

Service Manual

Syntron[®] HCFC CONTROL

Model 28, Enclosed Unit

Table of Contents

General Section	Page
Safety Instructions	4
Introduction.....	5
Inspection and Long-Term Storage.....	5
Installation.....	5
Operation.....	6
Setup Procedure.....	6
Maintenance.....	8
Troubleshooting.....	8
Wiring Diagram.....	9
Part Numbers	10

Important

This service manual is provided to assist in the operation and maintenance of your Homer City Automation equipment.

Requests for additional manuals or replacement parts should be directed to:

Homer City Automation Inc.
57 Cooper Avenue
Homer City, PA 15748
Phone: 724-479-4503
Fax: 724-479-4767

Web: www.homercityautomation.com

Please be sure to include the following information when ordering replacement parts:

1. Machine model name
2. Factory order number
3. Quantity of parts required
4. Homer City Automation part number (from manual)
5. Description of part
6. Shipping instructions

Homer City Automation reserves the right to alter at any time, without notice and without liability or other obligations on its part, materials, equipment specifications, and models. Homer City Automation also reserves the right to discontinue the manufacture of models, parts, and components thereof.

Your satisfaction is very important to us. Please direct any comments, questions, or concerns to our sales or engineering department.

Safety Instructions

The purpose of safety symbols is to attract your attention to possible danger. Safety symbols, and their explanations, deserve careful attention and understanding. The safety warnings do not by themselves eliminate any danger. The instructions or warnings they give are not substitutes for proper safety procedures.

SYMBOL

MEANING



Safety Alert Symbol: Indicates **DANGER, WARNING, or CAUTION.** Attention is required in order to avoid serious personal injury. This symbol may also be used in conjunction with other symbols or pictographs.

NOTE

Notes advise you of information or instructions vital to the operation or maintenance of the equipment.

IMPORTANT SAFETY INFORMATION

REAL ALL INSTRUCTIONS BEFORE OPERATING

- Upon receipt, unpack and inspect the unit for damages that may have occurred during shipment. If damage is found, contact the shipping carrier and Homer City Automation immediately.
- Read instructions carefully. Be familiar with the controls and proper use of the unit.
- Do not operate the unit when tired, ill, or under the influence of alcohol, drugs or medication.

Product safety labels must remain highly visible on the equipment. Establish a regular schedule to check visibility. If you need to replace safety labels, contact Homer City Automation for an additional supply free of charge.

The instructions and data in this instruction manual are vital to the proper installation and operation of this equipment. In order to avoid delays due to faulty installation or operation, please see that these instructions are read by the persons who will install, operate and maintain this equipment.

NOTE: Supporting information, such as drawings, may be attached to the manual. The information contained therein takes precedence over corresponding information printed in this manual.

INTRODUCTION

Syntron ® HCFC Controls provide flexible and concise solid-state power control for inductive and resistive loads below control current rating. They are used with Syntron electromagnetic vibratory equipment including light-duty feeders and parts feeders.

The standard HCFC Control features adjustable soft-start, UL and CUL rating, 50/60 Hz operation, and selectable full/half-wave operation. HCFC Controls also feature maximum operation windowing adjustments (permitting linearity for specific applications).

The Model 28 HCFC Control enclosure is rated NEMA 1. It contains a line switch and manual potentiometer for controlling output from the vibrating equipment.

INSPECTION AND LONG-TERM STORAGE

Upon receipt, unpack and inspect the control for any damage that may have occurred during shipment. If damage is found, contact the shipping carrier and Homer City Automation immediately.

If the control must be stored for an extended period of time, it must be stored indoors in its original shipping container, in an area safe from water damage. Plug all openings in the control box to prevent dirt, rodents, and insects from entering. Homer City Automation advises placing a corrosion preventive inside the control box. Be careful not to drop the control because the impact could damage components.

INSTALLATION

Install the control, being careful to maintain its NEMA or IP rating integrity of the supplied enclosure. Power supply voltage and frequency requirements are designated on the control nameplate. If remote mounting is necessary, the control should be installed close to the equipment where it is easily accessible and within sight of the operator. Installation on a wall in a vibration-free location is recommended. Ambient temperature should not exceed 105°F (40°C).



WARNING: The power supply voltage and frequency must match the requirements indicated on the nameplate.




WARNING: The electrical power supply to the Homer City Automation-supplied control must be made through a customer-supplied safety disconnect switch mounted next to the control. All installation wiring must adhere to local electrical codes.



WARNING: The control must be properly grounded.

 **CAUTION:** Follow the wiring diagram furnished with the control when making electrical connections.

 **CAUTION:** Replace fuse(s) with fuse(s) of same type and rating.

OPERATION

If the control is purchased with a feeder, all control variables are preset at the factory.

After the control has been installed and all wiring connections have been properly completed, the control is ready for operation.

  **WARNING:** The control cover must be closed and secured while the control is in operation.

If the control was purchased separately and needs to be adapted to an existing feeder, follow the setup procedure below.

  **WARNING:** Disconnect and lock out the power supply at the safety disconnect switch before performing any maintenance or operation adjustments.

SETUP PROCEDURE

(Refer to the wiring diagram on page 9 while performing the setup procedure.)

1. Set the main control pot located on the enclosure door to 0 percent.
2. Open the enclosure door.
3. Set SWITCH (S1) for the desired output.

S1: OUTPUT FREQUENCY SELECTION (vpm = vibrations per min.)	
RC Operation – Set S1 to ‘60’	AC Operation – Set S1 to ‘120’
50 Hz: 3000 vpm	50 Hz: 6000 vpm
60 Hz: 3600 vpm	60 Hz: 7200 vpm
(Factory Default: ‘60’)	

4. Make the power, load, and (if required) DC input connections to their respective locations, as shown in the wiring diagram. Power cord must be connected to 230V supply (thru either a safety disc switch or a plug). Load cable to be connected to the feeder cable thru a customer supplied junction box.
5. Apply power to the control at the safety disconnect switch, then turn the control power on by placing the power switch to the **ON** position.

6. For optimal performance of your feeder, make the following trimmer pot adjustments (located on the printed circuit board):

MAX:	<p style="text-align: center;"><u>MAXIMUM FEEDER OUTPUT</u></p> <p>Set the main control pot (or DC signal reference if desired) to its maximum setting.</p> <p>With the proper size screwdriver, adjust the 'MAX' trimmer pot until the desired feeder stroke is achieved without exceeding the rated feeder current. Adjust the speed reference from 0 to 100 percent to verify the 'MAX' trimmer pot setting.</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Fully Counter Clockwise:</td> <td style="width: 50%; text-align: right;">Minimum Feeder Output</td> </tr> <tr> <td>Fully Clockwise:</td> <td style="text-align: right;">Maximum Feeder Output</td> </tr> <tr> <td colspan="2" style="text-align: center;">(Factory Default: Fully Clockwise)</td> </tr> </table>	Fully Counter Clockwise:	Minimum Feeder Output	Fully Clockwise:	Maximum Feeder Output	(Factory Default: Fully Clockwise)	
Fully Counter Clockwise:	Minimum Feeder Output						
Fully Clockwise:	Maximum Feeder Output						
(Factory Default: Fully Clockwise)							
SOFT:	<p style="text-align: center;"><u>FEEDER RAMP-UP TIME</u></p> <p>With the proper size screwdriver, adjust the 'SOFT' trimmer pot to the desired output ramp-up time, from 0-10 seconds at the start-up of the feeder.</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Fully Counter Clockwise:</td> <td style="width: 50%; text-align: right;">0 second ramp-up time</td> </tr> <tr> <td>Fully Clockwise:</td> <td style="text-align: right;">10 second ramp-up time</td> </tr> <tr> <td colspan="2" style="text-align: center;">(Factory Default: Fully Counter Clockwise)</td> </tr> </table>	Fully Counter Clockwise:	0 second ramp-up time	Fully Clockwise:	10 second ramp-up time	(Factory Default: Fully Counter Clockwise)	
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7. The **REMOTE SPEED CONTROL FEATURE** is automatically turned on whenever a 4-20mA signal is applied to the control. To return control to the main control pot, remove the 4-20mA signal by turning it off or switching open the circuit. The 4-20mA input transformer is isolated from the power line.
8. After you have made all of the necessary internal adjustments to the respective switch and trimmer pots, close and secure the enclosure door.



CAUTION: Do not make any alterations to the control without first contacting Homer City Automation Engineering Department. Unauthorized alterations will void the warranty. Homer City Automation will not assume responsibility for damage that may occur due to unauthorized alterations to the control. Any alterations will void the UL and CUL rating of the control.

MAINTENANCE



WARNING: Disconnect and lock out the power supply at the safety disconnect switch before performing any maintenance work.

The only maintenance required is that the control be kept reasonably clean.

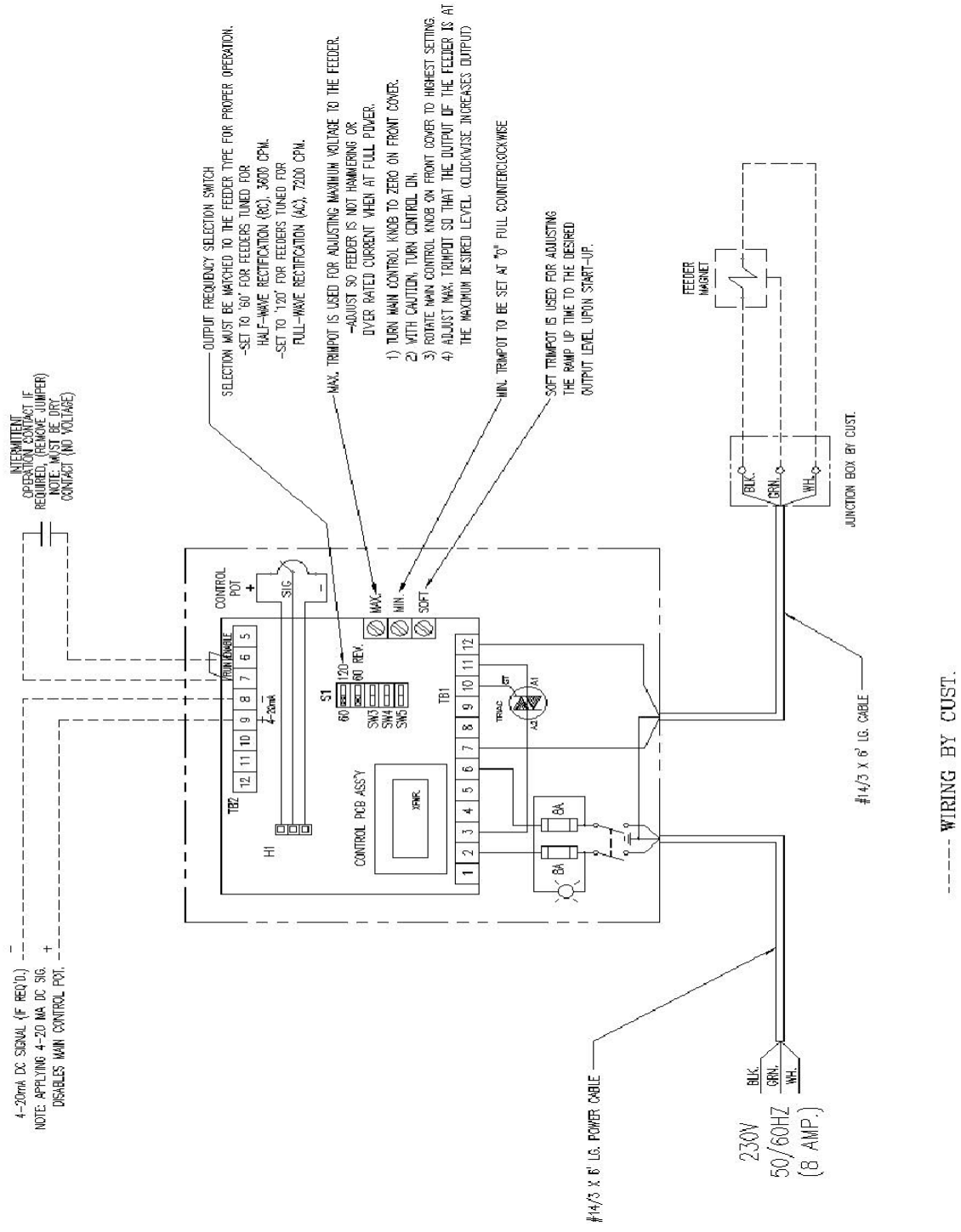


WARNING: Do not use a damp cloth or water for cleaning. A clean, dry compressed air supply is recommended for cleaning.

TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
No output from control	Brief utility power interruption	Turn control off for 5 seconds, then restart; if problem persists call HC Automation
	No AC line voltage	Establish input power
	No AC voltage on TB1	Check fuse and switch
	Contacts or jumper missing at TB2 between 6 and 7	Close contacts or install jumper
	60/120 switch (S1) in wrong position	Change switch position
Feeder hums or moves parts slowly	MAX pot turned fully counter-clockwise	Turn pot clockwise
	60/120 switch (S1) in wrong position	Change switch position
Maximum output with no main pot control	Triac is shorted (RC)	Replace control
	Triac is shorted (AC)	Replace control
Output speed won't change or change is erratic	Brief utility power interruption	Turn control off for 5 seconds, then restart; if problem persists call HC Automation.
	MAX trim pot incorrectly adjusted	Adjust correctly
	Damaged main pot	Replace main pot

Wiring Diagram



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Part Numbers

DESCRIPTION	PART NUMBER
HCFC- 28 Control Assy.	223631-A
Warning Label	125694
Warning Label	128494

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