INTERMATIC DTAV40 Series Time Initiated Temperature Pressure or Time Terminated Auto-Voltage 40A Defrost Timers Instruction Manual

Contents

INTERMATIC®

INTERMATIC DTAV40 Series Time Initiated Temperature Pressure or Time Terminated Auto-Voltage 40A Defrost Timers

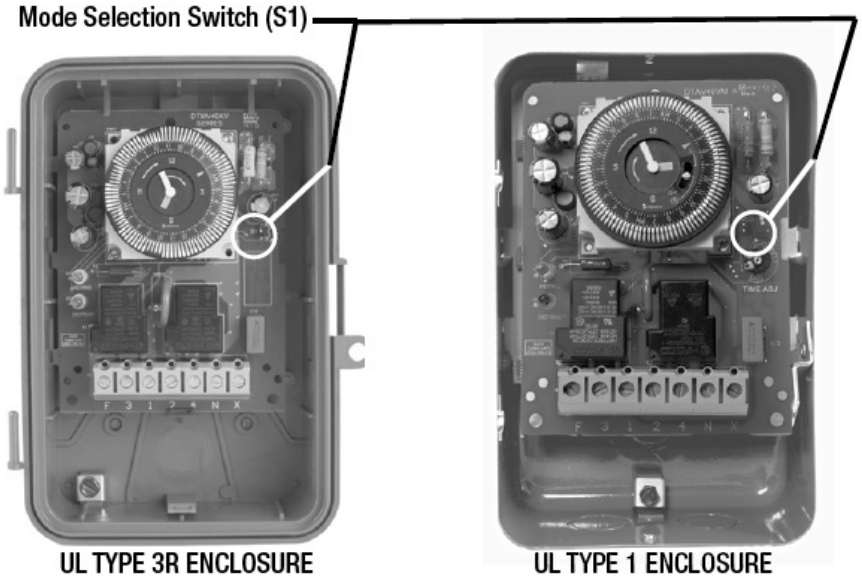
WARNING: Risk of Fire or Electric Shock

- Disconnect power at the circuit breaker(s) or disconnect switch(es) before installing or servicing.
- More than one circuit breaker or disconnect switch may be required to de-energize the equipment before servicing.
- Installation and/or wiring must be in accordance with national and local electrical code requirements.
- For 40 amp loads, use #8 AWG wire, rated 90° C min.
- Bonding between conduit connections is not automatic and must be provided as part of the installation.
- When replacing a timer with a metal bracket, replace the bracket with a non-metallic bracket. (Intermatic Model DT-B is recommended).
- For outdoor locations, raintight, or wet location, conduit hubs that comply with requirements of UL514B (standard for fittings for conduit and outlet boxes) are to be used.

NOTICE: Risk of Damage to Timer

- Rotate timer dial clockwise only.
- Do not move the clock hands on the timer. Moving the clock hands can damage the timer.

OVERVIEW



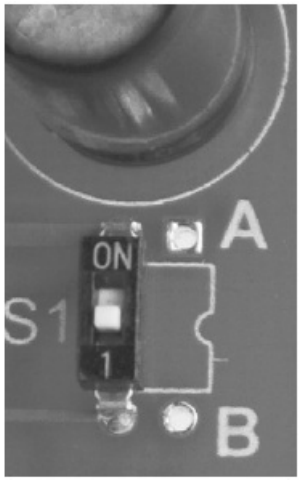
BRACKET MOUNT
(Saleable item DT-B)
SEE SEPARATE BRACKET REPLACEMENT NOTICE IN PACKAGE

Set Mode Selection (See S1 DIP Switch, table and instructions below).

MODE SELECTION (S1 DIP SWITCH)

First determine what model is being replaced (Intermatic or Competitors). The mode selector DIP switch (located at lower right side of the board)determines the configuration of terminals 2 & 4. In position “A”, the terminals are normally closed, and will open during a defrost. In position “B”, terminals 2 & 4 are normally open, and will close during a defrost. Select proper position from table below and wiring diagrams indicated.

To select mode simply slide the switch as follows



- **Mode A:** position switch up;
- **Mode B:** position switch down;

***Note*:** When Mode “B” is selected the DTAV40 will operate as follows:

- **Refrigeration Mode:** Red & Green LEDs will turn OFF (1 & 3 and 2 & 4 break while 1 & F make)
- **Defrost Mode:** RED & GREEN LEDs will turn ON (1 & 3 and 2 & 4 make while 1 & F break)

Paragon	Precision	Mode Selection	Wiring Diag.
TIME INITIATED, TIME TERMINATED			
8045	6045	A	5
8041	6041	A	2
8047	6047	B	4
TIME INITIATED, REMOTE TEMPERATURE OR PRESSURE TERMINATED			
8145	6145	A	1
8141	6141	A	7
8143	—	B	8
TIME INITIATED, PRESSURE TERMINATED (Separate Pressure Switch Required (see instructions)			
8245	—	A	10
8247	—	B	3
	Intermatic		
	DT040	A	1
	DT140	A	1
	DTMV	A	1
	DTSX	A	
Cross Ref.			
DTAV replaces over 40 models.			

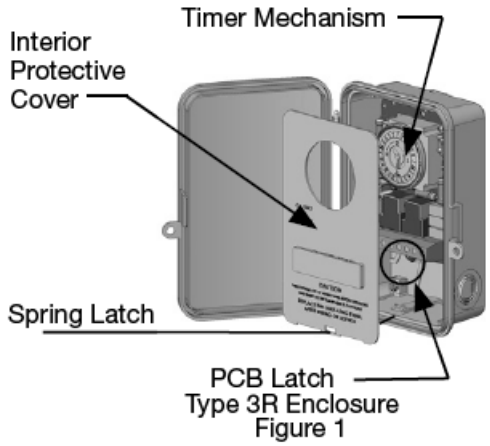
SPECIFICATIONS

- **Maximum Contact Switch Rating:** 40A Resistive @ 120-240VAC
  - 2HP @ 240VAC; 1HP @ 120VAC
- **WIRING CONNECTIONS:** Screw box lug terminals. Up to one #8AWG Wire

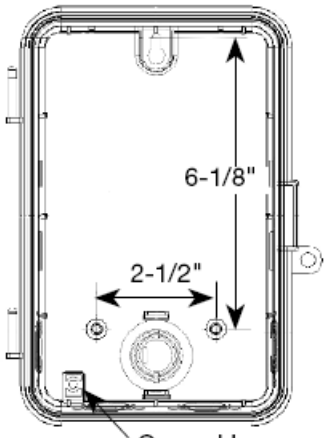
ENVIRONMENTAL RATINGS

- **Operating Temperature Range:** -40˚F to 104˚F (-40˚C to 40˚C)
- **Operating Temperature Range:** (Q-Models) -4˚F to 104˚F (-20˚C to 40˚C)
- **Operating Humidity:** 0 – 95% RH, non-condensing
- **ELECTRICAL LIFE:** 50,000 Operations at Full Load
- **DIMENSIONS:** 8.795″ x 6.631″ x 2.935″ (H x W x D)
- **SHIPPING WEIGHT:** 3 lbs.
- **AGENCY APPROVALS:** UL LISTED

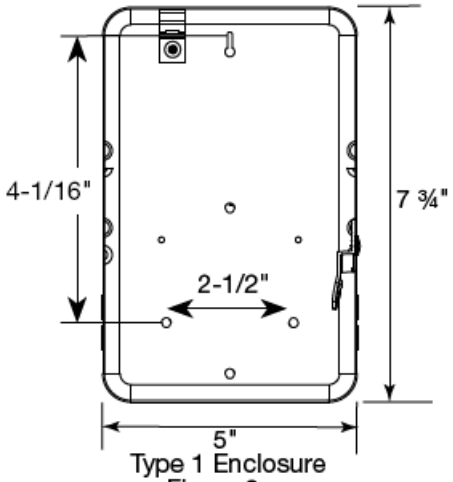
INSTALLATION



Type 3R Enclosure
Figure 1



Type 3R Enclosure
Figure 2



Type 1 Enclosure
Figure 3

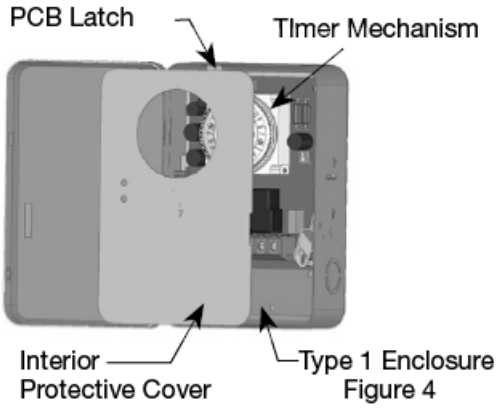


Figure 4

1. Open door and then remove interior protective cover by releasing spring latch on bottom (Figure 1). Cover flexes out easily on Type 1 metallic case (Figure 4).
2. Apply corresponding Terminal Identification and Door labels-see retrofit kit instructions.
3. Remove timer mechanism by releasing PCB Latch on bottom (Figure 1). Timer Mechanism comes detached in TYPE-1 Metallic Enclosure (Figure 4).
4. Select knockouts to be used. Remove inner 1/2″ knockout by inserting a screwdriver in the slot and carefully punch knockout loose. Remove slug. If 3/4″ knockout is required, remove the outer ring with pliers after removing the 1/2″ knockout. Smooth edges with knife if necessary, on plastic enclosure only.
5. Place enclosure in desired mounting location and mark the three mounting holes (refer to Figure 2 for Type 3R and Figure 3 for Type 1 below). Start by installing top screw into mounting surface and hanging enclosure on screw head through keyhole; then screw in remaining two screws in bottom holes.
6. **Grounding:** Terminate all ground wires to ground lug on the bottom of enclosure.
7. Re-install timer in enclosure.
8. Replace interior protective cover.

PROGRAMMING SYNCHRONOUS AND QUARTZ MODELS

Follow the instructions in the sections below to program the DTAV40 Timer.

Setting the Time of Day

Rotate the timer dial clockwise to align the triangle on the inner dial with the desired time. The triangle represents the current time on the timer.

NOTE: The AM and PM locations on the wheel represent 6 AM and 6 PM. For example, if the triangle points to the 7 after PM, then the current time is 7 PM. If the triangle points to the 5 before PM, then the current time is 5 AM.

DO NOT ROTATE MINUTE HAND COUNTER-CLOCKWISE

Setting Defrost Times

Follow this procedure to configure defrost times.

1. On the timer wheel, choose a defrost starting time.
2. Slide the tripper upward that is directly above the desired time. The timer will initiate a 15-minute defrost at the configured time.
3. To increase the duration of the defrost, slide up the trippers that are adjacent to the starting time.

    1. **NOTE:** Each tripper on the time wheel represents 15 minutes. For example, to set a 45-minute to defrost, slide the two trippers adjacent to the starting time.
    2. The AM and PM locations on the wheel represent 6 AM and 6 PM.
4. Repeat steps 1 through 3 as necessary to configure multiple defrost times for a given day.

APPLICATION

The DTAV40 Defrost Timer is equivalent in function, terminal identification (with appropriate terminal block label attached), and wiring to the Paragon 8140 and Precision 6140 series Defrost Timers. The DTAV40 may also be used to replace Paragon 8040 and Precision 6040 series time-terminated defrost timers. With the addition of a remote pressure switch, the DTAV40 can replace the Paragon 8240 series pressure-terminated defrost timers.

Defrosts will be initiated by programming the timer, which will accept from 1 to over 24 defrost initiation settings per day at 15-minute intervals (8:00 AM, 8:15 AM, 8:30 AM, etc) Defrost duration is settable in 15-minute intervals from minimum of 15 minutes up to several hours. The defrost duration determines the termination time. In standard configuration, the contacts between terminals 1 and 3 are normally open and closed during a defrost to energize defrost heaters; the contacts between terminals 2 and 4 are normally closed with S1 in “A” position and open during a defrost to de-energize refrigeration and fans.

DTAV40 Time Initiated, Remote Temperature, Pressure or Time Terminated

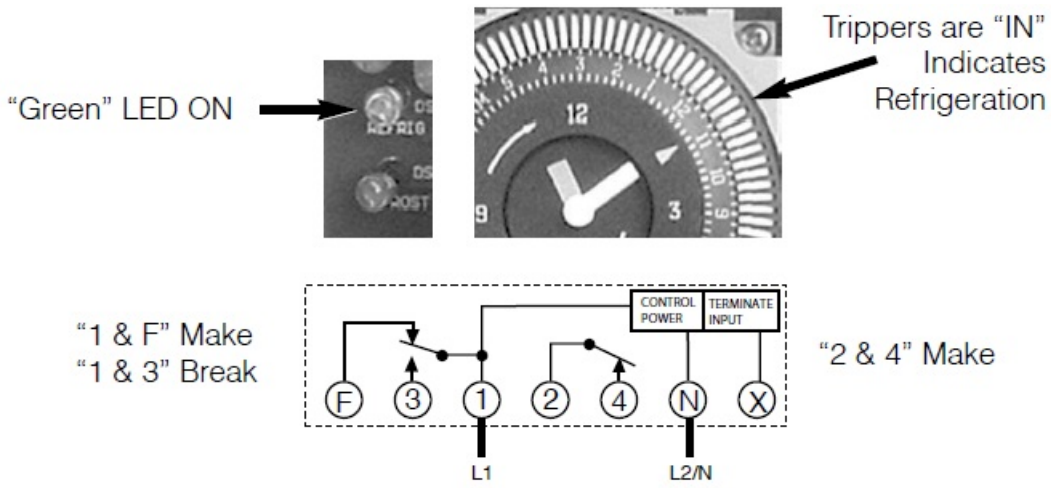
Used in electric or hot gas defrost applications where the defrost is terminated when the coil is frost free, as

sensed by a temperature or pressure switch, even though the defrost programmed termination time has not been reached. The time termination functions as a fail-safe and will terminate the defrost if the temperature or pressure switch fails to do so. The temperature or pressure switch on the refrigeration coil has contacts which close on a temperature or pressure rise above freezing, indicating that frost and ice have melted from the coil. Typically a wide differential SPDT temperature switch is used with it's normally closed contacts wired to the fans thereby delaying the fans from coming on until the coil temperature has dropped back to below freezing. In most applications, the contacts at terminals 2 and 4 are normally closed with S1 in "A" position and control the fans and refrigeration equipment or compressor. For hot gas defrost, or for double pole switching, contacts 2 and 4 may be configured as normally open by selecting mode "B". Refer to wiring diagrams 1 thru 10 for additional detail.

DTAV40 TRIPPERS MODE A

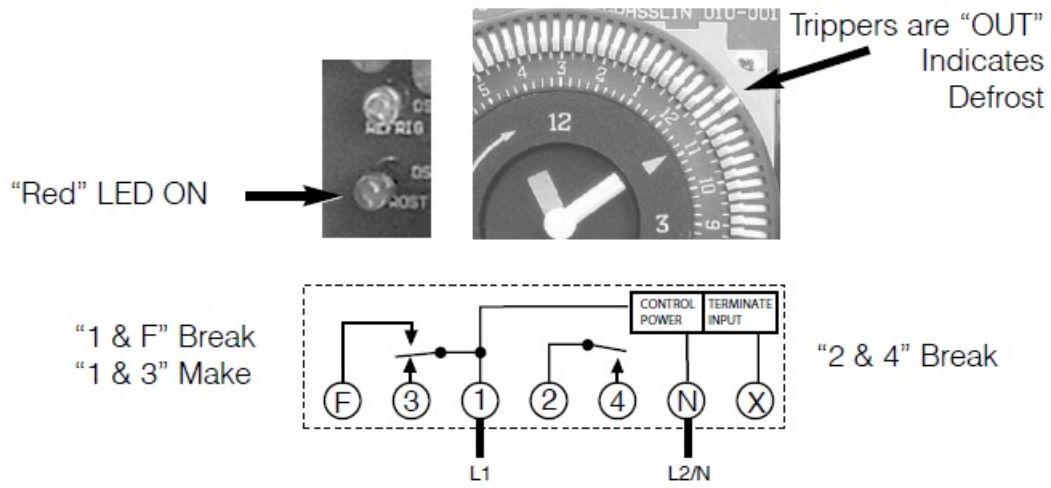
In Refrigeration Mode

- Arrow on timer points to current time.



In Defrost Mode

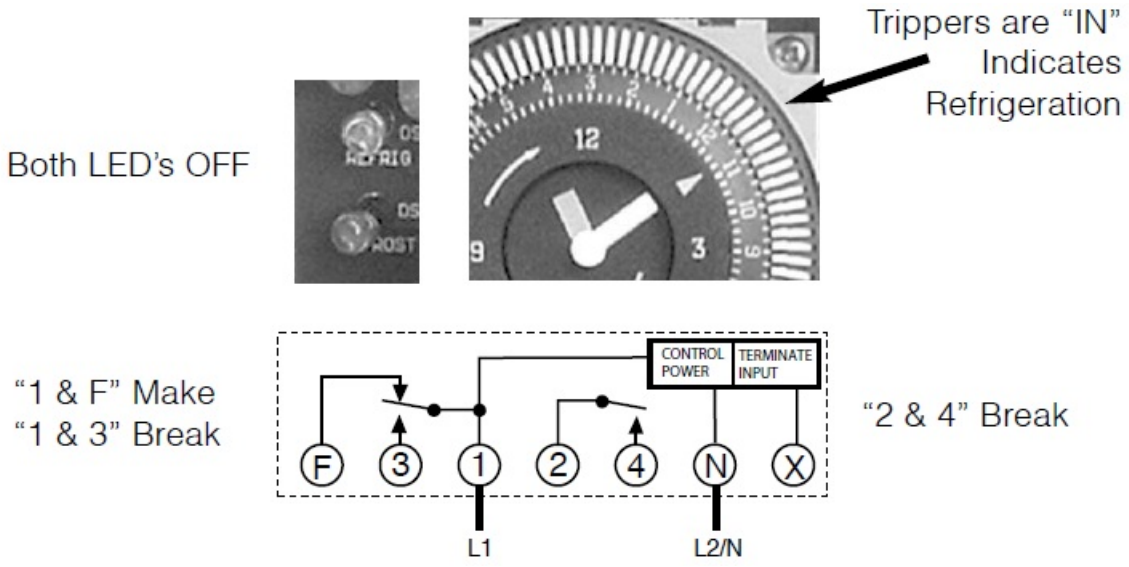
- Arrow on timer points to current time.



DTAV40 TRIPPERS MODE B

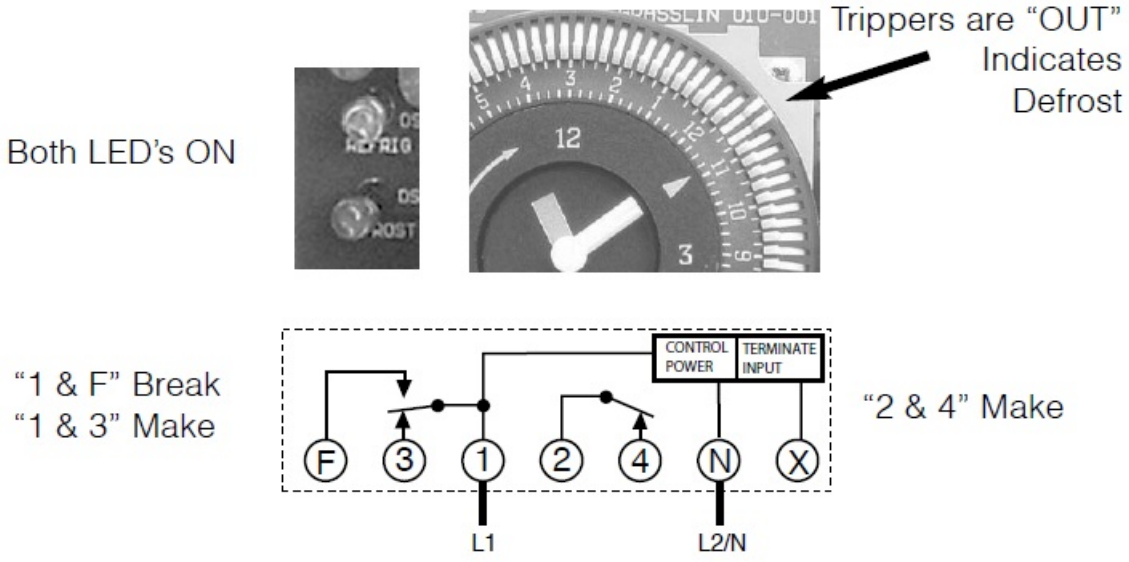
In Refrigeration Mode

- Arrow on timer points to current time.



In Defrost Mode

- Arrow-on the timer points to the current time.



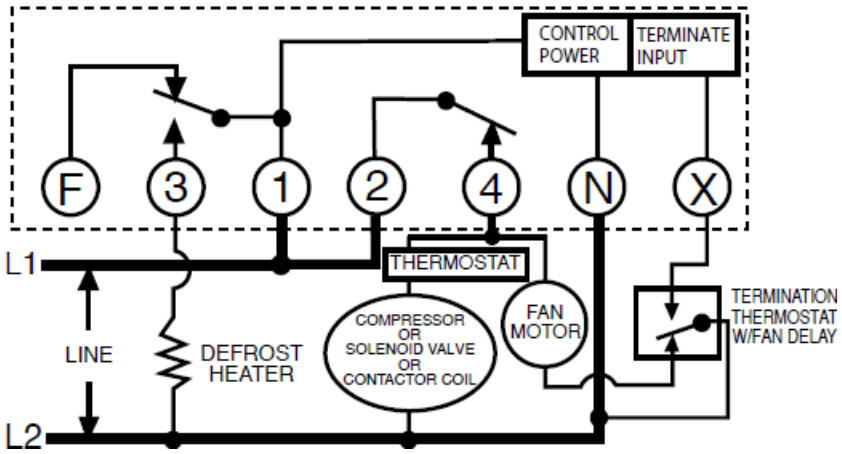
Note: It is necessary to apply power across terminals 18N in order to perform the electrical test.

DTAV40 TYPICAL WIRING DIAGRAMS

All switch positions are shown in refrigeration cycle operation, and change position upon initiation of a defrost.

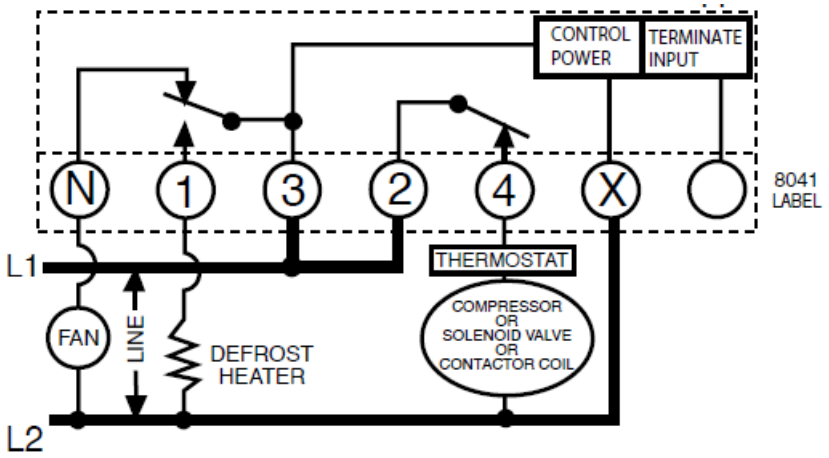
8145 Replacement

- Mode A -No Label Required



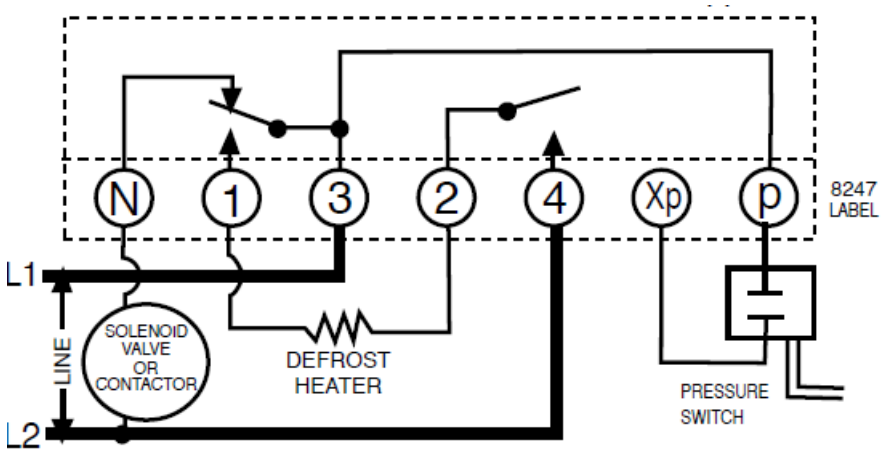
8041 Replacement

- Mode A with R041 Tarminal Block ILahal Annliad



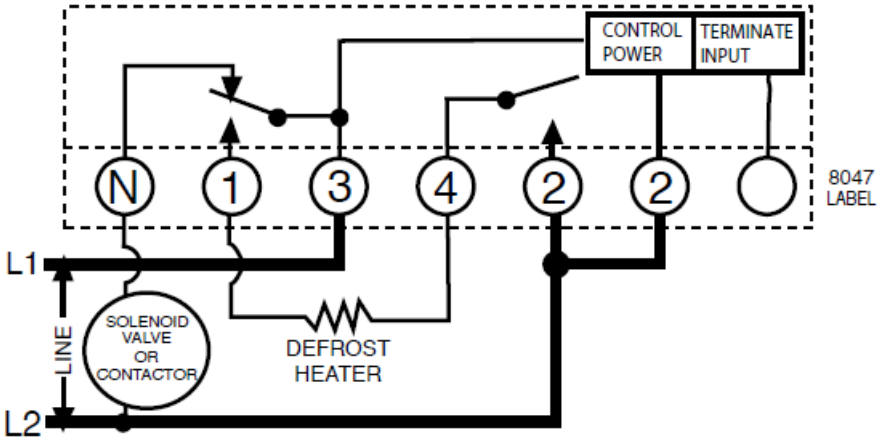
8247 Replacement-Double Pole Switching

- Mode B with 8247 Terminal Block Label Applied



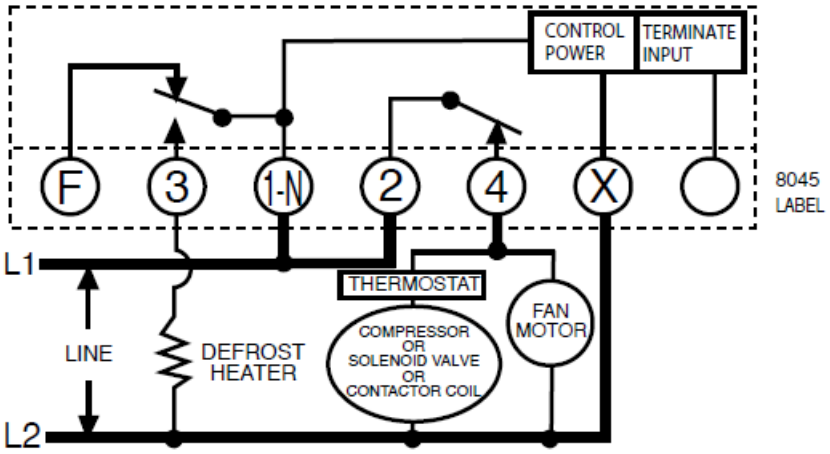
8047 Replacement-Double Pole Switching

- Mode B with 8047 Terminal Block Label Applied



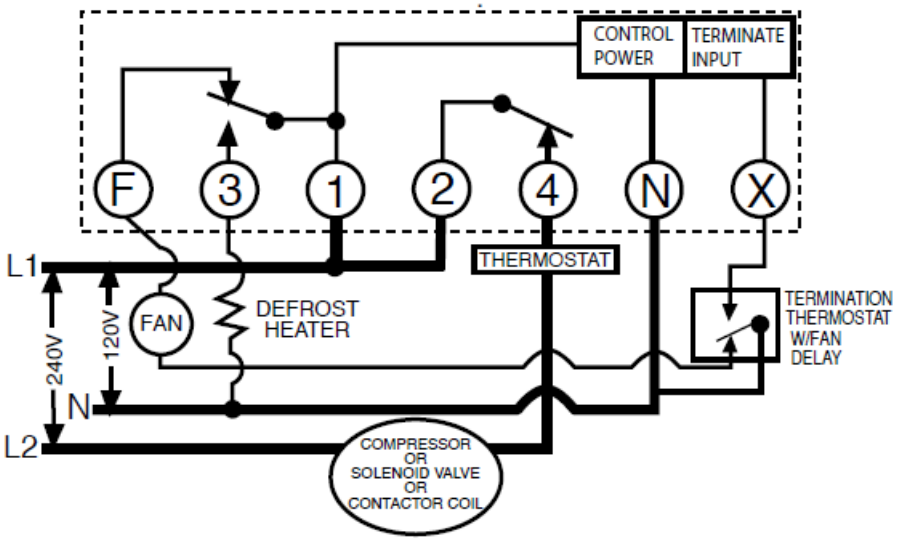
8045 Replacement

- Mode A with 8045 Terminal Block Label Applied



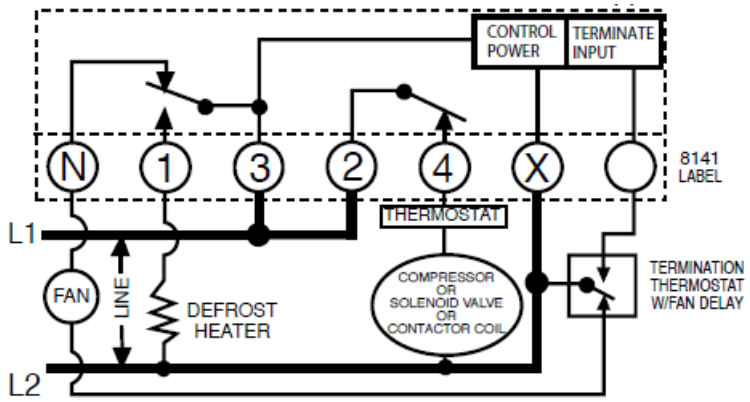
120V Fan & Defrost Heater; 240Vv Compressor

- Mode A – No Label Required



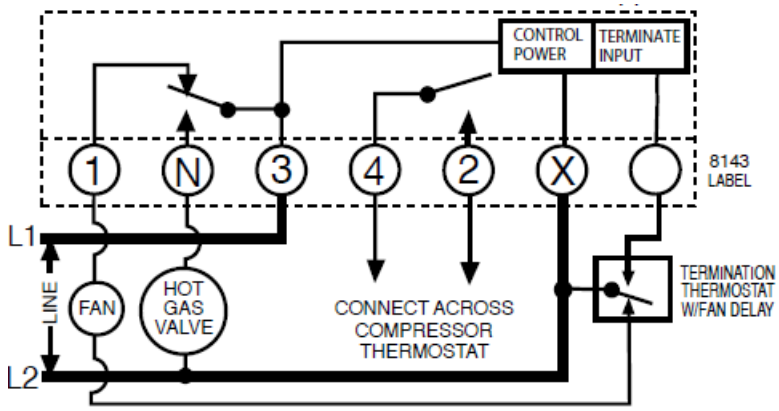
8141 Replacement

- Mode A with 8141 Terminal Block Label Applied



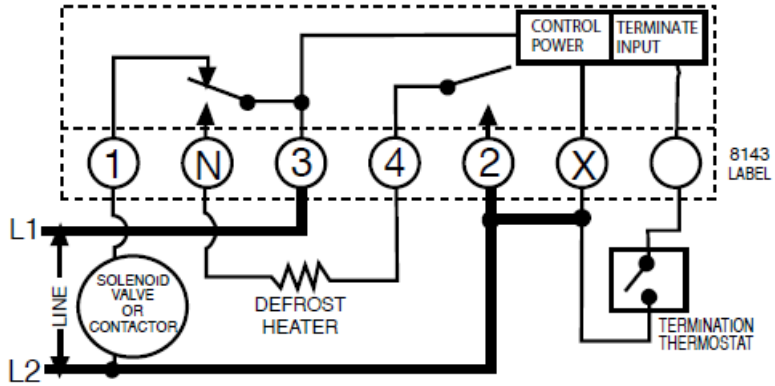
8143 Replacement

- Mode B with 8143 Terminal Block Label Applied



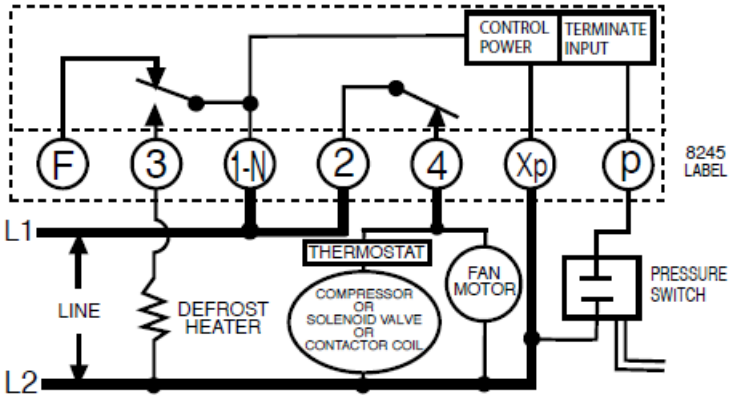
8143 Replacement-Double Pole Switching

- Mode B with 8143 Terminal Block Label Applied



8245 Replacement

- Mode A with 8245 Terminal Block Label Applied



WIRING LEGENDS

Paragon Model	Precision Model	Intermatic Model	S1 Mode Selector	Terminal Ident. Label	Typical Wiring Diagram	Terminal Layout
TIME INITIATED, TIME TERMINATED			A	8045	**5**	**F 3 1-N 2 4 X**
8045	6045	DTAV40				
8041	6041	DTAV40	A	8041	**2**	**N 1 3 2 4 X**
8047	6047	DTAV40	B	8047	**4**	**N 1 3 4 2 2**
TIME INITIATED, REMOTE TEMPERATURE OR PRESSURE TERMINATED						**F 3 1 2 4 N X**
8145	6145	DTAV40	A	None	**1, 6**	

8141	6141	DTAV40	A	8141	**7**	**N 1 3 2 4 X**
8143	—	DTAV40	B	8143	**8, 9** **See Note 1**	**1 N 3 4 2 X**
TIME INITIATED, PRESSURE TERMINATED (Separate Pressure Switch Required – see instructions)					**10**	**F 3 1-N 2 4 Xp p**
8245	—	DTAV40	A	8245		
8247	—	DTAV40	B	8247	**3**	**N 1 3 2 4 Xp p**

REPLACING EXISTING DEFROST TIMERS

The DTAV40 will replace all models of Paragon 8040, 8140,8240 Series or Precision 6040, 6140 Series and all prior Intermatic Defrost Timer models.

TERMINAL IDENTIFICATION

The standard DTAV40 terminal identification is identical to the Paragon 8145 with the addition of the “F” terminal. Terminal identification labels are provided for the other models to be placed over the printed numbers on the printed circuit board. From the table above, select the proper label, apply to printed circuit board and wire per the original wiring or the wiring diagrams indicated.

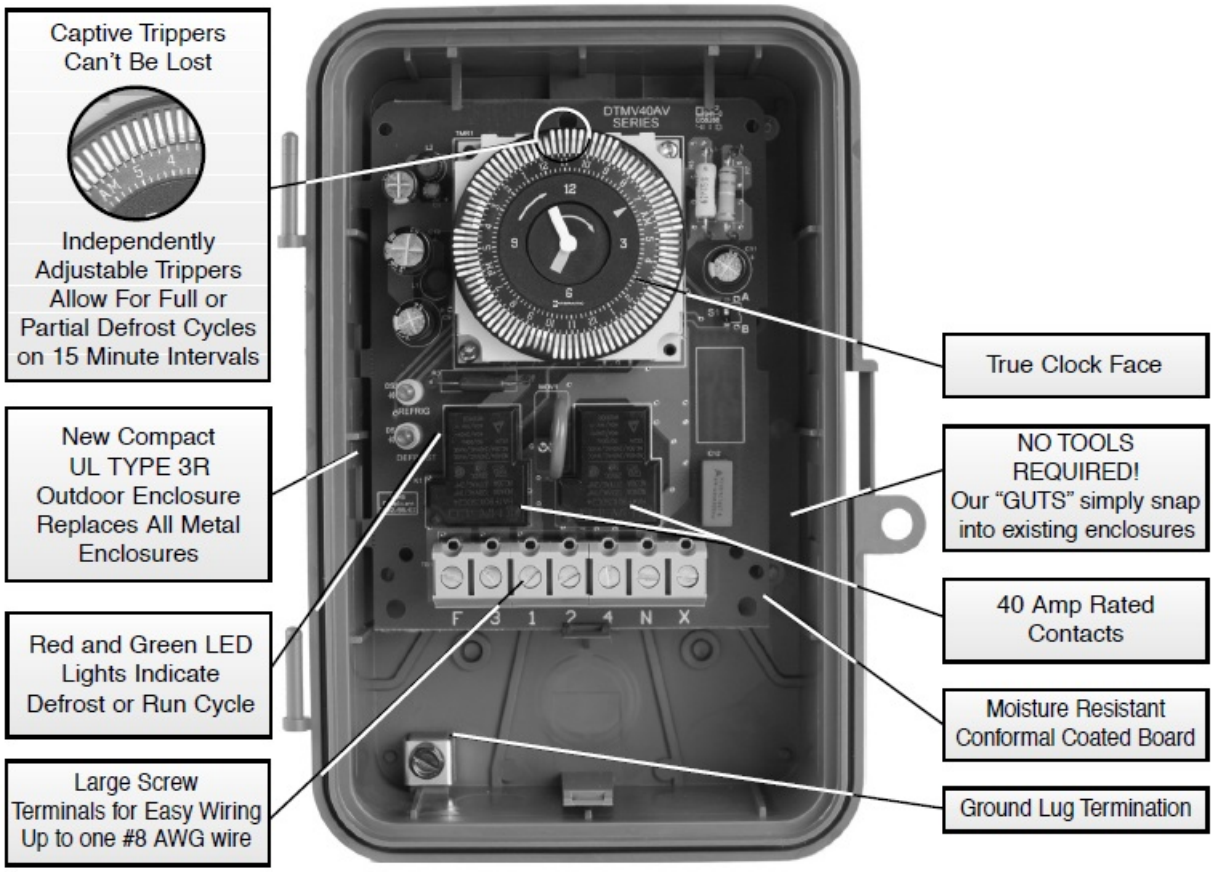
“F” TERMINAL

The DTAV40 contains a normally closed contact between terminals 1 and F. This terminal may be used to switch the fans off during a defrost rather than terminals 2 and 4. For hot gas defrost applications, with the mode switch set to position “B”, the fans may be connected to terminal “F”. 8143 Replacement: When replacing a Paragon 8143, wire the termination thermostat to terminal X of the DTAV40 (with the 8143 label attached), and the adjacent blank terminal. The Paragon timers are wired to terminal X and the blank terminal. If the termination thermostat is wired to terminal N of the DTAV40 temperature termination will not occur and may result in burnout of the DTAV40. See wiring diagrams 8 & 9.

8240 SERIES REPLACEMENT: The DTAV40 may be used to replace the Paragon 8240 series defrost timers with integral pressure termination by the addition of a remote pressure switch wired to terminals Xp and p of the DTAV40 (with an 8240 series terminal label applied). There must be no external voltage connected to the pressure switch. Set pressure switch cut-in to the same value as set on the Paragon defrost timer being replaced. Set cut-out 6 to 14 psi below cut-in. See wiring diagrams 10 and 3.

DTAV40 Series

- Time Initiated, Temperature, Pressure or Time
- Terminated Auto-Voltage 40 A Defrost Timers



FEATURES

- DTAV40 replaces over 40 competitive models
- Auto-Voltage automatically adjusts for 120-240VAC
- Mounts in existing enclosures, no tools required
- Box lug terminals
- Defrost times settable on quarter hour with captive trippers
- UL TYPE 3R outdoor enclosure
- 40 Amp, 2HP Rating
- Moisture-resistant conformal coated board.
- LED indications for defrost and refrigeration cycle.
- Defrost cycles are programmed independently
- "Real-time" clock for quick, easy and accurate setting.
- Min ON/OFF time: 15 minutes

- Max ON/OFF time: 23 hours 45 minutes.

SPECIFIERS GUIDE

Furnish and install a Grasslin DTAV40 defrost control which automatically adjusts for 120-240V operation and shall have defrost initiation times settable to the quarter hour via captive trippers at 15-minute intervals. The defrost timer shall be housed in a UL TYPE 3R indoor/outdoor plastic enclosure. The relay output will be rated for 40A Resistive, 2HP @ 240VAC. Defrost termination to be by time (and by a remote temperature or pressure switch).

LIMITED WARRANTY

Warranty service is available by either (a) returning the product to the dealer from whom the unit was purchased or (b) completing a warranty claim online at **www.intermatic.com**. This warranty is made by: Intermatic Incorporated, Customer Service 1950 Innovation Way, Suite 300, Libertyville, IL 60048. For warranty service go to: **http://www.Intermatic.com** or call 815-675-7000.

Documents / Resources

	**INTERMATIC DTAV40 Series Time Initiated Temperature Pressure or Time Terminated Auto-Voltage 40A Defrost Timers** [pdf] Instruction Manual DTAV40 Series, Time Initiated Temperature Pressure or Time Terminated Auto-Voltage 40A Defrost Timers, DTAV40 Series Time Initiated Temperature Pressure or Time Terminated Auto-Voltage 40A Defrost Timers, Temperature Pressure or Time Terminated Auto-Voltage 40A Defrost Timers, Time Terminated Auto-Voltage 40A Defrost Timers, Auto-Voltage 40A Defrost Timers, 40A Defrost Timers, Timers

References

- intermatic.com