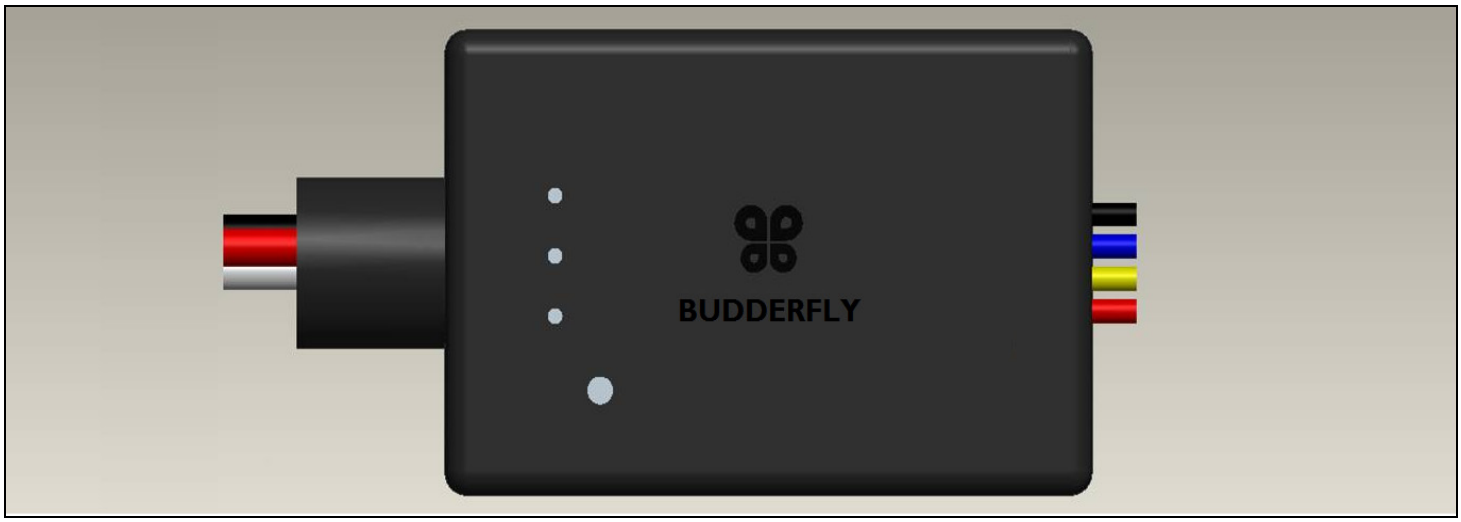
POWER PACK

Part No C0021031

Provides Low Voltage Power And Line Voltage Control For Third Party Occupancy Sensors



Description

Installing a Budderfly adapter transforms your building's existing wiring into the "Budderfly Open Network" and allows the adapter to monitor energy consumption and communicate the data to a facility controller.
Budderfly adaptors will use the existing power line for communication and thus require no re-wiring.
Using our Budderfly software, you can visualize consumption data and manage each individual adapter.

The Budderfly Power Pack is a component of the Budderfly system and designed to work with all other Budderfly devices. It is a plug-and-play replacement for your existing Power Pack. Once installed, the Budderfly devices also act as repeaters to extend the range of the network and increase efficiency.

The Budderfly Power Pack is intended to provide power supply for third party occupancy sensors through its isolated 12VDC and 24VDC outputs. It will also detect input signals from the occupancy sensors in the range of (10VDC~30VDC) and will drive loads up to 20A on 277VAC.

Whenever occupancy is detected, the occupancy sensors signal the Budderfly Power Pack to turn ON the lighting loads; after 15 seconds of no-occupancy detected state the Budderfly Power Pack automatically turns OFF the lighting loads.

⚠ WARNING –ELECTRICAL SHOCK HAZARD

- The Budderfly Power Pack is intended for installation in accordance with the National Electric Code and local regulations in the United States.
- If you are not knowledgeable or comfortable with electrical circuitry, you should have a qualified electrician to install the Budderfly Power Pack for you.

⚠ Warning

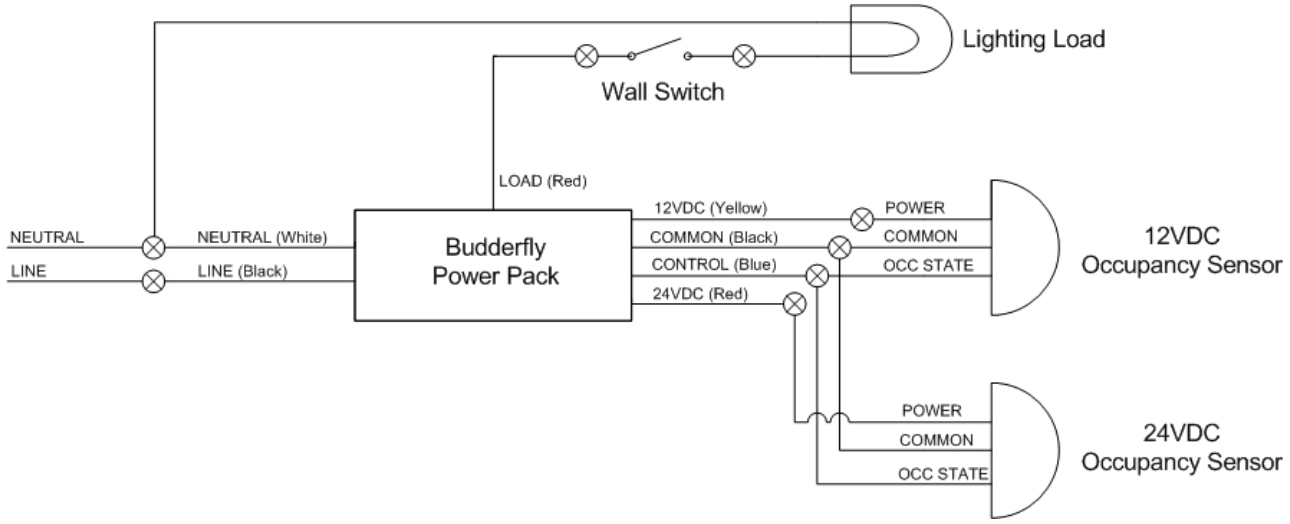
RISK OF FIRE
RISK OF ELECTRICAL SHOCK
RISK OF BURNS

Exercise extreme caution when using Budderfly devices to control appliances.
To avoid the risk of Fire, Electrical Shock, Burns or other hazards we recommend the following:

- Install the Budderfly devices indoor only.
- Never use the Budderfly devices to control medical and/or life support equipment.
- Do not use the Budderfly devices to control electric heaters or any other appliances which may present a hazardous condition due to unattended or unintentional power on control.
- Never use the Budderfly devices with loads that exceed the maximum rating specified.

Installation

The Budderfly Power Pack may be used in new installations or to replace an existing Power Pack. It is intended to be used with the different types of the available occupancy sensors.
Whether it's being used in new installations or to replace an existing Power Pack, the Budderfly Power Pack conveniently mounts into a knockout hole of a standard junction box. The unit can be placed inside or outside the junction box with a simple twist-on nut.
The wiring schematic will be as per the below (installing a wall switch in series with load, as shown below, is optional):



⚠ WARNING –ELECTRICAL SHOCK HAZARD

- Turn OFF the power to the branch circuit for the device and lighting fixture at the service panel.
- All wiring connections must be made with the POWER OFF to avoid personal injury and/or damage to the device.

1. At the circuit breaker or fuse panel, disconnect the power for all of the circuits in the device junction box.
2. ***Double Check that the power is OFF to the device box before continuing by trying to turn on the controlled load using the wall switch.***
3. Unscrew the cover of the junction box where the Budderfly Power Pack will be installed, and remove the existing power pack (in case you are replacing an existing Power Pack).
4. Follow the Wiring information provided below to connect the wires as follows:
    - Connect the LOAD wire (usually Black) that goes to the light to the LOAD wire of Budderfly Power Pack (Red).
    - Connect the LINE wire (usually Black) that comes from the electrical service panel to the HOT wire of Budderfly Power Pack (Black).
    - Connect the NEUTRAL wire (usually White) to the Neutral wire of Budderfly Power Pack(White).
    - *In order to test the Budderfly Power Pack, with no occupancy sensors connected, connect the 24VDC (Red) low-voltage output to the CONTROL wire of the Budderfly Power Pack (Blue). The lights should turn ON. Disconnect the wires, and the lights should turn OFF after 15 seconds*.
    - Connect the POWER INPUT wire of the occupancy sensor (usually Red) to either the 12VDC (Yellow) or the 24VDC (Red) low-voltage output of the Budderfly Power Pack; in correspondence with the ratings of the installed occupancy sensor.
    - In case one of the low-voltage wires is not used (12VDC or 24VDC wire), make sure that the copper (of the unconnected wire) is not exposed by covering it with a screw nut.
    - Connect the COMMON wire (usually Black) of the occupancy sensor to the COMMON wire of the Budderfly Power Pack (Black)
    - Connect the Occupancy State (Control)wire of the occupancy sensor (usually White/Grey) to the CONTROL wire of the Budderfly Power Pack (Blue)
5. After you have connected all of the wires, ensure that all of the wire connectors are firmly attached and that there is no exposed copper.
6. Mount the Budderfly Power Pack to the knockout hole inside the junction box, and reinstall the cover.
7. Enable power to the Budderfly Power Pack from the circuit breaker or fuse panel.
8. *After the Power LED comes on, you can test the Budderfly Power Pack if it is working properly with the sensor, by making interrupted movements in the area covered by the sensor; the lights should turn and stay ON (as long as there is a movement detected in the area) and turn OFF (after 15 seconds without any detecting any movement).*
9. Add the device address to the Budderfly web application.
10. Wiring designations:

Signal Type	Color	Gauge
Line Voltage Wires		
Line	White	12AWG
Neutral	Black	12AWG
Load	Red	12AWG
Low Voltage Wires		
24VDC (Power)	Red	16AWG
12VDC (Power)	Yellow	16AWG
Control	Blue	16AWG
Common	Black	16AWG

Wiring Information

- **Important**: Budderfly devices are rated for and intended to only be used with copper wire.
- Use wire gauges as mentioned in the table above.
- Remove 3/4" (1.9 cm) of insulation from each wire.
- Connect as follows: Twist strands of each end tightly together. Hold bare ends of wires together and push firmly into wire Nut. Screw Nut clockwise making sure that no bare conductor shows below the connector.

Features

- Isolated Internal voltage regulators – Regulated 12VDC and 24VDC sources;1.44W total output
- Fast installation – Mounts to a knockout hole with a twist-on nut inside or outside a junction box or a ballast cavity
- Size (1/2 inch chase nipple not included): 1.7" X 2.29" X 3.47" (43mm X 58mm X 88mm)
- Ability to control up to 20A lighting loads based on the state of occupancy state (control) input
- Ability to create a group of devices
- Ability to monitor power consumption
- LED indicators to show the state of the device

Principle of Operation:

- The Budderfly Power Pack has two modes of operation: Automatic Mode, and Non-Automatic Mode
- Automatic Mode: (Default mode on start-up)
    - Loads are controlled by the occupancy state
    - Receiving an "*ON"* / "*OFF"* command in this mode will turn the loads On / Off respectively; and cause the Power Pack to switch to Non-Automatic Mode
    - Receiving an *"ON"* / "*OFF"* group command in this mode has no effect
    - Receiving an "*Enable Automatic Mode"* command in this mode has no effect
- Non-Automatic Mode:
    - Loads are controlled by commands from the facility controller
    - Receiving an "*ON"* / "*OFF"* command in this mode will turn the loads On / Off respectively
    - Receiving an "*ON"* / "*OFF"* group command in this mode will turn the loads On / Off respectively
    - Receiving an "*Enable Automatic Mode"* command in this mode will cause the Power Pack to switch to Automatic Mode
- The Budderfly software will inform you that the action was successful. In case the action failed, please repeat the procedure

Device Grouping:

- Using the Budderfly web application, it is possible to create a Group of devices that can be controlled remotely simultaneously with just one click.
- Budderfly devices can join/disjoin groups at any time.

Power consumption:

Budderfly devices will measure the current, the voltage and the power consumed by the connected load, and will store the minimum, maximum and average data for the past 7 days.
The data can be accessed at any time thru the Budderfly software. The user can generate reports, monitor the consumption or check expenses.

LED Indicators:

The Budderfly devices are equipped with 2 LEDs that will indicate the state of the device.

- <u>Power LED:</u>
    - Color: Red
    - State:
        - Off: Budderfly device is not powered.
        - On: Budderfly device is powered and can be controlled remotely.

- <u>Group LED:</u>
    - Color: Green
    - State:
        - Off: Budderfly device is not member of a group.
        - On: Budderfly device is member of a group.
        - Blinking: Budderfly device is joining a group (Blinking state duration is less than 1 second).

- <u>Occupancy Detected LED:</u>
    - Color: Blue
    - State:
        - Off: Occupancy is not detected.
        - On: Occupancy is detected.

Reset:
If the device stops responding, it can be restarted by pushing the Reset Button. A non-metallic pin should be used to push the reset button.
None of the stored parameters are affected.

> ⚠ **WARNING –ELECTRICAL SHOCK HAZARD**
>
> - Use only the plastic (non-metallic) pin provided with the device to press the reset button.
> - Never use a metallic pin to press the reset button.

Communication:

The Budderfly devices use the power line to communicate with the "Facility Controller".
The devices can reply to the following commands:

- Direct Turn On/Off command: The device will turn the connected load On/Off.
- Join/Disjoin group "X": The device will Join/Disjoin the group"X". Each device can be member of several groups at the same time.
- Group Turn On/Off: All Budderfly devices that are members of the same group can be controlled remotely with one click.
- Direct RTC synchronization: The device can receive a command to synchronize its "Real Time Clock"
- Get Actual Measurement: When the device receives a "Get Measurement" command, it will send back to the facility controller a string of data that contains:
    - The Current in Ampere "A".
    - The Power in Watt "W".
    - A Timestamp.
- Get Stored Measurement: The device will send back to the Facility Controller the stored electrical measurements.
- Direct Reset Commands: The device can receive 3 types of reset commands:
    - Hard Reset: This command will restart the device without affecting any stored parameter.
    - Data Reset: This command will erase all the measurement and RTC data stored in the non-volatile memory.
    - Group Reset: This command will remove the device from all joined groups.
- Group Reset Commands: The above reset commands can be directed to a group of devices instead of just one device.

Warranty:

Budderfly LLC warrants to the original consumer purchaser and not for the benefit of anyone else that this product at the time of its sale by Budderfly is free of defects in material and workmanship under normal and proper use for a period of three (3) years from date of delivery to you. Budderfly's only obligation is to correct such defects by repair or replacement, at its option, if within such three year period the product is returned prepaid via Budderfly's Returned Materials Authorization (RMA) process to **Budderfly LLC, Att: Quality Assurance Department, 4 Corporate Drive, Suite 387, Shelton, CT 06484.** In no case is product to be returned without first obtaining an RMA.
This warranty excludes and there is disclaimed liability for labor for removal of this product or reinstallation. This warranty is void if this product is installed improperly or in an improper environment, overloaded, misused, opened, abused, or altered in any manner, or is not used under normal operating conditions or not in accordance with any labels or instructions. **There are no other or implied warranties of any kind, including merchantability and fitness for a particular purpose**, but if any implied warranty is required by the applicable jurisdiction, the duration of any such implied warranty is required by the applicable jurisdiction, the duration of any such implied warranty, including merchantability and fitness for a particular purpose, is limited to three years. **Budderfly is not liable for incidental, indirect, special, or consequential damages, including without limitation, damage to, or loss of use of, any equipment, lost sales or profits or delay or failure to perform this warranty obligation**. **Budderfly's liability on any claim for damages arising out of in connection with the manufacture, sales, installation delivery, or use of the product shall never exceed the purchase price of the product.** The remedies provided herein are the exclusive remedies under this warranty, whether based on contract, tort or otherwise.

Specifications:
Power: 120V - 277V AC/ 60Hz
Maximum Relay Load Ratings:

- 120VAC:
  - 20A Standard Ballast
  - 16A Electronic Ballast
  - 20FLA, 120LRA Motor Load
- 240VAC:
  - 17FLA, 102LRA Motor Load
  - 5000 W Tungsten
- 277VAC:
  - 20A Standard Ballast
  - 16A Electronic Ballast
  - 14FLA, 84LRA Motor Load

Operating Temperature: 0°C to +40°C
Certification: UL certification is in progress
For indoor use only

Specifications subject to change without notice due to continuing product improvement.

⚠ WARNING

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

FCC Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1) This device may not cause harmful interference and
2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

FCC ID: QCVC0021031

Made in China