

1.0 SCOPE

- 1.1 Instructions for the installation of the Model 3984 Isolated Interface Module on an existing furnace with a Bodine Electric drive motor and Model 3911 Motor Speed Board.

2.0 EQUIPMENT AFFECTED

- 2.1 Motor Speed Board Model 3911
2.2 Isolated Interface Module Model 3984

3.0 ADJUST MOTOR SPEED BOARD MODEL 3911

- 3.1 Start furnace. On Furnace program Process Screen, set belt speed to zero.
- 3.2 Using a nonconductive adjustment tool, adjust the each of the pots at the top of the motor speed board:
- 3.2.1 Set zero. Turn Min pot to full counter clockwise (CCW). Adjust clockwise (CW) until motor starts. Turn CCW until motor stops.
- 3.2.2 Set Max pot full CW and turn back ¼ turn.
- 3.2.3 Set Acceleration just CCW of full clockwise CW.
- 3.2.4 Set Deceleration at just CCW of full clockwise CW.
- 3.2.5 Set Torque to full CW, adjust slightly CCW.
- 3.3 For reference, the pots to be adjusted are located from left to right as in the following table.

3911 POTS	MAX	MIN	ACCEL	DECEL	TORQ
Preferred Settings:	just CCW from Full CW	turn CW until motor stops	just CCW from full CW	Just CCW from full CW	just CCW from Full CW

4.0 INSTALL 3984 ISOLATED INTERFACE MODULE

- 4.1 If already installed, verify TAK is wired correctly (skip to 5.0).
- 4.2 Inspect 3984 Board and verify that DS1 dip switches are all in OFF positions.
- 4.3 Make sure furnace is DISCONNECTED from facility power.
- 4.4 Remove panels to enable access to drive motor at the exit end of the furnace.
- 4.5 Using the supplied Mounting Template for the 3984 Isolated Interface Module, mark for 4 holes. Drill using 4 mm (5/32 inch) drill bit. In a convenient place on the motor control panel. (see Figure 1)

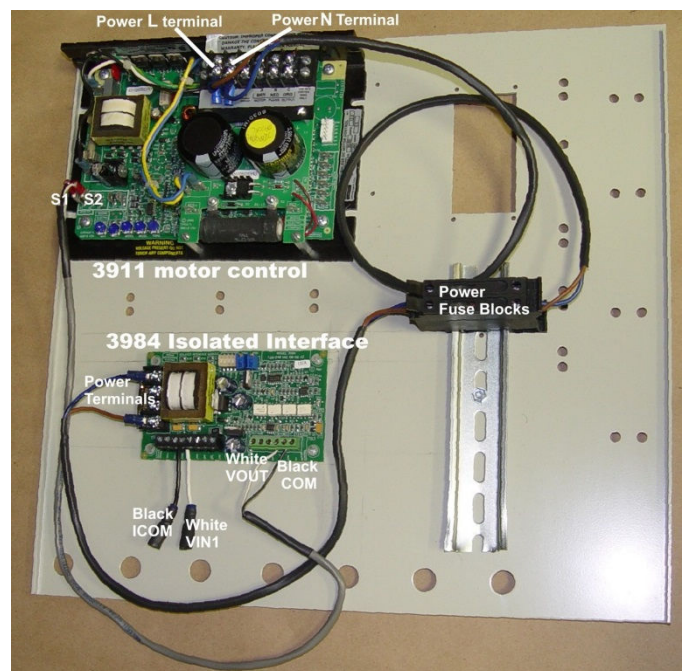


Figure 1 Motor control Panel Layout

- 4.6 Mount the 3984 Isolated Interface Module using the supplied #8 machine screw fasteners.
- 4.7 Disconnect the spade wire connections from S1 and S2 on the 3911 Motor Speed board.
- 4.8 Take these same wires and Plug black S1 into ICOM and white S2 into VIN1 connectors on the 3984 Isolated Interface Module. (see Figure 1)

4.9 Plug connectors coming from the VOUT & COM on the 3984 Isolated Interface Module black S1 and white S2 wires into the 3911 Motor Speed board spade connectors labeled S1 and S2 respectively.

4.10 Connect power (see Figure 2). Loosen screws on the 3911 Motor Speed board terminal block marked L and N. Slip the brown power wire terminal into the L screw then tighten. Slip the blue wire terminal into the N screw then tighten. Snap the two fuse blocks onto the DIN rail next to the existing fuse block.

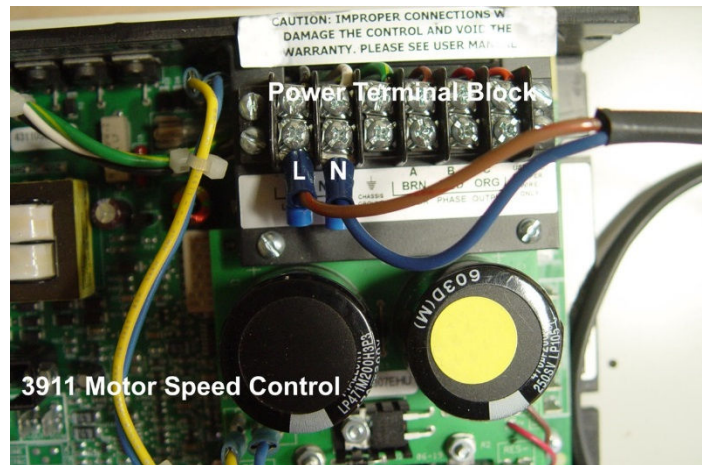


Figure 2 Power connect from 3984 module

5.0 VERIFY NEW T-OUT/TAK WIRING

5.1 See TEC-303A and verify that the system is wired to Rev 3 configuration. If not perform rewiring instructions on TEC-303A.

6.0 CALIBRATE ISOLATED INTERFACE MODULE MODEL 3984

- 6.1 Set zero. Using a small flat screwdriver and a DC Voltmeter + on VOUT and – on COM, turn the Min pot CCW until motor stops and Voltmeter reads 0.120 to 0.130. If DC Volts will not go under 0.200 re-adjust MIN pot on the 3911 board until the Volts drop to 0.120-0.130. Adjust 3984 min pot CW until motor starts again. Turn 3984 min pot CCW again until motor stops and DC volts are within range.
- 6.2 Go to Furnace Calibration screen and click Transport Belt 1 Calibration checkbox to “Set 50% output to calibrate.”
- 6.3 Adjust Max pot until voltage across Vout and Com equals 5.0 Vdc.
- 6.4 For reference, the pots to be adjusted are labeled Min and Max as in the following table.

3984 POTS	MIN	MAX
Field Adjustment	turn CW until motor stops	3984 $V_{out-com} = 5 \text{ Vdc}$ or 3911 $V_{S1-S2} = 5.0 \text{ Vdc}$

7.0 REPLACE FURNACE PANELS

7.1 Replace all panels and fasteners.

8.0 CALIBRATE BELT SPEED

8.1 Use standard procedure for belt speed calibration.

Rewiring the TAC signal through the Isolation Board

1. Make sure furnace power is off.
2. Disconnect red TAC-1 wire at T-OUT terminal on 3911C Motor Speed Control board (figure 1).
3. Connect red TAC-1 wire to TB2-ITAK terminal on 3984 Isolated Interface module (figure 2).
4. Connect a new red TAC-2 wire from TB3-TAK on 3984 Isolated Interface module to T-OUT on 3911C Motor Speed Control board (figure 2).
5. Follow instructions on TEC-303 to adjust pots, start furnace. Calibrate belt speed.

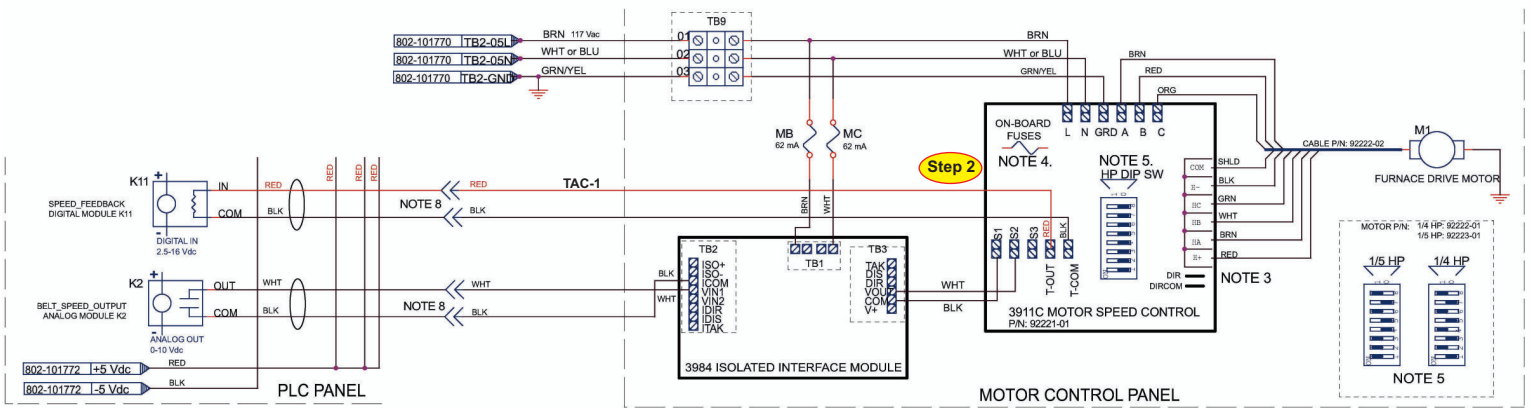


Figure 1. Before Rewire (Rev 2)

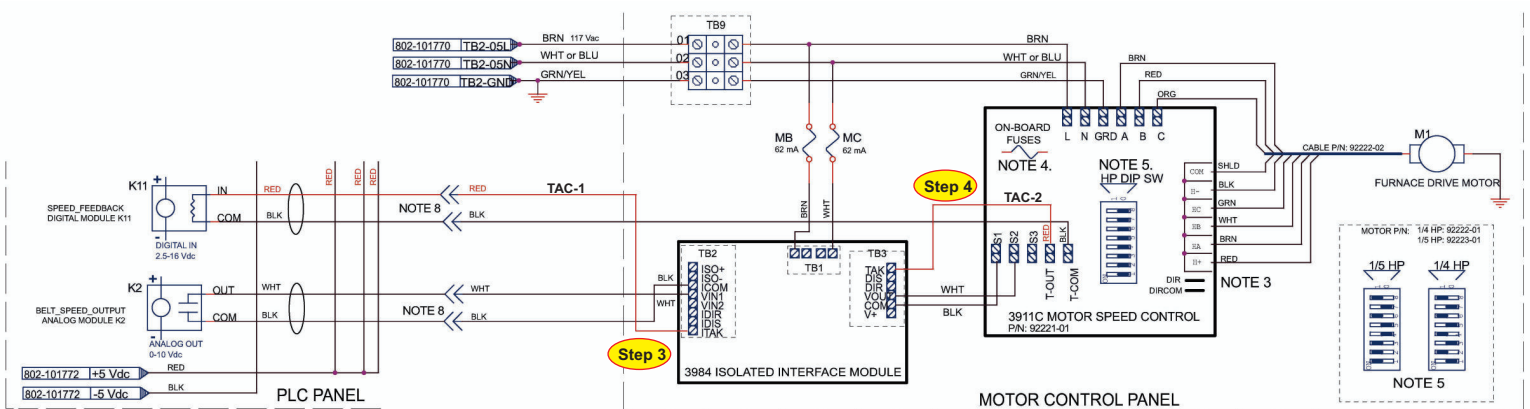


Figure 2. After Rewire (Rev 3)

NOTES:

1. **DO NOT CHANGE:** The black wire connecting T-COM on the Bodine 3911 motor speed controller to the K11 common.
2. The ITAK output provides a digital tachometer for monitoring furnace belt motor speed. The output pulse levels are low to high to low. Typical pulse width is 0.8 msec. 12 pulses correspond to 1 motor revolution. The furnace software converts this information from K11 to maintain the desired belt speed.