Dyna-Power Lubrication

T2-2-1001-2

LUBE GUARDIAN II
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# Technical Help /Ordering Assistance

For technical assistance, application help, or ordering assistance, please contact us at:

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Introduction

Description

The Lube Guardian II-DL has been designed to operate and monitor the crucial aspects of dual line lubrication systems. Please refer to other Lube Guardian II models for other system types.

The Lube Guardian II features a large, easy to read 6”, fully illuminated touch screen housed in a steel, NEMA 12 enclosure. All programming and set-up features are accessed from the touch screen in an easy to read, plain English format for ease of use and convenience.

Specifications

<table>
<thead>
<tr>
<th>Electrical:</th>
</tr>
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<tbody>
<tr>
<td>Input Voltage:</td>
</tr>
<tr>
<td>Current Consumption:</td>
</tr>
<tr>
<td>Pump Output Rating:</td>
</tr>
<tr>
<td>Line 1 Output Rating:</td>
</tr>
<tr>
<td>Line 2 Output Rating:</td>
</tr>
<tr>
<td>Switch Input Rating:</td>
</tr>
<tr>
<td>Sensor Input Rating:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environmental:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enclosure:</td>
</tr>
<tr>
<td>Ambient Temp. Range:</td>
</tr>
<tr>
<td>Storage Temp. Range:</td>
</tr>
<tr>
<td>Vibration (3 axis):</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operation Parameters:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fault Time:</td>
</tr>
<tr>
<td>Idle Time:</td>
</tr>
<tr>
<td>Cycle Counts ON:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Physical:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material (enclosure):</td>
</tr>
<tr>
<td>Dimensions:</td>
</tr>
<tr>
<td>Weight:</td>
</tr>
</tbody>
</table>
Installation

The Lube Guardian II-DL should be installed on a secure vertical structure or wall. Mount the enclosure securely using 1/4” screws. These screws/bolts should be placed through the holes in the mounting feet so the weight of the load is distributed as evenly as possible. See Field Terminal Connections for mounting hole dimensions.

With the Lube Guardian II properly mounted. Please make all required electrical connections using proper wiring principles per Field Terminal Connections drawing.

If the Lube Guardian II has been supplied as a stand-alone item to be integrated into the users central lubrication system, all inputs have a wire jumper installed except for the Cycle Switch input (terminals 1 and 3).

Set-Up / Presets

Set-up

When the controller is first powered the touchscreen will display the default screen (see fig.1). This controller will have preset values pre-installed and should be changed for proper system function. To initiate the timer/controller please take the following steps:

Enter preset value for ‘Lube Time’ - SEE PRESET INSTRUCTIONS
Enter preset value for ‘Fault Time’ - SEE PRESET INSTRUCTIONS
Enter preset value for ‘# Cycles’ - SEE PRESET INSTRUCTIONS
Enter preset value for ‘Bulk Fill’- SEE PRESET INSTRUCTIONS

Note: Each preset value must be greater than zero for proper controller function. And the ‘Lube Time’ and ‘Fault Time’ should have a value greater than one to ensure the proper functioning of the controller.

Preset Instructions

To begin programming the presets, first touch the ‘Change Preset’ button located at the bottom right corner of the ‘Default Screen’. (See fig.1).

This will bring up the ‘Preset Screen’ (See fig.2)

To change a preset value simply press the appropriate button on the ‘Preset Screen’. A numbered keypad (which may be password protected) will pop up. Simply enter the value you would like and press “ENT” to set it.(See fig.3).

Once all of the desired presets have been entered, press the ‘Return’ button to return to the previous screen (in the case of the initial set up, pressing the ‘Return’ button should return you to the default screen).
Keypad

Keypad:

When prompted to enter a numeric value a keypad will display. A brief explanation of the function buttons follows:

‘ESC’ = will closeout keypad. Values entered will not be saved.

‘BS’ = back space. Pressing this will delete the character preceding the cursor.

‘CLR’ = Clears the entire value entered.

‘ENT’ = Accepts the value entered.

Preset Functions

**Idle Time Preset**: The ‘Idle Time’ is the time (in minutes) between lubrication cycles.

**Number of Cycles**: This function allows the user to select the number of lubrication cycles that the system has to complete every time it is activated. In other words, if the system has not completed the set number of cycles (rather than time) the controller will display a fault condition.

**Fault Time Preset**: The ‘Fault Time’ is the time allowed for the system to pump lubricant until the cycle switch changes state. If the time expires prior to the cycle switch changing state, the system will shut down and a fault screen will be displayed.

**Bulk Fill Time**: If the system is equipped with automatic bulk fill, this function will monitor the reservoir filling cycle. If the reservoir has not filled in the time period entered in the preset, a fault condition will occur.

**Reset Fault**: Pressing this field will reset the fault and start the pump for the number of cycles per the ‘Number of Cycles’ preset.

Note: In order to set or change presets, the toggle on the PLC unit must be in the center, ‘Term’, position. This is also the proper toggle position for normal operation.
Operation

Once all the presets have been set and power has been applied, this controller is set to start timing automatically. During normal operation two main operation screens will be used: the ‘Timer On’ screen and ‘Pump On’ screen. The ‘Timer On’ screen will display when the system is between lubrication cycles. Once the preset idle time has elapsed, the pump will engage and the ‘Pump On’ screen will display.

In cases where an external run contact is to be employed, the ‘Timer Off’ screen will display until either the autorun contact is jumpered or the run contact is closed. See fig 4.

A more detailed explanation of the operational screens follows:

Operational Screens

“Timer ON” Screen

The ‘Timer On’ screen will display when the lubrication system is in between lube cycles. The amount of time the system waits before beginning the next lube cycle (idle time) will be displayed as the preset. Below it is the timer which will count the minutes until the preset value is reached. Once the ‘Idle Time’ has elapsed, the pump will start and a new screen will display.

fig.4

fig.6
**“Pump ON” Screen**

The ‘Pump On’ screen will display when the idle time has elapsed. The pump should start and the lube cycle will begin. This screen will display the preset fault time (the time allowed for the system to complete one cycle) and a timer which will count the minutes until the preset fault time is reached.

This indicates that the timing function is turned on. And on the lube cycle has been initiated.

This indicates the preset fault time.

This indicates the actual elapsed time since the start of the lube cycle.

Pressing this field will bring up the ‘Screen Select’ screen which allows the user access to other screens.

Pressing this field will stop the pumping cycle when the pumping cycle was started from the ‘Timer off’ screen.

Pressing this field will bring up the ‘Change Preset’ screen (see fig.2). This will allow for the user to change presets.

**“Timer OFF” Screen**

This screen will display when the ‘auto’ terminal or ‘run’ contact are open.

This indicates that the timing function is turned off but the elapsed values are retained. The ‘Auto’ terminal has to be jumpered or the ‘run’ contact has to be closed to continue the timing operation.

Pressing this field will start the pumping cycle. The pump will stop when the preset number of cycles has been completed.

Pressing this field will bring up the ‘Change Preset’ screen (see fig.2). This will allow for the user to change presets.
Faults

Typical Fault Screen

When a fault condition occurs, the corresponding fault screen will display. A sample fault screen is shown in fig. 8. Fault screens will indicate the type of fault occurring as well as the more common causes for that fault.

Note: A fault screen will only appear if the proper input is present, therefore, all of the fault screens / conditions may or may not be functional for your controller.

Fault Table

<table>
<thead>
<tr>
<th>Fault Message</th>
<th>Fault Condition</th>
<th>Possible Cause and/or Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fault Timer Time-Out</td>
<td>This condition occurs when the cycle switch has not tripped within the preset time.</td>
<td>Check for leakage in header pipes. Check for lubricant level in reservoir.</td>
</tr>
<tr>
<td>Motor Starter Did Not Pull In</td>
<td>This occurs when the motor starter does not pull in and the feedback contact does not close.</td>
<td>Check fuses or circuit breakers. Check starter coil.</td>
</tr>
<tr>
<td>Bulk Fill timer Time-Out</td>
<td>This occurs when the low level switch on the reservoir does not change stat (N.C. to N.O.)</td>
<td>Check for proper function of bulk fill pump. Check bulk fill solenoid valve</td>
</tr>
<tr>
<td>Motor Overload Relay Tripped</td>
<td>This occurs when a motor overload occurs and the overload relay trips.</td>
<td>Check motor windings for short. Check for mechanical binding in the drivetrain.</td>
</tr>
<tr>
<td>Reservoir Overfill</td>
<td>This occurs when a high level, overfill limit switch is tripped.</td>
<td>Check for proper function of the bulk fill solenoid valve.</td>
</tr>
</tbody>
</table>

This indicates that a system fault has occurred.
This indicates the specific type of fault.
This indicates most common cause of fault and/or solution.

Pressing this field will bring up the ‘Screen Select’ screen which allows the user access to other screens.
Pressing this field will reset the fault and start the pump for the duration of the preset number of cycles.
Utility Screens

Screen Selection

The ‘Change Screen’ field is found on all fault and operational screens. When pressed, the ‘Screen Selection’ screen will display. (See fig.9). From this screen the user can easily navigate to any screen (including changing presets) simply by pressing the proper field.

System Utilities

Currently, the only system utility available to the user is the screen contrast. To adjust screen contrast, press the up and down arrows to increase or decrease the screen contrast.

Note: If, for any reason, a screen that is not discussed here displays on the interface please do the following:
- Check to see if the ‘Run’ light on the right side of the PLC is illuminated.
- If the ‘Run’ light is off, move the toggle to the left position ‘Run’ and then move it back to the center position, ‘Term’.
Controller Layout

Bill of Materials

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Qty.</th>
<th>Description</th>
<th>Part Number</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Enclosure NEMA 12, 12x10x5</td>
<td>3755-1210CHM2</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Back Panel, 12 x 10</td>
<td>3755-12P10M2</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>PLC 115VAC/1/60, AC in, Relay out</td>
<td>5346-1000</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>Relay DPDT 120V, 5A</td>
<td>5346-9001</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>Relay Socket</td>
<td>5346-9011</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>Power Supply, 120AC/24DC</td>
<td>5346-1103</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>Circuit Breaker, 6A 300VAC</td>
<td>5346-9012</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>Touch Screen</td>
<td>5346-0055</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>Cable (for Item #8)</td>
<td>5346-0044</td>
</tr>
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