

K9YA Telegraph

Robert F. Heytow Memorial Radio Club

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K8IQY Magic Box

More Than a Bag of Tricks

Philip Cala-Lazar, K9PL

Before building the K8IQY Magic Box my favorite magic box was the 1952 British film, *The Magic Box*, a semi-biographical account of English cinema pioneer and inventor William Friese-Greene. In a pivotal scene, Laurence Olivier

as the local London bobby is recruited off his beat to view Friese-Greene's (Robert Donat) first (1889) successful moving picture. Olivier's reaction to the filmed Hyde Park vignette is that of disbelief and stunned amazement followed by the comment, "You must be a very happy man." You will be a very happy ham after completing this Magic Box.

Designed by Jim Kortge, K8IQY, the Magic Box comes courtesy of the 4SQR Group also responsible for the previously reviewed Test Set (December 2009, *K9YA Telegraph*) and EZ Keyer (April 2010, *K9YA Telegraph*).

So what is the K8IQY Magic Box and what feats of prestidigitation does it perform?

Specifications and design features from the 4SQR Web site

- Creates transceiver operation using a separate receiver and transmitter.
- Completely automatic operation.
- Greater than 80dB isolation between the transmitter and receiver during transmit.
- All solid-state MOSFET switching.
- Negligible receive or transmit signal loss through the switch.
- Sequenced switching—the receiver is off first and on last compared to the transmitter.

- Receiver audio is also switched to provide complete audio muting during transmit.
- Smooth 700Hz Sine Wave Sidetone
- Fully automatic Full QSK up to 50-wpm. Semi-QSK can be jumper selected.
- Tested at 10 watts and probably will safely go higher.
- Covers all HF ham bands, 160-10 meters.

Now that's a lot of features—to paraphrase Homer Simpson, "The Magic Box, what can't it do?"

*"The Magic Box,
what can't it do?"*

This isn't your father's (or your) Dow-Key antenna relay. Like all 4SQR kits I've built this one comprises high quality components, a flawless PCB and clear, easy to understand, construction manual. Despite its high parts count, thanks to its relatively large PCB, this is an easy kit to build, but it did take me every bit of the eight hours (and a bit more) noted

by the club to complete. To run certain of the smoke tests requires a transmitter and a receiver; I have QRP transceivers aplenty, but no separates (because in pre-Magic Box times I considered it too much of a hassle). Therefore, I designated the PFR-3 as receiver and the NorCal 40A as transmitter; together we swimmingly passed all smoke tests.

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About The Cover



Yes, that's Dash the Dog-Faced Ham snoozing on this month's cover. No doubt he is sleeping the good sleep and dreaming the happy dreams that can only be induced by simultaneously copying a CW QSO while paging through an absorbing amateur radio magazine and settled in a comfy chair. No sugar plum fairies for this operator; it's a desk groaning with shack-warming gear, an antenna braving the frigid gales of winter and a benevolent Kennelly-Heavyside layer that brings a smile to his muzzle.

Thanks to Jeff Murray, K1NSS, his creator, we are extremely pleased and honored to feature Dash on this year's holiday cover. There is much, much more to know about Jeff and Dash. Please visit these sites that are sure to bring a smile to *your* muzzle.

P.S. Don't miss his ham radio *manga*.

<http://www.dashtoons.com/>

<http://www.dashtoons.com/Buzz.html>

<http://stores.lulu.com/6sj7comics>

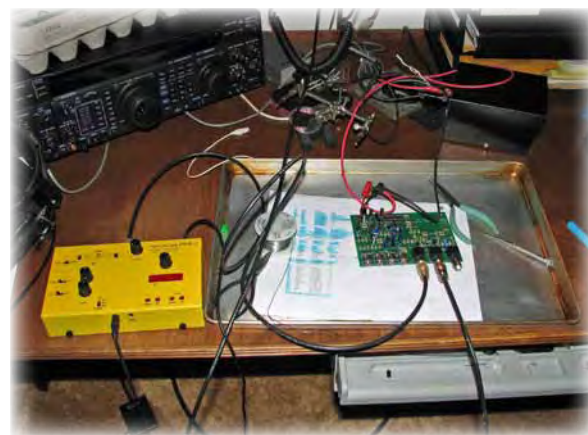
Reviews of Jeff's books in the *K9YA Telegraph*

lid, kid, space cadet, July 2009, p. 4

Sky BUDDIES, August 2010, p. 1

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The final smoke test was A-OK and time to move on to getting the PCB into its recommended enclosure, the one it was specifically designed to fit, the Ten Tec TP-41. I used the drill/punching template cum front label at <http://www.wa0itp.com/mbholetemplates.pdf> to lay-out the front and rear panels. Two labels were printed: one to do the layout dirty work of being center-punched, drilled and chassis punched. The second label was laminated with an Avery® self-adhesive laminating sheet, adhered to the front panel with 3M Photo Mount™ and the holes reopened with an Xacto® knife.



To complete the kit as desired I opted to add: SPST toggle switch for power; pushbutton, momentary-on switch to select tune; green LED (power); red LED (tune); and LED mounts for that "finished" look.

It's tough not to overdo the superlatives when discussing the Magic Box; everything goes through the control console—you key the Magic Box and it keys the transmitter, generates a side tone, provides tune and zero-beat functions, switches the antenna, mutes the receiver, supplies receiver audio; a very practical accessory, it works *super* nice. It offers a 700 Hz, output level adjustable sidetone; click-free QSK; and selectable, one-second delay semi-QSK. Bonus: the transmit LED flashes in synch with keying; a free light show. Furthermore, it's provided the incentive I needed to look seriously at receiver and transmitter kits. It will be *magic* to put them on the air hassle-free.

Again, my thanks to all in the 4SQRP Group for continuing to provide amateur radio operators with ingenious, quality, effective and value-priced kits. Big nods to Terry, WAØITP, and Paul, NØNBD, for their way above and beyond help in fulfilling my kit order.

This is getting to be a very good habit.

<http://www.k8iqy.com/miscellaneous/MagicBox/MagicBox.htm> ■