

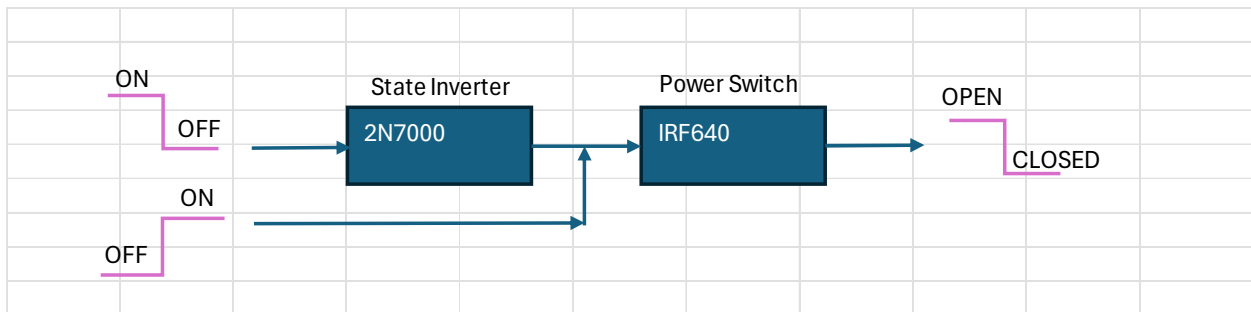
Amplifier Driver Kit - Assembly Manual

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INTRODUCTION

The Amplifier Driver (AD) circuit was designed to be a buffer and a low resistance driver circuit between a low voltage - low current switched input like the keying line (PTT) from a radio, and a high voltage - high current amplifier keying circuit. The AD has an optional polarity inverting FET front end that, when used, inverts the input from the radio and drives the gate of the high current MOSFET output capable of switching up to 200 VDC at 8A. The AD is perfect for keying older “boat-anchor” amplifiers that require a high voltage, high current switch.



SPECIFICATIONS

Source voltage:	10.6-18.0 VDC @ < 5 mA
Output Voltage Maximum:	200VDC (switching capability)
Output Current:	8A
Input voltage:	LOW or 0.0-2.0 VDC (State = OFF) High or 2.8-48 VDC (State = ON)
Input Current:	< 5 mA, sink or source
Mounting:	Two M4 floating mounting holes
Size:	1.55" x 1.78"

Truth Table:

	DIRECT INPUT	
INVERTER INPUT	INVERTER OUTPUT	SWITCH OUTPUT
OFF	ON	CLOSED
ON	OFF	OPEN

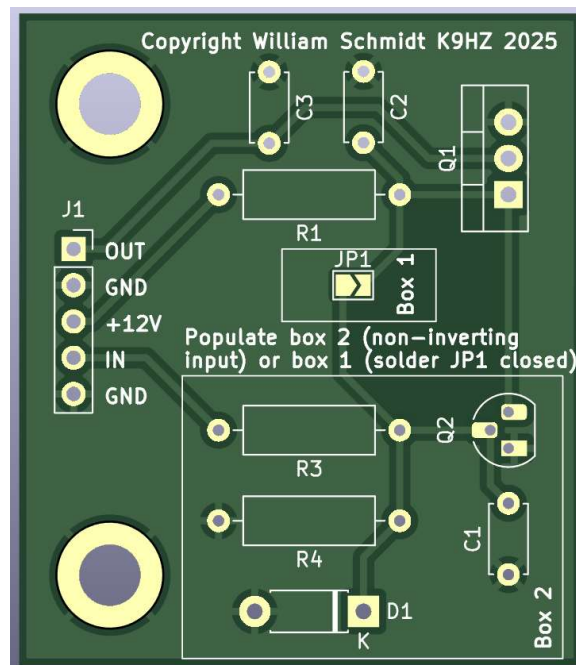
INVENTORY AND PREWORK

Before you begin, inventory your parts against BOM to make sure you have everything you need to complete the AD board. The BOM is shown below:

Qty	Ref	Description
2	C1, C2	0.1 μ F 50V Leaded Capacitor
1	C3	15 nF 50V Leaded Capacitor (Red dot on top)
1	D1	1N4738 8.1V 1.0W Leaded Zener Diode
1	J1	IDC1x5 Male Header Pins
1	Q1	IRF630 TO-220 FET
1	Q2	2N7000-D26Z
2	R1, R4	10K Ohm 1/4W Leaded Carbon Film Resistor
1	R3	1K Ohm 1/4W Leaded Carbon Film Resistor
1	Board	Custom Circuit Board

BOARD AND CIRCUIT

Refer to the unpopulated circuit board and the schematic for building the AD kit:



5. Solder a 1K Ohm (brown-black-red) resistor at R3. Clip excess leads short.



6. Solder D1, the “glass” 1N4738 Zener diode on the board. Make sure the end with the black band is oriented to align with the white stripe at the D1 position (square pad on the circuit board):



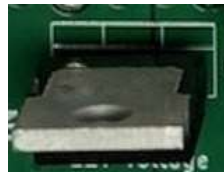
7. Solder 0.1uF 50V capacitors at C1 and C2. Clip the leads short.



8. Solder a 15nF 50V capacitor (red dot on top) at C3 and clip the leads short.



9. Solder the IRF630 MOSFET into its position at Q1. Note that the metal tab is oriented to correspond as shown below:



10. Solder the five IDC pins with the shorting at the J1 position.



11. Finally, do one of these two things (but NOT BOTH!):

- a. If you decided to **USE THE INVERTER** section of the AD: Solder Q2, the 2N7000 FET into place (in Box 2) on the board and clip the leads short.



- b. **OR...** If you decided **NOT TO USE THE INVERTER** section of the AD: DO NOT place Q2. Instead, solder the two pads together at JP1 (in Box 1).



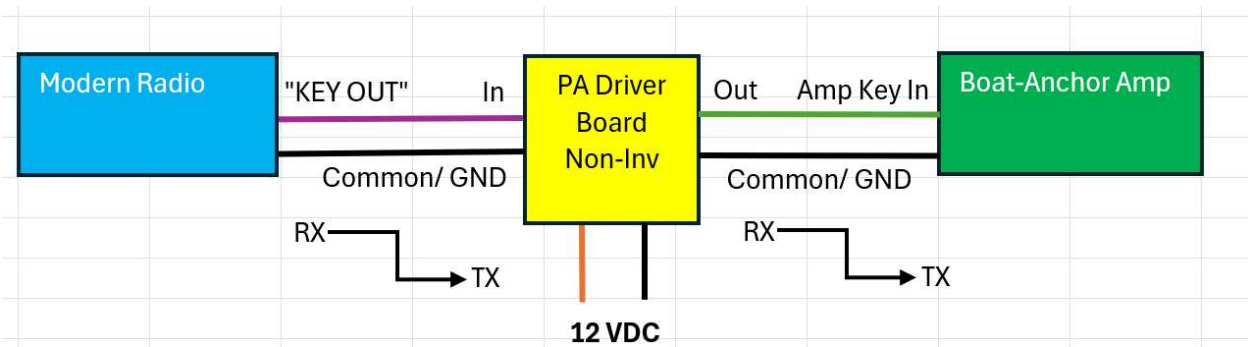
12. The board is now complete. Use IPA again to clean the flux off the board.

USING THE BOARD

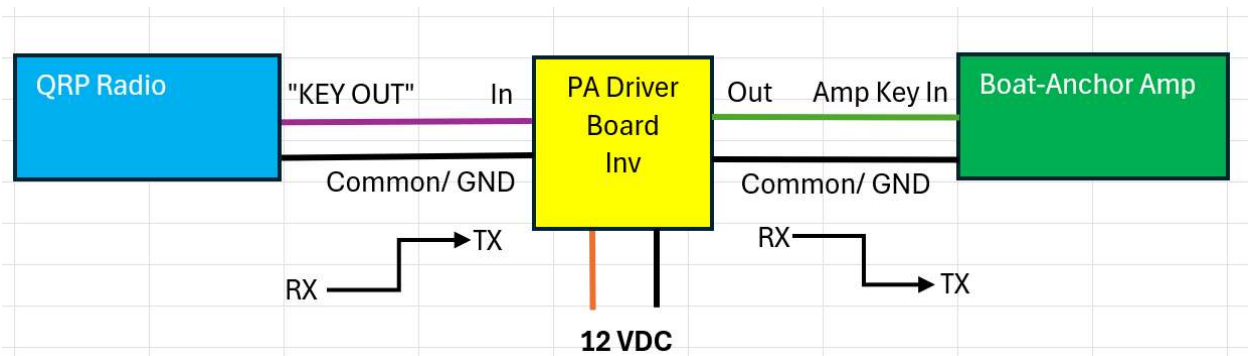
Three connections are necessary to make the PA driver functional.

1. +12 VDC and ground/ common to J1 IDC pins 3 and 2,
2. "Key out" and ground/ common from the radio to J1 pins 4 and 5, and
3. "Output" and ground from J1 pins 1 and 2 (or 5) that like a set of contacts that become closed (or open) when a "Low" (or "High") signal is applied across the "Key Out" and ground/ common line above.

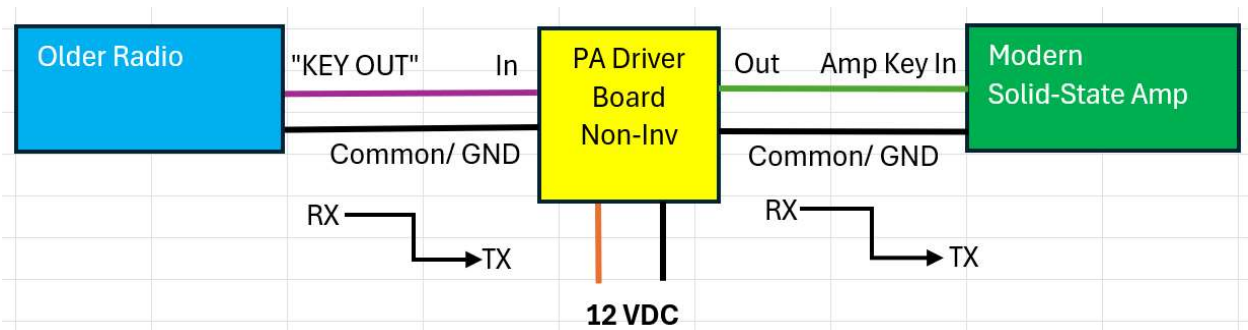
Scenario 1 - Modern Commercial Radio and Boat-Anchor Amplifier:



Scenario 2 – QRP Radio and Boat-Anchor Amplifier:



Scenario 3 – Older Radio and Modern Solid-State Amplifier:



Scenario 4 – Modern Radio and Modern Solid-State Amplifier:

