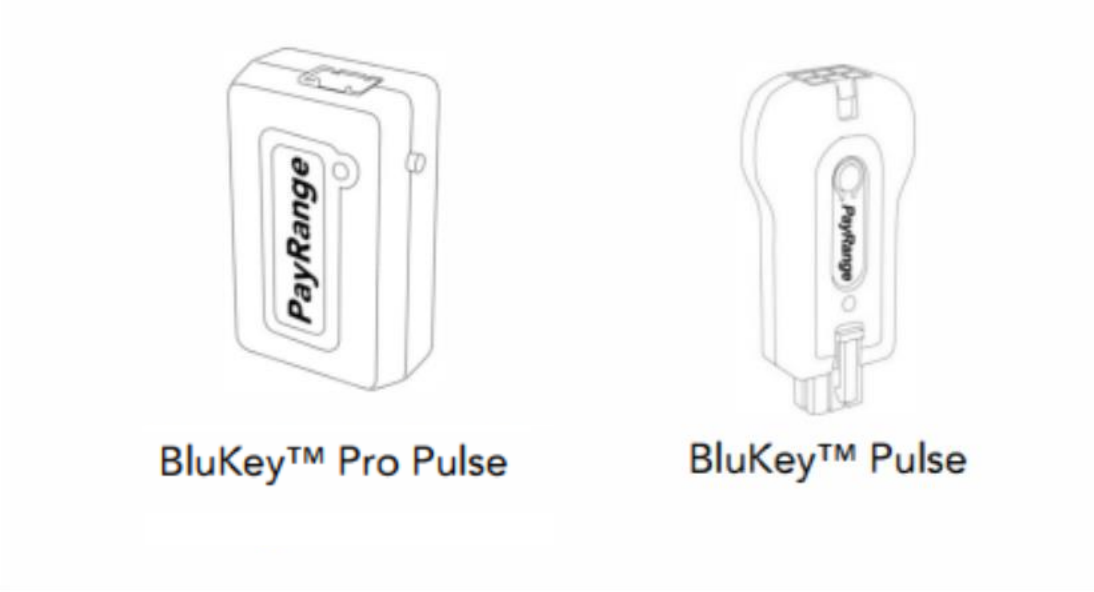
IPSO (Relay Harness)

BluKey Pulse Protocol

Installation Manual



Pre-Installation Requirements

- **Installer Connectivity:** For BluKey registration, confirm your smartphone has a stable internet connection (Wi-Fi or cellular data) to use the PayRange App.
    - PayRange service requires data connection on a user's mobile device.
- **Required PayRange Hardware**: Verify you have the correct harnesses and sufficient BluKey devices on hand to complete installations on all machines at the location.
- **Required Tools:** Ensure you have a pair of pliers to properly crimp the Scotchlok™ tap connectors.

Figure 1

Machine Out of Order

- If the machine has **power**, register and connect to the BluKey and harness as usual.
- If the machine has **no power**, use another machine to power and register the BluKey. Use the Machine ID, position number, and harness type for the out-of-order machine
- Leave the registered BluKey in the first machine. Once the broken machine is repaired or replaced, retrieve the device and install it in the correct machine.

Figure 2

BluKey Configuration Steps

Pulse Mode: Use this mode when the machine is configured to accept coins or pulse signals from a coin mechanism. Pulse Mode installations are supported with either BluKey model: **BluKey Pro** or **BluKey Pulse**.

Note: To be compatible with the PayRange **Relay Module**, the machine **must use** a pulse-type **coin acceptor**. The Relay Module cannot interface with serial or MDB coin acceptors.

BluKey Pro Model:

- Connect the BluKey Pro to the Relay harness (***Figure 3***).

Figure 3

BluKey Pulse Model:

- Connect BluKey Pulse to the Interface Module.
- Connect Relay Harness to the other end of the Interface Module (See ***Figure 4***)

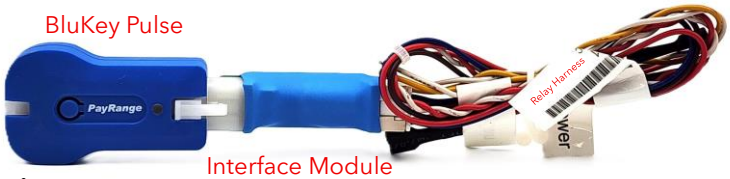


Figure 4

Configure the Laundry Interface Module for BluKey Pulse Module Only:

Important: The interface module switches must be set to match the machine's settings and programming. Incorrect switch settings may cause the BluKey to be incompatible or behave unpredictably.

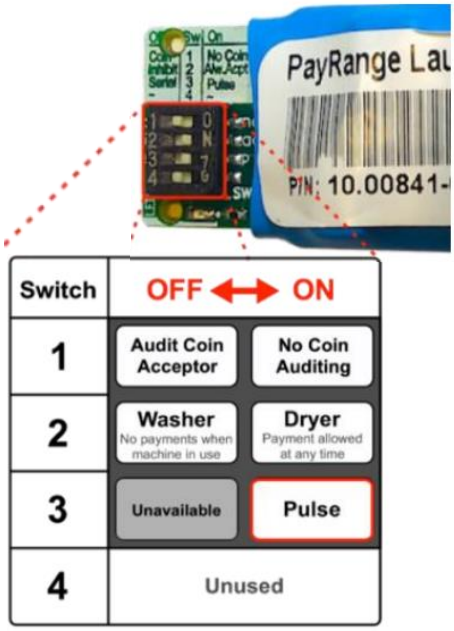


Figure 5

Switch 1:

- **OFF**-BluKey's 12-pin Coin Connector will be used to audit coins.
- **ON**-Machine does not accept coins, or the coin audit function will not be used.

Switch 2:

- **OFF**- Used for Washers. Payment will be disabled when the machine is in use.
- **ON**- Used for Dryers. Payment is always allowed for top-off transactions. Set to OFF to disable top off transactions

Switch 3:

- Set to **ON** for all machines to accept BluKey Pulse.

Switch 4:

- Unused

Prepare the Machine

1. If not already completed:
    a. **Connect** the **BluKey** to the harness.
    b. Remove the top machine cover, see ***Figure 6***.

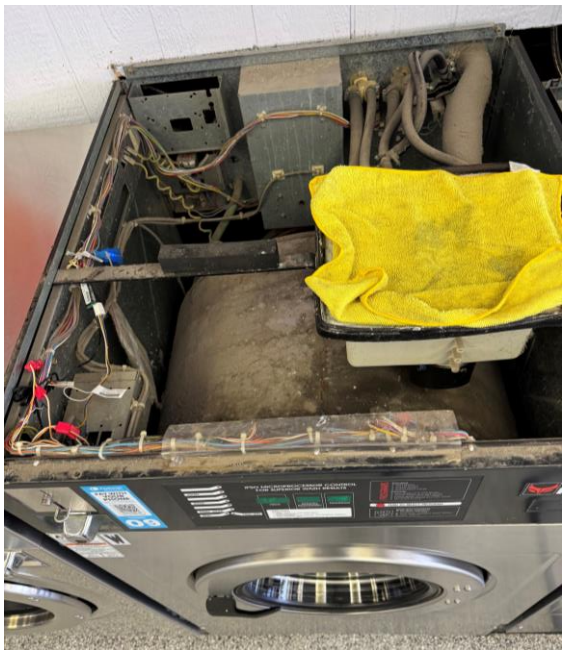


Figure 6

Instructions for Using 3M™ Scotchlok™ IDC Tap Connectors

Tap connectors allow a splice to be made at any point along a wire. Each connector contains a metal insulation-displacement contact (IDC) with two slots, one for the main wire and one for the tap wire. When crimped, the IDC pierces the wire insulation, allowing direct contact with the conductive strands and creating a secure electrical connection between the two wires.

1. Pull the metal brace partially out of the red plastic housing until there is enough clearance to fully insert the wires. Do not fully remove the metal brace, as reinserting it into the red plastic housing may be difficult.

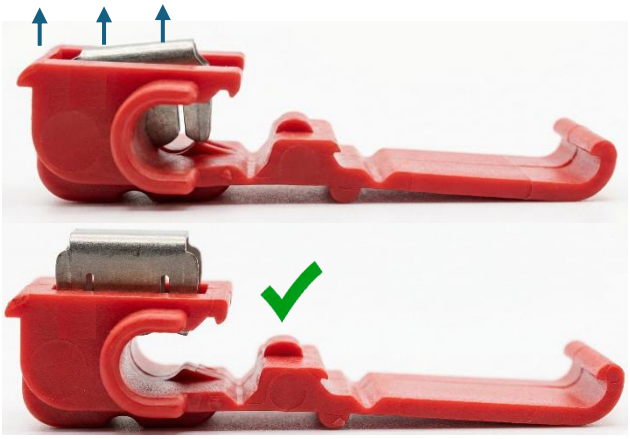


Figure 7

2. Insert the machine wire into the pass-through side of the connector.

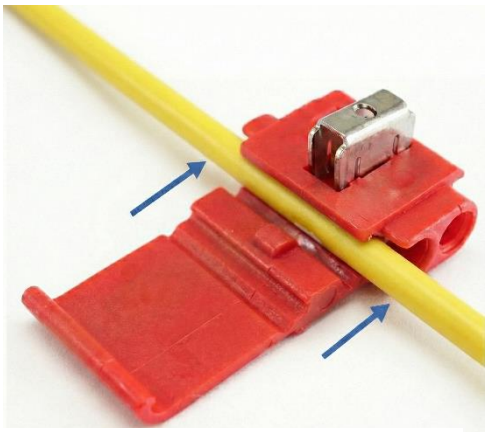


Figure 8

3. Fold the first tab section closed.

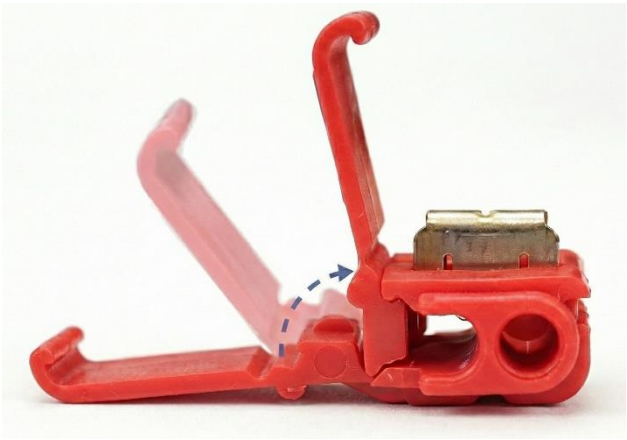


Figure 9

4. Insert one of the input wires from the Relay Harness kit based on the action being performed, either connecting to power or a coin acceptor. Refer to the sections below for specific instructions before proceeding.

Figure 10

5. Crimp the metal brace fully until it is flush with the plastic housing of the connector. Crimp from the center to ensure the brace seats straight and evenly.

Figure 11

Figure 12

6. Close the cover and apply firm pressure until it snaps securely into place.

7. Gently tug on the wires to verify they cannot be pulled out.

Figure 13

Connect Power to the RelayModule

The Relay Module includes a power adapter for either low or high voltage connection. Do not modify the power connector or use a non-PayRange power adapter. A label may be present on the machine's power transformer that can help identify the voltages present. The power transformer may have both low and high voltage sides, each with associated wiring. Always verify you are connecting to the correct wires by using a voltmeter before making any connections.

Supported Input Ranges:

1. Low Voltage: 20–36 VAC/VDC

2. High Voltage: 100–240 VAC

Figure 14

Figure 15

1. Using the machine wiring diagram and voltmeter, locate a constant power source within the **Supported Input Ranges,** depending on the power supply provided in the kit.
    - Refer to ***Figure 17*** for an example of the high voltage power location. Please note that machine layouts may vary by model.

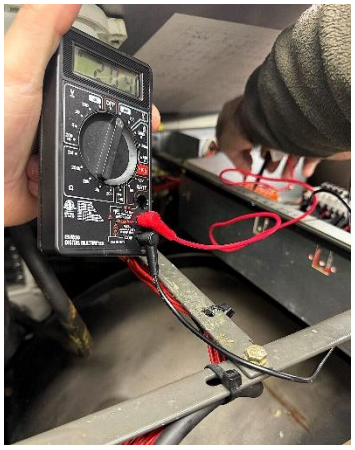


Figure 16

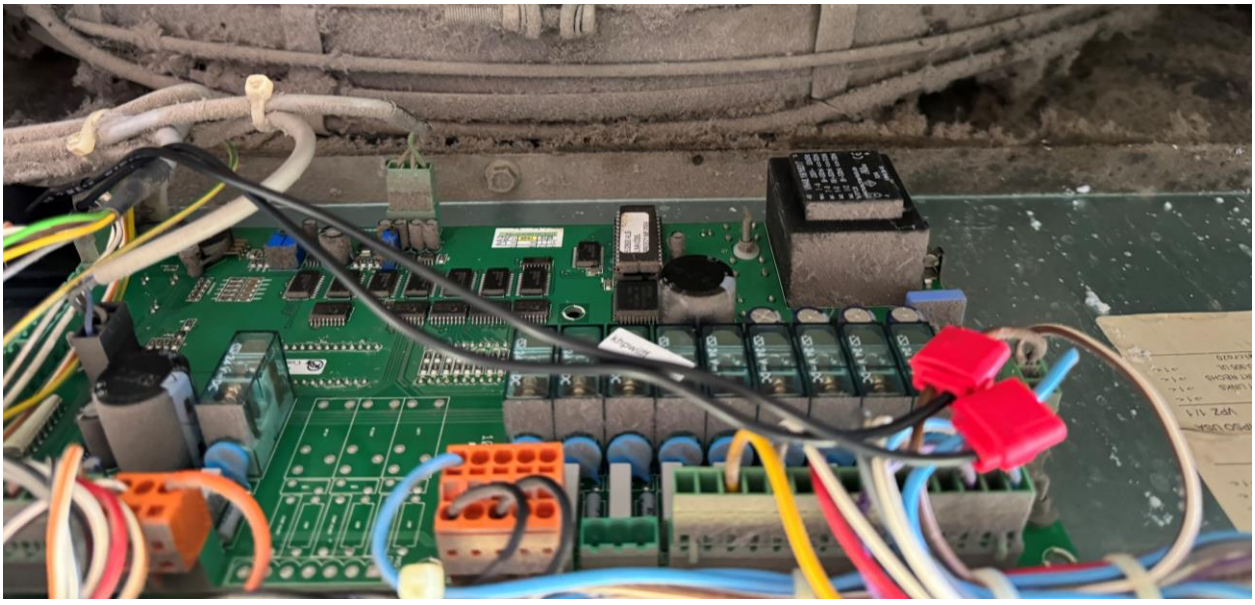


Figure17: Control board is located against the front panel of the machine.

2. **Disconnect Machine Power:** Completely disconnect power by unplugging the unit or switching off the circuit breaker.
    - **!WARNING**: **Electrical Safety**. The next steps in the installation involve splicing into existing electrical wiring. Failure to disconnect power may result in injury or equipment damage.

3. **Connect First Power Wire:** Using a Red Scotchlok™ connector, splice one input wire from the PayRange power adapter to one of the machine's main power supply wires.
    - Refer to the "***Instructions for Using 3M™ Scotchlok™ IDC Tap Connectors***" section above for detailed crimping instructions.

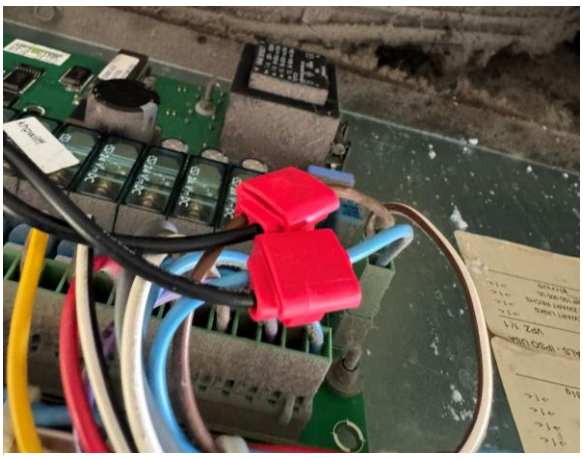


Figure 18

4. **Connect Second Power Wire:** Using a second Scotchlok™ connector, splice the remaining input wire from the PayRange power adapter to the remaining machine power supply wire.

5. Plug the adapter into the RelayModule DC jack.

Identifying the Coin Acceptor & Connecting the Harness

There are four possible types of coin acceptors. Before proceeding, it is important to locate the coin mechanism and determine which type the machine is equipped with.

Optical Sensor: This mechanism accepts one coin at a time, which drops from the chute through an optical sensor opening. These units typically feature three or four wire leads, though some older models may use five.

IPSO machines using an optical sensor mechanism will typically use three wire leads with the wire colors: **Red**, White, and **Black**.

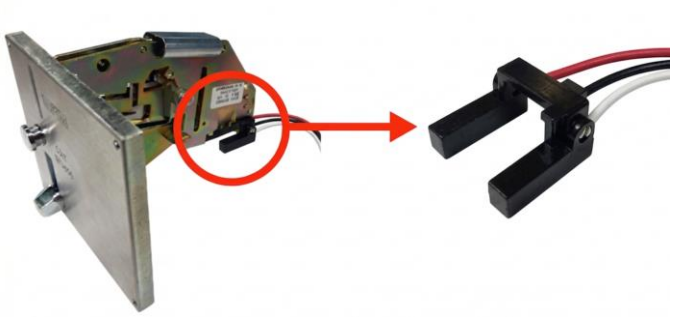


Figure 19

1. Make sure the **power** to the **machine** is **OFF** and un.
2. Cut the White wire from the machine's coin mechanism.
3. Use a Scotchlok to connect the yellow wire (pin 1) from the relay harness to one end of the White cut coin mechanism wire.
4. Use a Scotchlok to connect the white wire (pin 3) from the relay harness to the other end of the cut White wire.
5. Secure the unused blue wire from the relay harness to prevent it from touching any machine components.

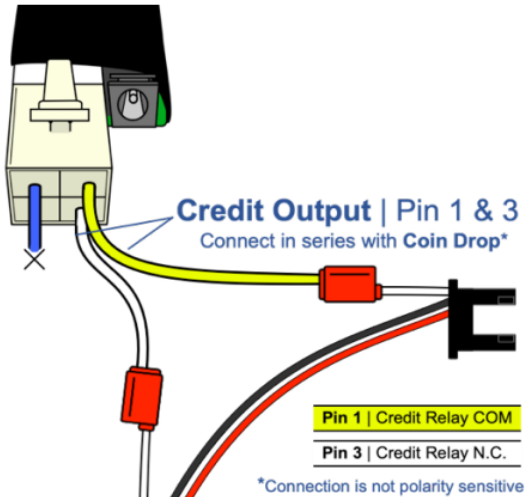


Figure 20

Microswitch: This mechanism accepts one coin at a time. As the coin drops through the chute, it physically strikes a wire lever or actuator to trigger the credit. While the switch has three connection terminals, only two wire leads are connected with no wire colors of significance.

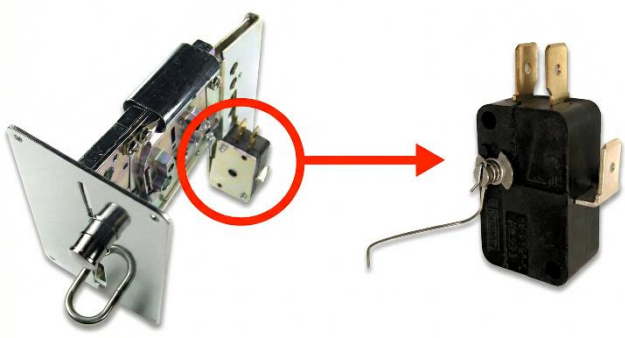


Figure 21

1. Use a Scotchlok to connect the yellow wire (pin 1) from the relay harness to either of the two microswitch wire leads, see ***Figure 22***.
    a. To make it easier to connect the Scotchlok, you may temporarily disconnect the microswitch wire lead plugs to give more leeway.
2. Use a Scotchlok to connect the blue wire (pin 2) from the relay harness to the remaining microswitch wire lead.
3. Secure the unused white wire from the relay harness to prevent it from touching any machine components.

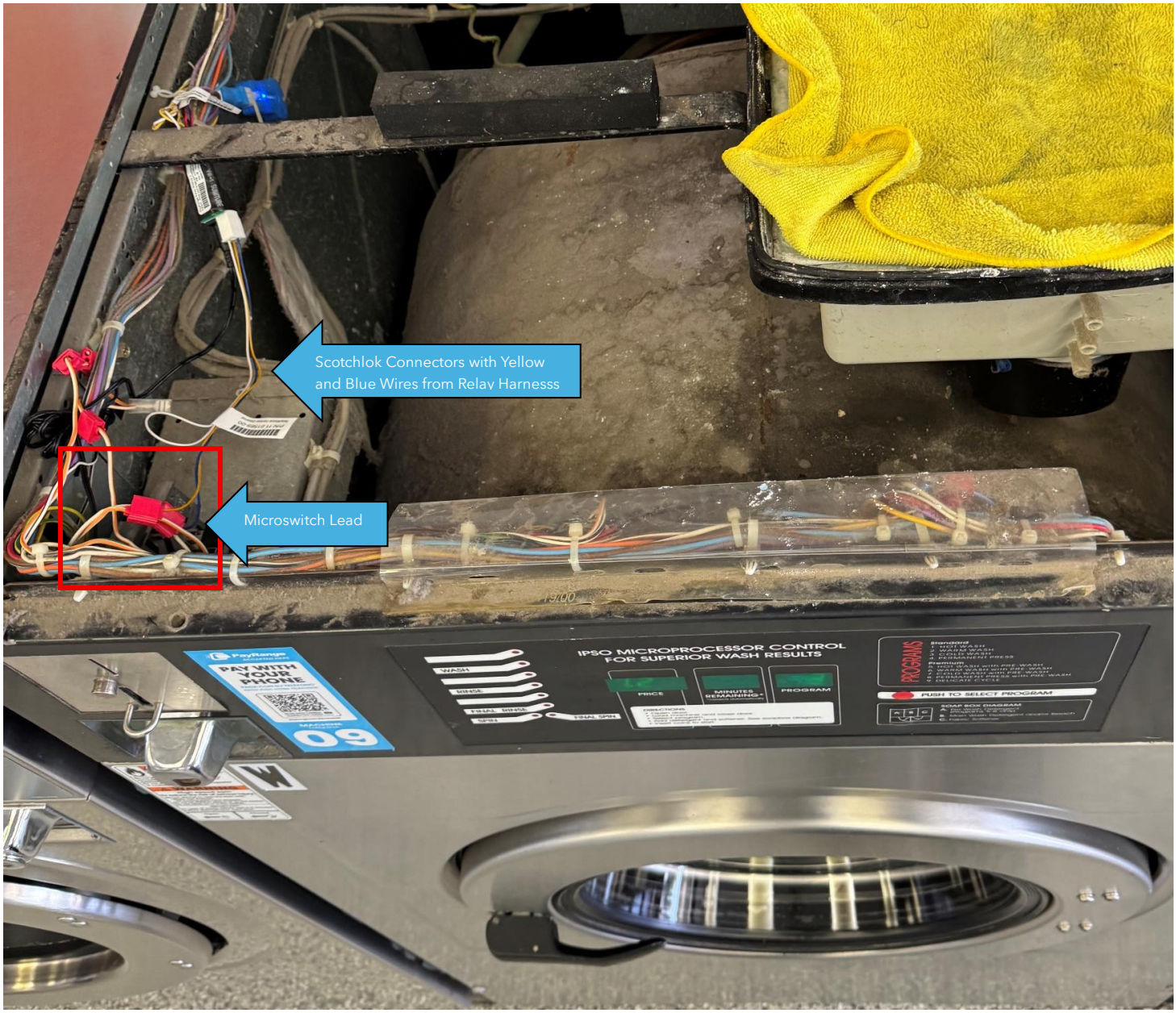

Scotchlok Connectors with Yellow and Blue Wires from Relay Harnesss
Microswitch Lead
IPSO MICROPROCESSOR CONTROL FOR SUPERIOR WASH RESULTS
PAY WITH YOUR PHONE
PROGRAMS
PUSH TO SELECT PROGRAM

Figure 22

Coin Slide: This mechanism accepts multiple coins simultaneously. Coins are placed vertically into the slide tray, which must be pushed fully in to register payment.

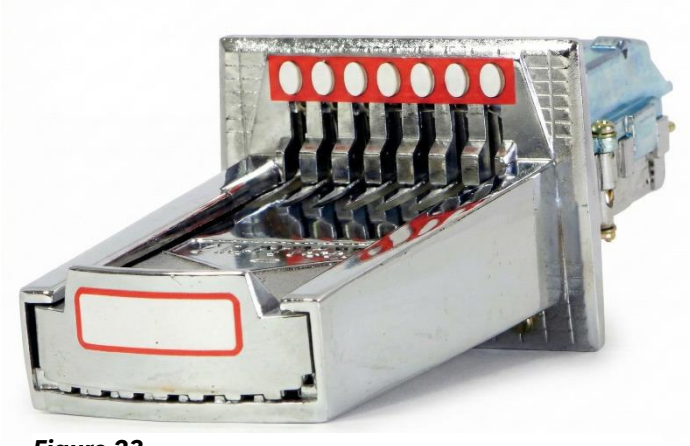


Figure 23

Mechanical timer coin slides are not compatible with the RelayModule harness. Timer type can be verified by looking under the service door.

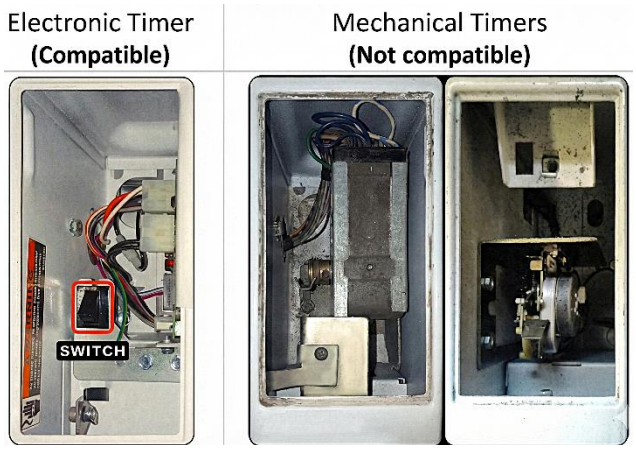


Figure 24

1. Open the coin slide service door to verify it has a compatible Electronic Timer as seen in ***Figure 24.***
    a. Electronic timers typically use a mechanical switch behind the slide; however, some models use an optical sensor.
2. Fish the wiring through the conduit so the PayRange hardware can be placed behind the control panel rather than under the service door, where it could obstruct coin slide movement.
3. Use a Scotchlok to connect the yellow wire (pin 1) from the relay harness to either of the two wire leads from the switch terminal.
    b. To make it easier to connect the Scotchlok, you may temporarily disconnect the switch wire pin to give more leeway.
6. Use a Scotchlok to connect the blue wire (pin 2) from the relay harness to the remaining wire lead from the switch terminal.

7. Secure the unused white wire from the relay harness to prevent it from touching any machine components.

Third-Party: This category encompasses retrofit, aftermarket, and multiple-denomination coin mechanisms. It includes units from manufacturers such as Imonex, Setomatic, and Keltner Research. If you believe the IPSO machine is using an aftermarket coin acceptor, please refer to the PayRange Relay Module Laundry Installation Guide For BluKey Pulse/Pro Pulse Devices.

Secure Wiring and Components

1. Ensure all splices are **secure**.
2. **Route** wiring away from moving parts.
3. **Mount** the RelayModule and BluKey safely inside the control area.
4. **Power on** the machine.

Affixing machine decals

(Refer to the signage/decal placement referance guide for complete placement details)

- Number machines left-to-right and top-to-bottom to make it easier for customers to locate machines.

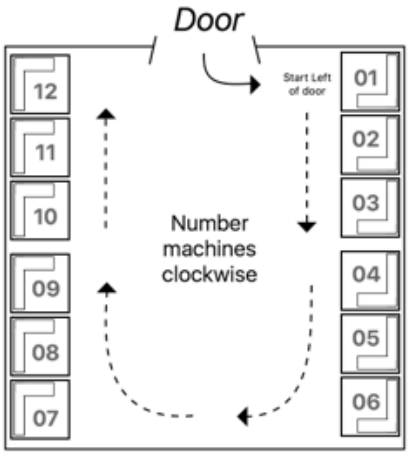


Figure 25

- For stacked machines that require two devices, top machine should be lower number.

Figure 26

Register BluKey with PayRange App.

Refer to the "*Registering the PayRange BluKey*" referance guide for the complete steps for registration.

- Be sure to select the specific harness type during registration, in this case select the **K18-Relay Harness** (see ***Figure 27***).
- Under Protocol, select **Pulse**.

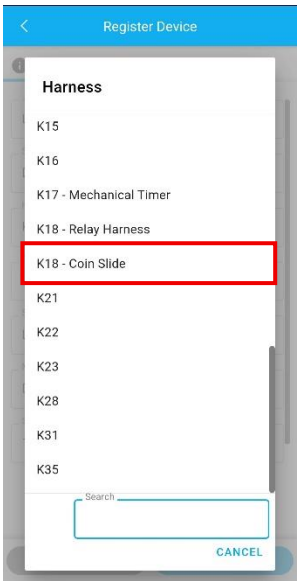


Figure 27

Test Transaction

1. On the main screen in the PayRange App, select the machine you wish to test payment.
2. Slide the **Green** arrow to the right to send a test transaction payment (***Figure 28***).
3. Verify the machine's display shows the PayRange balance or value of free purchase code (***Figure 29***).
4. Depending on the machine type, the cycle may start automatically or may require you to press Start. If the machine does not start automatically, you may cancel the transaction by pressing the X in the PayRange app. Cancelled transactions are not charged to the account.
    - If the test transaction is unsuccessful, refer to the "*PayRange Troubleshooting Guide*".

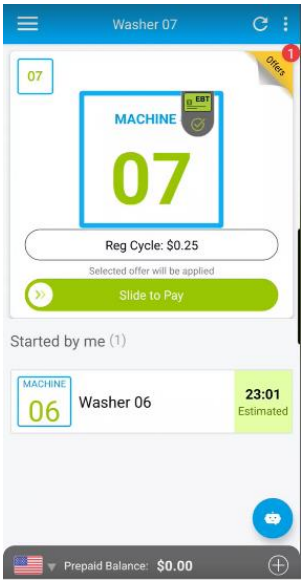


Figure 28

Figure 29

Repeat Steps for All IPSO Machines in the Room.