



Commercial Refrigeration Universal Defrost Timers UNI-LINE® PRODUCT KNOWLEDGE

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Subjects We Will Cover In This Session

- Applications
- Refrigeration Systems
- Why Defrost Control?
- Existing Product Line
- UL873 Vs. UL917
- Relay Information
- Quiz
- Q&A

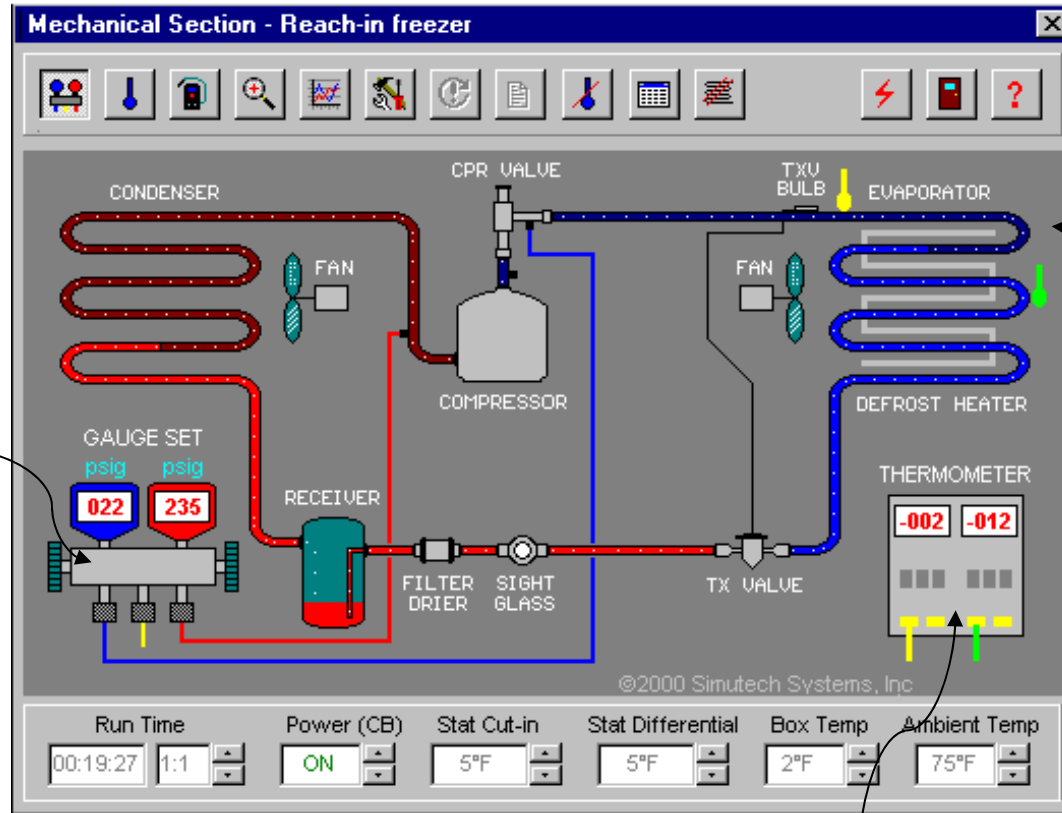
Paragon[®] Universal Defrost Timer (UDT)

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

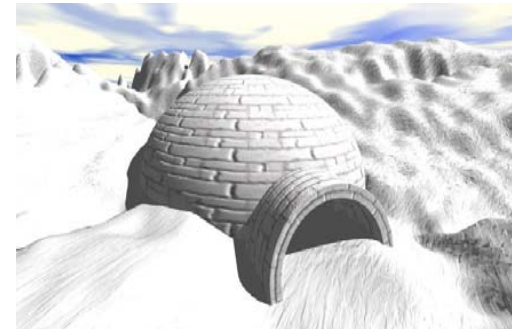
Temperature Control



Paragon® Universal Defrost Timer (UDT)

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?

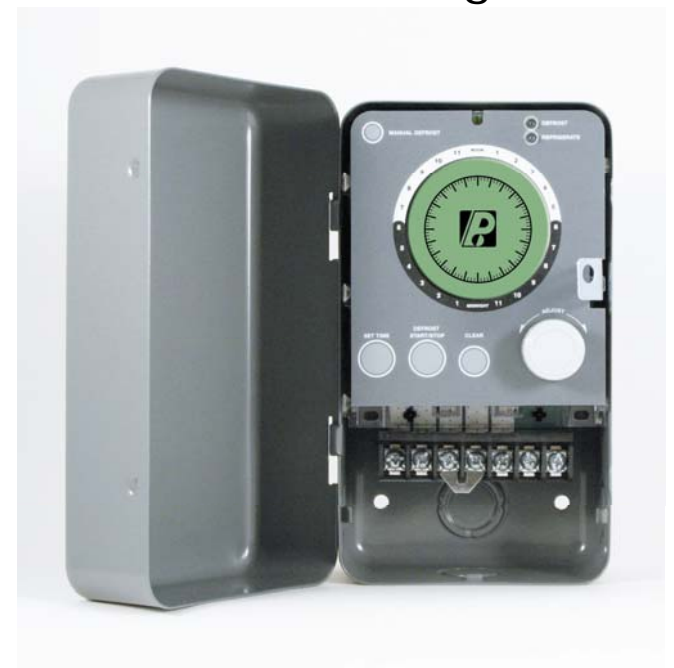
- Both mechanical and electronic controls are rated to UL873 *commercial refrigeration* standards
- Controls allow for a more precise termination of the defrost cycle based on a temperature or pressure value
- Manufactured products for the refrigeration industry since 1905
- Controls are often called 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?

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

Paragon[®] Universal Defrost Timer (UDT)

Why are these features important continued?

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

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?

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

- 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

Relay Contacts	SPDT NC Contact	SPDT NO Contact	SPST Common Contact
Relay Rating	15 A resistive @ 120V AC to 240V AC ¼ HP @ 120V AC, ½ HP @ 208V AC to 240V AC	30 A resistive @ 120V AC to 240V AC 1 HP @ 120V AC 2 HP @ 208V AC to 240V AC	30 A resistive @ 120V AC to 240V AC 1 HP @ 120V AC 2 HP @ 208V AC to 240V AC
Device Connection	Fan (Typical) Compressor (Optional)	Defrost Device (Typical)	Compressor (Typical) Fan (Optional)

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

Relay Contacts	SPST #1 NC Contact	SPST #2 Common Contact
Relay Rating	30 A resistive @ 120V AC to 240V AC 1 HP @ 120V AC 2 HP @ 208V AC to 240V AC	30 A resistive @ 120V AC to 240V AC 1 HP @ 120V AC 2 HP @ 208V AC to 240V AC
Device Connection	Compressor (Typical)	Defrost Device (Typical)

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- 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

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