller and CASAMBI devices under control without adding additional cost by adding more PIXIE control devices or sacrificing any automated control, voice control or scheduling delivered by the PIXIE smart home ecosystem.

It should be noted that a cable not longer than 20metres, unless shielded, is recommended for direct connection to the Bell Press inputs on the PIXIE Blind and Signal controller.

Combining PIXIE, CASAMBI and switchDIM

The CASAMBI operation described above is identical in its execution in the PIXIE Apps from a control perspective which means that its possible to combine these 3 control methods into a single smart home system.

How to use Voice Control with CASAMBI for Smarthomes

The following describes how to make CASAMBI compatible with Google Google Home, Alexa, Apple SIRI kits by integrating CASAMBI with SAL PIXIE.

SAL PIXIE is a range of Bluetooth mesh smarthome devices designed for use in Australian homes. These devices include smart dimmers, switches and timers, LED controllers, smart plugs, smart GPO's, blind controllers and more.

The SAL PIXIE devices are setup and controlled from either the SAL PIXIE or PIXIE PLUS App and offer scheduling, groping, scene control and a range of smarthome control options. For voice control use of the PIXIE PLUS App is required as well as the installation of the PIXIE Gateway.

The PIXIE Gateway acts as a bridge between the Bluetooth PIXIE devices in the home and the internet, which is required when using voice assistants like Amazon Echo, Google Home, SIRI and Samsung Smartthings.

CASAMBI is also a popular Bluetooth lighting control system adopted by many European lighting manufacturers, however it operates using a different Bluetooth signal to PIXIE, so the two systems cannot communicate wirelessly, and CASAMBI has no voice control capabilities at the time of writing.

As many high-end European lighting fixtures are provided with CASAMBI controllability it is not uncommon to encounter situations where more traditional lighting sources such as LED, tungsten and halogen downlights, LED strips and switched lighting circuits need to be controlled together with CASAMBI enabled lights for an integrated smart home control interface.

Alternatively a home may be primarily populated with CASAMBI controlled lighting fixtures and the homeowners would like voice control over these devices.

Integrating CASAMBI with Voice Control Using PIXIE

There are a few basic requirements to get started with voice control of CASAMBI lighting.

- The PIXIE PLUS App
- A PIXIE Gateway (part# SGW/BT)
- One or more PIXIE Blind and Signal controllers (part#: PC206BS/R/BTAM)
- One or more CASAMBI enabled light fixtures
- Optional CASAMBI CBU-ASD Control Unit or a Tridonic basciDim Wireless module (Article no. 28002212).

The simple premise is using the PIXIE ecosystem which provides voice control capabilities with Amazon Echo, Google Home, Apple SIRI and Samsung Smarthings, to act as a low level interface to the CASAMBI devices.

As the CASAMBI devices have a wide range of capability with respect to grouping, scene control and operation, the specifics of how to set up each device will vary and is not covered in this short explainer.

However it is recommended that any scheduling functionality is provided via the PIXIE PLUS app and not in the CASAMBI devices, so the homeowners have a single interface with which to modify their schedules simply.

Low Level Integration for CASAMBI Voice Control.

Using this method it is possible to provide various levels of voice control capability, from whole house to a single luminaire.

Control could encompass a few basic functions such as “ALL OFF” which could be used as the homeowners are leaving to extinguish all lighting in their home.

This operation would require a single PIXIE Blind and Signal controller, interfaced at a CASAMBI Push BUtton configured device on site, with configuration in the CASAMBI network configured to transmit an all off message wirelessly over the CASAMBI network to all CASAMBI enabled lighting.

If there were also PIXIE controlled luminaires, phase dimmed or switched, these could also be included in that voice commands for a complete home shutdown.

Another example might be a **scheduled security lighting scene**, where the security lighting is CASAMBI controlled, that needs to be recalled each evening, 5 minutes before sunset.

<u>In this example there are 3 stages to the integration.</u>

1. The CASAMBI devices are configured on the CASAMBI network and connected to a PIXIE Blind and Signal Controller
2. PIXIE Plus has a scene created which includes the PIXIE Blind and Signal controller connected to the correct CASAMBI devices
3. Amazon Alexa App linked to the PIXIE Plus App with a sunrise/sunset routine created to recall the PIXIE Scene at 5 minutes before sunset everyday.

By managing this schedule via the PIXIE Plus app, provides the homeowners the simplicity of using a single App for all control.

It should be noted that a wide range of CASAMBI devices provide scheduling capability but the voice control capability and / or sunrise sunset scheduling capabilities are not always available - hence why this example has been used to provide an ideal scenario for the homeowners.

Essentially for each 2 voice command/s needed to control any selection of CASAMBI devices, it would be necessary to nominate a PIXIE Blind and Signal Controller.

APPENDIX

List of Drawings in this Appendix

- PIXIE PLUS TECHNICAL OVERVIEW
- PIXIE PLUS Technical System Overview Diagram
- PIXIE PLUS ACCOUNT TOPOLOGY
- PIXIE PLUS Gateway to Gateway Integration
- PIXIE to CASAMBI Control Hierarchy
- PIXIE Bi-Directional Integration with Legacy Home Automation Systems
- PIXIE Blind & Signal Controller – Wiring Diagram – 3 Wire Blinds
- PIXIE Blind & Signal Controller – Wiring Diagram – 4 Wire Blinds
- PIXIE Blind & Signal Controller – Wiring Diagram – 4 Wire Blinds with 3 position switch
- PIXIE Dual Relay Controller – 3 Wire PIR Sensor Wiring
- PIXIE Blind & Signal Controller Interfacing to switchDim drivers
- PIXIE Blind & Signal Controller Interfacing with Garage Door Openers

PIXIE PLUS TECHNICAL OVERVIEW

Connected Smart Homes, Apartments, Hotel Rooms

All PIXIE Master and Secondary devices communicate in-home between themselves using secure Bluetooth Mesh and delivers PIXIE PLUS App control via Bluetooth connection.

Maximum range of 32-42 PIXIE Master devices per PIXIE Home (network). PIXIE Secondary devices don't add to this total. To control more Master devices add one PIXIE Gateway for every 32-42 devices. (*Depends on layout and construction of home*)

PIXIE PLUS App communicates to devices in-home using Bluetooth or WiFi (needs PIXIE Gateway) for direct control. PIXIE PLUS App chooses strongest signal - <u>if</u> WiFi in use - to ensure optimal response when in home.

Out-of-home control from anywhere in the world for users authorised for out-of-home control through detailed security provisioning in the PIXIE PLUS App.

PIXIE Gateway connects to in-home WiFi and acts as a bridge between the internet, PIXIE Cloud and the PIXIE device's Bluetooth mesh in home.

1 physical home can have multiple virtual PIXIE Homes by installing additional PIXIE Gateways. Virtual PIXIE Homes allow division by floors, wings etc. when maximum Master device limit reached. Add as many PIXIE Gateways as needed.

PIXIE Cloud, hosted in Australia, is used for PIXIE PLUS App, accounts, user authorisation, linking the PIXIE PLUS **ACCOUNT** to voice assistant's clouds from other vendors.

Voice Control Compatibility

Samsung SmartThings

SIRI

Google Home

Amazon Alexa

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Date: 1/12/2020
Revision: A
PIXIE System Drawings – Dwg No. 01122020-1
Drawing Name:
PIXIE PLUS TECHNICAL OVERVIEW
For use with PIXIE Connected Smart Homes, Apartments, Hotel Rooms

PIXIE PLUS Technical System Overview

Connected Smart Homes, Apartments, Hotel Rooms

- Bluetooth mesh for in-home control
- No WiFi needed in-home for full control (except voice)
- PIXIE Gateway provides internet connectivity and access to voice assistant services. (e.g. Amazon Echo)

Voice Control Compatibility

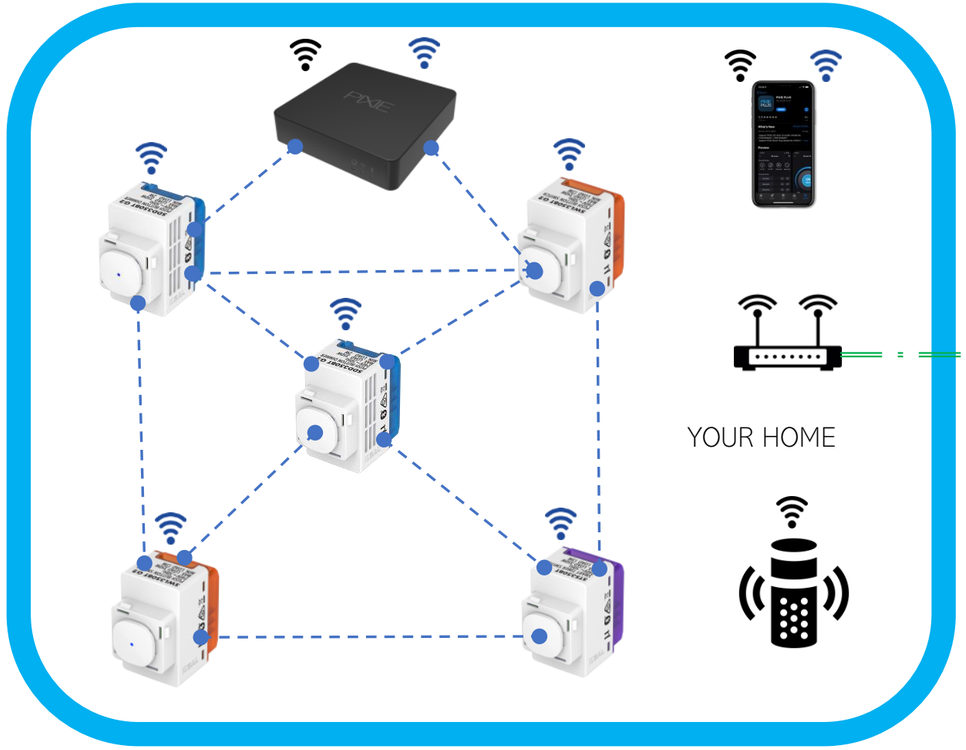
Samsung SmartThings | SIRI | Google Home | Amazon Alexa

Voice integration achieved via the internet when PIXIE PLUS **ACCOUNT** is linked to vendors service.

PIXIE Cloud

Authorised Users

PIXIE PLUS App provides out of home control via the internet when PIXIE Gateway installed.



YOUR HOME

PIXIE BT Mesh

In-home WiFi

If a homeowner loses their phone or the PIXIE Gateway is broken, simply install and connect a new PIXIE Gateway and install the PIXIE PLUS App on the new device for complete control restoration.

PIXIE PLUS Account stores a record of all PIXIE Homes, user authorisations, PIXIE Gateways, voice assistant's links, schedules, devices and configurations.

A 'Home' is associated with an Account and is both a physical location and a virtual collection of devices, groups, scenes, names, schedules and a PIXIE Gateway link.

A PIXIE Gateway is linked to one PIXIE Home, retains all PIXIE Home information locally and manages the secure bridge between the internet and Bluetooth mesh in-home, time clock and communication between PIXIE Home and PIXIE PLUS Account.

PIXIE PLUS App used for Account creation and management, system control and setup: device discovery, naming, grouping, scene creation; firmware updates, schedule creation and editing, user auth.

PIXIE Devices store schedules and configuration: groups, scenes and in-home physical control of electrical loads.

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PIXIE System Drawings – Dwg No. 01122020-2
Drawing Name:
PIXIE PLUS Technical System Overview Diagram
For use with PIXIE Connected Smart Homes, Apartments, Hotel Rooms

PIXIE PLUS ACCOUNT TOPOLOGY

Connected Smart Homes, Apartments, Hotel Rooms

Typical Home

User Account Information

HOME 1

GATEWAY 1

DEVICES

Multiple Gateways in Separate Homes

User Account Information

HOME 1

HOME 2

GATEWAY 1

GATEWAY 1

DEVICES

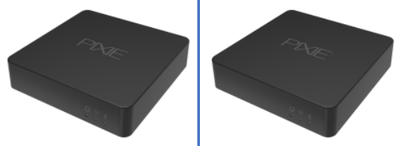
DEVICES

Multiple Gateways in 1 Physical Home

User Account Information

HOME 1

HOME 1.1



GROUND FLOOR GATEWAY

FIRST FLOOR GATEWAY

DEVICES

DEVICES

Gateways and devices physically located in same residence

User account is secured with email and password. One PIXIE PLUS account can control multiple PIXIE Homes.

Home Swap feature in PIXIE PLUS App allows rapid connection changes to each of the homes/gateways/networks from anywhere.

User Authorisation provisioned per Home/Gateway, including out-of-home control capabilities via the PIXIE PLUS App.

Integration with voice assistants are done at a PIXIE PLUS ACCOUNT level by linking PIXIE PLUS account with services via Vendors Apps.

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PIXIE System Drawings – Dwg No. 01122020-3

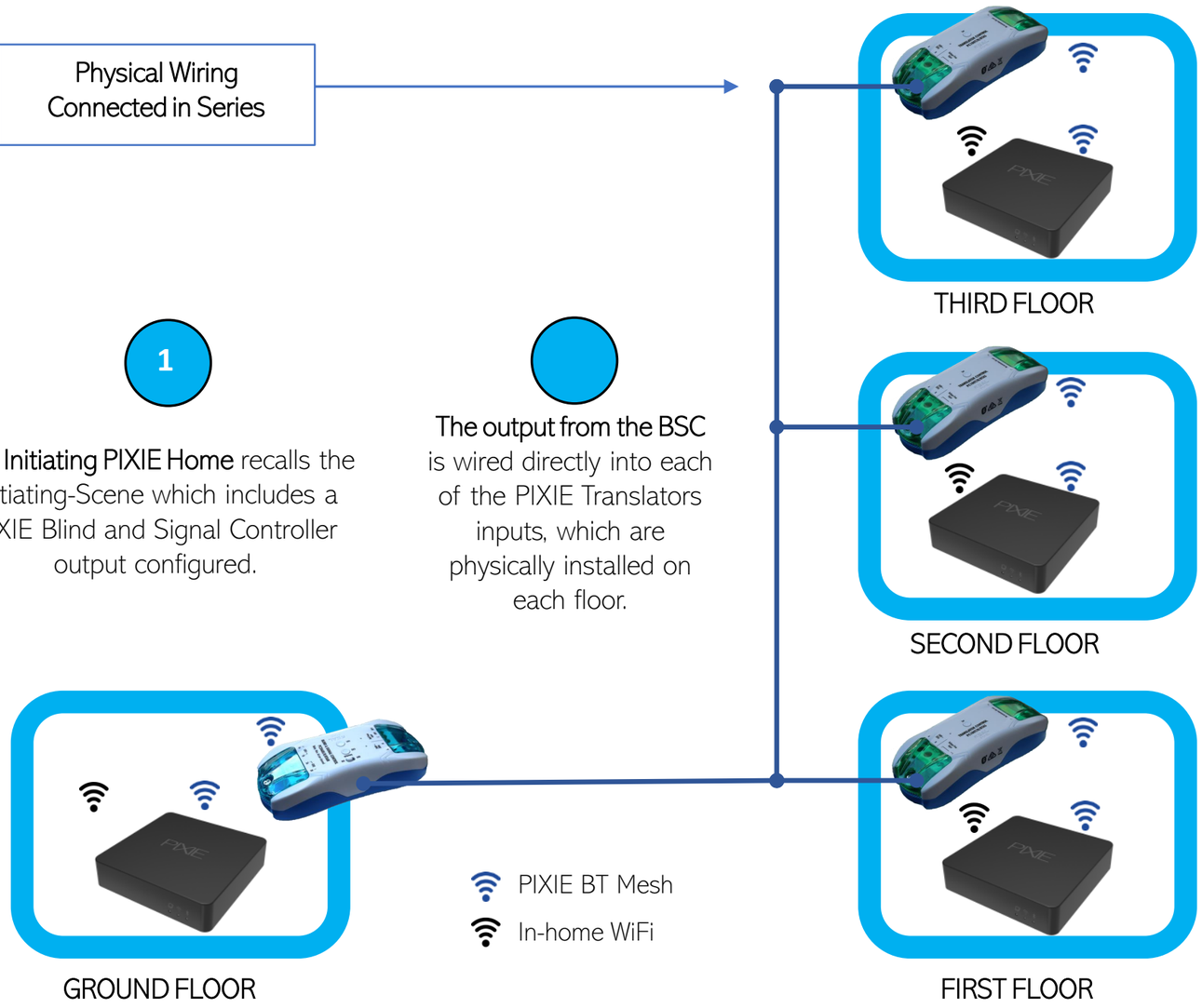
Drawing Name:

PIXIE PLUS ACCOUNT TOPOLOGY

For use with PIXIE Connected Smart Homes, Apartments, Hotel Rooms

PIXIE PLUS GATEWAY TO GATEWAY INTEGRATION

Physical Wiring
Connected in Series



1

The Initiating PIXIE Home recalls the Initiating-Scene which includes a PIXIE Blind and Signal Controller output configured.

2

The output from the BSC is wired directly into each of the PIXIE Translators inputs, which are physically installed on each floor.

3

Each of the PIXIE Translators are setup to also recall their ALL OFF scene for the devices in their PIXIE Home when the signal is received.

4

By using a LATCH / UNLATCH function, the initial latch recalls an ALL OFF for lighting; and the following UNLATCH arms the Alarm.

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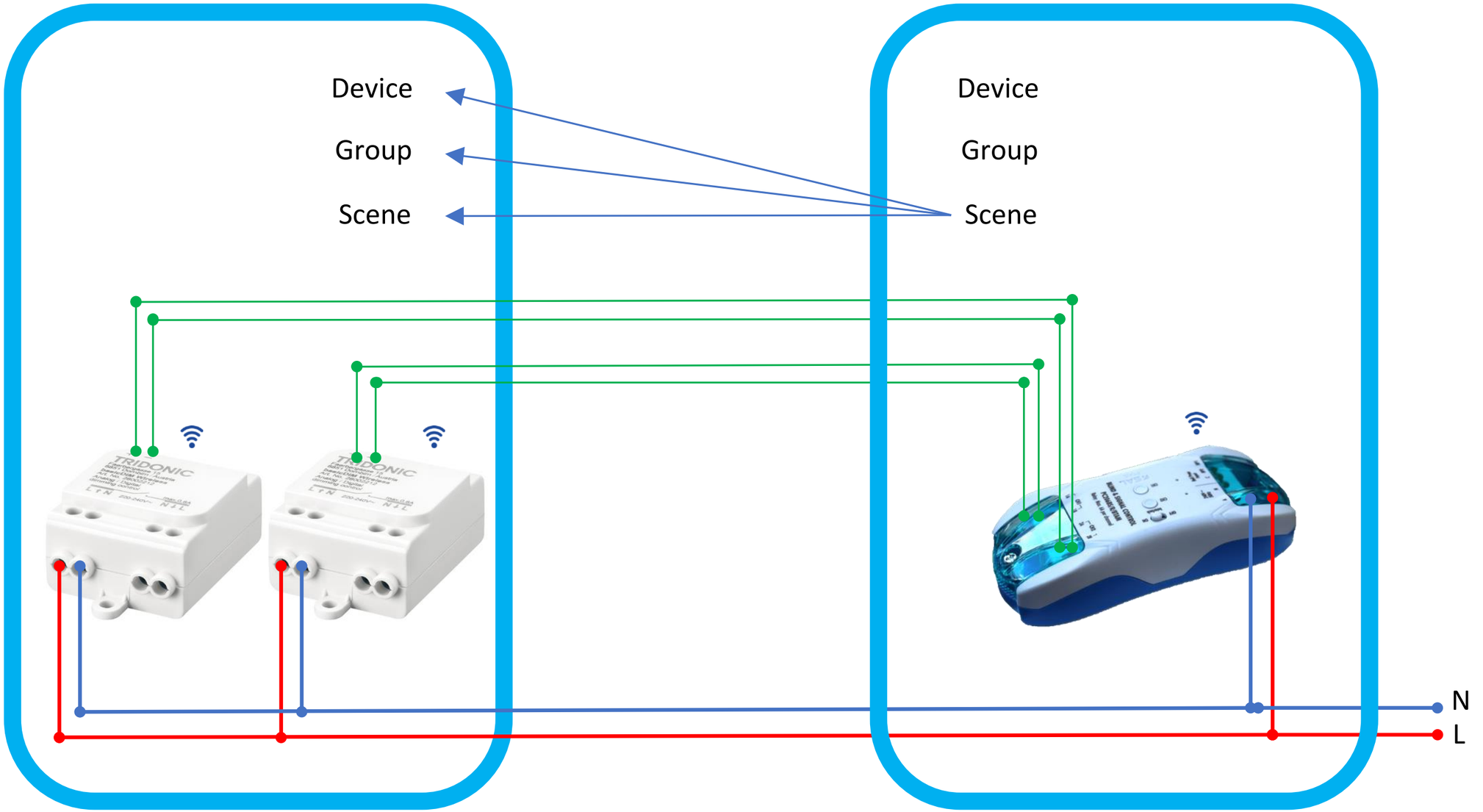
PIXIE System Drawings – Dwg No. 01122020-4
Drawing Name:
PIXIE PLUS Gateway to Gateway Integration
For use with PIXIE Connected Smart Homes, Apartments, Hotel Rooms

PIXIE to CASAMBI Control Hierarchy



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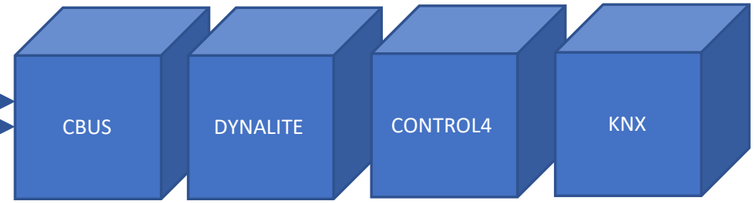
Revision: A

PIXIE System Drawings – Dwg No. 01122020-5

Drawing Name:
PIXIE to CASAMBI Control Hierarchy

For use with PIXIE Connected Smart Homes, Apartments, Hotel Rooms

BI-DIRECTION INTEGRATION

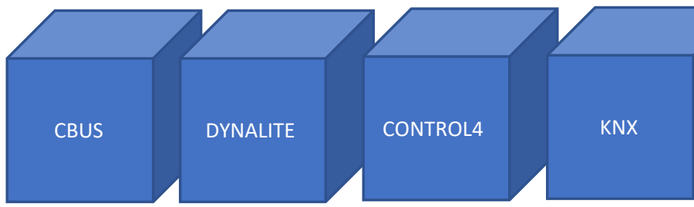


PIXIE Blind and Signal Controller sends a dry contact pulse or latch signal to the legacy home automation system

Legacy System is configured to recall a scene, run a script or macro upon receipt.

Legacy Home Automation System sends dry contact output to the PIXIE Translator

PIXIE Translator is configured to perform recall a scene, control a device or a group on pulse, latch and/or unlatch.



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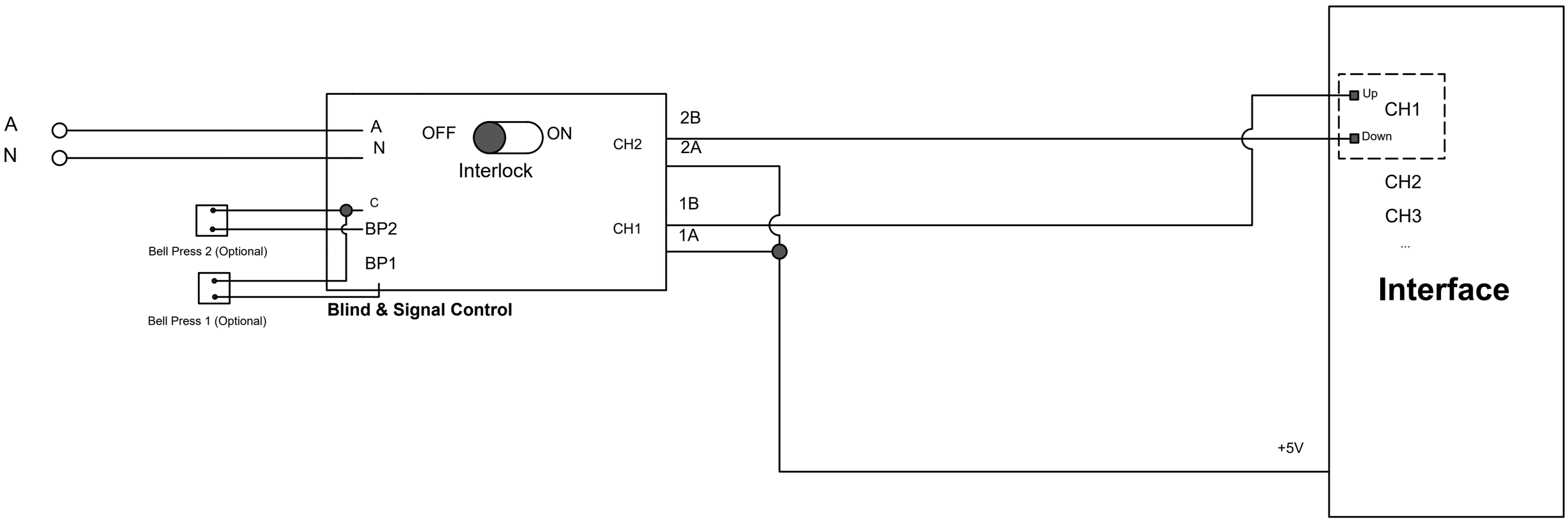
Drawing Name:
PIXIE Bi-Directional Integration with Legacy Home Automation Systems
For use with PIXIE Connected Smart Homes, Apartments, Hotel Rooms



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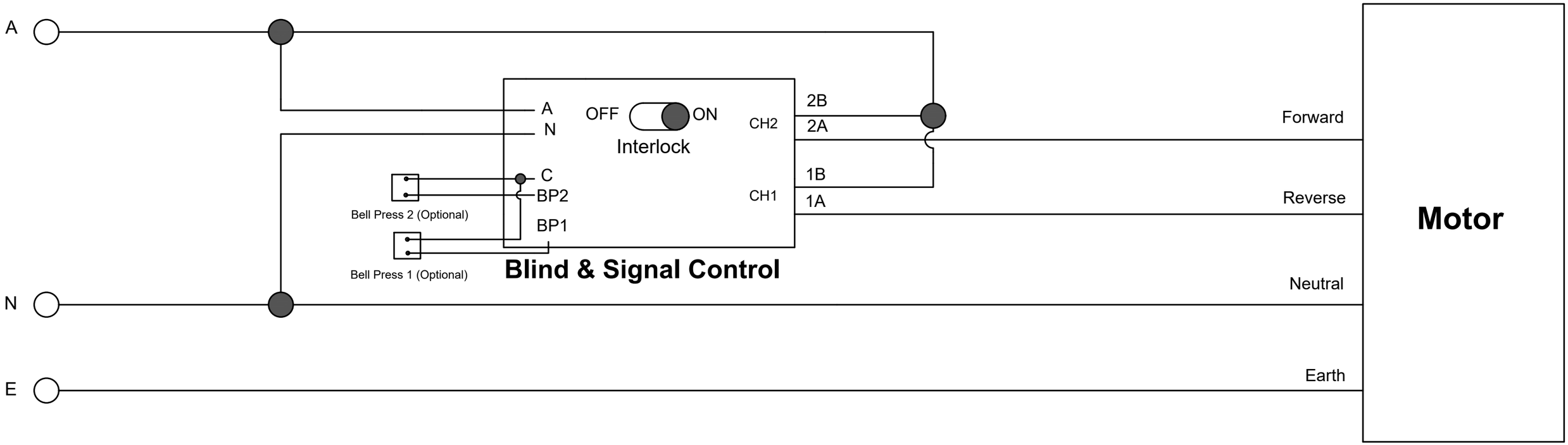
PIXIE System Drawings – Dwg No. 01122020-7

Drawing Name:

PIXIE Blind & Signal Controller – Wiring Diagram – 3 Wire Blinds

For use with PIXIE Connected Smart Homes, Apartments, Hotel Rooms



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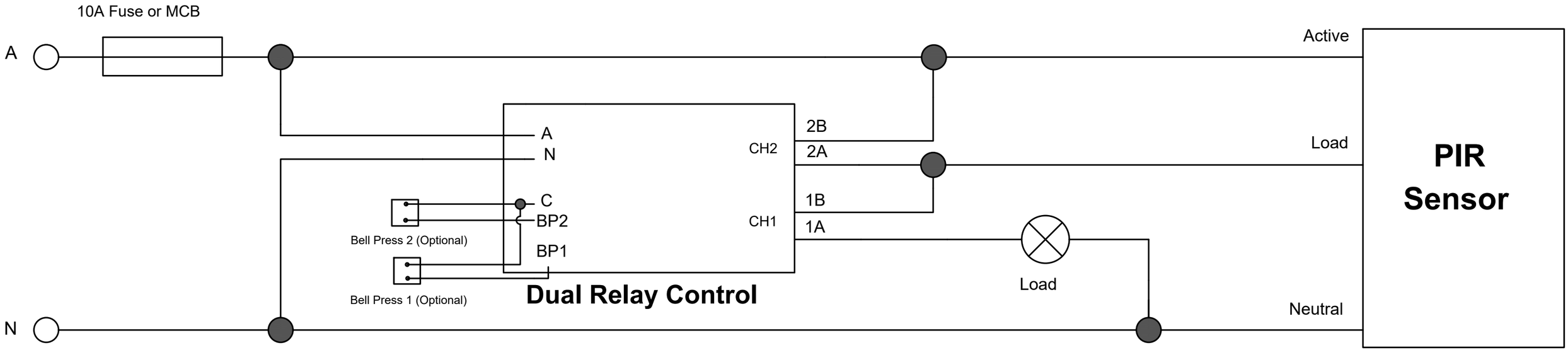
PIXIE System Drawings – Dwg No. 01122020-8

Drawing Name:

PIXIE Blind & Signal Controller – Wiring Diagram – 4 Wire Blinds

For use with PIXIE Connected Smart Homes, Apartments, Hotel Rooms



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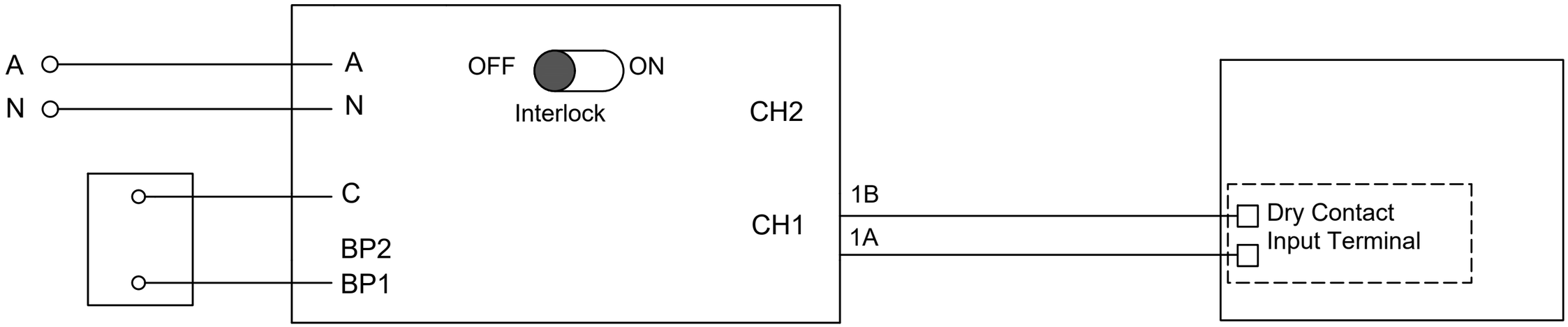
PIXIE System Drawings – Dwg No. 01122020-9

Drawing Name:

PIXIE Dual Relay Controller – 3 Wire PIR Sensor Wiring

For use with PIXIE Connected Smart Homes, Apartments, Hotel Rooms



Bell Press
(Optional)

Blind & Signal Control

Garage Door Opener

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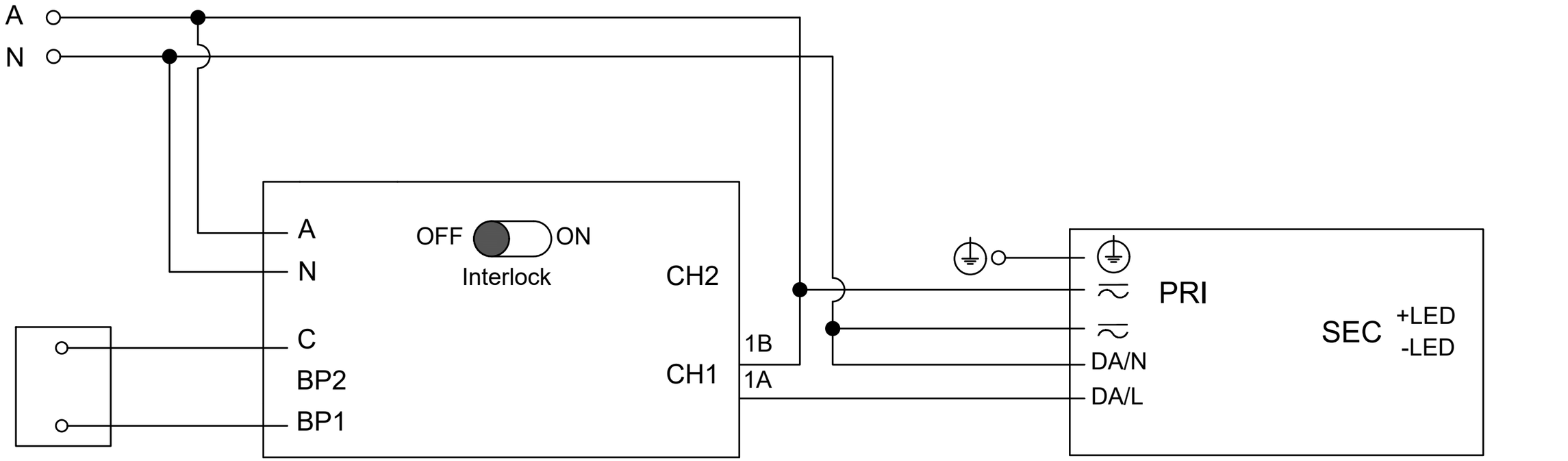
PIXIE System Drawings – Dwg No. 01122020-10

Drawing Name:
PIXIE Blind & Signal Controller Interfacing with Garage Door Openers

For use with PIXIE Connected Smart Homes, Apartments, Hotel Rooms



Bell Press
(Optional)

Blind & Signal Control

Driver with switchDIM Function

SAL LIGHTING A SMARTER FUTURE™
www.sal.net.au

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Villawood NSW
2163
02 9723 3099

VIC/TAS/SA/NT
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Moorabbin VIC
3189
03 9532 3168

QLD
36 Whitelaw Place
Richlands QLD 4077
07 3879 5999

WA
29 Beringarra
Avenue
Malaga WA 6090
08 9248 7458

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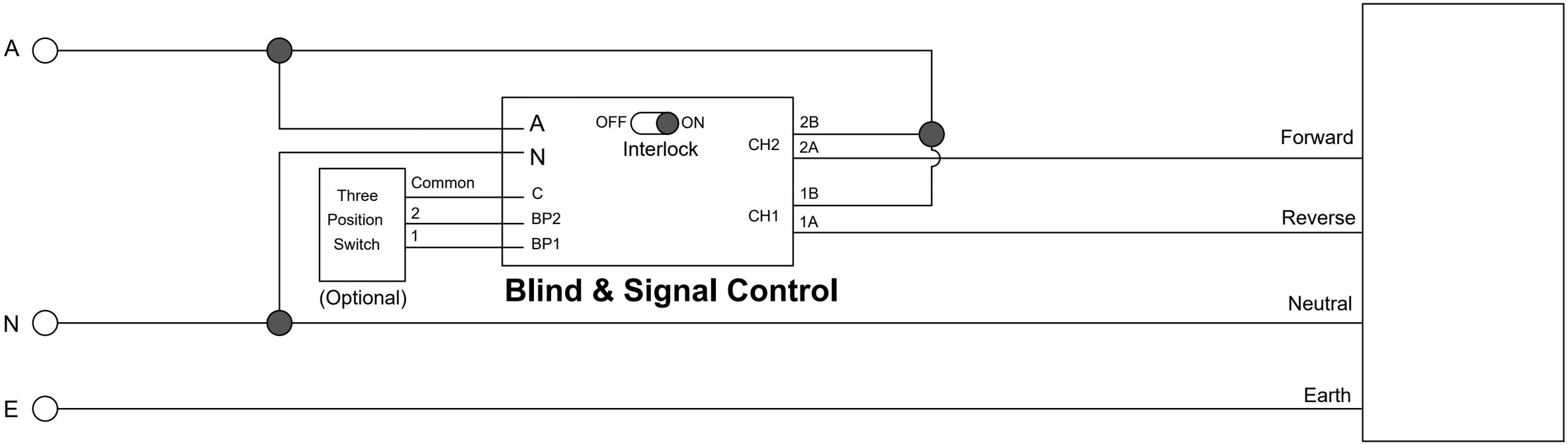
SIMPLE. SMART. HOME. PIXIE
www.pixiepartners.com.au

Date: 1/12/2020	Revision: A PIXIE System Drawings – Dwg No. 01122020-11
Drawing Name: PIXIE Blind & Signal Controller Interfacing to switchDim drivers	
For use with PIXIE Connected Smart Homes, Apartments, Hotel Rooms	



Roller Motor

Please Keep Interlock On

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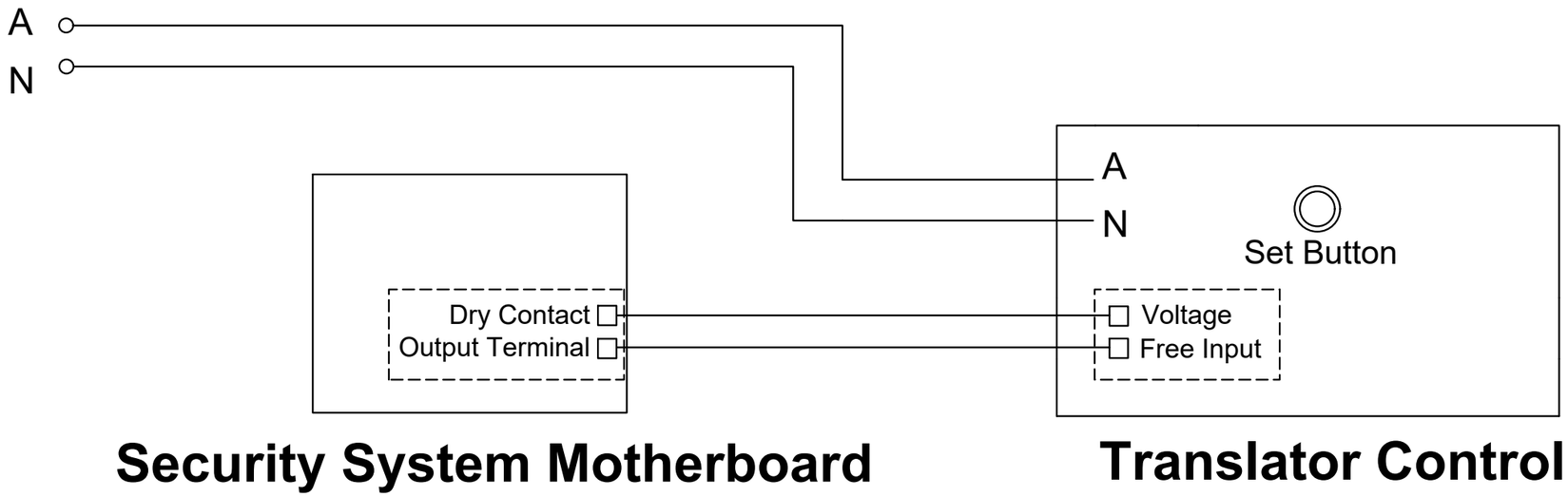
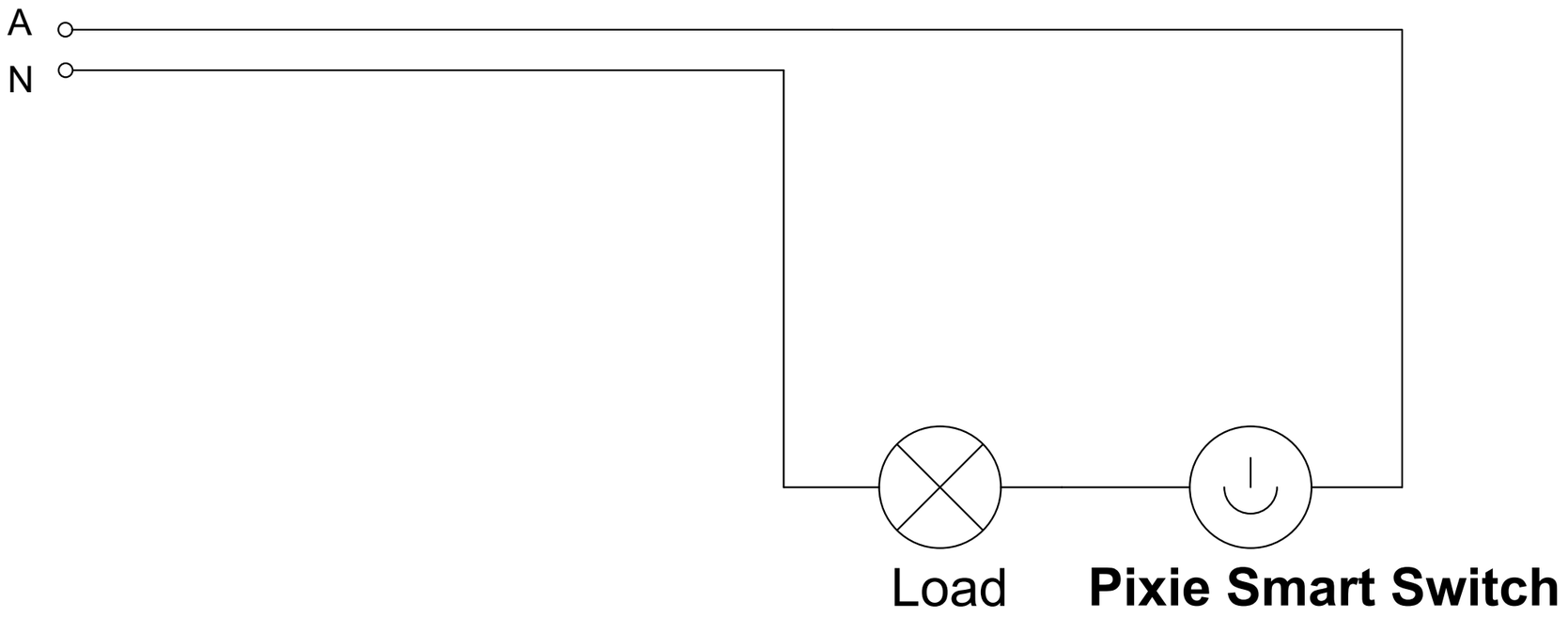
Date: 1/12/2020
Revision: A
PIXIE System Drawings – Dwg No. 01122020-12
Drawing Name: PIXIE Blind & Signal Controller – Wiring Diagram – 4 Wire Blinds with 3 position switch
For use with PIXIE Connected Smart Homes, Apartments, Hotel Rooms



Security System Motherboard **Translator Control**



Load **Pixie Smart Switch**

Please pair Translator Control to Pixie Smart Switch

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PIXIE PIXIE PLUS
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Date: 1/12/2020	Revision: A PIXIE System Drawings – Dwg No. 01122020-13
Drawing Name: PIXIE Translator– Security System Integration	
For use with PIXIE Connected Smart Homes, Apartments, Hotel Rooms	

IMPORTANT: IN THE INTEREST OF PRODUCT PERFORMANCE AND SAFETY PLEASE READ THESE INSTALLATION AND WARRANTY INSTRUCTIONS BEFORE INSTALLING THE PRODUCT.

SAL products are designed in accordance with all mandatory International and AS/NZS Standards, which require installation in accordance with AS/NZS3000 by a qualified installer and regular cleaning and maintenance of the equipment. Products are sold in accordance with the following instructions and SAL standard terms and conditions of sale, available via www.sal.net.au.

Due to continued product and information updates, product data sourced from sal.net.au shall not form part of any contract and or technical performance guarantee unless expressly confirmed in writing by SAL at the time of order.

PIXIE Blind & Signal Control - PC206BS/R/BTAM electrical and installation specification effective 28/9/2020.

Model No.	Input (V)/(Hz)	Output Relay Rating	Mass (g)	Dimensions L x W x H (mm)
PC206BS/R/BTAM	240/50	6A per channel (2 channels)	75	110 x 40 x 26

Operating ambient min/max (°C)	0 to 40	Storage ambient limit (°C)	0 to 60
Operating humidity	10% to 85% RH, NC	Storage humidity	+10% to 85% RH
Product application	Interior residential		
Product installation orientation	As per wiring diagram		
PIXIE connectivity	Yes		
Termination of the product must be made in accordance with the IP rating. Product IP rating – IP20			

Introduction: This product is designed with two relays to generate two channel **dry contact signal outputs**, which as an example is ideal for controlling blinds and garage door functions.

General product application requirements (if applicable):

1. **CCT and POWER selections (where supplied)** – IMPORTANT, where CCT colour temperature or POWER selection switching is provided, it is important to switch OFF the power before the selection is made, otherwise equipment damage may occur.

2. **Recycling** – SAL encourages recycling, please consider the environment when disposing of packaging, batteries & components.

3. **Switching or test intervals** – For optimum product performance, good design practice does not encourage 24/7 operation of lighting products without the provision of a routine switching or regulatory test cycle. As a guide for continual operation installations, a twelve (12) hour duration for Industrial and Commercial applications and a six (6) hour duration for Residential applications should be considered.

4. **Product maintenance** – In line with the relevant design standards and to protect your investment, it is important to have in place a routine cleaning program that reflects the installation environment and maintains the product in a clean and functional condition.

IMPORTANT - The supply must be isolated before any product maintenance or cleaning is conducted. In addition, damage to ANY cable or cord supplied with the product must be addressed as follows; For attachment type X having a specially prepared cable, if the external flexible cable is damaged, it must be replaced by an equivalent cable exclusively available from the manufacturer or authorised installer. For attachment type Y, if the external flexible cable is damaged, it must be exclusively replaced by an equivalent cable by the manufacturer or authorised installer. For attachment type Z, if the external flexible cable is damaged, the cable cannot be replaced and the luminaire must be destroyed.

5. **Adverse, corrosive and coastal installation environments** – Unless the product is specifically designated for such applications in these installation instructions, which is supported by a professional maintenance program; installation of equipment in such environments is not recommended.

6. **Dimming products** – Dimming circuits and product compatibility must be validated by the installer before installation; SAL cannot be responsible for third party changes in dimmer compatibility.

7. **Suspended products** – For installation safety, any suspended products must NOT be installed in high air movement spaces or locations subject to impact.

8. **Light source replacements** – (Non-replaceable light sources) - The light source of the product is deemed not replaceable, when the product reaches its end of life the complete product, it must be replaced by a qualified installer. (Non-user replaceable light sources) - The light source of the product must only be replaced by the manufacturer or qualified installer. **Caution, risk of electric shock.**

9. **Interior downlights and sensors with remote drivers and electrical accessories** – The mounting facilities provided for the transformer/driver (if any), need only be utilized if in the application of the product is required by AS3000. Drivers are not designed for installation environments that restrict conventional airflow.

10. **Floodlight products** – Unless nominated aiming restrictions or installation parameters apply, products are designed for installation environments between ground and 15 metres in height, subject to the desired optical performance being achieved.?

11. **Emergency enabled products** – In the interest of transport and safety, emergency products are supplied with the battery disconnected. In addition to specific emergency commissioning instructions, this battery MUST be connected at the time of installation.

12. **Specific installation procedures** (if any) - this device must be installed by a licensed electrician:

LED indicator: LED indicator **colour is white** when the product is new or has been reset; LED indicator **colour is blue** when product is added to a network; LED indicator is **low brightness** when in standby, and **maximum brightness** when the relay is closed.

Scan QR code for more information and functions about this product

Buttons and terminals:

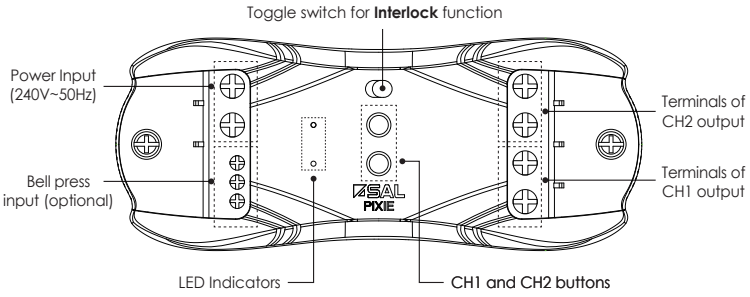


Figure 1

Wiring diagram (Typical dry contact signal output)

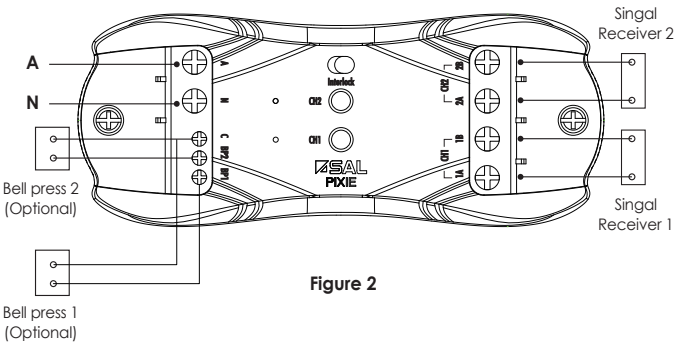


Figure 2

Button Operation (optional): It's optional that user can wire bell press (momentary switches) as per **Figure 2**, the operations of bell press are

Operation	Function Description	LED Indicator	Remark
1 click	Relay closes quickly then opens	High brightness signal indicates, then returns to low brightness	The relay action simulates a short pulse signal, equal to a quick press action on the bell press (momentary switch)
Long press	Relay closes until pressure is released from the button	High brightness signal is maintained whilst pressing the button, then once released it returns to low brightness	The relay action simulates a long pulse signal, equal to a long press on the bell press (momentary switch)

Button Operation

Operation	Function Description	LED Indicator	Remark
1 click	Relay closes quickly then opens	High brightness signal indicates, then returns to low brightness	The relay action simulates a short pulse signal, equal to a quick press action on the bell press (momentary switch)
Long press	Relay closes until pressure is released from the button	High brightness signal is maintained whilst pressing the button, then once released it returns to low brightness	The relay action simulates a long pulse signal, equal to a long press on the bell press (momentary switch)
4 clicks	Correspondent channel enters paring mode	Quickly flash blue and white for 30 seconds	This is used to pair a slave device like PIXIE multifunction control (model No. SMF/BT), or PIXIE multifunction remote control (model No. SMC/BT) with the correspondent channel, to achieve remote control. After a successful pairing, pairing mode will end. Pressing any button on this product during pairing mode will cancel pairing mode.
9 clicks	Reset whole product to factory default	Flash white and blue for 3 seconds, then stay white	This operation will reset the product to factory default. LED indicators stay white when successfully reset.

Interlock Function (Toggle switch)

Left (Interlock Off)	Right (Interlock On)
Default status. When the Interlock is Off, the CH1 relay and CH2 relay are free to close or open as per the control operations.	For some applications, CH1 relay and CH2 relay closing simultaneously is not permitted, whereby the Internlock must be activated. When the Interlock is activated, only one relay signal is acknowleged.

Scan QR code or go to App store (IOS) or Google Play (Android) to download the free PIXIE app to your smart phone. IOS: Requires IOS 6.0 or later. Compatible with iPhone, iPad and iPad touch Android: Requires Android 4.4 or above, devices must support Bluetooth 4.0

Specifications above are for reference only and may vary without prior notice

13. **Warranty** – In accordance with SAL's standard terms and conditions of sale, SAL warrant this product to be free from defects in materials and or workmanship for a period as stated below for goods not subject to incorrect installation, maintenance, operation, mishandling, environmental, unauthorised modifications or electrical operating conditions outside the nominated product specification as detailed in these installation instructions. The benefits to you given by this warranty are in addition to other rights and remedies you have under law. Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Warranty term – Residential usage (12) months, Commercial usage (12) months and Lithium batteries where supplied (24) months from date of purchase. For New Zealand, please refer to www.sal.co.nz for warranty conditions and service.

How to make a claim?

Step # 1 – Within 30 days of the fault discovery, please contact the original place of the SAL product purchase during standard (local) business hours, with the following information **(a)** proof of purchase **(b)** description and quantity of the claimed fault **(c)** address of installation. **(d)** operating hours of the product.

Step # 2 – It is then the responsibility of the original place of product purchase to report the matter to SAL aftersales;

NSW | ACT	- SAL National Pty Ltd, 40 Biloela Street Villawood NSW 2163	| P # 02 9723 3099
QLD	- SAL National Pty Ltd, 36 Whitelaw Place Richlands QLD 4077	| P # 07 3879 5999
VICT | TAS | SA | NT	- SAL National Pty Ltd, 46-48 Keys Road Moorabbin Victoria 3189	| P # 03 9532 3168
WA	- SAL National Pty Ltd, 29 Beringarra Av Malaga WA 6090	| P # 08 9248 7458
NZ	- Hamer, 130 Bush Road, Albany, Auckland, 0632	| P # 0800 239 239

Step # 3 - Upon review of your claim and if the product is required to be returned to SAL for technical evaluation, then at the owners expense the product must be returned to SAL as per the above nominated locations.

Step # 4 - Pending the evaluation, the claim will be validated resulting in the product being repaired or replaced with the same or best equivalent product at the discretion of SAL, or rejected if the product fault was found to be caused by conditions beyond the responsibility of SAL warranty obligations. Consideration of installation, product removal, return freight and or testing fees are not the responsibility of SAL.

IMPORTANT: IN THE INTEREST OF PRODUCT PERFORMANCE AND SAFETY PLEASE READ THESE INSTALLATION AND WARRANTY INSTRUCTIONS BEFORE INSTALLING THE PRODUCT.

SAL products are designed in accordance with all mandatory International and AS/NZS Standards, which require installation in accordance with AS/NZS3000 by a qualified installer and regular cleaning and maintenance of the equipment. Products are sold in accordance with the following instructions and SAL standard terms and conditions of sale, available via www.sal.net.au.

Due to continued product and information updates, product data sourced from sal.net.au shall not form part of any contract and or technical performance guarantee unless expressly confirmed in writing by SAL at the time of order.

PIXIE TRANSLATOR CONTROL PC100T/T/BTAS electrical and installation specification effective 28/9/2020.

Model No.	Input (V)/(Hz)	Standby Power (W)	Mass (g)	Dimension L x W x H (mm)
PC100T/R/BTAS	240/50	Max. 0.5	58	110 x 40 x 26

Operating ambient min/max (°C)	0 to 40	Storage ambient limit (°C)	0 to 60
Operating humidity	10% to 85% RH, NC	Storage humidity	+10% to 85% RH
Product application	Interior residential		
Product installation orientation	As per wiring diagram		
PIXIE connectivity	Yes		
Termination of the product must be made in accordance with the IP rating. Product IP rating – IP20			

Introduction: This product supports 1 channel signal input, this input may be connected to a momentary switch, a toggle switch, voltage-free contacts of an external motion sensor, or other devices that can generate dry contact signal. It enables integration between PIXIE and other systems, allowing other systems to send a signal and control the PIXIE products. The product is only compatible with SAL PIXIE devices.

General product application requirements (if applicable):

1. **CCT and POWER selections (where supplied)** – IMPORTANT, where CCT colour temperature or POWER selection switching is provided, it is important to switch OFF the power before the selection is made, otherwise equipment damage may occur.

2. **Recycling** – SAL encourages recycling, please consider the environment when disposing of packaging, batteries & components.

3. **Switching or test intervals** – For optimum product performance, good design practice does not encourage 24/7 operation of lighting products without the provision of a routine switching or regulatory test cycle. As a guide for continual operation installations, a twelve (12) hour duration for Industrial and Commercial applications and a six (6) hour duration for Residential applications should be considered.

4. **Product maintenance** – In line with the relevant design standards and to protect your investment, it is important to have in place a routine cleaning program that reflects the installation environment and maintains the product in a clean and functional condition.

IMPORTANT - The supply must be isolated before any product maintenance or cleaning is conducted. In addition, damage to ANY cable or cord supplied with the product must be addressed as follows; For attachment type X having a specially prepared cable, if the external flexible cable is damaged, it must be replaced by an equivalent cable exclusively available from the manufacturer or authorised installer. For attachment type Y, if the external flexible cable is damaged, it must be exclusively replaced by an equivalent cable by the manufacturer or authorised installer. For attachment type Z, if the external flexible cable is damaged, the cable cannot be replaced and the luminaire must be destroyed.

5. **Adverse, corrosive and coastal installation environments** – Unless the product is specifically designated for such applications in these installation instructions, which is supported by a professional maintenance program; installation of equipment in such environments is not recommended.

6. **Dimming products** – Dimming circuits and product compatibility must be validated by the installer before installation; SAL cannot be responsible for third party changes in dimmer compatibility.

7. **Suspended products** – For installation safety, any suspended products must NOT be installed in high air movement spaces or locations subject to impact.

8. **Light source replacements** – (Non-replaceable light sources) - The light source of the product is deemed not replaceable, when the product reaches its end of life the complete product, it must be replaced by a qualified installer. (Non-user replaceable light sources) - The light source of the product must only be replaced by the manufacturer or qualified installer. **Caution, risk of electric shock.**

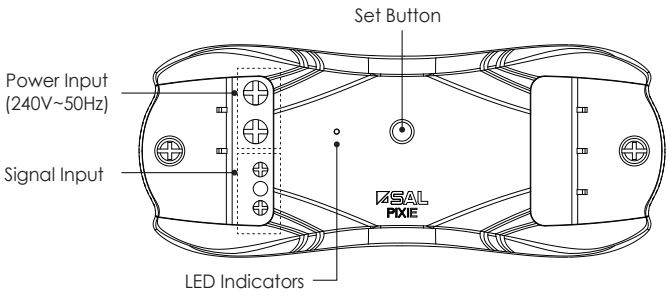
9. **Interior downlights and sensors with remote drivers and electrical accessories** – The mounting facilities provided for the transformer/driver (if any), need only be utilized if in the application of the product is required by AS3000. Drivers are not designed for installation environments that restrict conventional airflow.

10. **Floodlight products** – Unless nominated aiming restrictions or installation parameters apply, products are designed for installation environments between ground and 15 metres in height, subject to the desired optical performance being achieved.?

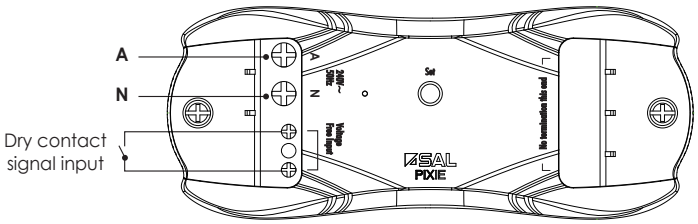
11. **Emergency enabled products** – In the interest of transport and safety, emergency products are supplied with the battery disconnected. In addition to specific emergency commissioning instructions, this battery MUST be connected at the time of installation.

12. **Specific installation procedures** (if any) - this device must be installed by a licensed electrician and is only compatible with SAL PIXIE & PIXIE PLUS Smart (master) devices:

Buttons and terminals:



Wiring diagram:



Functions - This product can be programmed to work either on "Latch" mode or "Pulse" mode, program must be operated with the PIXIE or PIXIE PLUS app.

- **Latch mode** - The product will trigger a control event in the PIXIE system when it receives an "open-latch" or "close-latch" signal.
- **Pulse mode** - The product will trigger a control event in the PIXIE system when it receives a pre-defined dry contact pulse signal.

LED indicator: LED **indicator colour is white** when the product is new or has been reset, LED **indicator colour is amber** when operating in "Latch" mode, the LED **indicator colour is green** when operating in "Pulse" mode.

Set Button Operation

Operation	Function Description	LED Indicator	Remark
1 click or long press	Depends upon the program result	High brightness when pressed, low brightness when on standby	Simulates the dry contact signal input and tests how it operates for commissioning purposes.
4 clicks	Enter paring mode	Quickly flash blue and white for 10 seconds	When programming in the PIXIE or PIXIE Plus apps, to save the settings, the customer will be required to quickly click the set button 4 consecutive times.
9 clicks	Reset the whole product to factory default	Flash white and blue for 3 seconds, then remains white	This operation will reset the product to factory default. LED indicator remains white when successfully reset.

Scan QR code or go to App store (IOS) or Google Play (Android) to download the free PIXIE app to your smart phone. IOS: Requires IOS 6.0 or later. Compatible with iPhone, iPad and iPad touch Android: Requires Android 4.4 or above, devices must support Bluetooth 4.0
Specifications above are for reference only and may vary without prior notice

PIXIE PIXIE PLUS Download on the App Store Google play

13. **Warranty** – In accordance with SAL's standard terms and conditions of sale, SAL warrant this product to be free from defects in materials and or workmanship for a period as stated below for goods not subject to incorrect installation, maintenance, operation, mishandling, environmental, unauthorised modifications or electrical operating conditions outside the nominated product specification as detailed in these installation instructions. The benefits to you given by this warranty are in addition to other rights and remedies you have under law. Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Warranty term – Residential usage (12) months, Commercial usage (12) months and Lithium batteries where supplied (24) months from date of purchase. For New Zealand, please refer to www.sal.co.nz for warranty conditions and service.

How to make a claim?

Step # 1 – Within 30 days of the fault discovery, please contact the original place of the SAL product purchase during standard (local) business hours, with the following information **(a)** proof of purchase **(b)** description and quantity of the claimed fault **(c)** address of installation. **(d)** operating hours of the product.

Step # 2 – It is then the responsibility of the original place of product purchase to report the matter to SAL aftersales;

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NZ	- Hamer, 130 Bush Road, Albany, Auckland, 0632	| P # 0800 239 239

Step # 3 - Upon review of your claim and if the product is required to be returned to SAL for technical evaluation, then at the owners expense the product must be returned to SAL as per the above nominated locations.

Step # 4 - Pending the evaluation, the claim will be validated resulting in the product being repaired or replaced with the same or best equivalent product at the discretion of SAL, or rejected if the product fault was found to be caused by conditions beyond the responsibility of SAL warranty obligations. Consideration of installation, product removal, return freight and or testing fees are not the responsibility of SAL.

100% AUSTRALIAN OWNED AND OPERATED

IMPORTANT: IN THE INTEREST OF PRODUCT PERFORMANCE AND SAFETY PLEASE READ THESE INSTALLATION AND WARRANTY INSTRUCTIONS BEFORE INSTALLING THE PRODUCT.

MUST BE INSTALLED BY A LICENSED ELECTRICIAN

SAL products are designed in accordance with all mandatory International and AS/NZS Standards, which require installation in accordance with AS/NZS3000 by a qualified installer and regular cleaning and maintenance of the equipment. Products are sold in accordance with the following instructions and SAL standard terms and conditions of sale, available via www.sal.net.au.

Due to continued product and information updates, product data sourced from sal.net.au shall not form part of any contract and or technical performance guarantee unless expressly confirmed in writing by SAL at the time of order.

PIXIE Dual Relay Control PC206DR/R/BTAM electrical and installation specification effective 28/9/2020.

Model No.	Input (V)/(Hz)	Output Relay Rating	Mass (g)	Dimensions L x W x H (mm)
PC206DR/R/BTAM	240/50	6A per channel (2 channels)	75	110 x 40 x 26

Operating ambient min/max (°C)	0 to 40	Storage ambient limit (°C)	0 to 60
Operating humidity	10% to 85% RH, NC	Storage humidity	+10% to 85% RH
Product application	Interior residential		
Product installation orientation	As per wiring diagram		
PIXIE connectivity	Yes		
Termination of the product must be made in accordance with the IP rating. Product IP rating – IP20			

Introduction: This product is designed with two relays to generate two channel **dry contact signal outputs**, which as an example is ideal for controlling blinds and garage door functions.

General product application requirements (if applicable):

1. **CCT and POWER selections (where supplied)** – IMPORTANT, where CCT colour temperature or POWER selection switching is provided, it is important to switch OFF the power before the selection is made, otherwise equipment damage may occur.

2. **Recycling** – SAL encourages recycling, please consider the environment when disposing of packaging, batteries & components.

3. **Switching or test intervals** – For optimum product performance, good design practice does not encourage 24/7 operation of lighting products without the provision of a routine switching or regulatory test cycle. As a guide for continual operation installations, a twelve (12) hour duration for Industrial and Commercial applications and a six (6) hour duration for Residential applications should be considered.

4. **Product maintenance** – In line with the relevant design standards and to protect your investment, it is important to have in place a routine cleaning program that reflects the installation environment and maintains the product in a clean and functional condition.

IMPORTANT - The supply must be isolated before any product maintenance or cleaning is conducted. In addition, damage to ANY cable or cord supplied with the product must be addressed as follows; For attachment type X having a specially prepared cable, if the external flexible cable is damaged, it must be replaced by an equivalent cable exclusively available from the manufacturer or authorised installer. For attachment type Y, if the external flexible cable is damaged, it must be exclusively replaced by an equivalent cable by the manufacturer or authorised installer. For attachment type Z, if the external flexible cable is damaged, the cable cannot be replaced and the luminaire must be destroyed.

5. **Adverse, corrosive and coastal installation environments** – Unless the product is specifically designated for such applications in these installation instructions, which is supported by a professional maintenance program; installation of equipment in such environments is not recommended.

6. **Dimming products** – Dimming circuits and product compatibility must be validated by the installer before installation; SAL cannot be responsible for third party changes in dimmer compatibility.

7. **Suspended products** – For installation safety, any suspended products must NOT be installed in high air movement spaces or locations subject to impact.

8. **Light source replacements** – (Non-replaceable light sources) - The light source of the product is deemed not replaceable, when the product reaches its end of life the complete product, it must be replaced by a qualified installer. (Non-user replaceable light sources) - The light source of the product must only be replaced by the manufacturer or qualified installer. **Caution, risk of electric shock.**

9. **Interior downlights and sensors with remote drivers and electrical accessories** – The mounting facilities provided for the transformer/driver (if any), need only be utilized if in the application of the product is required by AS3000. Drivers are not designed for installation environments that restrict conventional airflow.

10. **Floodlight products** – Unless nominated aiming restrictions or installation parameters apply, products are designed for installation environments between ground and 15 metres in height, subject to the desired optical performance being achieved.?

11. **Emergency enabled products** – In the interest of transport and safety, emergency products are supplied with the battery disconnected. In addition to specific emergency commissioning instructions, this battery MUST be connected at the time of installation.

12. **Specific installation procedures** (if any) - this device must be installed by a licensed electrician:

Operations:

LED indicator: LED **indicator colour is white** when the product is new or has been reset; LED **indicator colour is blue** when product is added to a network; LED **indicator** is **low brightness** when **the relay is open**, and is **full brightness** when the relay is closed.

Buttons and terminals:

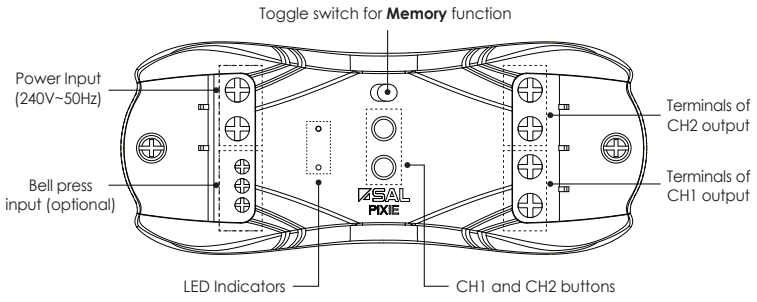

Figure 1

Wiring diagram (Typical application)

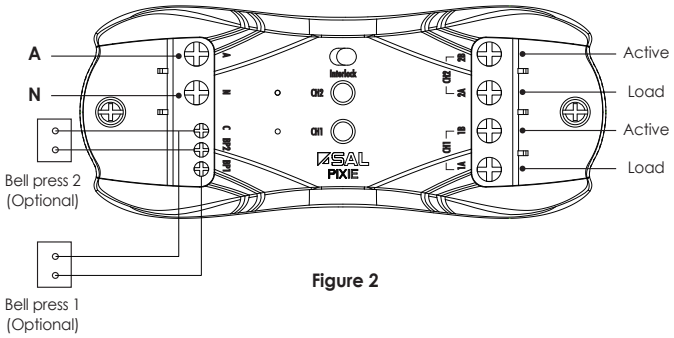

Figure 2

Button Operation

Operation	Function Description	LED Indicator	Remark
1 click	Toggle relay close/open	High brightness when the relay is closed, low brightness when the relay is open	The relay is normally open
4 clicks	Correspondent channel enters paring mode	Quickly flash blue and white for 30 seconds	This function is used to pair a slave device like PIXIE multifunction control (model No. SMF/BT), or PIXIE multifunction remote control (model No. SMC/BT) with , to achieve remote control. After a successful pairing, pairing mode will end. Pressing any button on this product during pairing mode will cancel pairing mode.
9 clicks	Reset whole product to factory default	Flash white and blue for 3 seconds, then stay white	This operation will reset the product to factory default. LED indicators stay white when successfully reset.

Bell Press Operation - This is an optional function where the user can wire a bell press (momentary switches) as per **Figure 2**, the operations of bell press are:

Operation	Function Description	LED Indicator	Remark
1 click	Toggle relay close/open	High brightness when the relay is closed, low brightness when the relay is open	The relay is normally open

Memory Function (Toggle switch)

Left (Memory function off)	Right (Memory function On)
Set the Memory to OFF, when the supply is terminated and resupplied, both relays will stay at open.	Set the Memory to ON, when the supply is terminated and resupplied, both outputs will restore to the state before the outage.

Scan QR code or go to App store (IOS) or Google Play (Android) to download the free PIXIE app to your smart phone. IOS: Requires IOS 6.0 or later. Compatible with iPhone, iPad and iPad touch Android: Requires Android 4.4 or above, devices must support Bluetooth 4.0
Specifications above are for reference only and may vary without prior notice

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13. **Warranty** – In accordance with SAL's standard terms and conditions of sale, SAL warrant this product to be free from defects in materials and or workmanship for a period as stated below for goods not subject to incorrect installation, maintenance, operation, mishandling, environmental, unauthorised modifications or electrical operating conditions outside the nominated product specification as detailed in these installation instructions. The benefits to you given by this warranty are in addition to other rights and remedies you have under law. Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Warranty term – Residential usage (12) months, Commercial usage (12) months and Lithium batteries where supplied (24) months from date of purchase. For New Zealand, please refer to www.sal.co.nz for warranty conditions and service.

How to make a claim?

Step # 1 – Within 30 days of the fault discovery, please contact the original place of the SAL product purchase during standard (local) business hours, with the following information **(a)** proof of purchase **(b)** description and quantity of the claimed fault **(c)** address of installation. **(d)** operating hours of the product.

Step # 2 – It is then the responsibility of the original place of product purchase to report the matter to SAL aftersales;

NSW | ACT	- SAL National Pty Ltd, 40 Biloela Street Villawood NSW 2163	| P # 02 9723 3099
QLD	- SAL National Pty Ltd, 36 Whitelaw Place Richlands QLD 4077	| P # 07 3879 5999
VICT | TAS | SA | NT	- SAL National Pty Ltd, 46-48 Keys Road Moorabbin Victoria 3189	| P # 03 9532 3168
WA	- SAL National Pty Ltd, 29 Beringarra Av Malaga WA 6090	| P # 08 9248 7458
NZ	- Hamer, 130 Bush Road, Albany, Auckland, 0632	| P # 0800 239 239

Step # 3 - Upon review of your claim and if the product is required to be returned to SAL for technical evaluation, then at the owners expense the product must be returned to SAL as per the above nominated locations.

Step # 4 - Pending the evaluation, the claim will be validated resulting in the product being repaired or replaced with the same or best equivalent product at the discretion of SAL, or rejected if the product fault was found to be caused by conditions beyond the responsibility of SAL warranty obligations. Consideration of installation, product removal, return freight and or testing fees are not the responsibility of SAL.

100% AUSTRALIAN OWNED AND OPERATED