Title : Specification for 7 Day Programmable Thermostat
Doc. No. : 110163-000E Rev. :01
**Date** : February 28, 2003

1. INTRODUCTION

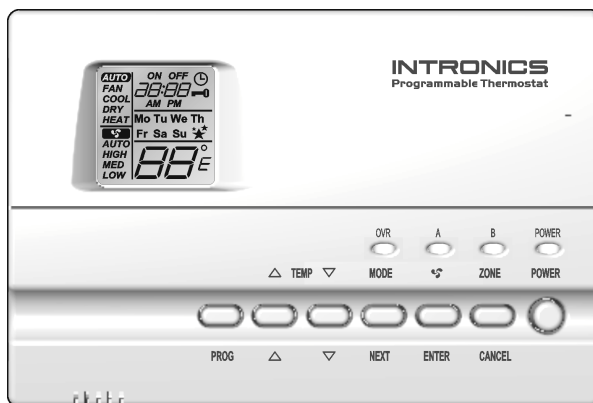The following describes the brief specification of 7 Day Programmable Thermostat

2. SYSTEM

The system consists of a main control board and a display unit. There are two types of display unit as the following:

- Model 7001 is for one zone control but with a sweep function.

- Model 7002 is for two zones control but without a sweep function.
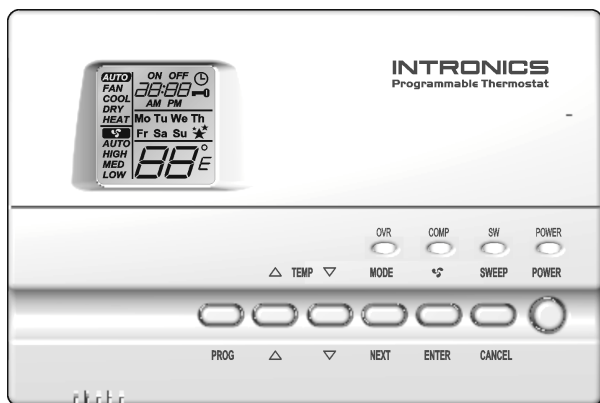
Model 7001   Model 7002

3. USER'S FEATURES

3.1 Power On/Off

Press POWER button will turn on/off the air conditioner. When turn on, it will operate according to the last program

setting which is shown on the display unit. When turn off, all program timer in the unit will not operate

3.2 Fan

Press ♨ button to select the fan speed in the sequence as described below. The fan status will be displayed on

LCD panel. If the fan is in auto mode, it will be changed automatically from high to medium and low according to the

difference between the room and setting temperature.

AUTO ➡ HIGH ➡ MEDIUM ➡ LOW
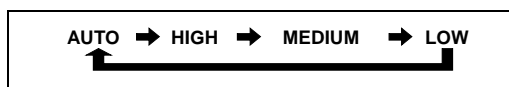
- If the difference is $3\,^{\circ}C$ or more, the speed is high.

- If the difference is $2\,^{\circ}C$, the speed is medium.

- If the difference is $1\,^{\circ}C$ or less, the speed is low.

3.3 Operating Mode

With the jumper on the main board, the air conditioner can be put in

- 3 operating modes (cool, fan and dry) or

- 4 operating modes (cool, fan, dry and heat) or

- 5 operating modes (cool, fan, dry, heat and auto)

3.4 Temperature Setting

The setting temperature can be set in the range of 15-30 $^{\circ}C$ or 18-30 $^{\circ}C$.

3.5 Different Temperature Setting in Cool and Heat Modes

With programmable feature, the temperature operation in cool and heat modes can be set separately.

3.6 Sweep Fan (Model 7001)

Press SWEEP button will turn on/off the sweep fan motor.

3.7 Clock and Day

There is a built-in clock together with day in the LCD display unit.

3.8 9 On & Off Programs

You can program your air conditioner on 5/2 (weekday/weekend), 6 days (weekday/Saturday), 7 days or daily basis

to turn on/off the air conditioner at the desired time. The air conditioner can be programmed up to 9 programs (P1-

P9) for turning on/off separately

3.9 Program Override

The function to override program with LED indicator for override status.

3.10 Zones Control (Model 7002)

This option allows you to control the air damper from 2 zones at your convenience.

Zone A ➡ Zone B ➡ Zone AB

3.11 Temporary Use (Count down Timer)

The function allows you to extend the pre-setting off timer for a temporary use up to 15 hours.

3.12   Key Lock Function

This function prevents unauthorized personnel from changing the settings on the control.

4.   SYSTEM FEATURES

4.1   Watchdog

There is a watchdog circuit built in the system which will reset the microprocessor automatically if it is malfunctioned.

4.2   Compressor Delay Protection

There will be a 3 minutes delay before the compressor can restart after being off. In case of power interruption, the system will delay the operation of the compressor in the range of 3-4 minutes in random order. This is to protect the compressor in the air conditioners of the whole building start at the same time.

4.3   Compressor Minimum on Time

Once the compressor starts to operate, it will not stop unless it operates at least 24 seconds.

4.4   Non-volatile Memory

The facility that will keep the program setting and allow the unit to continue operating after the power interruption.

4.5   Clock Back Up (6 hours)

The system uses the capacitor to back up the clock for 6 hours. No battery is required in this system.

4.6   Freeze Function (Optional)

Freeze function will be activated to stop the compressor when ice formed at the indoor coil.

4.7   Defrost (Optional)

The facility to defrost the ice formed at the outdoor coil when operated in a very low temperature ambient.

4.8   Pre-heat Function (Optional)

Pre-heat function is used to prevent the fan coil unit blowing the cold draught while the system is in the heat mode and the compressor is ON.

4.9   Post-heat Function (Optional)

Post-heat function is similar to the pre-heat function but at the status the compressor is OFF.

4.10   Reversing Valve Change Protection

Whenever the reversing valve is to change its state, it can be done after the compressor stops at least one minute.

4.11   Anti Overheat Protection (Optional)

The facility to stop the compressor operated in cool or dry mode from the overheat status.

4.12   Low Ambient Protection (Optional)

The facility to protect the compressor when operated in cool or dry mode at the low ambient condition.

4.13   Cooling Fail (Optional)

There will be an alarm if the compressor has been operating more than 3 minutes in cool or dry mode, but the indoor

coil temperature is still above 25 $^\circ$C.

4.14   Heating Fail (Optional)

There will be an alarm if the compressor has been operating more than 3 minutes in heat mode, but the indoor coil

temperature is still below 25 $^\circ$C.

4.15   Self Diagnostic

There is a self diagnostic facility to show an alarm when there is any system error or failure.

4.16   °C/°F Toggle

The display unit can be selected to show $^\circ$C or $^\circ$F temperature unit.

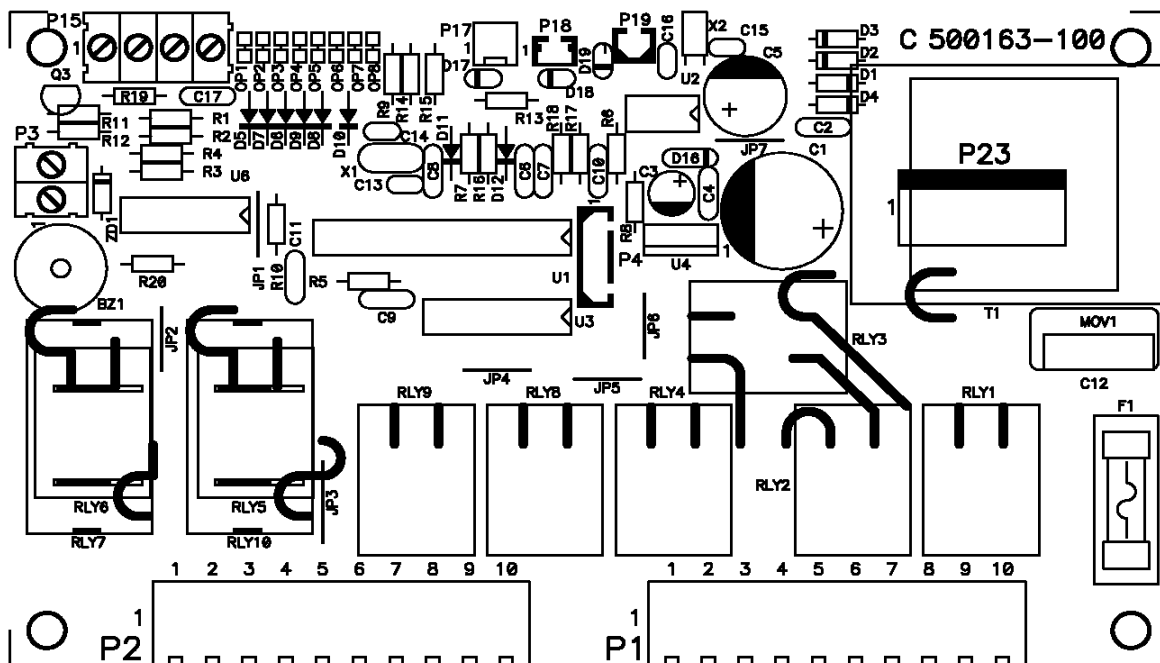### 4.17   External BMS Input for Remote On/Off

Dry contact input is provided for remote on/off from BMS system.

4.18   EL Back Light for LCD Panel

EL back light is equipped in the display unit for night reading.

4.19 Jumper Options on the Mainboard

There are 8 jumpers on the main control board.

| JUMPER	FOR	INSERT
OP 1	Auto Operating Mode	Insert the jumper for auto mode (switching from heat to cool or vice versa automatically).
OP2	Two Zones Control	Insert the jumper for enabling the system to operate as two zones version (model 7002).
OP 3	Heater Time Proportional	Insert the jumper for Heater Time Proportional.
OP 4	15-30 $^\circ$C Application	Insert this jumper for the setting temperature range of 15-30°C instead of 18-30 $^\circ$C.
OP 5	Chiller Application	Insert the jumper when using with the chiller system as 3 minutes delay time is not used.
OP 6	Post Heat Fan Off	Insert the jumper for stopping the fan during the post heat.
OP 7	Heat Pump	Insert the jumper to operate as the heat pump.
OP 8	Heater Application	Insert the jumper when the electric heater is installed.

5.   PROGRAMING

Day/Time Setting	Actions	Remarks
	Press PROG and hold down for a few sec.	For P0 (day/time) setting. Program P0 is flashing.

Notes

- When PROG is pressed P0 or other Pn is blinking which depended on previous Pn that was set. While Pn is blinking, you can press Δ or ∇ to move to the desired Program No.

	Press NEXT Press Δ or ∇	Hour is flashing. To change Hour Setting.

	Press NEXT Press Δ or ∇	Minute is flashing. To change Minute Setting.

	Press NEXT Press Δ or ∇	Day is flashing. To change Day Setting. Mo→Tu→We→ Th→ Fr→Sa→Su

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	Press ENTER or NEXT	Confirm the setting. After confirmation, display will stop blinking and will return to normal mode within 10 sec.

Notes

- Before the setting is confirmed, you can press CANCEL in any step, if you do not want to use new set value.
- After the setting is confirmed, you can press NEXT to move to next program setting (P1-on, P1-off, P2-on, P2-off, etc.)
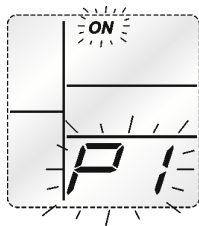
P1 On Setting	**Actions**	**Remarks**
	a) Press PROG and hold down for a few sec. then press Δ or ∇ to move to P1.	For P1 On Setting. Program P1 On is flashing.

(Hour Setting)

	b) Press NEXT c) Press Δ or ∇	Hour is flashing. To change Hour Setting.

(Minute Setting)
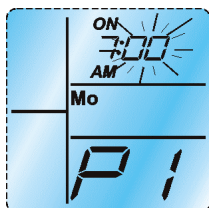
	d) Press NEXT e) Press Δ or ∇	Minute is flashing. To change Minute Setting.

(Day Setting)
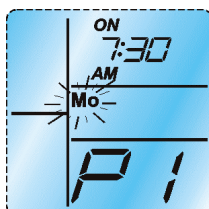
	f) Press NEXT Day is flashing g) Press Δ or ∇	Day is flashing. To change day setting with the following sequence. Mo…Tu…We…Th…Fr (5 working days) Sa…Su (weekend) Mo…Tu…We…Th…Fr…Sa (6 working days) Mo…Tu…We…Th…Fr…Sa…Su (7 days) Mo→Tu→We→Th→Fr→Sa→Su (individual day)
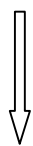
Notes

- The unit will be turned on at the new setting time.

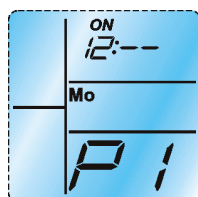| **P1 On Setting (cont.)**	**Action**	**Remarks**
(Temp. Setting in Cool Mode)		
	h) Press NEXT	Current Temperature setting in "COOL" mode is flashing.
	i) Press Δ or ∇	To change Temperature Setting.
(Temp. Setting in Heat Mode)		
	j) Press ENTER or NEXT	Preset or last setting temperature in " Heat " mode is flashing.
	K) Press Δ or ∇	To change Temperature Setting.
	l) Press ENTER Or NEXT	Confirm the setting.
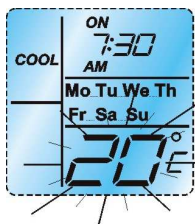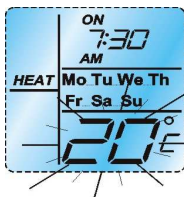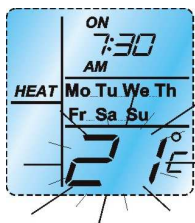
Notes

- Before the setting is confirmed, you can press CANCEL in any step if you do not want to use new value.

- After the setting is confirmed, you can press NEXT to move to next program setting.

- P1-off, P2-On, …….., P9-off can be set by repeating.

  - Step (a) to (l) for ON program.

  - Step (a) to (g) for OFF program.

Program Delete (To delete the particular program setting)
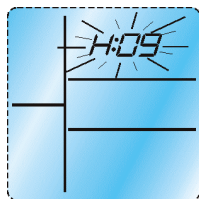
Any program (P1 – P9) can be cancelled by:

Press PROG + ∇ and hold for a few sec.during the hour unit of any Pn is blinking.
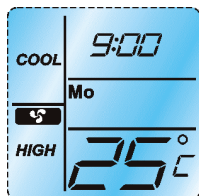

After program is deleted, the minute value will be "--" and hour unit will be "12".

When deleted, that particular program is not active.

Temporary Use (Count down Timer)

a) Press PROG + Δ and hold for a few sec.

b) Press Δ or ∇ For count down timer in unit of hour.

c) Press ENTER   To confirm setting and to turn the unit on at pre-setting off timer. The display will show the time remaining for turning off the system.

Notes

- The temporary timer off can be cancelled by:

    Press PROG + Δ to enter temporary use mode again and then press CANCEL to cancel the timer, the unit will return to operate as in the current program setting. The temporary timer off can also be cancelled by pressing POWER off button.

Program Override

a) Press PROG + CANCEL   Override LED will be lit

button at the same time.

Notes

- To cancel the override status, repeat step (a) again, and override LED will be off.

- While in override status, no timer on/off is activated.

Key Lock Function

a) PROG + Δ + NEXT   To lock the unit, the key symbol on LCD

and hold for a few sec.   displayed.

b) PROG + Δ + ∇ To unlock the unit, the key symbol on

and hold for a few sec.   LCD is disappeared.

°C/°F Toggle

a) Press PROG + ENTER   The temperature will be changed

button at the same time.   between $^{\circ}$C and $^{\circ}$F.

6.   WIRING DIAGRAM

WIRING DIAGRAM
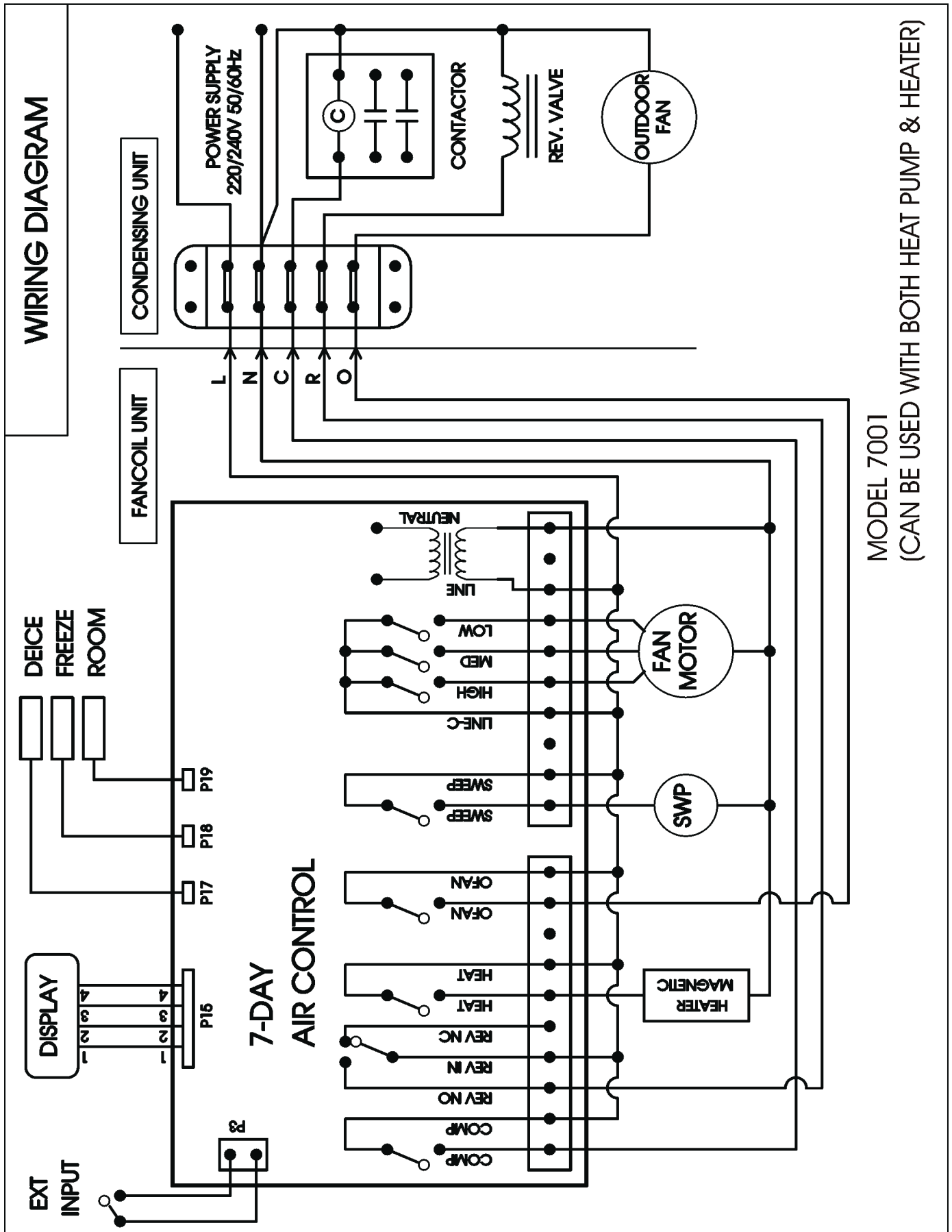
MODEL 7001
(CAN BE USED WITH BOTH HEAT PUMP & HEATER)

WIRING DIAGRAM
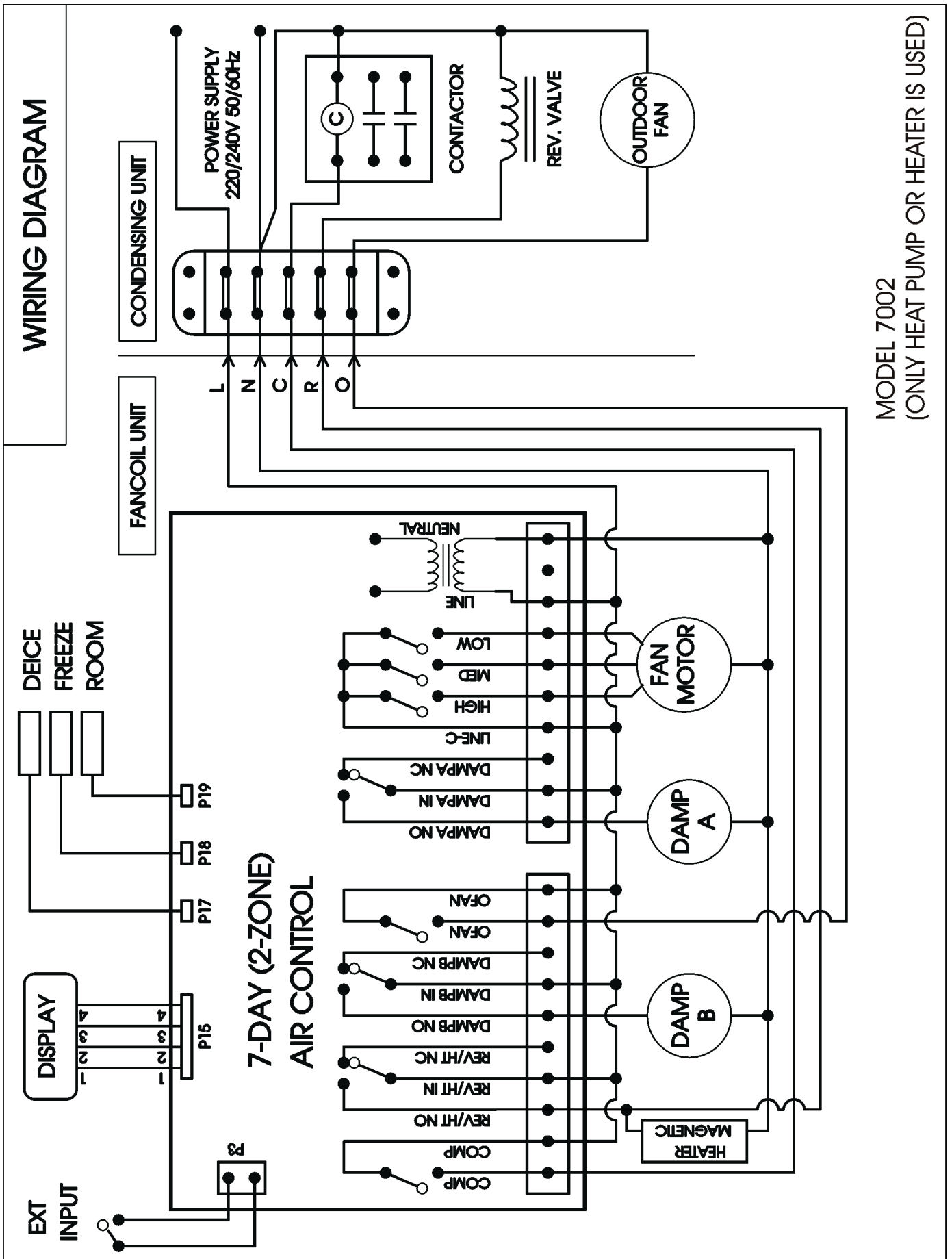
MODEL 7002
(ONLY HEAT PUMP OR HEATER IS USED)