

This manual provides supplemental information for configuring the Loren Cook Company Vari-Flow® SimpliDrive™ control system. The system requires a Loren Cook Company fan with a motor, and a SimpliDrive controller. The manual does not cover any other installation details or applications.



**Carefully read this publication and any fan related documents prior to any installation or maintenance procedure.**

For additional safety information, refer to AMCA publication 410-96, *Safety Practices for Users and Installers of Industrial and Commercial Fans*. This document and all Cook publications may be obtained from Cook by phoning (417) 869-6474, extension 166; by FAX at (417) 832-9431; or by e-mail at info@LorenCook.com. All Cook publications are available on LorenCook.com.

For information and instructions on special equipment, contact Cook at (417) 869-6474.

### Installation

For fan installation see the proper fan I,O,M manual. The SimpliDrive is premounted and prewired from the factory.

### Wiring

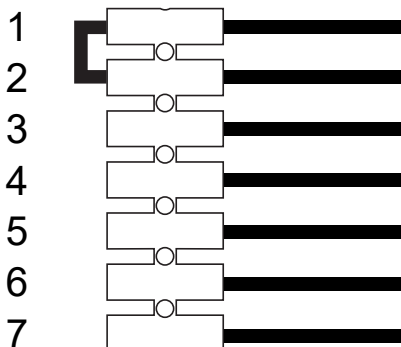
The SimpliDrive only requires wiring to the factory mounted disconnect. Check the input voltage on the Vari-Flow label found on the side of the SimpliDrive to verify the input requirements.



**For further information refer to the National Electrical Code and the wiring diagram provided with the disconnect.**

**NOTICE! Follow the wiring diagram in the disconnect switch. Correctly label the circuit on the main power box and always identify a closed switch to promote safety (i.e., red tape over a closed switch).**

For supplemental wiring information of fan mounted speed control please see page 3. For supplemental wiring information of external speed control please see page 4.



The terminal block shown above is mounted near the SimpliDrive controller and provides a single location for landing wires to utilize additional features of SimpliDrive.

### Operation

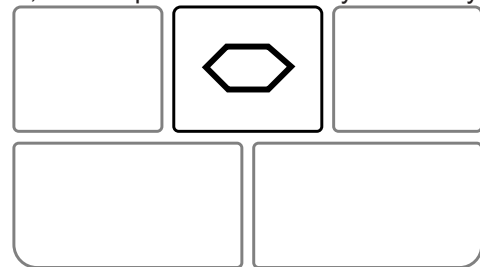
The SimpliDrive is preprogrammed from the factory. It comes programmed to the maximum speed using the provided motor horsepower. Use the factory mounted speed controller or external signal to adjust fan to desired conditions.

#### Factory Programmed Settings

- Accel Time - 30 sec
- Decel Time - 30 sec
- Min Speed - 1/3 Motor Speed
- Max Speed - Motor Nameplate
- FLA - Motor Nameplate
- Auto Restart - 3X
- Energy Optimizer - Enabled
- Spin Start Mode - Enabled

#### Keypad

The navigation button (◁) on the keypad cycles through RPM, Hertz, and Amps. This is the only active key.



### Maintenance

Routine checks should be made on all electrical connections, cables and heat sink fan. Make sure electrical connections are tight. Check the heat sink fans to make sure they turn freely and are clear of dust and debris.



## Troubleshooting

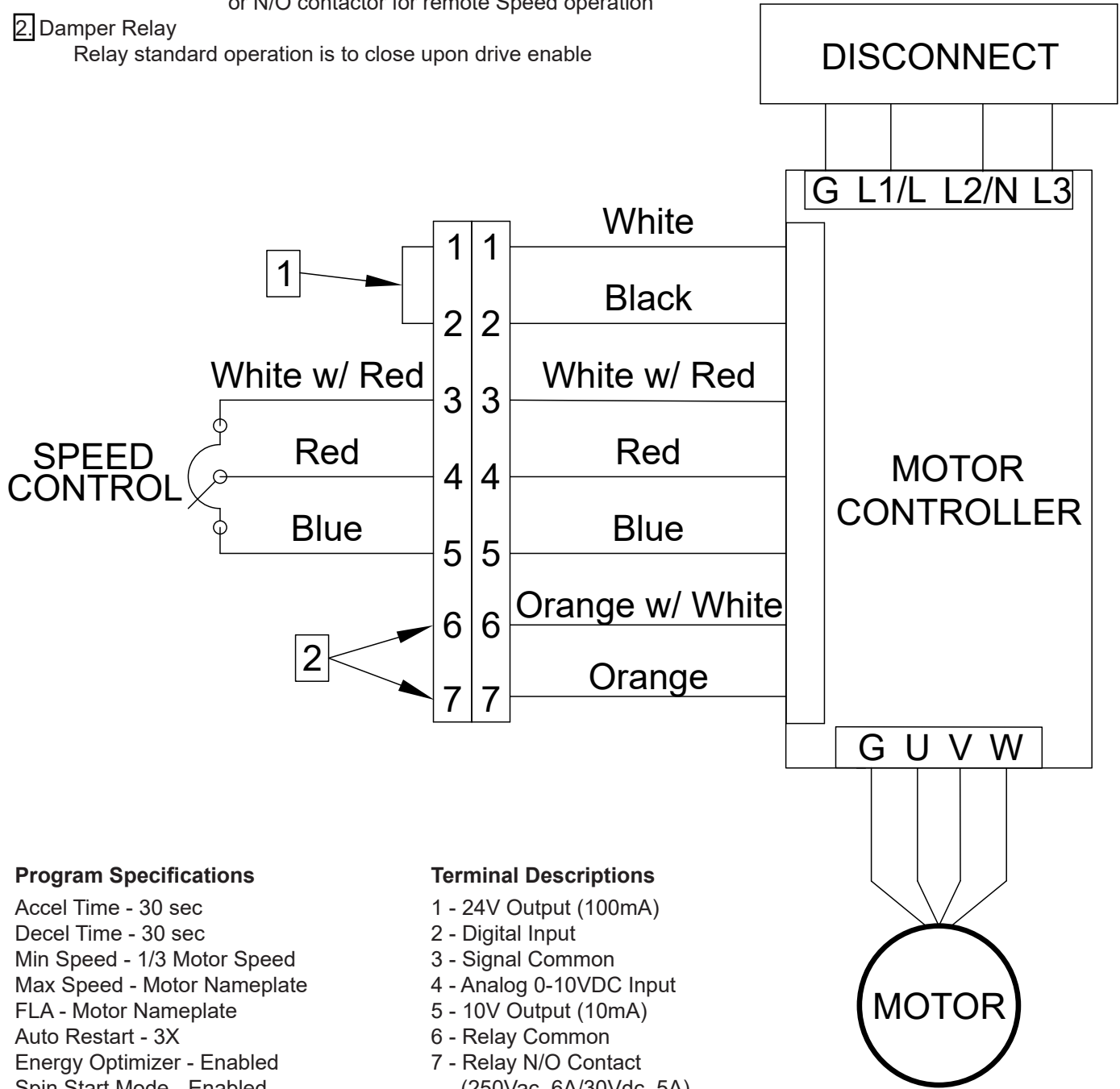
Fault Code	Problem and Potential Cause
O- I or hO- I	<p style="text-align: center;"><b><u>Output Over Current</u></b></p> <p>Cause: Over Current on the Drive output</p> <p>Corrective Action:</p> <ul style="list-style-type: none"> <li>• Verify wheel spins freely</li> <li>• Verify Correct Rotation – see IOM for proper rotation</li> <li>• Verify Fan Load is within Design limits</li> <li>• Verify Motor connections</li> </ul>
U- ErP	<p style="text-align: center;"><b><u>Motor Thermal Overload</u></b></p> <p>Cause: Drive has tripped due to excess heat in the motor</p> <p>Corrective Action:</p> <ul style="list-style-type: none"> <li>• Verify Motor is running within FLA on nameplate of motor</li> <li>• Verify Fan Load is within Design Limits</li> <li>• Verify wheel spins freely</li> <li>• Verify Correct Rotation – see IOM for proper rotation</li> <li>• Verify Fan Load is within Design limits</li> </ul>
U- uoLl	<p style="text-align: center;"><b><u>Under voltage on DC Bus</u></b></p> <p>Cause: Incoming Supply Voltage is too low</p> <p>Corrective Action:</p> <ul style="list-style-type: none"> <li>• Verify incoming/supply voltage is present and matches drive label</li> <li>• Verify electrical connections to drive</li> </ul>
O- t	<p style="text-align: center;"><b><u>Heatsink over temperature</u></b></p> <p>Cause: Drive has tripped due to excessive heat in the heatsink</p> <p>Corrective Action:</p> <ul style="list-style-type: none"> <li>• Inspect the drive for blockage and obstructions in the cooling vents</li> <li>• Ensure that the drive's cooling fan is functioning correctly</li> <li>• Verify that the ambient temperature is within the drive's operating range (14 to 122°F / -10 to 50°C)</li> </ul>
O- hEAt	<p style="text-align: center;"><b><u>Drive internal temperature too high</u></b></p> <p>Cause: Temperature of drive is above its operational limits</p> <p>Corrective Action:</p> <ul style="list-style-type: none"> <li>• Inspect the drive for blockage and obstructions in the cooling vents</li> <li>• Ensure that the drive's cooling fan is functioning correctly</li> <li>• Verify that the ambient temperature is within the drive's operating range (14 to 122°F / -10 to 50°C)</li> </ul>

To reset controller after a fault code has occurred turn power to controller off for approximately 90 seconds and then restart the controller.

# Fan Mounted Speed Control

## Operational Notes:

1. Drive Enable/Remote On/OFF  
 Enable/On - Jumper Terminals 1 & 2  
 Disable/Off - Remove jumper and install SPDT switch or N/O contactor for remote Speed operation
2. Damper Relay  
 Relay standard operation is to close upon drive enable



## Program Specifications

Accel Time - 30 sec  
 Decel Time - 30 sec  
 Min Speed - 1/3 Motor Speed  
 Max Speed - Motor Nameplate  
 FLA - Motor Nameplate  
 Auto Restart - 3X  
 Energy Optimizer - Enabled  
 Spin Start Mode - Enabled

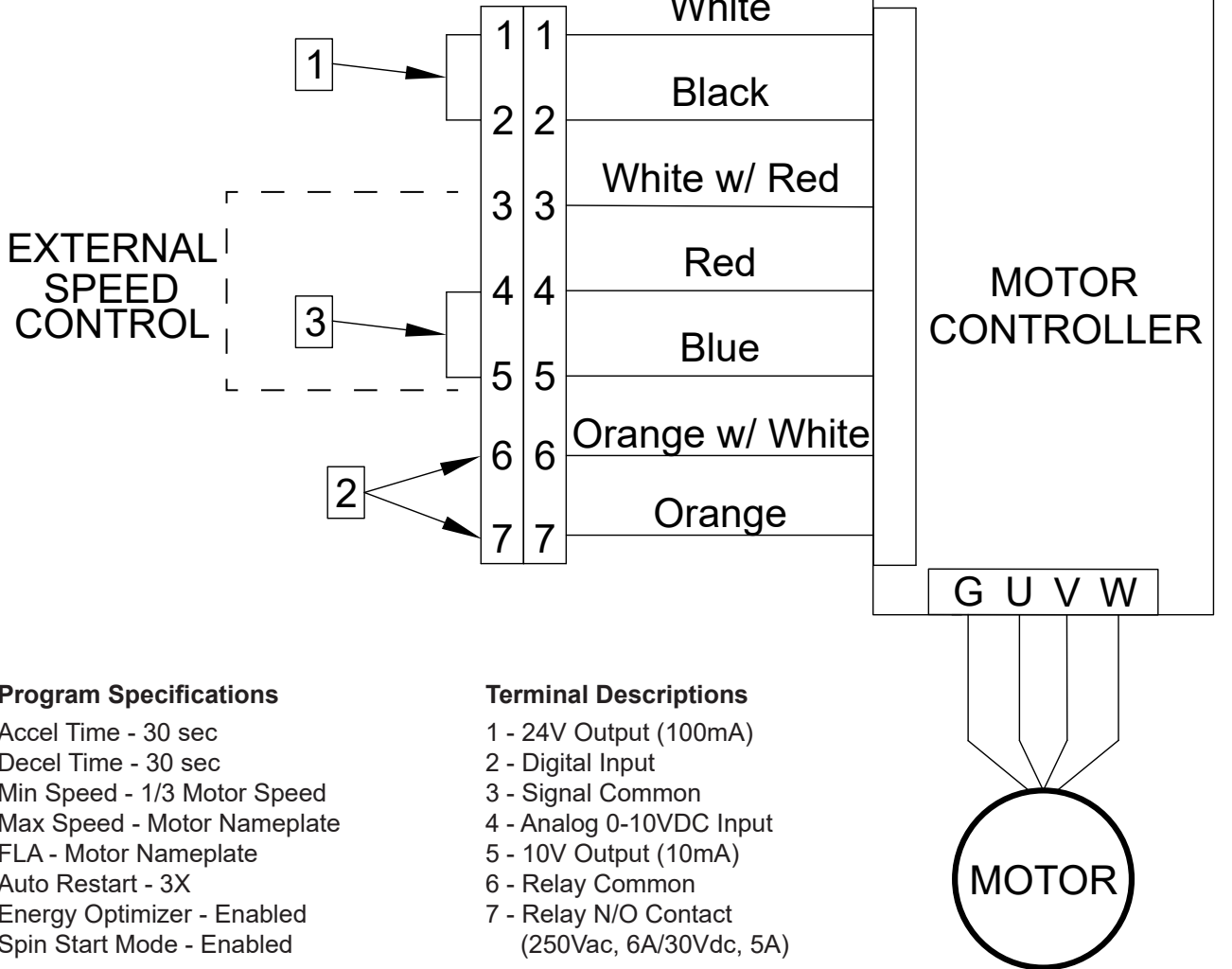
## Terminal Descriptions

1 - 24V Output (100mA)  
 2 - Digital Input  
 3 - Signal Common  
 4 - Analog 0-10VDC Input  
 5 - 10V Output (10mA)  
 6 - Relay Common  
 7 - Relay N/O Contact  
 (250Vac, 6A/30Vdc, 5A)

# External Speed Control

## Operational Notes:

1. Drive Enable/Remote On/OFF  
 Enable/On - Jumper Terminals 1 & 2  
 Disable/Off - Remove jumper and install SPDT switch or N/O contactor for remote Speed operation
2. Damper Relay  
 Relay standard operation is to close upon drive enable
3. External Speed Control  
 Remove jumper at terminals 4 & 5  
 Connect signal common to terminal 3  
 Connect analog 0-10VDC signal to terminal 4



## Program Specifications

Accel Time - 30 sec  
 Decel Time - 30 sec  
 Min Speed - 1/3 Motor Speed  
 Max Speed - Motor Nameplate  
 FLA - Motor Nameplate  
 Auto Restart - 3X  
 Energy Optimizer - Enabled  
 Spin Start Mode - Enabled

## Terminal Descriptions

1 - 24V Output (100mA)  
 2 - Digital Input  
 3 - Signal Common  
 4 - Analog 0-10VDC Input  
 5 - 10V Output (10mA)  
 6 - Relay Common  
 7 - Relay N/O Contact (250Vac, 6A/30Vdc, 5A)

## Limited Warranty

Loren Cook Company warrants that your Loren Cook fan was manufactured free of defects in materials and workmanship, to the extent stated herein. For a period of one (1) year after date of shipment, we will replace any parts found to be defective without charge, except for shipping costs which will be paid by you.

This warranty is granted only to the original purchaser placing the fan in service.

This warranty is void if the fan or any part thereof has been altered or modified from its original design or has been abused, misused, damaged or is in worn condition or if the fan has been used other than for the uses described in the company manual. This warranty does not cover defects resulting from normal wear and tear.

To make a warranty claim, notify Loren Cook Company, General Offices, 2015 East Dale Street, Springfield, Missouri 65803-4637, explaining in writing, in detail, your complaint and referring to the specific model and serial numbers of your fan. Upon receipt by Loren Cook Company of your written complaint, you will be notified, within thirty (30) days of our receipt of your complaint, in writing, as to the manner in which your claim will be handled. If you are entitled to warranty relief, a warranty adjustment will be completed within sixty (60) business days of the receipt of your written complaint by Loren Cook Company.

This warranty gives only the original purchaser placing the fan in service specifically the right. You may have other legal rights which vary from state to state.

For fans provided with motors, the motor manufacturer warrants motors for a designated period stated in the manufacturer's warranty. Warranty periods vary from manufacturer to manufacturer. Should motors furnished by Loren Cook Company prove defective during the designated period, they should be returned to the nearest authorized motor service station. Loren Cook Company will not be responsible for any removal or installation costs.

# LOREN COOK COMPANY

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