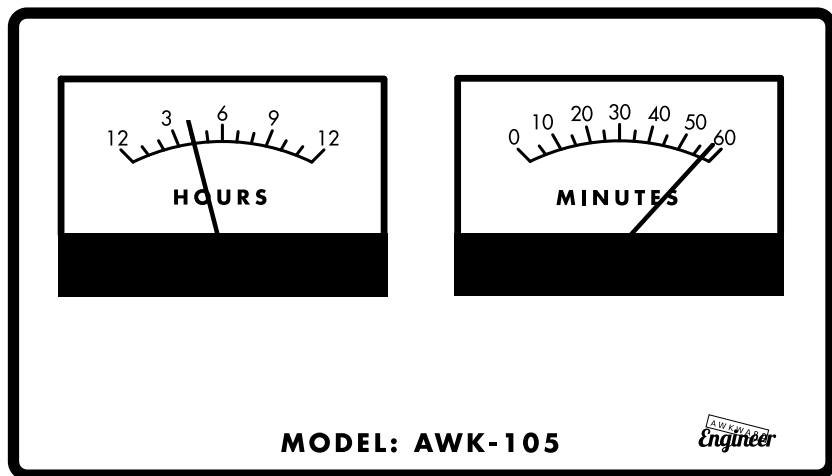


## READING THE CLOCK

Read the time below as 4:57 (almost 5 o'clock somewhere.) The hours hand moves in whole hour increments.

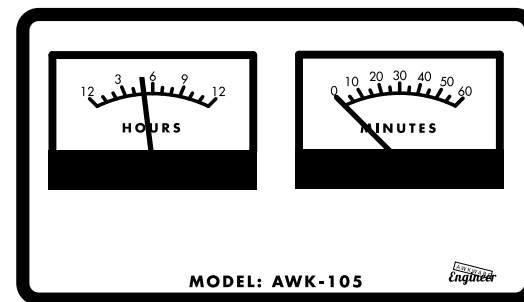


MODEL

# AWK-105AL

*"Analog Voltmeter Alarm Clock"*

Made  
in the  
USA



AWKWARD  
Engineer

[www.awkwardengineer.com](http://www.awkwardengineer.com)

## TECHNICAL SPECIFICATIONS

<b>Housing</b>	.5052-H32 aluminum, .050" thick
<b>Meters</b>	50 $\mu$ A current draw each at full scale deflection
<b>PCBA</b>	fully custom, 2 layer copper, lead free
<b>Power Source</b>	5v USB Wall Wart
<b>Main CPU</b>	Atmel ATtiny 24/44/84 family, memory is burned at factory, lock fuse unset so tinker/hackers can program via ISP
<b>Firmware</b>	power efficient, fully interrupt driven code



**Analog Voltmeter Alarm Clock  
AWK-105AL**

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.

## ABOUT AWKWARD ENGINEER

Awkward Engineer started life as a humor blog that made approximately zero dollars. We made the decision to Do Something Different and to use our mechanical engineering background to start designing physical products.

We invested \$500 and launched our first product, the Panic Button Light Switch Kit, with a whopping 3 sales, including one to mom and one to dad. Stubbornly refusing to sit on inventory, we cold called our way into a key large retailer, and sold a few thousand units.

To make a long story short, we felt like we were on to something and threw ourselves into product development, learning more and getting better with each product. We now enjoy working on topics as varied as graphic design, microelectronics, mechanical design, embedded firmware, sales and marketing, and more!

We have a blast designing this stuff and love sharing our work with you! Check out [www.awkwardengineer.com](http://www.awkwardengineer.com) to see more and to join our mailing list. Email questions, comments, or your pictures (we love pictures!) to [questions@awkwardengineer.com](mailto:questions@awkwardengineer.com)

# ALARM CLOCK OPERATIONS GUIDE

Upon application of power, the Clock boot sequence swings the needles to full deflection and back to zero. The AM light will flash, indicating a restart condition until the time is reset.

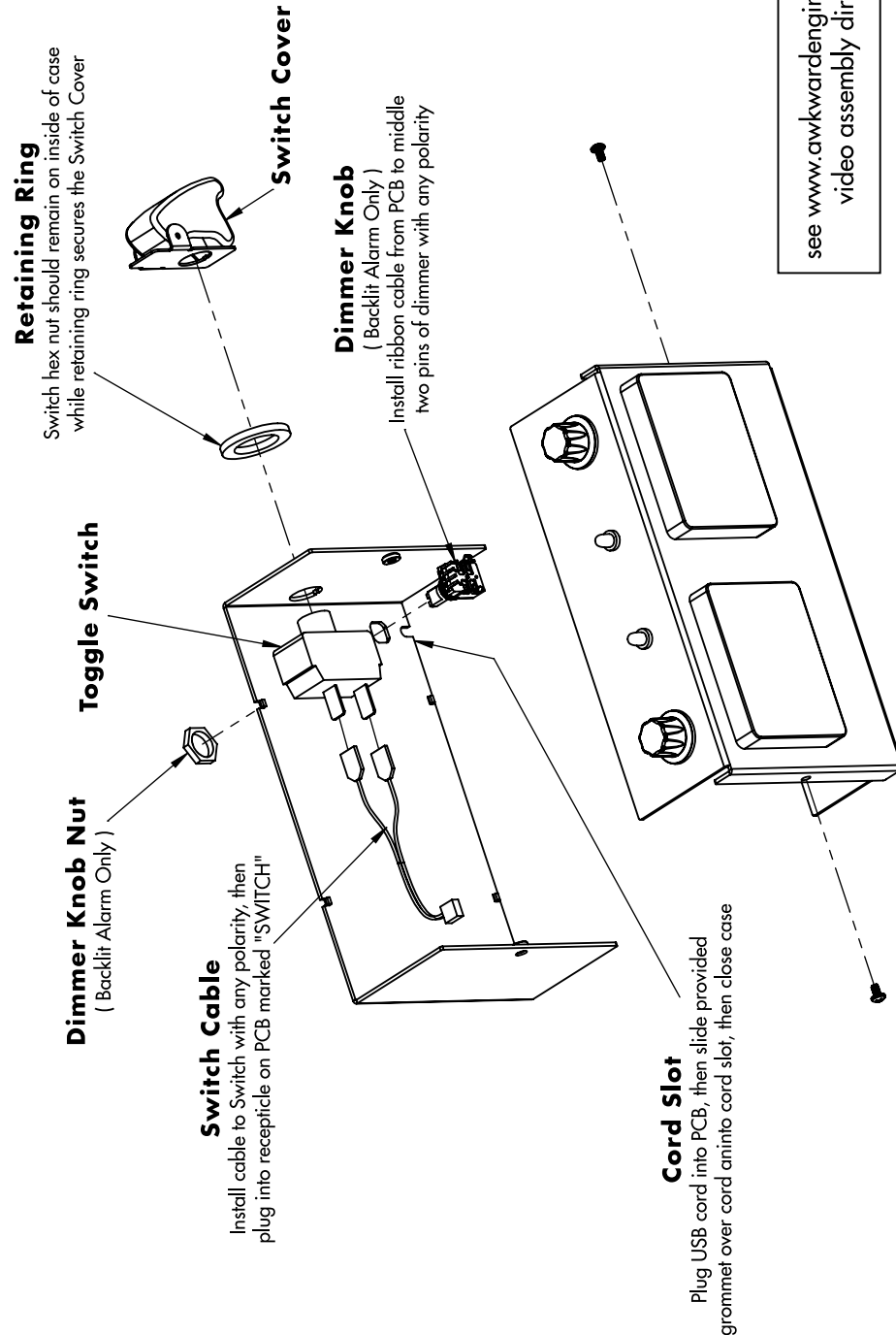
**1st**, start by calibrating the meters to achieve full scale deflection. If needed, the zero points can be adjusted with a screwdriver.

MODE	DESCRIPTION
CAL1	Turn the ADJUST knob until the hours meter points to 12. Minutes will be pointing to 0.
CAL2	Turn the ADJUST knob until the minutes meter points to 60. Hours will be pointing to 0.

**2nd**, point the MODE knob to TIME mode to set the time. (Defaults to 5:00pm at initial powerup.)

TIME	<p>Meters display full scale deflection for 2 seconds before displaying time.</p> <p>Turn the ADJUST knob forwards or backwards to adjust the Clock time. Turning the knob rapidly will cause the time to autoscroll until the knob is turned again.</p>
ALARM	<p>The ALARM light will flash and meters will display the Alarm set time.</p> <p>Turn the ADJUST knob forwards or backwards to set the Alarm time, just as in setting the Clock time. The alarm will only sound if it is Armed.</p>
SWITCH	<p>From any mode, if the Alarm is sounding, pressing the toggle SWITCH will quiet the Alarm.</p> <p>From any mode, if the Alarm is not sounding, pressing the toggle SWITCH will Arm or Disarm the Alarm.</p>
WARBLE	<p>The Clock continues to keep time while the meters randomly twitch. The ADJUST knob adjusts the frequency at which twitches occur..</p>

## ALARM CLOCK MECHANICAL ASSEMBLY



see [www.awkwardengineer.com](http://www.awkwardengineer.com) for video assembly directions