



RODIX INC.
FEEDER CUBE
FC-90 Plus Series
GENERAL PURPOSE

ADJUSTMENTS AND SET UP FOR UNIT A

1. SELECTING 60 OR 120 PULSE OPERATION:

- A. For 60 pulse output - Set switch (S1) to 60 on "master control" P.C. card (No. 24-476).
- B. For 120 pulse output - Set switch (S1) to 120 on "master control" P.C. card.

Note: Readjust MAX pot after changing pulse switch setting.

2. INSTALLING THE PART SENSOR (Photo-sensor or Proximity Switch)

- A. Connect a three wire, current-sinking (NPN) or a current-sourcing (PNP) sensor as shown on the enclosed wiring diagram. The sensor must be able to operate on 12VDC and be capable of switching at least 3.0 mA.
- B. Set switch (S2) for the proper logic. When the switch is in the "NORM" position, the control will run only when the sensor signal is present. The "NORM" position is used with Light-Operate Photoeyes (through beam). When switch (S2) is in the "INV" position, the control runs only when the sensor signal is not present. The "INV" switch position is used with Dark-Operate (reflective) Photoeyes and with Proximity Sensors.

Note: If the LED on the sensor glows dimly instead of turning off, dedicate the circuit board to the sensor. Remove resistor R4 when using a NPN sensor, for PNP remove R3. The resistor is located near TB2-4; use pliers to twist and snap it off.

3. TO LIMIT THE MAXIMUM OUTPUT OF CONTROL:

The **MAX** Output trimpot can be adjusted to keep the vibratory feeder from hammering when the control is turned up to full power.

NOTE: Output to feeder must be connected and the control set for proper output frequency (60 or 120 pulse) setting. The Run Contact input must be closed and the Part Sensor must be calling for parts.

- A. Power input should be **OFF** or disconnected.
- B. Rotate **MAIN CONTROL DIAL** on front cover to 0 or its minimum setting.
- C. Open cover to allow access to printed circuit card.
- D. Using **CAUTION**, turn power **ON** (no output should be present).
- E. Rotate the **MAIN CONTROL DIAL** on front cover slowly to its highest setting.
- F. Adjust the **MAX** Output trimpot so that the output to the feeder reaches its desired maximum level when the **MAIN CONTROL DIAL** is turned fully clockwise. Turning the MAX Output trimpot clockwise increases the maximum output level.

4. MAIN CONTROL DIAL

The output power is controlled by the **MAIN CONTROL DIAL**. A special logarithmic-tapered power out curve (non-linear) spreads the power broadly across the **MAIN CONTROL DIAL** to help give maximum "Fine Control" over the output speed of the vibratory feeder.

5. RUN JUMPER OR CONTACT

A Run Jumper is factory installed as shown on the enclosed wiring diagram.

If this Feeder Cube is to be controlled by a paddle switch or other device, replace the factory-installed jumper with the controlling "Run Contact" at terminals 7 and 8 of TB2 (small terminal strip). The contact must be able to switch 12VDC and 3.0 mA. The control will then run only when the contact is closed and the part sensor is calling for parts.



MODEL - FC-92 Plus
P/N 121-8450

Including Models
FC-92-4 Plus P/N 121-8460
FC-92-5 Plus P/N 121-8470



Listed, File No. E183233

Input: 120 VAC
50/60 HZ.

Output: 0-120 VAC
Double Unit Fuse Sizes:
Unit A 10 and Unit B 5 AMPS
80% Duty Cycle at Rated AMPS

© 2000 RODIX INC.

FC-92 PLUS APP JANUARY 2000

6. SETTING THE DELAY TIMERS:

The delay timer can be set for independent OFF delay and ON delay periods. The time delay trimpots can be adjusted to provide the best individual response for the feeder (0 to 10 seconds). By rotating the adjustment clockwise, the delay will become longer.

7. SETTING THE SOFT-START

The start-up of the control output can be adjusted to ramp up to the desired output level instead of starting abruptly. This keeps parts from falling off the tooling of a vibratory feeder when it turns on, it can also reduce hammering during turn on. Turn the **SOFT** Start trimpot clockwise for the gentlest start (about a 10 sec. ramp up to full output). Turn the trimpot fully counter-clockwise for no soft start.

8. FEEDER BOWL/HOPPER INTERLOCK OUTPUT:

The Feeder Bowl/Hopper Interlock feature (terminals 2 & 3 of TB2) is connected to a Rodix FC-40 All-Purpose Series control, when control of a bulk material hopper is needed. The control interlock will prevent the hopper from operating anytime the bowl is turned OFF or in "STAND BY" mode. The Interlock output is 12 VDC (70 mA). The 12 VDC output is capable of switching 500 mA if an external power supply is used, consult the factory for details.

The Interlock output can also be used to drive a solid state relay. The solid state relay is then used to operate any auxiliary equipment such as air valves.

9. POWER SUPPLY:

At the rated line voltage, the power supply is capable of providing a combined total current of 100 mA at 12 VDC. The total current includes the sensor and any auxiliary output accessories that are connected to the Bowl/Hopper Interlock terminals.

10. REMOTE SPEED CONTROL:

Remote control of the power level can be accomplished by the following methods:

- A. 0-5VDC Analog input signal may be applied in place of the Main Control Dial. For further information, contact RODIX and request a FC-90 *Plus* Series Advanced Application Note.
- B. 4-20mA signal from a PLC can be used to remotely vary the output of the control instead of the Main Control Dial. This feature is automatically turned on whenever a 4-20mA signal is applied to the control (terminals 11 & 12 of TB2). To return control to the Main Control Dial, remove the 4-20mA signal by turning it off or use a switch to open the circuit. The 4-20mA input is transformer isolated from the power line.
- C. Remote control of the output power level can be accomplished by using an optional **Step Up/Down Remote Speed Interface P/N 123-148**.

11. LINE VOLTAGE COMPENSATION

Fluctuations in the line Voltage can cause a feeder bowl to vary its feed rate. The line voltage compensation feature adjusts the control's output to help compensate for fluctuations in the supply voltage. If it becomes necessary to disable this feature, cut through J8 using side cutter pliers or a knife.

WARNING:

Fuses should be replaced with Littelfuse 3AB "Fast Acting" type or equivalent of manufacturer's original value.

Mounting this control on a vibrating surface will void the warranty.

WARRANTY

Rodix Control Products are Warranted to be free from defects in material and workmanship under normal use for a period of two years

from date of shipment. For the full description of the warranty, terms, and software license, please contact the factory.

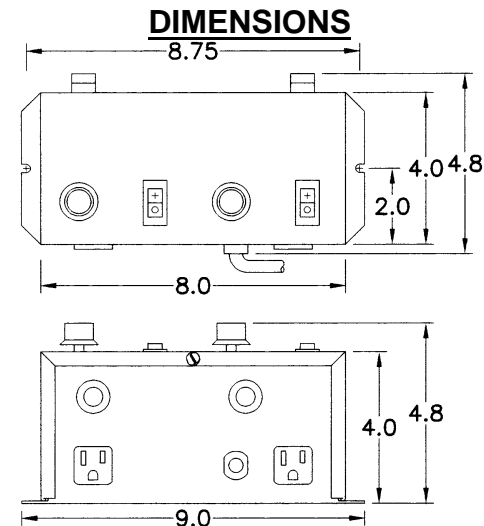
For assistance installing or operating your Rodix Control please call the factory. Technical help is available to answer your questions and Fax any needed information. To return a control for IN or OUT of Warranty Service, please ship it prepaid to:

Rodix Inc., ATTN: Repair Department

If under Warranty, Rodix will repair or replace your control at no charge; If out of Warranty, we will repair it and you will be billed for the repair charges (Time and Material) plus the return freight. Quotes for repairs are available upon request. A brief note describing the symptoms is appreciated by our Technicians.

Feeder Cube is a registered TM of Rodix Inc.

Banner is a registered Trademark of Banner Engineering Corp, 9714 10th Ave, Minneapolis, MN 55441



RODIX, INC.

**4904 Colt Road, Rockford, IL 61109
Toll Free (800) 562-1868, FAX (815) 874-6604
E-mail custserve@rodix.com**

www.rodix.com

FC-92 PLUS APP JANUARY 2000

ADJUSTMENTS AND SET UP FOR UNIT B

1. SELECTING 60 OR 120 PULSE OPERATION

- A. For 60 pulse output - Set switch (S1) to 60 on "master control" P.C. card (No. 24-480).
- B. For 120 pulse output - Set switch (S1) to 120 on "master control" P.C. card.

Note: Readjust MAX pot after changing pulse switch setting.

2. LIMITING THE MAXIMUM OUTPUT OF CONTROL

Adjust the **MAX** Output trimpot so that the output to the feeder reaches its desired maximum level when the **MAIN CONTROL DIAL** is turned fully clockwise. The **MAX** Output trimpot should be adjusted to keep the vibratory feeder from hammering when the control is turned up to full power.

NOTE: Output to feeder must be connected and the control set for proper output frequency (60 or 120 pulse) setting. The Run Jumper must be connected as shown on the wiring diagram.

- A. Power input should be **OFF** or disconnected.
- B. Rotate **MAIN CONTROL DIAL** on front cover to 0 or its minimum setting.
- C. Open cover to allow access to printed circuit card.
- D. Using **CAUTION**, turn power **ON** (no output should be present).
- E. Rotate the **MAIN CONTROL DIAL** on front cover slowly to its highest setting.

- F. Adjust the **MAX** Output trimpot so that the output to the feeder reaches its desired maximum level when the **MAIN CONTROL DIAL** is turned fully clockwise. Turning the **MAX** Output trimpot clockwise increases the maximum output level.

3. REMOTE OFF/ON CONTROL

Note: a Run Jumper has been installed at the factory as shown on the enclosed wiring diagram.

Remote OFF/ON operation of the FC-40 *Plus Series* Feeder Cube® control can be configured to operate in one of the following ways.

- A. A low current switch such as a paddle switch can replace the factory-installed Run jumper "J1." The "Run Contact" connects to terminals 6 and 7. The contact must be able to switch 5VDC and 2mA. The control will then run only when the contact is closed. Refer to Section A of the OFF/ON CONTROL GUIDE.
- B. Feeder Bowl/Hopper Interlock allows the Hopper control to operate only when the Bowl is running and the paddle switch contact is closed. The **interlock input** on terminals 11 and 12 of TB2 is controlled by the **interlock output** of a "Parts Sensing Feeder Bowl Control" such as an FC-90 *Plus*.

Remove jumper "J1" of this control from TB2 terminals 6 and 7. Connect the Hopper Paddle switch to alternate terminals 5 and 6 of TB2. Connect TB2 terminals 11 and 12 of this control to the "Parts Sensing Control". Refer to Section B of the OFF/ON CONTROL GUIDE. Check specific instructions for the "Parts Sensing Control" wiring.

Note: Only use the Bowl/Hopper Interlock with a FC-90 and FC-40 Series control. Two FC-40 Series controls will not interlock to each other since neither one has an **interlock output**.

- C. Low Voltage DC can be used to turn the control **ON** and **OFF**. Move jumper "J1" from terminal 7, to terminal 5, (6 remains the same).

Connect a +5 to 30VDC (10mA) signal to terminal 12 and the reference (GND) to terminal 11 of TB2. The control will now turn **ON** when the DC signal is present at terminals 11 and 12 of TB2. This input is optically isolated. Refer to Section C of the OFF/ON CONTROL GUIDE.

- D. AC Voltage may be used to turn the control **ON** and **OFF**. This requires a 105-250VAC signal, with 2mA leakage maximum. Set up the control by moving the jumper "J1" from terminal 7, to terminal 5, (6 remains the same). Connect the 105-250VAC Signal to terminal 12 (L1) and the common (L2) to terminal 10 of TB2. The FC-40 control will now turn **ON** whenever the AC signal is applied to terminals 10 and 12 of TB2. This input is optically isolated. Refer to Section D of the OFF/ON CONTROL GUIDE.

TB-2 terminals 5-7 are transformer isolated from the line voltage circuit.

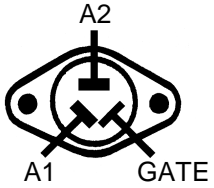

4. MAIN CONTROL DIAL

The output power is controlled by the **MAIN CONTROL DIAL**. A special logarithmic-tapered power out curve (non-linear) spreads the power broadly across the **MAIN CONTROL DIAL** to help give maximum "Fine Control" over the output speed of the vibratory feeder.

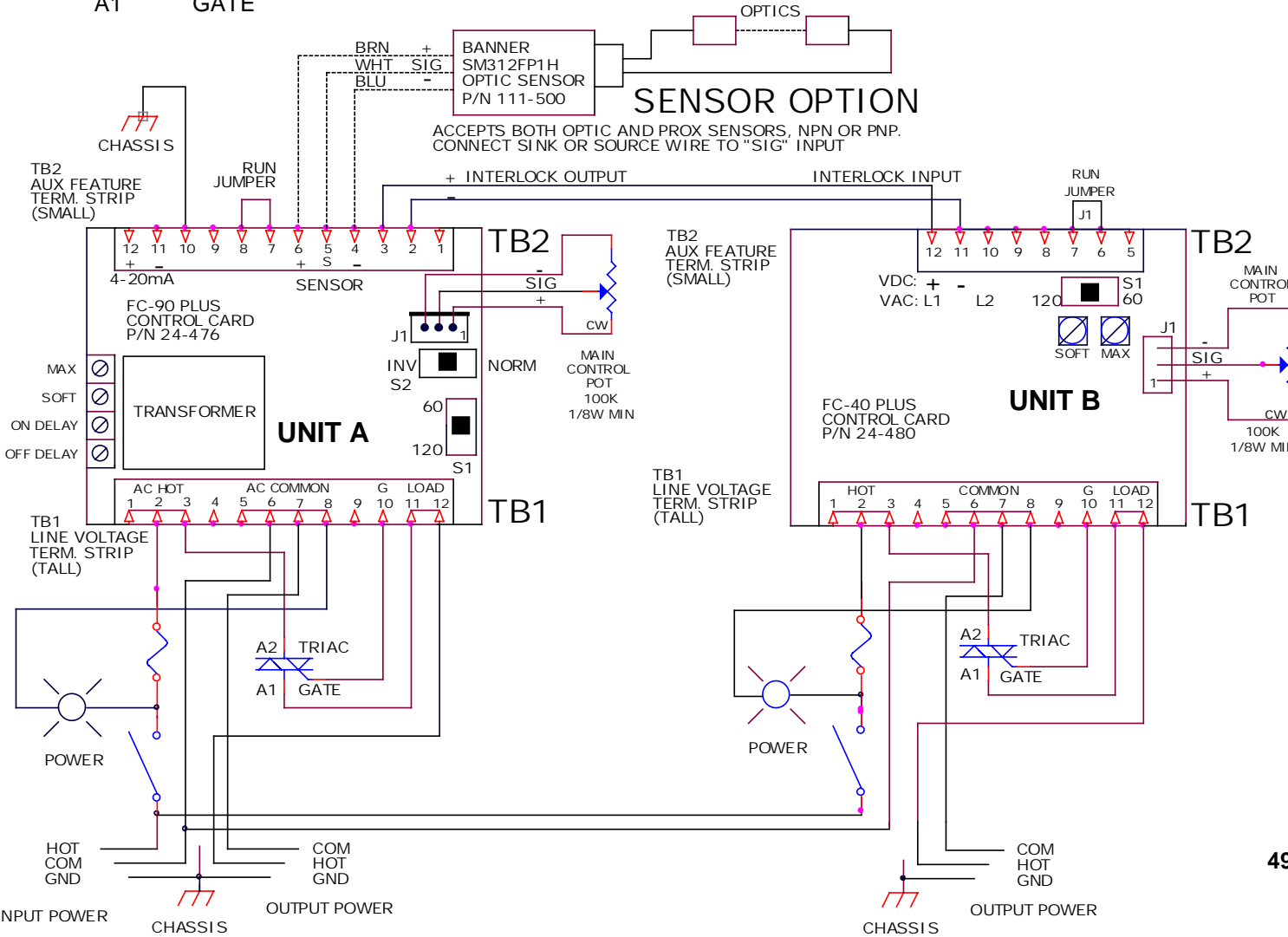
5. SETTING THE SOFT-START

The start-up of the control output can be adjusted to ramp up to the desired output level instead of starting abruptly. This keeps parts from falling off the tooling of a vibratory feeder when it turns on; it can reduce hammering during turn on; it can also simulate a paddle switch ON delay. Adjust the **SOFT** Start trimpot clockwise for the gentlest start (about a 10-second ramp up to full output). Turn the trimpot fully counter-clockwise for no soft start.

TRIAC REFERENCE GUIDE

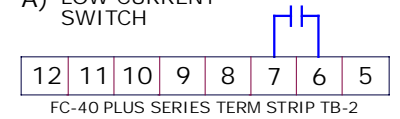
RODIX INC.
FEEDER CUBE
FC-92 Plus Series
WIRING DIAGRAM
MODEL #121-8450



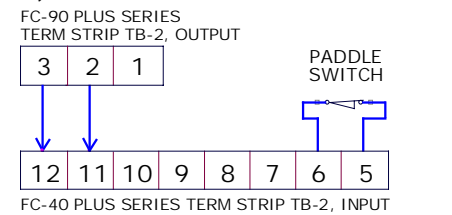
OFF/ON CONTROL GUIDE

See section 3 of the Application Note for more details.

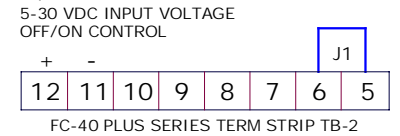
A) LOW CURRENT SWITCH



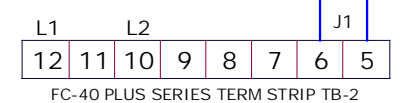
B) FEEDER BOWL/HOPPER INTERLOCK



C) LOW VOLTAGE INPUT SWITCHING



D) AC VOLTAGE INPUT SWITCHING



RODIX, INC.
 4904 Colt Road, Rockford, IL 61109
 Toll Free (800) 562-1868
 FAX (815) 874-6604
 E-mail custserve@rodix.com
www.rodix.com

MODEL	INPUT VAC	AMPS	OUTPUT
FC-92 PLUS	120 VAC	10/5A	0-120