





BluKey™ Pulse / Pro Pulse RelayModule Laundry Installation Guide

Laundry Relay Module NO/NC



BluKey[™] Pro Pulse

BluKey[™] Pulse

Coin Operated Pulse-Type Equipment







DayRange Laundry SystemBluKey™ PulseLaundry Interface KitCoin-Op MachineImage: Image Colspan="2">Relay Module
w/ HarnessImage Colspan="2">Image Coin-Op MachineImage Colspan="2">Image Colspan="2">Image Coin-Op Mach

BluKey device accepts payment from PayRange mobile app. Laundry Interface Kit (includes Laundry Interface Module and Cable Harnesses) connects BluKey to Laundry Machine and converts electrical signals between them.

Objective

This guide was created to help complete the following steps:

- 1. Install PayRange Laundry Interface Kit and BluKey Pulse device
- 2. Register BluKey using App
- 3. Configure Price and Pulse Settings
- 4. Test Mobile Payment
- 5. Troubleshoot

Tools Required









Smartphone with PayRange App (Android and iOS only)

PayRange Operator Account

Machine Service Key and/or Required Tools for Control Panel Access

- Tongue-and-Groove Pliers (such as CHANNELLOCK)
- Multimeter
- Wire Cutters





Parts Required



Installation Overview

The BluKey (BK) Pulse device can be installed as a cashless, mobile payment option in coin-operated laundry appliances that use a pulse payment system. BK Pulse credits a machine by sending pulses, working the same way as if cash has been inserted. Using the RelayModule Harness Kit, the BluKey device can be connected to the coin acceptor to allow coin pulses to pass through unimpeded, while upgrading your machine to also accept mobile payments. **The machine must have a coin acceptor to be compatible with the PayRange RelayModule.**

Note: Coin acceptor must be pulse-type, RelayModule cannot interface with serial or MDB hardware.

**Note: Ignore the twisted yellow/white pair of wires located on the RelayModule Harness for BluKey Pro (these wires will not be used at this time).







Installation Steps

IMPORTANT: PayRange service requires data connection on a user's mobile device. Prior to installation, verify location has adequate cellular reception or a WiFi network that users can access. If mobile web browser can load a website relatively quickly, data connection should be adequate.

Step 1: Prepare Machine

- o Completely disconnect power (unplug or turn off breaker)
- Open machine control panel or lid to access coin acceptor and locate a power source

Step 2: Locate Power Source and Connect Adapter

The RelayModule is equipped with a DC jack which connects to a **High Voltage** or **Low Voltage** power adapter (included with harness). Do not attempt to modify the power connector or connect a power adapter that was not provided by PayRange.

Input Range

- Low Voltage: 20-36 VAC/VDC
- High Voltage: 100-240 VAC
- Use the machine wiring diagram and a voltmeter to locate a wire pair carrying constant power within the appropriate voltage range *Note:* A label on a power transformer can be very helpful to identify voltages present. A section showing common power connections coming soon, bookmark <u>this link</u> and check back for updates.
- 2. Connect one input wire from the power adapter to one of the machine power supply wires
- 3. Connect remaining power adapter input wire to remaining power supply wire
- 4. Connect power adapter to Relay Module DC jack

Step 3: Connect BluKey to Relay Module. (Configure Laundry Interface Module if applicable)

Switches must be set to match install scenario. Incorrect settings may cause BluKey (BK) to behave unexpectedly.

Switch 1:

 \circ Ensure it is set to **ON** position.

Switch 2:

 \odot Ensure it is set to **ON** for **ALL** machines.

Switch 3: Set ON for all machines.

Switch 4: Unused



4

Unused





Step 4: Identify Coin Acceptor Type and Connection Method

The Relay Module harness has three wire leads for credit output. Only two will be used for any installation depending on coin acceptor type (COM & NO or COM & NC):

- Pin 1. Relay Common (COM)
- Pin 2. Relay Normally Open (NO)
- Pin 3. Relay Normally Closed (NC)

Credit Output Pin 1 | Credit Relay COM Pin 2 | Credit Relay N.O. Pin 3 | Credit Relay N.C.

This guide splits coin acceptors into four categories: Optical Sensor, Microswitch, Coin Slide, and Third-Party. Determine machine coin acceptor type based on the category descriptions, then proceed to the respective section for connection method.

	Optical Sensor: One coin inserted at a time, coin drops from chute through optical sensor opening, typically have three or four wire leads (some older optical sensors used five wire leads) Jump to Optical Sensor wiring section	
	Microswitch: One coin inserted at a time, coin drops through chute and hits a wire lever/actuator, typically only two wire leads (there are three connection terminals, but only two are used) Jump to Microswitch wiring section	
	Coin Slide: Multiple coins inserted at once, coins placed vertically in slide mechanism which can then be fully pushed in. Not all coin slides are compatible, see section for more information. Jump to Coin Slide wiring section	
	Third-Party: This category includes retro-fit, aftermarket and multiple-denomination coin mechanisms. Such as Imonex, Setomatic, Keltner Research, etc. Jump to Third-Party wiring section	GUARTERS ORV DET-O-MATIC
Ste	 p 5: Verify installation Leave control panel open and restore machine power Verify solid blue LED on BluKey If status LED is off, flashing, or incorrect color, see Troubleshooting 	g / Light Codes on page 18

Step 6: Verify Machine Operation

Follow recommended procedure on page 15 to test mobile and coin payment











Red, Black & White Wires

Common in Alliance brands (Speed Queen, Huebsch, Ipso, Unimac, Raytheon, Econ-O-Wash, Cissel), also used by other manufacturers. One known connection method.

- 1. Start by cutting the coin white wire
- 2. Connect yellow wire (pin 1) to one end of coin white wire (connection is not polarity sensitive)
- 3. Connect white wire (pin 3) to remaining end of coin white wire
- 4. Tie unused blue wire (pin 2) to prevent contact with any part of the machine

Brown, Green & White Wires

Common in Laundrylux brands (Wascomat, Electrolux). One known connection method.

- 1. Connect yellow wire (pin 1) to coin white or coin brown (connection is not polarity sensitive)
- 2. Connect blue wire (pin 2) to remaining coin brown or white
- 3. Tie unused white wire (pin 3) to prevent contact with any part of the machine



*Conr

Credit Output | Pin 1 & 3 Connect in series with Coin Drop*

Pin 3 | Credit Relay N.C.

Red, Black & Green Wires

Common in older ADC models. One known connection method.

- 1. Connect yellow wire (pin 1) to coin green or coin black (connection is not polarity sensitive)
- 2. Connect blue wire (pin 2) to remaining coin black or green
- 3. Tie unused white wire (pin 3) to prevent contact with any part of the machine







Green, Yellow & Black Wires Common in Continental models. One known connection method. 1. Connect yellow wire (pin 1) to coin yellow or coin black (connection is not polarity sensitive) Credit Output | Pin 1 & 2 2. Connect blue wire (pin 2) to remaining Connect in Parallel with Coin Drop* coin black or yellow 3. Tie unused white wire (pin 3) to prevent contact with any part of the machine Pin 2 | Credit Relay N.O. ction is not polarity sensitiv **Four Wire Optical Sensors** Red, White, Blue & White/Blue Wires Common in Maytag and Whirlpool models. One known connection method. 1. Start by cutting the coin white wire (solid white, not white/blue) 2. Connect yellow wire (pin 1) to one end of coin white wire (connection is not polarity sensitive) Credit Output | Pin 1 & 3 Connect in series with Coin Drop* 3. Connect white wire (pin 3) to remaining end of coin white wire 4. Tie unused blue wire (pin 2) to prevent Pin 1 | Credit Relay COM contact with any part of the machine Pin 3 | Credit Relay N.C. Connection is not polarity sensitive





Blue, Red, Orange & Brown Wires

Common in Laundrylux brands (Wascomat, Electrolux) and Setomatic aftermarket acceptors. One known connection method.

- 1. Start by cutting the coin brown wire
- Connect yellow wire (pin 1) to one end of coin brown wire (connection is not polarity sensitive)
- 3. Connect white wire (pin 3) to remaining end of coin brown wire
- 4. Tie unused blue wire (pin 2) to prevent contact with any part of the machine



Five Wire Optical Sensors Green, Two Red & Two Black Wires

Used in older Alliance and ADC equipment. One known connection method.

- One side of the sensor has two wires (Red & Black), the other side has three (Red, Black & Green). Start by cutting the red wire on the side with two wires.
- 2. Connect yellow wire (pin 1) to one end of cut red wire (connection is not polarity sensitive)
- 3. Connect white wire (pin 3) to remaining end of cut red wire
- 4. Tie unused blue wire (pin 2) to prevent contact with any part of the machine







Microswitch Coin Acceptors

Common in Dexter equipment, also used by other manufacturers. A microswitch typically has three terminal contacts but only two are used. Each terminal identifier should be printed or etched on one side of the switch.







Coin Slides

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



Electronic timers usually have a switch behind the slide, but some use an optical sensor. Fish wiring through conduit so PayRange hardware can be placed behind the control panel and not under the service door where it may obstruct coin slide movement.

Coin Slide Switch Connection Wires will be connected to two terminals on the switch.

- Connect yellow wire (pin 1) to a wire connected to either switch terminal (connection is not polarity sensitive)
- 2. Connect blue wire (pin 2) to a wire connected to remaining switch terminal
- 3. Tie unused white wire (pin 3) to prevent contact with any part of the machine



Coin Slide Optical Sensor Connection Common in Maytag and Whirlpool coin slide models.

- 1. Start by cutting the coin white wire (solid white, not white/blue)
- 2. Connect yellow wire (pin 1) to one end of coin white wire (connection is not polarity sensitive)
- 3. Connect white wire (pin 3) to remaining end of coin white wire
- 4. Tie unused blue wire (pin 2) to prevent contact with any part of the machine







Third-Party Coin Acceptors

This section includes information for Keltner Research, Setomatic, Imonex, Münzprüfer, Slugbuster and GinSan units, and may be limited to specific models. For assistance with a third-party coin acceptor not addressed in this guide, please email LDecodes@payrange.com.

Keltner Research (KR)

Coin pulses are accumulated by the KR unit which then sends a single start pulse after vend price is satisfied. The BluKey device must be programmed with only a single price option that sends one pulse, and Pulse On set to 1000 milliseconds (ms).

There are several KR models, but all have a brown and gray wire. Some wire to an external black box which then connects to the machine – make connections between black box and machine controller.

- 1. Connect yellow wire (pin 1) to the KR gray wire
- 2. Connect blue wire (pin 2) to the KR brown wire
- 3. Tie unused white wire (pin 3) to prevent contact with any part of the machine



Setomatic

Setomatic coin acceptors use a common optical sensor.

- 1. Start by cutting the coin brown wire
- Connect yellow wire (pin 1) to one end of coin brown wire (connection is not polarity sensitive)
- 3. Connect white wire (pin 3) to remaining end of coin brown wire
- 4. Tie unused blue wire (pin 2) to prevent contact with any part of the machine







Imonex

Imonex coin acceptors are common in Dexter and Laundrylux (Wascomat/Electrolux) equipment and have varying wire colors. Illustrations below show common wire colors and connection methods.

Imonex with Black, Yellow, Red & Blue Wires

Common in Dexter equipment, may be found in machines from other manufacturers.

- 1. Connect yellow wire (pin 1) to Imonex blue or red (connection is not polarity sensitive)
- 2. Connect blue wire (pin 2) to remaining Imonex red or blue
- 3. Tie unused white wire (pin 3) to prevent contact with any part of the machine



Imonex with Black, Yellow, Red & Blue Wires

Common in Dexter equipment, may be found in machines from other manufacturers.

- 1. Connect yellow wire (pin 1) to Imonex green or blue (connection is not polarity sensitive)
- 2. Connect blue wire (pin 2) to remaining Imonex blue or green
- 3. Tie unused white wire (pin 3) to prevent contact with any part of the machine













BluKey[™] Laundry Installation

APPENDIX

Affixing Machine Decals BluKey Configuration Price and Pulse Settings Price Settings Pulse Settings Examples Testing After Installation Troubleshooting / Light Codes Setting BluKey Mode Using 3M™ Scotchlok™ IDC Tap Connectors Contacting Support

Affixing Machine Decals

- **Number Decal** a unique number decal must be affixed to every laundry machine equipped with PayRange. Number decal not used for vending applications.
 - The decal should be placed on the machine in an area that is easily visible (near the coin slot is recommended) and that makes it obvious which machine the number is for.
 - Number machines left-to-right and top-to-bottom to make it easier for customers to locate machines. For stacked machines that require two devices, top machine should be lower number.



- First Purchase Free Decal this decal should be used only if the 'New User Program' is enabled on the operator account.
 - The New User Program allows brand new PayRange users to make a single transaction without adding funds and is a great way to incentivize mobile pay adoption.
 - To enable/disable feature, and set the maximum amount for transaction: login to Manage Console \rightarrow select "Rewards" \rightarrow select "New User Program"





BluKey Configuration

Device registration and setup can be done before (recommended) or after installation using the PayRange App (recommended) or the Manage Dashboard.

An operator account must be created before devices can be registered (create operator account at <u>manage.payrange.com/#/register/asOperator</u>)

PayRange App Registration and Setup (Android & iOS)

Login to app using operator credentials to access the operator mode.

Depending on number of devices being registered, it can be helpful to create price profiles prior to registration but is not required (see <u>Operator Setup Guide</u>).

- 1. Open PayRange App menu (tap \equiv icon in upper left) and select **Register Device**
- 2. Device Information
 - a. Serial Number & PIN: tap 🙆 to capture barcode for Serial Number and PIN (or enter manually)
 - b. Machine ID: optional field for internal machine tracking (not visible to consumers)
 - c. **Position:** enter number decal that will be affixed to machine (only one per Maytag stack). Machines at same location must have unique number.

3. Machine Information

- a. Category: select industry (Laundry)
- b. Subcategory: select machine type
- c. Service Location: optional
- d. Machine Display Name: autofill Subcategory + Position (ex. "Washer 01"), can be edited
- e. Scan-to-Pay: automatically populates based on Position ID set previously
- f. Harness: Select PayRange Harness K18 (located on PayRange harness white label)
- g. Protocol: Select Pulse or Serial (machine manufacturer) for proper protocol
- 4. Location Information
 - a. Location Name: location where device is installed (visible in consumer transaction history)
 - b. Address: enter location address

Use Current Location - fill address using phone location

Use Last Entered) - fill location name & address based on last device registered

- 5. **Device Preview:** image of machine number populates based on Position ID (it is not recommended to take picture for laundry installations)
- 6. **Pricing:** select a premade profile, edit a sample profile, or enter fields manually. Device must be set to match machine pricing and options (see pages 17 & 18 for price and pulse settings).
- 7. Device Registration Complete Success dialog appears:

Would you like to register another [machine] with same settings & pricing?

- copies Machine, Location and Price settings to next device, Position number increases by one



- register a device for a machine with different settings





Price and Pulse Settings

Price Settings

Description: Choose option that best matches machine cycle type

Amount: The dollar amount that the user will be charged

Pulses: Number of pulses the BluKey sends per transaction (most machines receive 25¢ per pulse). #Pulse should be set to "1" when machine has a coin slide regardless of machine price.

Credits: Only available for certain Descriptions (Credit, Quarter, Minutes). The Credits value will be displayed in the app (e.g., "2 Quarters \$0.50", "10 Minutes \$1.00").

Cycle Time (in minutes): After paying, app displays timer corresponding to this field. Enter machine cycle time or set Cycle Time as '0' to disable app timer.

Timer Type:

Reset: App timer will reset regardless of time remaining (starts a new timer cycle) **Add-on:** Time will be added on to the time remaining for app timer

Default: Set the default price row to display in app

Pulse Settings (under 'Advanced' tab in App)

Cash Value Per Pulse: Denomination of coin acceptor being audited (set as '0' for no coin)
Pulse On (default is 100ms): Duration of each pulse in milliseconds (common settings below)
Pulse Off (default is 100ms): Duration of pause in between each pulse in milliseconds

Harness	arness Relay Module (Universal for most brands)		K15 LG	K11/K12 Alliance
Pulse On	50ms	25ms	50ms	100ms
Pulse Off	300ms	100ms	100ms	100ms

Pulse Inhibit Threshold (default is 1200ms): Threshold for machine inhibit pulse length *Pulse Max Width (default is 800ms):* Maximum duration of cash pulse for auditing

Price Examples

It's recommended to add a 25¢ option for all machines for greater flexibility (Quarter, Upgrade Cycle, Extra Dry Time, Top-Off) <u>Washer with Tiered Pricing</u>

Default	Description		Amount	#Pulses	Cycle Time	Timer Type 🕻	9
۲	Light Cycle	*	2.00	8	34	Reset	~
0	Med Cycle	~	2.25	9	37	Reset	*
0	Heavy Cycle	~	2.50	10	40	Reset	*
0	Upgrade Cycle	~	0.25	1	3	Add-on	*

Full Cycle Dryer

Default	Description		Amount	#Pulses	Cycle Time	Timer Type 8
۲	Reg Dry	~	2.50	10	40	Reset 🗸
\bigcirc	Extra Dry Time	~	0.25	1	8	Add-on 🗸





Testing After Installation

It is critical to test each BluKey device to verify proper installation and setup. Use the app without adding funds by creating a Free Purchase offer (see the <u>Laundry Operator Introduction Guide</u> for instructions). Testing coin acceptor is also recommended, if applicable.

Recommended test procedure:

Repeat steps for all machines.

- 1. Select a machine from the app list. Select a 25¢ option from the price dropdown ("Quarter", "Extra Dry Time", "Top-Off", "Upgrade Cycle" etc.) then swipe to pay,
- 2. Machine display should decrement by only 25¢ (or 1 coin). If display decrements by more, or not at all:
 - a. Verify 25¢ price row is set for 1 pulse in device pricing
 - b. Verify correct pulse timing
 - c. Verify machine is programmed as described in installation steps
- 3. If machine accepts coin, insert coin, and verify machine receives credit. If not successful, check connection at coin pass-through harness.
- 4. Select full cycle price in app and swipe to pay again (for metered dryers, select option for at least \$1.00). Machine display should quickly decrement reflecting the amount paid (or add time to metered dryer) and allow cycle to start.

Note: if app shows "Machine in use" and does not allow additional payment, verify correct switch settings on Laundry Interface Module.





Troubleshooting / Light Codes

Symptom	LED Pattern	Cause	Solution		
BluKey LED is solid blue		BluKey ready	(Normal operation)		
BluKey LED does not light up	(No power)	Bad connection between BK and LM2	Check / reconnect BluKey to LM2		
		Defective LM2 or "C" harness	Replace harness kit		
		Defective machine controller board	Replace machine controller board		
BluKey LED is solid red		BluKey has incorrect firmware	Update firmware to match machine protocol		
		Machine controller is not in serial mode	Set machine to serial mode		
BluKey LED slowly flashes red	(Disabled by	Machine is running wash cycle	When cycle completes, machine will remove inhibit.		
	machine)	Communication error	Connect coin input		
		with card reader	Power cycle machine or reset card reader		
BluKey LED flashes	((() ()))	No payments for last 24	Power-cycle or test with mobile		
series of red/blue		hours	transaction. Check if machine has		
			any problems running.		
Blukey LED slowly flashes blue		Communicating with App	(Normal operation)		
BluKey LED slowly flashes purple		Transaction in progress	(Normal operation)		
BluKey LED quickly flashes blue		Upgrading	Keep power on until done		
BluKey LED quickly flashes red		BluKey hardware error	Replace BluKey		
BluKey LED quickly flashes purple		Uploading transactions, Downloading upgrades	(Normal operation)		
Mobile payment		1. Check if BluKey is in I	Ready state / BluKey LED is solid blue.		
does not work		2. Check if Blukey Hash	es Transaction in progress LED		
		data connection on r	nobile device		
		3 Check for correct firm	number of the state of the stat		
Machine does not		1 Check if machine acc	ents coins when Blukey harness is		
accept coins disconnected from		disconnected from th	the machine's coin harness. If not,		
		replace coin sensor or coin acceptor assembly.			
		2. Check machine's wiring (a loose wire in connector pin			
could be causing sensor		sor disconnects).			
		3. Clean optics or replace coin sensor or coin acceptor			
		assembly.			





Using 3M[™] Scotchlok[™] IDC Tap Connectors

Tap splice connectors make it possible to splice anywhere along a wire without having to first cut the wire. A tap splice connector has a metal brace with two slots in it; one for each wire that goes into the connector. When the brace is crimped down it is designed to cut through the insulation only. This allows the metal brace to contact the strands of conductive wire, which connects the two wires in the connector.



How Tap Splice Brace Connects Two Wires

Using Included Red Tap Splice Connectors

1. Make sure brace is pulled out of splice far enough so wires can be fully inserted 2. Insert the machine wire into the passthrough side of the connector 3. Close the first part of the tab 4. Insert a wire from BK Smart harness into the other slot of the splice connector. Push wire all the way in until it hits the stop 5. Crimp the metal brace all the way down until it is flush with the plastic part of the connector (crimp from the center to ensure brace crimps down straight and even) 6. Close the cover fully and check that the wire cannot be pulled out with a slight tug





Contacting PayRange Support

For assistance with installing and operating your BluKey devices, please contact our support group:

Technical Support:	Sales and Marketing Support:		
Phone: +1 (855) 856-6398 opt 3	Phone: +1 (855) 856-6398 opt 2		
Email: <u>support@payrange.com</u>	Email: sales@payrange.com		
Training Channel This channel helps our growing PayRange community by providing resources for common support scenarios, account setup, installation, and setting up promotions. PayRange Training PayRange Support	ABBUNK CONTRACTOR		