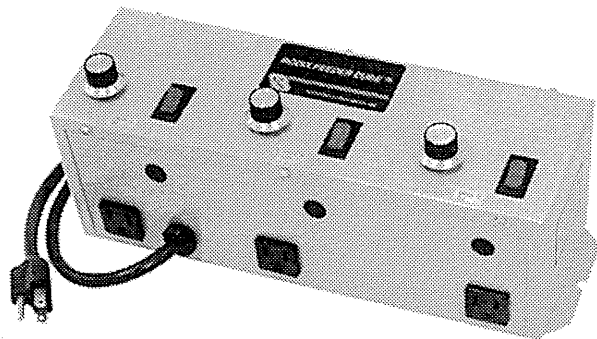


# ADJUSTMENTS AND SET UP

## APPLICATION NOTE



MODEL - FC-102 *Plus*  
P/N 121-864

UL Listed, File No. E183233 c UL

Input: 120 VAC  
50/60 HZ.  
Output: 0-120 VAC  
Triple Unit Fuse Sizes:  
Main 15 AMPS MAXIMUM  
Unit A 10 AMPS,  
Unit B 15 AMPS,  
Unit C 5 AMPS  
80% Duty Cycle at Rated AMPS

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## ADJUSTMENTS AND SET UP

### UNIT A & C

#### 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. 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 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

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

**Note:** TB2 terminals 5 - 7 are connected to the line voltage circuit. Therefore any switch or contact must be isolated from other circuits.

- A. If the FC-40 *Plus* is to be controlled by a paddle switch or other low current switching device, replace the factory-installed jumper "J1" with the controlling "Run Contact" at terminals 6 and 7 of TB2 (small terminal strip). The contact must be able to switch 5Vdc and 2.0 ma. The control will then run only when the contact is closed.
- B. Feeder Bowl/Hopper Interlock is used when a FC-40 *Plus* operates a hopper with a paddle switch. The purpose is to turn OFF the Hopper when the Bowl is OFF. The interlock input on the FC-40 is controlled by the interlock output of a "Parts Sensing Feeder Bowl Control" such as an FC-90. In the FC-40 remove jumper "J1" from TB2 terminals 6 and 7, then connect the Hopper Paddle switch to alternate terminals 5 and 6 of TB2. Connect TB2 terminals 11 and 12 of the FC-40 to the "Parts Sensing Control". Check specific instructions for the "Parts Sensing Control" wiring.
- C. Low Voltage dc can be used to turn the FC-40 *Plus* ON and OFF. Move jumper "J1" from terminal 7, to terminal 5 of TB2, (6 remains the same). Connect a +5 to 30Vdc (10ma) signal to terminal 12 and the reference (GND) to terminal 11 of TB2. The FC-40 control will now turn ON when the dc signal is present at terminals 11 and 12 of TB2. This input is optically isolated.

D. AC Voltage may be used to turn the FC-40 *Plus* **ON** and **OFF**. This requires a 105-250Vac signal, with 5ma leakage maximum. In the FC-40 move the jumper "J1" from terminal 7, to terminal 5 of TB2, (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.

#### 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. Use of an external analog signal in place of the control potentiometer is not recommended.

#### 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, and can also reduce hammering during turn on. Adjust 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.

#### 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**

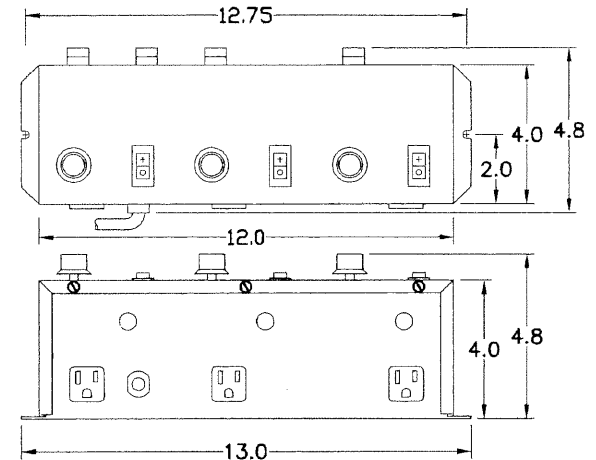
If under Warranty, Rodix will repair or replace your control at no charge; If out of Warranty, we will repair it and you will be billed for the repair charges (Time and Material) plus the return freight. Quotes for repairs are available upon request. A brief note describing the symptoms is appreciated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

Feeder Cube® is a registered TM of Rodix Inc.

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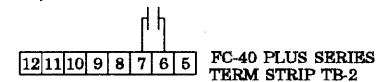
**RODIX, INC.**  
 4904 Colt Road  
 Rockford, IL 61109  
 Toll Free (800) 562-1868  
 EMAIL [rodix@compuserve.com](mailto:rodix@compuserve.com)  
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### DIMENSIONS

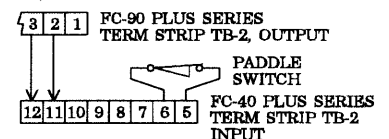


### OFF/ON CONTROL GUIDE

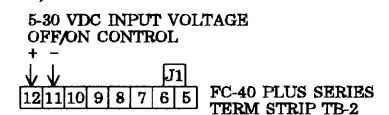
#### A) LOW CURRENT SWITCH



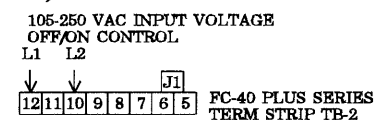
#### B) FEEDER BOWL/HOPPER INTERLOCK



#### C) LOW VOLTAGE INPUT SWITCHING



#### D) AC VOLTAGE INPUT SWITCHING



# ADJUSTMENTS AND SET UP

## 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. 24-470).
- 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. Consult factory before applying a sensor that has an internal pull up or pull down resistor.
- 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.

### 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 the FC-90 *Plus* 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.

### 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:

The Power supply is capable of providing a combined total current of 100 mA at 12 Vdc. This total includes the sensor and any auxiliary output accessories that are connected to the Bowl/Hopper Interlock terminals.

### 10. REMOTE CONTROL:

Remote control of the output power level can be accomplished by using a **0-5VDC Analog input signal**, or an optional **4-20mA Remote Speed Interface P/N 123-128**, or an optional **Step Up/Down Remote Speed Interface P/N 123-120**.

For further information, call RODIX and request a **FC-90 Plus Series** Advanced Application Note.

# UNIT A

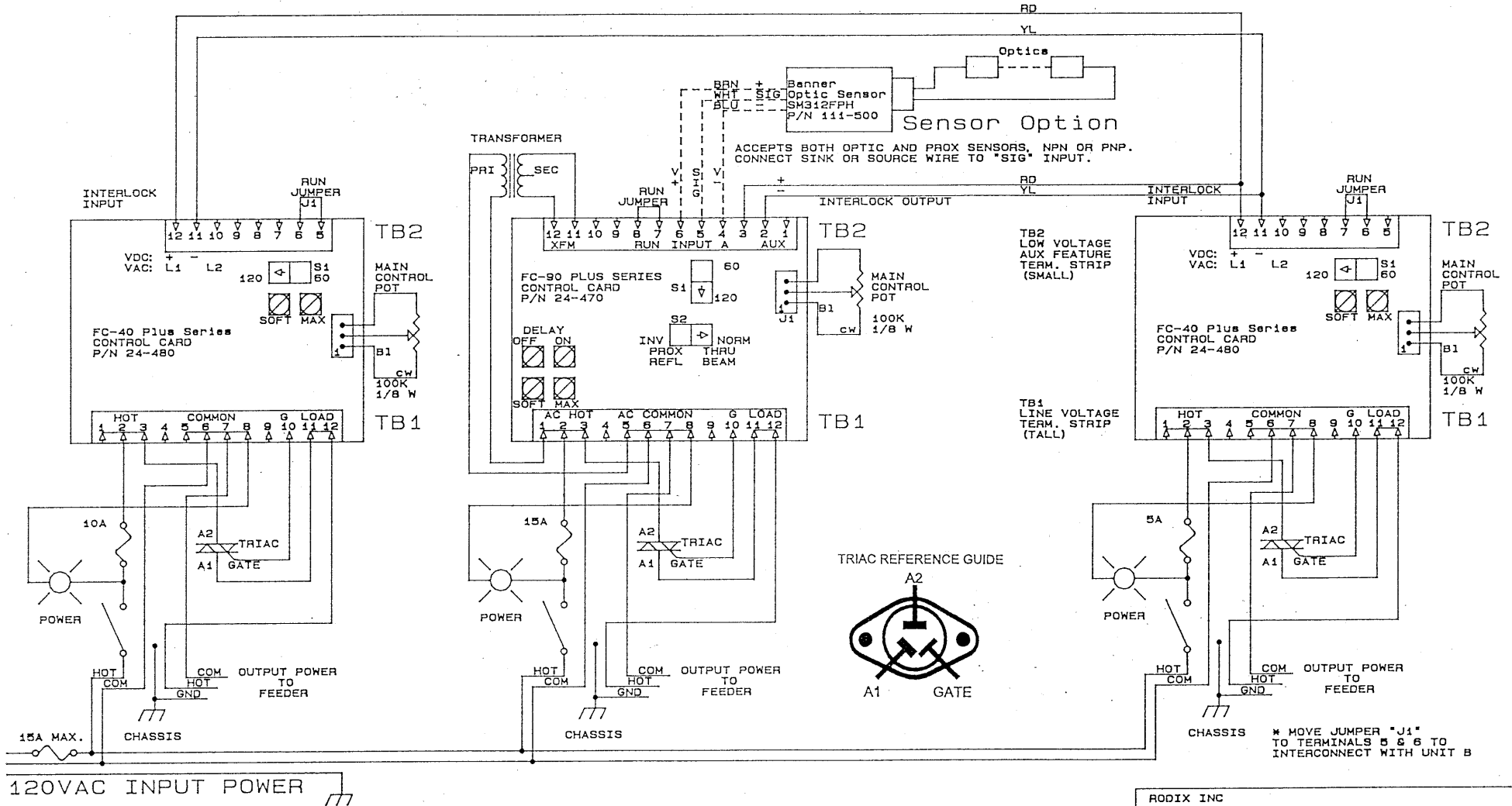
FC-40 PLUS Series

# UNIT B

FC-90 PLUS Parts Sensing Series

# UNIT C

FC-40 PLUS Series



120VAC INPUT POWER

NOTE: TO USE THE OPTIONAL PADDLE SWITCH, REPLACE JUMPER "J1" WITH THE PADDLE SWITCH WIRES.

\* MOVE JUMPER "J1" TO TERMINALS 5 & 7 IF INTERLOCK TO UNIT B IS NOT DESIRED.

RODIX INC	
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