

## Settings

```
TESTING. . .
50059 REV. 1.0
559 123456 12345
```

### Configuration settings for KL25Z CPU ID 0041-00343004-38424E45

Memory used: 12K bytes of 16K bytes (4,324 bytes free) [Explain](#)

**System type.** Are you using this KL25Z on its own, or with a set of expansion boards? [Help](#)



Stand-alone KL25Z  
(or your own custom boards)



Pinscape Expansion Boards

#### Expansion board details:

Number of MOSFET power boards:

Number of chime boards:

Show KL25Z pin assignments

The KL25Z pin assignments are hidden by default because you've selected the expansion board configuration. All pin assignments are pre-determined in this configuration. Check the box above if you want to view the pin assignments anyway, but be aware that any changes to pin assignments will probably cause problems.

**USB Identification.** This is how the KL25Z identifies itself to Windows through the USB port.



LedWiz Unit 1  (USB Vendor ID FAFA, Product 00F0)

- If you have a **real** LedWiz unit in your system, choose **LedWiz Unit 8** for your first Pinscape unit, 9 for the second, etc.
- If you **don't** have any real LedWiz units, choose **LedWiz Unit 1** for the first unit, 2 for the second, etc.

[I want more details!](#)

**Pinscape ID.** This is a **separate** ID from the LedWiz unit number. DOF R3 and the [DOF Config Tool](#) use this ID to identify the unit. **Set this to 1 for your first unit, 2 for the second,** and so on.



This is completely unrelated to the LedWiz unit number, so it doesn't need to match that, and by the same token doesn't need to be different. This doesn't affect the USB ID or the Windows device drivers. It's purely for DOF and other Pinscape-aware software.

Pinscape Unit 1

**Reset on disconnect.** If the USB connection is broken, and can't be re-established within a time limit, the KL25Z can automatically reset itself as an attempt to fix whatever's wrong. Select the time interval (in seconds) before this happens.



Enabled

Time before reboot (seconds):

[Details](#)

**TV ON switch.** If one or more of your monitors needs to be turned on manually every time you power up your cabinet, you can use this feature to switch them on automatically. See the Build Guide for wiring instructions.



Enabled

**IR Remote Control.** The controller can send and/or receive IR remote control signals if you attach some additional components. This can be used with the [TV ON](#) feature to turn your cabinet TVs on via IR commands at system startup. See the Build Guide for details on the components required and how to connect them. If you don't have any IR components attached or wish to disable them, simply set the pin assignments here to "Not Connected".



**IR Command List.** You can program the Pinscape unit with remote control commands that it can then send and receive. Each slot below stores one code. [Help](#)

#	IR Code	TV ON	Key	Description
1	<input type="text"/>			<input type="text"/>

**Note:** your current firmware version can store up to 16 codes. The list above will automatically expand as you fill in new rows, up to the limit.

**Joystick input.** The controller acts like a Windows USB Joystick in order to send the plunger position, accelerometer readings (for nudging), and button inputs to the PC. You can disable these inputs if desired.



Enable joystick input

[Why would I want to disable this?](#)

Joystick axis format:

[What's this?](#)

**Accelerometer orientation.** If you're using the accelerometer (for nudge sensing), the software needs to know how the KL25Z is oriented in the cabinet so that it can report motion in the right direction. Install the KL25Z in one of the orientations shown below, level with the floor of the cabinet, with the chips and LEDs facing up.



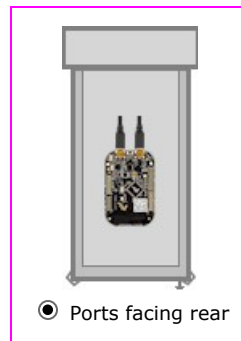
Ports facing front



Ports facing left



Ports facing right



Ports facing rear

**Dynamic range.** Select the range for accelerometer readings. Ranges above  $\pm 2G$  have lower precision. [Details](#)

- $\pm 1G$  (original Pinscape setting, highest precision)
- $\pm 2G$  (same precision as  $\pm 1G$  but with wider range)
- $\pm 4G$  (reduced precision, wider range)
- $\pm 8G$  (lowest precision, widest range)

**Auto-centering.** The controller automatically zeroes the accelerometer after it's been sitting still for a while. This compensates for any tilt in the mounting position. If you prefer, you can disable the automatic centering, and center it manually when needed using the [Joystick Viewer](#).

- Manually center only (no auto-centering)
- Auto-center with default time (5 seconds)
- Auto-center with custom time

**Plunger sensor setup**



Sensor type:

[Live Sensor View](#)

**Potentiometer.** This uses a slide potentiometer, which is a variable resistor with a control knob that moves linearly across the length of the device. Attach the control knob to the plunger so that the knob moves with the plunger. The pot's electrical resistance changes as the knob moves, proportionally to the position, so the controller can determine the plunger position by reading the voltage on the input.



Connect the sensor to the PLUNGER connector (JP2) on the main interface board:

- Pot wiper to pin 1
- One fixed-resistor end to pin 5
- Other fixed-resistor end to pin 6

Note: this sensor type setting can be used with other sensors that represents the plunger position as an analog voltage level, such as an LVDT or analog IR distance finder. Connect the sensor's analog output pin to JP2 pin 1. Connect sensor power to pin 5 and GND to pin 6.

**Plunger calibration button.** If you wish, you can install a pushbutton in your cabinet to activate plunger calibration mode. This is optional, since you can also run the calibration from this setup program. See the Build Guide for wiring instructions.



Button input:  Enabled  
 Indicator lamp output:  Enabled

Connect the calibration button to the CAL BTN connector (JP3) on the main interface board.

**ZB Launch Ball setup.** You can set up your mechanical plunger to act as a "virtual" Launch Ball button for tables that use a button instead of a plunger. [Details](#)



Enabled

**Button inputs.** You can use the KL25Z as a key encoder to connect pinball-style buttons on your cabinet to the PC. Set up the wiring connections and key assignments below. Each input can be mapped as a joystick button or keyboard key. Click an input pin or key assignment to change a setting.




















[Test Buttons](#)

Shift button number:  [Help](#)

- Shift OR Key mode
- Shift AND Key mode

[Set standard joystick buttons](#) | [Set standard keyboard keys](#) | [View standard key assignments](#)

No.	Port	PC Input	Options [?] VP Usage
1	<input type="text" value="Button 1 (Digital In)"/>	<input type="text"/>	Start Game
2	<input type="text" value="Button 2 (Digital In)"/>	<input type="text"/>	Extra Ball (Buy-In)
3	<input type="text" value="Button 3 (Digital In)"/>	<input type="text"/>	Coin In
4	<input type="text" value="Button 4 (Digital In)"/>	<input type="text"/>	Coin In (second coin slot)
5	<input type="text" value="Button 5 (Digital In)"/>	<input type="text"/>	Coin In (fourth coin slot)
6	<input type="text" value="Button 6 (Digital In)"/>	<input type="text"/>	Plunger/Launch Ball
7	<input type="text" value="Button 7 (Digital In)"/>	<input type="text"/>	Exit to menu (PinballX/HyperPin front ends)
8	<input type="text" value="Button 8 (Digital In)"/>	<input type="text"/>	Quit to editor (within VP)

9	Button 9 (Digital In)		
10	Button 10 (Digital In)		Left Flipper
11	Button 11 (Digital In)		Right Flipper
12	Button 12 (Digital In)		Left MagnaSave
13	Button 13 (Digital In)		Right MagnaSave
14	Button 14 (Digital In)		Mechanical Tilt Bob
15	Button 15 (Digital In)		Slam Tilt
16	Button 16 (Digital In)		Forward Nudge
17	Button 17 (Digital In)		Open/Close Coin Door
18	Button 18 (Digital In)		Service Button "Cancel/Exit"
19	Button 19 (Digital In)		Service Button "Down/-"
20	Button 20 (Digital In)		Service Button "Up/+"
21	Button 21 (Digital In)		Service Button "Enter"
22	Button 22 (Digital In)		VP Volume Down
23	Button 23 (Digital In)		VP Volume Up
24	Button 24 (Digital In)		-
25	Not Connected		-

**Note:** your current firmware version supports up to 48 physical buttons. The list above will automatically expand as you fill in new items, up to the limit.

**TLC5940 (external PWM controller chip) setup** [What's this?](#)



The TLC5940 configuration is automatically set up for your expansion boards.

**TLC59116 (external PWM controller chip) setup** [What's this?](#)



Disabled - [Show Settings](#)

**74HC595 (external digital out chip) setup** [What's this?](#)



The 74HC595 configuration is automatically set up for your chime boards.

**Pinscape After Dark.** You can set up a button or switch to activate **Night Mode**, which disables the feedback device outputs that you designate as noise-makers. This lets you play during late-night hours without disturbing your party-pooper housemates and neighbors. [Details](#)



Button input number:  0 = no input button assigned

Button type:



Momentary button  
(Toggles mode when pushed)

On/off switch


































































































































































































Indicator lamp output port:  0 = no indicator output

**Feedback device outputs.** Pinball software on the PC can control output devices connected to the KL25Z to create special effects during play, such as tactile feedback and lighting displays. The PC software uses the **port numbers** in the list below to address the outputs. Use these port numbers when you set up your [DOF configuration](#). For each port, you can select the physical output pin that the port is wired to.



**Test Outputs**

Port No.	Type	Location	Pin	Port	Options [2]	Description
1	PWM Mid Power	Main Board	JP11-2	Flasher 1R	  	Flasher outside left R
2	PWM Mid Power	Main Board	JP11-4	Flasher 1G	  	Flasher outside left G
3	PWM Mid Power	Main Board	JP11-6	Flasher 1B	  	Flasher outside left B
4	PWM Mid Power	Main Board	JP11-8	Flasher 2R	  	Flasher left R
5	PWM Mid Power	Main Board	JP11-10	Flasher 2G	  	Flasher left G
6	PWM Mid Power	Main Board	JP11-12	Flasher 2B	  	Flasher left B
7	PWM Mid Power	Main Board	JP11-14	Flasher 3R	  	Flasher center R
8	PWM Mid Power	Main Board	JP11-16	Flasher 3G	  	Flasher center G
9	PWM Mid Power	Main Board	JP11-1	Flasher 3B	  	Flasher center B
10	PWM Mid Power	Main Board	JP11-3	Flasher 4R	  	Flasher right R
11	PWM Mid Power	Main Board	JP11-5	Flasher 4G	  	Flasher right G
12	PWM Mid Power	Main Board	JP11-7	Flasher 4B	  	Flasher right B
13	PWM Mid Power	Main Board	JP11-9	Flasher 5R	  	Flasher outside right R
14	PWM Mid Power	Main Board	JP11-11	Flasher 5G	  	Flasher outside right G
15	PWM Mid Power	Main Board	JP11-13	Flasher 5B	  	Flasher outside right B
16	PWM Mid Power	Main Board	JP9-1	Strobe	  	Strobe
17	Timed Digital	Main Board	JP9-2	Knocker	 	Knocker
18	PWM Hi Power	Power Board 1	JP5-1	Output 1	  	Gear
19	PWM Hi Power	Power Board 1	JP5-2	Output 2	  	Fan
20	PWM Hi Power	Power Board 1	JP5-3	Output 3	  	Undercab Complex R
21	PWM Hi Power	Power Board 1	JP5-4	Output 4	  	Undercab Complex G
22	PWM Hi Power	Power Board 1	JP5-5	Output 5	  	Undercab Complex B
23	PWM Hi Power	Power Board 1	JP5-6	Output 6	  	
24	PWM Hi Power	Power Board 1	JP5-7	Output 7	  	
25	PWM Hi Power	Power Board 1	JP5-8	Output 8	  	
26	PWM Hi Power	Power Board 1	JP5-9	Output 9	  	
27	PWM Hi Power	Power Board 1	JP5-10	Output 10	  	
28	PWM Hi Power	Power Board 1	JP5-11	Output 11	  	
29	PWM Hi Power	Power Board 1	JP5-12	Output 12	  	Bumper middle center
30	PWM Hi Power	Power Board 1	JP5-13	Output 13	  	Bumper back right
31	PWM Hi Power	Power Board 1	JP5-14	Output 14	  	Bumper middle right
32	PWM Hi Power	Power Board 1	JP5-15	Output 15	  	Slingshot right
33	PWM Hi Power	Power Board 1	JP5-16	Output 16	  	Flipper right
34	PWM Hi Power	Power Board 1	JP6-1	Output 17	  	Shaker
35	PWM Hi Power	Power Board 1	JP6-2	Output 18	  	Beacon
36	PWM Hi Power	Power Board 1	JP6-3	Output 19	  	
37	PWM Hi Power	Power Board 1	JP6-4	Output 20	  	
38	PWM Hi Power	Power Board 1	JP6-5	Output 21	  	
39	PWM Hi Power	Power Board 1	JP6-6	Output 22	  	

40	PWM Hi Power	Power Board 1	JP6-7	Output 23	  	
41	PWM Hi Power	Power Board 1	JP6-8	Output 24	  	
42	PWM Hi Power	Power Board 1	JP6-9	Output 25	  	
43	PWM Hi Power	Power Board 1	JP6-10	Output 26	  	
44	PWM Hi Power	Power Board 1	JP6-11	Output 27	  	
45	PWM Hi Power	Power Board 1	JP6-12	Output 28	  	Bumper back center
46	PWM Hi Power	Power Board 1	JP6-13	Output 29	  	Bumper back left
47	PWM Hi Power	Power Board 1	JP6-14	Output 30	  	Bumper middle left
48	PWM Hi Power	Power Board 1	JP6-15	Output 31	  	Slingshot left
49	PWM Hi Power	Power Board 1	JP6-16	Output 32	  	Flipper left
50	PWM Low Power	Main Board	JP8-1	LED 1R	  	Start Button
51	PWM Low Power	Main Board	JP8-3	LED 1G	  	Launch Ball Button
52	PWM Low Power	Main Board	JP8-5	LED 1B	  	Fire Button (Stern)
53	PWM Low Power	Main Board	JP8-7	LED 2R	  	Extra Ball Button
54	PWM Low Power	Main Board	JP8-9	LED 2G	  	
55	PWM Low Power	Main Board	JP8-11	LED 2B	  	
56	PWM Low Power	Main Board	JP8-2	LED 3R	  	Flipper Led R
57	PWM Low Power	Main Board	JP8-4	LED 3G	  	Flipper Led G
58	PWM Low Power	Main Board	JP8-6	LED 3B	  	Flipper Led B
59	PWM Low Power	Main Board	JP8-8	LED 4R	  	Magnasave Led left R
60	PWM Low Power	Main Board	JP8-10	LED 4G	  	Magnasave Led left G
61	PWM Low Power	Main Board	JP8-12	LED 4B	  	Magnasave Led left B
62	PWM Low Power	Main Board	JP8-13	LED 5R	  	Magnasave Led right R
63	PWM Low Power	Main Board	JP8-15	LED 5G	  	Magnasave Led right G
64	PWM Low Power	Main Board	JP8-17	LED 5B	  	Magnasave Led right B
65	PWM Low Power	Main Board	JP8-14	LED 6	