PSK201
Digital Thermostats for Medium Temperature Refrigerating Units

INSTALLATION AND OPERATING INSTRUCTIONS

1 GETTING STARTED

1.1 Important
Read these instructions carefully before installing and operating this controller and follow all additional information for installation and electrical connection. Keep this guide for future reference.

1.2 Installing the controller

Additional information for installation:
• 59.0 mm (2.322 in) is the maximum depth with screw terminal blocks
• 83.0 mm (3.267 in) is the maximum depth with extractable terminal blocks
• the panel thickness must not be greater than 8.0 mm (0.314 in)
• working conditions (working temperature, humidity, etc.) must be between the limits indicated in the technical data
• do not install the controller close to heat sources (heaters, hot air ducts, etc.), devices containing large magnets, locations subject to direct sunlight, moisture, humidity, dust, mechanical vibrations or shocks

• according to safety regulations, protection against access to electrical parts must be ensured by a correct installation of the controller; the parts that ensure this protection must be installed so that they can not be removed without the use of a tool.

1.3 Wiring diagram

Additional information for electrical connection:
• do not use electric or pneumatic screwdrivers/wrenches on the terminal block connections
• if the controller has been moved from a cold location to a warm one, condensation can occur on the inside of the unit causing unsafe or unreliable operation; wait at least one hour before attempting to power up and use the controller
• make sure that the supply voltage and frequency are correct for the power supply of the controller
• always disconnect power from the controller before servicing it
• this controller is not intended to be used as a safety control device
• for servicing or repair, please contact your Parker Sporlan Sales Engineer.

2 USER INTERFACE

2.1 Turning on/off the controller
The unit is turned on when power is supplied to it, and likewise turns off when power is removed.

2.2 The display
When the unit is turned on during normal operation the display will show the cabinet temperature.

2.3 Activating the defrost by hand
• make sure no procedure is running
• press and hold ⬇️ for 4 seconds.
3 SETTINGS

3.1 Setting the working setpoint

- make sure no procedure is running
- press [MHz]: LED will flash
- press [A] or [V] within 15 seconds; also look at parameters r1, r2 and r3
- press [MHz] or do not press any key for 15 seconds.

You can also modify the working setpoint through parameter SP.

3.2 Setting configuration parameters

To gain access to the procedure:
- make sure no procedure is running
- press [MHz] and hold for 4 seconds: the display will show “PA”
- press [MHz]
- press [A] or [V] within 15 seconds to set display to “-19”
- press [MHz] or do not press any key for 15 seconds
- press and hold [A] and [V] for 4 seconds: the display will show “SP”.

To select a parameter:
- press [A] or [V]

To modify a parameter:
- press [MHz]
- press [A] or [V] within 15 seconds
- press [MHz] or do not press any key for 15 seconds.

To quit the procedure:
- press and hold [A] and [V] for 4 seconds or do not press any key for 60 seconds.

Switch off/on the power supply of the controller after the modification of the parameters.

3.3 Restoring the default value of configuration parameters

- make sure no procedure is running
- press and hold [A] and [V] for 4 seconds: the display will show “PA”
- press [MHz]
- press [A] or [V] within 15 seconds to set the display to “743”
- press [MHz] or do not press any key for 15 seconds
- press and hold [A] and [V] for 4 seconds: the display will show “DEF”
- press [MHz]
- press [A] or [V] within 15 seconds to set the display to “149”
- press [MHz] or do not press any key for 15 seconds: the display will show “DEF” flashing 4 seconds, after which the controller will quit the procedure
- switch off/on power to the controller.

Make sure the default value of the parameters is correct, in particular note if the probes are PTC probes.

4 SIGNALS

4.1 Signals

<table>
<thead>
<tr>
<th>LED</th>
<th>EXPLANATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>✰</td>
<td>LED compressor if lit, the compressor will be turned on if flashing:</td>
</tr>
<tr>
<td></td>
<td>• the modified working setpoint will be running</td>
</tr>
<tr>
<td></td>
<td>• a compressor protection will be running (parameters C0 and C2; the compressor delay since the end of the cabinet probe error is 2 minutes)</td>
</tr>
</tbody>
</table>

5 INTERNAL DIAGNOSTICS

5.1 Internal diagnostics

<table>
<thead>
<tr>
<th>CODE EXPLANATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pr1</td>
</tr>
<tr>
<td>Solution:</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Effects:</td>
</tr>
</tbody>
</table>

When the conditions that triggered the alarm are no longer present, the controller will return to normal operation.

6 TECHNICAL DATA

6.1 Technical data

Frontal bezel protection: IP 65.
Connections (use copper conductors only): screw terminal blocks (power supply, input and output).

Working temperature: from 0 to 55°C (32 to 131°F), 10 to 90% relative humidity (without condensation).

Power supply: 115 VAC/230 VAC, 50/60 Hz, 3 VA (approximate).

Insulation class: 2.

Measure inputs: 1 (cabinet probe) for PTC/NTC probes.

Working range: from -50.0 to 150.0°C (-50 to 300°F) for PTC probe, from -40.0 to 105.0°C (-40 to 220°F) for NTC probe.

Resolution: 0.1°C/1°C/1°F.

Digital outputs: 1 relay:
• compressor relay: 16 res. A @ 250 VAC (change-over contact); 5 FLA, 30 LRA.

The maximum current allowed on the load is 10 A.
7 WORKING SETPOINTS and CONFIGURATION PARAMETERS

7.1 Working setpoints

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Minimum</th>
<th>Maximum</th>
<th>U.M.</th>
<th>PSK201</th>
<th>Working Setpoints</th>
</tr>
</thead>
<tbody>
<tr>
<td>r1</td>
<td></td>
<td>r2</td>
<td>°C/°F</td>
<td>0.0</td>
<td>working setpoints</td>
</tr>
</tbody>
</table>

7.2 Configuration parameters

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Minimum</th>
<th>Maximum</th>
<th>U.M.</th>
<th>PSK201</th>
<th>Temperature Inputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA1</td>
<td>-25.0</td>
<td>25.0</td>
<td>°C/°F</td>
<td>0.0</td>
<td>cabinet probe offset</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Minimum</th>
<th>Maximum</th>
<th>U.M.</th>
<th>PSK201</th>
<th>Setpoints</th>
</tr>
</thead>
<tbody>
<tr>
<td>r0</td>
<td>0.1</td>
<td>15.0</td>
<td>°C/°F</td>
<td>2.0</td>
<td>working setpoint differential</td>
</tr>
<tr>
<td>r1</td>
<td>-99.0</td>
<td>r2</td>
<td>°C/°F</td>
<td>-50.0</td>
<td>minimum working setpoint</td>
</tr>
<tr>
<td>r2</td>
<td>r1</td>
<td>99.0</td>
<td>°C/°F</td>
<td>50.0</td>
<td>maximum working setpoint</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Minimum</th>
<th>Maximum</th>
<th>U.M.</th>
<th>PSK201</th>
<th>Compressor Protections</th>
</tr>
</thead>
<tbody>
<tr>
<td>C0</td>
<td>0</td>
<td>240</td>
<td>min</td>
<td>0</td>
<td>compressor delay after turning on the controller</td>
</tr>
<tr>
<td>C2</td>
<td>0</td>
<td>240</td>
<td>min</td>
<td>3</td>
<td>minimum time the compressor remains turned off</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Minimum</th>
<th>Maximum</th>
<th>U.M.</th>
<th>PSK201</th>
<th>Defrost</th>
</tr>
</thead>
<tbody>
<tr>
<td>d0</td>
<td>0</td>
<td>99</td>
<td>h</td>
<td>8</td>
<td>defrost interval</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0 = the defrost at intervals will never be activated</td>
</tr>
<tr>
<td>d3</td>
<td>0</td>
<td>99</td>
<td>min</td>
<td>30</td>
<td>defrost duration</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0 = the defrost will never be activated</td>
</tr>
<tr>
<td>d4</td>
<td>0</td>
<td>1</td>
<td>—</td>
<td>0</td>
<td>defrost when you turn on the controller</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 = YES</td>
</tr>
<tr>
<td>d5</td>
<td>0</td>
<td>99</td>
<td>min</td>
<td>0</td>
<td>defrost delay when you turn on the controller (only if d4 = 1)</td>
</tr>
<tr>
<td>d6</td>
<td>0</td>
<td>1</td>
<td>—</td>
<td>1</td>
<td>temperature shown during the defrost</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 = if, upon the activation of defrost, the cabinet temperature is below</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>“working setpoint + r0”, at most “working setpoint + r0”; if, upon</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>the activation of defrost, the cabinet temperature is above “working setpoint + r0”, at most the cabinet temperature to the defrost activation</td>
</tr>
</tbody>
</table>
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