Subjects We Will Cover In This Session

- Applications
- Refrigeration Systems
- Why Defrost Control?
- Existing Product Line
- UL873 Vs. UL917
- Relay Information
- Quiz
- Q&A
Paragon® Universal Defrost Timer (UDT)

Commercial Refrigeration Applications

- Refrigeration equipment
- Reach-In Coolers or Walk-In Freezers
- Prevents unwanted build-up of frost or ice
- Shuts off compressor electric or alters its function (hot gas defrost)
- Helps maintain the refrigeration equipment’s ability to remove heat from the controlled space
Refrigeration System

Pressure Control

Frost build up

Defrost Control

Temperature Control
Why do I need a Defrost Control?

- Ice is a great insulator
- Frost build-up on evaporator coil makes it less efficient
- Defrost control will determine when to stop the cooling to allow the frost and ice build-up to thaw
- Decision is based either on a time schedule (defrost timer) or a precise reading of the temperature or pressure of your equipment (defrost control)
Paragon® Universal Defrost Timer (UDT)

Why do I need a Paragon Defrost Control?

- Both mechanical and electronic controls are rated to UL873 commercial refrigeration standards
- Controls allow for a more precise termination of the defrost cycle based on a temperature or pressure value
- Manufactured products for the refrigeration industry since 1905
- Controls are often called defrost timers because most popular method of defrosting equipment is based on a time schedule
- Easy to install and program even in retrofit applications
Paragon® Universal Defrost Timer (UDT)

Why use an Electronic Defrost Timer?

The Paragon electronic defrost control matches traditional mechanical defrost controls and adds a number of advantages:

- Multi-Voltage control is *smart* voltage
- Designed to fit into existing enclosures
- Certified to UL873 Standards
- Built-in power loss protection
- No pins or trippers to lose
- Manual defrost option
- LED status indication
- Real time clock
- Backlit display
Paragon® Universal Defrost Timer (UDT)

Why are these features important?

<table>
<thead>
<tr>
<th>Feature</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-Voltage</td>
<td>The universal voltage (120/208-240 VAC) requires no switch selection or different terminals.</td>
</tr>
<tr>
<td>Fits into existing enclosures</td>
<td>There is no need to bend or replace conduit or run new wire. Replacement can be as easy as <em>wire up, wire down</em> on the same terminals.</td>
</tr>
<tr>
<td>Certified UL873</td>
<td>Designed specifically for use with refrigeration equipment and to refrigeration standards. Tested at 30,000 cycles vs. 6,000.</td>
</tr>
<tr>
<td>Built in power-loss protection</td>
<td>There are no batteries to buy or replace. All program and time settings are maintained for a minimum of 100 hours.</td>
</tr>
</tbody>
</table>
**Paragon® Universal Defrost Timer (UDT)**

Why are these features important continued?

<table>
<thead>
<tr>
<th>Feature</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>No pins or trippers to lose</td>
<td>LCD Display gives indication of defrost start and stop time without pins that might slip or fall off.</td>
</tr>
<tr>
<td>Manual defrost</td>
<td>15 minute manual defrost is perfect for <em>between</em> cycles or system maintenance.</td>
</tr>
<tr>
<td>LED status</td>
<td>Green LED for Defrost and Red for Refrigerate</td>
</tr>
<tr>
<td>Real-time clock</td>
<td>Intuitive clock display that reads <em>clockwise</em> and indicates time of day with a flashing cursor.</td>
</tr>
<tr>
<td>Backlit display</td>
<td>No need for flashlights in dark mechanical rooms.</td>
</tr>
</tbody>
</table>
Paragon® Universal Defrost Timer (UDT)

What’s the big deal about UL873?

- UL873 sets specific functional and life cycle standards for equipment used in temperature regulation (refrigeration)
- UL873 insures the equipment will maintain safe and proper operation in commercial refrigeration environments
- Competitive products (timers) use a different standard
- UL917 is for clock-operated switches
- Paragon universal defrost products are the only multi-voltage defrost controls rated to UL873 standards
Paragon® Universal Defrost Timer (UDT)

How does UL873 differ from UL917?

<table>
<thead>
<tr>
<th>Standard</th>
<th>UL873</th>
<th>UL917</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Cycle</td>
<td>30,000 Cycles</td>
<td>6,000 cycles</td>
</tr>
<tr>
<td>Switch events-per-day</td>
<td>12 per day</td>
<td>4 per day</td>
</tr>
<tr>
<td>Environment</td>
<td>-30°F to 130°F</td>
<td>room temperature</td>
</tr>
<tr>
<td>Load Requirements</td>
<td>Maximum load (30A)</td>
<td>No load required</td>
</tr>
<tr>
<td></td>
<td>allowed by contacts</td>
<td></td>
</tr>
</tbody>
</table>

- As the standard relates to Paragon and competitive defrost controls
- Paragon controls rated to UL873 are made to last 5 times longer than timers rated to UL917 standards
Paragon® Universal Defrost Timer (UDT)

The Paragon 9045-00 and 9145-00 Universal Defrost Timers are the only defrost timers engineered to refrigeration standards.

- 9145-00
  - Time Initiated
  - Temperature or Pressure Terminated
- 9045-00
  - Time Initiated
  - Time Terminated
Paragon® Universal Defrost Timer (UDT)

The Paragon 9145-00 is a general purpose defrost control that can be used for both Time Initiate/Time Terminate and Time Initiate/Temperature or Pressure Terminate.

Most refrigeration applications do not need more than 30 Amps.

Part number and Relay Information

<table>
<thead>
<tr>
<th>Relay Contacts</th>
<th>SPDT NC Contact</th>
<th>SPDT NO Contact</th>
<th>SPST Common Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relay Rating</td>
<td>15 A resistive @ 120V AC to 240V AC</td>
<td>30 A resistive @ 120V AC to 240V AC</td>
<td>30 A resistive @ 120V AC to 240V AC</td>
</tr>
<tr>
<td></td>
<td>¼ HP @ 120V AC,</td>
<td>1 HP @ 120V AC</td>
<td>1 HP @ 120V AC</td>
</tr>
<tr>
<td></td>
<td>½ HP @ 208V AC to 240V AC</td>
<td>2 HP @ 208V AC to 240V AC</td>
<td>2 HP @ 208V AC to 240V AC</td>
</tr>
<tr>
<td>Device Connection</td>
<td>Fan (Typical) Compressor (Optional)</td>
<td>Defrost Device (Typical)</td>
<td>Compressor (Typical) Fan (Optional)</td>
</tr>
</tbody>
</table>
Paragon® Universal Defrost Timer (UDT)

The Paragon 9045-00 is a general purpose defrost control that is used for Time Initiate/Time Terminate only defrost cycle.

Part number and Relay Information

<table>
<thead>
<tr>
<th>Relay Contacts</th>
<th>SPST #1 NC Contact</th>
<th>SPST #2 Common Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relay Rating</td>
<td>30 A resistive @ 120V AC to 240V AC</td>
<td>30 A resistive @ 120V AC to 240V AC</td>
</tr>
<tr>
<td></td>
<td>1 HP @ 120V AC</td>
<td>1 HP @ 120V AC</td>
</tr>
<tr>
<td></td>
<td>2 HP @ 208V AC to 240V AC</td>
<td>2 HP @ 208V AC to 240V AC</td>
</tr>
<tr>
<td>Device Connection</td>
<td>Compressor (Typical)</td>
<td>Defrost Device (Typical)</td>
</tr>
</tbody>
</table>
1.) The standard used for temperature regulating (refrigeration) equipment is UL873.
   □ True       □ False

2.) The Paragon 9145-00 defrost control will terminate a defrost cycle based on which of these inputs?
   □ Pressure    □ Temperature    □ Time    □ All of the above

3.) Which input voltage will not power a Paragon electronic UDT?
   □ 24 VAC    □ 120 VAC    □ 208 VAC    □ 240 VAC
When You Have Uni-Line® Questions

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- Technical Service Fax  1-630-260-7294
- Customer Service  1-800-304-6563
- Customer Service Fax  1-800-426-0804

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